



# BAT760

## Medium power Schottky barrier single diode

1 October 2022

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

### 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
1	A	anode		

## 6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
<a href="#">BAT760</a>	SOD323	plastic, surface-mounted package; 2 leads; 1.3 mm pitch; 1.7 mm x 1.25 mm x 0.95 mm body	<a href="#">SOD323</a>

## 7. Marking

Table 4. Marking codes

Type number	Marking code
BAT760	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

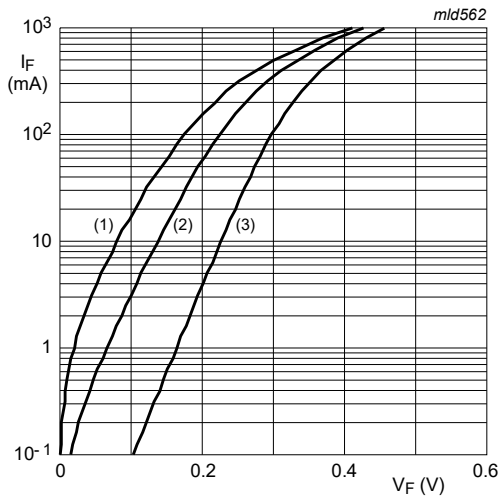
[1] Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated, mounting pad for cathode 10 x 10 mm<sup>2</sup>.

[2] Device mounted on an FR4 PCB, single-sided copper, tin-plated, mounting pad for cathode 40 x 40 mm<sup>2</sup>.

## 10. Characteristics

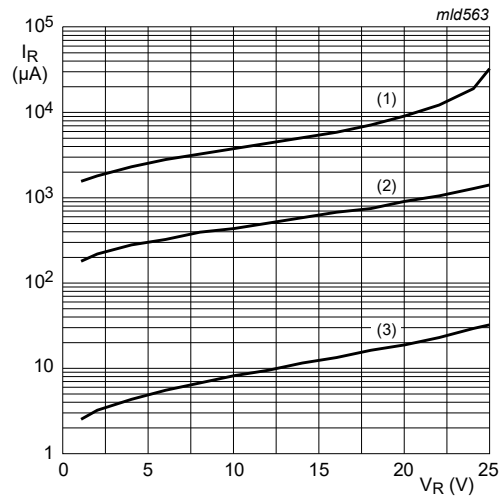
Table 7. Characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V <sub>F</sub>	forward voltage	I <sub>F</sub> = 10 mA; t <sub>p</sub> ≤ 300 μs; δ ≤ 0.02; pulsed; T <sub>amb</sub> = 25 °C	-	240	270	mV
		I <sub>F</sub> = 100 mA; t <sub>p</sub> ≤ 300 μs; δ ≤ 0.02; pulsed; T <sub>amb</sub> = 25 °C	-	300	350	mV
		I <sub>F</sub> = 1 A; t <sub>p</sub> ≤ 300 μs; δ ≤ 0.02; pulsed; T <sub>amb</sub> = 25 °C	-	480	550	mV
I <sub>R</sub>	reverse current	V <sub>R</sub> = 5 V; t <sub>p</sub> ≤ 300 μs; δ ≤ 0.02; pulsed; T <sub>amb</sub> = 25 °C	-	5	10	μA
		V <sub>R</sub> = 8 V; t <sub>p</sub> ≤ 300 μs; δ ≤ 0.02; pulsed; T <sub>amb</sub> = 25 °C	-	7	20	μA
		V <sub>R</sub> = 15 V; t <sub>p</sub> ≤ 300 μs; δ ≤ 0.02; pulsed; T <sub>amb</sub> = 25 °C	-	10	50	μA
C <sub>d</sub>	diode capacitance	V <sub>R</sub> = 5 V; f = 1 MHz; T <sub>amb</sub> = 25 °C	-	19	25	pF



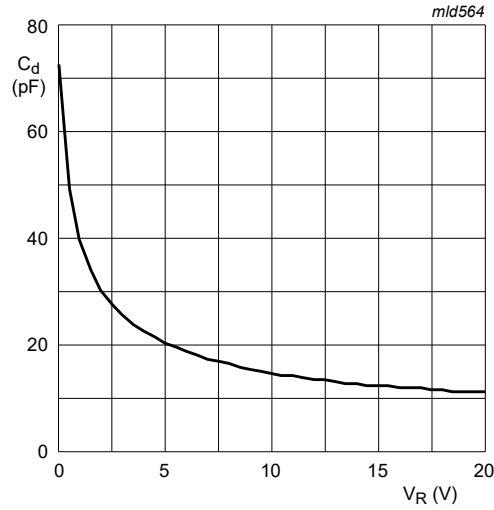
- (1) T<sub>amb</sub> = 125 °C
- (2) T<sub>amb</sub> = 85 °C
- (3) T<sub>amb</sub> = 25 °C

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



- (1) T<sub>amb</sub> = 125 °C
- (2) T<sub>amb</sub> = 85 °C
- (3) T<sub>amb</sub> = 25 °C

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



T<sub>amb</sub> = 25 °C; f = 1 MHz

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

## 11. Package outline

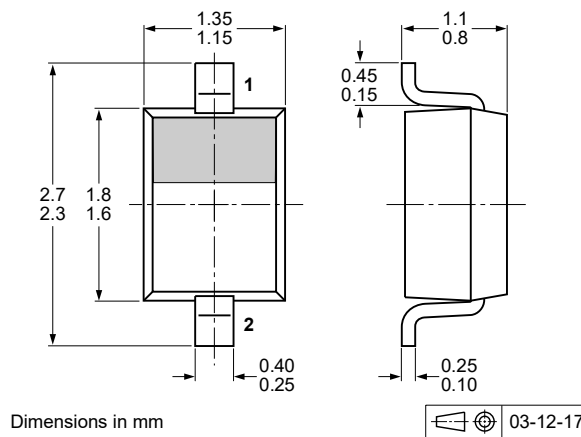
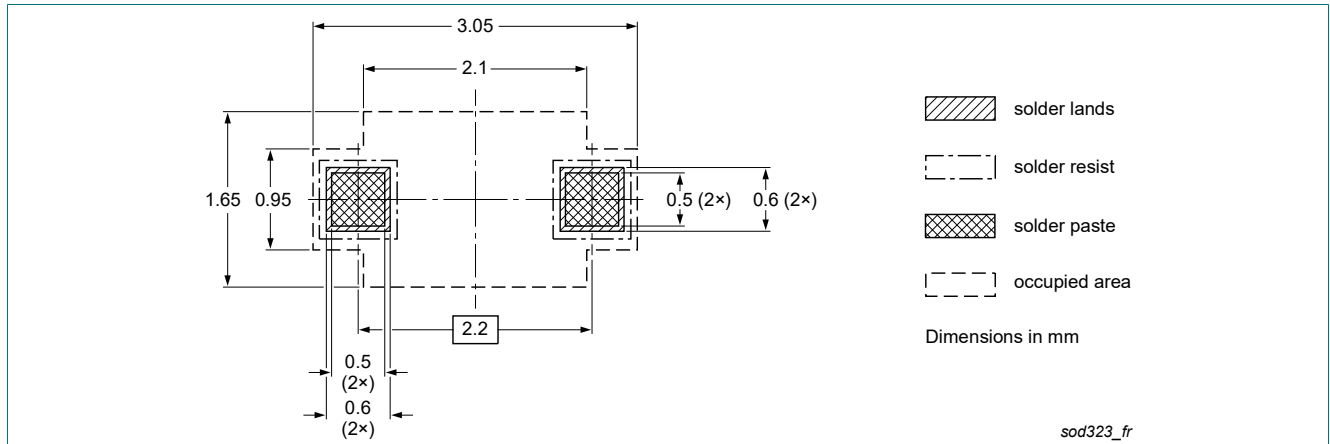
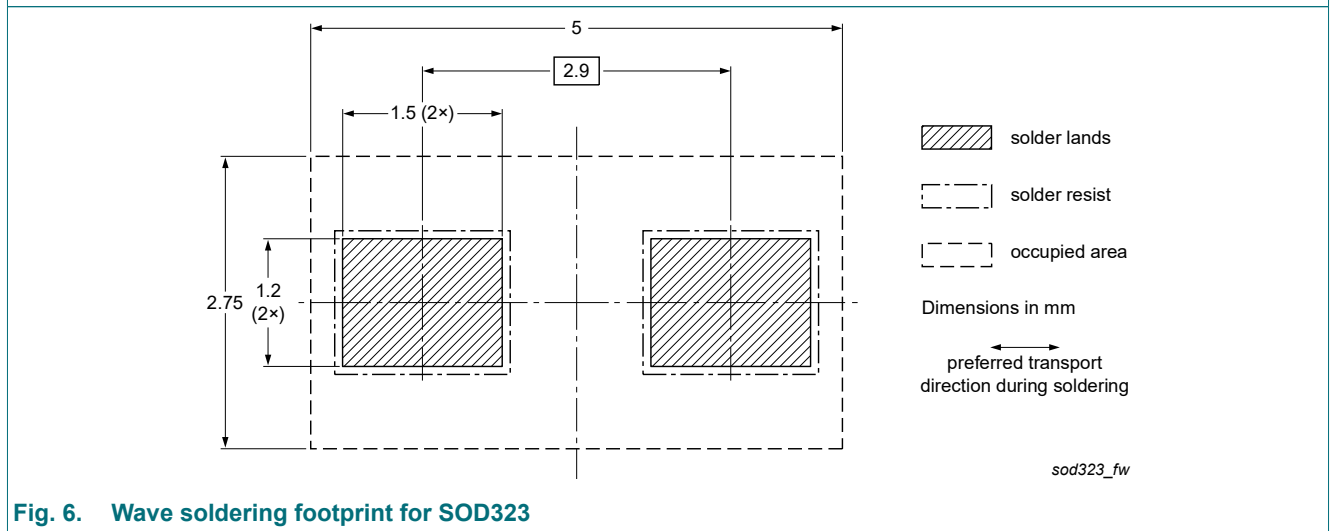


Fig. 4. Package outline SOD323

## 12. Soldering



**Fig. 5. Reflow soldering footprint for SOD323**



**Fig. 6. Wave soldering footprint for SOD323**

## 13. Revision history

**Table 8. Revision history**

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
BAT760 v.4	20221001	Product data sheet	-	BAT760 v.3
Modifications:	<ul style="list-style-type: none"><li>• Product changed to non-automotive qualification. Please refer to <a href="http://nexperia.com">nexperia.com</a> for automotive(-Q) product alternative(s).</li><li>• Packing information removed.</li></ul>			
BAT760 v.3	20081017	Product data sheet	-	BAT760 v.2
BAT760 v.2	20040126	Product specification	-	BAT760 v.1
BAT760 v.1	20010312	Product specification	-	-

## 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.

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- [2] The term 'short data sheet' is explained in section "Definitions".
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