



BAT760-Q

Medium power Schottky barrier single diode

4 August 2021

Product data sheet

1. General description

Planar medium power Schottky barrier single diode with an integrated guard ring for stress protection, encapsulated in a very small SOD323 (SC-76) Surface-Mounted Device SMD plastic package.

2. Features and benefits

- Ultra high-speed switching
- Very low forward voltage
- Guard-ring protected
- Very small SMD plastic package
- Qualified according to AEC-Q101 and recommended for use in automotive applications

3. Applications

- Ultra high-speed switching
- Voltage clamping
- Protection circuits

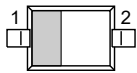

4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_R	reverse voltage		-	-	20	V
I_F	forward current		-	-	1	A
V_F	forward voltage	$I_F = 1 \text{ A}$; $t_p \leq 300 \mu\text{s}$; $\delta \leq 0.02$; pulsed; $T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	480	550	mV

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	K	cathode	 SOD323	 sym001
2	A	anode		

6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
BAT760-Q	SOD323	plastic, surface-mounted package; 2 leads; 1.3 mm pitch; 1.7 mm x 1.25 mm x 0.95 mm body	SOD323

7. Marking

Table 4. Marking codes

Type number	Marking code
BAT760-Q	A4

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		-	20	V
I_F	forward current		-	1	A
I_{FSM}	non-repetitive peak forward current	half sine-wave pulse; $t_p \leq 8.3$ ms; JEDEC method	-	5	A
T_j	junction temperature		-	125	°C
T_{amb}	ambient temperature		-65	125	°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]	-	-	220	K/W
			[2]	-	-	180	K/W

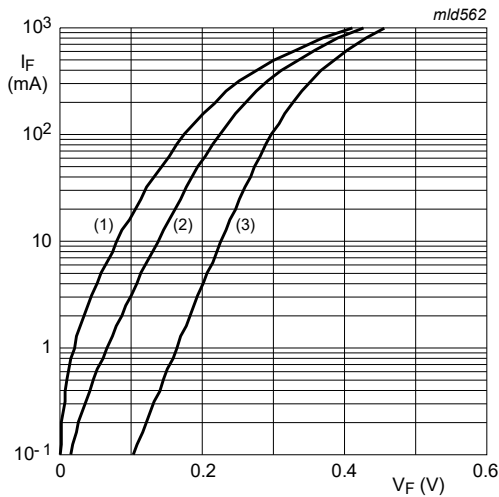
[1] Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated, mounting pad for cathode 10 x 10 mm².

[2] Device mounted on an FR4 PCB, single-sided copper, tin-plated, mounting pad for cathode 40 x 40 mm².

10. Characteristics

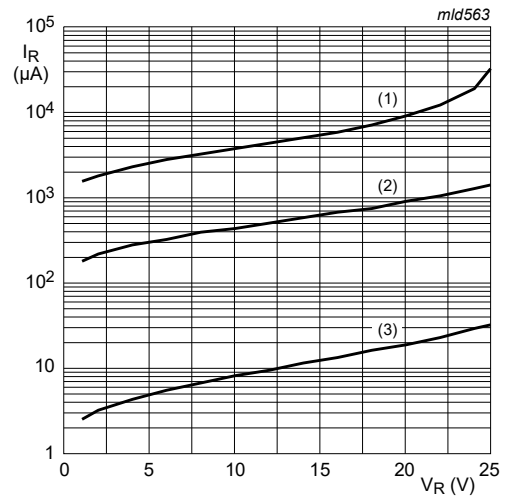
Table 7. Characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_F	forward voltage	$I_F = 10 \text{ mA}; t_p \leq 300 \mu\text{s}; \delta \leq 0.02;$ pulsed; $T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	240	270	mV
		$I_F = 100 \text{ mA}; t_p \leq 300 \mu\text{s}; \delta \leq 0.02;$ pulsed; $T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	300	350	mV
		$I_F = 1 \text{ A}; t_p \leq 300 \mu\text{s}; \delta \leq 0.02;$ pulsed; $T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	480	550	mV
I_R	reverse current	$V_R = 5 \text{ V}; t_p \leq 300 \mu\text{s}; \delta \leq 0.02;$ pulsed; $T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	5	10	μA
		$V_R = 8 \text{ V}; t_p \leq 300 \mu\text{s}; \delta \leq 0.02;$ pulsed; $T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	7	20	μA
		$V_R = 15 \text{ V}; t_p \leq 300 \mu\text{s}; \delta \leq 0.02;$ pulsed; $T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	10	50	μA
C_d	diode capacitance	$V_R = 5 \text{ V}; f = 1 \text{ MHz}; T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	19	25	pF



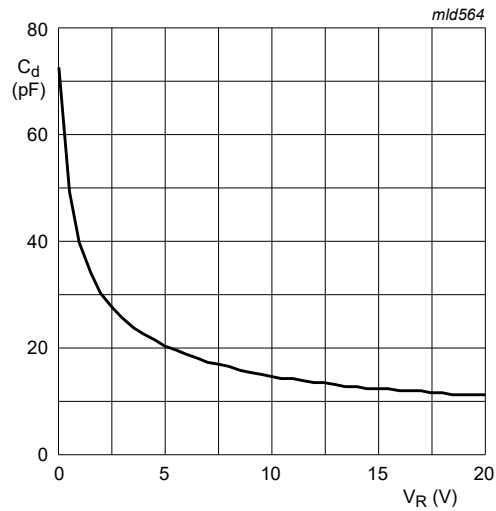
- (1) $T_{\text{amb}} = 125 \text{ }^\circ\text{C}$
- (2) $T_{\text{amb}} = 85 \text{ }^\circ\text{C}$
- (3) $T_{\text{amb}} = 25 \text{ }^\circ\text{C}$

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



- (1) $T_{\text{amb}} = 125 \text{ }^\circ\text{C}$
- (2) $T_{\text{amb}} = 85 \text{ }^\circ\text{C}$
- (3) $T_{\text{amb}} = 25 \text{ }^\circ\text{C}$

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



$T_{amb} = 25\text{ °C}$; $f = 1\text{ MHz}$

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

11. Test information

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

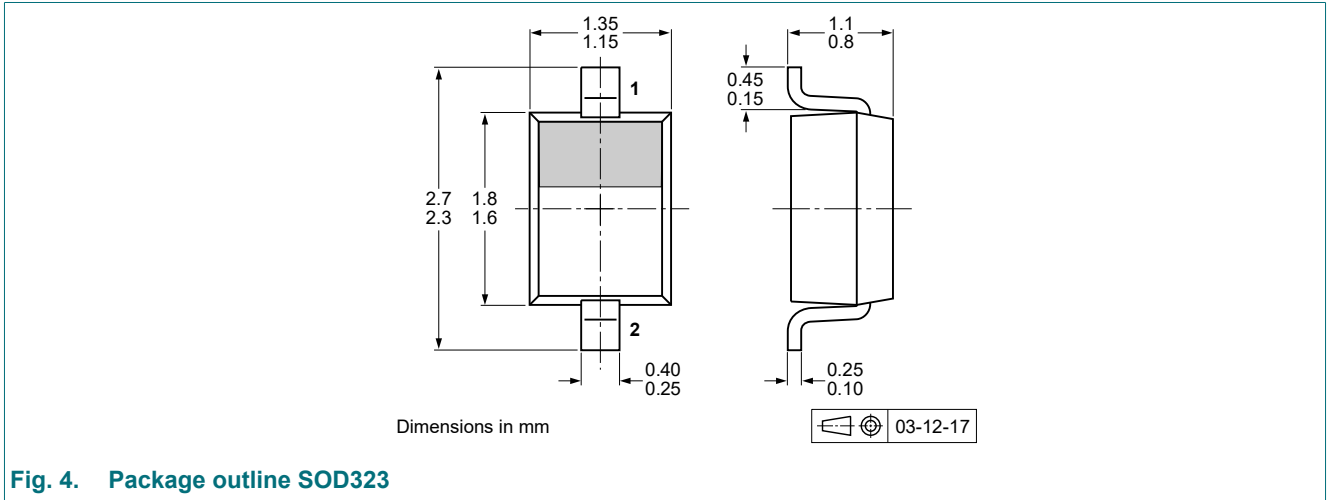


Fig. 4. Package outline SOD323

13. Soldering

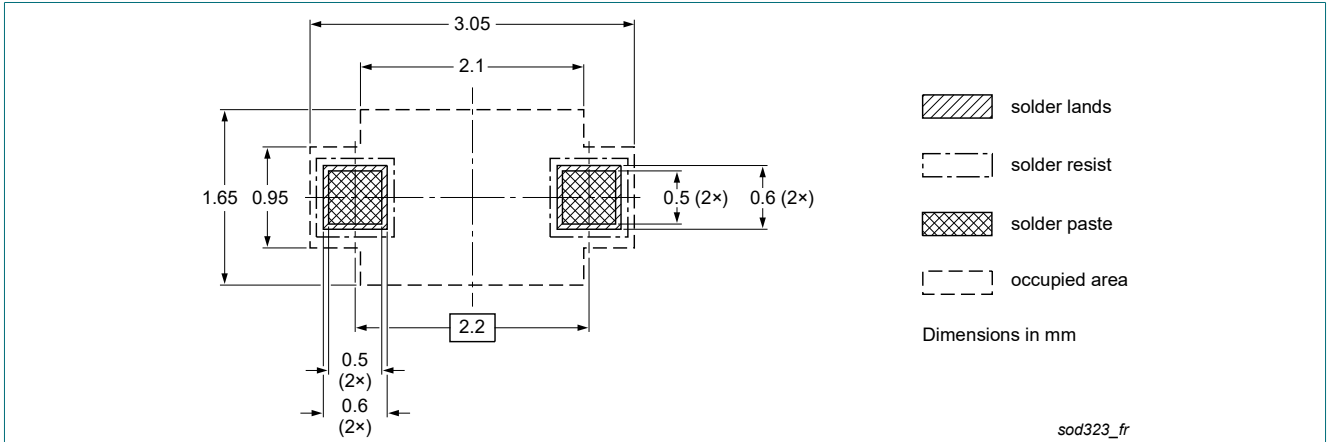


Fig. 5. Reflow soldering footprint for SOD323

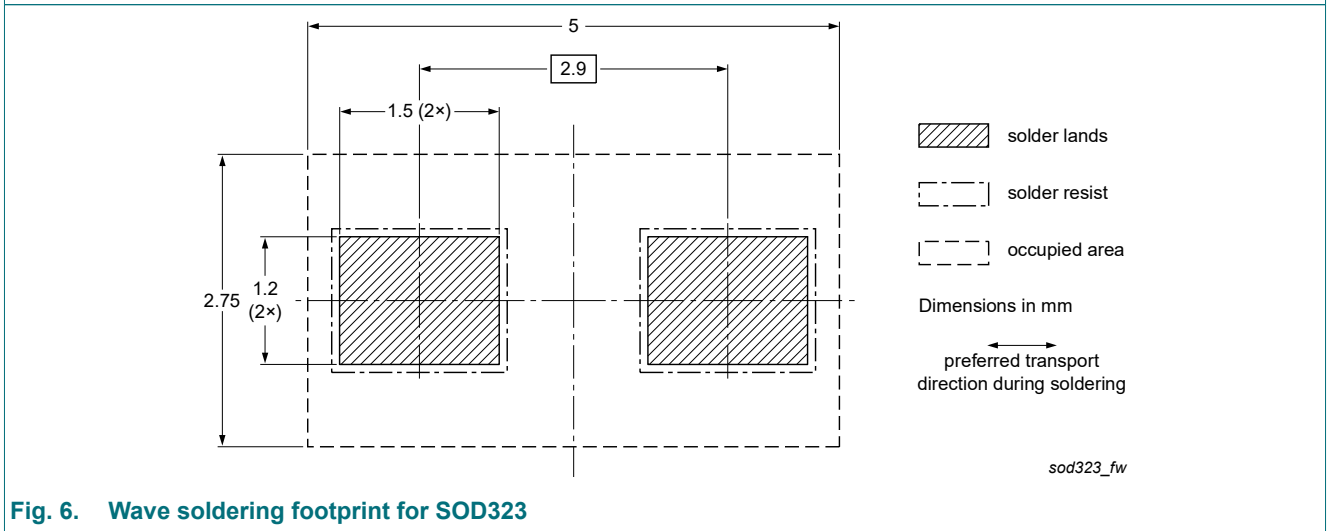


Fig. 6. Wave soldering footprint for SOD323

14. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
BAT760-Q v.1	20210804	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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- [2] The term 'short data sheet' is explained in section "Definitions".
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