



# PMEG10010CELXD

100 V, 1 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

## 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; $T_{sp} \leq 169$ °C		-	-	1	A
$V_R$	reverse voltage	$T_j = 25$ °C		-	-	100	V
$V_F$	forward voltage	$I_F = 1$ A; pulsed; $T_j = 25$ °C	[1]	-	765	840	mV
$I_R$	reverse current	$V_R = 100$ V; pulsed; $T_j = 25$ °C	[1]	-	0.18	1.4	µA
		$V_R = 100$ V; pulsed; $T_j = 125$ °C	[1]	-	0.25	1.8	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
<a href="#">PMEG10010CELXD</a>	CFP2-HP	SOD323HP: plastic surface-mounted package with solderable lead ends; 2.2 mm x 1.3 mm x 0.68 mm body	<a href="#">SOD323HP</a>

7. Marking

Table 4. Marking codes

Type number	Marking code
PMEG10010CELXD	AG

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	$\delta = 1; T_{sp} \leq 168\text{ }^{\circ}\text{C}$		-	1.4	A
$I_{F(AV)}$	average forward current	$\delta = 0.5; f = 20\text{ kHz}; \text{square wave}; T_{sp} \leq 169\text{ }^{\circ}\text{C}$		-	1	A
$I_{FSM}$	non-repetitive peak forward current	$t_p = 8.3\text{ ms}; \text{half sine wave}; T_{j(\text{init})} = 25\text{ }^{\circ}\text{C}$		-	20	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 cm<sup>2</sup>.

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 cm<sup>2</sup>.
- [4] Soldering point of cathode tab.

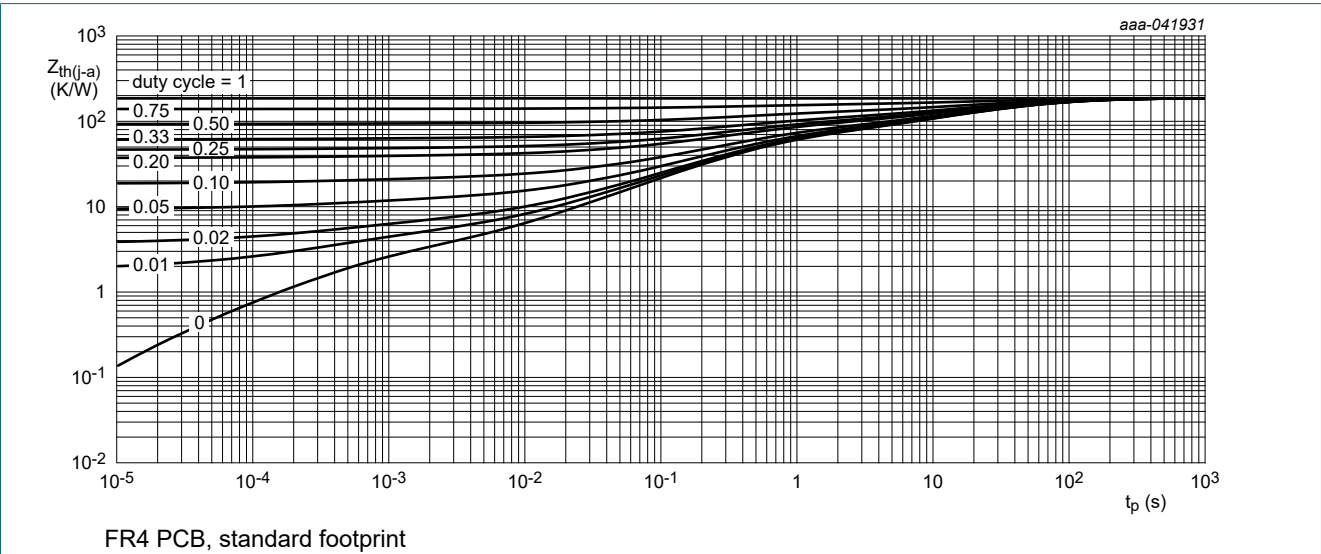


Fig. 1. Transient thermal impedance from junction to ambient as a function of pulse duration; typical values

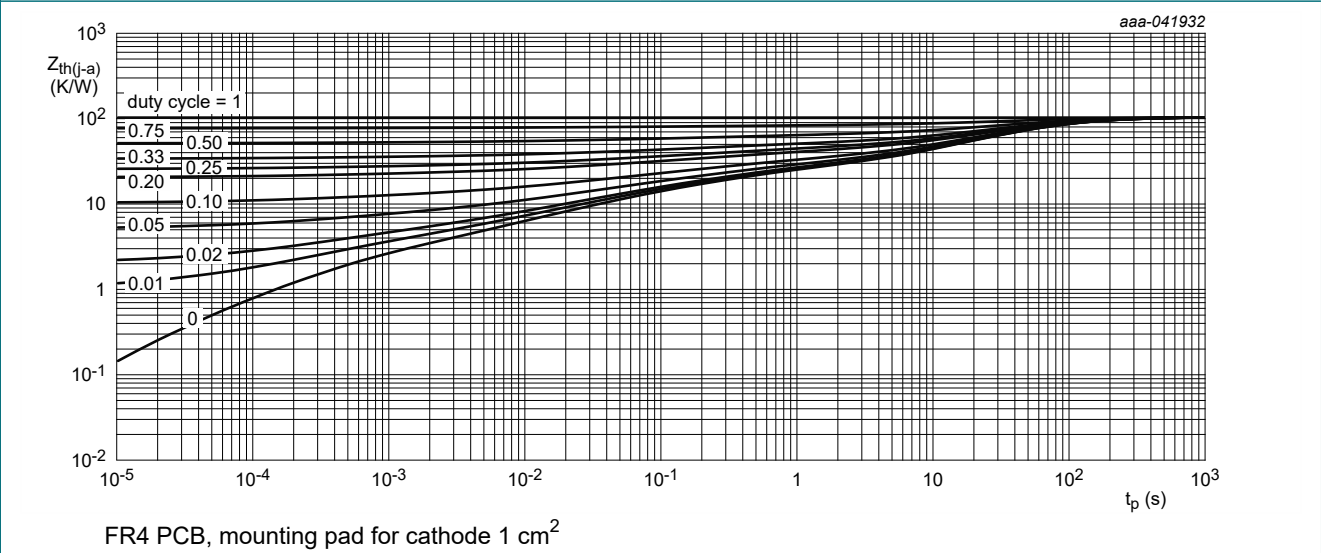


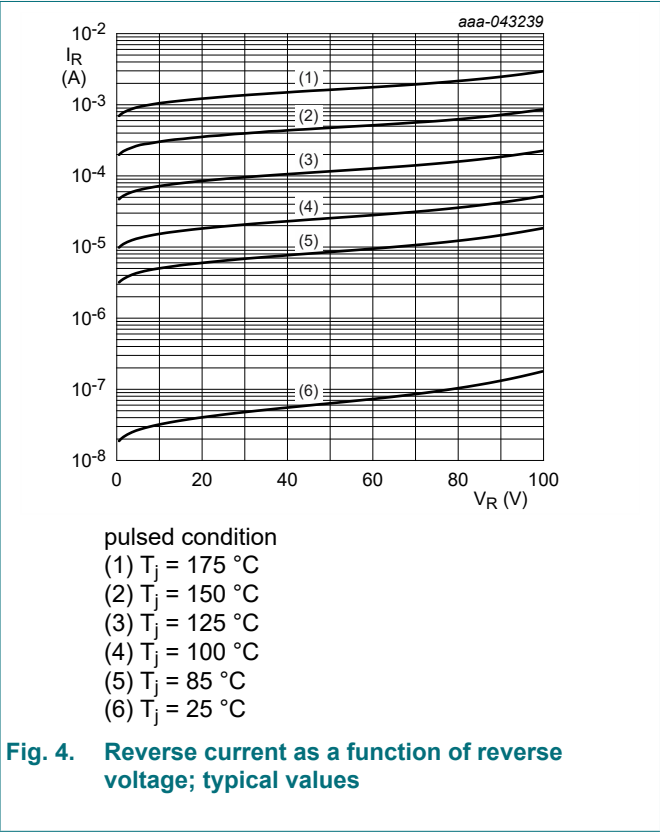
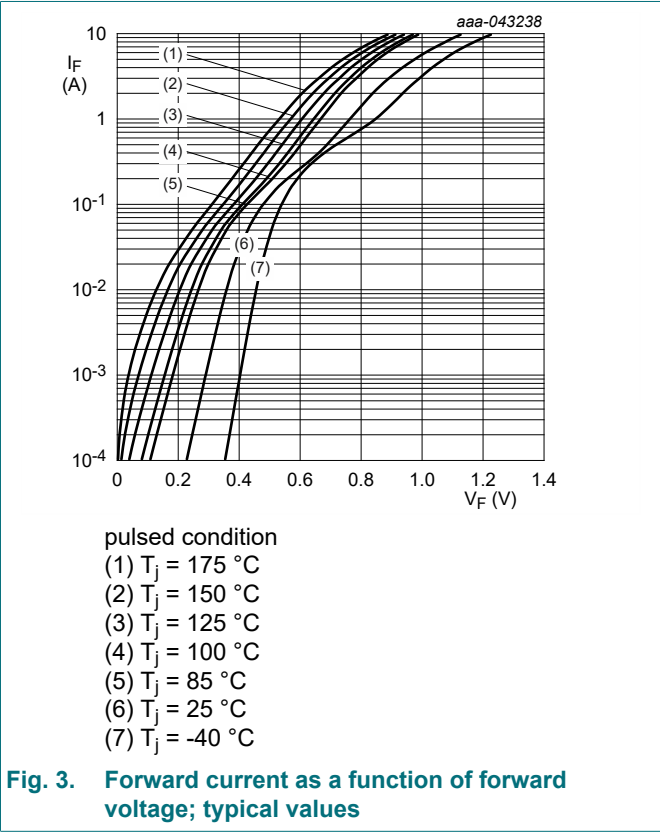
Fig. 2. Transient thermal impedance from junction to ambient as a function of pulse duration; typical values

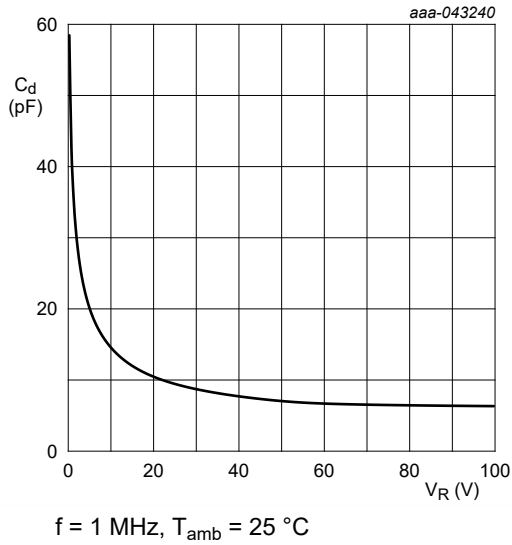
10. Characteristics

Table 7. Characteristics

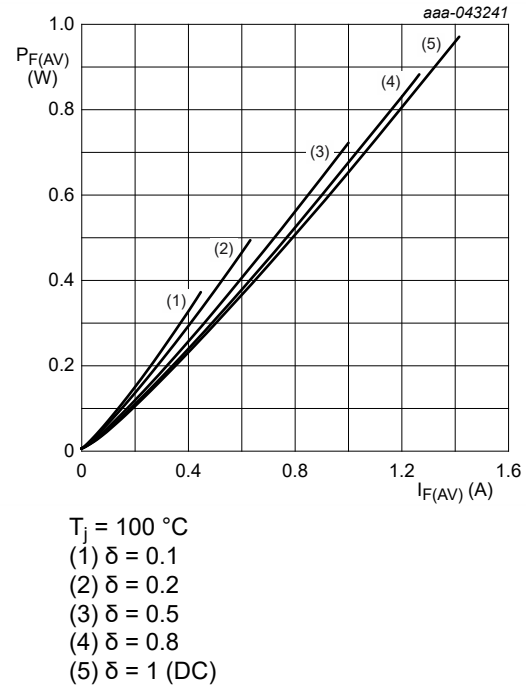
Symbol	Parameter	Conditions		Min	Typ	Max	Unit
$V_{(BR)R}$	reverse breakdown voltage	$I_R = 1\text{ mA}$ ; pulsed; $T_j = 25\text{ }^{\circ}\text{C}$	[1]	100	-	-	V
$V_F$	forward voltage	$I_F = 0.5\text{ A}$ ; pulsed; $T_j = 25\text{ }^{\circ}\text{C}$	[1]	-	695	780	mV
		$I_F = 1\text{ A}$ ; pulsed; $T_j = 25\text{ }^{\circ}\text{C}$	[1]	-	765	840	mV
		$I_F = 1\text{ A}$ ; pulsed; $T_j = -40\text{ }^{\circ}\text{C}$	[1]	-	850	930	mV
		$I_F = 1\text{ A}$ ; pulsed; $T_j = 125\text{ }^{\circ}\text{C}$	[1]	-	610	680	mV
$I_R$	reverse current	$V_R = 100\text{ V}$ ; pulsed; $T_j = 25\text{ }^{\circ}\text{C}$	[1]	-	0.18	1.4	$\mu\text{A}$
		$V_R = 100\text{ V}$ ; pulsed; $T_j = 125\text{ }^{\circ}\text{C}$	[1]	-	0.25	1.8	mA
$C_d$	diode capacitance	$V_R = 4\text{ V}$ ; $f = 1\text{ MHz}$ ; $T_j = 25\text{ }^{\circ}\text{C}$		-	22	-	pF
		$V_R = 10\text{ V}$ ; $f = 1\text{ MHz}$ ; $T_j = 25\text{ }^{\circ}\text{C}$		-	15	-	pF
$t_{rr}$	reverse recovery time step recovery	$I_F = 0.5\text{ A}$ ; $I_R = 1\text{ A}$ ; $I_{R(\text{meas})} = 0.25\text{ A}$ ; $T_j = 25\text{ }^{\circ}\text{C}$		-	2.5	-	ns
	reverse recovery time ramp recovery	$dI_F/dt = 100\text{ A}/\mu\text{s}$ ; $I_F = 1\text{ A}$ ; $V_R = 30\text{ V}$ ; $T_j = 25\text{ }^{\circ}\text{C}$		-	9	-	ns
$I_{RM}$	peak reverse recovery current			-	0.4	-	A
$Q_{rr}$	reverse recovery charge			-	2	-	nC
$V_{FRM}$	peak forward recovery voltage	$I_F = 0.5\text{ A}$ ; $dI_F/dt = 20\text{ A}/\mu\text{s}$ ; $T_j = 25\text{ }^{\circ}\text{C}$		-	710	-	mV

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

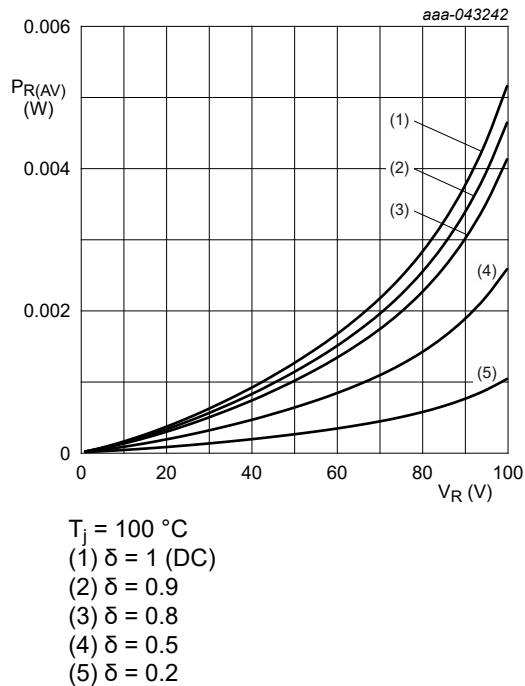




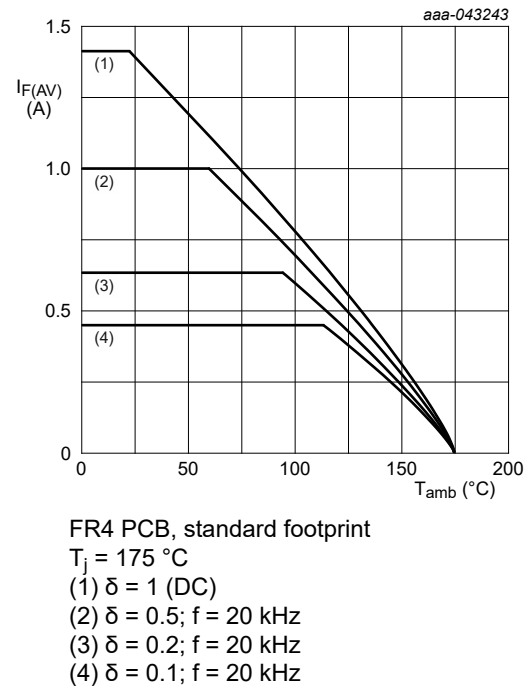
**Fig. 5.** Diode capacitance as a function of reverse voltage; typical values



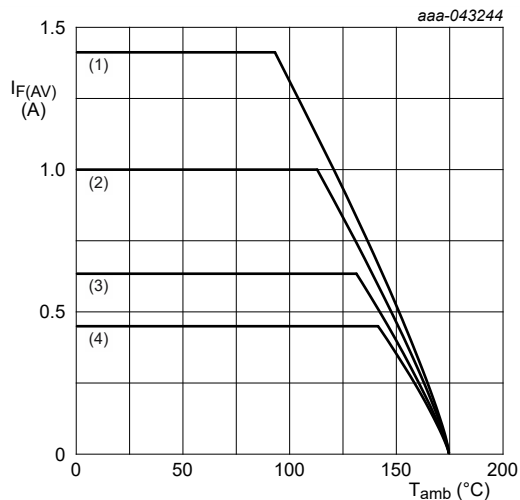
**Fig. 6.** Average forward power dissipation as a function of average forward current; typical values



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

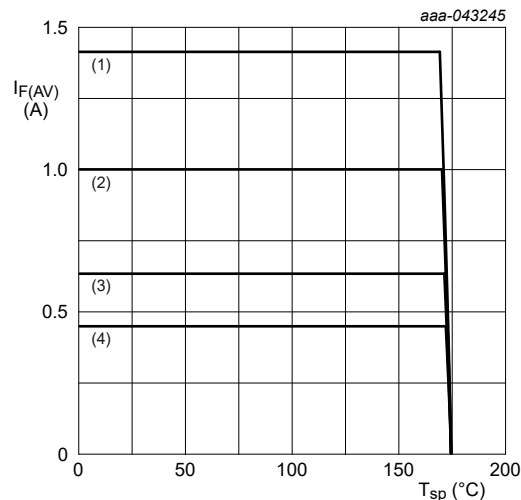


**Fig. 8.** Average forward current as a function of ambient temperature; typical values



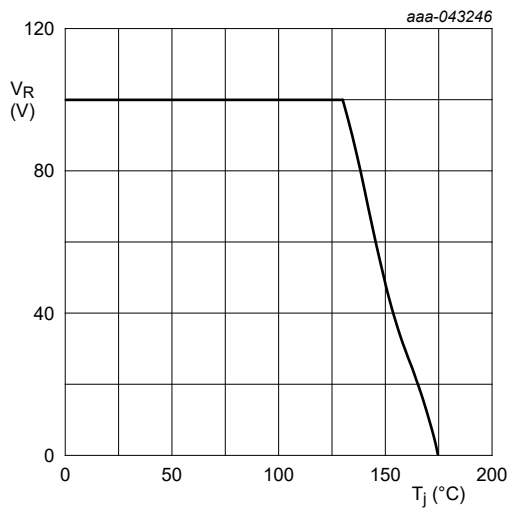
FR4 PCB, mounting pad for cathode 1 cm<sup>2</sup>  
 $T_j = 175$  °C  
(1)  $\delta = 1$  (DC)  
(2)  $\delta = 0.5$ ;  $f = 20$  kHz  
(3)  $\delta = 0.2$ ;  $f = 20$  kHz  
(4)  $\delta = 0.1$ ;  $f = 20$  kHz

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



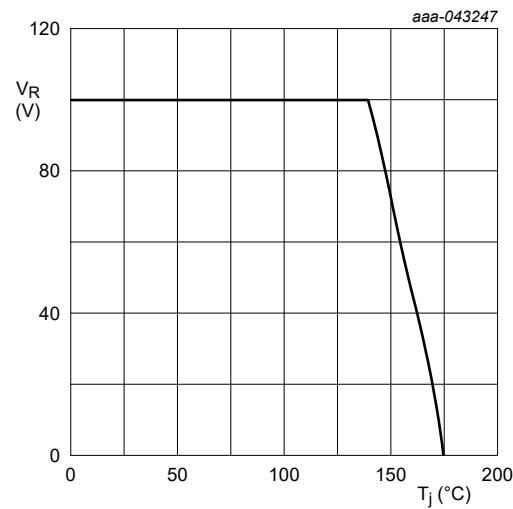
$T_j = 175$  °C  
(1)  $\delta = 1$  (DC)  
(2)  $\delta = 0.5$ ;  $f = 20$  kHz  
(3)  $\delta = 0.2$ ;  $f = 20$  kHz  
(4)  $\delta = 0.1$ ;  $f = 20$  kHz

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



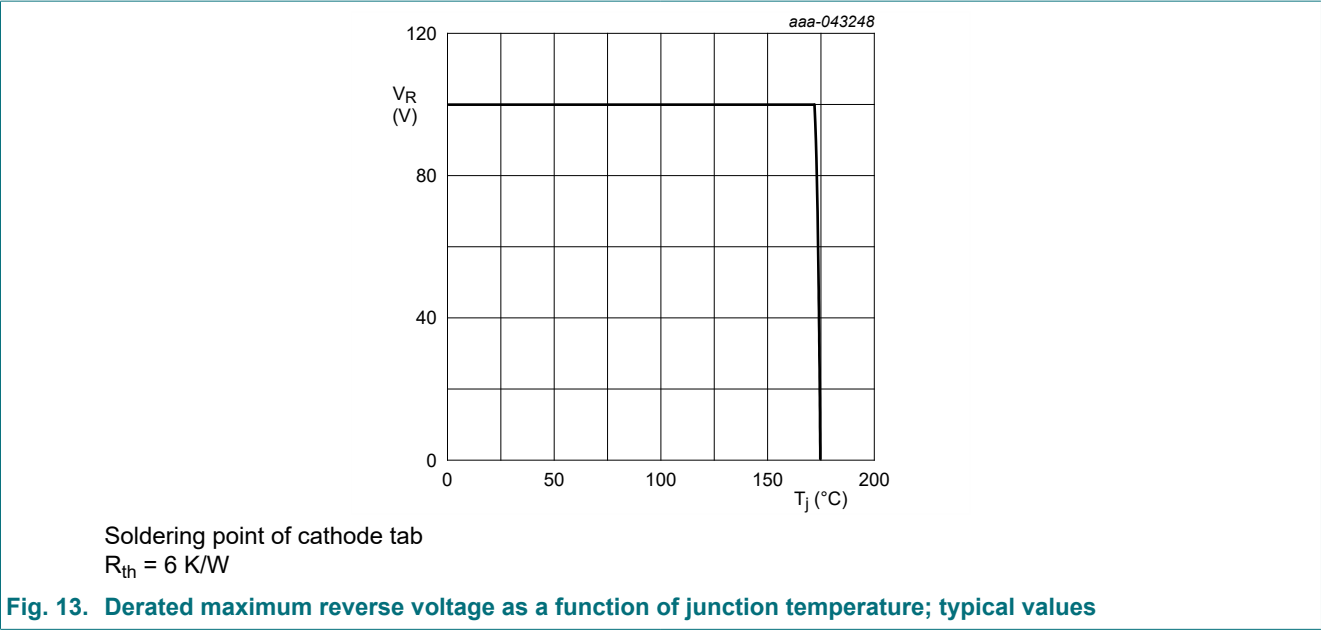
FR4 PCB, standard footprint  
 $R_{th} = 230$  K/W

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



FR4 PCB, mounting pad for cathode 1 cm<sup>2</sup>  
 $R_{th} = 125$  K/W

Fig. 12. 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



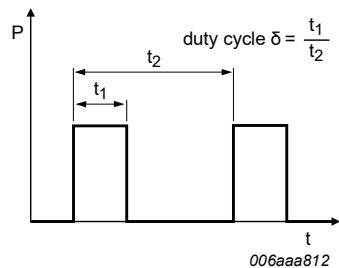


Fig. 17. Duty cycle definition

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.

12. Package outline

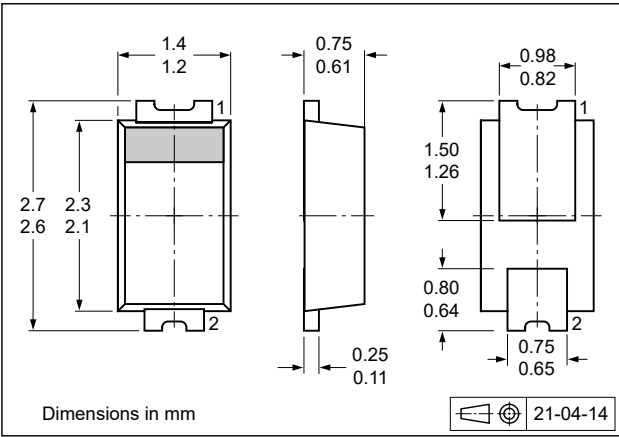
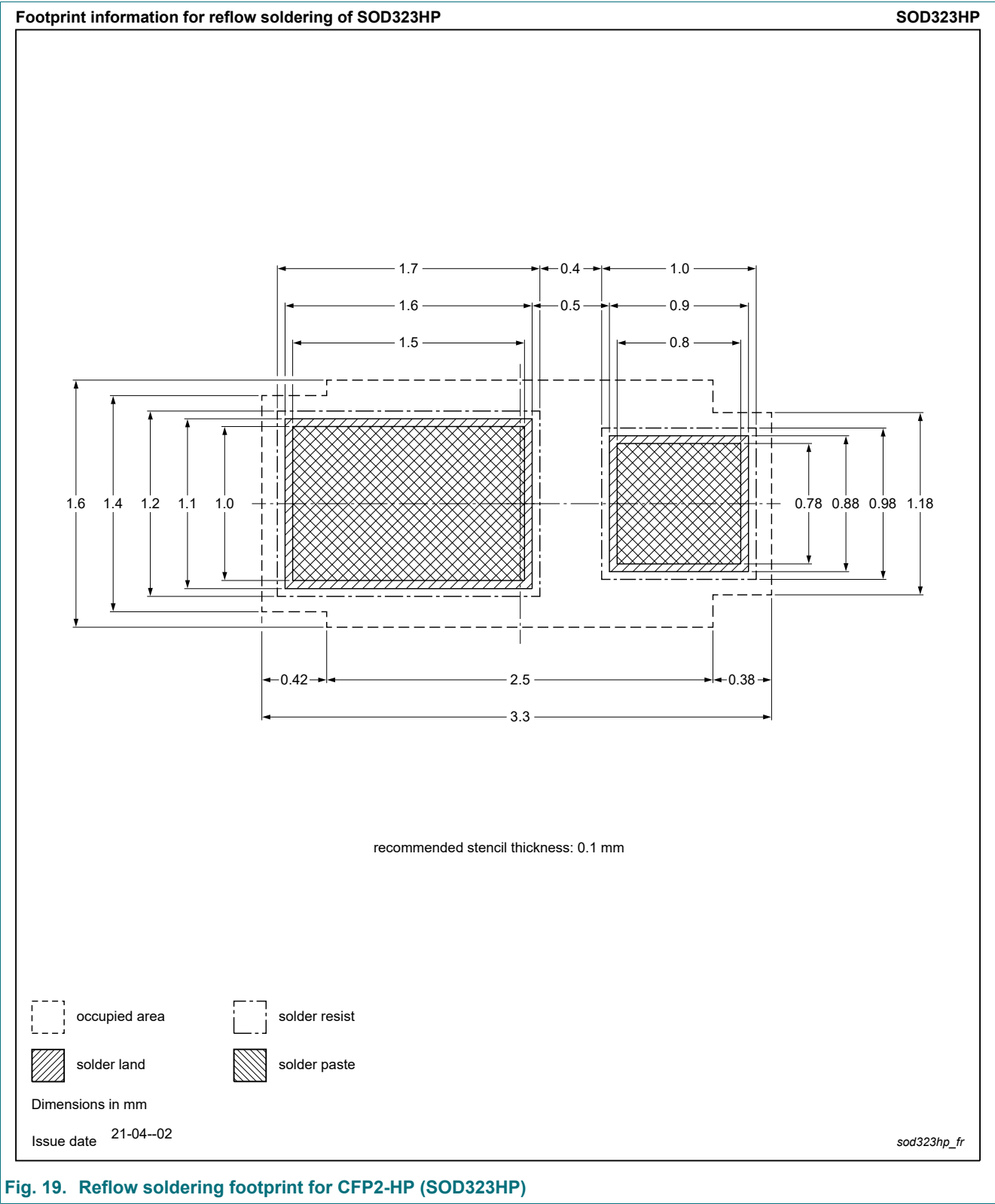


Fig. 18. Package outline CFP2-HP (SOD323HP)

13. Soldering



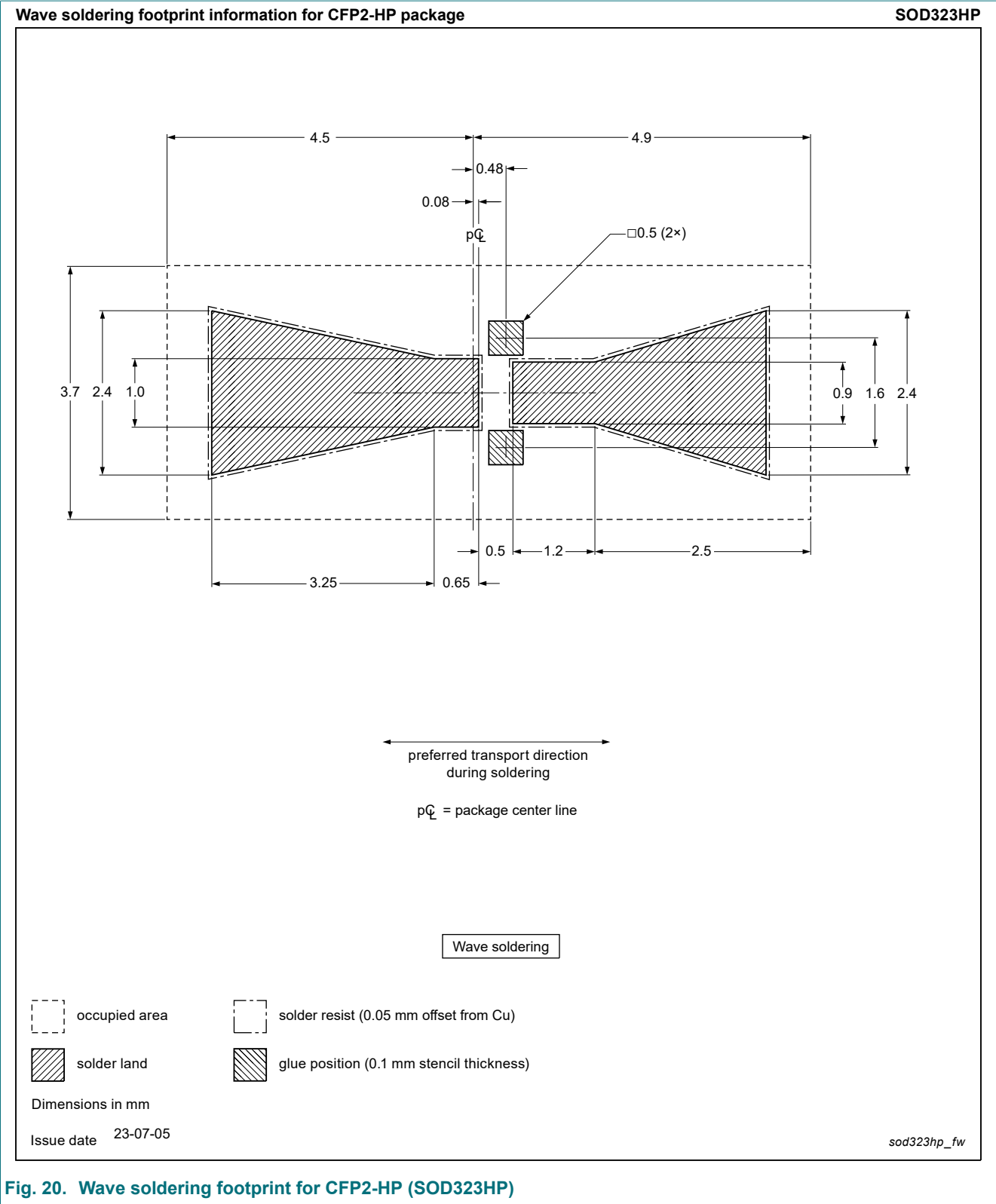


Fig. 20. Wave soldering footprint for CFP2-HP (SOD323HP)

14. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
PMEG10010CELXD v.1	20251007	Product 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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Date of release: 7 October 2025