

Table of Contents

Technical Program

MONDAY JUNE 12, 1989

Terrace Theater

SESSION I: LOW NOISE AMPLIFIERS

Chairman: Louis Liu, TRW

Co-Chairman: Charles Huang, Anadigics

8:30	General Chairman-Reynold Kagiwada, TRW	
8:40	Technical Chairman-Alejandro Chu, M/A COM	
8:50	Progress of MMICs in Japan (Invited), M. Aikawa and H. Ogawa, and T. Sugeta, <i>NTT, Yokosuka, Japan</i>	1
9:20	A 12 GHz-Band Super Low-Noise Amplifier Using A Self Aligned Gate MESFET, N. I. Ayaki, T. Shimura, K. Hosogi, T. Kato, Y. Nakajima, M. Sakai, Y. Kohno, H. Nakano and N. Tanino, <i>Mitsubishi Electric Corporation, Itami, Japan</i>	7
9:40	A Broadband Low Noise Dual Gate FET Distributed Amplifier, W. J. Thompson, <i>Texas Instruments, Dallas TX</i>	11
10:00	A Family of 2-20 GHz Broadband Low Noise AlGaAs HEMT MMIC Amplifiers, R. Dixit, B. Nelson, W. Jones and J. Carillo, <i>TRW ESG, Redondo Beach, CA</i>	15

MONDAY, JUNE 12, 1989

Terrace Theater

SESSION II: MONOLITHIC POWER AND AMPLIFIERS

Chairman: Sanjay Moghe, Pacific Monolithics

Co-Chairman: Hua Quen Tserng, Texas Instruments

10:50	C-Band 10 WATT MMIC Amplifier Manufactured Using Refractory SAG Process, I. Bahl, R. Wang, A. Geissberger and E. Griffin, <i>ITT GTC, Roanoke, VA: C. Andricos, ITT Gilfillan, Van Nuys, CA</i>	21
11:10	A 2.50 WATT High Efficiency X-Band Power MMIC, M. Avasarala, D. S. Day, S. Chan, C. Hua and J. R. Basset, <i>Avantek, Santa Clara, CA</i>	25
11:30	A Monolithic Ku-Band GaAs 1-WATT Constant Phase, Variable Power Amplifier, S. D. Pritchett, <i>Texas Instrument, Dallas, TX</i>	29
11:50	Ka-Band Monolithic Two-Stage Power Amplifier, Y. Oda, T. Yoshida, K. Kai, S. Arai, S. Yanagawa, <i>Toshiba Corp., Kawasaki, Japan</i>	33

MONDAY JUNE 12, 1989

Terrace Theater

SESSION III: NON-LINEAR CIRCUITS

Chairman Wendell Peterson, Microwave Monolithics

Co-Chairman: William Niehaus, AT&T—Bell Labs

- 1:30** **Accurate Nonlinear Modeling and Verification of MMIC Amplifier,**
V. D. Hwang, Y.-C. Shih and H. M. Le, *Hughes Aircraft, Torrance, CA* 37
- 1:50** **High Isolation 1-20 GHz MMIC Switches with On-Chip Drivers,**
J. A. Eisenberg, *Varian Associates III-V Device Center, Santa Clara, CA:*
T. B. Chamberlain and L. R. Sloan, *Texas Instruments, Dallas, TX* 41
- 2:10** **A Monolithic High Power Ka-Band Switch,** J. V. Bellantoni,
D. C. Bartle, D. Payne, G. McDermott, S. Bandla, R. Tayrani and
L. Raffaelli, *GAMMA Monolithics, Woburn, MA* 47
- 2:30** **High Power Control Components Using a New Monolithic FET**
Structure, M. Shifrin, P. Katzin, Y. Ayasli, *Hittite Microwave*
Corporation, Woburn, MA 51

MONDAY, JUNE 12, 1989

California Room

SESSION IV: ADVANCED CIRCUITS AND APPLICATIONS

Chairman: Eric Strid, Cascade Microtech

Co-Chairman: Peter Asbeck, Rockwell International

- 1:30** **A Novel MMIC Active Filter with Lumped and Transversal Elements,**
M. J. Schindler, Y. Tajima, *Raytheon Research Division, Lexington, MA* 57
- 1:50** **An Ultra-High Speed DCFL Dynamic Frequency Divider,**
T. Ichioka, K. Tanaka, T. Saito, S. Nishi, and M. Akiyama, *Oki Electric*
Industry Co., Tokyo, Japan 61
- 2:10** **Ka-Band MMIC Beam Steered Transmitter Array,** A. L. Riley,
D. Rascoe, V. Lubecke, J. Huang, and L. Duffy, *Jet Propulsion*
Laboratory, Pasadena, CA 65

MONDAY, JUNE 12, 1989

Terrace Theater

SESSION V: CONTROL CIRCUITS

Chairman: Mahesh Kumar, AEL

Co-Chairman: Dale Dawson, Westinghouse Electric

- 3:10** **4:1 Bandwidth Digital Five Bit MMIC Phase Shifters,** D. C. Boire,
G. St. Onge, C. Barratt, G. B. Norris and A. Moysenko, *Sanders*
Associates, Nashua, NH 69
- 3:30** **A Multioctave Active MMIC Quadrature Phase Shifter,** P. Coget*,
P. Philippe, V. Pauker, P. Dautriche and P. Jean*, *LEP, Philips Research,*
*Limeil-Brevannes, France; *TRT, Le Plessie- Robinson, France* 75
- 3:50** **A DC-18 GHz MESFET Monolithic Variable Slope Gain-Equalizer IC,**
H. J. Sun and B. Morley, *Teledyne Monolithic Microwave, Mountain View,*
CA 79

- 4:10** **A GaAs HBT Monolithic Microwave Switched Gain Amplifier with +31 dB to -31 dB Gain in 2 dB Increments**, A. K. Oki, G. M. Gorman, J. B. Camou, D. Umemoto and M. E. Kim, *TRW ESG, Redondo Beach, CA* 83

TUESDAY, JUNE 13, 1989
Terrace Theater

SESSION VI: JOINT SESSION-RECEIVERS AND MIXERS

Chairman: Y. Tajima, Raytheon Company

Co-Chairman: Y. Ayasli, Hittite Microwave Corporation

- 8:30** **A Chip GaAs Double Conversion Tuner System with 70 dB Image Rejection**, T. Ducourant, P. Philippe, P. Dautriche, V. Pauker, C. Villalon, M. Pertus and J.-P. Damour, *LEP, Philips Research, Limeil-Brevannes, France* 87
- 8:50** **A Monolithic 60 GHz Diode Mixer in FET Compatible Technology**, B. Adelseck, A. Colquhoun*, J. M. Dieudonne, G. Ebert*, J. Seiders*, K. E. Schmegner, and W. Schwab, *AEG Aktiengesellschaft, Ulm, FRG; *Telefunken Electronic, Heimbrenn, FRG* 91
- 9:10** **A W-Band Channelized Monolithic Receiver**, G. L. Lan, J. C. Chen, C. K. Pao and M. I. Herman, *Hughes Aircraft, Torrance, CA; R. E. Neidert, Naval Research Lab, Washington, DC* 95
- 9:30** **Silicon Bipolar Double Balanced Active Mixer MMICs for RF and Microwave Applications up to 6 GHz**, J. Wholey, I. Kipnis and C. P. Snapp, *Avantek, Newark, CA* 101

TUESDAY, JUNE 13, 1989
Terrace Theater

SESSION VII: JOINT SESSION-MILLIMETER-WAVE AMPLIFIERS

Chairman: Ho Huang, Comsat Laboratories

Co-Chairman: Vladimir Sokolov, Honeywell

- 2:00** **Monolithic HEMT LNAs for Radar, EW, and Communications**, M. A. G. Upton, K. H. Snow, D. I. Goldstick*, W. M. Kong, M.-Y. Kao, W. F. Kopp, P. Ho, G. J. Tessmer, B. R. Lee, K. A. Wypych and A. A. Jabra, *GE Electronics Lab, Syracuse, NY; GE Aerospace Electronics Systems, Utica, NY* 105
- 2:20** **60 GHz Monolithic Pseudomorphic Modulation Doped Field Effect Transistor Low Noise Amplifiers**, G. M. Metze, A. Cornfeld, J. Singer, E. Carlson, G. Dahrooge, J. Bass, T. Lee, and H.-L. Hung, *COMSAT Laboratories, Clarksburg, MD* 111
- 2:40** **A Monolithic 40 GHz HEMT Low-Noise Amplifier**, C. Yuen, C. Nishimoto, S. Bandy, and G. Zdasiuk, *Varian Research Center, Palo Alto, CA* 117
- 3:00** **GaAs MBE Monolithic Power Amplifiers at U-Band**, G. Hegazi, H.-L. Hung, J. L. Singer, F. R. Phelleps, A. B. Cornfeld, T. Smith, J. F. Bass, H. E. Carlson, and H. C. Huang, *COMSAT Laboratories, Clarksburg, MD* 121

TUESDAY, JUNE 13, 1989
Terrace Theater

SESSION VIII: JOINT SESSION-BROADBAND ICs

Chairman: Inder Bahl, ITT/GTC

Co-Chairman: Jim Schellenberg, Schellenberg Associates

4:00	An Ultra Wide Bandwidth Power Divider on MMIC Operating 4 to 10 GHz, J. Staudinger, <i>Motorola GEG, Chandler, AZ</i>	127
4:20	Silicon Bipolar Fixed and Variable Gain Amplifier MMICs for Microwave and Lightwave Applications up to 6 GHz, I. Kipnis, J. F. Kukielka, J. Wholey and C. P. Snapp, <i>Avantek, Newark, CA</i>	133
4:40	Design and Performance of a 2-18 GHz Monolithic Matrix Amplifier, A. P. Chang, K. B. Niclas, B. D. Cantos and W. A. Stifler, <i>Watkins-Johnson Co., Palo Alto, CA</i>	139
5:00	A Novel 4-18 GHz Monolithic Distributed Amplifier, S. L. G. Chu, Y. Tajima, J. B. Cole, A. Platzker, M. J. Schindler, <i>Raytheon Research Division, Lexington, MA</i>	143