1PS66SB17

4 V, 30 mA low capacitance Schottky barrier diode

27 December 2022 Product data sheet

1. General description

Triple isolated planar low capacitance Schottky barrier diode encapsulated in a SOT666 ultra small flat lead Surface-Mounted Device (SMD) plastic package.

2. Features and benefits

- 3 isolated diodes
- Very low diode capacitance
- Very low forward voltage
- Ultra small SMD plastic package

3. Applications

- Digital applications:
  - Ultra high-speed switching
  - Clamping circuits
- RF applications:
  - Diode ring mixer
  - RF detector
  - RF voltage doubler

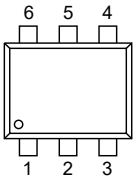
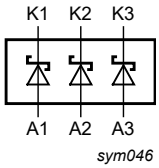
4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
I_F	forward current			-	-	30	mA
V_R	reverse voltage			-	-	4	V
C_d	diode capacitance	V_R = 0 V; f = 1 MHz; T_{amb} = 25 °C		-	0.8	1	pF

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	A1	anode (diode 1)		
2	A2	anode (diode 2)		
3	A3	anode (diode 3)		
4	K3	cathode (diode 3)		
5	K2	cathode (diode 2)		
6	K1	cathode (diode 1)		

SOT666

6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
1PS66SB17	SOT666	plastic, surface-mounted package; 6 leads; 0.5 mm pitch; 1.6 mm x 1.2 mm x 0.55 mm body	SOT666

7. Marking

Table 4. Marking codes

Type number	Marking code
1PS66SB17	N2

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			-	4	V
I_F	forward current			-	30	mA
T_j	junction temperature			-	150	°C
T_{amb}	ambient temperature			-65	150	°C
T_{stg}	storage temperature			-65	150	°C

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]	-	-	700	K/W

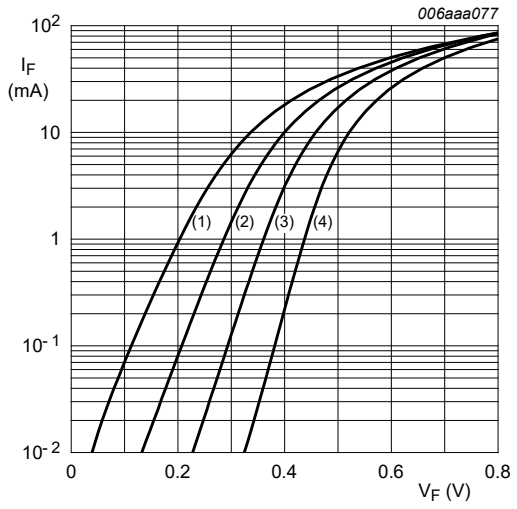
[1] For Schottky barrier diodes, thermal run-away has to be considered as in some applications the reverse power losses P_R are a significant part of the total power losses. Nomograms for determining the reverse power losses P_R and $I_{F(AV)}$ rating will be available on request.

[2] Refer to SOT666 standard mounting conditions.

10. Characteristics

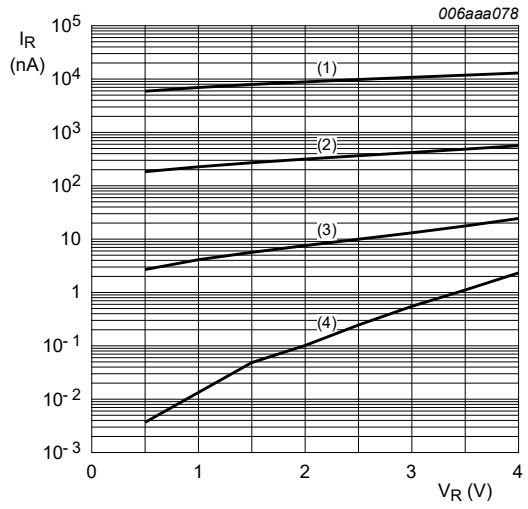
Table 7. Characteristics

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
V_F	forward voltage	I_F = 0.1 mA; $t_p \leq$ 300 µs; $\delta \leq$ 0.02; pulsed; T_{amb} = 25 °C		-	300	350	mV
		I_F = 1 mA; $t_p \leq$ 300 µs; $\delta \leq$ 0.02; pulsed; T_{amb} = 25 °C		-	360	450	mV
		I_F = 10 mA; $t_p \leq$ 300 µs; $\delta \leq$ 0.02; pulsed; T_{amb} = 25 °C		-	470	600	mV
I_R	reverse current	V_R = 3 V; T_{amb} = 25 °C		-	-	250	nA
C_d	diode capacitance	V_R = 0 V; f = 1 MHz; T_{amb} = 25 °C		-	0.8	1	pF
		V_R = 0.5 V; f = 1 MHz; T_{amb} = 25 °C		-	0.65	-	pF



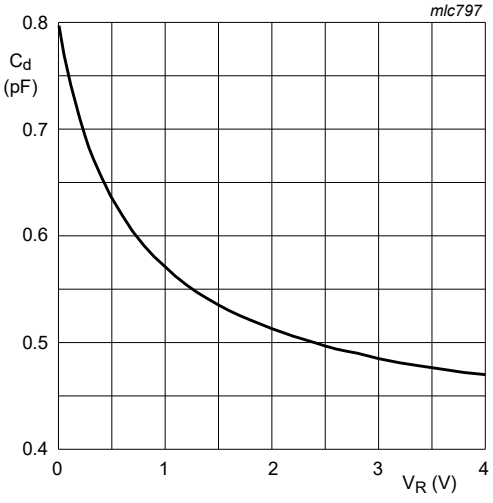
(1) T_{amb} = 150 °C
(2) T_{amb} = 85 °C
(3) T_{amb} = 25 °C
(4) T_{amb} = -40 °C

Fig. 1. Forward current as a function of forward voltage; typical values.



(1) T_{amb} = 150 °C
(2) T_{amb} = 85 °C
(3) T_{amb} = 25 °C
(4) T_{amb} = -40 °C

Fig. 2. Reverse current as a function of reverse voltage; typical values.



T_{amb} = 25 °C; f = 1 MHz

Fig. 3. Diode capacitance as a function of reverse voltage; typical values.

11. Package outline

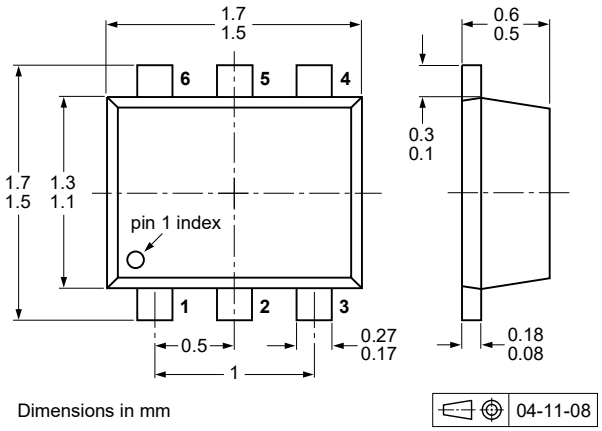


Fig. 4. Package outline SOT666

12. Soldering

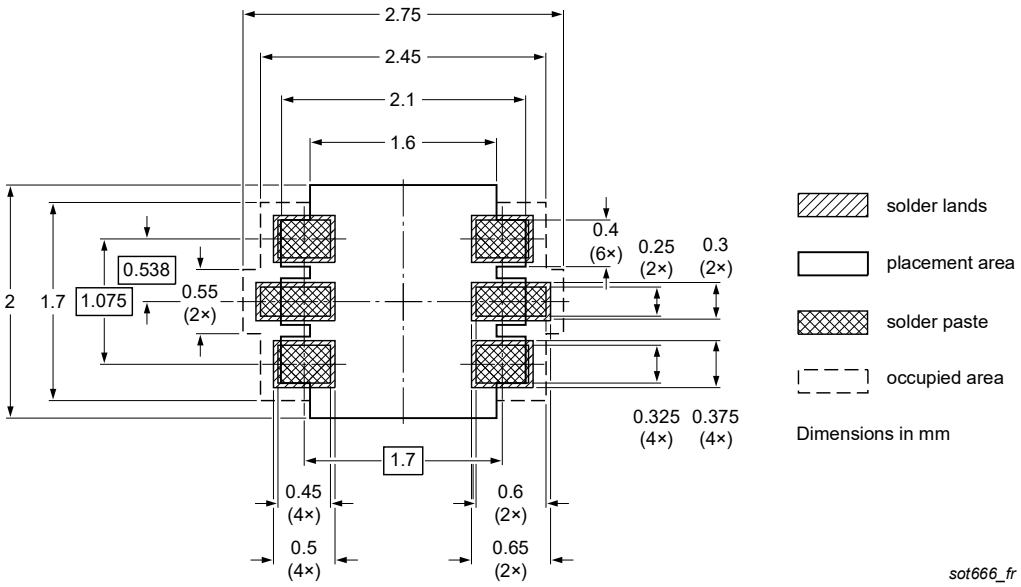


Fig. 5. Reflow soldering footprint for SOT666

13. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
1PS66SB17 v.7	20221227	Product data sheet	-	1PSXSB17_6
Modifications:	• Family data sheet splitted to single type data sheets. • Packing information removed. • Product(s) changed to non-automotive qualification.			
1PSXSB17_6	20050404	Product data sheet	-	1PS76SB17_ 1PS79SB17_5
1PS76SB17_ 1PS79SB17_5	20041028	Product data sheet	-	1PS76SB17_4
1PS76SB17_4	20040126	Product data sheet	-	1PS76SB17_3
1PS76SB21_3	20020809	Product data sheet	-	1PS76SB21_2
1PS76SB17_2	19990525	Preliminary data sheet	-	1PS76SB17_1
1PS76SB17_1	19961014	Preliminary data sheet	-	-

14. 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.

[1] Please consult the most recently issued document before initiating or completing a design.
[2] The term 'short data sheet' is explained in section "Definitions".
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