



PMEG10020ELXD-Q

100 V, 2 A low leakage current Schottky barrier rectifier

7 October 2025

Product data sheet

1. General description

Planar Schottky barrier rectifier encapsulated in a CFP2-HP (SOD323HP) power flat lead Surface-Mounted Device (SMD) plastic package.

2. Features and benefits

- Low forward voltage
- Low leakage current
- High surge current robustness
- High power capability due to clip-bond package
- Power flat lead plastic package with exposed heatsink for optimal thermal connection
- Qualified according to AEC-Q101 and recommended for use in automotive applications

3. Applications

- High efficiency applications
- Switch mode power supply
- Freewheeling application
- Reverse polarity protection
- OR-ing

4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
$I_{F(AV)}$	average forward current	$\delta = 0.5$; $f = 20$ kHz; square wave; $T_{sp} \leq 164$ °C		-	-	2	A
V_R	reverse voltage	$T_j = 25$ °C		-	-	100	V
V_F	forward voltage	$I_F = 2$ A; pulsed; $T_j = 25$ °C	[1]	-	810	875	mV
I_R	reverse current	$V_R = 100$ V; pulsed; $T_j = 25$ °C	[1]	-	0.25	2	µA
		$V_R = 100$ V; pulsed; $T_j = 125$ °C	[1]	-	0.35	2.8	mA

[1] Very short pulse, in order to maintain a stable junction temperature.

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	K	cathode[1]	 Transparent top view CFP2-HP (SOD323HP)	 sym001
2	A	anode		

[1] The marking bar indicates the cathode.

6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
PMEG10020ELXD-Q	CFP2-HP	SOD323HP: plastic surface-mounted package with solderable lead ends; 2.2 mm x 1.3 mm x 0.68 mm body	SOD323HP

7. Marking

Table 4. Marking codes

Type number	Marking code
PMEG10020ELXD-Q	AJ

8. Limiting values

Table 5. Limiting values

In accordance with the Absolute Maximum Rating System (IEC 60134).

Symbol	Parameter	Conditions		Min	Max	Unit
V_R	reverse voltage	$T_j = 25\text{ }^{\circ}\text{C}$		-	100	V
I_F	forward current	$\delta = 1; T_{sp} \leq 162\text{ }^{\circ}\text{C}$		-	2.8	A
$I_{F(AV)}$	average forward current	$\delta = 0.5; f = 20\text{ kHz}; \text{square wave}; T_{sp} \leq 164\text{ }^{\circ}\text{C}$		-	2	A
I_{FSM}	non-repetitive peak forward current	$t_p = 8.3\text{ ms}; \text{half sine wave}; T_{j(\text{init})} = 25\text{ }^{\circ}\text{C}$		-	25	A
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ }^{\circ}\text{C}$	[1]	-	0.65	W
			[2]	-	1.2	W
T_j	junction temperature			-	175	$^{\circ}\text{C}$
T_{amb}	ambient temperature			-55	175	$^{\circ}\text{C}$
T_{stg}	storage temperature			-65	175	$^{\circ}\text{C}$

[1] Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated and standard footprint.

[2] Device mounted on an FR4 PCB, single-sided copper, tin-plated, mounting pad for cathode 1 cm².

9. Thermal characteristics

Table 6. Thermal characteristics

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
$R_{th(j-a)}$	thermal resistance from junction to ambient	in free air	[1] [2]	-	-	230	K/W
			[1] [3]	-	-	125	K/W
$R_{th(j-sp)}$	thermal resistance from junction to solder point		[4]	-	-	6	K/W

- [1] For Schottky barrier diodes thermal runaway has to be considered, as in some applications the reverse power losses P_R are a significant part of the total power losses.
- [2] Device mounted on an FR4 PCB, single-sided copper, tin-plated and standard footprint.
- [3] Device mounted on an FR4 PCB, single-sided copper, tin-plated, mounting pad for cathode 1 cm².
- [4] Soldering point of cathode tab.

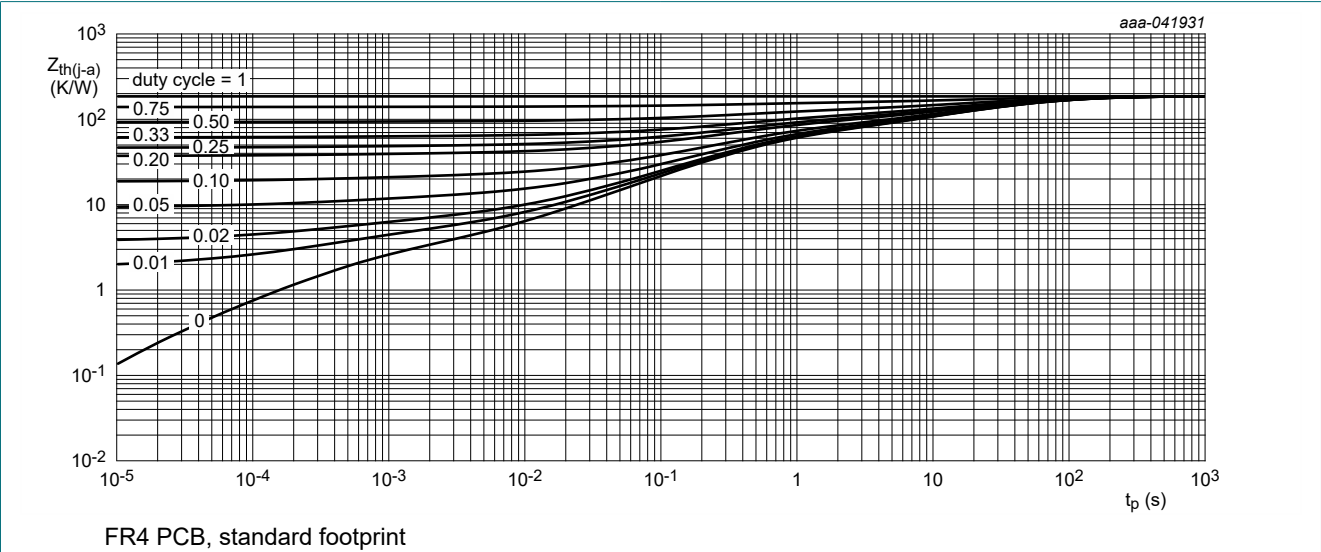


Fig. 1. Transient thermal impedance from junction to ambient as a function of pulse duration; typical values

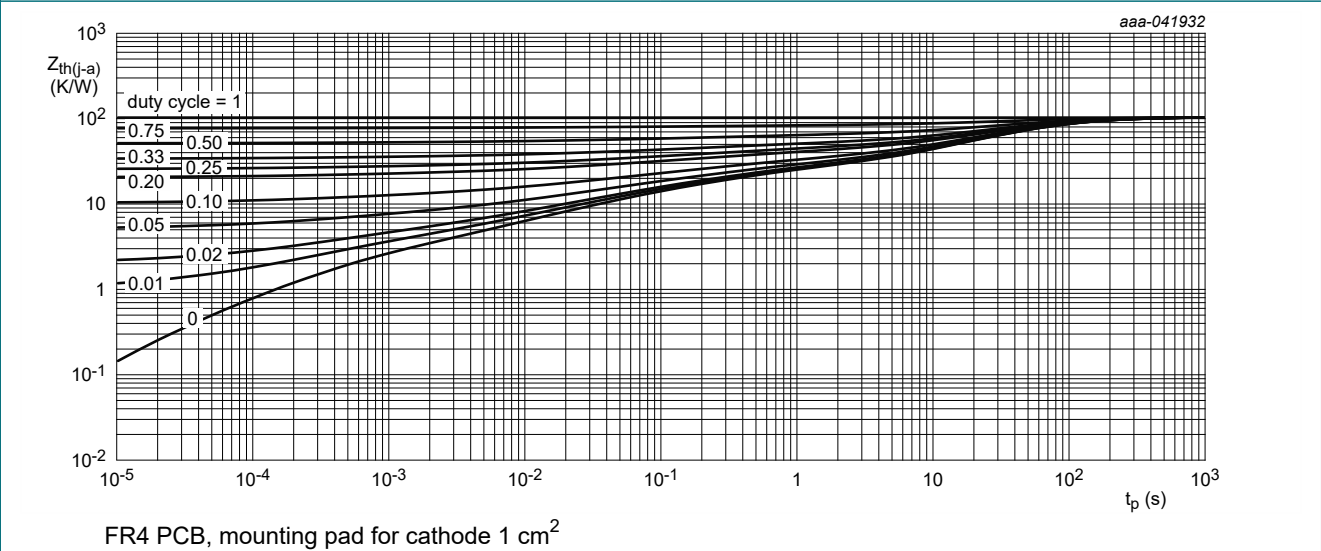


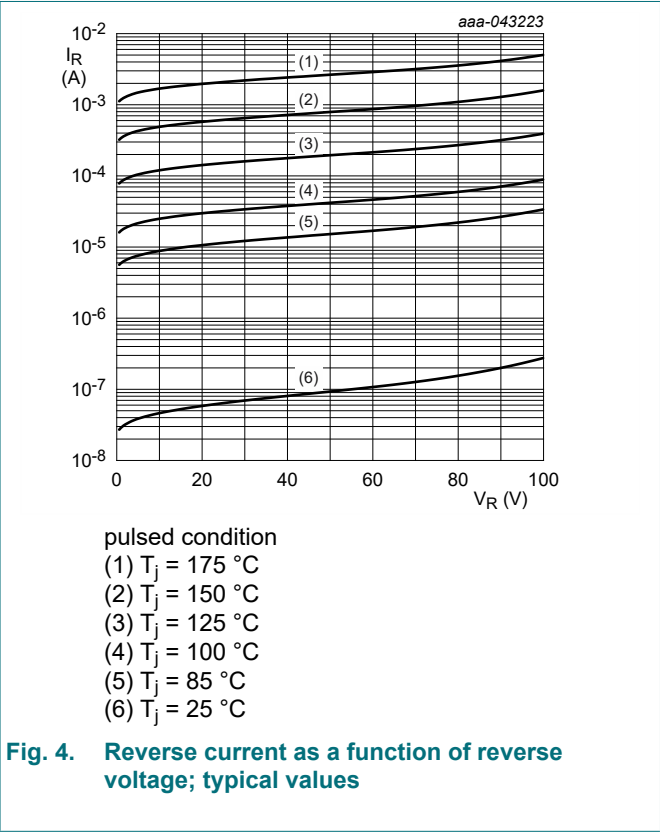
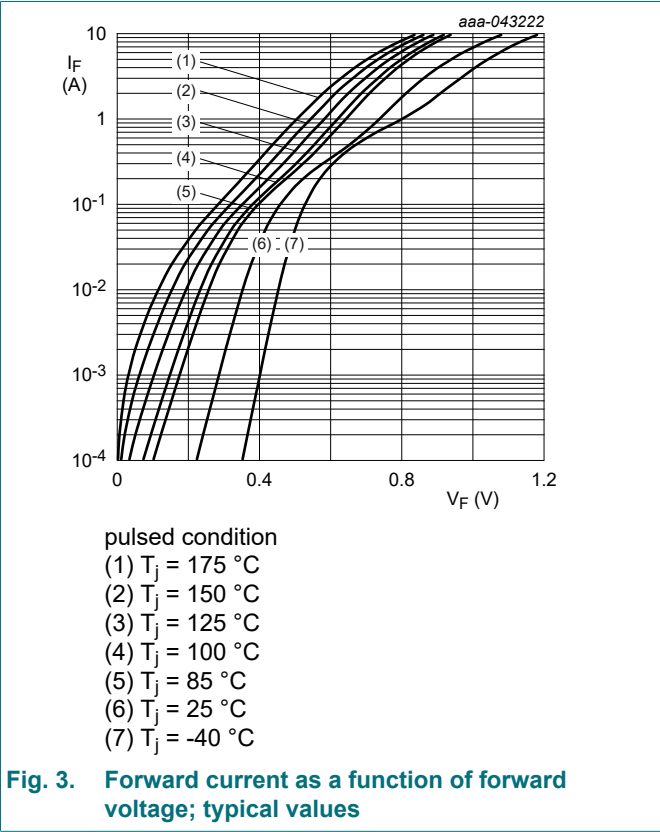
Fig. 2. Transient thermal impedance from junction to ambient as a function of pulse duration; typical values

10. Characteristics

Table 7. Characteristics

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
$V_{(BR)R}$	reverse breakdown voltage	$I_R = 1\text{ mA}$; pulsed; $T_j = 25\text{ °C}$	[1]	100	-	-	V
V_F	forward voltage	$I_F = 1\text{ A}$; pulsed; $T_j = 25\text{ °C}$	[1]	-	735	810	mV
		$I_F = 2\text{ A}$; pulsed; $T_j = 25\text{ °C}$	[1]	-	810	875	mV
		$I_F = 2\text{ A}$; pulsed; $T_j = -40\text{ °C}$	[1]	-	910	990	mV
		$I_F = 2\text{ A}$; pulsed; $T_j = 125\text{ °C}$	[1]	-	650	730	mV
I_R	reverse current	$V_R = 100\text{ V}$; pulsed; $T_j = 25\text{ °C}$	[1]	-	0.25	2	μA
		$V_R = 100\text{ V}$; pulsed; $T_j = 125\text{ °C}$	[1]	-	0.35	2.8	mA
C_d	diode capacitance	$V_R = 4\text{ V}$; $f = 1\text{ MHz}$; $T_j = 25\text{ °C}$		-	29	-	pF
		$V_R = 10\text{ V}$; $f = 1\text{ MHz}$; $T_j = 25\text{ °C}$		-	19	-	pF
t_{rr}	reverse recovery time step recovery	$I_F = 0.5\text{ A}$; $I_R = 1\text{ A}$; $I_{R(\text{meas})} = 0.25\text{ A}$; $T_j = 25\text{ °C}$		-	2.3	-	ns
	reverse recovery time ramp recovery	$dI_F/dt = 100\text{ A}/\mu\text{s}$; $I_F = 1\text{ A}$; $V_R = 30\text{ V}$; $T_j = 25\text{ °C}$		-	8	-	ns
I_{RM}	peak reverse recovery current			-	0.34	-	A
Q_{rr}	reverse recovery charge			-	1.6	-	nC
V_{FRM}	peak forward recovery voltage	$I_F = 0.5\text{ A}$; $dI_F/dt = 20\text{ A}/\mu\text{s}$; $T_j = 25\text{ °C}$		-	650	-	mV

[1] Very short pulse, in order to maintain a stable junction temperature.



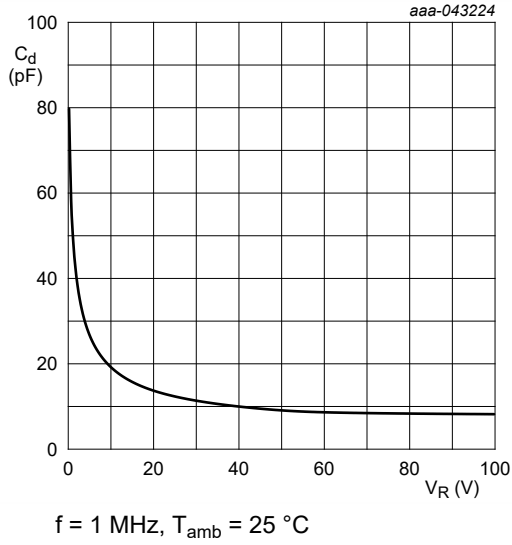


Fig. 5. Diode capacitance as a function of reverse voltage; typical values

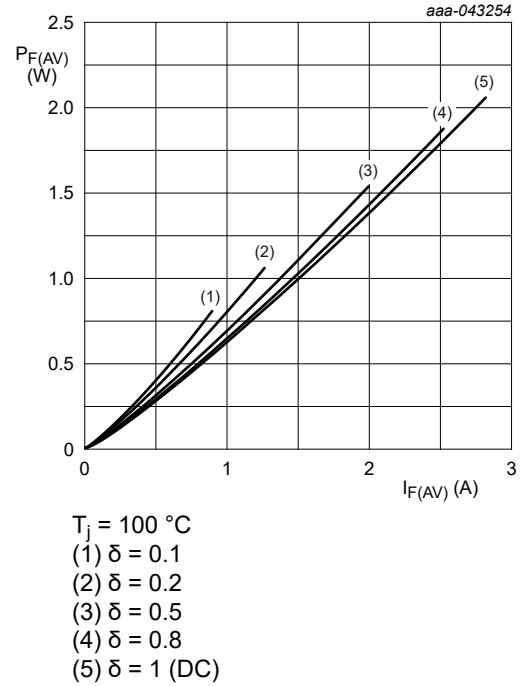


Fig. 6. Average forward power dissipation as a function of average forward current; typical values

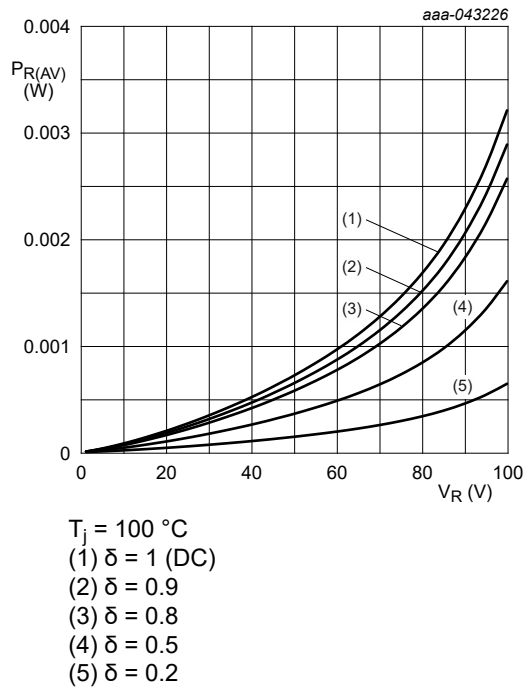


Fig. 7. Average reverse power dissipation as a function of reverse voltage; typical values

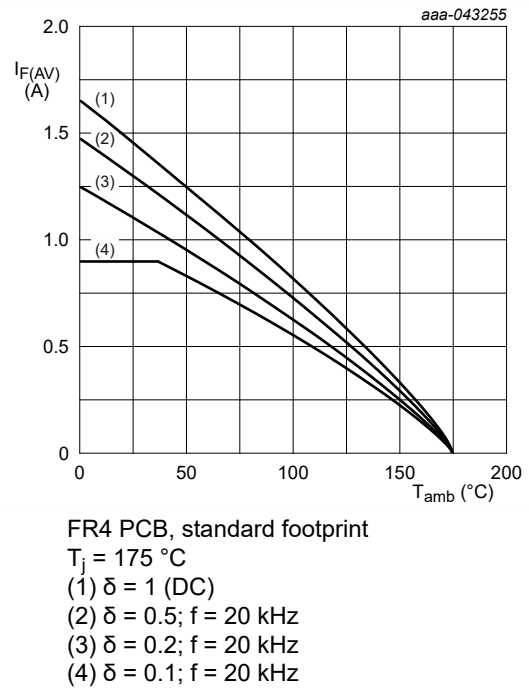
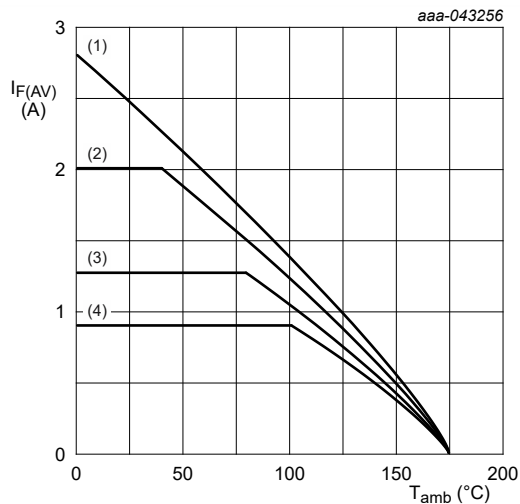
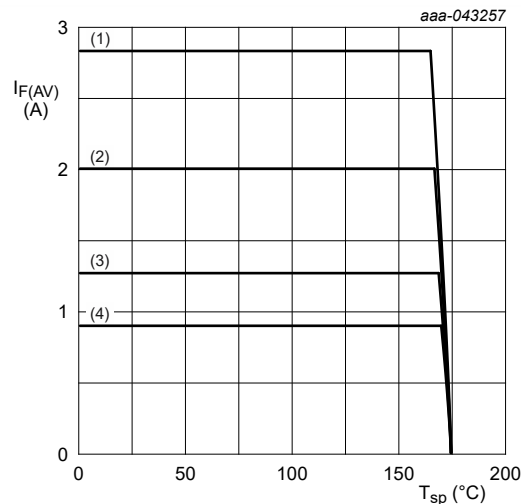


Fig. 8. Average forward current as a function of ambient temperature; typical values



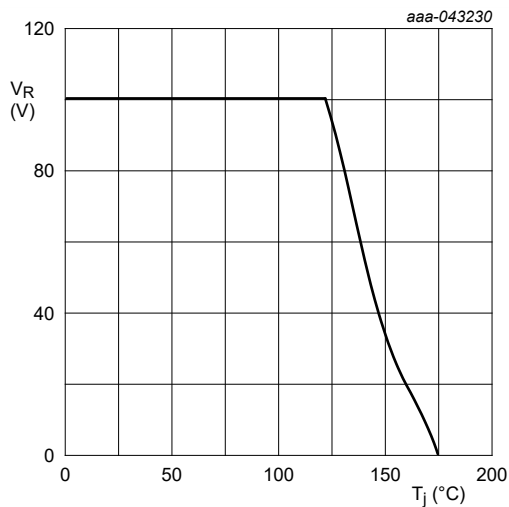
FR4 PCB, mounting pad for cathode 1 cm²
 $T_j = 175$ °C
(1) $\delta = 1$ (DC)
(2) $\delta = 0.5$; $f = 20$ kHz
(3) $\delta = 0.2$; $f = 20$ kHz
(4) $\delta = 0.1$; $f = 20$ kHz

Fig. 9. Average forward current as a function of ambient temperature; typical values



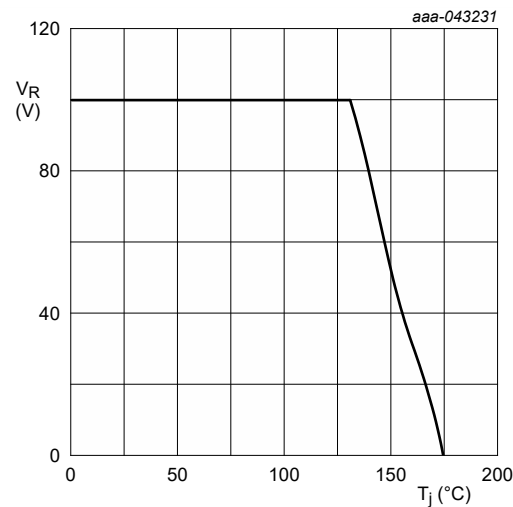
$T_j = 175$ °C
(1) $\delta = 1$ (DC)
(2) $\delta = 0.5$; $f = 20$ kHz
(3) $\delta = 0.2$; $f = 20$ kHz
(4) $\delta = 0.1$; $f = 20$ kHz

Fig. 10. Average forward current as a function of solder point temperature; typical values



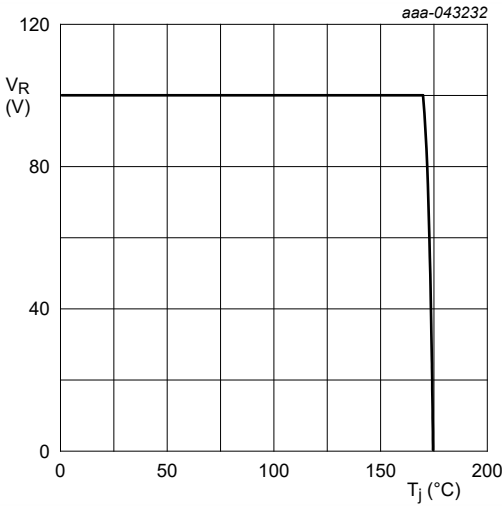
FR4 PCB, standard footprint
 $R_{th} = 230$ K/W

Fig. 11. Derated maximum reverse voltage as a function of junction temperature; typical values



FR4 PCB, mounting pad for cathode 1 cm²
 $R_{th} = 125$ K/W

Fig. 12. Derated maximum reverse voltage as a function of junction temperature; typical values



Soldering point of cathode tab
 $R_{th} = 6 \text{ K/W}$

Fig. 13. Derated maximum reverse voltage as a function of junction temperature; typical values

11. Test information



Fig. 14. Reverse recovery definition; step recovery



Fig. 15. Reverse recovery definition; ramp recovery



Fig. 16. Forward recovery definition

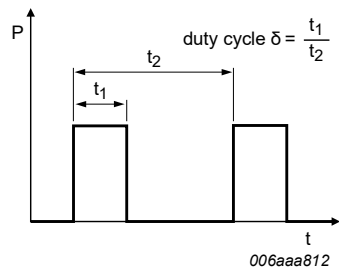


Fig. 17. Duty cycle definition

The current ratings for the typical waveforms are calculated according to the equations:

$I_{F(AV)} = I_M \times \delta$ with I_M defined as peak current

$I_{RMS} = I_{F(AV)}$ at DC, and $I_{RMS} = I_M \times \sqrt{\delta}$

with I_{RMS} defined as RMS current.

Quality information

This product has been qualified in accordance with the Automotive Electronics Council (AEC) standard *Q101 - Stress test qualification for discrete semiconductors*, and is suitable for use in automotive applications.

12. Package outline

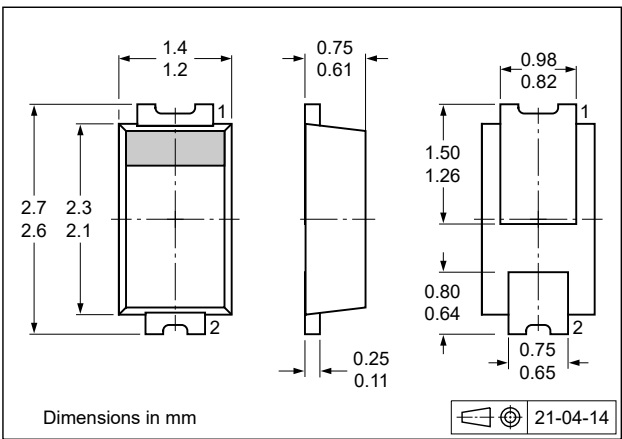
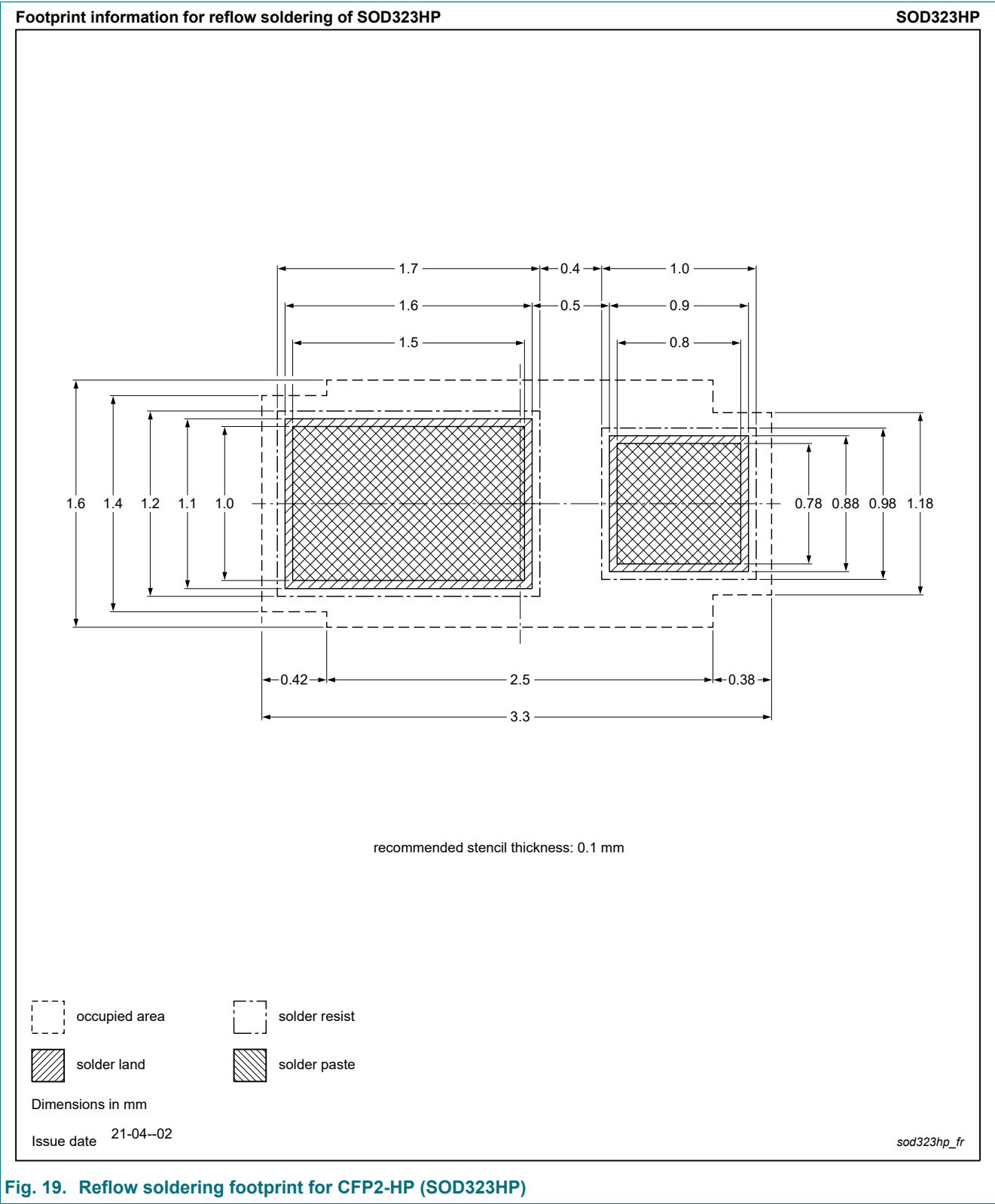


Fig. 18. Package outline CFP2-HP (SOD323HP)

13. Soldering



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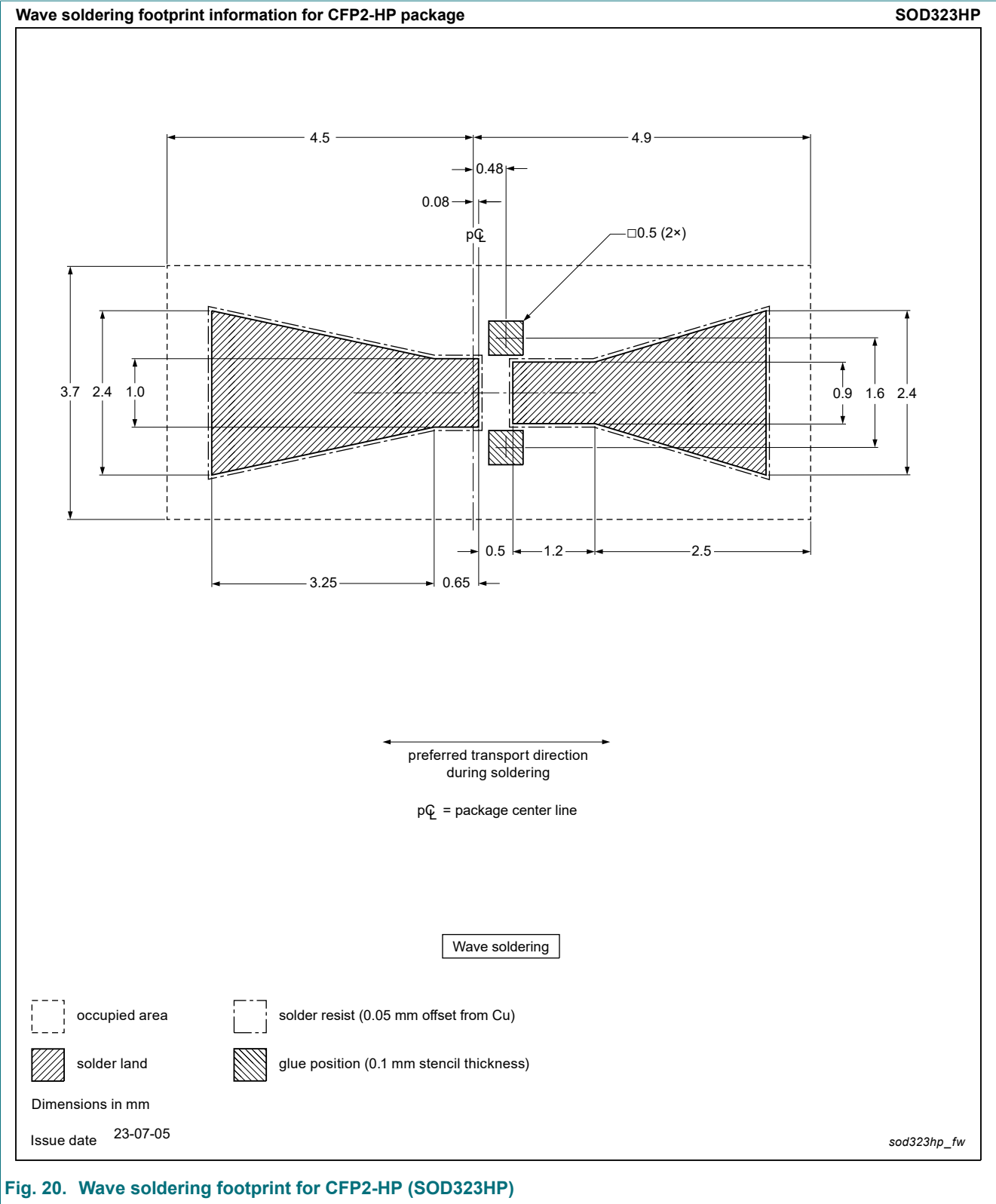


Fig. 20. Wave soldering footprint for CFP2-HP (SOD323HP)

14. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
PMEG10020ELXD-Q v.2	20251007	Product data sheet	-	PMEG10020ELXD-Q v.1
Modifications:	• Product status changed			
PMEG10020ELXD-Q v.1	20250717	Preliminary data sheet	-	-

15. Legal information

Data sheet status

Document status [1][2]	Product status [3]	Definition
Objective [short] data sheet	Development	This document contains data from the objective specification for product development.
Preliminary [short] data sheet	Qualification	This document contains data from the preliminary specification.
Product [short] data sheet	Production	This document contains the product specification.

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- [2] The term 'short data sheet' is explained in section "Definitions".
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Date of release: 7 October 2025