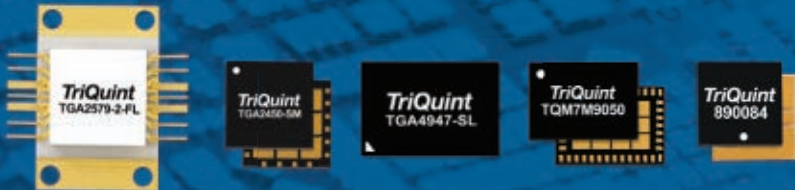


2013-14

Product Selection Guide

Choose TriQuint's Innovative RF Solutions



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Our guide lists over 700 standard products and highlights 130 new releases, showcased in our New Products section.

Products are organized both by key market applications and product types. Included is a growing defense & aerospace market section with updated product tables sorted by GaN, electronic warfare, radar, space and comms. We've also incorporated block diagrams identifying TriQuint product functionality with blue symbols and TriQuint integrated product functions in green blocks to indicate where TriQuint solutions exist.

We invite you to visit our website at triquint.com to obtain full product specifications. TriQuint's online resource section offers additional insights for simplifying RF connectivity through a growing collection of technical resources. While visiting our website, click on 'subscribe' to receive TriQuint's quarterly e-newsletter and new product announcements.

TriQuint now offers convenient online product purchasing. Visit the online store at <http://store.triquint.com> to see the latest products, samples and evaluation boards available across a variety of mobile device, infrastructure and defense applications. TriQuint products are also available through our worldwide sales, representative and distribution networks.

About TriQuint

TriQuint's innovative, high-performance solutions are Accelerating the Next Generation of RF.

Committed to innovation and speed, TriQuint designs, develops and manufactures advanced RF solutions. We reach further, with solutions that boost performance and extend range while reducing size, cost and bill of materials. We reach faster, utilizing our broad technology portfolio to simplify complex RF challenges and enable our customers a better time to market. **Customers count on TriQuint to solve their toughest RF challenges, today and tomorrow.**

TriQuint's advanced research and extensive government grants have bolstered our technology portfolio. In the last three decades we've pioneered and refined industry-leading power and filter processes, including gallium arsenide (GaAs), gallium nitride (GaN), surface acoustic wave (SAW), and bulk acoustic wave (BAW) technologies. TriQuint uniquely integrates many of the world's most advanced RF solutions to deliver solid customer value. These solutions can enable quicker design turns, streamlined manufacturing and lower overall system costs. TriQuint high-efficiency solutions can extend battery life in mobile devices and can reduce electrical consumption in networks, defense and aerospace systems.

Our product portfolio of power, control and acoustic filter technologies serves start-up firms as well as the world's



largest companies across commercial and defense manufacturers. Customers can access our award-winning RF solutions through standard products like those in this catalog and custom designs fabricated in our advanced foundries. TriQuint also offers in-house assembly services that can place die-level devices into single and multi-chip packages.

TriQuint was founded on RF innovation which continues today through our advanced technology programs that are setting new benchmarks in high-performance GaN solutions. Our acoustic filter technologies embrace the latest temperature compensation techniques and wafer level packaging. We are well positioned to serve the growing needs of wireless, fiber optic, telecom, CATV and defense / aerospace manufacturers around the world.

Key advantages of GaAs, GaN, SAW and BAW technologies:

- GaAs can operate efficiently at higher breakdown voltages compared to silicon-based semiconductor technologies while generating less noise in frequencies in excess of 250 MHz. GaAs offers high efficiency, linearity and good wideband performance.
- GaN offers greater power handling and density than GaAs across a wider frequency range. Intrinsic GaN technology advantages enable unprecedented performance, or at a given power level, a solution using fewer or smaller devices. GaN offers excellent efficiency, linearity and noise figures, plus greater wideband capability.
- SAW filter technology offers excellent performance and economy through 2.5 GHz. Our temperature-compensated SAW products expand this versatile technology's capabilities to meet more demanding performance requirements for new and emerging applications.
- BAW filters offer superior low-loss and strong ESD performance as well as greater resistance to temperature effects from 2.5 to 6 GHz and beyond. BAW is ideal for challenging applications such as co-existence filter requirements, defense and aerospace where precise performance is most valued.



Amplifiers

Description	Frequency Range (GHz)	P1dB (Psat) / OIP3 (dBm)	Gain (dB)	NF / PAE (dB) / (%)	Voltage / Current (V / mA)	Package Style	Part Number
CATV Gain Block	0.05 - 1	- / 39.5	16	2.7 / -	5 / 130	SOT89	TAT7461-X
CATV 12V Power Doubler MMIC	0.05 - 1	-	11	4 / -	12 / 570	SOIC16W	TAT8801A1H
CATV 12V Power Doubler	0.05 - 1.003	34 / 49	21	4.5 / -	12 / 650	5x7 QFN	TAT8804D1H
E-pHEMT LNA Gain Block	0.05 - 4	23 / 37	22	- / 0.55	5 / 115	2x2 DFN	TQP3M9035
30W HPA	6 - 12	(45) / -	30	- / 30	25 / 1100	Die	TGA2590
2.8W Wideband PA	6 - 18	(34.5) / -	24	- / 20	8 / 1200	GSG Flange	TGA2501-GSG
10W HPA	7.5 - 12	(41) / -	30	- / 25	12 / 3000	GSG Flange	TGA2517-GSG
7W HPA	9 - 11	(38.5) / -	22	- / 40	9 / 1050	7x7 QFN	TGA2704-SM
20W HPA	9.5 - 11	(43) / -	30	- / 30	25 / 720	Die	TGA2608
7W HPA	9.5 - 12	(38.5) / -	22	- / 36	9 / 1050	7x7 QFN	TGA2710-SM
4W Ku-Band HPA	13 - 15	(36) / -	25	- / 30	7 / 1300	Die	TGA2502
3.6W Ku-Band HPA	13 - 16	(35.6) / -	25	- / 27	7 / 1300	GSG Flange	TGA2502-GSG
5W HPA	13.5 - 16	(37) / -	25	- / 20	8 / 2600	GSG Flange	TGA2536-FL
2W HPA	17 - 20	33 (34.5) / 42	21	-	6 / 1430	5x5 QFN	TGA4534-SM
2W HPA	21 - 24	32 (34) / 41	22	-	6 / 1430	5x5 QFN	TGA4535-SM
3.5W HPA	30 - 38	(35) / -	18	- / 20	6 / 2100	Carrier	TGA2575-TS
37 - 40 GHz Power Amplifier	37 - 40	30 (32) / 38	26	- / 18	6 / 900	Die	TGA4542
40.5 - 43 GHz Power Amplifier	40.5 - 43.5	28.5 (30) / 38	23	- / 14	6 / 900	Die	TGA4543

Variable Gain Amplifiers

Description	Frequency Range (GHz)	P1dB / OIP3 (dBm)	Gain (dB)	Gain Range (dB)	Voltage / Current (V / mA)	Package Style	Part Number
Digital Variable Gain Amplifier	0.4 - 4	24 / 42.5	32	31.5	5 / 176	6x6 QFN	TQM879026
Digital Variable Gain Amplifier	0.4 - 4	27.3 / 45	33	31.5	5 / 230	6x6 QFN	TQM879028
Variable Gain Amplifier	0.5 - 2.7	16 / 29	38	30	5 / 95	5x5 QFN	TQM8M9079

Gain Block Amplifiers

Description	Frequency Range (GHz)	Psat (dBm)	Gain (dB)	Voltage / Current (V / mA)	Package Style	Part Number
Gain Block	2 - 12	20	30	5 / 200	8x8 QFN	TGA3500-SM

Low Noise Amplifiers

Description	Frequency Range (GHz)	P1dB / IIP3 (dBm)	Gain (dB)	NF (dB)	Voltage / Current (V / mA)	Package Style	Part Number
LNA, Balanced E-pHEMT FET	0.5 - 1.5	21.5 / 20.7	18	0.5	4.35 / 57	4x4 QFN	TQP3M9039
E-pHEMT LNA Gain Block / Bypass Mode	0.7 - 1	20 / 16	19	0.6	5 / 68	3x3 DFN	TQL9042**
LNA, Balanced E-pHEMT FET	1.5 - 2.3	21.8 / 21.8	18	0.54	4.35 / 57	4x4 QFN	TQP3M9040
E-pHEMT LNA Gain Block / Bypass Mode	1.7 - 2.3	20 / 17	19	0.6	5 / 68	3x3 DFN	TQL9043**
E-pHEMT LNA Gain Block / Bypass Mode	2 - 2.7	20 / 17	17.7	0.7	5 / 68	3x3 DFN	TQL9044**
LNA, Balanced E-pHEMT FET	2.3 - 4	22.5 / 20.2	18	0.75	4.35 / 57	4x4 QFN	TQP3M9041
S-Band LNA	2.5 - 4	18 / -	17	1.2	6 / 110	5x5 QFN	TGA2614-SM
S-Band LNA	2.7 - 3.8	- / 42.5	12.5	2	6 / 320	Die	TGA2613
S-Band LNA	2.7 - 3.8	18 / -	17	0.95	6 / 100	Die	TGA2614
4 - 20 GHz Limiter / LNA	4 - 20	18 / 28	17	2	5 / 100	7x7 QFN	TGM2543-SM

NOTES: ** = Coming Soon

Discrete Transistors

Description	Frequency Range (GHz)	P1dB (Psat) (dBm)	Gain (dB)	PAE (%)	Voltage / Current (V / mA)	Package Style	Part Number
35W HEMT	DC - 3.5	(45.6)	14	54	32 / 150	Ceramic Flat Lead	T2G4003532-FS
35W HEMT	DC - 3.5	(45.6)	14	54	32 / 150	Ceramic Flat Lead	T2G4003532-FL

Discrete Transistors (cont.)

Description	Frequency Range (GHz)	P1dB (Psat) (dBm)	Gain (dB)	PAE (%)	Voltage / Current (V / mA)	Package Style	Part Number
60W HEMT	DC - 3.5	(48.2)	14	51	32 / 200	Ceramic Flat Lead	T1G4006032-FS
60W HEMT	DC - 3.5	(48.2)	14	51	32 / 200	Ceramic Flat Lead	T1G4006032-FL
120W HEMT	DC - 3.5	(50.8)	14	52	32 / 575	Ceramic Flat Lead	T1G4012032-FS
120W HEMT	DC - 3.5	(50.8)	14	52	32 / 575	Ceramic Flat Lead	T1G4012032-FL
10W HEMT	DC - 6	(40.5)	15	52	32 / 50	5x5 QFN	T1G6001032-SM
30W HEMT	DC - 6	(44.7)	12	50	28 / 200	Ceramic Flat Lead	T2G6003028-FL
0.18mm Pwr pHEMT	DC - 20	22	14	55	8 / 29	Die	TGF2018
0.25mm Pwr pHEMT	DC - 20	24	14	60	8 / 41	Die	TGF2025
0.4mm Pwr pHEMT	DC - 20	26	13	55	8 / 65	Die	TGF2040
0.6mm Pwr pHEMT	DC - 20	28	12	55	8 / 97	Die	TGF2060
0.8mm Pwr pHEMT	DC - 20	30	11.5	60	8 / 130	Die	TGF2080
1.2mm Pwr pHEMT	DC - 20	32	11	60	8 / 194	Die	TGF2120
1.6mm Pwr pHEMT	DC - 20	33.2	10.4	60	8 / 258	Die	TGF2160

Frequency Converters & Mixers

Description	Frequency Range (GHz)	Gain (dB)	LO / RF Isolation (dB)	IIP3 (dBm)	Voltage / Current (V / mA)	Package Style	Part Number
Ku-Band Upconverter	10 - 16	17	25	15	5 / 300	5x5 QFN	TGC2510-SM
K-Band Upconverter	17 - 27	13	40	19	5 / 340	5x5 QFN	TGC4510-SM
K-Band Downconverter	17 - 27	15	40	3	3 / 230	5x5 QFN	TGC4610-SM

Voltage Controlled Oscillators

Description	Frequency Range (GHz)	P1dB (Psat) (dBm)	Gain (dB)	Voltage / Current (V / mA)	Package Style	Part Number
8.9 - 9.8 GHz VCO with Divide by 2	8.9 - 9.8	9	-112	5 / 170	5x5 QFN	TGV2561-SM
9.5 - 10.3 GHz VCO with Divide by 2	9.5 - 10.3	9	-111	5 / 170	5x5 QFN	TGV2562-SM
9.7 - 10.8 GHz VCO with Divide by 2	9.7 - 10.8	9	-111	5 / 170	5x5 QFN	TGV2563-SM
10.3 - 11.1 GHz VCO with Divide by 2	10.3 - 11.1	9	-111	5 / 170	5x5 QFN	TGV2564-SM
10.7 - 11.5 GHz VCO with Divide by 2	10.7 - 11.5	9	-111	5 / 180	5x5 QFN	TGV2539-SM
11.3 - 12.3 GHz VCO with Divide by 2	11.3 - 12.3	10	-110	5 / 180	5x5 QFN	TGV2565-SM
12.5 - 13.5 GHz VCO with Divide by 2	12.5 - 13.5	7	-110	5 / 165	5x5 QFN	TGV2529-SM
12.6 - 13.8 GHz VCO with Divide by 2	12.6 - 13.8	9	-110	5 / 170	5x5 QFN	TGV2584-SM
13.4 - 14.4 GHz VCO with Divide by 2	13.4 - 14.4	9	-110	5 / 175	5x5 QFN	TGV2566-SM

Signal Conditioning

Description	Frequency Range (GHz)	Insertion Loss (dB)	Control Range dB or (Deg.)	Supply Voltage (V)	Package Style	Part Number
6-Bit Phase Shifter	6 - 18	>10	(354)	0 / -5	Die	TGP2105

SAW – Non-Dispersive Delay Lines

Description	Frequency (MHz)	Bandwidth (MHz)	Typical IL (dB)	I / O Configuration	Rejection {dB @ BW or Freq (MHz)}	Package Size (mm)	Part Number
NDL 1.5 µsec	1000	675	34	SE / SE	70 @ 1625	25.4x12.7	857162
NDL 1.5 µsec	1000	425	26.5	SE / SE	65 @ 1550	25.4x12.7	857163
NDL 1.5 µsec	1000	340	24	SE / SE	65 @ 1550	25.4x12.7	857164
NDL 1.75 µsec	1000	675	35	SE / SE	70 @ 1625	25.4x12.7	857165
NDL 2 µsec	1000	675	36.5	SE / SE	70 @ 1625	25.4x12.7	857166
NDL 2.5 µsec	1000	675	40	SE / SE	70 @ 1625	25.4x12.7	857167
NDL 2.75 µsec	1000	675	41	SE / SE	70 @ 1625	25.4x12.7	857168
NDL 3 µsec	1000	675	43	SE / SE	70 @ 1625	25.4x12.7	857169

SAW Filters

Description	Frequency (MHz)	Bandwidth (MHz)	Typical IL (dB)	I / O Configuration	Rejection {dB @ BW or Freq (MHz)}	Package Size (mm)	Part Number
IF Filter	70	2.4	10	SE / SE	45 @ 85	13.3x6.5	856980
IF Filter	70	4.9	25.5	SE / SE	45 @ 82	19x6.5	857174
IF Filter	70	5.7	24	SE / SE	40 @ 82	19x6.5	857175
IF Filter	140	1.5	25	SE / SE	45 @ 142	19x6.5	857177
IF Filter	140	28.5	21	SE / SE	40 @ 160	9x7	857176
IF Filter - Multi-Standard	184.32	25	7.8	BAL / BAL	25 @ 36	7x5.5	857124
IF Filter - Multi-Standard	192.5	65	17	BAL / BAL	35 @ 74	7x5.5	857071
IF Filter - Multi-Standard	242.5	25	9	BAL / BAL	32.2 @ 35	7x5.5	857072
IF Filter - Multi-Standard	397.5	66.7	16.6	BAL / BAL	35 @ 71.7	7x5.5	857073
IF Filter - Multi-Standard	447.5	25	14.1	BAL / BAL	35 @ 34.2	7x5.5	857074
B13 Notch Filter for SVLTE App.	782	15	0.6	SE / SE	24 @ 782	2.5x2	857061
RF Filter High Attenuation	810	5	5.5	SE / SE	50 @ 770	3x3	857191
BC0 Notch Filter for SVLTE App.	826	10	0.5	SE / SE	32 @ 826	2.5x2	857031
IFF RF Filter	1090	10	5.8	SE / SE	50 @ 1050	3.8x3.8	857179
GPS L5 Ultra Low Loss	1176.45	20	0.5	SE / SE	21 @ 1226	1.4x1.2	857143
GPS L5 High Attenuation Filter	1176.45	20	2	SE / SE	21 @ 1226	1.4x1.2	857144
GPS L2 Ultra Low Loss Filter	1227.6	20	0.5	SE / SE	21 @ 1177	1.4x1.2	857141
GPS L2 High Attenuation Filter	1227.6	20	2.1	SE / SE	21 @ 1177	1.4x1.2	857142
GPS RF Filter	1575.42	2	1.25	SE / SE	30 @ 1625	2.0x1.5	856584
GPS L1 Ultra Low Loss Filter	1575.42	20	0.6	SE / SE	21 @ 1625	1.4x1.2	857139
GPS L1 High Attenuation Filter	1575.42	20	2.6	SE / SE	21 @ 1625	1.4x1.2	857140
RF Filter - DPD Path	1960	160	3	SE / SE	29 @ 380	3x3	857145

BAW Filters

Description	Frequency (MHz)	Bandwidth (MHz)	Typical IL (dB)	I / O Configuration	Rejection {dB @ BW or Freq (MHz)}	Package Size (mm)	Part Number
B25 Diversity Rx Filter	1962.5	65	2.5	SE / SE	–	2.0x1.6	885051
B40 Tx / Rx Filter	2350	100	1.3	SE / SE	45 @ 2427	1.4x1.2	885049
LTE / Wi-Fi Coexist Filter	2442	79	1.7	SE / SE	55 @ 2370	1.4x1.2	885033
LTE / Wi-Fi Coexist Filter	2442	79	1.7	SE / SE	59 @ 2570	1.4x1.2	885032
LTE B38 Tx / Rx Filter	2595	50	1.4	SE / SE	39 @ 2500	1.4x1.2	885026

SAW and BAW – Duplexers, Diplexers, Diplexed Duplexers and Dual Filter Modules

Description	Frequency (MHz)	Bandwidth (MHz)	Typical IL (dB)	I / O Configuration	Package Size (mm)	Part Number
Duplexer, High Attenuation, SAW	1176.45 / 1575.42	20.46	3.5	SE / SE	5x5	890086
Duplexer, Low Loss, SAW	1176.45 / 1575.42	20.46	0.9	SE / SE	5x5	890087
Duplexer, High Attenuation, SAW	1227.6 / 1575.42	20.46	3.5	SE / SE	5x5	890084
Duplexer, Low Loss, SAW	1227.6 / 1575.42	20.46	0.9	SE / SE	5x5	890085
Duplexer Bank – Diplexed Duplexer for BC1 / BC0, BAW / SAW	1880 / 1960 832 / 877	60 / 60 34 / 34	–	SE / SE	2.8x4.7	TQQ0101
Duplexer, B24 / BC14, BAW	1882.5 / 1962.5	65	2.8	SE / SE	3x3	TQM963001
Duplexer B25, BAW	1882.5 / 1962.5	–	–	SE / SE	2.0x1.6	TQM969002
Duplexer Bank – Diplexed Duplexer for B25 / 26, BAW / TC-SAW	1882.5 / 1962.5 831.5 / 876.5	65/65 35 / 35	1.5/1.8 1.8 / 2	SE / BAL	2.8x4.7	TQQ2526
Diplexed Tx Filters for B38 / 40, BAW	2335 / 2595	70 / 40	2.5 / 2.5	SE / SE	2.0x1.5	885030
Dual Filter - B38 / 40 Rx Filters, BAW	2350 / 2595	100 / 50	3 / 1.9	SE / SE	1.7x1.3	885035

Integrated Products

Description	Features	Bands	Size (mm)	Part Number
GSM / GPRS Tx Module; PA / LPF / SP6T WGPRES Switch w/Dual-Band WCDMA Antenna Ports	Integrated QB GSM / GPRS & 2 WCDMA Antenna Switch Ports, Low Rx Insertion Loss	GSM850, GSM900, DCS, PCS & 2 WCDMA / LTE Bands	5.0x6.0x1.0	TQF9088

Integrated Products (cont.)

Description	Features	Bands	Size (mm)	Part Number
GSM / GPRS Tx Module; PA / LPF / SP8T WGPRS Switch with up to 4 WCDMA Antenna Switch Ports	Integrated QB GSM / GPRS & 4 WCDMA Antenna Switch Ports, Low Rx Insertion Loss	GSM850, GSM900, DCS, PCS & 4 WCDMA / LTE Bands	5.0x6.0x1.0	TQF9089
GSM / GPRS / EDGE / TD-SCDMA / TDD-LTE Tx Module; PA / LPF / SP8T Swith w/ up to 4 WCDMA Antenna Switch Ports	Integrated QB GSM / GPRS / EDGE / TD-SCDMA & 8 Antenna Switch Ports, Low Rx Insertion Loss	GSM850, GSM900, DCS, PCS, TD-SCDMA (Bands 34 & 39) + 4 WCDMA / LTE / TD-SCDMA / TDD-LTE Bands	5.0x6.0x0.8	TQM6M9098
Multi-Mode Multi-Band PA Module w/ Quad-Band GMSK / EDGE and Penta-Band WCDMA / HSUPA / LTE PA Modules	1-Bit (Hi / Low Power Modes)	GSM850 / 900, DCS / PCS & WCDMA & LTE B1, B2, B3 / 4, 5 & 8	5.0x7.0x1	TQM7M9050
Multi-Mode Multi-Band PA Module w/ Quad-Band GMSK / EDGE and Penta-Band WCDMA / HSUPA / LTE PA Modules	1-Bit (Hi / Low Power Modes)	GSM850 / 900, DCS / PCS & WCDMA & LTE B1, B2, B3 / 4, 5 & 8	5.0x7.0x1	TQP9058
Dual-Band WCDMA / HSUPA PA Module, w/Coupler	1-Bit (High / Low Power Modes) Separate LB / HB RF Inputs	Bands 1 & 8	4.0x3.0x0.9	TQM7M6158
Dual-Broadband WCDMA / HSUPA / EV-DO PA Module, w/Coupler	1-Bit (High / Low Power Modes) Separate LB / HB RF Inputs	Bands 1, 2 & 5 & 8 (25 & 26) BC0, BC1 (BC10)	4.0x3.0x0.9	TQM7M6125
Dual-Band WCDMA / HSUPA PA Module, w/Coupler	1-Bit (High / Low Power Modes) Single LB / HB RF Input	Bands 1 & 8	4.0x3.0x0.9	TQM7M6018
Dual-Band WCDMA / HSUPA / EV-DO PA Module, w/Coupler	1-Bit (High / Low Power Modes) Single LB / HB RF Input	Bands 2 & 5 (25 & 26) BC0, BC1 (BC10)	4.0x3.0x0.9	TQM7M6025
Dual-Broadband WCDMA / HSUPA / EV-DO PA Module, w/Coupler	1-Bit (High / Low Power Modes) Separate LB / HB RF Inputs	Bands 1, 2 & 5 & 8 (25 & 26) BC0, BC1 (BC10)	4.2x3.0x0.9	TQP6109
ASM SP10T 8 Linear GPIO	GPIO Controlled w/8 Linear Ports	3G / 4G / LTE	2.5x3.2x0.8	TQC9010
ASM SP12T 10 Linear GPIO	GPIO Controlled w/10 Linear Ports	3G / 4G / LTE	2.5x3.2x0.8	TQC9112
ASM SP12T 10 Linear MIPI	MIPI Controlled w/10 Linear Ports	3G / 4G / LTE	2.5x3.2x0.8	TQC9012
2.4 GHz WLAN PA + Low Noise Amplifier + SP3T Switch MMIC for Bluetooth® Path	ETSLP-16 Package, Coupler / Detector	802.11 b / g / n	2.5x2.5x0.4	TQF9046
5 GHz WLAN PA + Low Noise Amplifier + SP2T Switch MMIC	ETSLP-16 Package	802.11 a / n / ac	2.5x2.5x0.4	TQF7062
5 GHz WLAN PA + Low Noise Amplifier + SP2T Switch MMIC	ETSLP-16 Package, Detector / Coupler	802.11 a / n / ac	2.5x2.5x0.4	TQP887051
5 GHz WLAN PA + SP2T Switch MMIC	ETSLP-16 Package	802.11 a / n / ac	2.5x2.5x0.4	TQP887052

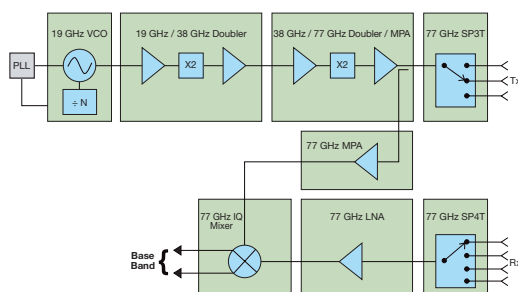
Optical Drivers

Description	Frequency Range (GHz)	Power (Vpp or dBm)	Gain (dB)	Voltage / Current (V / mA)	Package Style	Part Number
100 Gb/s Linear Dual Driver w/ Bias-T's inside	DC - 27	3-8Vpp	35	5 - 7 / 650	16x10.5x3.6 SL	TGA4894-SL**
200 Gb/s 16 QAM Linear Dual Driver w/Bias-T's Inside	DC - 27	3-5Vpp	24	5 - 7 / 500	12x10.5x3.6 SL	TGA4892-SL**
28 Gb/s 6V pp Diff In / Out Driver MMIC	DC - 28	4-8Vpp Diff	22 Diff	4 - 5 / 450	6x6 QFN	TGA4957-SM

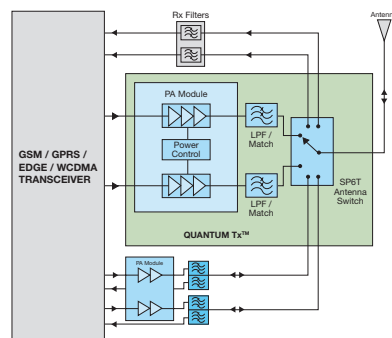
NOTES: ** = Coming Soon

Transimpedance Amplifiers (TIAs)

Description	Bandwidth (GHz)	Small Signal Gain (dB)	Differential Transimpedance Gain (ohm)	Differential Output Vpp (mV)	Equivalent Input Noise (pA / rtHz)	Voltage (V)	Current (mA)	Part Number
13 Gb/s Linear TIA with AGC	11	-	250 - 4800	200 - 900	24	3.3	175	TGA4861
32 Gb/s Linear TIA with AGC	28	-	250 - 4800	200 - 900	24	3.3	175	TGA4864
44.6 Gb/s Limiting TIA	36	-	2800	650	15	3.3	75	TGA4866
43 Gb/s Limiting TIA	30	40	4500	600	30	-5.2	85	TIA56
43 Gb/s Limiting TIA with PLD	27	36	3200	600	30	-5.2	85	TIA56A



Example of a 77 GHz Radar Front-End



**Cellular & GPS Transceiver
for Auto Telematics**

Amplifiers & Low Noise Amplifiers

Description	Frequency Range (GHz)	Psat (dBm)	Gain (dB)	NF (dB)	Voltage / Current (V / mA)	Package Style	Part Number
77 GHz LNA	72 - 80	5	20	5	3.5 / 54	Die	TGA4705-FC
77 GHz MPA	76 - 80	14	12	—	3.5 / 75	Die	TGA4706-FC

Switches

Description	Frequency Range (GHz)	Insertion Loss	Isolation (dB)	P1dB (dBm)	Control Voltage (V)	Package Style	Part Number
SP3T	60 - 90	2.3	20	>-13	-5 / 1.35	Die	TGS4305-FC
SP4T	70 - 90	3	20	>-8	-5 / 1.35	Die	TGS4306-FC

Frequency Converters & Mixers

Description	Frequency Range (GHz)	Conversion Gain (dB)	LO / RF Isolation (dB)	Psat (dBm)	Voltage / Current (V / mA)	Package Style	Part Number
19 GHz VCO w/8:1 Prescaler	18.5 - 19.5	—	-105*	7.0	5 / 158	Die	TGV2204-FC
19 / 38 GHz Converter / MPA	36 - 40	9	—	14.5	3.5 / 65	Die	TGC4703-FC
77 GHz Down Converting I/Q Mixer	75 - 82	-13.5	22	—	1.1 / 7	Die	TGC4702-FC
38 / 77 GHz Converter / MPA	76 - 77	6	—	15.0	4 / 230	Die	TGC4704-FC

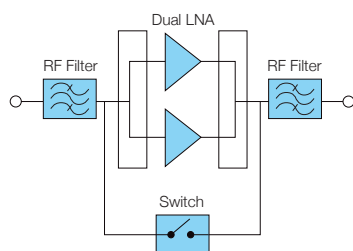
NOTES: * = Phase Noise (dBc / Hz @ 1 MHz Offset)

Integrated Products

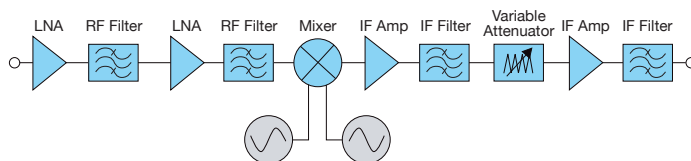
Description	Frequency Bands	Features	Package Size (mm)	Part Number
WCDMA / HSUPA PA-Duplexer Module; SE Input w/Coupler, Detector	Band 1	1-Bit (Hi / Low Power Modes)	7x4x1.1	TQM676021
WCDMA / HSUPA PA-Duplexer Module; SE Input w/Coupler, Detector	Band 2	1-Bit (Hi / Low Power Modes)	7x4x1.1	TQM666022
WCDMA / HSUPA PA-Duplexer Module; SE Input w/Coupler, Detector	Bands 5 and 6	1-Bit (Hi / Low Power Modes)	7x4x1.1	TQM616025
WCDMA / HSUPA PA-Duplexer Module; SE Input w/Coupler, Detector	Band 8	1-Bit (Hi / Low Power Modes)	7x4x1.1	TQM626028L
GSM / GPRS Tx Module: PA / LPF / SP6T WGRS Switch w/ Dual-Band WCDMA Antenna Ports	GSM900 / DCS or GSM850 / PCS & 2 WCDMA / LTE Bands	Integrated DB GSM / GPRS & 2 WCDMA Antenna Switch Ports	5x6x1	TQM6M9069
GSM / GPRS / EDGE-Linear Tx Module: PA / LPF / SP8T WEDGE Switch w/ Quad-Band WCDMA / LTE Ports	GSM900 / DCS or GSM850 / PCS & 4 WCDMA / LTE Bands	Integrated QB GSM / GPRS / EDGE PA & Antenna Switch	5.25x6x1	TQM6M9085
WCDMA / HSUPA PA-Duplexer Module; SE Input w/Coupler, Detector	Band 2	1-Bit (Hi / Med Power Modes)	4.5x3.5x1	TQM666052
Multi-Mode, Multi-Band Quad-Band GMSK / EDGE, Dual-Band WCDMA PA Module	GSM850 / 900, DCS / PCS & WCDMA B1 & B5 / 8	2-Bit (Hi / Med / Low Power Modes)	5x7x1	TQM7M9023
Multi-Mode, Multi-Band Quad-Band GMSK / EDGE, Dual-Band WCDMA PA Module	GSM850 / 900, DCS / PCS & WCDMA B1 & B5 / 8	1-Bit (Hi / Med / Low Power Modes)	5x7x1	TQM7M9053

Filters & Duplexers

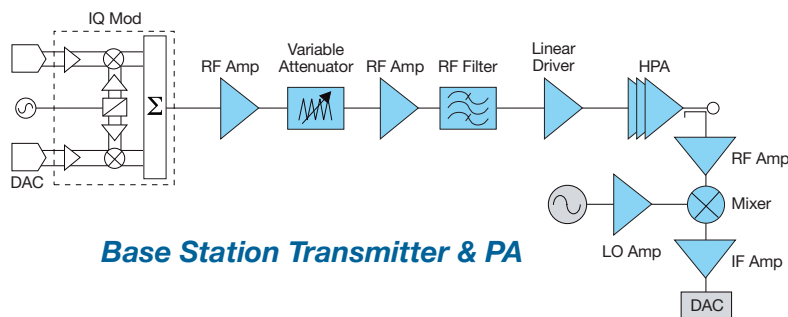
Description	Frequency (MHz)	Bandwidth (MHz)	Typical IL (dB)	I / O Configuration	Rejection {dB @ BW or Freq (MHz)}	Package Size (mm)	Part Number
RF Filter - Band 5 Uplink	836.5	25	2.3	SE / SE	50 @ 869	1.4x1.2	857038
Duplexer, Cell Band	836.5 / 881.5	25 / 25	1.9 / 1.9	SE / SE	-	3.8x3.8	856356
CDMA 2-in-1 Rx Filter	881.5 / 1960	25 / 60	1.6 / 2.2	SE / BAL	-	2x1.5	856565
GPS RF Filter	1575.42	2	1.25	SE / SE	30 @ 1624	2x1.5	856584
GPS RF Filter	1575.42	2	0.75	SE / SE	35 @ 1635	1.4x1.2	856561
GPS RF Filter	1575.42	2	1.1	SE / BAL	20 @ 1635	1.4x1.2	856576
GPS RF Filter	1575.42	2	0.6	SE / SE	21 @ Cell Bands	1.4x1.2	856793
GPS RF Filter, Auto	1575.42	2	1.8	SE / SE	45 @ 1637	3x3	856039
GPS RF Filter, Auto	1575.42	2	1.3	SE / SE	45 @ 1640	3x3	856139
GPS / SDARS Diplexer	1575.42 / 2332.5	3 / 25	0.6 / 0.08	SE / SE	GPS Port: 40 @ 2332 SDARS Port: 31 @ 1572	3x3	TQM2M9016
SDARS Filter	2332.5	45	1.7	SE / BAL	35 @ 2100	1.4x1.2	856604



Tower Mounted LNA



**Base Station Receiver
(Single Branch Shown)**



Base Station Transmitter & PA

General Purpose Amplifiers

Description	Frequency Range (MHz)	P1dB / OIP3 (dBm)	Gain (dB)	NF (dB)	Voltage / Current (V / mA)	Package Style	Part Number
General Purpose Gain Block	DC - 3000	18.5 / 33	16.5	3.8	6 / 75	SOT89	AG603
General Purpose Gain Block	DC - 3500	18.5 / 33	13.6	4.4	6 / 75	SOT89	AG602
General Purpose Gain Block	DC - 6000	5.8 / 18.5	11	4.4	5 / 20	SOT86 / SOT363	AG201
General Purpose Gain Block	DC - 6000	7.5 / 19.5	17.7	3.1	5 / 20	SOT86 / SOT363	AG203
General Purpose Gain Block	DC - 6000	12 / 25	14.3	3.2	5 / 35	SOT86 / SOT363	AG302
General Purpose Gain Block	DC - 6000	12.5 / 25	18.4	3	5 / 35	SOT86 / SOT363	AG303
General Purpose Gain Block	DC - 6000	16 / 28.5	14.5	3.7	6 / 60	SOT86 / SOT89	AG402
General Purpose Gain Block	DC - 6000	16 / 28	18.9	3	6 / 60	SOT86 / SOT89	AG403
General Purpose Gain Block	DC - 6000	14.5 / 27.5	19.1	2.9	6 / 45	SOT86 / SOT89	AG503
Single-Ended Darlington	DC - 6000	19 / 33	18.2	3.5	6 / 75	SOT86 / SOT89	AG604

General Purpose Amplifiers (cont.)

Description	Frequency Range (MHz)	P1dB / OIP3 (dBm)	Gain (dB)	NF (dB)	Voltage / Current (V / mA)	Package Style	Part Number
General Purpose Gain Block	DC - 6000	15.2 / 29.8	15.7	3.6	5 / 45	SOT89	TQP369180
General Purpose Gain Block	DC - 6000	15.2 / 30	15.6	3.6	5 / 45	SOT363	TQP369181
General Purpose Gain Block	DC - 6000	16.1 / 29.6	22.3	3.9	5 / 45	SOT89	TQP369182
General Purpose Gain Block	DC - 6000	16.2 / 29.8	22	3.9	5 / 45	SOT363	TQP369184
General Purpose Gain Block	DC - 6000	19.8 / 32.3	20.4	4.7	5 / 75	SOT89	TQP369185
+5V Active Bias IF Gain Block	50 - 1000	20.5 / 44	19.5	5	5 / 95	SOT89	WJA1500
+5V Active Bias IF Gain Block	50 - 1000	20 / 47	14.4	5.4	5 / 95	SOT89	WJA1510
E-pHEMT LNA Gain Block	50 - 4000	20 / 37.5	21.5	1.1	5 / 85	SOT89	TQP3M9008
E-pHEMT LNA Gain Block	50 - 4000	21.4 / 37.5	22	1.1	5 / 85	3x3 QFN	TQP3M9018
E-pHEMT LNA Gain Block	50 - 4000	22 / 40.5	24.7	0.9	5 / 125	SOT89	TQP3M9009
E-pHEMT LNA Gain Block	50 - 4000	22 / 40.5	24.7	0.9	5 / 125	3x3 QFN	TQP3M9019
E-pHEMT LNA Gain Block	50 - 4000	21.5 / 40	15	2	5 / 85	SOT89	TQP3M9028
E-pHEMT LNA Gain Block	50 - 4000	21.5 / 40	15	2	5 / 85	3x3 QFN	TQP3M9038
E-pHEMT LNA Gain Block	50 - 4000	23 / 37	22	0.55	5 / 115	2x2 DFN	TQP3M9035*
E-pHEMT LNA Gain Block	100 - 4000	22 / 34	19.4	0.8	5 / 55	3x3 QFN	TQP3M9005
E-pHEMT LNA Gain Block	100 - 4000	22.5 / 38.5	18.7	1	5 / 90	3x3 QFN	TQP3M9006
E-pHEMT LNA Gain Block	100 - 4000	23.5 / 41	18	1.3	5 / 135	SOT89	TQP3M9007

NOTES: * = New

High-Linearity Driver Amplifiers

Description	Frequency Range (MHz)	P1dB / OIP3 (dBm)	Gain (dB)	NF (dB)	Voltage / Current (V / mA)	Package Style	Part Number
29.5dBm HBT Amplifier	50 - 1500	30 / 47	19.4	6.3	5 / 220	SOT89	TQP7M9105
33.8dBm HBT Amplifier	50 - 1500	33 / 50	20.8	4.8	5 / 455	4x4 QFN	TQP7M9106
35.5dBm HBT Amplifier	400 - 2700	35.5 / 50	16	7	5 / 800	4x5 DFN	AH420
24.5dBm HBT Amplifier	400 - 4000	24.3 / 39.5	20.4	4	5 / 87	SOT89	TQP7M9101
27.5dBm HBT Amplifier	400 - 4000	27.5 / 44	21.9	4	5 / 137	SOT89	TQP7M9102
29.5dBm HBT Amplifier	400 - 4000	29.5 / 45.4	20.7	4.4	5 / 235	SOT89	TQP7M9103
33dBm HBT Amplifier	700 - 2700	33 / 50	27.5	7	5 / 680	5x5 QFN	AH323
39dBm HBT Amplifier	700 - 2900	39 / -	16.5	8	12 / 300	5x6 DFN	AP561
28dBm HBT Amplifier	700 - 3800	28 / 42	28.5	2.9	5 / 225	4x4 QFN	TQP8M9013
33.8dBm HBT Amplifier	700 - 4000	33.8 / 45	21	4.4	5 / 435	4x4 QFN	TQP7M9104
30dBm HBT Amplifier	1800 - 2700	30 / 46	24.6	5.5	5 / 400	SOIC-8	AH212-S8G

Variable Gain Amplifiers

Description	Frequency Range (MHz)	P1dB / OIP3 (dBm)	Gain (dB)	Gain Range (dB)	Voltage / Current (V / mA)	Package Style	Part Number
Digital Variable Gain Amplifier	50 - 4000	20.5 / 36.5	18	31.5	5 / 88	5x5 QFN	TQM8M9075
Digital Variable Gain Amplifier	50 - 4000	22 / 38.5	19.5	31.5	5 / 125	5x5 QFN	TQM8M9076
Digital Variable Gain Amplifier	50 - 4000	21.5 / 38.5	13	31.5	5 / 88	5x5 QFN	TQM8M9077
Digital Variable Gain Amplifier	400 - 4000	24 / 42.5	32	31.5	5 / 176	6x6 QFN	TQM879026*
Digital Variable Gain Amplifier	400 - 4000	27.3 / 45	33	31.5	5 / 230	6x6 QFN	TQM879028*
Variable Gain Amplifier	500 - 2700	16 / 29	38	30	5 / 95	5x5 QFN	TQM8M9079*
Digital Variable Gain Amplifier	600 - 1000	24.3 / 40	31.7	31.5	5 / 174	6x6 QFN	TQM829007
Variable Gain Amplifier	700 - 2800	27.5 / 43	29	30	5 / 240	5x5 QFN	TQM8M9074
Digital Variable Gain Amplifier	1400 - 2700	24.5 / 43	31.7	31.5	5 / 174	6x6 QFN	TQM879006A
Digital Variable Gain Amplifier	1500 - 2700	27.3 / 47.5	41	31.5	5 / 285	6x6 QFN	TQM829008

NOTES: * = New

Low Noise Amplifiers

Description	Frequency Range (MHz)	P1dB / IIP3 (dBm)	Gain (dB)	NF (dB)	Voltage / Current (V / mA)	Package Style	Part Number
E-pHEMT LNA Gain Block	50 - 4000	20 / 17.5	21.5	1.1	5 / 85	SOT89	TQP3M9008
E-pHEMT LNA Gain Block	50 - 4000	21.4 / 17.5	22	1.1	5 / 85	3x3 QFN	TQP3M9018
E-pHEMT LNA Gain Block	50 - 4000	21.8 / 15.8	24.7	0.9	5 / 125	SOT89	TQP3M9009
E-pHEMT LNA Gain Block	50 - 4000	21.8 / 15.8	24.7	0.9	5 / 125	3x3 QFN	TQP3M9019
E-pHEMT LNA Gain Block	100 - 4000	22.3 / 18.7	15.3	0.8	5 / 55	3x3 QFN	TQP3M9005
E-pHEMT LNA Gain Block	100 - 4000	22.4 / 25	13.5	1	5 / 90	3x3 QFN	TQP3M9006
E-pHEMT LNA Gain Block	100 - 4000	23.5 / 18.5	18	1.3	5 / 135	SOT89	TQP3M9007
E-pHEMT LNA Gain Block	400 - 2000	20 / 16	20	0.45	5 / 68	2x2 DFN	TQP3M9036
LNA, Balanced E-pHEMT FET	500 - 1500	21.5 / 20.7	18	0.5	4.35 / 57	4x4 QFN	TQP3M9039*
LNA, Balanced FET	700 - 915	20 / 13.5	20.5	0.55	4 / 70	4x4 QFN	TQP3M6004
LNA, Discrete FET	700 - 915	26 / 23.5	16	0.8	5 / 150	SOT89	TGF2021-04-SD
E-pHEMT LNA Gain Block / Bypass Mode	700 - 1000	20 / 16	19	0.6	5 / 68	3x3 DFN	TQL9042**
LNA, Balanced FET	800 - 3000	21 / 11	22	0.4	4 / 100	2x2 QFN	TGA2602-SM
E-pHEMT LNA Gain Block	1500 - 2700	20 / 15	20	0.4	5 / 70	2x2 QFN	TQP3M9037
LNA, Balanced E-pHEMT FET	1500 - 2300	21.8 / 21.8	18	0.54	4.35 / 57	4x4 QFN	TQP3M9040*
LNA, Balanced FET	1700 - 2000	21.6 / 14.4	18	0.55	3.5 / 50	4x4 QFN	TQP3M6005
E-pHEMT LNA Gain Block / Bypass Mode	1700 - 2300	20 / 17	19	0.6	5 / 68	3x3 DFN	TQL9043**
E-pHEMT LNA Gain Block / Bypass Mode	2000 - 2700	20 / 17	17.7	0.7	5 / 68	3x3 DFN	TQL9044**
LNA, Balanced E-pHEMT FET	2300 - 4000	22.5 / 20.2	18	0.75	4.35 / 57	4x4 QFN	TQP3M9041*

NOTES: * = New, ** = Coming Soon

Control Products

Description	Frequency Range (MHz)	Insertion Loss (dB)	Isolation / Atten Range (dB)	P1dB (dBm)	Control Voltage (V)	Package Style	Part Number
SP3T - Reflective	DC - 2000	0.6	22 / -	>34.5	2.6 / 0	2x2 QFN	TQP4M3019
6-Bit, Digital Attenuator, Parallel Ctrl	DC - 4000	1.3	- / 31.5	30	5 / 0	4x4 QFN	TQP4M9071
6-Bit, Digital Attenuator, Serial Ctrl	DC - 4000	1.3	- / 31.5	30	5 / 0	4x4 QFN	TQP4M9072
7-Bit, Digital Attenuator, Serial Ctrl	DC - 4000	1.3	- / 31.75	30	5 / 0	4x4 QFN	TQP4M9083
Through Line	DC - 6000	0.1	-	-	-	3x3 QFN	TQM4M9073
SPST - High Isolation, Absorptive	100 - 6000	0.4	48 / -	33	3 / 0	2x2 DFN	TQP4M0013
SPDT - High Isolation, Absorptive	100 - 6000	0.5	55 / -	30	3 / 0	4x4 QFN	TQP4M0010
SPDT - Reflective	100 - 6000	0.35	25 / -	33	3 / 0	2x2 DFN	TQP4M0008
SPDT - High Isolation, Reflective	100 - 6000	0.7	55 / -	30	3 / 0	MSOP8	TQP4M0009**
SP3T - Reflective	100 - 6000	0.65	30 / -	30	3 / 0	3x3 QFN	TQP4M0011
SP4T - Reflective	100 - 6000	0.65	50 / -	35	3 / 0	3x3 QFN	TQP4M0012**
SPDT - Reflective	1000 - 6000	0.6	28 / -	31.5	3 / 0	1.3x2 DFN	TQS5200
DPDT Switch	1000 - 6000	0.8	33 / -	33	3 / 0	3x3 QFN	TQS5202

NOTES: ** = Coming Soon

Frequency Converters & Mixers

Description	Frequency Range (MHz)	Conversion Gain (dB)	LO / RF Isolation (dB)	IIP3 (dBm)	Voltage Current (V / mA)	Package Style	Part Number
WB Mixer, LO	500 - 2500	-5.7	8	24	3 - 6 / 6	MW6	CMY210
WB Mixer, LO, IF, Low Current	500 - 2500	9.5	10	10	3 - 6 / 8	SCT598	CMY213
Dual Branch Converter, LO, IF, SW, EN	680 - 920	9	33	25.5	5 / 295	6x6 QFN	TQP519021
Mixer, LO	700 - 1500	-9	17	36	5 / 50	MSOP-8	ML483
Mixer, LO	1500 - 3200	-8.5	2	35	5 / 45	MSOP-8	ML485
Dual Branch Converter, LO, IF, SW, EN	1700 - 2200	9	36	25.5	5 / 295	6x6 QFN	TQP569022

NOTES: EN = Enable / Disable Mode Amplifier, IF = IF Amplifier, LO = LO Amplifier, SW = LO Switch

Discrete Transistors

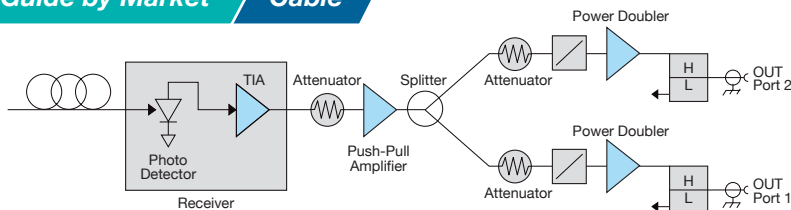
Description	Frequency Range (MHz)	P1dB / OIP3 (dBm)	Gain (dB)	NF (dB)	Voltage Current (V / mA)	Package Style	Part Number
0.5W HFET	DC - 6000	28 / 40	18	3.2	8 / 100	SOT89	TGF2960-SD
MESFET	50 - 2500	30 / 40	11	1.7	5 / 350	SOT223	CLY5
MESFET	50 - 3000	27 / 37	15.5	1.5	5 / 180	MW6	CLY2

RF Filters

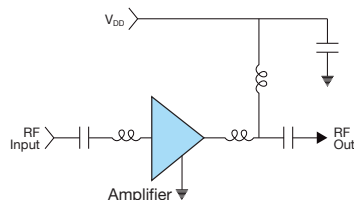
Description	Frequency (MHz)	Bandwidth (MHz)	Typical IL (dB)	I / O Configuration	Rejection {dB @ BW or Freq (MHz)}	Package Size (mm)	Part Number
RF SAW Filter - Band 12 Uplink	707	18	1.5	SE / SE	9 @ 728	3x3	856884
RF SAW - Band 12 Downlink	737	18	1.8	SE / SE	37 @ 708	3x3	856883
RF SAW Filter - Band 13 Downlink	751.5	11	1.5	SE / SE	40 @ 776	3x3	856794
BWA IF Filter	756	20	0.9	SE / SE	30 @ 716	3.8x3.8	856866
RF SAW Filter - Band 13 Uplink	781.5	11	1.5	SE / SE	38 @ 757	3x3	856764
RF SAW Filter - Band 13 Uplink	782	10	1.52	SE / SE	15 @ 765	3x3	856844
RF SAW Filter - Band 13 / 14 Uplink	787.5	22	2.75	SE / SE	40 @ 843	3x3	856977
RF SAW Filter - Band 5 Uplink	835	30	3	SE / SE	20 @ 869	3x3	857019
RF SAW Filter - Band 5 Uplink	836.5	25	2.7	SE / SE	28 @ 869	3x3	855729
RF SAW Filter - Band 5 Uplink	836.5	25	2.7	SE / SE	28 @ 869	3x3	856503
RF SAW Filter - Band 5 Uplink	836.5	25	1.9	SE / SE	35 @ 869	3x3	855821
RF SAW Filter - Band 5 Uplink	836.5	25	2	SE / SE	10 @ 869	3x3	856704
RF SAW Filter - Band 20 Uplink	847	30	1.3	SE / SE	10 @ 882	3x3	856932
EU ISM 875 Band RF Filter	875	13	2.4	SE / SE	55 @ 849	2x1.5	856963
RF SAW Filter - Band 5 Downlink	881.5	25	2.7	SE / SE	40 @ 849	3x3	856504
RF SAW Filter - Band 5 Downlink	881.5	25	2.7	SE / SE	40 @ 849	3x3	855728
RF SAW Filter - Band 5 Downlink	881.5	25	1.8	SE / SE	35 @ 849	3x3	855782
Cell Band Delay Filter, 450 ns	881.5	25	25	SE / BAL	–	7.x5.5	856716
RF SAW Filter - Band 8 Uplink	897.5	35	1.9	SE / SE	14 @ 930	3x3	856671
RF SAW Filter - Band 8 Uplink	897.5	35	1.5	SE / SE	15 @ 930	3x3	856657
RF SAW Filter - Band 8 Uplink	897.5	35	1.4	SE / SE	10 @ 984	3x3	856824
ISM 921.5 Band RF Filter	921.5	13	2.4	SE / SE	55 @ 825	2x1.5	856905
RF SAW Filter - Band 8 Downlink	942.5	35	2	SE / SE	5 @ 915	3x3	855820
RF SAW Filter - Band 8 Downlink	942.5	35	3.2	SE / SE	12 @ 915	3x3	855810
RF SAW Filter - Band 8 Downlink	942.5	35	2.5	SE / SE	25 @ 915	3x3	856528
RF SAW Filter - Band 11 Uplink	1445.4	35	1.25	SE / SE	20 @ 1495.9	3x3	856928
RF SAW Filter - Band 3 Uplink	1747.5	75	2	SE / SE	22 @ 1676	3x3	856654
RF SAW Filter - Band 3 Downlink	1842.5	75	1.9	SE / SE	10 @ 1785	3x3	855860
RF SAW Filter - Band 3 Downlink	1842.5	75	4.2	SE / SE	20 @ 1785	3x3	856934
RF SAW Filter - Band 2 Uplink	1880	60	2.4	SE / SE	7 @ 1930	3x3	855849
RF SAW Filter - Band 2 Uplink	1880	60	2.8	SE / SE	30 @ 1930	3x3	856530
RF SAW Filter - Band 2 Uplink	1880	60	2.2	SE / SE	15 @ 1806	3x3	856705
RF SAW Filter - Band 2 Uplink	1880	60	2.3	SE / SE	10 @ 1790	3x3	856880
RF BAW Filter - Band 2 Uplink	1880	60	3.5	SE / SE	30 @ 1920	3x3	885025
RF SAW Filter - Band 25 Uplink	1882.5	65	1.9	SE / SE	32 @ 2030	3x3	856992
RF Duplexer - B24 / BC14 Duplexer	1882.5 / 1962.5	65	2.8	SE / SE	20 @ 1922.5	3x3	TQM963001*
RF SAW Filter - Band 1 Uplink	1950	60	2.2	SE / SE	40 @ 2110	3x3	856532
RF SAW Filter - Band 1 Uplink	1950	60	1.8	SE / SE	20 @ 2100	3x3	856678
RF SAW Filter - Band 2 Downlink	1960	60	2.1	SE / SE	10.3 @ 1910	3x3	855817
RF SAW Filter - Band 2 Downlink	1960	60	2.25	SE / SE	14 @ 1910	3x3	856531
RF SAW Filter - Band 2 Downlink	1960	60	2.9	SE / SE	15 @ 1910	3x3	855859
Delay Filter, PCS 450 ns	1960	60	25	SE / BAL	–	7x5.5	856717
RF BAW Filter - Band 2 Downlink	1960	60	3.7	SE / SE	34 @ 1920	3x3	885024
Delay Filter, UMTS 450 ns	2140	60	25	SE / BAL	–	7x5.5	856649
RF SAW Filter - Band 1 Downlink	2140	60	2.3	SE / SE	25 @ 1980	3x3	856738
RF BAW Filter - Band 7 Uplink	2535	70	1.3	SE / SE	41 @ 2620	3x3	885009

NOTES: * = New

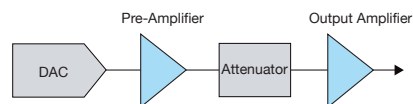
TriQuint offers a wide variety of [base station IF filters](#). To view a selection of the most common filters, please go to the SAW filter section on pages 45 - 50.



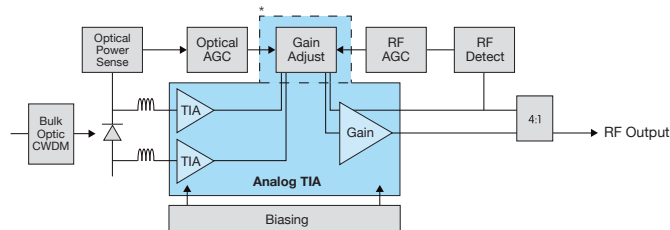
CATV Infrastructure



Subscriber Home Amplifiers



Edge QAM DOCSIS® 3.0



* TAT6281 includes additional gain adjust function.

FTTH / RFoG

Amplifiers

Description	Application	Frequency Range (MHz)	P1dB / OIP3 (dBm)	Gain (dB)	NF (dB)	Voltage / Current (V / mA)	Package Style	Part Number
CATV Gain Block, Flex Gain	Home Amplifier	DC - 2000	21 / 38	16 - 21	2	5 - 8 / 100	SOT89	TAT7457
CATV Gain Block	Home Amplifier	50 - 1000	- / 39	16	2.7	6 / 130	SOT89	TAT7461
CATV Gain Block	General Purpose	50 - 1000	- / 39.5	16	2.7	5 / 130	SOT89	TAT7461-X*
CATV Gain Block, High Gain	Home Amplifier, MOCA	50 - 1000	- / 39	18	2	6 / 145	SOT89	TAT7427
CATV Gain Block, High Gain	Home Amplifier, MOCA, Multitap	50 - 1000	- / 41	22.5	2	8 / 190	SOT89	TAT7430B
Single-Ended Darlington	General Purpose	DC - 2700	19 / 33	18	3.5	>6 / 75	SOT86 / SOT89	AG604
MESFET Amplifier	General Purpose	50 - 1000	20 / 40	14.8	3.5	5 / 150	SOT89	AH2
MESFET Amplifier	General Purpose	50 - 1500	30 / 50	10.4	5.3	9 / 400	SOT89	AH101
Dual HBT Amplifier	Return Path Amplifier, GP	DC - 1000	20 / 37	13.5	4.5	>7 / 165	SOIC-8	AG606
Return Path Variable Gain Amplifier	Return Path Amplifier	5 - 300	25 / 41	36	5	5 - 8 / 325	6x6 QFN	TAT3814
Fiber to the Home TIA + Output Amp	Fiber to the Home, High Output	50 - 1000	-	33	3.9 pA / rHz EIN	5, 12 / 200, 130	4x4 QFN	TAT6254C
Fiber to the Home TIA + Output Amp	Fiber to the Home, RFoG	50 - 1000	-	32	3.9 pA / rHz EIN	5, 12 / 200, 130	4x4 QFN	TAT6254D
Fiber to the Home TIA + Output Amp	Fiber to the Home, RFoG, Low Input	50 - 1000	-	38	2.9 pA / rHz EIN	5, 12 / 200, 120	4x4 QFN	TAT6254B
Fiber to the Home Integrated TIA + Attenuator + Amp	Fiber to the Home	50 - 1000	-	33	3.8 pA / rHz EIN	5 / 290	6x6 QFN	TAT6281
CATV Gain Block, Wideband	CATV + SAT Wideband Amp / VONU	50 - 2600	- / 36	16.5	2.5	5 / 100	SOT89	TAT7460
Dual pHEMT Amplifier, Wideband	CATV + SAT Wideband Amp / VONU	50 - 2600	-	13	4.4	5 / 160	SOIC-8	TAT7464
On-Chip Linearized Amplifier	DOCSIS 3.0 Output	40 - 1000	- / 43	17	4.7	5 / 380	SOIC-8	TAT7467H
CATV Gain Block	DOCSIS 3.0 Output	40 - 1000	27 / 42	20	1.5	8 / 350	4x4 QFN	TGA2803-SM
CATV Gain Block	DOCSIS 3.0 Output	40 - 1000	27 / 46	20	1.5	8 / 350	5x5 QFN	TGA2806-SM
CATV Gain Block	DOCSIS 3.0 Output	40 - 1000	28 / 43	18.5	2.5	6 / 318	5x5 QFN	TGA2807-SM
DOCSIS 3.0 Edge QAM Variable Gain Amplifier	DOCSIS 3.0 Output	45 - 1003	28 / -	30	2.7	5 - 8 / 705 - 770	7x7 QFN	TAT2814A
CATV 12V Power Doubler MMIC	DOCSIS 3.0 Output / Infrastructure	50 - 1000	-	11	4	12 / 550	SOIC16W	TAT2801
Dual pHEMT Amplifier, High Gain	Infrastructure GP	50 - 1000	- / 38	17.5	3.2	5 / 235	SOIC-8	TAT7469
Dual pHEMT Amplifier	Infrastructure GP	50 - 1000	- / 41	13	4	6 / 190	SOIC-8	TAT7466
Dual MESFET Amplifier	Infrastructure GP	50 - 1000	25.5 / 43	11	4.5	5 / 320	SOIC-8	AH22S
CATV 12V Power Doubler MMIC	Infrastructure	50 - 1000	-	11	4	12 / 570	SOIC16W	TAT8801A1H*
CATV 12V Power Doubler	Infrastructure	50 - 1003	34 / 49	21	4.5	12 / 650	5x7 QFN	TAT8804D1H*
CATV Push Pull Infrastructure Amplifier MMIC	Infrastructure	50 - 1000	28 - 34	28-34	3	24 / 270 (12V Optional)	SOIC16W	TAT8858
CATV Power Doubler Line Amplifier MMIC	Infrastructure	50 - 1000	22 / 27	22-27	4	24 / 350 (12V Optional)	SOIC16W	TAT8857

NOTES: * = New, GP = General Purpose

Filters

Description	Frequency (MHz)	Bandwidth (MHz)	Typical IL (dB)	I / O Configuration	Rejection {dB @ BW or Freq (MHz)}	Package Size (mm)	Part Number
Cable IF Filter	36.15	8	19.7	SE / SE	38 @ 10.23	DIP	855748
Cable IF Filter	44	6	20.4	SE / SE	38 @ 7.6	DIP	855079
Cable IF Filter	202.75	1.2	6.6	SE / SE	40 @ 10	13.3x6.5	855068
Cable IF Filter	499.25	1	7	SE / SE	35 @ 6	9x7	855104
Tuner IF Filter	1086	10	4	BAL / BAL	40 @ 1046	3x3	855964
Tuner IF Filter	1086	10	4	BAL / BAL	40 @ 1046	3x3	856330
Tuner IF Filter	1090	10	5	BAL / BAL	50 @ 1050	3.8x3.8	856096
Tuner IF Filter	1216	8	3.75	BAL / BAL	12 @ 24	3x3	856365
Tuner IF Filter	1220	10	4.5	BAL / BAL	30 @ 60	3x3	856298
Tuner IF Filter	1220	50	3.9	BAL / BAL	33 @ 96	3.8x3.8	856598
Tuner IF Filter	1250	96	6	BAL / BAL	44 @ 1152	3x3	856653

Protector

Description	Application	Leakage Current (nanoAmps)	Trigger Voltage (V)	Series Capacitance (pF)	Package Area (mm ²)	Package Style	Part Number
CATV Protector	ESD & Secondary Protection	20 @ 1V, 500 @ 15V	18, 25, 41	0.29, 0.29, 0.22	1.8	T / SLP-3	TQP200002

Guide by Market / Defense & Aerospace

Many listings in this product guide support both commercial and defense applications. The tables in this section are a partial listing of devices suitable for specific defense / aerospace applications. We have included product solutions based on RF GaN technology as a separate listing at the outset of this section. Although located here for easy reference, GaN products have wide-ranging applications across many commercial markets. Products listed throughout this guide may be specially screened to meet unique customer requirements including 100% electrical screening and visual inspection to either MILSTD-883 Class B or Class S. Please contact TriQuint with your requirements: info-defense@triqint.com.

Guide by Market / Defense & Aerospace / GaN

Transistors

Description	Frequency Range (GHz)	Psat (dBm)	Gain (dB)	PAE (%)	Bias (V / mA)	Package Style	ECCN	Part Number
35W HEMT	DC - 3.5	45.6	14	54	32 / 150	Ceramic Flat Lead	EAR99	<i>T2G4003532-FS*</i>
35W HEMT	DC - 3.5	45.6	14	54	32 / 150	Ceramic Flat Lead	EAR99	<i>T2G4003532-FL*</i>
55W HEMT	DC - 3.5	47.2	12	50	28 / 200	Ceramic Flat Lead	EAR99	T2G4005528-FS
60W HEMT	DC - 3.5	48.2	14	51	32 / 200	Ceramic Flat Lead	EAR99	<i>T1G4006032-FS*</i>
60W HEMT	DC - 3.5	48.2	14	51	32 / 200	Ceramic Flat Lead	EAR99	<i>T1G4006032-FL*</i>
120W HEMT	DC - 3.5	50.8	14	52	32 / 575	Ceramic Flat Lead	EAR99	<i>T1G4012032-FS*</i>
120W HEMT	DC - 3.5	50.8	14	52	32 / 575	Ceramic Flat Lead	EAR99	<i>T1G4012032-FL*</i>
7W HEMT	DC - 6	39.5	12.5	50	28 / 50	Ceramic Flat Lead	EAR99	T2G6000528-Q3
10W HEMT	DC - 6	40.5	15	52	32 / 50	5x5 QFN	EAR99	<i>T1G6001032-SM*</i>
18W HEMT	DC - 6	42.5	12	50	28 / 50	Ceramic Flat Lead	EAR99	T2G6001528-Q3
30W HEMT	DC - 6	44.7	12	50	28 / 200	Ceramic Flat Lead	EAR99	<i>T2G6003028-FL*</i>
30W HEMT	DC - 6	44.7	12	50	28 / 200	Ceramic Flat Lead	EAR99	T2G6003028-FS
1.25mm HEMT	DC - 18	37.4	10.4	52	28 / 125	Die	EAR99	TGF2023-2-01
2.5mm HEMT	DC - 18	40.2	9.9	50	28 / 250	Die	EAR99	TGF2023-2-02
5mm HEMT	DC - 18	43	9.4	49	28 / 500	Die	3A001b.3b	TGF2023-2-05
10mm HEMT	DC - 18	45.8	8.9	47	28 / 1000	Die	3A001b.3b	TGF2023-2-10
20mm HEMT	DC - 18	48.6	8.4	46	28 / 2000	Die	3A001b.3b	TGF2023-2-20

NOTES: * = New

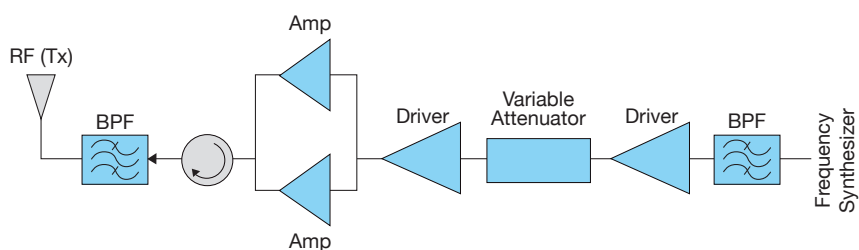
Amplifiers

Description	Frequency Range (GHz)	Psat (dBm)	Gain (dB)	PAE (%)	Bias (V / mA)	Package Style	ECCN	Part Number
10W HPA	0.03 - 3	39.5	19.5	40	30 / 360	Flange	ITAR	TGA2540-2-FL
10W HPA	2 - 18	40	9	25	30 / 500	Die	ITAR	TGA2573-2
10W HPA	2 - 18	40	9	25	30 / 500	Carrier	ITAR	TGA2573-2-TS
30W HPA	2.5 - 6	45	25	>30	30 / 1400	Flange	3A001.b.2.a	TGA2576-2-FL
30W HPA	6 - 12	45	30	30	25 / 1100	Die	TBD	TGA2590*
20W HPA	9.5 - 11	43	30	30	25 / 720	Die	TBD	TGA2608*
20W HPA	14 - 15.5	43	23	30	25 / 1000	Flange	ITAR	TGA2579-2-FL*
16W HPA	14 - 16	42	23	>30	30 / 2000	Die	ITAR	TGA2572-2*
16W HPA	14 - 16	42	23	>30	30 / 2000	Carrier	ITAR	TGA2572-2-TS*
16W HPA	14 - 16	42	23	>30	30 / 2000	Flange	ITAR	TGA2572-2-FL*

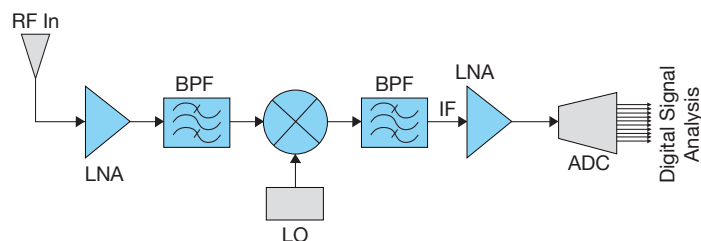
NOTES: * = New

Switches

Description	Frequency Range (GHz)	IL (dB)	ISO (dB)	P1dB (dBm)	Voltage (V)	Package Style	ECCN	Part Number
High Power SPDT Switch	DC - 6	0.8	-40	>45	0 / -40	Die	EAR99	TGS2351-2
High Power SPDT Switch	DC - 6	0.8	-40	>45	0 / -40	5x5 QFN	EAR99	TGS2351-2-SM
High Power SPDT Switch	DC - 12	<1	-35	>43	0 / -40	Die	EAR99	TGS2352-2
High Power SPDT Switch	DC - 18	1.5	-25	>40	0 / -40	Die	EAR99	TGS2353-2



Signal Jammer



Digital Receiver

Amplifiers

Description	Frequency Range (GHz)	P1dB (Psat) / OIP3 (dBm)	Gain (dB)	NF / PAE (dB) / (%)	Voltage / Current (V / mA)	Package Style	Part Number
Wideband Driver	DC - 35	18 / -	12	-	5 / 135	Die	TGA4832
Ultra-Wideband Driver	DC - 78	3.5Vpp	8	5 / -	6 / 82	Die	TGA4803
10W Wideband HPA	0.03 - 3	(39.5) / 43	19.5	- / 40	35 / 360	Flange	TGA2540-2-FL
Gain Block, Self Bias	2 - 10	17 / -	17	6 / -	5 / 90	Die	TGA8810-SCC
Gain Block	2 - 12	(20) / -	30	-	5 / 200	8x8 QFN	TGA3500-SM*
Wideband Gain Block	2 - 18	20 / -	7.5	5.5 / -	6 / 100	Die	TGA8300-SCC
10W Wideband HPA	2 - 18	(40) / -	9	- / 23	30 / 500	Die	TGA2573-2
10W Wideband GaN HPA	2 - 18	(40) / -	9	- / 23	30 / 500	Carrier	TGA2573-2-TS
Wideband PA, AGC	2 - 20	26 / -	8	-	8 / 440	Die	TGA8334-SCC
Wideband Gain Block, AGC	2 - 20	20 / -	7.5	7 / -	6 / 150	Die	TGA8622-SCC
Wideband PA, AGC	2 - 20	(29) / -	15	-	12 / 1100	Flange	TGA2509-FL
Wideband PA, AGC	2 - 22	28.5 (30) / 36	17	-	12 / 1100	Die	TGA2509
30W GaN HEMT	2.5 - 6	(45) / -	26	- / 35	30 / 1550	Flange	TGA2576-2-FL
30W HPA	6 - 12	(45) / -	30	- / 30	25 / 1100	Die	TGA2590*
2.8W Wideband PA	6 - 18	(34.5) / -	24	- / 20	7 - 9 / 800 - 1200	Die	TGA2501
2.8W Wideband PA on Carrier	6 - 18	(34.5) / -	24	- / 20	7 - 9 / 800 - 1200	Carrier	TGA2501-TS
2.8W Wideband PA	6 - 18	(34.5) / -	24	- / 20	8 / 1200	GSG Flange	TGA2501-GSG*
Wideband 0.5W PA	6 - 18	27 / -	11	8 / -	8 / 400	Die	TGA8014-SCC
Wideband Gain Block	6 - 18	12.5 / -	13	5 / -	5 / 80	Die	TGA8035-SCC
Wideband 2.8W PA	6 - 18	(34.5) / -	24	- / 20	8 / 1200	Die	TGA9092-SCC
8W HPA	6.5 - 11.5	37 (39) / -	19	- / 35	7 - 9 / 1200	Die	TGA9083-SCC
16W HPA	6.5 - 12.5	42 / -	27	- / 35	12 / 3000	Die	TGA2517
16W HPA on Carrier	6.5 - 12.5	42 / -	27	- / 35	12 / 3000	Carrier	TGA2517-TS
Driver Amp	7 - 13	(30) / 37	25	- / 30	9 / 450	Die	TGA2700
10W HPA	7.5 - 12	(41) / -	30	- / 25	12 / 3000	GSG Flange	TGA2517-GSG*
Wideband Driver Amp	8 - 18	13 / -	17	5 / -	4.5 / 50	Die	TGA8399C
HPA	10 - 12	33 (34.5) / 43	25	9 / -	6 / 1300	5x5 QFN	TGA2535-SM
Driver Amp, SB	11 - 17	17 / -	23	6 / -	6 / 75	4x4 QFN	TGA2507-SM
Driver Amp	12 - 16	26 (26.5) / 37	23	7 / -	5 / 300	3x3 QFN	TGA2524-SM
Driver Amp, SB	12 - 18	14 / -	17	-	6 / 40	Die	TGA2506
Driver Amp, SB	12 - 18	20 / -	28	6 / -	6 / 80	Die	TGA2507
Ku-Band 1W PA	12 - 19	30 / -	30	-	5 - 7 / 435	Die	TGA2508-SCC
Ku-Band PA	12 - 19	29 / -	25	-	5 - 7 / 435	4x4 QFN	TGA2508-SM
2W Ku-Band HPA	12.5 - 16	(32) / 37	32	-	6 - 7 / 680	4x4 QFN	TGA2503-SM
2W Ku-Band HPA	12.5 - 17	(34) / -	26	- / 25	7.5 / 650	Die	TGA2510
2W Ku-Band HPA on Carrier	12.5 - 17	(34) / -	26	- / 25	7.5 / 650	Carrier	TGA2510-TS
6.5W Ku-Band HPA	13 - 16	(38) / -	24	-	8 / 2600	11.4x17.3 FL	TGA2514-FL
6.5W Ku-Band HPA	13 - 18	(38) / 44	24	-	8 / 3600	Die	TGA2514
HPA, AGC, PD	17 - 24	(29) / 38	22	-	5 / 712	4x4 QFN	TGA2522-SM

NOTES: * = **New**, AGC = Automatic Gain Control, PD = Power Detector, SB = Self Biased

Discrete Transistors

Description	Frequency Range (GHz)	P1dB (Psat) (dBm)	Gain (dB)	NF / PAE (dB) / (%)	Voltage / Current (V / mA)	Package Style	Part Number
35W GaN HEMT	DC - 3.5	(45.6)	14	- / 54	32 / 150	Ceramic Flat Lead	T2G4003532-FS*
35W GaN HEMT	DC - 3.5	(45.6)	14	- / 54	33 / 150	Ceramic Flat Lead	T2G4003532-FL*
55W GaN HEMT	DC - 3.5	(47.2)	15	- / 50	28 / 200	Ceramic Flat Lead	T2G4005528-FS
60W GaN HEMT	DC - 3.5	(48.2)	14	- / 51	32 / 200	Ceramic Flat Lead	T1G4006032-FS*
60W GaN HEMT	DC - 3.5	(48.2)	14	- / 51	33 / 200	Ceramic Flat Lead	T1G4006032-FL*
120W GaN HEMT	DC - 3.5	(50.8)	14	- / 52	32 / 575	Ceramic Flat Lead	T1G4012032-FS*
120W GaN HEMT	DC - 3.5	(50.8)	14	- / 52	32 / 575	Ceramic Flat Lead	T1G4012032-FL*
4mm Pwr pHEMT	DC - 4	26.5	16	0.6 / -	5 / 150	SOT89	TGF2021-04-SD
24mm HFET	DC - 4	40	13	- / 51	8 / 2170	Die	TGF4124
7W GaN HEMT	DC - 6	(39.5)	15	- / 50	28 / 50	Ceramic Flat Lead	T2G6000528-Q3
10W GaN HEMT	DC - 6	(40.5)	15	- / 52	32 / 50	5x5 QFN	T1G6001032-SM*

Discrete Transistors (cont.)

Description	Frequency Range (GHz)	P1dB (Psat) (dBm)	Gain (dB)	NF / PAE (dB) / (%)	Voltage / Current (V / mA)	Package Style	Part Number
18W GaN HEMT	DC - 6	(42.5)	15	- / 50	28 / 50	Ceramic Flat Lead	T2G6001528-Q3
30W GaN HEMT	DC - 6	(44.8)	15	- / 50	28 / 200	Ceramic Flat Lead	T2G6003028-FS
30W GaN HEMT	DC - 6	(44.7)	12	- / 50	28 / 200	Ceramic Flat Lead	T2G6003028-FL*
4.8mm HFET	DC - 10.5	34	8.5	- / 53	8 / 200	Die	TGF4250-SCC
9.6mm HFET	DC - 10.5	37	9.5	- / 52	8.5 / 520	Die	TGF4260-SCC
1mm Pwr pHEMT	DC - 12	(31.5)	11	- / 55	12 / 75	Die	TGF2021-01
2mm Pwr pHEMT	DC - 12	(34.5)	11	- / 55	12 / 150	Die	TGF2021-02
4mm Pwr pHEMT	DC - 12	(37.5)	11	- / 55	12 / 300	Die	TGF2021-04
8mm Pwr pHEMT	DC - 12	(40.2)	11	- / 55	12 / 600	Die	TGF2021-08
12mm Pwr pHEMT	DC - 12	(42)	11	- / 52	12 / 900	Die	TGF2021-12
1.2mm HFET	DC - 12	28.5	10	- / 55	8 / 50	Die	TGF4230-SCC
2.4mm HFET	DC - 12	31.5	10	- / 56	8 / 100	Die	TGF4240-SCC
0.3mm MESFET	DC - 18	13	11	1.5 / -	3 / 15	Die	TGF1350-SCC
1.25mm GaN HEMT	DC - 18	(37.4)	13	- / 52	28 / 125	Die	TGF2023-2-01
2.5mm GaN HEMT	DC - 18	(40.2)	13	- / 50	28 / 250	Die	TGF2023-2-02
5mm GaN HEMT	DC - 18	(43)	13	- / 49	28 / 500	Die	TGF2023-2-05
10mm GaN HEMT	DC - 18	(45.8)	12	- / 47	28 / 1000	Die	TGF2023-2-10
20mm GaN HEMT	DC - 18	(48.6)	12	- / 46	28 / 2000	Die	TGF2023-2-20
0.6mm Pwr pHEMT	DC - 20	(29)	13	- / 56	12 / 45	Die	TGF2022-06
1.2mm Pwr pHEMT	DC - 20	(32)	13	- / 56	12 / 90	Die	TGF2022-12
2.4mm Pwr pHEMT	DC - 20	(35)	13	- / 58	12 / 180	Die	TGF2022-24
4.8mm Pwr pHEMT	DC - 20	(38)	13	- / 58	12 / 360	Die	TGF2022-48
6mm Pwr pHEMT	DC - 20	(39)	12.5	- / 53	12 / 448	Die	TGF2022-60
0.3mm pHEMT	DC - 22	16	13	0.8 / -	3 / 15	Die	TGF4350
30W LDMOS	0.5 - 2	45	10	- / 45	28 / 200	PowerBand™	T1L2003028-SP
10W pHEMT	0.5 - 3	40	10	- / 45	12 / 200	PowerBand™	T1P2701012-SP

NOTES: * = New

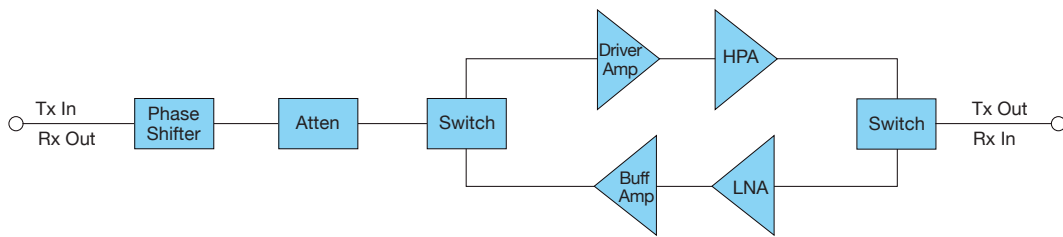
Switches

Description	Frequency Range (GHz)	Insertion Loss (dB)	Isolation (dB)	P1dB (dBm)	Control Voltage (V)	Package Style	Part Number
SPDT FET	DC - 18	1.5	36	27	-5	Die	TGS2306
SPDT FET	DC - 18	2	39	21	-7 / 0	Die	TGS8250-SCC
SPDT - High Power GaN	0.1 - 6	<1	40	45	-40 / 0	Die	TGS2351-2
SPDT - High Power GaN	0.1 - 6	<1	40	45	-40 / 0	4x4 QFN	TGS2351-2-SM
SPDT - High Power GaN	0.1 - 12	<1	35	43	-40 / 0	Die	TGS2352-2
SPDT - High Power GaN	0.1 - 18	<1	30	40	-40 / 0	Die	TGS2353-2
SP3T VPIN	1 - 20	0.5	35	23	-	Die	TGS2303
SP4T VPIN	1 - 20	0.6	38	23	-	Die	TGS2304-SCC
SP3T VPIN	4 - 18	1	35	20	+/- 2.7	Die	TGS2313
SPDT VPIN	4 - 20	0.9	35	>20	+/- 2.7	Die	TGS2302

Control Products

Description	Frequency Range (GHz)	Insertion Loss (dB)	Control Range (dB) or (Deg.)	P1dB (dBm)	Supply Voltage (V)	Package Style	Part Number
Through Line	DC - 6	0.1	-	-	-	3x3 QFN	TQM4M9073
Passive Wideband Limiter	2 - 12	<1	-	18	-	3x3 QFN	TGL2201-SM
Wideband Analog Attenuator	2 - 20	2	15	23	2.5	Die	TGL8784-SCC
Passive Wideband Limiter	3 - 25	<0.5	-	18	-	Die	TGL2201
5-Bit Phase Shifter	6 - 18	9	(348)	-	6	Die	TGP6336
6-Bit Phase Shifter	6 - 18	<10	(354)	-	0 / -5	Die	TGP2105*
Lange Coupler	12 - 21	<0.25	-	-	-	Die	TGB2001

NOTES: * = New



Radar Block Diagram

Amplifiers

Description	Frequency Range (GHz)	P1dB (Psat) / OIP3 (dBm)	Gain (dB)	NF / PAE (dB) / (%)	Voltage / Current (V / mA)	Package Style	Part Number
Wideband Driver	DC - 35	18 / -	12	-	5 / 135	Die	TGA4832
Wideband Gain Block, SB	2 - 10	17 / -	17	6 / -	5 / 90	Die	TGA8810-SCC
Gain Block	2 - 12	(20) / -	30	-	5 / 200	8x8 QFN	TGA3500-SM
10W Wideband HPA	2 - 18	(40) / -	9	- / 23	30 / 500	Die	TGA2573-2
10W Wideband HPA	2 - 18	(40) / -	9	- / 23	30 / 500	Carrier	TGA2573-2-TS
Wideband Gain Block, AGC	2 - 20	20 / -	7.5	7 / -	6 / 150	Die	TGA8622-SCC
Wideband PA, AGC	2 - 22	28.5 (30) / 36	17	-	12 / 1100	Die	TGA2509
1W Wideband PA, AGC	2 - 22	(29) / -	15	-	12 / 1100	Flange	TGA2509-FL
30W HPA	2.5 - 6	(45) / -	26	- / 35	30 / 1550	Flange	TGA2576-2-FL
Driver Amp / PA, SB	3.4 - 3.8	30 / 42	24	-	6 / 770	5x5 QFN	TGA2703-SM
2W HPA	5.5 - 8.5	32 (34) / 41	30	7 / -	6 / 1260	5x5 QFN	TGA2706-SM
2.5W HPA	5.9 - 8.5	34 (35) / 42	18	7.5 / 37	6 / 1000	6x6 QFN	TGA2701-SM
30W HPA	6 - 12	(45) / -	30	- / 30	25 / 1100	Die	TGA2590*
0.5W PA	6 - 18	27 / -	11	8 / -	8 / 400	Die	TGA8014-SCC
Gain Block	6 - 18	12.5 / -	13	5 / -	5 / 80	Die	TGA8035-SCC
2.8W Wideband HPA	6 - 18	(34.5) / -	24	- / 20	7 - 9 / 800 - 1200	Die	TGA2501
2.8W Wideband PA on Carrier	6 - 18	(34.5) / -	24	- / 20	7 - 9 / 800 - 1200	Carrier	TGA2501-TS
2.8W Wideband PA	6 - 18	(34.5) / -	24	- / 20	8 / 1200	GSG Flange	TGA2501-GSG*
2.8W HPA	6 - 18	(34.5) / -	24	- / 20	8 / 1200	Die	TGA9092-SCC
8W HPA	6.5 - 11.5	37 (39) / -	19	- / 35	7 - 9 / 1200	Die	TGA9083-SCC
16W HPA	6.5 - 12.5	42 / -	27	- / 35	12 / 3000	Die	TGA2517
6.3W HPA	7 - 8.5	(38) / -	21	- / 42	7 / 2000	Die	TGA2701
Driver Amp	7 - 13	(30) / 37	25	- / 30	9 / 450	Die	TGA2700
16W HPA	7.5 - 11.5	42 / -	28	- / 35	9 - 12 / 2000	Carrier	TGA2517-TS
10W HPA	7.5 - 12	(41) / -	30	- / 25	12 / 3000	GSG Flange	TGA2517-GSG*
Wideband Driver Amp	8 - 18	13 / -	17	5 / -	4.5 / 50	Die	TGA8399C
6.3W HPA	9 - 10.5	(38) / -	20	- / >38	4 - 9 / 2000	Die	TGA2704
7W HPA	9 - 11	(38.5) / -	22	- / 40	9 / 1050	7x7 QFN	TGA2704-SM*
20W HPA	9.5 - 11	(43) / -	30	- / 30	25 / 720	Die	TGA2608*
7W HPA	9.5 - 12	(38.5) / -	22	- / 36	9 / 1050	7x7 QFN	TGA2710-SM*
2.8W HPA	10 - 12	33 (34.5) / 43	25	9 / -	6 / 1300	5x5 QFN	TGA2535-SM
6.3W HPA	10.5 - 12	(38) / -	19	- / >39	4 - 9 / 2000	Die	TGA2710
2W HPA	12.5 - 16	(32) / 37	32	-	6 - 7 / 680	4x4 QFN	TGA2503-SM
2W HPA	12.7 - 15.4	34 (35) / 43	28	6 / -	6 / 1300	Die	TGA2533
6.5W HPA	13 - 16	(38) / -	24	-	8 / 2600	11.4x17.3 FL	TGA2514-FL
2W HPA	13 - 17	(34) / 40	32	-	6 - 7 / 680	Die	TGA2503
6.5W HPA	13 - 18	(38) / 44	24	-	8 / 3600	Die	TGA2514
5W HPA	13.5 - 16	(37) / -	25	- / 20	8 / 2600	GSG Flange	TGA2536-FL*
16W Ku-Band HPA	14 - 16	(42) / -	23	- / 30	25 / 2000	Flange	TGA2572-2-FL

Amplifiers (cont.)

Description	Frequency Range (GHz)	P1dB (Psat) / OIP3 (dBm)	Gain (dB)	NF / PAE (dB) / (%)	Voltage / Current (V / mA)	Package Style	Part Number
16W Ku-Band HPA	14 - 16	(42) / -	23	- / 30	25 / 2000	Carrier	TGA2572-2-TS
1.25W HPA	17 - 24	31 (32) / 40	23	6 / -	7 / 720	Die	TGA4531
Driver Amp	17 - 24	22 / -	19	4 / -	5 / 270	4x4 QFN	TGA2521-SM
HPA, AGC, PD	17 - 24	(29) / 38	22	-	5 / 712	4x4 QFN	TGA2522-SM
MPA	17 - 27	29 / -	22	-	7 / 760	5x5 QFN	TGA4525-SM
Gain Block & 2x / 3x Multiplier	17 - 37	18 (22) / 26	20	7 / -	5 / 140	3x3 QFN	TGA4030-SM
Gain Block & 2x / 3x Multiplier	17 - 40	18 (22) / 24	22	7 / -	5 / 140	3x3 QFN	TGA4031-SM
Gain Block, Multiplier	17 - 43	22 / -	25	-	5 / 225	Die	TGA4040
Gain Block	19 - 38	(22) / 30	20	-	5 / 160	Die	TGA4036
MPA	25 - 35	25 / -	18	-	6 / 220	4x4 QFN	TGA4902-SM
1W Linear PA	28 - 30	30 (30.5) / -	20	-	6 / 420	5x5 QFN	TGA4539-SM
2W HPA	30 - 40	31.5 (33) / -	20	-	6 / 1050	Die	TGA4516
2W HPA	30 - 40	31.5 (33) / -	18	-	6 / 1050	Carrier	TGA4516-TS
2W HPA	31 - 35	31.5 (33.5) / -	19	-	6 - 7 / 1150	Die	TGA4514
3.5W HPA	31 - 37	(35.5) / -	20	-	6 / 2000	Die	TGA4517
MPA	32 - 45	24 (25) / 33	16	-	6 / 175	Die	TGA4521
2W HPA	33 - 36	31 (33) / -	17	-	6 - 7 / 880	Die	TGA1141
MPA	33 - 47	27 (27.5) / 36	18	-	6 / 400	Die	TGA4522
0.5W HPA	40 - 45	28 / -	9	-	7 / 500	Die	TGA4043
Driver Amp	41 - 45	18 / -	14	-	6 / 168	Die	TGA4042

NOTES: * = **New**, AGC = Automatic Gain Control, PD = Power Detector, SB = Self Biased

Low Noise Amplifiers

Description	Frequency Range (GHz)	P1dB (Psat) / OIP3 (dBm)	Gain (dB)	NF (dB)	Voltage / Current (V / mA)	Package Style	Part Number
Ultra Wideband LNA / Gain Block	DC - 40	11.5 / 20	13	3.2	5 / 50	Die	TGA4830
Wideband LNA, AGC	2 - 18	18 / 29	17	2	5 / 75	Die	TGA2525
Wideband LNA, AGC	2 - 20	17.5 / -	9	3.5	5 - 8 / 60	Die	TGA1342-SCC
Wideband LNA, AGC	2 - 20	19 / -	17.5	2.5	5 / 100	Die	TGA2526
Wideband LNA, AGC	2 - 20	16 / -	17	2.5	5 / 75	4x4 QFN	TGA2513-SM
4 - 20 GHz Limiter / LNA	2 - 20	18 (21) / 28	17	2	5 / 100	7x7 QFN	TGM2543-SM*
Wideband LNA, AGC	2 - 23	17 / 26	17	2	5 / 75	Die	TGA2513
S-Band LNA	2.5 - 4	18 / -	17	1.2	6 / 110	5x5 QFN	TGA2614-SM*
S-Band LNA	2.7 - 3.8	- / 42.5	12.5	2	6 / 320	Die	TGA2613*
S-Band LNA	2.7 - 3.8	18 / -	17	.95	6 / 100	Die	TGA2614*
LNA, SB, AGC	4 - 14	6 / 16	22	2.3	5 / 90	4x4 QFN	TGA2512-1-SM
LNA, AGC, GB	4 - 14	13 / 24	25	2.3	5 / 160	4x4 QFN	TGA2512-2-SM
LNA, SB, AGC	5 - 15	6 / 13	27	1.4	5 / 90	Die	TGA2512
LNA, SB	6 - 13	11 / -	26	1.5	5 / 65	Die	TGA8399B-SCC
LNA, SB, AGC	6 - 14	6 / 12	20	1.3	5 / 90	Die	TGA2511

NOTES: * = **New**, AGC = Automatic Gain Control, GB = Gate Biased, PD = Power Detector, SB = Self Biased

Discrete Transistors

Description	Frequency Range (GHz)	P1dB (Psat) (dBm)	Gain (dB)	NF / PAE (dB) / (%)	Voltage / Current (V / mA)	Package Style	Part Number
35W GaN HEMT	DC - 3.5	(45.6)	14	- / 54	32 / 150	Ceramic Flat Lead	T2G4003532-FS*
35W GaN HEMT	DC - 3.5	(45.6)	14	- / 54	33 / 150	Ceramic Flat Lead	T2G4003532-FL*
55W GaN HEMT	DC - 3.5	(47.2)	15	- / 50	28 / 200	Ceramic Flat Lead	T2G4005528-FS
60W GaN HEMT	DC - 3.5	(48.2)	14	- / 51	32 / 200	Ceramic Flat Lead	T1G4006032-FS*
60W GaN HEMT	DC - 3.5	(48.2)	14	- / 51	33 / 200	Ceramic Flat Lead	T1G4006032-FL*
120W GaN HEMT	DC - 3.5	(50.8)	14	- / 52	32 / 575	Ceramic Flat Lead	T1G4012032-FS*
120W GaN HEMT	DC - 3.5	(50.8)	14	- / 52	32 / 575	Ceramic Flat Lead	T1G4012032-FL*

Discrete Transistors (cont.)

Description	Frequency Range (GHz)	P1dB (Psat) (dBm)	Gain (dB)	NF / PAE (dB) / (%)	Voltage / Current (V / mA)	Package Style	Part Number
4mm Pwr pHEMT	DC - 4	26.5	16	0.6 / -	5 / 150	SOT89	TGF2021-04-SD
24mm HFET	DC - 4	40	13	- / 51	8 / 2170	Die	TGF4124
7W GaN HEMT	DC - 6	(39.5)	15	- / 50	28 / 50	Ceramic Flat Lead	T2G6000528-Q3
10W GaN HEMT	DC - 6	(40.5)	15	- / 52	32 / 50	5x5 QFN	T1G6001032-SM*
18W GaN HEMT	DC - 6	(42.5)	15	- / 50	28 / 50	Ceramic Flat Lead	T2G6001528-Q3
30W GaN HEMT	DC - 6	(44.8)	15	- / 50	28 / 200	Ceramic Flat Lead	T2G6003028-FS
30W GaN HEMT	DC - 6	(44.7)	12	- / 50	28 / 200	Ceramic Flat Lead	T2G6003028-FL*
4.8mm HFET	DC - 10.5	34	8.5	- / 53	8 / 200	Die	TGF4250-SCC
9.6mm HFET	DC - 10.5	37	9.5	- / 52	8.5 / 520	Die	TGF4260-SCC
1.2mm HFET	DC - 12	28.5	10	- / 55	8 / 50	Die	TGF4230-SCC
2.4mm HFET	DC - 12	31.5	10	- / 56	8 / 100	Die	TGF4240-SCC
1mm Pwr pHEMT	DC - 12	(31.5)	11	- / 55	12 / 75	Die	TGF2021-01
2mm Pwr pHEMT	DC - 12	(34.5)	11	- / 55	12 / 150	Die	TGF2021-02
4mm Pwr pHEMT	DC - 12	(37.5)	11	- / 55	12 / 300	Die	TGF2021-04
8mm Pwr pHEMT	DC - 12	(40.2)	11	- / 55	12 / 600	Die	TGF2021-08
12mm Pwr pHEMT	DC - 12	(42)	11	- / 52	12 / 900	Die	TGF2021-12
0.3mm MESFET	DC - 18	13	11	1.5 / -	3 / 15	Die	TGF1350-SCC
1.25mm GaN HEMT	DC - 18	(37.4)	13	- / 52	28 / 125	Die	TGF2023-2-01
2.5mm GaN HEMT	DC - 18	(40.2)	13	- / 50	28 / 250	Die	TGF2023-2-02
5mm GaN HEMT	DC - 18	(43)	13	- / 49	28 / 500	Die	TGF2023-2-05
10mm GaN HEMT	DC - 18	(45.8)	12	- / 47	28 / 1000	Die	TGF2023-2-10
20mm GaN HEMT	DC - 18	(48.6)	12	- / 46	28 / 2000	Die	TGF2023-2-20
0.6mm Pwr pHEMT	DC - 20	(29)	13	- / 56	12 / 45	Die	TGF2022-06
1.2mm Pwr pHEMT	DC - 20	(32)	13	- / 56	12 / 90	Die	TGF2022-12
2.4mm Pwr pHEMT	DC - 20	(35)	13	- / 58	12 / 180	Die	TGF2022-24
4.8mm Pwr pHEMT	DC - 20	(38)	13	- / 58	12 / 360	Die	TGF2022-48
6mm Pwr pHEMT	DC - 20	(39)	12.5	- / 53	12 / 448	Die	TGF2022-60
0.3mm pHEMT	DC - 22	16	13	0.8 / -	3 / 15	Die	TGF4350

NOTES: * = New

Switches

Description	Frequency Range (GHz)	Insertion Loss (dB)	Isolation (dB)	P1dB (dBm)	Control Voltage (V)	Package Style	Part Number
Wideband SPDT FET	DC - 18	2	39	21	-7 / 0	Die	TGS8250-SCC
Wideband SPDT FET	DC - 18	1.5	36	27	-5	Die	TGS2306
High Power SPDT - GaN	0.1 - 6	<1	40	45	-40 / 0	Die	TGS2351-2
High Power SPDT - GaN	0.1 - 6	<1	40	45	-40 / 0	4x4 QFN	TGS2351-2-SM
High Power SPDT - GaN	0.1 - 12	<1	35	43	-40 / 0	Die	TGS2352-2
High Power, Wideband SPDT - GaN	0.1 - 18	<1	30	40	-40 / 0	Die	TGS2353-2
Wideband SP3T VPIN	1 - 20	0.5	35	23	-	Die	TGS2303
Wideband SP4T VPIN	1 - 20	0.6	38	23	-	Die	TGS2304-SCC
Wideband SP3T VPIN	4 - 18	1	35	20	+/- 2.7	Die	TGS2313
Wideband SPDT VPIN	4 - 20	0.9	35	>20	+/- 2.7	Die	TGS2302
SPDT VPIN	24 - 43	<2	36	27	+/- 5	Die	TGS4301
SPDT VPIN	27 - 46	0.9	30	>34	+/- 5 / 15	Die	TGS4302
SPDT VPIN Absorptive	32 - 40	1	36	>33	+/- 5 / 18	Die	TGS4304

Frequency Converter

Description	Frequency Range (GHz)	Conversion Gain (dB)	LO / RF Isolation (dB)	IP3 (dBm)	Voltage / Current (V / mA)	Package Style	Part Number
Doubler (Input 10 - 20 GHz)	20 - 40	-12	25	18	-	Die	TGC1430F

Control Products

Description	Frequency Range (GHz)	Insertion Loss (dB)	Control Range (dB) or (Deg.)	P1dB (dBm)	Supply Voltage (V)	Package Style	Part Number
Analog Attenuator	DC - 30	2	17	–	0 to -2	3x3 QFN	TGL4203-SM
Analog Attenuator	DC - >50	2	17	–	0 to -2	Die	TGL4203
Discrete Thru (0dB Attenuator)	DC - 65	0	0	–	–	Die	TGL4201-00
Discrete Attenuators	DC - 65	–	2, 3, 6, 10	–	–	Die	TGL4201-02, 03, 06, 10
Passive Wideband Limiter	2 - 12	<1	–	18	–	3x3 QFN	TGL2201-SM
Analog Attenuator	2 - 20	2	15	23	2.5	Die	TGL8784-SCC
Passive Wideband Limiter	3 - 25	<0.5	–	18	–	Die	TGL2201
5-Bit Phase Shifter	6 - 18	9	(348)	–	6	Die	TGP6336
6-Bit Phase Shifter	6 - 18	>10	(354)	–	0 / -5	Die	TGP2105*
6-Bit Phase Shifter	8.5 - 11	5	(354)	–	0 / -5	Die	TGP2103
Lange Coupler	12 - 21	<0.25	–	–	–	Die	TGB2001
5-Bit Phase Shifter	18 - 20	5	(180)	–	-2.5	Die	TGP1439
Lange Coupler	18 - 32	<0.25	–	–	–	Die	TGB4001
Lange Coupler	27 - 45	<0.25	–	–	–	Die	TGB4002
5-Bit Phase Shifter	28 - 32	6	(348)	–	5	Die	TGP2100
5-Bit Phase Shifter	33 - 37	6	(348)	–	-5	Die	TGP2102
1-Bit Phase Shifter	34 - 36	4	180	–	0 / 5	Die	TGP2104

NOTES: * = New

BAW Filters

Description	Frequency Range (MHz)	Bandwidth (MHz)	Typical IL (dB)	I / O Configuration	Rejection {dB @ BW or Freq (MHz)}	Package Style	Part Number
RF Filter	1030	15	2.5	SE / SE	40 @ 45	3.81x2.54	880367
RF Filter	1090	15	2.5	SE / SE	40 @ 45	3.81x2.54	880374
GPS RF Filter, L5	1176	28	2.75	SE / SE	40 @ 140	3.26x1.6	880364
GPS L2	1227.6	25	2.5	SE / SE	20 @ 1200	3.26x1.6	880060
RF Filter	1280	20	3	SE / SE	40 @ 105	3.81x2.54	880368
GPS L1	1575.42	30	2.5	SE / SE	20 @ 1548	3.26x1.6	880094
RF Filter, MMDS	2560	30	3	SE / SE	40 @ 150	3.81x2.54	880157

Qualified Amplifiers

TriQuint has a rich history and strong track record of supplying highly reliable active and passive devices for space and aerospace programs including satellite and planetary missions. TriQuint supports MIL-STD-883 and performs 100% element electrical results, burn-in, 1000 hour life test and wafer-level lot acceptance testing for space qualification. Refer to our technical library on triquint.com to learn about our qualification processes. Most products throughout this Product Selection Guide may be considered for qualification. The tables below contain a sub-set of our products, fabricated with various production processes, that have been space qualified. Contact TriQuint prior to designing any of these parts into your space application as certain conditions apply. Write to us at info-defense@triquint.com to request more information.

Amplifiers

Description	Frequency Range (GHz)	P1dB (dBm)	Gain (dB)	NF / PAE (dB) / (%)	Voltage / Current (V / mA)	Package Style	Part Number
Wideband Driver	DC - 18	24	16	3.5 / –	5 - 8 / 70 - 175	Die	TGA1328-XCC-SPACE
Wideband Gain Block, SB	2 - 10	17	17	6 / –	5 / 90	Die	TGA8810-XCC-SPACE
Wideband Gain Block	2 - 18	20	7.5	5.5 / –	6 / 100	Die	TGA8300-XCC-SPACE
Wideband Gain Block, AGC	2 - 20	20	7.5	7 / –	6 / 150	Die	TGA8622-XCC-SPACE
Wideband PA, AGC	2 - 20	26	8	–	8 / 440	Die	TGA8334-XCC-SPACE
0.5W PA	6 - 18	27	11	8 / –	8 / 400	Die	TGA8014-XCC-SPACE

Amplifiers (cont.)

Description	Frequency Range (GHz)	P1dB (dBm)	Gain (dB)	NF / PAE (dB) / (%)	Voltage / Current (V / mA)	Package Style	Part Number
8W HPA	6.5 - 11.5	37	19	- / 35	7 - 9 / 1200	Die	TGA9083-XCC-SPACE
Wideband Driver Amp	8 - 18	13	17	5 / -	4.5 / 50	Die	TGA8399C-XCC-SPACE
6.3W HPA	9 - 10.5	38	20	- / >38	4 - 9 / 2000	Die	TGA2704-XCC-SPACE
Driver Amp, SB	12 - 18	20	28	6 / -	6 / 80	Die	TGA2507-XCC-SPACE
4W HPA, Balanced	13 - 17	36	25	- / 30	6 - 7 / 1300	Die	TGA2502-XCC-SPACE
Gain Block	19 - 38	22	20	-	5 / 160	Die	TGA4036-XCC-SPACE
3.5W HPA	31 - 37	35.5	20	-	6 / 2000	Die	TGA4517-XCC-SPACE
MPA	32 - 45	24	16	-	6 / 175	Die	TGA4521-XCC-SPACE
HPA	36 - 40	30	14	-	6 - 7 / 500	Die	TGA1171-XCC-SPACE

NOTES: AGC = Automatic Gain Control, SB = Self Biased

Low Noise Amplifiers

Description	Frequency Range (GHz)	P1dB (dBm)	Gain (dB)	NF (dB)	Voltage / Current (V / mA)	Package Style	Part Number
Wideband LNA, AGC	DC - 14	16	11	3.1	8 / 80	Die	TGA8349-XCC-SPACE
Wideband LNA, AGC	2 - 18	16	19	4	5 / 120	Die	TGA8344-XCC-SPACE
Wideband LNA, AGC	2 - 20	17.5	9	3.5	5 - 8 / 60	Die	TGA8310-XCC-SPACE
Wideband LNA, AGC	2 - 20	17.5	9	3.5	5 - 8 / 60	Die	TGA1342-XCC-SPACE
LNA, SB	6 - 13	11	26	1.5	5 / 65	Die	TGA8399B-XCC-SPACE
LNA	20 - 27	12	21	2.2	3.5 / 60	Die	TGA4506-XCC-SPACE
LNA	30 - 42	14	21	2.8	3 / 40	Die	TGA4508-XCC-SPACE

NOTES: AGC = Automatic Gain Control, SB = Self Biased

Control Products

Description	Frequency Range (GHz)	Insertion Loss (dB)	Control Range (dB)	P1dB (dBm)	Supply Voltage (V)	Package Style	Part Number
Analog Attenuator	DC - >50	2	17	-	0 to -2	Die	TGL4203-XCC-SPACE
Analog Attenuator	2 - 20	2	15	23	2.5	Die	TGL8784-XCC-SPACE

Amplifiers

Description	Frequency Range (GHz)	P1dB (Psat) / OIP3 (dBm)	Gain (dB)	NF / PAE (dB) / (%)	Voltage / Current (V / mA)	Package Style	Part Number
Wideband Driver	DC - 18	3 - 11 Vpp	16	2.5 / -	8 / 285	Die	TGA4807
Wideband Driver	DC - 35	4 / -	12	-	5 / 135	Die	TGA4832
Wideband MPA, AGC	DC - 78	-	8	5 / -	6 / 82	Die	TGA4803
10W Wideband HPA	0.03 - 3	(39.5) / 43	19.5	- / 40	35 / 360	Flange	TGA2540-2-FL
Wideband Gain Block	0.04 - 1	27 / 42	20	1.5 / -	8 / 350	4x4 QFN	TGA2803-SM
Wideband Gain Block	0.04 - 1	27 / 46	20	1.5 / -	8 / 350	5x5 QFN	TGA2806-SM
Wideband Gain Block, SB	2 - 10	17 / -	17	6 / -	5 / 90	Die	TGA8810-SCC
Gain Block	2 - 12	(20) / -	30	-	5 / 200	8x8 QFN	TGA3500-SM*
Wideband Gain Block	2 - 18	20 / -	7.5	5.5 / -	6 / 100	Die	TGA8300-SCC
Wideband Gain Block, AGC	2 - 20	20 / -	7.5	7 / -	6 / 150	Die	TGA8622-SCC
Wideband PA, AGC	2 - 20	26 / -	8	-	8 / 440	Die	TGA8334-SCC
Wideband PA, AGC	2 - 22	28.5 (30) / 36	17	-	12 / 1100	Die	TGA2509
1W HPA, AGC	2 - 22	(29) / -	15	-	12 / 1100	Flange	TGA2509-FL
2W HPA	5.5 - 8.5	32 (34) / 41	30	7 / -	6 / 1260	5x5 QFN	TGA2706-SM
2.5W HPA	5.9 - 8.5	34 (35) / 42	18	7.5 / 37	6 / 1000	6x6 QFN	TGA2701-SM

Amplifiers (cont.)

Description	Frequency Range (GHz)	P1dB (Psat) / OIP3 (dBm)	Gain (dB)	NF / PAE (dB) / (%)	Voltage / Current (V / mA)	Package Style	Part Number
2.8W HPA	6 - 18	(34.5) / -	24	- / 20	7 - 9 / 800 - 1200	Die	TGA2501
2.8W HPA on Carrier	6 - 18	(34.5) / -	24	- / 20	7 - 9 / 800 - 1200	Carrier	TGA2501-TS
2.8W Wideband PA	6 - 18	(34.5) / -	24	- / 20	8 / 1200	GSG Flange	TGA2501-GSG*
0.5W PA	6 - 18	27 / -	11	8 / -	8 / 400	Die	TGA8014-SCC
Gain Block	6 - 18	12.5 / -	13	5 / -	5 / 80	Die	TGA8035-SCC
2.8W HPA	6 - 18	(34.5) / -	24	- / 20	8 / 1200	Die	TGA9092-SCC
8W HPA	6.5 - 11.5	37 (39) / -	19	- / 35	7 - 9 / 1200	Die	TGA9083-SCC
6.8W HPA	7 - 8.5	(38) / -	21	- / 42	7 / 2000	Die	TGA2701
Wideband Driver Amp	8 - 18	13 / -	17	5 / -	4.5 / 50	Die	TGA8399C
6.8W HPA	9 - 10.5	(38) / -	20	- / >38	4 - 9 / 2000	Die	TGA2704
6.8W HPA	10.5 - 12	(38) / -	19	- / >39	4 - 9 / 2000	Die	TGA2710
Driver Amp, SB	11 - 17	17 / -	23	6 / -	6 / 75	4x4 QFN	TGA2507-SM
Driver Amp	12 - 16	26 (26.5) / 37	23	7 / -	5 / 300	3x3 QFN	TGA2524-SM
Driver Amp, SB	12 - 18	14 / -	17	-	6 / 40	Die	TGA2506
Driver Amp, SB	12 - 18	20 / -	28	6 / -	6 / 80	Die	TGA2507
1W HPA	12 - 19	30 / -	30	-	5 - 7 / 435	Die	TGA2508-SCC
HPA	12 - 19	29 / -	25	-	5 - 7 / 435	4x4 QFN	TGA2508-SM
2W HPA	12.5 - 16	(32) / 37	32	-	6 - 7 / 680	4x4 QFN	TGA2503-SM
2W HPA	12.5 - 17	(34) / -	26	- / 25	7.5 / 650	Die	TGA2510
2W HPA	12.5 - 17	(34) / -	26	- / 25	7.5 / 650	Carrier	TGA2510-TS
2W HPA	12.7 - 15.4	34 (35) / 43	28	6 / -	6 / 1300	Die	TGA2533
2W HPA	12.7 - 15.4	33 (34.5) / 43	27	6 / -	6 / 1300	5x5 QFN	TGA2533-SM
4W HPA	13 - 15	(36) / 41	25	-	7 / 1300	17.8x8.4 FL	TGA8659-FL
4W Ku-Band HPA	13 - 15	(36) / -	25	- / 30	7 / 1300	Die	TGA2502*
3.6W Ku-Band HPA	13 - 16	(35.6) / -	25	- / 27	7 / 1300	GSG Flange	TGA2502-GSG*
6.5W HPA	13 - 16	(38) / -	24	-	8 / 2600	11.4x17.3 FL	TGA2514-FL
2W HPA	13 - 17	(34) / 40	32	-	6 - 7 / 680	Die	TGA2503
6.5W HPA	13 - 18	(38) / 44	24	-	8 / 3600	Die	TGA2514
20W Ku-Band HPA	13.75 - 15.35	(43) / -	28	- / 30	25 / 1000	Flange	TGA2579-2-FL
16W Ku-Band HPA	14 - 16	(42) / -	23	- / 30	25 / 2000	Die	TGA2572-2
16W Ku-Band HPA	14 - 16	(42) / -	23	- / 30	25 / 2000	Flange	TGA2572-2-FL
16W Ku-Band HPA on Carrier	14 - 16	(42) / -	23	- / 30	25 / 2000	Carrier	TGA2572-2-TS
1.1W HPA	17 - 20	30.5 / 41	23	-	6 / 900	Die	TGA4532
1.8W HPA	17 - 20	31 (32.5) / 41	23	7 / -	6 / 900	4x4 QFN	TGA4532-SM
Driver Amp	17 - 24	22 / -	19	4 / -	5 / 270	4x4 QFN	TGA2521-SM
HPA, AGC, PD	17 - 24	(29) / 38	22	-	5 / 712	4x4 QFN	TGA2522-SM
1.6W HPA	17 - 24	31 (32) / 40	23	6 / -	7 / 720	Die	TGA4531
1.25W HPA	17 - 27	29 (31) / 37	22	-	7 / 760	Die	TGA4502-SCC
Gain Block & 2x / 3x Multiplier	17 - 37	18 (22) / 26	20	7 / -	5 / 140	3x3 QFN	TGA4030-SM
Gain Block & 2x / 3x Multiplier	17 - 40	18 (22) / 24	22	7 / -	5 / 140	3x3 QFN	TGA4031-SM
Gain Block, Multiplier	17 - 43	22 / -	25	-	5 / 225	Die	TGA4040
2W HPA	18 - 23	32 (33) / 39	26	-	7 / 840	Die	TGA4022
0.8W HPA	18 - 27	29 / 37	14	-	6 / 480	Die	TGA1135B-SCC
MPA	19 - 27	25 / 32	22	-	5 - 7 / 220	Die	TGA1073G-SCC
Gain Block	19 - 38	(22) / 30	20	-	5 / 160	Die	TGA4036
HPA	21 - 24	31 (32) / 41	22	6 / -	6 / 880	4x4 QFN	TGA4533-SM
MPA	25 - 35	25 / -	18	-	6 / 220	4x4 QFN	TGA4902-SM
MPA	26 - 35	25 (32) / -	19	-	5 - 7 / 220	Die	TGA1073A-SCC
MPA	27 - 32	24 / -	15	-	5 / 170	4x4 QFN	TGA4903-SM
HPA	27 - 32	28.5 / -	25	-	6 - 8 / 420	Die	TGA1073B-SCC
1W Linear PA	28 - 30	30 (30.5) / -	20	-	6 / 420	5x5 QFN	TGA4539-SM
Driver Amp	29 - 37	16 / -	16	-	6 / 60	Die	TGA4510

Amplifiers (cont.)

Description	Frequency Range (GHz)	P1dB (Psat) / OIP3 (dBm)	Gain (dB)	NF / PAE (dB) / (%)	Voltage / Current (V / mA)	Package Style	Part Number
3.5W HPA	30 - 38	(35) / -	18	- / 20	6 / 2100	Die	TGA2575
3.5W HPA	30 - 38	(35) / -	18	- / 20	6 / 2100	Carrier	TGA2575-TS*
2W HPA	30 - 40	31.5 (33) / -	20	-	6 / 1050	Die	TGA4516
2W HPA	30 - 40	31.5 (33) / -	18	-	6 / 1050	Carrier	TGA4516-TS
2W HPA	31 - 35	31.5 (33.5) / -	19	-	6 - 7 / 1150	Die	TGA4514
3.5W HPA	31 - 37	(35.5) / -	20	-	6 / 2000	Die	TGA4517
MPA	32 - 45	24 (25) / 33	16	-	6 / 175	Die	TGA4521
2W HPA	33 - 36	31 (33) / -	17	-	6 - 7 / 880	Die	TGA1141
MPA	33 - 47	27 (27.5) / 36	18	-	6 / 400	Die	TGA4522
HPA	36 - 40	26 / -	15	-	5 - 7 / 240	Die	TGA1073C-SCC
1W HPA	36 - 40	30 / -	14	-	6 - 7 / 500	Die	TGA1171-SCC
0.6W HPA	37 - 40	28 / 38	24	6 / -	5 / 600	Die	TGA4538
0.5W HPA	40 - 45	28 / -	9	-	7 / 500	Die	TGA4043
Driver Amp	41 - 45	18 / -	14	-	6 / 168	Die	TGA4042
2W HPA	41 - 47	(33) / -	16	-	6 / 2000	Die	TGA4046

NOTES: * = **New**, AGC = Automatic Gain Control, PD = Power Detector, SB = Self Biased

Low Noise Amplifiers

Description	Frequency Range (GHz)	P1dB (Psat) / OIP3 (dBm)	Gain (dB)	NF (dB)	Voltage / Current (V / mA)	Package Style	Part Number
Wideband LNA, AGC	DC - 14	16 / -	11	3.1	8 / 80	Die	TGA8349-SCC
Wideband LNA / Gain Block	DC - 40	11.5 / 20	13	3.2	5 / 50	Die	TGA4830
Wideband LNA, AGC	2 - 18	18 / 29	17	2	5 / 75	Die	TGA2525
Wideband LNA, AGC	2 - 18	16 / -	19	4	5 / 120	Die	TGA8344-SCC
Wideband LNA, AGC	2 - 20	17.5 / -	9	3.5	5 - 8 / 60	Die	TGA1342-SCC
Wideband LNA, AGC	2 - 20	17.5 / -	9	3.5	5 - 8 / 60	Die	TGA8310-SCC
Wideband LNA, AGC	2 - 20	16 / -	17	2.5	5 / 75	4x4 QFN	TGA2513-SM
Wideband LNA, AGC	2 - 20	19 / -	17.5	2.5	5 / 100	Die	TGA2526
Wideband LNA, AGC	2 - 23	17 / 26	17	2	5 / 75	Die	TGA2513
LNA, SB, AGC	4 - 14	6 / 16	22	2.3	5 / 90	4x4 QFN	TGA2512-1-SM
LNA, AGC, GB	4 - 14	13 / 24	25	2.3	5 / 160	4x4 QFN	TGA2512-2-SM
LNA, SB, AGC	5 - 15	6 / 13	27	1.4	5 / 90	Die	TGA2512
LNA, SB	6 - 13	11 / -	26	1.5	5 / 65	Die	TGA8399B-SCC
LNA, SB, AGC	6 - 14	6 / 12	20	1.3	5 / 90	Die	TGA2511
LNA	20 - 27	12 / -	21	2.2	3.5 / 60	Die	TGA4506
LNA	28 - 36	12 / 21	22	2.3	3 / 60	Die	TGA4507
LNA	30 - 42	14 / -	21	2.8	3 / 40	Die	TGA4508
LNA	57 - 69	-	13	4	3 / 41	Die	TGA4600

NOTES: AGC = Automatic Gain Control, GB = Gate Biased, SB = Self Biased

Discrete Transistors

Description	Frequency Range (GHz)	P1dB (Psat) (dBm)	Gain (dB)	NF (dB)	Voltage / Current (V / mA)	Package Style	Part Number
35W GaN HEMT	DC - 3.5	(45.6)	14	- / 54	32 / 150	Ceramic Flat Lead	T2G4003532-FS*
35W GaN HEMT	DC - 3.5	(45.6)	14	- / 54	33 / 150	Ceramic Flat Lead	T2G4003532-FL*
55W GaN HEMT	DC - 3.5	(47.2)	15	- / 50	28 / 200	Ceramic Flat Lead	T2G4005528-FS
60W GaN HEMT	DC - 3.5	(48.2)	14	- / 51	32 / 200	Ceramic Flat Lead	T1G4006032-FS*
60W GaN HEMT	DC - 3.5	(48.2)	14	- / 51	33 / 200	Ceramic Flat Lead	T1G4006032-FL*
120W GaN HEMT	DC - 3.5	(50.8)	14	- / 52	32 / 575	Ceramic Flat Lead	T1G4012032-FS*
120W GaN HEMT	DC - 3.5	(50.8)	14	- / 52	32 / 575	Ceramic Flat Lead	T1G4012032-FL*
4mm Pwr pHEMT	DC - 4	26.5	16	0.6 / -	5 / 150	SOT89	TGF2021-04-SD

Discrete Transistors (cont.)

Description	Frequency Range (GHz)	P1dB (Psat) (dBm)	Gain (dB)	NF / PAE (dB) / (%)	Voltage / Current (V / mA)	Package Style	Part Number
24mm HFET	DC - 4	40	13	- / 51	8 / 2170	Die	TGF4124
7W GaN HEMT	DC - 6	(39.5)	15	- / 50	28 / 50	Ceramic Flat Lead	T2G6000528-Q3
10W GaN HEMT	DC - 6	(40.5)	15	- / 52	32 / 50	5x5 QFN	T1G6001032-SM*
18W GaN HEMT	DC - 6	(42.5)	15	- / 50	28 / 50	Ceramic Flat Lead	T2G6001528-Q3
30W GaN HEMT	DC - 6	(44.8)	15	- / 50	28 / 200	Ceramic Flat Lead	T2G6003028-FS
30W GaN HEMT	DC - 6	(44.7)	12	- / 50	28 / 200	Ceramic Flat Lead	T2G6003028-FL*
4.8mm HFET	DC - 10.5	34	8.5	- / 53	8 / 200	Die	TGF4250-SCC
9.6mm HFET	DC - 10.5	37	9.5	- / 52	8.5 / 520	Die	TGF4260-SCC
1mm Pwr pHEMT	DC - 12	(31.5)	11	- / 55	12 / 75	Die	TGF2021-01
2mm Pwr pHEMT	DC - 12	(34.5)	11	- / 55	12 / 150	Die	TGF2021-02
4mm Pwr pHEMT	DC - 12	(37.5)	11	- / 55	12 / 300	Die	TGF2021-04
8mm Pwr pHEMT	DC - 12	(40.2)	11	- / 55	12 / 600	Die	TGF2021-08
12mm Pwr pHEMT	DC - 12	(42)	11	- / 52	12 / 900	Die	TGF2021-12
1.2mm HFET	DC - 12	28.5	10	- / 55	8 / 50	Die	TGF4230-SCC
2.4mm HFET	DC - 12	31.5	10	- / 56	8 / 100	Die	TGF4240-SCC
0.3mm MESFET	DC - 18	13	11	1.5 / -	3 / 15	Die	TGF1350-SCC
1.25mm GaN HEMT	DC - 18	(37.4)	13	- / 52	28 / 125	Die	TGF2023-2-01
2.5mm GaN HEMT	DC - 18	(40.2)	13	- / 50	28 / 250	Die	TGF2023-2-02
5mm GaN HEMT	DC - 18	(43)	13	- / 49	28 / 500	Die	TGF2023-2-05
10mm GaN HEMT	DC - 18	(45.8)	12	- / 47	28 / 1000	Die	TGF2023-2-10
20mm GaN HEMT	DC - 18	(48.6)	12	- / 46	28 / 2000	Die	TGF2023-2-20
0.6mm Pwr pHEMT	DC - 20	(29)	13	- / 56	12 / 45	Die	TGF2022-06
1.2mm Pwr pHEMT	DC - 20	(32)	13	- / 56	12 / 90	Die	TGF2022-12
2.4mm Pwr pHEMT	DC - 20	(35)	13	- / 58	12 / 180	Die	TGF2022-24
4.8mm Pwr pHEMT	DC - 20	(38)	13	- / 58	12 / 360	Die	TGF2022-48
6mm Pwr pHEMT	DC - 20	(39)	12.5	- / 53	12 / 448	Die	TGF2022-60
0.3mm pHEMT	DC - 22	16	13	0.8 / -	3 / 15	Die	TGF4350
30W LDMOS	0.5 - 2	45	10	- / 45	28 / 200	PowerBand™	T1L2003028-SP
10W pHEMT	0.5 - 3	40	10	- / 45	12 / 200	PowerBand™	T1P2701012-SP

NOTES: * = New

Switches

Description	Frequency Range (GHz)	Insertion Loss (dB)	Isolation (dB)	P1dB (dBm)	Control Voltage (V)	Package Style	Part Number
Wideband SPDT FET	DC - 18	1.5	36	27	-5	Die	TGS2306
Wideband SPDT FET	DC - 18	2	39	21	-7 / 0	Die	TGS8250-SCC
High Power SPDT - GaN	0.1 - 6	<1	40	45	-40 / 0	Die	TGS2351-2
High Power SPDT - GaN	0.1 - 6	<1	40	45	-40 / 0	4x4 QFN	TGS2351-2-SM
High Power SPDT - GaN	0.1 - 12	<1	35	43	-40 / 0	Die	TGS2352-2
High Power SPDT - GaN	0.1 - 18	<1	30	40	-40 / 0	Die	TGS2353-2
Wideband SP3T VPIN	1 - 20	0.5	35	23	-	Die	TGS2303
Wideband SP4T VPIN	1 - 20	0.6	38	23	-	Die	TGS2304-SCC
Wideband SP3T VPIN	4 - 18	1	35	20	+/- 2.7	Die	TGS2313
Wideband SPDT VPIN	4 - 20	0.9	35	>20	+/- 2.7	Die	TGS2302
SPDT VPIN	24 - 43	<2	36	27	+/- 5	Die	TGS4301
SPDT VPIN	27 - 46	0.9	30	>34	+/- 5 / 15	Die	TGS4302
SPDT VPIN Absorptive	32 - 40	1	36	>33	+/- 5 / 18	Die	TGS4304

Frequency Converters & Mixers

Description	Frequency Range (GHz)	Conversion Gain (dB)	LO / RF Isolation (dB)	IP3 (dBm)	Voltage / Current (V / mA)	Package Style	Part Number
Doubler w/Amplifier	16 - 30	18	30	22	5 / 150	Die	TGC4403
Doubler w/Amplifier	16 - 30	18	30	19	5 / 150	4x4 QFN	TGC4403-SM
Upconverting Mixer	17 - 26	-9	40	–	-0.9 / 0	4x4 QFN	TGC4402-SM
Upconverting Mixer	17 - 27	-9	35	18	-0.9 / 0	Die	TGC4402
Upconverter (Low Amp + Doubler)	21.5 - 32.5	-9	35	13	5 / 65	3x3 QFN	TGC4407-SM
Doubler w/Amplifier	28 - 34	15	25	20	5 / 150	4x4 QFN	TGC4406-SM

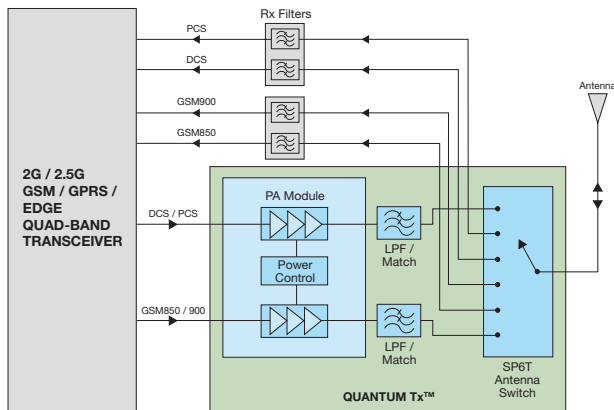
Control Products

Description	Frequency Range (GHz)	Insertion Loss (dB)	Control Range (dB) or (Deg.)	P1dB (dBm)	Supply Voltage (V)	Package Style	Part Number
Through Line	DC - 6	0.1	–	–	–	3x3 QFN	TQM4M9073
Wideband Analog Attenuator	DC - 30	2	17	–	0 to -2	3x3 QFN	TGL4203-SM
Wideband Analog Attenuator	DC - >50	2	17	–	0 to -2	Die	TGL4203
Discrete Thru (0dB Attenuator)	DC - 65	0	0	–	–	Die	TGL4201-00
Wideband Discrete Attenuators	DC - 65	–	2, 3, 6, 10	–	–	Die	TGL4201-02, 03, 06, 10
Passive Wideband Limiter	2 - 12	<1	–	18	–	3x3 QFN	TGL2201-SM
Wideband Analog Attenuator	2 - 20	2	15	23	2.5	Die	TGL8784-SCC
Passive Wideband Limiter	3 - 25	<0.5	–	18	–	Die	TGL2201
5-Bit Phase Shifter	6 - 18	9	(348)	–	6	Die	TGP6336
6-Bit Phase Shifter	6 - 18	10	(354)	–	0 / -5	Die	TGP2105*
6-Bit Phase Shifter	8.5 - 11	5	(354)	–	0 / -5	Die	TGP2103
Lange Coupler	12 - 21	<0.25	–	–	–	Die	TGB2001
5-Bit Phase Shifter	18 - 20	5	(180)	–	-2.5	Die	TGP1439
Lange Coupler	18 - 32	<0.25	–	–	–	Die	TGB4001
Lange Coupler	27 - 45	<0.25	–	–	–	Die	TGB4002
5-Bit Phase Shifter	28 - 32	6	(348)	–	5	Die	TGP2100
5-Bit Phase Shifter	33 - 37	6	(348)	–	-5	Die	TGP2102
1-Bit Phase Shifter	34 - 36	4	180	–	0 / 5	Die	TGP2104

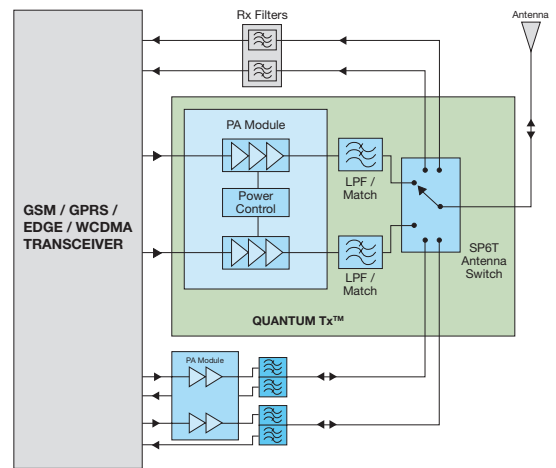
NOTES: * = New

BAW Filters

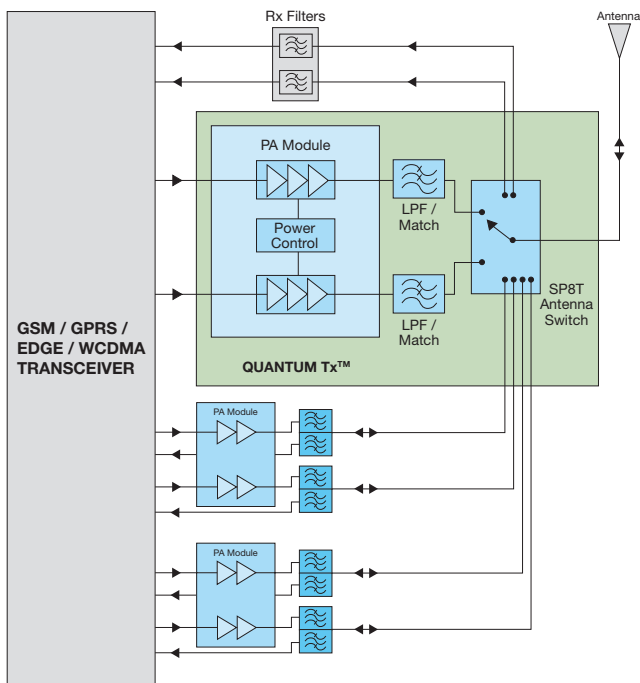
Description	Frequency (MHz)	Bandwidth (MHz)	Typical IL (dB)	I / O Configuration	Rejection {dB @ BW or Freq (MHz)}	Package Style	Part Number
RF Filter	1030	15	2.5	SE / SE	40 @ 45	3.81x2.54	880367
RF Filter	1090	15	2.5	SE / SE	40 @ 45	3.81x2.54	880374
RF Filter	1280	20	3	SE / SE	40 @ 105	3.81x2.54	880368
GPS L2	1227.6	25	2.5	SE / SE	20 @ 1200	3.26x1.6	880060
GPS L1	1575.42	30	2.5	SE / SE	20 @ 1548	3.26x1.6	880094
RF Filter, MMDS	2560	30	3	SE / SE	40 @ 150	3.81x2.54	880157
GPS RF Filter, L5	1176	28	2.75	SE / SE	40 @ 140	3.26x1.6	880364
RF Filter	2106	35	4	SE / SE	–	3.26x1.6	880126
RF Filter	2324	38	3	SE / SE	40 @ 150	3.81x2.54	880148



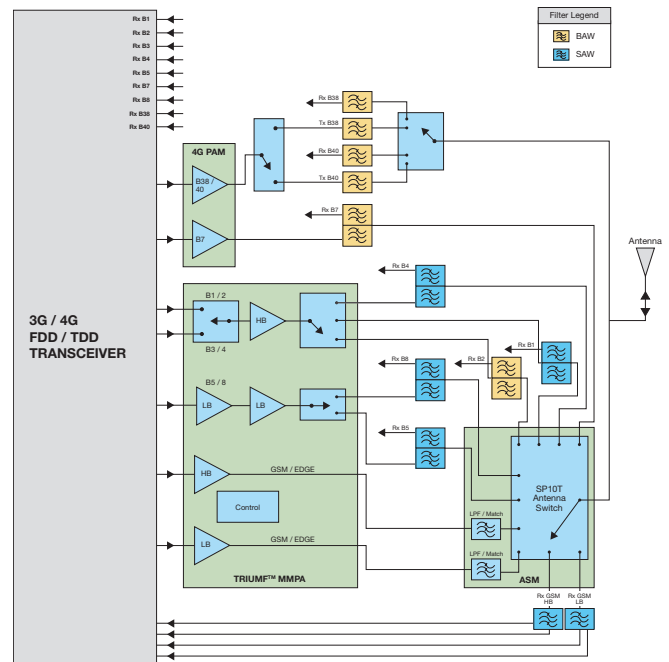
Quad-Band 2G Solution



Quad-Band 2G / Dual-Band 3G Solution



Quad-Band 2G and 3G Solution



High-End 2G / 3G / 4G Solution

QUANTUM Tx™ – GSM / GPRS

Description	Features	Bands	Size (mm)	Part Number
Dual-Band GSM / GPRS Tx Module; PA / LPF / SP4T Switch; Quad-Band Tx & Dual-Band Rx	High-Efficiency Broadband Tx, 2 Rx Ports	GSM900 / DCS or GSM850 / PCS	5.0x6.0x1.0	TQM6M4068

QUANTUM Tx™ Family – WGPRES / WEDGE

Description	Features	Bands	Size (mm)	Part Number
GSM / GPRS Tx Module; PA / LPF / SP6T WGPRES Switch w/Dual-Band WCDMA Antenna Ports	Integrated DB GSM / GPRS & 2 WCDMA Antenna Switch Ports	GSM900 / DCS or GSM850 / PCS & 2 WCDMA / LTE Bands	5.0x6.0x1.0	TQM6M9069
GSM / GPRS / EDGE-Linear Tx Module; PA / LPF / SP8T WEDGE Switch w/ Quad-Band WCDMA / LTE Ports	Integrated QB GSM / GPRS / EDGE PA & Antenna Switch	GSM900 / DCS or GSM850 / PCS & 4 WCDMA / LTE Bands	5.25x6.0x1.0	TQM6M9085
GSM / GPRS Tx Module; PA / LPF / SP6T WGPRES Switch w/Dual-Band WCDMA Antenna Ports	Integrated QB GSM / GPRS & 2 WCDMA Antenna Switch Ports, Low Rx Insertion Loss	GSM850, GSM900, DCS, PCS & 2 WCDMA / LTE Bands	5.0x6.0x1.0	<i>TQF9088*</i>
GSM / GPRS Tx Module; PA / LPF / SP8T WGPRES Switch with up to 4 WCDMA Antenna Switch Ports	Integrated QB GSM / GPRS & 4 WCDMA Antenna Switch Ports, Low Rx Insertion Loss	GSM850, GSM900, DCS, PCS & 4 WCDMA / LTE Bands	5.0x6.0x1.0	<i>TQF9089*</i>
GSM / GPRS / EDGE / TD-SCDMA / TDD-LTE Tx Module; PA / LPF / SP8T Switch with up to 4 WCDMA Antenna Switch Ports	Integrated QB GSM / GPRS / EDGE / TD-SCDMA & 8 Antenna Switch Ports, Low Rx Insertion Loss	GSM850, GSM900, DCS, PCS, TD-SCDMA (Bands 34 & 39) + 4 WCDMA / LTE / TD-SCDMA / TDD-LTE Bands	5.0x6.0x0.8	<i>TQM6M9098*</i>

NOTES: * = New

TRIUMF™ MMPA Family – GSM / GPRS / EDGE / WCDMA / HSUPA / LTE

Description	Features	Bands	Size (mm)	Part Number
Multi-Mode Multi-Band PA Module w/ Quad-Band GMSK / EDGE and Dual-Band WCDMA PA Modules	2-Bit (Hi / Med / Low Power Modes)	GSM850 / 900, DCS / PCS & WCDMA B1 & B5 / 8	5.0x7.5x1.0	TQM7M9023
Multi-Mode Multi-Band PA Module w/ Quad-Band GMSK / EDGE and Dual-Band WCDMA PA Modules	1-Bit (Hi / Med Power Modes)	GSM850 / 900, DCS / PCS & WCDMA B1 & B5 / 8	5.0x7.5x1.0	TQM7M9053
Multi-Mode Multi-Band PA Module w/ Quad-Band GMSK / EDGE and Penta-Band WCDMA / HSUPA / LTE PA Modules	1-Bit (Hi / Low Power Modes)	GSM850 / 900, DCS / PCS & WCDMA & LTE B1, B2, B3 / 4, 5 & 8	5.0x7.0x1.0	<i>TQM7M9050*</i>
Multi-Mode Multi-Band PA Module w/ Quad-Band GMSK / EDGE and Penta-Band WCDMA / HSUPA / LTE PA Modules	1-Bit (Hi / Low Power Modes)	GSM850 / 900, DCS / PCS & WCDMA & LTE B1, B2, B3 / 4, 5 & 8	5.0x7.0x1.0	<i>TQP9058*</i>

NOTES: * = New

PA Modules – GSM / GPRS / EDGE

Description	Features	Bands	Size (mm)	Part Number
Quad-Band GSM / GPRS / EDGE-Linear PA Module	Low Band Ibatt < 1.5A @ Pcal w/PAE 55%	GSM900 / DCS & GSM850 / PCS	5.0x5.0x1.0	TQM7M5005H
Quad-Band GSM / GPRS / EDGE-Linear PA Module	Input Power Controlled for GMSK & 8PSK	GSM900 / DCS & GSM850 / PCS	5.0x5.0x1.0	TQM7M5013
Quad-Band GSM / GPRS / EDGE-Polar PA Module	+3 to +8dBm Pin Nominal	GSM900 / DCS & GSM850 / PCS	5.0x5.0x1.0	TQM7M5012H
Quad-Band GSM / GPRS / EDGE-Polar PA Module	+3 to +8dBm Pin Nominal	GSM900 / DCS & GSM850 / PCS	5.0x5.0x1.0	TQM7M5022
Quad-Band GSM / GPRS / EDGE-Linear PA Module	Input Power Controlled for GMSK & 8PSK	GSM900 / DCS & GSM850 / PCS	5.0x3.5x0.9	TQM7M5050

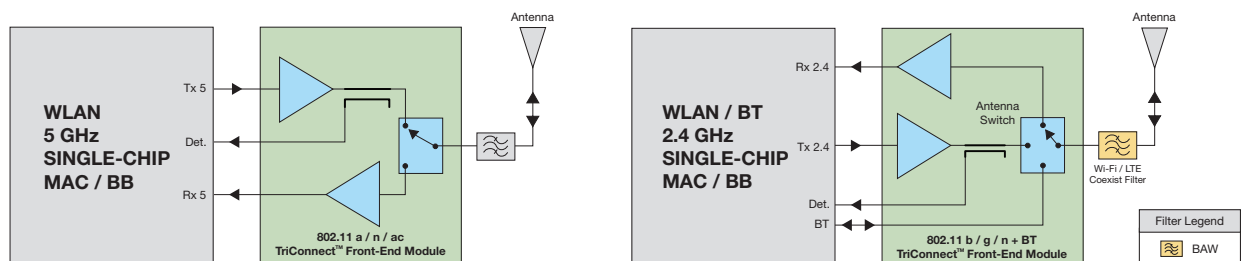
PA Modules – CDMA / WCDMA / HSUPA / LTE

Description	Features	Bands	Size (mm)	Part Number
WCDMA / HSUPA PA Module, w/Coupler	2-Bit (Hi / Med / Low Power Modes)	Band 1	3.0x3.0x0.9	TQM776011
WCDMA / HSUPA PA Module, w/Coupler	2-Bit (Hi / Med / Low Power Modes)	Band 8	3.0x3.0x0.9	TQM726018
CDMA & WCDMA / HSUPA PA Module, w/Coupler	2-Bit (Hi / Med / Low Power Modes)	PCS / Band 2	3.0x3.0x0.9	TQM766012
CDMA & WCDMA / HSUPA PA Module, w/Coupler	2-Bit (Hi / Med / Low Power Modes)	AWS / Band 4	3.0x3.0x0.9	TQM756014
CDMA & WCDMA / HSUPA PA Module, w/Coupler	2-Bit (Hi / Med / Low Power Modes)	Cellular / Band 5	3.0x3.0x0.9	TQM716015
LTE PA Module, w/Coupler	1-Bit (Hi / Low Power Modes)	Band 13	3.0x3.0x0.9	TQM700013
LTE PA Module, w/Coupler	1-Bit (Hi / Low Power Modes)	Band 17	3.0x3.0x0.9	TQM700017
Dual-Band WCDMA / HSUPA PA Module, w/Coupler	1-Bit (High / Low Power Modes) Separate LB / HB RF Inputs	Bands 1 & 8	4.0x3.0x0.9	<i>TQM7M6158*</i>
Dual-Broadband WCDMA / HSUPA / EV-DO PA Module, w/Coupler	1-Bit (High / Low Power Modes) Separate LB / HB RF Inputs	Bands 1, 2 & 5 & 8 (25 & 26) BC0, BC1 (BC10)	4.0x3.0x0.9	<i>TQM7M6125*</i>
Dual-Band WCDMA / HSUPA PA Module, w/Coupler	1-Bit (High / Low Power Modes) Single LB / HB RF Input	Bands 1 & 8	4.0x3.0x0.9	<i>TQM7M6018*</i>
Dual-Band WCDMA / HSUPA / EV-DO PA Module, w/Coupler	1-Bit (High / Low Power Modes) Single LB / HB RF Input	Bands 2 & 5 (25 & 26) BC0, BC1 (BC10)	4.0x3.0x0.9	<i>TQM7M6025*</i>
Dual-Broadband WCDMA / HSUPA / EV-DO PA Module, w/Coupler	1-Bit (High / Low Power Modes) Separate LB / HB RF Inputs	Bands 1, 2 & 5 & 8 (25 & 26) BC0, BC1 (BC10)	4.2x3.0x0.9	<i>TQP6109*</i>

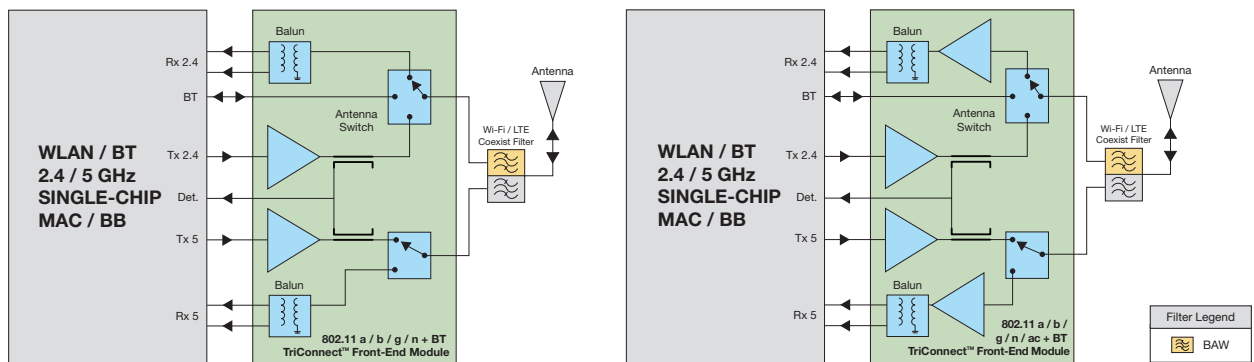
NOTES: * = New

TRITIUM™ PAD Family – WCDMA / HSUPA / LTE

Description	Features	Bands	Size (mm)	Part Number
WCDMA / HSUPA PA-Duplexer Module; SE Input w/Coupler, Detector	1-Bit (Hi / Low Power Modes)	Band 1	7.0x4.0x1.1	TQM676021
WCDMA / HSUPA PA-Duplexer Module; SE Input w/Coupler, Detector	1-Bit (Hi / Low Power Modes)	Band 2	7.0x4.0x1.1	TQM666022
WCDMA / HSUPA PA-Duplexer Module; SE Input w/Coupler, Detector	1-Bit (Hi / Low Power Modes)	Bands 5 & 6	7.0x4.0x1.1	TQM616025
WCDMA / HSUPA PA-Duplexer Module; SE Input w/Coupler, Detector	1-Bit (Hi / Low Power Modes)	Band 8	7.0x4.0x1.1	TQM626028L
WCDMA / HSUPA PA-Duplexer Module; SE Input w/Coupler	DC / DC, 1-Bit (Hi / Med Power Modes)	Band 2	4.5x3.5x1.0	TQM666052



Single-Band TriConnect™ WLAN Modules



Dual-Band TriConnect™ WLAN Modules

WLAN / 3G / 4G LTE Duplexers & Filters

Description	Features	Bands	Size (mm)	Part Number
LTE SE / BAL Duplexer - SAW	1.5dB (Tx) / 1.6dB (Rx) Insertion Loss	Band 13	2.5x2.0x0.6	856879
LTE SE / BAL Duplexer - TC-SAW	1.8dB (Tx) / 2.0dB (Rx) Insertion Loss	Band 17	2.5x2.0x0.6	856931
LTE SE / BAL Duplexer - SAW	High-Performance Temp. Comp. SAW	Band 20	2.5x2.0x0.6	856979
BC10 SE / BAL Duplexer - SAW	Excellent Triple Beat Performance	BC10 (PCS)	2.5x2.0x0.6	856999
BC0 Notch Filter for SVLTE Applications - TC-SAW	Low Loss, High Attenuation and High Linearity	BC0 / B13	2.5x2.0x0.6	857031*
B13 Notch Filter for SVLTE Applications - TC-SAW	Low Loss, High Attenuation and High Linearity	BC0 / B13	2.5x2.0x0.6	857061*
LTE SE / SE Duplexer - BAW	Excellent Triple Beat Performance	Band 25 (BC14)	2.5x2.0x0.9	TQM963014
PCS SE / SE Duplexer - BAW	Excellent Triple Beat Performance	Band 2 (PCS) (BC1)	2.5x2.0x0.9	TQM966002
LTE Diversity Receive Filter - BAW	2.6dB Insertion Loss and 40dB Tx Attenuation	Band 25	2.5x2.0x0.8	TQM966025
LTE Duplexer Bank - BAW / TC-SAW	Diplexed Duplexer for B25 / 26 Applications	Band 25 / 26	2.8x4.7x1.0	TQQ2526*
LTE Duplexer Bank - BAW / SAW	Diplexed Duplexer for BC1 / C0 Applications	Band BC1 / BC0	2.8x4.7x1.0	TQQ0101*
LTE B38 / B40 Diplex Tx Filter - BAW	Diplexed Tx Filters for B38 / 40 Applications	Bands 38 & 40	2.0x1.5x0.5	885030*
LTE B38 / 40 Rx Filter - BAW	Rx Filters for B38 / 40 Applications	Band 38 + 40	1.7x1.3x0.5	885035*
LTE B38 Tx / Rx Filter - BAW	Tx or Rx B38 Filter	Band 38	1.4x1.2x0.5	885026*
LTE B40 Tx / Rx Filter - BAW	Tx or Rx B40 Filter	Band 40	1.4x1.2x0.5	885049*
Duplexer B25 - BAW	SE Duplexer	Band 25	2.0x1.6x0.4	TQM969002*
LTE B25 Diversity Receive Filter - BAW	B25 Rx Filter	Band 25	2.0x1.6x0.9	885051*
LTE / Wi-Fi Coexist Filter - BAW	WLAN BPF Filter B38 / 40 Reject	WLAN	1.4x1.2x0.5	885033*
LTE / Wi-Fi Coexist Filter - BAW	WLAN BPF Filter B7 / 41 Reject	WLAN	1.4x1.2x0.5	885032*

NOTES: * = New

TriConnect™ WLAN RF Modules

Description	Features	Bands	Size (mm)	Part Number
5 GHz WLAN PA MMIC	ETSLP-16 Package, Detector, Hi / Low Linearity Mode	802.11 a / n	3.0x3.0x0.45	TQP787011
2.4 GHz WLAN Low Noise Amplifier + SP3T Switch w/WLAN Tx and Bluetooth® Path	LNA Bypass, ETSLP-12 Package	802.11 b / g / n	1.5x1.5x0.55	TQP879001A
2.4 GHz WLAN PA + Switch MMIC w/WLAN Rx Balun and Bluetooth® Path	ETSLP-16 Package, Coupler / Detector	802.11 b / g / n	3.0x3.0x0.45	TQM679002A
2.4 GHz and 5 GHz WLAN PA + Switch MMIC w/WLAN Rx Baluns and Bluetooth® Path	ETSLP-24 Package, Coupler / Detector	802.11 a / b / g / n	4.0x4.0x0.45	TQP6M9002
2.4 GHz and 5 GHz WLAN High-Performance PA + Switch MMIC w/WLAN 2.4 GHz and 5 GHz LNA + Rx Baluns and Bluetooth® Path	ETSLP-24 Package, Coupler / Detector	802.11 a / b / g / n / ac	4.0x4.0x0.45	TQP6M9017
2.4 GHz WLAN PA + Low Noise Amplifier + SP3T Switch MMIC for Bluetooth® Path	ETSLP-16 Package, Coupler / Detector	802.11 b / g / n	2.5x2.5x0.4	TQF9046*

TriConnect™ WLAN RF Modules (cont.)

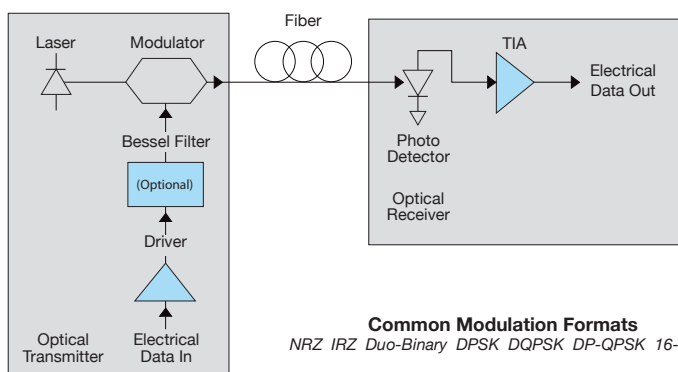
Description	Features	Bands	Size (mm)	Part Number
5 GHz WLAN PA + Low Noise Amplifier + SP2T Switch MMIC	ETSLP-16 Package	802.11 a / n / ac	2.5x2.5x0.4	TQF7062*
5 GHz WLAN PA + Low Noise Amplifier + SP2T Switch MMIC	ETSLP-16 Package, Detector / Coupler	802.11 a / n / ac	2.5x2.5x0.4	TQP887051*
5 GHz WLAN PA + SP2T Switch MMIC	ETSLP-16 Package	802.11 a / n / ac	2.5x2.5x0.4	TQP887052*

NOTES: * = New

GPS RF Front-End Module & Filters

Description	Features	Bands	Size (mm)	Part Number
GPS Filter-LNA-Filter Module	Low Noise (1.56dB) and High Gain (16dB)	1575 MHz, GPS L1	3.0x3.0x1.0	TQM640002
GPS SAW Filter, SE / BAL	1.1dB Insertion Loss, High Rejection (Hermetic CSP)	1575 MHz, GPS L1	1.4x1.2x0.46	856576
GPS SAW Filter, SE / SE	0.75dB Insertion Loss (Hermetic CSP)	1575 MHz, GPS L1	1.4x1.2x0.46	856561
GPS SAW Filter, SE / SE	0.6dB Insertion Loss (Hermetic CSP)	1575 MHz, GPS L1	1.4x1.2x0.46	856793
GPS SAW Filter, SE / SE	1.25dB Insertion Loss (Hermetic CSP)	1575 MHz, GPS L1	2.0x1.5x0.76	856584*

NOTES: * = New

Optical Systems
(10, 40 & 100 Gb/s)

Drivers

Description	Frequency Range (GHz)	Power	Gain (dB)	NF (dB)	Voltage / Current (V / mA)	Package Style	Part Number
9.9 - 12.5 Gb/s 3V - 7V Driver	DC - 13	3 - 7Vpp	32	-	3.3 - 5 / 115	8x8 QFN	TGA4956-SM
9.9 - 12.5 Gb/s Mod. Driver	DC - 16	3 - 10Vpp	35	2.5	5.5 - 8 / 210	11.4x8.9 SL	TGA4953-SL
9.9 - 12.5 Gb/s Mod. Driver	DC - 16	3 - 9Vpp	35	2.5	5.5 - 8 / 210	11.4x8.9 SL	TGA4954-SL
12.5 Gb/s NRZ Driver	DC - 18	3 - 11Vpp	16	2.5	8 / 285	Die	TGA4807
12.5 Gb/s NRZ Driver	DC - 18	6 - 8Vpp	16	3.5	5 - 8 / 70 - 175	Die	TGA1328-SCC
12.5 Gb/s NRZ Driver	DC - 18	4 - 8Vpp	16	3.5	8 / 175	8.9x8.9x2 SL	TGA8652-SL
15 Gb/s 10V Linear Mod. Driver	DC - 20	3 - 10Vpp	22	-	7 / 280	6x6 QFN	TGA4826-SM
200 Gb/s 16 QAM Linear Dual Driver w/Bias-T's inside	DC - 27	3-5Vpp	24	-	5 - 7 / 500	12x10.5x3.6 SL	TGA4892-SL**
100 Gb/s Linear Dual Driver w/Bias-T's inside	DC - 27	3 - 8Vpp	35	-	5 - 7 / 650	16x10.5x3.6 SL	TGA4894-SL**
40 & 100 Gb/s 8Vpp SE Driver	DC - 30	3 - 9Vpp	32	-	6 - 7 / 270	14.4x7x2 SL	TGA4943-SL
100 Gb/s 8Vpp Dual Channel Driver w/Bias-T's Inside	DC - 35	3 - 9Vpp	32	-	5 - 7 / 500	16x10.5x3.6 SL	TGA4947-SL
Wideband Driver (40 Gb/s)	DC - 35	4Vpp	12	-	5 / 135	Die	TGA4832
32 Gb/s 9Vpp Diff In / Out Driver MMIC	DC - 35	6 - 9Vpp Diff	25 Diff	-	5 - 6 / 500	10x7 SL	TGA4959-SL

Drivers (cont.)

Description	Frequency Range (GHz)	Power	Gain (dB)	NF (dB)	Voltage / Current (V / mA)	Package Style	Part Number
28 Gb/s 6Vpp Diff In / Out Driver MMIC	DC - 28	4 - 8Vpp Diff	22 Diff	–	4 - 5 / 450	6x6 QFN	TGA4957-SM*
45 Gb/s 8Vpp SE Driver w/ Bias-T Inside	DC - 37	5 - 9Vpp	30	–	6 - 7 / 300	16x8 SL	TGA4942-SL
45 Gb/s 9Vpp Diff In / Out Driver MMIC	DC - 50	6 - 10Vpp Diff	27 Diff	–	5 - 6 / 500	Die	TGA4959**
Ultra-Wideband Driver (50 Gb/s)	DC - 78	3.5Vpp	8	5	6 / 82	Die	TGA4803
10.7 - 12.5 Gb/s Linear Mod. Driver	0.03 - 8	12.5Vpp	20	–	8 / 310	8x8 QFN	TGA4823-2-SM

NOTES: * = New, ** = Coming Soon, SE = Single-Ended

Amplifiers

Description	Frequency Range (GHz)	P1dB / OIP3 (dBm)	Gain (dB)	NF (dB)	Voltage / Current (V / mA)	Package Style	Part Number
LNA / Gain Block (40 Gb/s)	DC - 40	11.5 / 20	13	3.2	5 / 50	Die	TGA4830
CATV TFA / Gain Block	0.04 - 1	27 / 42	20	1.5	8 / 350	4x4 QFN	TGA2803-SM

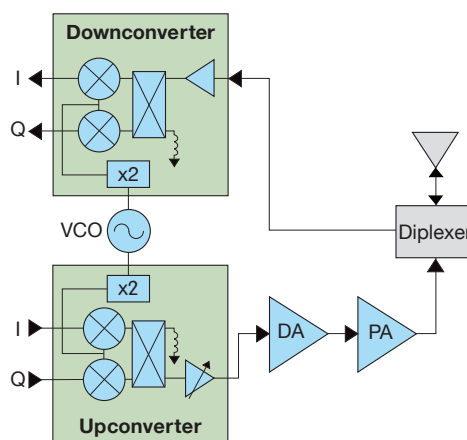
Control Products

Description	Frequency Range (GHz)	Insertion Loss (dB)	Control Range (dB)	Supply Voltage (V)	Package Style	Part Number
Analog Attenuator	DC - 30	2	17	0 to -2	3x3 QFN	TGL4203-SM
Analog Attenuator	DC - >50	2	17	0 to -2	Die	TGL4203
Discrete Thru (0dB Attenuator)	DC - 65	0	0	–	Die	TGL4201-00
Discrete Attenuators	DC - 65	–	2, 3, 6, 10	–	Die	TGL4201-02, 03, 06, 10
Bessel Filter	–	6, 7, 8, 9, 10 & 11 Cut-Off Freq	–	–	Die	TGB2010-00, -09 etc.
Bessel Filter	–	5, 6, 6.5, 7.5, 8 & 9 Cut-Off Freq	–	–	2x2 QFN	TGB2010-00, -90-SM etc.

Transimpedance Amplifiers (TIAs)

Description	Bandwidth (GHz)	Small Signal Gain (dB)	Differential Transimpedance Gain (ohm)	Differential Output Vpp (mV)	Equivalent Input Noise (pA / rHz)	Voltage (V)	Current (mA)	Part Number
13 Gb/s Linear TIA with AGC	11	–	250 - 4800	200 - 900	24	3.3	175	TGA4861*
32 Gb/s Linear TIA with AGC	28	–	250 - 4800	200 - 900	24	3.3	175	TGA4864*
44.6 Gb/s Limiting TIA	36	–	2800	650	15	3.3	75	TGA4866*
43 Gb/s Limiting TIA	30	40	4500	600	30	-5.2	85	TIA56*
43 Gb/s Limiting TIA with PLD	27	36	3200	600	30	-5.2	85	TIA56A*

NOTES: * = New



Amplifiers

Description	Frequency Range (GHz)	P1dB (Psat) / OIP3 (dBm)	Gain (dB)	NF / PAE (dB) / (%)	Voltage / Current (V / mA)	Package Style	Part Number
2W HPA	5.5 - 8.5	32 (34) / 41	30	7 / -	6 / 1260	5x5 QFN	TGA2706-SM
2.5W HPA	5.9 - 8.5	34 / 42	18	7.5 / 37	6 / 1000	6x6 QFN	TGA2701-SM
HPA	6 - 18	(34.5) / -	24	- / 20	8 / 1200	Die	TGA9092-SCC
Gain Block	6 - 18	12.5 / -	13	5 / -	5 / 80	Die	TGA8035-SCC
2.8W HPA	6 - 18	(34.5) / -	24	- / 20	7 - 9 / 800 - 1200	Die	TGA2501
HPA	7 - 8.5	(38) / -	21	- / 42	7 / 2000	Die	TGA2701
Driver Amp	7 - 13	(30) / 37	25	- / 30	9 / 450	Die	TGA2700
Wideband Driver Amp	8 - 18	13 / -	17	5 / -	4.5 / 50	Die	TGA8399C
HPA	9 - 10.5	(38) / -	20	- / >38	4 - 9 / 2000	Die	TGA2704
HPA	10 - 12	33 (34.5) / 43	25	9 / -	6 / 1300	5x5 QFN	TGA2535-SM
HPA	10.5 - 12	(38) / -	19	- / >39	4 - 9 / 2000	Die	TGA2710
Driver Amp, SB	11 - 17	17 / -	23	6 / -	6 / 75	4x4 QFN	TGA2507-SM
Driver Amp	12 - 16	26 (26.5) / 37	23	7 / -	5 / 300	3x3 QFN	TGA2524-SM
Driver Amp, SB	12 - 18	14 / -	17	-	6 / 40	Die	TGA2506
Driver Amp, SB	12 - 18	20 / -	28	6 / -	6 / 80	Die	TGA2507
1W HPA	12 - 19	30 / -	30	-	5 - 7 / 435	Die	TGA2508
HPA	12 - 19	29 / -	25	-	5 - 7 / 435	4x4 QFN	TGA2508-SM
HPA	12.5 - 15.5	30 (31.5) / 41	25	7.5 / -	6 / 650	5x5 QFN	TGA2527-SM
2W HPA	12.5 - 16	(32) / 37	32	-	6 - 7 / 680		TGA2503-SM
2W HPA	12.5 - 17	(34) / -	26	- / 25	7.5 / 650	Die	TGA2510
2W HPA	12.7 - 15.4	34 (35) / 43	28	6 / -	6 / 1300	Die	TGA2533
2W HPA	12.7 - 15.4	33 (34.5) / 43	27	6 / -	6 / 1300	5x5 QFN	TGA2533-SM
2W HPA	13 - 17	(34) / 40	32	-	6 - 7 / 680	Die	TGA2503
2W HPA	13 - 17	(34) / -	25	-	6 - 7 / 640	Die	TGA2505
4W HPA, Balanced	13 - 17	(36) / 44	25	- / 30	6 - 7 / 1300	Die	TGA2502
HPA	17 - 20	31 (32.5) / 41	23	7 / -	6 / 900	4x4 QFN	TGA4532-SM
HPA	17 - 20	30.5 / 41	23	-	6 / 900	Die	TGA4532
2W HPA	17 - 20	33 (34.5) / 42	21	-	6 / 1430	5x5 QFN	TGA4534-SM*
Driver Amp	17 - 24	22 / -	19	4 / -	5 / 270	4x4 QFN	TGA2521-SM
HPA	17 - 24	31 (32) / 40	23	6 / -	7 / 720	Die	TGA4531
HPA, AGC, PD	17 - 24	(29) / 38	22	-	5 / 712	4x4 QFN	TGA2522-SM
HPA	17 - 27	29 (31) / 37	22	-	7 / 760	Die	TGA4502-SCC
Gain Block & 2x / 3x Multiplier	17 - 37	18 (22) / 26	20	7 / -	5 / 140	3x3 QFN	TGA4030-SM
Gain Block & 2x / 3x Multiplier	17 - 40	18 (22) / 24	22	7 / -	5 / 140	3x3 QFN	TGA4031-SM
Gain Block, Multiplier	17 - 43	22 / -	25	-	5 / 225	Die	TGA4040
2W HPA	18 - 23	32 (33) / 39	26	-	7 / 840	Die	TGA4022
HPA	18 - 27	29 / 37	14	-	6 / 480	Die	TGA1135B-SCC
MPA	19 - 27	25 / 32	22	-	5 - 7 / 220	Die	TGA1073G-SCC
Gain Block	19 - 38	(22) / 30	20	-	5 / 160	Die	TGA4036
HPA	21 - 24	31 (32) / 41	22	6 / -	6 / 880	4x4 QFN	TGA4533-SM
2W HPA	21 - 24	32 (34) / 41	22	-	6 / 1430	5x5 QFN	TGA4535-SM*
MPA	25 - 35	25 / -	18	-	6 / 220	4x4 QFN	TGA4902-SM
MPA	26 - 35	25 (32) / -	19	-	5 - 7 / 220	Die	TGA1073A-SCC
1W HPA	27 - 31	30 / -	22	- / 25	4 - 6 / 420	Die	TGA4509
2W HPA	27 - 31	32.5 (33) / 36.5	20	-	6 / 840	Die	TGA4513
HPA	27 - 32	28.5 / -	25	-	6 - 8 / 420	Die	TGA1073B-SCC
1W HPA	28 - 31	30 / -	19	- / 25	6 / 420	4x4 QFN	TGA4509-SM
Driver Amp	29 - 37	16 / -	16	-	6 / 60	Die	TGA4510
2W HPA	30 - 40	31.5 (33) / -	20	-	6 / 1050	Die	TGA4516
MPA	32 - 45	24 (25) / 33	16	-	6 / 175	Die	TGA4521
MPA	33 - 47	27 (27.5) / 36	18	-	6 / 400	Die	TGA4522
HPA	36 - 40	26 / -	15	-	5 - 7 / 240	Die	TGA1073C-SCC
HPA	36 - 40	30 / -	14	-	6 - 7 / 500	Die	TGA1171-SCC
HPA	37 - 40	28 / 38	24	-	5 / 600	Die	TGA4538
37 - 40 GHz Power Amplifier	37 - 40	30 (32) / 38	26	- / 18	6 / 900	Die	TGA4542*
40.5 - 43 GHz Power Amplifier	40.5 - 43.5	28.5 (30) / 38	23	- / 14	6 / 900	Die	TGA4543*

NOTES: * = New, AGC = Automatic Gain Control, PD = Power Detector, SB = Self Biased

Low Noise Amplifiers

Description	Frequency Range (GHz)	P1dB / IIP3 (dBm)	Gain (dB)	NF (dB)	Voltage / Current (V / mA)	Package Style	Part Number
LNA, AGC	2 - 18	18 / 29	17	2	5 / 75	Die	TGA2525
LNA, AGC	2 - 20	19 / –	17.5	2.5	5 / 100	Die	TGA2526
LNA, AGC	2 - 20	17.5 / –	9	3.5	5 - 8 / 60	Die	TGA1342-SCC
LNA, AGC	2 - 20	16 / –	17	2.5	5 / 75	4x4 QFN	TGA2513-SM
LNA, AGC	2 - 23	17 / 26	17	2	5 / 75	Die	TGA2513
LNA, SB, AGC	4 - 14	6 / 16	22	2.3	5 / 90	4x4 QFN	TGA2512-1-SM
LNA, AGC, GB	4 - 14	13 / 24	25	2.3	5 / 160	4x4 QFN	TGA2512-2-SM
LNA, SB, AGC	5 - 15	6 / 13	27	1.4	5 / 90	Die	TGA2512
LNA, SB	6 - 13	11 / –	26	1.5	5 / 65	Die	TGA8399B-SCC
LNA, SB, AGC	6 - 14	6 / 12	20	1.3	5 / 90	Die	TGA2511
LNA	20 - 27	12 / –	21	2.2	3.5 / 60	Die	TGA4506
LNA	28 - 36	12 / 21	22	2.3	3 / 60	Die	TGA4507
LNA	30 - 42	14 / –	21	2.8	3 / 40	Die	TGA4508
LNA	57 - 69	–	13	4	3 / 41	Die	TGA4600

NOTES: AGC = Automatic Gain Control, GB = Gate Bias, SB = Self Biased

Discrete Transistors

Description	Frequency Range (GHz)	P1dB (Psat) (dBm)	Gain (dB)	NF / PAE (dB) / (%)	Voltage / Current (V / mA)	Package Style	Part Number
24mm HFET	DC - 4	40	13	– / 51	8 / 2170	Die	TGF4124
18mm HFET	DC - 6	38.5	13.5	– / 53	8 / 1690	Die	TGF4118
12mm HFET	DC - 8	37	14	– / 55	8 / 750	Die	TGF4112
4.8mm HFET	DC - 10.5	34	8.5	– / 53	8 / 200	Die	TGF4250-SCC
9.6mm HFET	DC - 10.5	37	9.5	– / 52	8.5 / 520	Die	TGF4260-SCC
1.2mm HFET	DC - 12	28.5	10	– / 55	8 / 50	Die	TGF4230-SCC
2.4mm HFET	DC - 12	31.5	10	– / 56	8 / 100	Die	TGF4240-SCC
1mm Pwr pHEMT	DC - 12	(31.5)	11	– / 55	12 / 75	Die	TGF2021-01
2mm Pwr pHEMT	DC - 12	(34.5)	11	– / 55	12 / 150	Die	TGF2021-02
4mm Pwr pHEMT	DC - 12	(37.5)	11	– / 55	12 / 300	Die	TGF2021-04
8mm Pwr pHEMT	DC - 12	(40.2)	11	– / 55	12 / 600	Die	TGF2021-08
12mm Pwr pHEMT	DC - 12	(42)	11	– / 52	12 / 900	Die	TGF2021-12
0.3mm MESFET	DC - 18	13	11	1.5 / –	3 / 15	Die	TGF1350-SCC
0.6mm Pwr pHEMT	DC - 20	(29)	13	– / 56	12 / 45	Die	TGF2022-06
1.2mm Pwr pHEMT	DC - 20	(32)	13	– / 56	12 / 90	Die	TGF2022-12
2.4mm Pwr pHEMT	DC - 20	(35)	13	– / 58	12 / 180	Die	TGF2022-24
4.8mm Pwr pHEMT	DC - 20	(38)	13	– / 58	12 / 360	Die	TGF2022-48
6mm Pwr pHEMT	DC - 20	(39)	12.5	– / 53	12 / 448	Die	TGF2022-60
0.3mm pHEMT	DC - 22	16	13	0.8 / –	3 / 15	Die	TGF4350

Switches

Description	Frequency Range (GHz)	Insertion Loss (dB)	Isolation (dB)	P1dB (dBm)	Control Voltage (V)	Package Style	Part Number
SP2T 802.11 a, b, g	DC - 6	0.6	28	31.5	3 / 0	1.3x2 DFN	TQS5200
SPDT FET	DC - 18	1.5	36	27	–5	Die	TGS2306
SPDT FET	DC - 18	2	39	21	–7 / 0	Die	TGS8250-SCC
SP3T VPIN	1 - 20	0.5	35	23	–	Die	TGS2303
SP4T VPIN	1 - 20	0.6	38	23	–	Die	TGS2304-SCC
SP3T VPIN	4 - 18	1	35	20	+/- 2.7	Die	TGS2313
SPDT VPIN	4 - 20	0.9	35	>20	+/- 2.7	Die	TGS2302
SPDT VPIN	24 - 43	<2	36	27	+/- 5	Die	TGS4301
SPDT VPIN	27 - 46	0.9	30	>34	+/- 5 / 15	Die	TGS4302
SPDT VPIN Absorptive	32 - 40	1	36	>33	+/- 5 / 18	Die	TGS4304

Frequency Converters & Mixers

Description	Frequency Range (GHz)	Conversion Gain (dB)	LO / RF Isolation (dB)	IIP3 (dBm)	Voltage / Current (V / mA)	Package Style	Part Number
Ku-Band Upconverter	10 - 16	17	25	15	5 / 300	5x5 QFN	TGC2510-SM*
Doubler w/Amplifier	16 - 30	18	30	–	5 / 150	Die	TGC4403
Doubler w/Amplifier	16 - 30	18	30	–	5 / 150	4x4 QFN	TGC4403-SM
Upconverting Mixer	17 - 26	-9	40	–	-0.9 / 0	4x4 QFN	TGC4402-SM
Upconverting Mixer	17 - 27	-9	35	18	-0.9 / 0	Die	TGC4402
K-Band Upconverter	17 - 27	13	40	19	5 / 340	5x5 QFN	TGC4510-SM*
K-Band Downconverter	17 - 27	15	40	3	3 / 230	5x5 QFN	TGC4610-SM*
Gain Block & 2x / 3x Multiplier	17 - 37	9	–	6	5 / 140	3x3 QFN	TGA4030-SM
Gain Block & 2x / 3x Multiplier	17 - 37	9	–	6	5 / 140	3x3 QFN	TGA4030-SM
Gain Block & 2x / 3x Multiplier	17 - 40	9	–	2	5 / 140	3x3 QFN	TGA4031-SM

NOTES: * = New

Control Products

Description	Frequency Range (GHz)	Insertion Loss (dB)	Control Range (dB)	P1dB (dBm)	Supply Voltage (V)	Package Style	Part Number
Analog Attenuator	DC - 30	2	17	–	0 to -2	3x3 QFN	TGL4203-SM
Analog Attenuator	DC - >50	2	17	–	0 to -2	Die	TGL4203
Discrete Thru (0dB Attenuator)	DC - 65	0	0	–	–	Die	TGL4201-00
Discrete Attenuators	DC - 65	–	2, 3, 6, 10	–	–	Die	TGL4201-02, 03, 06, 10
Analog Attenuator	2 - 20	2	15	23	2.5	Die	TGL8784-SCC
Passive Wideband Limiter	3 - 25	<0.5	–	18	–	Die	TGL2201
Lange Coupler	12 - 21	<0.25	–	–	–	Die	TGB2001
Lange Coupler	18 - 32	<0.25	–	–	–	Die	TGB4001
Lange Coupler	27 - 45	<0.25	–	–	–	Die	TGB4002

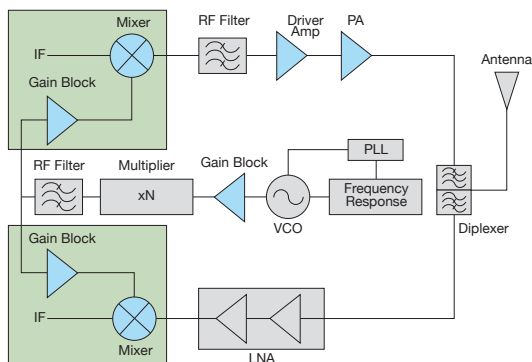
Voltage Controlled Oscillators

Description	Frequency Range (GHz)	Output Power (dBm)	Phase Noise @ 100kHz (dBc/Hz)	Voltage / Current (V / mA)	Package Style	Part Number
8.9 - 9.8 GHz VCO with Divide by 2	8.9 - 9.8	9	-112	5 / 170	5x5 QFN	TGV2561-SM*
9.5 - 10.3 GHz VCO with Divide by 2	9.5 - 10.3	9	-111	5 / 170	5x5 QFN	TGV2562-SM*
9.7 - 10.8 GHz VCO with Divide by 2	9.7 - 10.8	9	-111	5 / 170	5x5 QFN	TGV2563-SM*
10.3 - 11.1 GHz VCO with Divide by 2	10.3 - 11.1	9	-111	5 / 170	5x5 QFN	TGV2564-SM*
10.7 - 11.5 GHz VCO with Divide by 2	10.7 - 11.5	9	-111	5 / 180	5x5 QFN	TGV2539-SM*
11.3 - 12.3 GHz VCO with Divide by 2	11.3 - 12.3	10	-110	5 / 180	5x5 QFN	TGV2565-SM*
12.5 - 13.5 GHz VCO with Divide by 2	12.5 - 13.5	7	-110	5 / 165	5x5 QFN	TGV2529-SM*
12.6 - 13.8 GHz VCO with Divide by 2	12.6 - 13.8	9	-110	5 / 170	5x5 QFN	TGV2584-SM*
13.4 - 14.4 GHz VCO with Divide by 2	13.4 - 14.4	9	-110	5 / 175	5x5 QFN	TGV2566-SM*

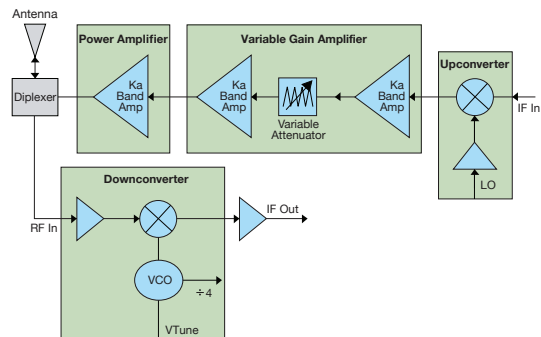
NOTES: * = New

Filters

Description	Frequency (MHz)	Bandwidth (MHz)	Typical IL (dB)	I / O Configuration	Rejection {dB @ BW or Freq (MHz)}	Package Size (mm)	Part Number
High-Selectivity IF Filter	140	1.5	12.1	SE and BAL	48 @ 143	9.1x4.8	856691
High-Selectivity IF Filter	140	3	13.6	SE and BAL	46 @ 144	9.1x4.8	856692
High-Selectivity IF Filter	140	6	11	BAL / BAL	39 @ 147	9.1x4.8	856693
High-Selectivity IF Filter	140	7	13.6	SE and BAL	43 @ 147	9.1x4.8	856694
High-Selectivity IF Filter	140	10	10	BAL / BAL	41 @ 152.5	9.1x4.8	856695
High-Selectivity IF Filter	140	14	8.5	SE and BAL	43 @ 155	9.1x4.8	856696
High-Selectivity IF Filter	140	20	9.8	BAL / BAL	40 @ 158.5	9.1x4.8	856697
High-Selectivity IF Filter	140	28	18	SE and BAL	42 @ 168	9.1x4.8	856698



Multi-Band VSAT



Ka-Band VSAT

Amplifiers

Description	Frequency Range (GHz)	P1dB (Psat) / OIP3 (dBm)	Gain (dB)	NF / PAE (dB) / (%)	Voltage / Current (V / mA)	Package Style	Part Number
Ku-Band 50mW Gain Block, SB	11 - 17	17 / -	23	6 / -	6 / 75	4x4 QFN	TGA2507-SM
Ku-Band 25mW Gain Block, SB	12 - 18	14 / -	17	-	6 / 40	Die	TGA2506
Ku-Band 50mW Gain Block, SB	12 - 18	20 / -	28	6 / -	6 / 80	Die	TGA2507
Ku-Band 0.8W PA	12 - 19	29 / -	25	-	5 - 7 / 435	4x4 QFN	TGA2508-SM
Ku-Band 1W PA	12 - 19	30 / -	30	-	5 - 7 / 435	Die	TGA2508
Ku-Band 1.6W PA	12.5 - 16	(32) / 37	32	-	6 - 7 / 680	4x4 QFN	TGA2503-SM
Ku-Band 2W PA	12.5 - 17	(34) / -	26	- / 25	7.5 / 650	Die	TGA2510
Ku-Band 4W PA	13 - 15	(36) / 41	25	-	7 / 1300	8.4x17.8 FL	TGA8659-FL
Ku-Band 6.5W PA	13 - 16	(38) / -	24	-	8 / 2600	11.4x17.3 FL	TGA2514-FL
Ku-Band 1.6W PA	13 - 17	(34) / 40	32	-	6 - 7 / 680	Die	TGA2503
Ku-Band 2.5W PA	13 - 17	(34) / -	25	-	6 - 7 / 640	Die	TGA2505
Ku-Band 4W PA	13 - 17	(36) / 44	25	- / 30	6 - 7 / 1300	Die	TGA2502
Ku-Band 6.5W PA	13 - 18	(38) / 44	24	-	8 / 3600	Die	TGA2514
Ka-Band 0.32W MPA	25 - 35	25 / -	18	-	6 / 220	4x4 QFN	TGA4902-SM
Ka-Band 1W PA	27 - 31	30 / -	22	- / 25	4 - 6 / 420	Die	TGA4509
Ka-Band 2W PA	27 - 31	32.5 (33) / 36.5	20	- / 25	6 / 840	Die	TGA4513
Ka-Band 0.25W MPA	27 - 32	24 / -	15	-	5 / 170	4x4 QFN	TGA4903-SM
Ka-Band 1W Linear PA	28 - 30	30 (30.5) / -	20	-	6 / 420	5x5 QFN	TGA4539-SM
Ka-Band VGA	28 - 31	23 / 31	33	-	5 / 330	6x6 QFN	TGA4541-SM
Ka-Band 1W PA	28 - 31	30 / -	19	- / 25	6 / 420	4x4 QFN	TGA4509-SM
Ka-Band 4W PA	28 - 31	36 (36.5) / -	22	- / 22	6 / 1600	5x5 QFN	TGA4906-SM
Ka-Band 4W PA	28 - 31	36 (36.5) / -	22	- / 22	6 / 1600	Die	TGA4906
Ka-Band 7W PA	28 - 31	(38.5) / -	22	- / 20	6 / 3200	Die	TGA4916
Ka-Band 50mW Gain Block	29 - 37	16 / -	16	-	6 / 60	Die	TGA4510

NOTES: SB = Self Biased

Frequency Converters & Mixers

Description	Frequency Range (GHz)	Conversion Gain (dB)	LO / RF Isolation (dB)	IIP3 (dBm)	Voltage / Current (V / mA)	Package Style	Part Number
Doubler w/Amplifier	16 - 30	18	30	-	5 / 150	Die	TGC4403
Ka-Band Doubler + Driver Amp	16 - 30	15	25	-	5 / 150	4x4 QFN	TGC4406-SM
Ka-Band Downconverter (LNA + VCO + Mixer)	17 - 21	8	-	-	5 / 305	5x6 QFN	TGC4408-SM
Ka-Band Upconverter (Low Amp + Doubler)	21.5 - 32.5	-9	35	13	5 / 65	3x3 QFN	TGC4407-SM

Up to 1W

Description	Frequency Range (GHz)	P1dB (Psat) / OIP3 (dBm)	Gain (dB)	NF / PAE (dB) / (%)	Voltage Current (V / mA)	Package Style	Part Number
Dual HBT Amplifier	DC - 1	20 / 37	13.5	4.5 / -	>7 / 165	SOIC-8	AG606
CATV Gain Block, Flex Gain	DC - 2	21 / 38	16 - 21	2 / -	5 - 8 / 100	SOT89	TAT7457
12.5 Gb/s NRZ Driver	DC - 18	24 / -	16	3.5 / -	5 - 8 / 70 - 175	Die	TGA1328-SCC
12.5 Gb/s NRZ Driver	DC - 18	25 / -	16	3.5 / -	8 / 175	8.9x8.9 SL	TGA8652-SL
Wideband Driver (40 Gb/s)	DC - 35	18 / -	12	-	5 / 135	Die	TGA4832
CATV TIA / Gain Block, SB	0.04 - 1	27 / 46	20	1.5 / -	8 / 350	5x5 QFN	TGA2806-SM
CATV Gain Block	0.04 - 1	28 / 43	18.5	2.5 / -	6 / 318	5x5 QFN	TGA2807-SM
On-Chip Linearized Amplifier	0.04 - 1	- / 43	17	4.7 / -	5 / 380	SOIC-8	TAT7467H
CATV 12V Power Doubler MMIC	0.05 - 1	-	11	4 / -	12 / 570	SOIC16W	TAT8801A1H*
CATV Power Doubler Line Amplifier MMIC	0.05 - 1	22 / 27	22 - 27	4 / -	24 / 350 (12V Optional)	SOIC16W	TAT8857
CATV Push Pull Infrastructure Amplifier MMIC	0.05 - 1	28 / 34	28 - 34	3 / -	24 / 270 (12V Optional)	SOIC16W	TAT8858
MESFET Amplifier	0.05 - 1	20 / 40	14.8	3.5 / -	5 / 150	SOT89	AH2
Dual MESFET Amplifier	0.05 - 1	25.5 / 43	11	4.5 / -	5 / 320	SOIC-8	AH22S
Fiber to the Home TIA + Output Amp	0.05 - 1	-	38	2.9 pA / rHz EIN	5 - 12 / 200, 120	4x4 QFN	TAT6254B
Fiber to the Home TIA + Output Amp (RFoG)	0.05 - 1	-	32	3.9 pA / rHz EIN	5, 12 / 200, 130	4x4 QFN	TAT6254D
Fiber to the Home TIA + Output Amp (Hi Out)	0.05 - 1	-	33	3.9 pA / rHz EIN	5, 12 / 200, 130	4x4 QFN	TAT6254C
Dual pHEMT Amplifier, High Gain	0.05 - 1	- / 38	17.5	3.2 / -	5 / 235	SOIC-8	TAT7469
CATV Gain Block, High Gain, MOCA Multitap	0.05 - 1	- / 41	22.5	2 / -	8 / 190	SOT89	TAT7430B
CATV Gain Block, High Gain, MOCA	0.05 - 1	- / 39	18	2 / -	6 / 145	SOT89	TAT7427
CATV Gain Block	0.05 - 1	- / 39	16	2.7 / -	6 / 130	SOT89	TAT7461
CATV Gain Block	0.05 - 1	- / 39.5	16	2.7 / -	5 / 130	SOT89	TAT7461-X*
29.5dBm HBT Amplifier	0.05 - 1.5	30 / 47	19.4	6.3 / -	5 / 220	SOT89	TQP7M9105
Dual pHEMT Amplifier	0.05 - 2	- / 41	13	4 / -	6 / 190	SOIC-8	TAT7466
Dual pHEMT Amplifier, Wideband	0.05 - 2.6	-	13	4.4 / -	5 / 160	SOIC-8	TAT7464
CATV Gain Block, Wideband	0.05 - 2.6	- / 36	16.5	2.5 / -	5 / 100	SOT89	TAT7460
24.5dBm HBT Amplifier	0.4 - 4	24.3 / 39.5	20.4	4 / -	5 / 87	SOT89	TQP7M9101
27.5dBm HBT Amplifier	0.4 - 4	27.5 / 44	21.9	4 / -	5 / 137	SOT89	TQP7M9102
29.5dBm HBT Amplifier	0.4 - 4	29.5 / 45.4	20.7	4.4 / -	5 / 235	SOT89	TQP7M9103
28dBm HBT Amplifier	0.7 - 3.8	28 / 42	28.5	2.9 / -	5 / 225	4x4 QFN	TQP8M9013
Wideband PA, AGC	2 - 20	26 / -	8	-	8 / 440	Die	TGA8334-SCC
Wideband PA, AGC	2 - 20	(29) / -	15	-	12 / 1100	Flange	TGA2509-FL
Wideband PA, AGC	2 - 22	28.5 (30) / 36	17	-	12 / 1100	Die	TGA2509
WiMAX Driver Amp / PA, SB	3.4 - 3.8	30 / 42	24	-	6 / 770	5x5 QFN	TGA2703-SM
0.5W PA	6 - 18	27 / -	11	8 / -	8 / 400	Die	TGA8014-SCC
Driver Amp	7 - 13	(30) / 37	25	- / 30	9 / 450	Die	TGA2700
Wideband Driver Amp	8 - 18	13 / -	17	5 / -	4.5 / 50	Die	TGA8399C
Driver Amp	12 - 16	26 (26.5) / 37	23	7 / -	5 / 300	3x3 QFN	TGA2524-SM
1W HPA	12 - 19	30 / -	30	-	5 - 7 / 435	Die	TGA2508
HPA	12 - 19	29 / -	25	-	5 - 7 / 435	4x4 QFN	TGA2508-SM
HPA	12.5 - 15.5	30 (31.5) / 41	25	7.5 / -	6 / 650	5x5 QFN	TGA2527-SM
MPA	17 - 21	22 / -	18.5	-	7 / 66	Die	TGA9088A-SCC
Driver Amp	17 - 24	22 / -	19	4 / -	5 / 270	4x4 QFN	TGA2521-SM
HPA, AGC, PD	17 - 24	(29) / 38	22	-	5 / 712	4x4 QFN	TGA2522-SM
HPA	17 - 27	29 (31) / 37	22	-	7 / 760	Die	TGA4502-SCC
HPA	18 - 27	29 / 37	14	-	6 / 480	Die	TGA1135B-SCC
MPA	19 - 27	25 / 32	22	-	5 - 7 / 220	Die	TGA1073G-SCC
MPA	25 - 35	25 / -	18	-	6 / 220	4x4 QFN	TGA4902-SM

Up to 1W (cont.)

Description	Frequency Range (GHz)	P1dB (Psat) / OIP3 (dBm)	Gain (dB)	NF / PAE (dB) / (%)	Voltage / Current (V / mA)	Package Style	Part Number
MPA	26 - 35	25 (32) / -	19	-	5 - 7 / 220	Die	TGA1073A-SCC
1W HPA	27 - 31	30 / -	22	- / 25	4 - 6 / 420	Die	TGA4509
MPA	27 - 32	24 / -	15	-	5 / 170	4x4 QFN	TGA4903-SM
HPA	27 - 32	28.5 / -	25	-	6 - 8 / 420	Die	TGA1073B-SCC
1W HPA	28 - 31	30 / -	19	- / 25	6 / 420	4x4 QFN	TGA4509-SM
Driver Amp	29 - 37	16 / -	16	-	6 / 60	Die	TGA4510
MPA	32 - 45	24 (25) / 33	16	-	6 / 175	Die	TGA4521
MPA	33 - 47	27 (27.5) / 36	18	-	6 / 400	Die	TGA4522
HPA	36 - 40	26 / -	15	-	5 - 7 / 240	Die	TGA1073C-SCC
HPA	36 - 40	30 / -	14	-	6 - 7 / 500	Die	TGA1171-SCC
HPA	37 - 40	28 / 38	24	6 / -	5 / 600	Die	TGA4538
0.5W HPA	40 - 45	28 / -	9	-	7 / 500	Die	TGA4043
40.5 - 43 GHz Power Amplifier	40.5 - 43.5	28.5 (30) / 38	23	- / 14	6 / 900	Die	TGA4543*
Driver Amp	41 - 45	18 / -	14	-	6 / 168	Die	TGA4042
77 GHz MPA	76 - 80	14 / -	12	-	3.5 / 75	Die	TGA4706-FC

NOTES: * = **New**, AGC = Automatic Gain Control, PD = Power Detector, SB = Self Biased

1W to 4W

Description	Frequency Range (GHz)	P1dB (Psat) / OIP3 (dBm)	Gain (dB)	NF / PAE (dB) / (%)	Voltage / Current (V / mA)	Package Style	Part Number
CATV 12V Power Doubler MMIC	0.05 - 1	-	11	4 / -	12 / 550	SOIC16W	TAT2801
CATV 12V Power Doubler	0.05 - 1	34 / 49	21	4.5 / -	12 / 650	5x7 QFN	TAT8804D1H*
33.8dBm HBT Amplifier	0.05 - 1.5	33 / 50	20.8	4.8 / -	5 / 455	4x4 QFN	TQP7M9106
35.5dBm HBT Amplifier	0.4 - 2.7	35.5 / 50	16	7 / -	5 / 800	4x5 DFN	AH420
33dBm HBT Amplifier	0.7 - 2.7	33 / 50	27.5	7 / -	5 / 680	5x5 QFN	AH323
33.8dBm HBT Amplifier	0.7 - 2.7	33.8 / 45	21	4.4 / -	5 / 435	4x4 QFN	TQP7M9104
30dBm HBT Amplifier	1.8 - 2.7	30.5 / 46.5	27	5.5 / -	5 / 400	SOIC-8	AH212-S8G
2W HPA	5.5 - 8.5	32 (34) / 41	30	7 / -	6 / 1260	5x5 QFN	TGA2706-SM
2.5W HPA	5.9 - 8.5	34 (35) / 42	18	7.5 / 37	6 / 1000	6x6 QFN	TGA2701-SM
2.8W HPA	6 - 18	(34.5) / -	24	- / 20	7 - 9 / 800 - 1200	Die	TGA2501
2.8W Wideband PA	6 - 18	(34.5) / -	24	- / 20	8 / 1200	GSG Flange	TGA2501-GSG*
2.8W Wideband PA	6 - 18	(34.5) / -	24	- / 20	7 - 9 / 800 - 1200	Carrier	TGA2501-TS
HPA	6 - 18	(34.5) / -	24	- / 20	8 / 1200	Die	TGA9092-SCC
HPA	10 - 12	33 (34.5) / 43	25	9 / -	6 / 1300	5x5 QFN	TGA2535-SM
2W HPA	12.5 - 16	(32) / 37	32	-	6 - 7 / 680	4x4 QFN	TGA2503-SM
2W HPA	12.5 - 17	(34) / -	26	- / 25	7.5 / 650	Carrier	TGA2510-TS
2W HPA	12.5 - 17	(34) / -	26	- / 25	7.5 / 650	Die	TGA2510
2W HPA	12.7 - 15.4	34 (35) / 43	28	6 / -	6 / 1300	Die	TGA2533
2W HPA	12.7 - 15.4	33 (34.5) / 43	27	6 / -	6 / 1300	5x5 QFN	TGA2533-SM
4W Ku-Band HPA	13 - 15	(36) / -	25	- / 30	7 / 1300	Die	TGA2502*
4W HPA	13 - 15	(36) / 41	25	-	7 / 1300	17.8x8.4 FL	TGA8659-FL
3.6W Ku-Band HPA	13 - 16	(35.6) / -	25	- / 27	7 / 1300	GSG Flange	TGA2502-GSG*
2W HPA	13 - 17	(34) / 40	32	-	6 - 7 / 680	Die	TGA2503
2W HPA	13 - 17	(34) / -	25	-	6 - 7 / 640	Die	TGA2505
HPA	17 - 20	30.5 / 41	23	- / -	6 / 900	Die	TGA4532
HPA	17 - 20	31 (32.5) / 41	23	7 / -	6 / 900	4x4 QFN	TGA4532-SM
2W HPA	17 - 20	33 (34.5) / 42	21	- / -	6 / 1430	5x5 OFN	TGA4534-SM*
HPA	17 - 24	31 (32) / 40	23	6 / -	7 / 720	Die	TGA4531
2W HPA	18 - 23	32 (33) / 39	26	-	7 / 840	Die	TGA4022
2W HPA	21 - 24	32 (34) / 41	22	- / -	6 / 1430	5x5 OFN	TGA4535-SM*
HPA	21 - 24	31 (32) / 41	22	6 / -	6 / 880	4x4 QFN	TGA4533-SM
2W HPA	27 - 31	32.5 (33) / 36.5	20	- / 25	6 / 840	Die	TGA4513
1W Linear PA	28 - 30	30 (30.5) / -	20	-	6 / 420	5x5 QFN	TGA4539-SM
3.5W HPA	30 - 38	(35) / -	18	- / 20	6 / 2100	Die	TGA2575

1W to 4W (cont.)

Description	Frequency Range (GHz)	P1dB (Psat) / OIP3 (dBm)	Gain (dB)	NF / PAE (dB) / (%)	Voltage / Current (V / mA)	Package Style	Part Number
3.5W HPA	30 - 38	(35) / -	18	- / 20	6 / 2100	Carrier	TGA2575-TS*
2W HPA	30 - 40	31.5 (33) / -	20	-	6 / 1050	Die	TGA4516
2W HPA	30 - 40	31.5 (33) / -	18	-	6 / 1050	Carrier	TGA4516-TS
2W HPA	31 - 35	31.5 (33.5) / -	19	-	6 - 7 / 1150	Die	TGA4514
3.5W HPA	31 - 37	(35.5) / -	20	-	6 / 2000	Die	TGA4517
2W HPA	33 - 36	31 (33) / -	17	-	6 - 7 / 880	Die	TGA1141
37 - 40 GHz Power Amplifier	37 - 40	30 (32) / 38	26	- / 18	6 / 900	Die	TGA4542*
2W HPA	41 - 47	(33) / -	16	-	6 / 2000	Die	TGA4046

NOTES: * = New

More Than 4W

Description	Frequency Range (GHz)	P1dB (Psat) / OIP3 (dBm)	Gain (dB)	PAE (%)	Voltage / Current (V / mA)	Package Style	Part Number
10W HPA	0.03 - 3	(39.5) / 43	19.5	40	35 / 360	Flange	TGA2540-2-FL
39dBm HBT Amplifier	0.7 - 2.9	39 / -	16.5	-	12 / 300	5x6 DFN	AP561
10W Wideband HPA	2 - 18	(40) / -	9	23	30 / 500	Die	TGA2573-2
10W Wideband GaN HPA	2 - 18	(40) / -	9	23	30 / 500	Carrier	TGA2573-2-TS
30W HPA	2.5 - 6	(45) / -	26	35	30 / 1550	Flange	TGA2576-2-FL
30W HPA	6 - 12	(45) / -	30	30	25 / 1100	Die	TGA2590*
HPA	6.5 - 11.5	37 (39) / -	19	35	7 - 9 / 1200	Die	TGA9083-SCC
16W HPA	6.5 - 12.5	42 / -	27	35	12 / 3000	Die	TGA2517
16W HPA on Carrier	6.5 - 12.5	42 / -	27	35	12 / 3000	Carrier	TGA2517-TS
HPA	7 - 8.5	(38) / -	21	42	7 / 2000	Die	TGA2701
10W HPA	7.5 - 12	(41) / -	30	25	12 / 3000	GSG Flange	TGA2517-GSG*
HPA	9 - 10.5	(38) / -	20	>38	4 - 9 / 2000	Die	TGA2704
7W HPA	9 - 11	(38.5) / -	22	40	9 / 1050	7x7 QFN	TGA2704-SM*
20W HPA	9.5 - 11	(43) / -	30	30	25 / 720	Die	TGA2608*
7W HPA	9.5 - 12	(38.5) / -	22	36	9 / 1050	7x7 QFN	TGA2710-SM*
HPA	10.5 - 12	(38) / -	19	>39	4 - 9 / 2000	Die	TGA2710
6.5W HPA	13 - 16	(38) / -	24	-	8 / 2600	11.4x17.3 FL	TGA2514-FL
4W HPA, Balanced	13 - 17	(36) / 44	25	30	6 - 7 / 1300	Die	TGA2502
6.5W HPA	13 - 18	(38) / 44	24	-	8 / 3600	Die	TGA2514
5W HPA	13.5 - 16	(37) / -	25	20	8 / 2600	GSG Flange	TGA2536-FL*
20W HPA	13.75 - 15.35	(43) / -	23	30	25 / 1000	Flange	TGA2579-2-FL
16W HPA	14 - 16	(42) / -	23	30	25 / 2000	Die	TGA2572-2
16W HPA	14 - 16	(42) / -	23	>30	30 / 2000	Carrier	TGA2572-2-TS
16W HPA	14 - 16	(42) / -	23	30	25 / 2000	Flange	TGA2572-2-FL
4W HPA	28 - 31	36 (36.5) / -	24	22	6 / 1600	Die	TGA4906
4W HPA	28 - 31	36 (36.5) / -	22	22	6 / 1600	5x5 QFN	TGA4906-SM
7W HPA	28 - 31	(38.5) / -	21	20	6 / 3200	Die	TGA4916

NOTES: * = New

Variable Gain Amplifiers

Description	Frequency Range (GHz)	P1dB / OIP3 (dB)	Gain (dB)	Gain Range (dB)	Voltage / Current (V / mA)	Package Style	Part Number
Return Path Variable Gain Amplifier	0.005 - 0.3	25 / 41	36	-	5 - 8 / 325	6x6 QFN	TAT3814
DOCSIS 3.0 Edge QAM Variable Gain Attenuator	0.045 - 1.003	28 / -	30	18	5 - 8 / 705 - 770	7x7 QFN	TAT2814A
Fiber to the Home Integrated TIA + Attenuator + Amp	0.05 - 1	-	33	3.8	5 / 290	6x6 QFN	TAT6281
Digital Variable Gain Amplifier	0.05 - 4	20.5 / 36.5	18	31.5	5 / 88	5x5 QFN	TQM8M9075
Digital Variable Gain Amplifier	0.05 - 4	22 / 38.5	19.5	31.5	5 / 125	5x5 QFN	TQM8M9076
Digital Variable Gain Amplifier	0.05 - 4	21.5 / 38.5	13	31.5	5 / 88	5x5 QFN	TQM8M9077
Digital Variable Gain Amplifier	0.06 - 1	24.3 / 40	31.7	31.5	5 / 174	6x6 QFN	TQM829007

Variable Gain Amplifiers (cont.)

Description	Frequency Range (GHz)	P1dB / OIP3 (dB)	Gain (dB)	Gain Range (dB)	Voltage / Current (V / mA)	Package Style	Part Number
Digital Variable Gain Amplifier	0.4 - 4	24 / 42.5	32	31.5	5 / 176	6x6 QFN	<i>TQM879026*</i>
Digital Variable Gain Amplifier	0.4 - 4	27.3 / 45	33	31.5	5 / 230	6x6 QFN	<i>TQM879028*</i>
Variable Gain Amplifier	0.5 - 2.7	16 / 29	38	30	5 / 95	5x5 QFN	<i>TQM8M9079*</i>
Variable Gain Amplifier	0.7 - 2.8	27.5 / 43	29	30	5 / 240	5x5 QFN	TQM8M9074
Digital Variable Gain Amplifier	1.4 - 2.7	24.5 / 43	31.7	31.5	5 / 174	6x6 QFN	TQM879006A
Digital Variable Gain Amplifier	1.5 - 2.7	27.3 / 47.5	41	31.5	5 / 285	6x6 QFN	TQM879008
Ka-Band Variable Gain Amplifier	28 - 31	23 / 31	33	–	5 / 330	6x6 QFN	TGA4541-SM

NOTES: * = New

Gain Block

Description	Frequency Range (GHz)	P1dB (Psat) / OIP3 (dBm)	Gain (dB)	NF (dB)	Voltage / Current (V / mA)	Package Style	Part Number
General Purpose Gain Block	DC - 3	18.5 / 33	16.5	3.8	6 / 75	SOT89	AG603
General Purpose Gain Block	DC - 3.5	18.5 / 33	13.6	4.4	6 / 75	SOT89	AG602
General Purpose Gain Block	DC - 6	5.8 / 18.5	11	4.4	5 / 20	SOT86 / SOT363	AG201
General Purpose Gain Block	DC - 6	7.5 / 19.5	17.7	3.1	5 / 20	SOT86 / SOT363	AG203
General Purpose Gain Block	DC - 6	12 / 25	14.3	3.2	5 / 35	SOT86 / SOT363	AG302
General Purpose Gain Block	DC - 6	12.5 / 25	18.4	3	5 / 35	SOT86 / SOT363	AG303
General Purpose Gain Block	DC - 6	16 / 28.5	14.5	3.7	6 / 60	SOT86 / SOT89	AG402
General Purpose Gain Block	DC - 6	16 / 28	18.9	3	6 / 60	SOT86 / SOT89	AG403
General Purpose Gain Block	DC - 6	14.5 / 27.5	19.1	2.9	6 / 45	SOT86 / SOT89	AG503
Single-Ended Darlington	DC - 6	19 / 33	18.2	3.5	6 / 75	SOT86 / SOT89	AG604
General Purpose Gain Block	DC - 6	15.2 / 29.8	15.7	3.6	5 / 45	SOT89	TQP369180
General Purpose Gain Block	DC - 7	15.2 / 30	15.6	3.6	5 / 45	SOT363	TQP369181
General Purpose Gain Block	DC - 8	16.1 / 29.6	22.3	3.9	5 / 45	SOT89	TQP369182
General Purpose Gain Block	DC - 9	16.2 / 29.8	22	3.9	5 / 45	SOT363	TQP369184
General Purpose Gain Block	DC - 10	19.8 / 32.3	20.4	4.7	5 / 75	SOT89	TQP369185
LNA / Gain Block (40 Gb/s)	DC - 40	11.5 / 20	13	3.2	5 / 50	Die	TGA4830
CATV TIA / Gain Block, SB	0.04 - 1	27 / 42	20	1.5	8 / 350	4x4 QFN	TGA2803-SM
+5V Active Bias IF Gain Block	0.05 - 1	20.5 / 33	17.5	5	5 / 95	SOT89	WJA1500
+5V Active Bias IF Gain Block	0.05 - 1	20 / 36	14	5.4	5 / 95	SOT89	WJA1510
E-pHEMT LNA Gain Block	0.05 - 4	21 / 36	20	1.3	5 / 85	SOT89	TQP3M9008
E-pHEMT LNA Gain Block	0.05 - 4	21.4 / 37.5	22	1.1	5 / 85	3x3 QFN	TQP3M9018
E-pHEMT LNA Gain Block	0.05 - 4	22 / 40	21.5	1.3	5 / 125	SOT89	TQP3M9009
E-pHEMT LNA Gain Block	0.05 - 4	22 / 40.5	24.7	0.9	5 / 125	3x3 QFN	TQP3M9019
E-pHEMT LNA Gain Block	0.05 - 4	21.5 / 40	15	2	5 / 85	SOT89	TQP3M9028
E-pHEMT LNA Gain Block	0.05 - 4	21.5 / 40	15	2	5 / 85	3x3 QFN	TQP3M9038
E-pHEMT LNA Gain Block	0.05 - 4	23 / 37	22	0.55	5 / 115	2x2 DFN	<i>TQP3M9035*</i>
E-pHEMT LNA Gain Block	0.1 - 4	22 / 34	19.4	0.8	5 / 55	3x3 QFN	TQP3M9005
E-pHEMT LNA Gain Block	0.1 - 4	22.5 / 38.5	18.7	1	5 / 90	3x3 QFN	TQP3M9006
E-pHEMT LNA Gain Block	0.1 - 4	23.5 / 41	18	1.3	5 / 135	SOT89	TQP3M9007
E-pHEMT LNA Gain Block	0.4 - 2.0	20 / 36	20	0.45	5 / 68	2x2 DFN	TQP3M9036
E-pHEMT LNA Gain Block / Bypass Mode	0.7 - 1.0	20 / 36	19	0.6	5 / 68	3x3 DFN	<i>TQL9042**</i>
E-pHEMT LNA Gain Block	1.5 - 2.7	20 / 35	20	0.4	5 / 70	2x2 DFN	TQP3M9037
E-pHEMT LNA Gain Block / Bypass Mode	1.7 - 2.3	20 / 36	19	0.6	5 / 68	3x3 DFN	<i>TQL9043**</i>
E-pHEMT LNA Gain Block / Bypass Mode	2 - 2.7	20 / 36	17.7	0.7	5 / 68	3x3 DFN	<i>TQL9043**</i>
Gain Block, SB	2 - 10	17 / –	17	6	5 / 90	Die	TGA8810-SCC
Gain Block	2 - 12	(20) / –	30	–	5 / 200	8x8 QFN	<i>TGA3500-SM*</i>
Gain Block	2 - 18	20 / –	7.5	5.5	6 / 100	Die	TGA8300-SCC
Wideband Gain Block, AGC	2 - 20	20 / –	7.5	7	6 / 150	Die	TGA8622-SCC
Gain Block	6 - 18	12.5 / –	13	5	5 / 80	Die	TGA8035-SCC
Driver Amp, SB	11 - 17	17 / –	23	6	6 / 75	4x4 QFN	TGA2507-SM

Gain Block (cont.)

Description	Frequency Range (GHz)	P1dB (Psat) / OIP3 (dBm)	Gain (dB)	NF (dB)	Voltage / Current (V / mA)	Package Style	Part Number
Driver Amp, SB	12 - 18	14 / -	17	-	6 / 40	Die	TGA2506
Driver Amp, SB	12 - 18	20 / -	28	6	6 / 80	Die	TGA2507
Gain Block & 2x / 3x Multiplier	17 - 37	18 (22) / 26	20	7	5 / 140	3x3 QFN	TGA4030-SM
Gain Block & 2x / 3x Multiplier	17 - 40	18 (22) / 24	22	7	5 / 140	3x3 QFN	TGA4031-SM
Gain Block, Multiplier	17 - 43	22 / -	25	-	5 / 225	Die	TGA4040
Gain Block	19 - 38	(22) / 30	20	-	5 / 160	Die	TGA4036

NOTES: * = New, ** = Coming Soon, AGC = Automatic Gain Control, SB = Self Biased

Low Noise

Description	Frequency Range (GHz)	P1dB / IIP3 (dBm)	Gain (dB)	NF (dB)	Voltage / Current (V / mA)	Package Style	Part Number
Wideband LNA, AGC	DC - 14	16 / -	11	3.1	8 / 80	Die	TGA8349-SCC
LNA / Gain Block (40 Gb/s)	DC - 40	11.5 / 20	13	3.2	5 / 50	Die	TGA4830
E-pHEMT LNA Gain Block	0.01 - 4	22.3 / 18.7	15.3	0.8	5 / 55	3x3 QFN	TQP3M9005
E-pHEMT LNA Gain Block	0.01 - 4	22.4 / 25	13.5	1	5 / 90	3x3 QFN	TQP3M9006
E-pHEMT LNA Gain Block	0.4 - 2	20 / 16	20	0.45	5 / 68	2x2 DFN	TQP3M9036
E-pHEMT LNA Gain Block	0.05 - 4	21 / 17.5	20	1.3	5 / 85	SOT89	TQP3M9008
E-pHEMT LNA Gain Block	0.05 - 4	21.4 / 17.5	22	1.1	5 / 85	3x3 QFN	TQP3M9018
E-pHEMT LNA Gain Block	0.05 - 4	21.8 / 15.8	24.7	0.9	5 / 125	SOT89	TQP3M9009
E-pHEMT LNA Gain Block	0.05 - 4	21.8 / 15.8	24.7	0.9	5 / 125	3x3 QFN	TQP3M9019
E-pHEMT LNA Gain Block	0.05 - 4	21.5 / 18.5	15	2	5 / 85	SOT89	TQP3M9028
E-pHEMT LNA Gain Block	0.05 - 4	21.5 / 18.5	15	2	5 / 85	3x3 QFN	TQP3M9038
LNA, Balanced E-pHEMT FET	0.5 - 1.5	21.5 / 20.7	18	0.5	4.35 / 57	4x4 QFN	TQP3M9039*
E-pHEMT LNA Gain Block	0.5 - 4	23.5 / 18.5	18	1.3	5 / 135	SOT89	TQP3M9007
LNA, Balanced FET	0.7 - 0.92	- / 13.5	20.5	0.55	4 / 70	4x4 QFN	TQP3M6004
LNA, Discrete FET	0.7 - 0.92	26 / 23.5	16	0.8	5 / 150	SOT89	TGF2021-04-SD
E-pHEMT LNA Gain Block / Bypass Mode	0.7 - 1	20 / 16	19	0.6	5 / 68	3x3 DFN	TQL9042**
LNA, Balanced FET	0.8 - 3	21 / 11	22	0.7	4 / 100	2x2 QFN	TGA2602-SM
LNA, Balanced E-pHEMT FET	1.5 - 2.3	21.8 / 21.8	18	0.54	4.35 / 57	4x4 QFN	TQP3M9040*
E-pHEMT LNA Gain Block	1.5 - 2.7	20 / 15	20	0.40	5 / 70	2x2 DFN	TQP3M9037
LNA, Balanced FET	1.7 - 2	- / 14.4	18	0.55	3.5 / 50	4x4 QFN	TQP3M6005
E-pHEMT LNA Gain Block / Bypass Mode	1.7 - 2.3	20 / 17	19	0.6	5 / 68	3x3 DFN	TQL9043**
E-pHEMT LNA Gain Block / Bypass Mode	2 - 2.7	20 / 17	17.7	0.7	5 / 68	3x3 DFN	TQL9044**
LNA, AGC	2 - 18	18 / 29	17	2	5 / 75	Die	TGA2525
LNA, AGC	2 - 18	16 / -	19	4	5 / 120	Die	TGA8344-SCC
LNA, AGC	2 - 20	17.5 / -	9	3.5	5 - 8 / 60	Die	TGA1342-SCC
LNA, AGC	2 - 20	19 / -	17.5	2.5	5 / 100	Die	TGA2526
LNA, AGC	2 - 20	17.5 / -	9	3.5	5 - 8 / 60	Die	TGA8310-SCC
LNA, AGC	2 - 20	16 / -	17	2.5	5 / 75	4x4 QFN	TGA2513-SM
LNA, AGC	2 - 23	17 / 26	17	2	5 / 75	Die	TGA2513
LNA, Balanced E-pHEMT FET	2.3 - 4	22.5 / 20.2	18	0.75	4.35 / 57	4x4 QFN	TQP3M9041*
S-Band LNA	2.5 - 4	18 / -	17	1.2	6 / 110	5x5 QFN	TGA2614-SM*
S-Band LNA	2.7 - 3.8	- / 42.5	12.5	2	6 / 320	Die	TGA2613*
S-Band LNA	2.7 - 3.8	18 / -	17	0.95	6 / 100	Die	TGA2614*
LNA, SB, AGC	4 - 14	6 / 16	22	2.3	5 / 90	4x4 QFN	TGA2512-1-SM
LNA, AGC, GB	4 - 14	13 / 24	25	2.3	5 / 160	4x4 QFN	TGA2512-2-SM
4 - 20 GHz Limiter / LNA	4 - 20	18 / 28	17	2	5 / 100	7x7 QFN	TGM2543-SM*
LNA, SB, AGC	5 - 15	6 / 13	27	1.4	5 / 90	Die	TGA2512
LNA, SB	6 - 13	11 / -	26	1.5	5 / 65	Die	TGA8399B-SCC
LNA, SB, AGC	6 - 14	6 / 12	20	1.3	5 / 90	Die	TGA2511
LNA	20 - 27	12 / -	21	2.2	3.5 / 60	Die	TGA4506
LNA	28 - 36	12 / 21	22	2.3	3 / 60	Die	TGA4507
LNA	30 - 42	14 / -	21	2.8	3 / 40	Die	TGA4508
LNA	57 - 69	-	13	4	3 / 41	Die	TGA4600
77 GHz LNA	72 - 80	-	20	5	3.5 / 54	Die	TGA4705-FC

NOTES: * = New, ** = Coming Soon, AGC = Automatic Gain Control, GB = Gate Bias, SB = Self Biased

Discrete Transistors

Description	Frequency Range (GHz)	P1dB (Psat) / OIP3 (dBm)	Gain (dB)	NF / PAE (dB) / (%)	Voltage / Current (V / mA)	Package Style	Part Number
35W GaN HEMT	DC - 3.5	(45.6) / -	14	- / 54	32 / 150	Ceramic Flat Lead	T2G4003532-FS*
35W GaN HEMT	DC - 3.5	(45.7) / -	14	- / 54	33 / 150	Ceramic Flat Lead	T2G4003532-FL*
55W GaN HEMT	DC - 3.5	(47.2) / -	15	- / 50	28 / 200	Ceramic Flat Lead	T2G4005528-FS
60W GaN HEMT	DC - 3.5	(48.2) / -	14	- / 51	32 / 200	Ceramic Flat Lead	T1G4006032-FS*
60W GaN HEMT	DC - 3.5	(48.3) / -	14	- / 51	33 / 200	Ceramic Flat Lead	T1G4006032-FL*
120W GaN HEMT	DC - 3.5	(50.8) / -	14	- / 52	32 / 575	Ceramic Flat Lead	T1G4012032-FS*
120W GaN HEMT	DC - 3.5	(50.8) / -	14	- / 52	32 / 575	Ceramic Flat Lead	T1G4012032-FL*
24mm HFET	DC - 4	40 / -	13	- / 51	5 / 150	SOT89	TGF2021-04-SD
Pwr pHEMT	DC - 4	26.5 / -	16	0.6 / -	8 / 2170	Die	TGF4124
0.5W HFET	DC - 6	28 / 40	18	3.2 / -	8 / 100	SOT89	TGF2960-SD
18mm HFET	DC - 6	38.5 / -	13.5	- / 53	8 / 1690	Die	TGF4118
7W GaN HEMT	DC - 6	(39.5) / -	15	- / 50	28 / 50	Ceramic Flat Lead	T2G6000528-Q3
10W GaN HEMT	DC - 6	(40.5) / -	15	- / 52	32 / 50	5x5 QFN	T1G6001032-SM*
18W GaN HEMT	DC - 6	(42.5) / -	15	- / 50	28 / 50	Ceramic Flat Lead	T2G6001528-Q3
30W GaN HEMT	DC - 6	(44.8) / -	15	- / 50	28 / 200	Ceramic Flat Lead	T2G6003028-FS
30W GaN HEMT	DC - 6	(44.7) / -	12	- / 50	28 / 200	Ceramic Flat Lead	T2G6003028-FL*
12mm HFET	DC - 8	37 / -	14	- / 55	8 / 750	Die	TGF4112
4.8mm HFET	DC - 10.5	34 / -	8.5	- / 53	8 / 200	Die	TGF4250-SCC
9.6mm HFET	DC - 10.5	37 / -	9.5	- / 52	8.5 / 520	Die	TGF4260-SCC
1.2mm HFET	DC - 12	28.5 / -	10	- / 55	8 / 50	Die	TGF4230-SCC
2.4mm HFET	DC - 12	31.5 / -	10	- / 56	8 / 100	Die	TGF4240-SCC
1mm Pwr pHEMT	DC - 12	(31.5) / -	11	- / 55	12 / 75	Die	TGF2021-01
2mm Pwr pHEMT	DC - 12	(34.5) / -	11	- / 55	12 / 150	Die	TGF2021-02
4mm Pwr pHEMT	DC - 12	(37.5) / -	11	- / 55	12 / 300	Die	TGF2021-04
8mm Pwr pHEMT	DC - 12	(40.2) / -	11	- / 55	12 / 600	Die	TGF2021-08
12mm Pwr pHEMT	DC - 12	(42) / -	11	- / 52	12 / 900	Die	TGF2021-12
0.3mm MESFET	DC - 18	13 / -	11	1.5 / -	3 / 15	Die	TGF1350-SCC
1.25mm GaN HEMT	DC - 18	(37.4) / -	13	- / 52	28 / 125	Die	TGF2023-2-01
2.5mm GaN HEMT	DC - 18	(40.2) / -	13	- / 50	28 / 250	Die	TGF2023-2-02
5mm GaN HEMT	DC - 18	(43) / -	13	- / 49	28 / 500	Die	TGF2023-2-05
10mm GaN HEMT	DC - 18	(45.8) / -	12	- / 47	28 / 1000	Die	TGF2023-2-10
20mm GaN HEMT	DC - 18	(48.6) / -	12	- / 46	28 / 2000	Die	TGF2023-2-20
0.18mm Pwr pHEMT	DC - 20	22 / -	14	1 / 55	8 / 29	Die	TGF2018*
0.25mm Pwr pHEMT	DC - 20	24 / -	14	0.9 / 60	8 / 41	Die	TGF2025*
0.4mm Pwr pHEMT	DC - 20	26 / -	13	1.2 / 55	8 / 65	Die	TGF2040*
0.6mm Pwr pHEMT	DC - 20	28 / -	12	1.34 / 55	8 / 97	Die	TGF2060*
0.8mm Pwr pHEMT	DC - 20	30 / -	11.5	- / 60	8 / 130	Die	TGF2080*
1.2mm Pwr pHEMT	DC - 20	32 / -	11	- / 60	8 / 194	Die	TGF2120*
1.6mm Pwr pHEMT	DC - 20	33.2 / -	10.4	- / 63	8 / 258	Die	TGF2160*
0.6mm Pwr pHEMT	DC - 20	(29) / -	13	- / 56	12 / 45	Die	TGF2022-06
1.2mm Pwr pHEMT	DC - 20	(32) / -	13	- / 56	12 / 90	Die	TGF2022-12
2.4mm Pwr pHEMT	DC - 20	(35) / -	13	- / 58	12 / 180	Die	TGF2022-24
4.8mm Pwr pHEMT	DC - 20	(38) / -	13	- / 58	12 / 360	Die	TGF2022-48
6mm Pwr pHEMT	DC - 20	(39) / -	12.5	- / 53	12 / 448	Die	TGF2022-60
0.3mm pHEMT	DC - 22	16 / -	13	0.8 / -	3 / 15	Die	TGF4350
MESFET	0.05 - 2.5	30 / 40	11	1.7 / -	5 / 350	SOT223	CLY5
MESFET	0.05 - 3	27 / 37	15.5	1.5 / -	5 / 180	MW6	CLY2
30W LDMOS	0.5 - 2	45 / -	10	- / 45	28 / 200	PowerBand™	T1L2003028-SP
10W pHEMT	0.5 - 3	40 / -	10	- / 45	12 / 200	PowerBand™	T1P2701012-SP

NOTES: * = New

Frequency Converters & Mixers

Description	Frequency Range (GHz)	Conversion Gain (dB)	LO / RF Isolation (dB)	IIP3 (dBm)	Voltage / Current (V / mA)	Package Style	Part Number
WB Mixer, LO	0.5 - 2.5	-5.7	8	24	3 - 6	MW6	CMY210
WB Mixer, LO, IF	0.5 - 2.5	10	8	9	3 - 6 / 12	SCT598	CMY212
WB Mixer, LO, IF, Low Current	0.5 - 2.5	9.5	10	10	3 - 6 / 8	SCT598	CMY213
Dual Branch Converter, LO, IF, SW, EN	0.68 - 0.92	9	33	25.5	5 / 295	6x6 QFN	TQP519021
Mixer, LO	0.7 - 1	-9	17	36	5 / 50	MSOP-8	ML483
Mixer, LO	1.5 - 3.2	-8.5	2	35	5 / 40	MSOP-8	ML485
Dual Branch Converter, LO, IF, SW, EN	1.7 - 2.2	9	36	25.5	5 / 295	6x6 QFN	TQP569022
Ku-Band Upconverter	10 - 16	17	25	15	5 / 300	5x5 QFN	TGC2510-SM*
Doubler w/Amplifier	16 - 30	18	30	22	5 / 150	Die	TGC4403
Doubler w/Amplifier	16 - 30	18	30	19	5 / 150	4x4 QFN	TGC4403-SM
Downconverter (LNA + VCO + Mixer)	17 - 21	8	-	-	5 / 305	5x6 QFN	TGC4408-SM
Upconverting Mixer	17 - 26	-9	40	-	-0.9 / 0	4x4 QFN	TGC4402-SM
Upconverting Mixer	17 - 27	-9	35	18	-0.9 / 0	Die	TGC4402
K-Band Upconverter	17 - 27	13	40	19	5 / 340	5x5 QFN	TGC4510-SM
K-Band Downconverter	17 - 27	15	40	3	3 / 230	5x5 QFN	TGC4610-SM
Gain Block & 2x / 3x Multiplier	17 - 37	9	-	6	5 / 140	3x3 QFN	TGA4030-SM
Gain Block & 2x / 3x Multiplier	17 - 40	9	-	2	5 / 140	3x3 QFN	TGA4031-SM
19 GHz VCO w/8:1 Prescaler	18.5 - 19.5	-	-105+	7	5 / 158	Die	TGV2204-FC
Upconverter (LO Amp + Doubler)	21.5 - 32.5	-9	35	13	5 / 65	3x3 QFN	TGC4407-SM
Doubler w / Amplifier	28 - 34	15	25	20	5 / 150	4x4 QFN	TGC4406-SM
19 / 38 GHz Converter / MPA	36 - 40	9	-	14.5	3.5 / 65	Die	TGC4703-FC
Down Converting I/Q Mixer	75 - 82	-13.5	22	-	1.1 / 7	Die	TGC4702-FC
38 / 77 GHz Converter / MPA	76 - 77	6	-	15	4 / 230	Die	TGC4704-FC

NOTES: * = New

Voltage Controlled Oscillators

Description	Frequency Range (GHz)	Output Power (dB)	Phase Noise @ 100KHz (dBc/Hz)	Voltage / Current (V / mA)	Package Style	Part Number
8.9 - 9.8 GHz VCO with Divide by 2	8.9 - 9.8	9	-112	5 / 170	5x5 QFN	TGV2561-SM*
9.5 - 10.3 GHz VCO with Divide by 2	9.5 - 10.3	9	-111	5 / 170	5x5 QFN	TGV2562-SM*
9.7 - 10.8 GHz VCO with Divide by 2	9.7 - 10.8	9	-111	5 / 170	5x5 QFN	TGV2563-SM*
10.3 - 11.1 GHz VCO with Divide by 2	10.3 - 11.1	9	-111	5 / 170	5x5 QFN	TGV2564-SM*
10.7 - 11.5 GHz VCO with Divide by 2	10.7 - 11.5	9	-111	5 / 180	5x5 QFN	TGV2539-SM*
11.3 - 12.3 GHz VCO with Divide by 2	11.3 - 12.3	10	-110	5 / 180	5x5 QFN	TGV2565-SM*
12.5 - 13.5 GHz VCO with Divide by 2	12.5 - 13.5	7	-110	5 / 165	5x5 QFN	TGV2529-SM*
12.6 - 13.8 GHz VCO with Divide by 2	12.6 - 13.8	9	-110	5 / 170	5x5 QFN	TGV2584-SM*
13.4 - 14.4 GHz VCO with Divide by 2	13.4 - 14.4	9	-110	5 / 175	5x5 QFN	TGV2566-SM*

NOTES: * = New

Signal Conditioning

Description	Frequency Range (GHz)	Insertion Loss (dB)	Control Range dB or (Deg.)	P1dB (dBm)	Supply Voltage (V)	Package Style	Part Number
6-Bit, Digital Attenuator, Parallel Ctrl	DC - 4	1.3	31.5	30	5 / 0	4x4 QFN	TQP4M9071
6-Bit, Digital Attenuator, Serial Ctrl	DC - 4	1.3	31.5	30	5 / 0	4x4 QFN	TQP4M9072
7-Bit, Digital Attenuator, Serial Ctrl	DC - 4	1.3	31.75	30	5 / 0	4x4 QFN	TQP4M9083
Through Line	DC - 6	0.1	-	-	-	3x3 QFN	TQM4M9073
Analog Attenuator	DC - 30	2	17	-	0 to -2	3x3 QFN	TGL4203-SM
Analog Attenuator	DC - >50	2	17	-	0 to -2	Die	TGL4203
Discrete Thru (0dB Attenuator)	DC - 65	0	0	-	-	Die	TGL4201-00
Discrete Attenuators	DC - 65	-	2, 3, 6, 10	-	-	Die	TGL4201-02, 03, 06, 10
Passive Wideband Limiter	2 - 12	<1	-	18	-	3x3 QFN	TGL2201-SM
Analog Attenuator	2 - 20	2	15	23	2.5	Die	TGL8784-SCC
Passive Wideband Limiter	3 - 25	<0.5	-	18	-	Die	TGL2201

Signal Conditioning (cont.)

Description	Frequency Range (GHz)	Insertion Loss (dB)	Control Range dB or (Deg.)	P1dB (dBm)	Supply Voltage (V)	Package Style	Part Number
5-Bit Phase Shifter	6 - 18	9	(348)	–	6	Die	TGP6336
6-Bit Phase Shifter	6 - 18	>10	(354)	–	0 / -5	Die	TGP2105*
Bessel Filter	–	6, 7, 8, 9, 10 & 11 Cut-Off Freq	–	–	–	Die	TGB2010-00, -09 etc.
Bessel Filter	–	5, 6, 6.5, 7.5, 8 & 9 Cut-Off Freq	–	–	–	2x2 QFN	TGB2010-00, -90-SM etc.
6-Bit Phase Shifter	8.5 - 11	5	(354)	–	0 / -5	Die	TGP2103
Lange Coupler	12 - 21	<0.25	–	–	–	Die	TGB2001
5-Bit Phase Shifter	18 - 20	5	(180)	–	-2.5	Die	TGP1439
Lange Coupler	18 - 32	<0.25	–	–	–	Die	TGB4001
Lange Coupler	27 - 45	<0.25	–	–	–	Die	TGB4002
5-Bit Phase Shifter	28 - 32	6	(348)	–	5	Die	TGP2100
5-Bit Phase Shifter	33 - 37	6	(348)	–	-5	Die	TGP2102
1-Bit Phase Shifter	34 - 36	4	180	–	0 / 5	Die	TGP2104

NOTES: * = New

Switches

Description	Frequency Range (GHz)	Insertion Loss (dB)	Isolation (dB)	P1dB (dBm)	Control Voltage (V)	Package Style	Part Number
SP3T - Reflective	DC - 2	0.6	22	>34.5	2.6 / 0	2x2 QFN	TQP4M3019
SP2T 802.11 a, b, g	DC - 6	0.6	28	31.5	3 / 0	1.3x2 DFN	TQS5200
Diversity Switch 802.11 a, b, g	DC - 6	0.8	33	33	3 / 0	3x3 QFN	TQS5202
SPDT FET	DC - 18	1.5	36	27	-5	Die	TGS2306
SPDT FET	DC - 18	2	39	21	-7 / 0	Die	TGS8250-SCC
SPDT - GaN	0.1 - 6	<1	40	45	-40 / 0	Die	TGS2351-2
SPDT - GaN	0.1 - 6	<1	40	45	-40 / 0	4x4 QFN	TGS2351-2-SM
SPST - High Isolation Absorptive	0.1 - 6	0.4	48	33	3 / 0	2x2 DFN	TQP4M0013
SPDT - Reflective	0.1 - 6	0.35	25	33	3 / 0	2x2 DFN	TQP4M0008
SPDT - High Isolation Reflective	0.1 - 6	0.7	55	30	3 / 0	MSOP8	TQP4M0009**
SPDT - High Isolation Absorptive	0.1 - 6	0.5	55	30	3 / 0	4x4 QFN	TQP4M0010
SP3T - Reflective	0.1 - 6	0.3	30	30	3 / 0	3x3 QFN	TQP4M0011
SP4T - Reflective	0.1 - 6	0.65	40	35	3 / 0	3x3 QFN	TQP4M0012**
SPDT - GaN	0.1 - 12	<1	35	43	-40 / 0	Die	TGS2352-2
SPDT - GaN	0.1 - 18	<1	30	40	-40 / 0	Die	TGS2353-2
SP3T VPIN	1 - 20	0.5	35	23	–	Die	TGS2303
SP4T VPIN	1 - 20	0.6	38	23	–	Die	TGS2304-SCC
SP3T VPIN	4 - 18	1	35	20	+/- 2.7	Die	TGS2313
SPDT VPIN	4 - 20	0.9	35	>20	+/- 2.7	Die	TGS2302
SPDT VPIN	24 - 43	<2	36	27	+/- 5	Die	TGS4301
SPDT VPIN	27 - 46	0.9	30	>34	+/- 5 / 15	Die	TGS4302
SPDT VPIN Absorptive	32 - 40	1	36	>33	+/- 5 / 18	Die	TGS4304
SP3T	60 - 90	2.3	20	>-13	-5 / 1.35	Die	TGS4305-FC
SP4T	70 - 90	3	20	>-8	-5 / 1.35	Die	TGS4306-FC

NOTES: ** = Coming Soon

Protector

Description	Application	Leakage Current (nanoAmps)	Trigger Voltage (V)	Series Capacitance (pF)	Package Area (mm²)	Package Style	Part Number
CATV Protector	ESD & Secondary Protection	20 @ 1V, 500 @ 15V	18, 25, 41	0.29, 0.29, 0.22	1.8	T / SLP-3	TQP200002

SAW

Description	Frequency (MHz)	Bandwidth (MHz)	Typical IL (dB)	I / O Configuration	Rejection {dB @ BW or Freq (MHz)}	Package Size (mm)	Part Number
NDL 1.5 µsec	1000	675	34	SE / SE	70 @ 1625	25.4x12.7	857162*
NDL 1.5 µsec	1000	425	26.5	SE / SE	65 @ 1550	25.4x12.7	857163*
NDL 1.5 µsec	1000	340	24	SE / SE	65 @ 1550	25.4x12.7	857164*
NDL 1.75 µsec	1000	675	35	SE / SE	70 @ 1625	25.4x12.7	857165*
NDL 2 µsec	1000	675	36.5	SE / SE	70 @ 1625	25.4x12.7	857166*
NDL 2.5 µsec	1000	675	40	SE / SE	70 @ 1625	25.4x12.7	857167*
NDL 2.75 µsec	1000	675	41	SE / SE	70 @ 1625	25.4x12.7	857168*
NDL 3 µsec	1000	675	43	SE / SE	70 @ 1625	25.4x12.7	857169*

NOTES: * = New

Guide by Product Type

Filters

SAW

Description	Frequency (MHz)	Bandwidth (MHz)	Typical IL (dB)	I / O Configuration	Rejection {dB @ BW or Freq (MHz)}	Package Size (mm)	Part Number
Cable IF Filter	36.15	8	19.7	SE / SE	38 @ 10.23	DIP	855748
Cable IF Filter	44	6	20.4	SE / SE	38 @ 7.6	DIP	855079
BWA / WiMAX IF Filter	70	8	12.95	SE / SE	35 @ 3.2	13.3x6.5	855677
Low Loss IF Filter	70	0.5	7.6	SE / SE	35 @ 1.28	19x6.5	854651
Low Loss IF Filter	70	1	7.3	SE / SE	40 @ 2.8	19x6.5	854652
Low Loss IF Filter	70	1.5	7.5	SE / SE	40 @ 3.2	19x6.5	854653
Low Loss IF Filter	70	2	7.85	SE / SE	40 @ 4.25	19x6.5	854654
IF Filter	70	2.4	10	SE / SE	45 @ 85	13.3x6.5	856980*
Low Loss IF Filter	70	2.5	8.75	SE / SE	40 @ 4.6	19x6.5	854655
Low Loss IF Filter	70	3	6.95	SE / SE	35 @ 6.9	13.3x6.5	854656
Low Loss IF Filter	70	3.5	7.25	SE / SE	35 @ 7.2	13.3x6.5	854657
Low Loss IF Filter	70	4	6.8	SE / SE	40 @ 8.25	13.3x6.5	854658
Low Loss IF Filter	70	4.5	6.8	SE / SE	35 @ 8.5	13.3x6.5	854659
Low Loss IF Filter	70	5	7.25	SE / SE	40 @ 9.35	13.3x6.5	854660
Low Loss IF Filter	70	6	7.5	SE / SE	40 @ 10.2	13.3x6.5	854661
Low Loss IF Filter	70	7	8.5	SE / SE	40 @ 11.55	13.3x6.5	854662
Low Loss IF Filter	70	8	9	SE / SE	40 @ 13.25	13.3x6.5	854663
Low Loss IF Filter	70	9	9.75	SE / SE	40 @ 13.9	13.3x6.5	854664
Low Loss IF Filter	70	10	10	SE / SE	40 @ 15	13.3x6.5	854665
Low Loss IF Filter	70	12	11.5	SE / SE	40 @ 17.35	13.3x6.5	854666
Low Loss IF Filter	70	14	12.5	SE / SE	40 @ 19.5	13.3x6.5	854667
Low Loss IF Filter	70	16	12.5	SE / SE	40 @ 21.4	13.3x6.5	854668
Low Loss IF Filter	70	18	13.5	SE / SE	40 @ 23.4	13.3x6.5	854669
Low Loss IF Filter	70	20	14.5	SE / SE	40 @ 25.4	13.3x6.5	854670
Low Loss IF Filter	70	22	15	SE / SE	40 @ 27.25	13.3x6.5	854671
Low Loss IF Filter	70	24	16.25	SE / SE	40 @ 29.65	13.3x6.5	854672
Low Loss IF Filter	70	26	17	SE / SE	40 @ 32	13.3x6.5	854673
Low Loss IF Filter	70	28	17.6	SE / SE	40 @ 33.75	13.3x6.5	854674
Low Loss IF Filter	70	30	17.5	SE / SE	40 @ 37	13.3x6.5	854675
Low Loss IF Filter	70	36	20.2	SE / SE	40 @ 43.3	13.3x6.5	854678
Low Loss IF Filter	70	40	21.5	SE / SE	40 @ 47.25	13.3x6.5	854680
High Selectivity IF Filter	70	0.3	16.36	SE / SE	40 @ 0.9	24.6x9	855735
High Selectivity IF Filter	70	0.5	21.3	SE / SE	40 @ 1.63	24.6x9	855736
High Selectivity IF Filter	70	1	22.2	SE / SE	40 @ 2.11	24.6x9	855737
High Selectivity IF Filter	70	1.5	21.6	SE / SE	40 @ 2.52	24.6x9	855738

SAW (cont.)

Description	Frequency (MHz)	Bandwidth (MHz)	Typical IL (dB)	I / O Configuration	Rejection {dB @ BW or Freq (MHz)}	Package Size (mm)	Part Number
High Selectivity IF Filter	70	2	23	SE / SE	40 @ 3.4	24.6x9	855739
High Selectivity IF Filter	70	2.5	20.25	SE / SE	40 @ 4.3	24.6x9	855740
High Selectivity IF Filter	70	3	23	SE / SE	40 @ 4.46	24.6x9	855741
High Selectivity IF Filter	70	3.5	19	SE / SE	40 @ 6	15.3x6.5	855742
High Selectivity IF Filter	70	4	23	SE / SE	40 @ 6	19x6.5	855743
High Selectivity IF Filter	70	4.5	23.7	SE / SE	40 @ 6.64	19x6.5	855744
IF Filter	70	4.9	25.5	SE / SE	45 @ 82	19x6.5	857174*
High Selectivity IF Filter	70	5.5	22.2	SE / SE	40 @ 7.84	19x6.5	855745
IF Filter	70	5.7	24	SE / SE	40 @ 82	19x6.5	857175*
Medical IF Filter	73	0.3	6	SE / SE	45 @ 69.9	24.6x9	856152
BWA / WiMAX IF Filter	80	8	11.7	SE / SE	35 @ 14.25	13.3x6.5	855679
GSM IF Filter	86.6	0.4	5.3	SE / BAL	28 @ 1.58	19x6.5	854823
GSM IF Filter	125	0.4	5.9	SE / SE	20 @ 2.4	9.1x4.8	856444
Low Loss IF Filter	140	1.7	11	SE / SE	40 @ 3.5	19x6.5	855579
Low Loss IF Filter	140	4	10.85	SE / SE	40 @ 9.1	13.3x6.5	854909
Low Loss IF Filter	140	7	5.5	SE / SE	40 @ 11.1	13.3x6.5	854913
Low Loss IF Filter	140	10	8.3	SE / SE	35 @ 15	13.3x6.5	854916
Low Loss IF Filter	140	10	11	SE / SE	35 @ 15	13.3x6.5	856656
Low Loss IF Filter	140	12	8.87	SE / SE	35 @ 21.3	13.3x6.5	854917
Low Loss IF Filter	140	15	11	SE / SE	35 @ 22	13.3x6.5	856684
Low Loss IF Filter	140	16	8.4	SE / SE	35 @ 22	13.3x6.5	854919
Low Loss IF Filter	140	18	9.1	SE / SE	40 @ 48	13.3x6.5	854920
Low Loss IF Filter	140	18.4	9.1	SE / SE	36 @ 26.4	7x5.5	856929
Low Loss IF Filter	140	20	11	SE / SE	35 @ 24	13.3x6.5	856592
Low Loss IF Filter	140	24	11.3	SE / SE	35 @ 33.5	13.3x6.5	854923
Low Loss IF Filter	140	32	11.5	SE / SE	35 @ 44	13.3x6.5	854927
High Selectivity IF Filter	140	0.47	18.5	SE / SE	40 @ 2.4	19x6.5	855035
High Selectivity IF Filter	140	0.8	20.8	SE / SE	40 @ 1.93	19x6.5	856062
IF Filter	140	1.5	25	SE / SE	45 @ 142	19x6.5	857177*
High Selectivity IF Filter	140	1.5	21.9	SE / SE	40 @ 3.5	19x6.5	856063
High Selectivity IF Filter	140	2	21.5	SE / SE	40 @ 3.45	19x6.5	856064
High Selectivity IF Filter	140	3	22.4	SE / SE	40 @ 4.86	19x6.5	856065
High Selectivity IF Filter	140	6	23	SE / SE	40 @ 8.34	13.3x6.5	856066
High Selectivity IF Filter	140	7	24.5	SE / SE	40 @ 9.15	13.3x6.5	856067
High Selectivity IF Filter	140	8	23.4	SE / SE	40 @ 11.28	13.3x6.5	856068
High Selectivity IF Filter	140	10	20.87	SE / SE	40 @ 13.17	13.3x6.5	856069
High Selectivity IF Filter	140	14	23.3	SE / SE	40 @ 18.26	13.3x6.5	856070
High Selectivity IF Filter	140	16	21.7	SE / SE	40 @ 20.69	13.3x6.5	856071
High Selectivity IF Filter	140	28	20	SE / SE	40 @ 37	9x7	856019
IF Filter	140	28.5	21	SE / SE	40 @ 160	9x7	857176*
High Selectivity IF Filter	140	28.56	27.7	SE / SE	40 @ 44	13.3x6.5	856817
High Selectivity IF Filter	140	28.56	28.4	SE / SE	40 @ 44	13.3x6.5	857008
High Selectivity IF Filter	140	32	21.7	SE / SE	40 @ 40.7	9x7	856072
High Selectivity IF Filter	140	44	21.75	SE / SE	40 @ 54.1	9x7	856073
High Selectivity IF Filter	140	56	18.65	SE / SE	40 @ 75.6	9x7	856074
High Selectivity IF Filter	140	60	22.4	BAL / BAL	40 @ 74.7	9.1x4.8	856774
High Selectivity IF Filter	140	64	17.8	SE / SE	40 @ 84	9x7	856020
High Selectivity IF Filter	140	72	21	SE / SE	40 @ 102	9x7	856314
High Selectivity IF Filter	140	1.5	12.1	SE and BAL	48 @ 143	9.1x4.8	856691
High Selectivity IF Filter	140	3	13.6	SE and BAL	46 @ 144	9.1x4.8	856692
High Selectivity IF Filter	140	6	11	BAL / BAL	39 @ 147	9.1x4.8	856693
High Selectivity IF Filter	140	7	13.6	SE and BAL	43 @ 147	9.1x4.8	856694
High Selectivity IF Filter	140	10	10	BAL / BAL	41 @ 152.5	9.1x4.8	856695

SAW (cont.)

Description	Frequency (MHz)	Bandwidth (MHz)	Typical IL (dB)	I / O Configuration	Rejection {dB @ BW or Freq (MHz)}	Package Size (mm)	Part Number
High Selectivity IF Filter	140	14	8.5	SE and BAL	43 @ 155	9.1x4.8	856696
High Selectivity IF Filter	140	20	9.8	BAL / BAL	40 @ 158.5	9.1x4.8	856697
High Selectivity IF Filter	140	28	18	SE and BAL	42 @ 168	9.1x4.8	856698
CDMA IF Filter	141	1.18	11.7	SE / SE	42.5 @ 2.5	19x6.5	855395
High Selectivity IF Filter	144	75	21.2	SE / SE	40 @ 91.81	9x7	856727
CDMA IF Filter	150	1.18	18.6	SE / BAL	30 @ 4.5	19x6.5	854833-1
CDMA IF Filter	150	8	12.1	SE / SE	35 @ 14.25	13.3x6.5	855678
TDSCDMA / WCDMA IF Filter	153.6	15	10	SE / SE	40 @ 25	13.3x6.5	856748
Repeater IF Filter	161.5	25	22	SE / SE	50 @ 131	9x7	855886
WCDMA IF Filter	167	5	8	SE / SE	20 @ 11.8	9.1x4.8	856683
WCDMA IF Filter	168.5	20	8	SE / BAL	33 @ 190	5x5	856512
WCDMA IF Filter	172.8	8.84	12.5	SE / BAL	32 @ 16	7x5.5	856620
WCDMA IF Filter	172.8	20	8	SE / BAL	30 @ 194.3	5x5	856802
WCDMA IF Filter	172.8	21	8.2	BAL / BAL	50 @ 200	7x5.5	856893
CDMA IF Filter	183.6	1.26	11	SE / BAL	40 @ 3.4	7x5.5	856234
IF Filter - Multi-Standard	184.32	25	7.8	BAL / BAL	25 @ 36	7x5.5	857124*
WCDMA IF Filter	190	5.5	9.8	SE / BAL	30 @ 7.6	13.3x6.5	855529
WCDMA IF Filter	190	5	8	SE / SE	25 @ 9	5x5	855770
GSM IF Filter	190	0.2	4.2	BAL / BAL	30 @ 12	7x5.5	855625
IF Filter - Multi-Standard	192	60	14.5	SE / BAL	38 @ 44	7x5.5	856731
IF Filter - Multi-Standard	192.5	65	17	BAL / BAL	35 @ 74	7x5.5	857071*
GSM IF Filter	201	0.22	6.1	BAL / BAL	27 @ 0.8	13.3x6.5	856541
Cable IF Filter	202.75	1.2	6.6	SE / SE	40 @ 10	13.3x6.5	855068
IF Filter	205	1.3	22	SE / SE	40 @ 4	13.3x6.5	855816
GSM IF Filter	208	0.4	5.9	SE / SE	20 @ 2.4	9.1x4.8	856445
WCDMA IF Filter	208	3.84	11.5	BAL / BAL	17 @ 5.03	9.1x4.8	856496
GSM IF Filter	211	0.2	5.2	SE / SE	25 @ 0.8	13.3x6.5	856378
WCDMA IF Filter	219	20	9.6	BAL / BAL	35 @ 36	9x7	856795
WCDMA IF Filter	230	4	16.2	SE / SE	40 @ 10	13.3x6.5	855832
CDMA IF Filter	240	3.6	14.3	SE / SE	12 @ 5	13.3x6.5	855992
CDMA IF Filter	240	1.1	13	SE / SE	10 @ 1.8	19x6.5	856151
IF Filter - Multi-Standard	242.5	25	9	BAL / BAL	32.2 @ 35	7x5.5	857072*
IF Filter	242.625	1.3	18.7	SE / SE	40 @ 5	19x6.5	855549
CDMA IF Filter	249.6	3.84	16.11	SE / SE	40 @ 11	7x5.5	855915
CDMA IF Filter	326.4	15	12.61	SE / SE	40 @ 25	7x5.5	855914
BWA IF Filter	310.7	3	3	SE / SE	46 @ 20	5x5	856140
BWA IF Filter	320	22	19.3	SE / SE	45 @ 38	9x7	855595
BWA IF Filter	320	22	19.4	SE / SE	45 @ 38	9x7	855596
BWA / WiMAX IF Filter	330	5.45	18.26	SE / SE	50 @ 13.6	15.3x6.5	855730
WCDMA / LTE IF Filter	344	65	9.5	BAL / BAL	45 @ 66.6	5x5	857004
BWA IF Filter	350	1.2	10.2	SE/SE	40 @ 3.3	13.3x6.5	854565
BWA / WiMAX IF Filter	350	1.7	13.7	SE / BAL	45 @ 6	13.3x6.5	855399
BWA / WiMAX IF Filter	350	1	8.2	SE / BAL	45 @ 15	7x5.5	855377
WCDMA IF Filter	358.4	19.2	10.1	BAL / BAL	25 @ 375.4	7x5.5	856771
WCDMA IF Filter	358.4	24.8	9	BAL / BAL	30 @ 335.8	7x5.5	856966
IF Filter - Multi-Standard	358.4	39.6	11.5	SE / BAL	30 @ 30	7x5.5	856882
WLAN IF Filter	374	17	8.5	SE / BAL	10 @ 33	7x5.5	855653
WLAN IF Filter	374	17	8.5	SE / BAL	35 @ 33	5x5	855898
WLAN IF Filter	374	17	9	SE / BAL	30 @ 33	3.8x3.8	856278
BWA / WiMAX IF Filter	374	10	9	BAL / BAL	10 @ 25	3.8x3.8	856466
WCDMA IF Filter	380	5.4	15.4	SE / BAL	30 @ 8.3	13.3x6.5	855530
BWA / WiMAX IF Filter	380	7	10	BAL / BAL	40 @ 20	7x5.5	856490
BWA / WiMAX IF Filter	380	10	8.7	BAL / BAL	40 @ 36	7x5.5	856631

SAW (cont.)

Description	Frequency (MHz)	Bandwidth (MHz)	Typical IL (dB)	I / O Configuration	Rejection {dB @ BW or Freq (MHz)}	Package Size (mm)	Part Number
IF Filter - Multi-Standard	397.5	66.7	16.6	BAL / BAL	35 @ 71.7	7x5.5	857073*
WCDMA IF Filter	398	4.3	9.9	SE / SE	50 @ 36	9.1x4.8	855561
WCDMA / WiMAX IF Filter	398	15	7.5	SE / SE	30 @ 60	9.1x4.8	855559
BWA / WiMAX IF Filter	398	10	11.2	BAL / BAL	35 @ 388.5	5x5	856652
IF Filter - Multi-Standard	403.5	3	3	BAL / SE	20 @ 398	3x3	856990
BWA / WiMAX IF Filter	426	5.16	18.02	SE / SE	50 @ 14	13.3x6.5	855731
IF Filter - Multi-Standard	447.5	25	14.1	BAL / BAL	35 @ 34.2	7x5.5	857074*
WiBRO IF Filter	456	8.75	7.9	BAL / BAL	36 @ 443.25	5x5	856549
BWA / WiMAX IF Filter	456	10	8.3	BAL / BAL	37 @ 440	7x5.5	856672
BWA / WiMAX IF Filter	456	10	8.3	BAL / BAL	37 @ 440	5x5	856638
WCDMA IF Filter	456	19	10	BAL / BAL	25 @ 439	7x5.5	856687
RF Filter	457.5	15	2.2	SE / SE	70 @ 472	3.8x3.8	856930
General Purpose IF Filter	460	3.75	11.1	SE / SE	35 @ 8	7x5.5	856282
BWA / WiMAX IF Filter	464	3.5	10.6	BAL / BAL	53 @ 417	7x5.5	856623
FRS RF or GPS IF Filter	465	6	1.43	SE / SE	40 @ 445	3x3	856288
WiMAX IF Filter	467	10	3	SE / SE	40 @ 438	3.8x3.8	856586
BWA / WiMAX IF Filter	479.75	9	19.5	SE / SE	35 @ 22	7x5.5	855271
BWA / WiMAX IF Filter	479.75	23	9.8	BAL / BAL	35 @ 36	7x5.5	855272
Cable IF Filter	499.25	1	7	SE / SE	35 @ 6	9x7	855104
BWA / WiMAX IF Filter	520	6	10.8	SE / SE	30 @ 514	5x5	856680
BWA / WiMAX IF Filter	520	11	9.5	SE / SE	35 @ 506	5x5	856625
WLAN IF Filter	549.5	1	11.6	SE / SE	40 @ 547.4	9x7	855985
WLAN IF Filter	549.5	10	11.8	SE / SE	40 @ 536.5	7x5.5	855959
BWA / WiMAX IF Filter	580	10	10.7	BAL / BAL	40 @ 36	5x5	856665
RF Filter - Band 12 Uplink	707	18	1.5	SE / SE	9 @ 728	3x3	856884
RF Filter - Band 12 Downlink	737	18	1.8	SE / SE	37 @ 708	3x3	856883
RF Filter - Band 13 Downlink	751.5	11	1.5	SE / SE	40 @ 776	3x3	856794
WiMAX IF Filter	756	10	1.9	SE / SE	30 @ 727	3.8x3.8	856690
BWA IF Filter	756	20	0.9	SE / SE	30 @ 716	3.8x3.8	856866
WLAN IF Filter	770	17	6.2	BAL / BAL	40 @ 750	5x5	855942-1
RF Filter - Band 13 Uplink	781.5	11	1.5	SE / SE	38 @ 757	3x3	856764
RF Filter - Band 13 Uplink	782	10	1.52	SE / SE	15 @ 765	3x3	856844
B13 Notch Filter for SVLTE App.	782	15	0.6	SE / SE	24 @ 782	2.5x2	857061*
RF Filter - Band 13 / 14 Uplink	787.5	22	2.75	SE / SE	40 @ 843	3x3	856977
BWA IF Filter	810	5	6	SE / SE	32 @ 26	3x3	856534
RF Filter High Attenuation	810	5	5.5	SE / SE	50 @ 770	3x3	857191*
BWA / WiMAX IF Filter	810	10	3.5	SE / SE	10 @ 31	3x3	856526
BC0 Notch Filter for SVLTE App.	826	10	0.5	SE / SE	32 @ 826	2.5x2	857031*
RF Filter - Band 5 Uplink	835	30	3	SE / SE	20 @ 869	3x3	857019
RF Filter - Band 5 Uplink	836.5	25	2.7	SE / SE	28 @ 869	3x3	856503
RF Filter - Band 5 Uplink	836.5	25	2.7	SE / SE	28 @ 869	3x3	855729
RF Filter - Band 5 Uplink	836.5	25	2	SE / SE	10 @ 869	3x3	856704
RF Filter - Band 5 Uplink	836.5	25	1.9	SE / SE	35 @ 869	3x3	855821
RF Filter - Band 5 Uplink	836.5	25	2.3	SE / SE	50 @ 869	1.4x1.2	857038
RF Filter - Band 20 Uplink	847	30	1.3	SE / SE	10 @ 882	3x3	856932
RF Filter	860.5	19	1.1	SE / SE	31 @ 815	3x3	856606
EU ISM 875 Band RF Filter	875	13	2.4	SE / SE	55 @ 849	2x1.5	856963
RF Filter - Band 5 Downlink	881.5	25	2.7	SE / SE	40 @ 849	3x3	855728
RF Filter - Band 5 Downlink	881.5	25	1.8	SE / SE	35 @ 849	3x3	855782
RF Filter - Band 5 Downlink	881.5	25	2.7	SE / SE	40 @ 849	3x3	856504
Cell Band Delay Filter 450 NS	881.5	25	2.5	SE / BAL	-	7x5.5	856716
RF Filter - Band 8 Uplink	897.5	35	1.4	SE / SE	10 @ 984	3x3	856824
RF Filter - Band 8 Uplink	897.5	35	1.5	SE / SE	15 @ 930	3x3	856657

SAW (cont.)

Description	Frequency (MHz)	Bandwidth (MHz)	Typical IL (dB)	I / O Configuration	Rejection {dB @ BW or Freq (MHz)}	Package Size (mm)	Part Number
RF Filter - Band 8 Uplink	897.5	35	1.9	SE / SE	14 @ 930	3x3	856671
ISM 915 Band RF Filter	915	26	2.3	SE / SE	35 @ 882.5	2x1.5	856327
ISM 915 Band RF Filter	915	4.4	2.4	SE / SE	55 @ 849	3x3	856686
ISM 921.5 Band RF Filter	921.5	13	2.4	SE / SE	55 @ 825	2x1.5	856905
RF Filter - Band 8 Downlink	942.5	35	2	SE / SE	5 @ 915	3x3	855820
RF Filter - Band 8 Downlink	942.5	35	3.2	SE / SE	12 @ 915	3x3	855810
RF Filter - Band 8 Downlink	942.5	35	2.5	SE / SE	25 @ 915	3x3	856528
WLAN IF Filter	970	9	24	SE / SE	35 @ 945	9.1x4.8	856338
WLAN IF Filter	970	18	24.7	SE / SE	35 @ 945	7x5.5	856339
Tuner IF Filter	1086	10	4	BAL / BAL	40 @ 1046	3x3	855964
Tuner IF Filter	1086	10	4	BAL / BAL	40 @ 1046	3x3	856330
Tuner IF Filter	1090	10	5	BAL / BAL	50 @ 1050	3.8x3.8	856096
IFF RF Filter	1090	10	5.8	SE / SE	50 @ 1050	3.8x3.8	857179*
WLAN IF Filter	1150	16	4.4	BAL / BAL	20 @ 1170	3x3	856256
GPS L5 RF Filter	1176	20	2.4	SE / SE	20 @ 1226	2x1.5	856440
GPS L5 Ultra Low Loss	1176.45	20	0.5	SE / SE	21 @ 1226	1.4x1.2	857143*
GPS L5 High Attenuation Filter	1176.45	20	2	SE / SE	21 @ 1226	1.4x1.2	857144*
Tuner IF Filter	1216	8	3.75	BAL / BAL	12 @ 24	3x3	856365
Tuner IF Filter	1220	10	4.5	BAL / BAL	30 @ 60	3x3	856298
Tuner IF Filter	1220	50	3.9	BAL / BAL	33 @ 96	3.8x3.8	856598
GPS L2 RF Filter	1227.6	20	1.1	SE / SE	27 @ 1152	2x1.5	856700
GPS L2 Ultra Low Loss Filter	1227.6	20	0.5	SE / SE	21 @ 1177	1.4x1.2	857141*
GPS L2 High Attenuation Filter	1227.6	20	2.1	SE / SE	21 @ 1177	1.4x1.2	857142*
Tuner IF Filter	1250	96	6	BAL / BAL	44 @ 1152	3x3	856653
RF Filter - Band 11 Uplink	1445.4	35	1.25	SE / SE	20 @ 1495.9	3x3	856928
GPS RF Filter	1575.42	2	1.3	SE / SE	30 @ 1625	3x3	855969
GPS RF Filter	1575.42	2	0.75	SE / SE	35 @ 1635	1.4x1.2	856561
GPS RF Filter	1575.42	2	1.1	SE / BAL	20 @ 1635	1.4x1.2	856576
GPS RF Filter	1575.42	2	0.6	SE / SE	21 @ Cell Bands	1.4x1.2	856793
GPS RF Filter	1575.42	2	1.25	SE / SE	30 @ 1625	2.0x1.5	856584*
GPS RF Filter, Auto	1575.42	2	1.8	SE / SE	45 @ 1637	3x3	856039
GPS RF Filter, Auto	1575.42	2	1.3	SE / SE	45 @ 1640	3x3	856139
GPS L1 Ultra Low Loss Filter	1575.42	20	0.6	SE / SE	21 @ 1625	1.4x1.2	857139*
GPS L1 High Attenuation Filter	1575.42	20	2.6	SE / SE	21 @ 1625	1.4x1.2	857140*
GPS RF Filter, GLONASS	1601.5	17	2.2	SE / SE	40 @ 1630	3x3	856909
RF Filter - Band 3 Uplink	1747.5	75	2	SE / SE	22 @ 1676	3x3	856654
RF Filter - Band 3 Downlink	1842.5	75	1.9	SE / SE	10 @ 1785	3x3	855860
RF Filter - Band 3 Downlink	1842.5	75	4.2	SE / SE	20 @ 1785	3x3	856934
RF Filter - Band 2 Uplink	1880	60	2.2	SE / SE	15 @ 1806	3x3	856705
RF Filter - Band 2 Uplink	1880	60	2.3	SE / SE	10 @ 1790	3x3	856880
RF Filter - Band 2 Uplink	1880	60	2.4	SE / SE	7 @ 1930	3x3	855849
RF Filter - Band 2 Uplink	1880	60	2.8	SE / SE	30 @ 1930	3x3	856530
RF Filter - Band 2 Uplink	1880	60	4	SE / SE	7 @ 1930	3x3	855849
RF Filter - Band 25 Uplink	1882.5	65	1.9	SE / SE	32 @ 2030	3x3	856992
Tuner IF Filter	1892	8	4.2	BAL / BAL	23 @ 1932	2.5x2	856236
RF Filter - Band 1 Uplink	1950	60	1.8	SE / SE	20 @ 2100	3x3	856678
RF Filter - Band 1 Uplink	1950	60	2.2	SE / SE	40 @ 2110	3x3	856532
RF Filter - Band 2 Downlink	1960	60	2.1	SE / SE	10.3 @ 1910	3x3	855817
RF Filter - Band 2 Downlink	1960	60	2.9	SE / SE	15 @ 1910	3x3	855859
RF Filter - Band 2 Downlink	1960	60	2.25	SE / SE	14 @ 1910	3x3	856531
RF Filter - DPD Path	1960	160	3	SE / SE	29 @ 380	3x3	857145*
Delay Filter, PCS 450 ns	1960	60	25	SE / BAL	–	7x5.5	856717
Delay Filter, UMTS 450 ns	2140	60	25	SE / BAL	–	7x5.5	856649

SAW (cont.)

Description	Frequency (MHz)	Bandwidth (MHz)	Typical IL (dB)	I / O Configuration	Rejection {dB @ BW or Freq (MHz)}	Package Size (mm)	Part Number
RF Filter - Band 1 Downlink	2140	60	2.3	SE / SE	25 @ 1980	3x3	856738
SDARS Filter	2332.5	45	1.7	SE / BAL	35 @ 2100	1.4x1.2	856604
ISM / WLAN Passband	2437	66	2.1	SE / SE	34 @ 2550	1.4x1.2	857005
Bluetooth® RF Filter	2441	83.5	2.8	SE / SE	26 @ 2200	3x3	855916
Bluetooth® RF Filter	2441	83.5	2	SE / SE	28 @ 2300	1.4x1.2	856539

NOTES: * = New

BAW

Description	Frequency (MHz)	Bandwidth (MHz)	Typical IL (dB)	I / O Configuration	Rejection {dB @ BW or Freq (MHz)}	Package Size (mm)	Part Number
RF Filter	710	20	2	SE / SE	50 @ 140	3.81x2.54	880370
RF Filter, ISM	915	15	3.5	SE / SE	40 @ 35	6.35x4.57	880371
RF Filter	1030	15	2.5	SE / SE	40 @ 45	3.81x2.54	880367
RF Filter	1090	15	2.5	SE / SE	40 @ 45	3.81x2.54	880374
GPS RF Filter, L5	1176	28	2.75	SE / SE	40 @ 140	3.26x1.6	880364
GPS RF Filter, L2	1227	15	3	SE / SE	40 @ 45	3.81x2.54	880372
GPS L2	1227.6	25	2.5	SE / SE	20 @ 1200	3.26x1.6	880060
RF Filter	1280	20	3	SE / SE	40 @ 105	3.81x2.54	880368
GPS RF Filter, L3 / L4	1380	30	3	SE / SE	40 @ 160	3.26x1.6	880365
GPS RF Filter, L1	1575	30	3	SE / SE	40 @ 160	3.26x1.6	880273
GPS RF Filter, L1	1575	18	1.5	SE / SE	40 @ 350	3.26x1.6	880085
GPS RF Filter, L1	1575	25	3	SE / SE	40 @ 60	3.81x2.54	880373
GPS L1	1575.42	30	2.5	SE / SE	20 @ 1548	3.26x1.6	880094
RF Filter - Band 2 Uplink	1880	60	3.5	SE / SE	30 @ 1920	3x3	885025
RF Filter - Band 2 Downlink	1960	60	3.7	SE / SE	34 @ 1920	3x3	885024
B25 Diversity Rx Filter	1962.5	65	2.6	SE / SE	–	2.5x2	TQM966025
B25 Diversity Rx Filter	1962.5	65	2.5	SE / SE	–	2.0x1.6	885051*
RF Filter	2106	35	4	SE / SE	–	3.26x1.6	880126
RF Filter	2324	38	3	SE / SE	40 @ 150	3.81x2.54	880148
B40 Tx / Rx Filter	2350	100	1.3	SE / SE	45 @ 2427	1.4x1.2	885049*
ISM Passband Filter for Coexistence	2436	72	2	SE / SE	20 @ 2495	1.7x1.3	885007
ISM Passband Filter for Coexistence	2436	72	1.8	SE / SE	20 @ 2495	1.4x1.2	885017
ISM Notch RF Filter for Coexistence	2440	72	1.5 (Out of Band IL)	SE / SE	25 @ 2440 (Notch Rej)	1.7x1.3	885008
ISM Notch RF Filter for Coexistence	2440	85	2 (Out of Band IL)	SE / SE	18 @ 2440 (Notch Rej)	1.7x1.3	885010
LTE / Wi-Fi Coexist Filter	2442	79	1.7	SE / SE	55 @ 2370	1.4x1.2	885033*
LTE / Wi-Fi Coexist Filter	2442	79	1.7	SE / SE	59 @ 2570	1.4x1.2	885032*
RF Filter - Band 7 Uplink	2535	70	1.3	SE / SE	41 @ 2620	3x3	885009
RF Filter, MMDS	2560	30	3	SE / SE	40 @ 150	3.81x2.54	880157
LTE B38 Tx / Rx Filter	2595	50	1.4	SE / SE	39 @ 2500	1.4x1.2	885026*
RF Filter, ISM	5775	100	4.5	SE / SE	20 @ 350	3.26x1.6	880369

NOTES: * = New

SAW and BAW – Duplexers, Diplexers, Diplexed Duplexers and Dual Filter Products

Description	Frequency (MHz)	Bandwidth (MHz)	Typical IL (dB)	I / O Configuration	Rejection {dB @ BW or Freq (MHz)}	Package Size (mm)	Part Number
Duplexer, Band 17, SAW	710 / 740	12 / 12	1.2 / 1.8	SE / BAL	–	2.5x2	856931
Duplexer, Band 13, SAW	751 / 782	9 / 9	2.3 / 1.8	SE / BAL	–	2.5x2	856879

SAW and BAW – Duplexers, Diplexers, Diplexed Duplexers and Dual Filter Products (cont.)

Description	Frequency (MHz)	Bandwidth (MHz)	Typical IL (dB)	I / O Configuration	Package Size (mm)	Part Number
Duplexer, B20, SAW	806 / 847	30 / 30	2.5 / 3	SE / BAL	2.5x2	856979
Duplexer, BC10, SAW	833 / 878	32 / 32	2.5 / 2.5	SE / BAL	2.5x2	856999
Duplexer, Cell Band, SAW	836.5 / 881.5	25 / 25	2.0 / 2.5	SE / SE	3.8x3.8	856908
Diplexer, High Attenuation, SAW	1176.45 / 1575.42	20.46	3.5	SE / SE	5x5	890086* +
Diplexer, Low Loss, SAW	1176.45 / 1575.42	20.46	0.9	SE / SE	5x5	890087* +
Diplexer, High Attenuation, SAW	1227.6 / 1575.42	20.46	3.5	SE / SE	5x5	890084* +
Diplexer, Low Loss, SAW	1227.6 / 575.42	20.46	0.9	SE / SE	5x5	890085* +
Diplexer, GPS / SDARS	1575.42 / 2332.5	3 / 25	0.6 / 0.8	SE / SE	3x3	TQM2M9016
Duplexer, PCS, BAW	1880 / 1960	60 / 60	1.32 / 1.52	SE / SE	3.8x3.8	TQM969001
Duplexer, BC1 / B2, BAW	1880 / 1960	60 / 60	1.8 / 1.9	SE / SE	2.5x2	TQM966002
Duplexer Bank - Diplexed Duplexer for BC1 / BC0 - BAW / SAW	1880 / 1960 832 / 877	60 / 60 34 / 34	–	SE / SE	2.8x4.7	TQQ0101*
Duplexer, B24 / BC14, BAW	1882.5 / 1962.5	65	2.8	SE / SE	3x3	TQM963001*
Duplexer B25 - BAW	1882.5 / 1962.5	–	–	SE / SE	2.0x1.6	TQM969002*
Duplexer, BC14 / B25, BAW	1882.5 / 1962.5	65 / 65	1.8 / 2.2	SE / SE	2.5x2	TQM963014
Duplexer Bank - Diplexed	1882.5 / 1962.5	65/65	1.5/1.8	SE / BAL	2.8x4.7	TQQ2526*
Duplexer for B25 / 26 - BAW / TC-SAW	831.5 / 876.5	35 / 35	1.8 / 2.0			
Diplexed Tx Filters for B38 / 40 - BAW	2335 / 2595	70 / 40	2.5 / 2.5	SE / SE	2.0x1.5	885030*
Dual Filter - B38 / 40 Rx Filters - BAW	2350 / 2595	100 / 50	3 / 1.9	SE / SE	1.7x1.3	885035*

NOTES: * = New, + = For additional Plug-and-Play diplexer capabilities and frequencies see TriQuint Diplexer Products brochure.

QUANTUM Tx™ Family – GSM / GPRS

Description	Features	Bands	Size (mm)	Part Number
Dual-Band GSM / GPRS Tx Module; PA / LPF / SP4T Switch; Quad-Band Tx & Dual-Band Rx	High-Efficiency Broadband Tx, 2 Rx Ports	GSM900 / DCS or GSM850 / PCS	5.0x6.0x1.0	TQM6M4068

QUANTUM Tx™ Family – WGPRES / WEDGE / TD-SCDMA / TDD-LTE / LTE

Description	Features	Bands	Size (mm)	Part Number
GSM / GPRS Tx Module; PA / LPF / SP6T WGPRES Switch w/Dual-Band WCDMA Antenna Ports	Integrated DB GSM / GPRS & 2 WCDMA Antenna switch Ports	GSM900 / DCS or GSM850 / PCS & 2 WCDMA / LTE Bands	5.0x6.0x1.0	TQM6M9069
GSM / GPRS / EDGE-Linear Tx Module; PA / LPF / SP8T WEDGE Switch w/ Quad-Band WCDMA / LTE Ports	Integrated QB GSM / GPRS / EDGE PA & Antenna Switch	GSM900 / DCS or GSM850 / PCS & 4 WCDMA / LTE Bands	5.25x6.0x1.0	TQM6M9085
GSM / GPRS Tx Module; PA / LPF / SP6T WGPRES Switch w/Dual-Band WCDMA Antenna Ports	Integrated QB GSM / GPRS & 2 WCDMA Antenna Switch Ports, Low Rx Insertion Loss	GSM850, GSM900, DCS, PCS & 2 WCDMA / LTE Bands	5.0x6.0x1.0	TQF9088*
GSM / GPRS Tx Module; PA / LPF / SP8T WGPRES Switch with Up to 4 WCDMA Antenna Switch Ports	Integrated QB GSM / GPRS & 4 WCDMA Antenna Switch Ports, Low Rx Insertion Loss	GSM850, GSM900, DCS, PCS & 4 WCDMA / LTE Bands	5.0x6.0x1.0	TQF9089*
GSM / GPRS / EDGE / TD-SCDMA / TDD-LTE Tx Module; PA / LPF / SP8T Switch with Up to 4 WCDMA Antenna Switch Ports	Integrated QB GSM / GPRS / EDGE / TD-SCDMA & 8 Antenna Switch Ports, Low Rx Insertion Loss	GSM850, GSM900, DCS, PCS, TD-SCDMA (Bands 34 & 39) + 4 WCDMA / LTE / TD-SCDMA / TDD-LTE Bands	5.0x6.0x0.8	TQM6M9098*

NOTES: * = New

TRIUMF™ MMPA Family – GSM / GPRS / EDGE / WCDMA / HSUPA / LTE

Description	Features	Bands	Size (mm)	Part Number
Multi-Mode Multi-Band PA Module w/ Quad-Band GMSK / EDGE and Dual-Band WCDMA PA Modules	2-Bit (Hi / Med / Low Power Modes)	GSM850 / 900, DCS / PCS & WCDMA B1 & B5 / 8	5.0x7.5x1.0	TQM7M9023
Multi-Mode Multi-Band PA Module w/ Quad-Band GMSK / EDGE and Dual-Band WCDMA PA Modules	1-Bit (Hi / Med Power Modes)	GSM850 / 900, DCS / PCS & WCDMA B1 & B5 / 8	5.0x7.5x1.0	TQM7M9053
Multi-Mode Multi-Band PA Module w/ Quad-Band GMSK / EDGE and Penta-Band WCDMA / HSUPA / LTE PA Modules	1-Bit (Hi / Low Power Modes)	GSM850 / 900, DCS / PCS & WCDMA & LTE B1, B2, B3 / 4, 5 & 8	5.0x7.0x1.0	TQM7M9050*
Multi-Mode Multi-Band PA Module w/ Quad-Band GMSK / EDGE and Penta-Band WCDMA / HSUPA / LTE PA Modules	1-Bit (Hi / Low Power Modes)	GSM850 / 900, DCS / PCS & WCDMA & LTE B1, B2, B3 / 4, 5 & 8	5.0x7.0x1.0	TQP9058*

NOTES: * = New

PA Modules – GSM / GPRS / EDGE

Description	Features	Bands	Size (mm)	Part Number
Quad-Band GSM / GPRS / EDGE-Linear PA Module	Low Band I _{bat} < 1.5A @ P _{cal} w/PAE 55%	GSM900 / DCS & GSM850 / PCS	5.0x5.0x1.0	TQM7M5005H
Quad-Band GSM / GPRS / EDGE-Linear PA Module	Input Power Controlled for GMSK & 8PSK	GSM900 / DCS & GSM850 / PCS	5.0x5.0x1.0	TQM7M5013
Quad-Band GSM / GPRS / EDGE-Polar PA Module	+3 to +8dBm Pin Nominal	GSM900 / DCS & GSM850 / PCS	5.0x5.0x1.0	TQM7M5012H
Quad-Band GSM / GPRS / EDGE-Polar PA Module	+3 to +8dBm Pin Nominal	GSM900 / DCS & GSM850 / PCS	5.0x5.0x1.0	TQM7M5022
Quad-Band GSM / GPRS / EDGE-Linear PA Module	Input Power Controlled for GMSK & 8PSK	GSM900 / DCS & GSM850 / PCS	5.0x3.5x0.9	TQM7M5050

PA Modules – CDMA / WCDMA / HSUPA / LTE

Description	Features	Bands	Size (mm)	Part Number
WCDMA / HSUPA PA Module, w/Coupler	2-Bit (Hi / Med / Low Power Modes)	Band 1	3.0x3.0x0.9	TQM776011
WCDMA / HSUPA PA Module, w/Coupler	2-Bit (Hi / Med / Low Power Modes)	Band 8	3.0x3.0x0.9	TQM726018
CDMA & WCDMA / HSUPA PA Module, w/Coupler	2-Bit (Hi / Med / Low Power Modes)	PCS / Band 2	3.0x3.0x0.9	TQM766012
CDMA & WCDMA / HSUPA PA Module, w/Coupler	2-Bit (Hi / Med / Low Power Modes)	AWS / Band 4	3.0x3.0x0.9	TQM756014
CDMA & WCDMA / HSUPA PA Module, w/Coupler	2-Bit (Hi / Med / Low Power Modes)	Cellular / Band 5	3.0x3.0x0.9	TQM716015
LTE PA Module, w/Coupler	1-Bit (Hi / Low Power Modes)	Band 13	3.0x3.0x0.9	TQM700013
LTE PA Module, w/Coupler	1-Bit (Hi / Low Power Modes)	Band 17	3.0x3.0x0.9	TQM700017
Dual-Band WCDMA / HSUPA PA Module, w/Coupler	1-Bit (High / Low Power Modes) Separate LB / HB RF Inputs	Bands 1 & 8	4.0x3.0x0.9	TQM7M6158*
Dual-Broadband WCDMA / HSUPA / EV-DO PA Module, w/Coupler	1-Bit (High / Low Power Modes) Separate LB / HB RF Inputs	Bands 1, 2 & 5 & 8 (25 & 26) BC0, BC1 (BC10)	4.0x3.0x0.9	TQM7M6125*
Dual-Band WCDMA / HSUPA PA Module, w/Coupler	1-Bit (High / Low Power Modes) Single LB / HB RF Input	Bands 1 & 8	4.0x3.0x0.9	TQM7M6018*
Dual-Band WCDMA / HSUPA / EV-DO PA Module, w/Coupler	1-Bit (High / Low Power Modes) Single LB / HB RF Input	Bands 2 & 5 (25 & 26) BC0, BC1 (BC10)	4.0x3.0x0.9	TQM7M6025*
Dual-Broadband WCDMA / HSUPA / EV-DO PA Module, w/Coupler	1-Bit (High / Low Power Modes) Separate LB / HB RF Inputs	Bands 1, 2 & 5 & 8 (25 & 26) BC0, BC1 (BC10)	4.2x3.0x0.9	TQP6109*

NOTES: * = New

TRITIUM™ PAD Family – WCDMA / HSUPA / LTE

Description	Features	Bands	Size (mm)	Part Number
WCDMA / HSUPA PA-Duplexer Module; SE Input w/Coupler, Detector	1-Bit (Hi / Low Power Modes)	Band 1	7.0x4.0x1.1	TQM676021
WCDMA / HSUPA PA-Duplexer Module; SE Input w/Coupler, Detector	1-Bit (Hi / Low Power Modes)	Band 2	7.0x4.0x1.1	TQM666022
WCDMA / HSUPA PA-Duplexer Module; SE Input w/Coupler, Detector	1-Bit (Hi / Low Power Modes)	Bands 5 & 6	7.0x4.0x1.1	TQM616025
WCDMA / HSUPA PA-Duplexer Module; SE Input w/Coupler, Detector	1-Bit (Hi / Low Power Modes)	Band 8	7.0x4.0x1.1	TQM626028L
WCDMA / HSUPA PA-Duplexer Module; SE Input w/Coupler	DC / DC, 1-Bit (Hi / Med Power Modes)	Band 2	4.5x3.5x1.0	TQM666052

TriConnect™ WLAN RF Modules

Description	Features	Bands	Size (mm)	Part Number
5 GHz WLAN PA MMIC	ETSLP-16 Package, Detector, Hi / Low Linearity Mode	802.11 a / n	3.0x3.0x0.45	TQP787011
2.4 GHz WLAN Low Noise Amplifier + SP3T Switch w/WLAN Tx and Bluetooth® Path	LNA Bypass, ETSLP-12 Package	802.11 b / g / n	1.5x1.5x0.55	TQP879001A
2.4 GHz WLAN PA + Switch MMIC w/WLAN Rx Balun and Bluetooth® Path	ETSLP-16 Package, Coupler / Detector	802.11 b / g / n	3.0x3.0x0.45	TQM679002A
2.4 GHz and 5 GHz WLAN PA + Switch MMIC w/WLAN Rx Baluns and Bluetooth® Path	ETSLP-24 Package, Coupler / Detector	802.11 a / b / g / n	4.0x4.0x0.45	TQP6M9002
2.4 GHz and 5 GHz WLAN High-Performance PA + Switch MMIC w/WLAN 2.4 GHz and 5 GHz LNA + Rx Baluns and Bluetooth® Path	ETSLP-24 Package, Coupler / Detector	802.11 a / b / g / n / ac	4.0x4.0x0.45	TQP6M9017
2.4 GHz WLAN PA + Low Noise Amplifier + SP3T Switch MMIC for Bluetooth® Path	ETSLP-16 Package, Coupler / Detector	802.11 b / g / n	2.5x2.5x0.4	TQF9046*
5 GHz WLAN PA + Low Noise Amplifier + SP2T Switch MMIC	ETSLP-16 Package	802.11 a / n / ac	2.5x2.5x0.4	TQF7062*
5 GHz WLAN PA + Low Noise Amplifier + SP2T Switch MMIC	ETSLP-16 Package, Detector / Coupler	802.11 a / n / ac	2.5x2.5x0.4	TQP887051*
5 GHz WLAN PA + SP2T Switch MMIC	ETSLP-16 Package	802.11 a / n / ac	2.5x2.5x0.4	TQP887052*

NOTES: * = New

GPS RF Front-End Module & Filters

Description	Features	Bands	Size (mm)	Part Number
GPS Filter-LNA-Filter Module	Low Noise (1.56dB) and High Gain (16dB)	1575 MHz, GPS L1	3.0x3.0x1.0	TQM640002

Drivers

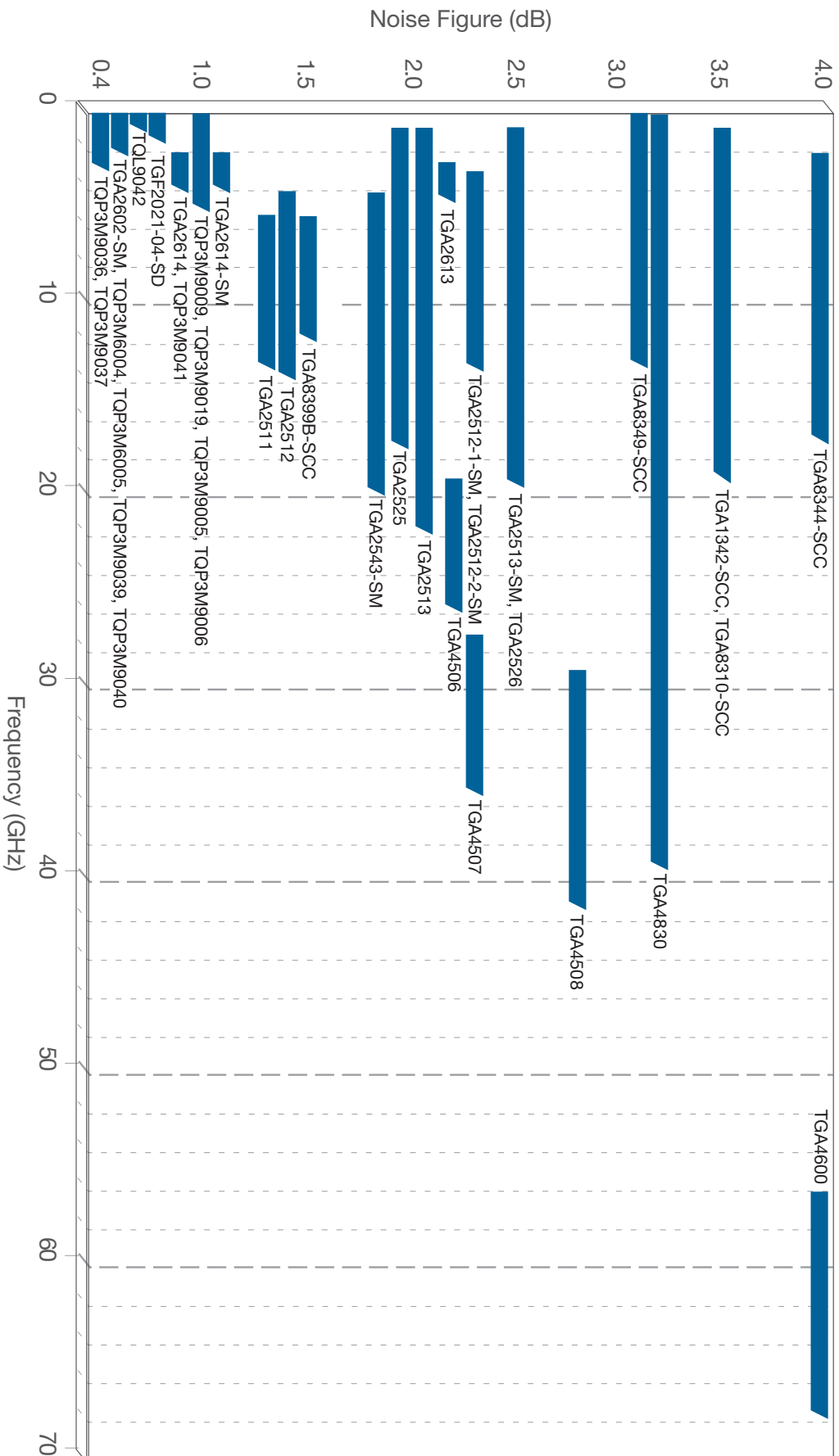
Description	Frequency Range (GHz)	Power (Vpp or dBm)	Gain (dB)	NF (dB)	Voltage / Current (V / mA)	Package Style	Part Number
9.9 - 12.5 Gb/s 3V - 7V Driver	DC - 13	3 - 7Vpp	32	–	3.3 - 5 / 115	8x8 QFN	TGA4956-SM
9.9 - 12.5 Gb/s Modulator Driver	DC - 16	3 - 9Vpp	35	2.5	5.5 - 8 / 210	11.4x8.9 SL	TGA4954-SL
9.9 - 12.5 Gb/s Modulator Driver	DC - 16	3 - 10Vpp	35	2.5	5.5 - 8 / 210	11.4x8.9 SL	TGA4953-SL
12.5 Gb/s NRZ Driver	DC - 18	3 - 11Vpp	16	2.5	8 / 285	Die	TGA4807
12.5 Gb/s NRZ Driver	DC - 18	4 - 8Vpp	16	3.5	8 / 175	8.9x8.9x2 SL	TGA8652-SL
12.5 Gb/s NRZ Driver	DC - 18	6 - 8Vpp	16	3.5	5 - 8 / 70 - 175	Die	TGA1328-SCC
15 Gb/s 10V Linear Modulator Driver	DC - 20	3 - 10Vpp	22	–	7 / 280	6x6 QFN	TGA4826-SM
100 Gb/s Linear Dual Driver w/Bias-T's Inside	DC - 27	3 - 8Vpp	35	–	5 - 7 / 650	16x10.5x3.6 SL	TGA4894-SL**
200 Gb/s 16 QAM Linear Dual Driver w/Bias-T's inside	DC - 27	3 - 5Vpp	24	–	5 - 7 / 500	12x10.5x3.6 SL	TGA4892-SL**
28 Gb/s 6Vpp Diff In / Out Driver MMIC	DC - 28	4 - 8Vpp Diff	22 Diff	–	4 - 5 / 450	6x6 QFN	TGA4957-SM*
40 & 100 Gb/s 8Vpp SE Driver	DC - 30	3 - 9Vpp	32	–	6 - 7 / 270	14.4x7x2 SL	TGA4943-SL
100 Gb/s 8Vpp Dual Channel Driver w/Bias-T's Inside	DC - 35	3 - 9Vpp	32	–	5 - 7 / 500	16x10.5x3.6 SL	TGA4947-SL
Wideband Driver (40 Gb/s)	DC - 35	4Vpp	12	–	5 / 135	Die	TGA4832
32 Gb/s 9Vpp Diff In / Out Driver	DC - 35	6 - 9Vpp Diff	25 Diff	–	5 - 6 / 500	SL	TGA4959-SL
45 Gb/s 8Vpp SE Driver w/Bias-T Inside	DC - 37	5 - 9Vpp	30	–	6 - 7 / 300	14.4x7 SL	TGA4942-SL
LNA / Gain Block (40 Gb/s)	DC - 40	11.5	13	3.2	5 / 50	Die	TGA4830
45 Gb/s 9Vpp Diff In / Out Driver MMIC	DC - 50	6 - 10Vpp Diff	27 Diff	–	5 - 6 / 500	Die	TGA4959**
Ultra-Wideband Driver (50 Gb/s)	DC - 78	3.5Vpp	8	5	6 / 82	Die	TGA4803
10.7 - 12.5 Gb/s Linear Modulator Driver	30 kHz - 8	12.5Vpp	20	–	8 / 310	8x8 QFN	TGA4823-2-SM

NOTES: * = **New**, ** = **Coming Soon**, SE = Single Ended

Transimpedance Amplifiers (TIAs)

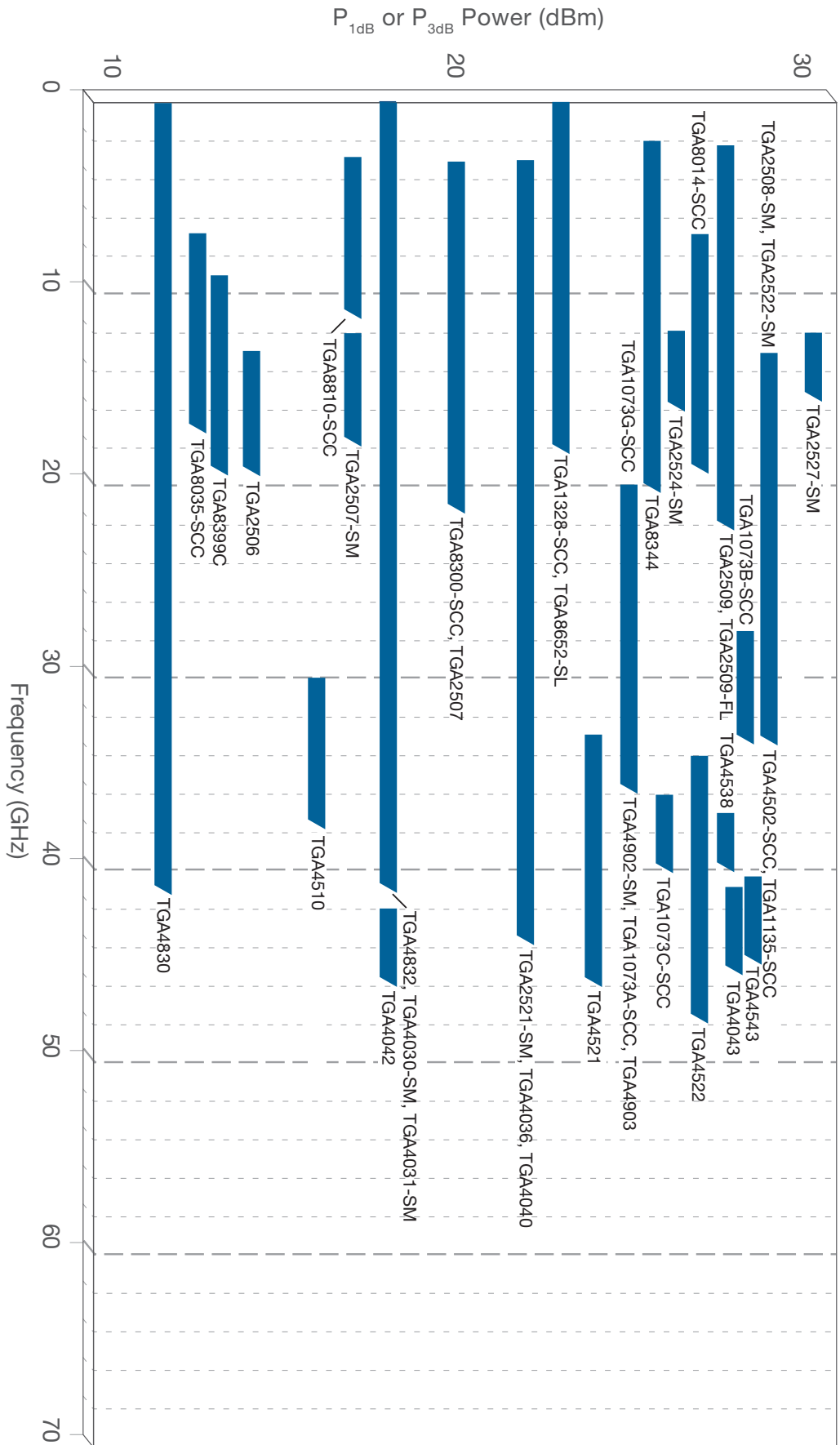
Description	Bandwidth (GHz)	Small Signal Gain (dB)	Differential Transimpedance Gain (ohm)	Differential Output Vpp (mV)	Equivalent Input Noise (pA / rtHz)	Voltage (V)	Current (mA)	Part Number
13 Gb/s Linear TIA with AGC	11	–	250 - 4800	200 - 900	24	3.3	175	TGA4861*
32 Gb/s Linear TIA with AGC	28	–	250 - 4800	200 - 900	24	3.3	175	TGA4864*
44.6 Gb/s Limiting TIA	36	–	2800	650	15	3.3	75	TGA4866*
43 Gb/s Limiting TIA	30	40	4500	600	30	-5.2	85	TIA56*
43 Gb/s Limiting TIA with PLD	27	36	3200	600	30	-5.2	85	TIA56A*

NOTES: * = **New**



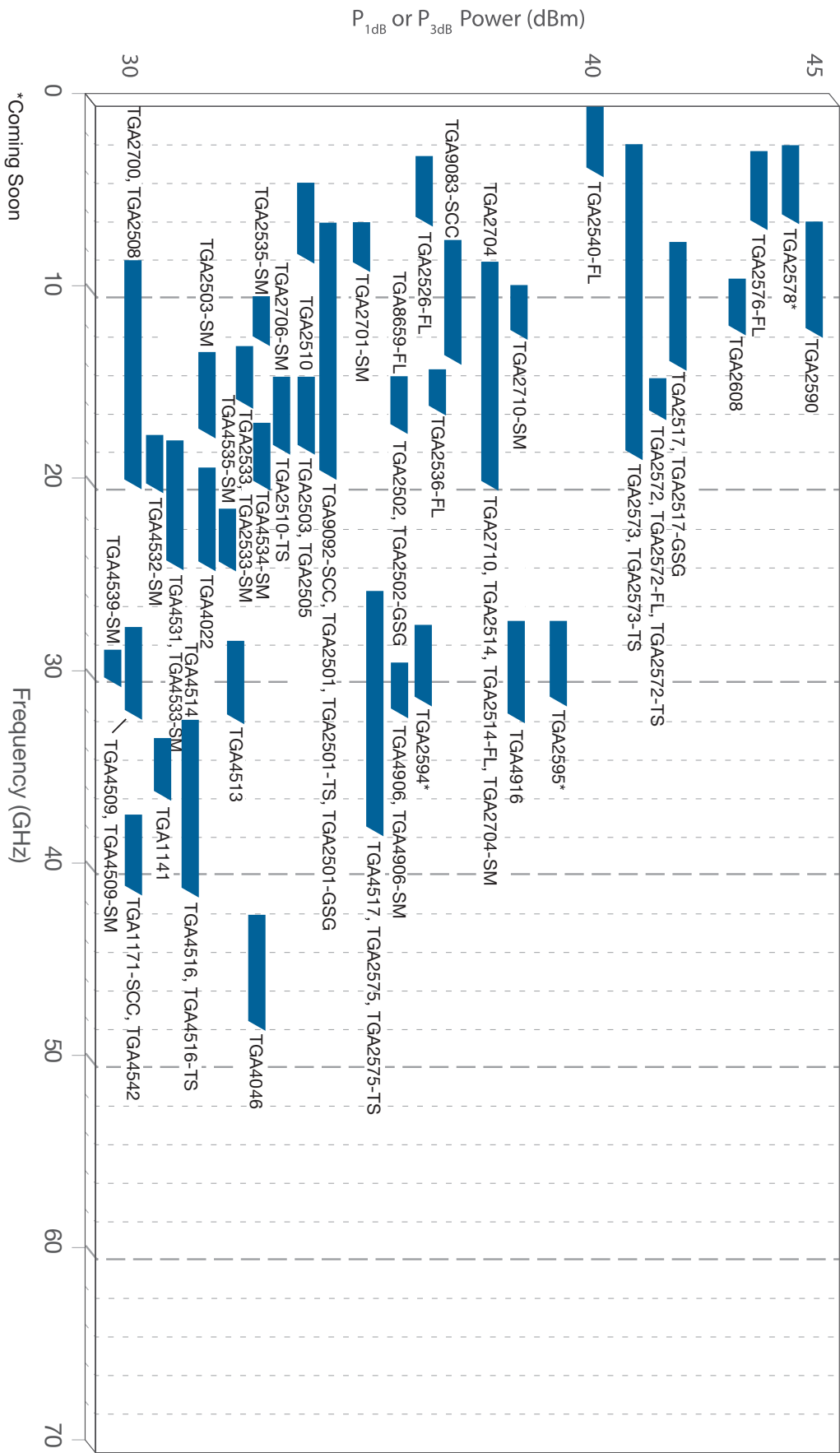
Select Low Noise Amplifiers, LNA Noise Figure vs. Frequency

For a complete list of low noise amplifiers, please refer to page 41.



Select Less Than 1W Higher Frequency Amplifiers, Power vs. Frequency

For a complete list of less than 1W amplifiers, please refer to pages 37 and 38.



Select More Than 1W Higher Frequency Amplifiers, Power vs. Frequency

For a complete list of more than 1W amplifiers, please refer to page 39.

Packaging

For detailed information on TriQuint product packaging, please visit our website at www.triquint.com/prodserv.

Ordering

TriQuint products can be purchased through:

- **TriQuint Online Store:**
Select TriQuint products are now available for purchase online at <http://store.triquint.com>.
- **TriQuint Field Sales Offices:**
We have regional sales offices across the globe to work closely with you on your next TriQuint product purchase. To identify the closest regional sales office, please go to our website at www.triquint.com/sales.
- **Local Sales Representatives:**
Local sales representatives are skilled at examining application needs from a variety of angles to aid the design process. Their insight and specialized experience, paired with your goals, can find the combination of products that best meet overall objectives. Since these representatives work with a variety of customers in many different design environments, their experience can be valuable in determining the right 'fit' for your particular application. To locate a sales representative, please visit our website at www.triquint.com/sales.
- **Distributors - Buy / Resale Reps:**
TriQuint products can be purchased from any one of the distributors or buy / resale reps listed on our website at www.triquint.com/sales.

Terms & Conditions

For a complete listing of TriQuint terms and conditions of sale, please visit our website at www.triquint.com/sales.

Export Compliance

Virtually all products TriQuint offers for sale as detailed in the Product Selection Guide are available for export subject to US government regulations. Please contact your TriQuint salesperson for details.

Product Support

- **Product Data Sheets and Literature:**
Detailed information on our products including datasheets and other literature can be found on the TriQuint website at www.triquint.com/prodserv.
- **Applications Support:**
Detailed product support information can be found on the TriQuint website at www.triquint.com/prodserv.

Reliability Programs

Our programs are in line with JEDEC and other industry standards.

Environmental, Health & Safety Policy

TriQuint is committed to driving continuous improvement; providing employees with a safe and healthy working environment; and being a role model for sound environmental stewardship and pollution prevention, while meeting or exceeding all applicable federal, state and local requirements.

Environmental Systems

- ISO-14001:2004 (Select Sites)

Quality Policy

Each of us at TriQuint is committed to zero defects, continuous improvement, quality and reliability to meet or exceed customer requirements.

Quality Systems

- ISO-9001:2008 Certified (Select Sites)
- ISO / TS 16949:2009 Certified (Select Sites)
- ISO / AS9100B Certified (Select Sites)

Quality Tools Utilized

- Design Failure Mode & Effects Analysis (DFMEA)
- Process Failure Mode & Effects Analysis (PFMEA)
- Process Control Plan (PCP)
- Production Part Approval Process (PPAP)
- Eight Discipline Problem Solving (8-D)
- Real Time Statistical Process Control (SPC)
- Measurement System Analysis (MSA)
- Advanced Product Quality Planning (APQP)

For further details on TriQuint quality and reliability information, please visit our website at www.triquint.com/company/quality.

Product Compliance Policies

TriQuint is committed to meeting all global product environmental regulations that affect its products. These regulations include:

- Directive 2002 / 95 / EC (RoHS Directive) and its recast Directive 2011 / 65 / EU
- Management Methods for Control of Pollution Caused by Electronic Information Products (China RoHS)
- Directive 94 / 62 / EC (Packaging Directive)
- Directive 2006 / 122 / EC (PFOS Directive)
- Regulation (EC) No 1907 / 2006 (REACH Regulation)
- Commission Decision 2009 / 251 / EC (Dimethylfumarate Ban)

All active TriQuint commercial standard products are compliant with these directives. Contact TriQuint for the RoHS compliance status of custom products, military products and products manufactured prior to June 2006. All new product designs are halogen-free since late 2008. TriQuint does not use any REACH Substances of Very High Concern (SVHCs) in its products or packaging materials above a concentration of 0.1% (at the product level). Also, TriQuint is committed to complying with Section 1502 (Conflict Minerals) of the Dodd-Frank Wall Street Regulation and Consumer Protection Act. We are actively surveying our supply chain to ensure that our products are "Conflict Free", and as of April 2013 have not identified any Conflict Mineral derivatives from the Conflict Region in our products.

In addition to being compliant with the above product compliance laws and regulations, TriQuint participates in the following customer programs:

- Sony Green Partner
- Samsung Eco-Partner

Please contact TriQuint at rohs_info@triquint.com for any product compliance information requests. For further details on TriQuint environmental, health & safety information, please visit our website at www.triquint.com/company/ehs.

Notice

The data provided in this selection guide is subject to change without notice. TriQuint reserves the right to make changes to specifications and other information at any time.

Authorized Channel Partners:



Global



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Americas & EMEA



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MARUBUN CORPORATION

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For more information, visit www.triquint.com/sales.

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