



BAT160S-Q

Schottky barrier double diode

22 September 2022

Product data sheet

1. General description

Planar Schottky barrier double diode encapsulated in a SOT223 (SC73) Surface-Mounted Device (SMD) plastic package.

2. Features and benefits

- Low switching losses
- Capability of absorbing very high surge current
- Fast recovery time
- Guard ring protected
- Plastic SMD package
- Qualified according to AEC-Q101 and recommended for use in automotive applications

3. Applications

- Low power switched-mode power supplies
- Rectification
- Polarity protection

4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Per diode						
V_R	reverse voltage		-	-	60	V
V_F	forward voltage	$I_F = 2\text{ A}$; $T_{\text{amb}} = 25\text{ °C}$	-	-	850	mV
I_R	reverse current	$V_R = 60\text{ V}$; $t_p \leq 300\text{ }\mu\text{s}$; $\delta \leq 0.02$; $T_j = 100\text{ °C}$	-	-	8	mA

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	A1	anode (diode 1)	<p>SC-73 (SOT223)</p>	<p>n.c. mg1173</p>
2	n.c.	not connected		
3	K2	cathode (diode 2)		
4	K1, A2	cathode (diode1) and anode (diode2)		

6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
BAT160S-Q	SC-73	plastic, surface-mounted package with increased heatsink; 4 leads; 2.3 mm pitch; 6.5 mm x 3.5 mm x 1.65 mm body	SOT223

7. Marking

Table 4. Marking codes

Type number	Marking code
BAT160S-Q	AT160S

8. Limiting values

Table 5. Limiting values

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

Symbol	Parameter	Conditions	Min	Max	Unit
Per diode					
V_R	reverse voltage		-	60	V
I_F	forward current		-	1	A
I_{FSM}	non-repetitive peak forward current	$t_p = 8.3$ ms; half sinewave; JEDEC method; $T_{j(\text{init})} = 25$ °C	-	10	A
I_{RSM}	non-repetitive peak reverse current	$t_p = 100$ μ s	-	0.5	A
T_j	junction temperature		-	150	°C
T_{amb}	ambient temperature		-55	150	°C
T_{stg}	storage temperature		-65	150	°C

9. Thermal characteristics

Table 6. Thermal characteristics

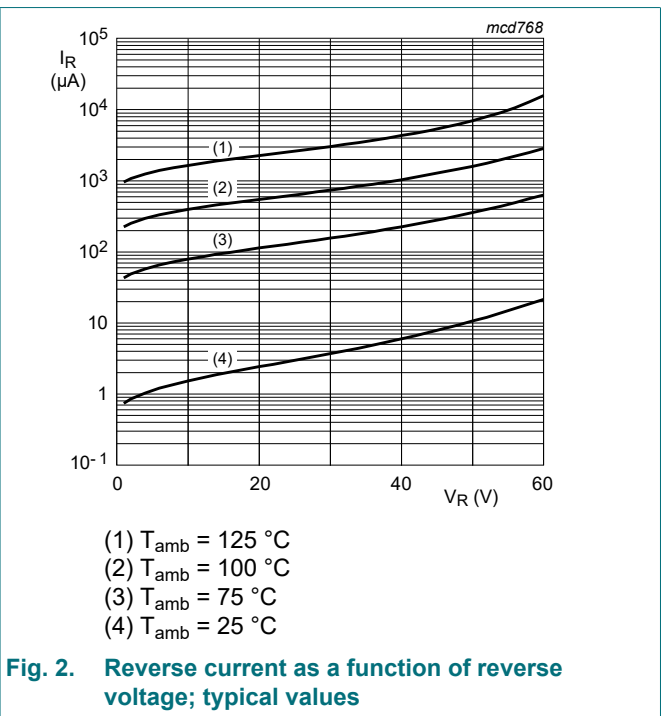
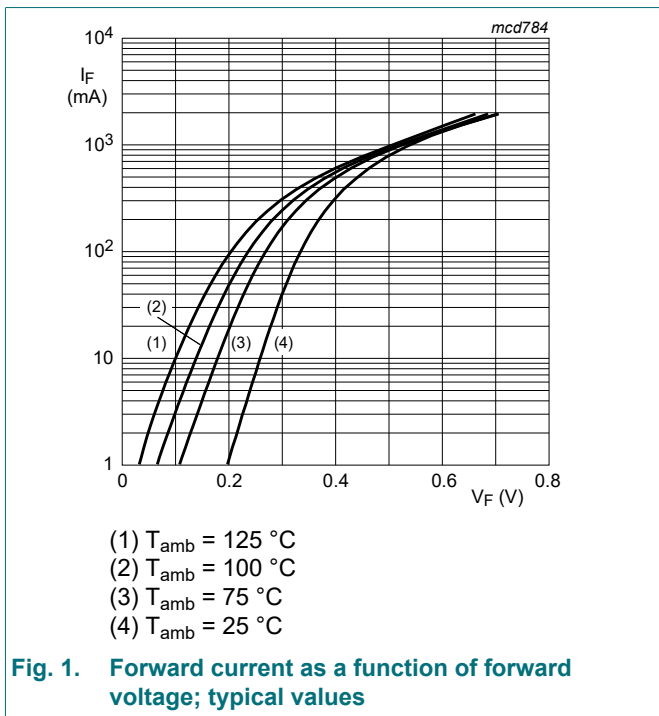
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$R_{\text{th}(j-a)}$	thermal resistance from junction to ambient	[1]	-	-	100	K/W

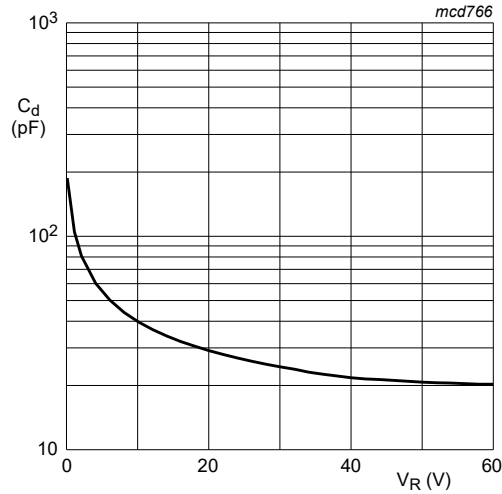
[1] Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated and standard footprint.

10. Characteristics

Table 7. Characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Per diode						
V_F	forward voltage	$I_F = 100 \text{ mA}; T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	-	400	mV
		$I_F = 1 \text{ A}; T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	-	650	mV
		$I_F = 2 \text{ A}; T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	-	850	mV
I_R	reverse current	$V_R = 60 \text{ V}; t_p \leq 300 \text{ } \mu\text{s}; \delta \leq 0.02;$ pulsed; $T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	-	350	μA
		$V_R = 60 \text{ V}; t_p \leq 300 \text{ } \mu\text{s}; \delta \leq 0.02;$ $T_j = 100 \text{ }^\circ\text{C}$	-	-	8	mA
C_d	diode capacitance	$V_R = 4 \text{ V}; f = 1 \text{ MHz}; T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	-	60	pF





f = 1 MHz; T_{amb} = 25 °C

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

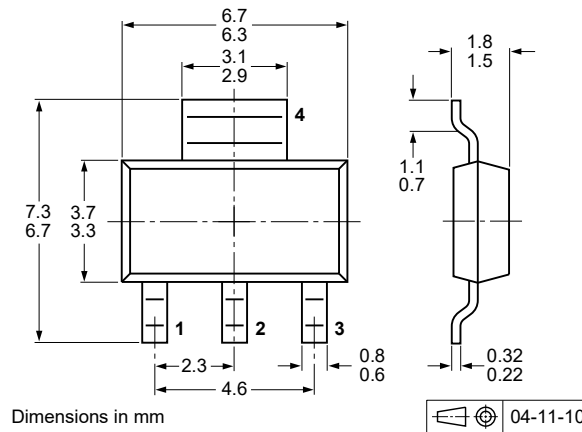


Fig. 4. Package outline SC-73 (SOT23)

13. Soldering

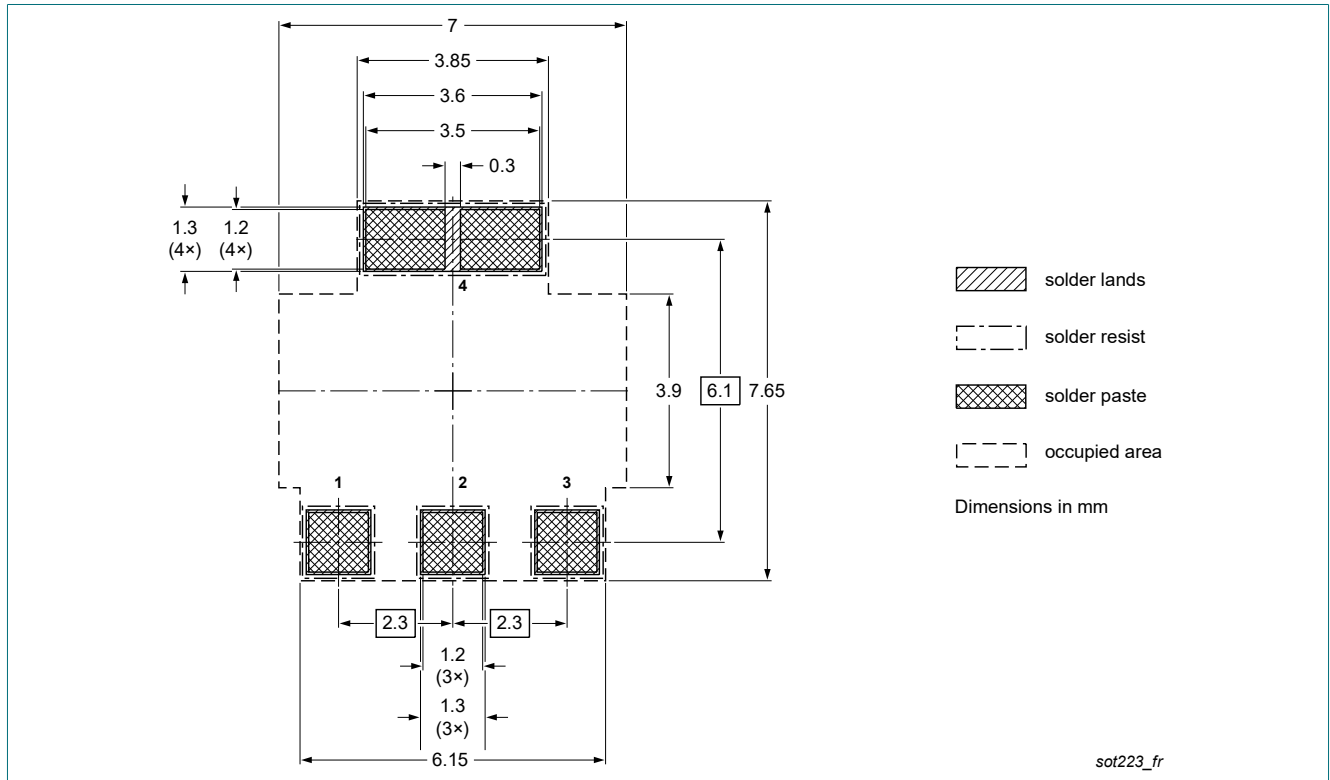


Fig. 5. Reflow soldering footprint for SC-73 (SOT223)

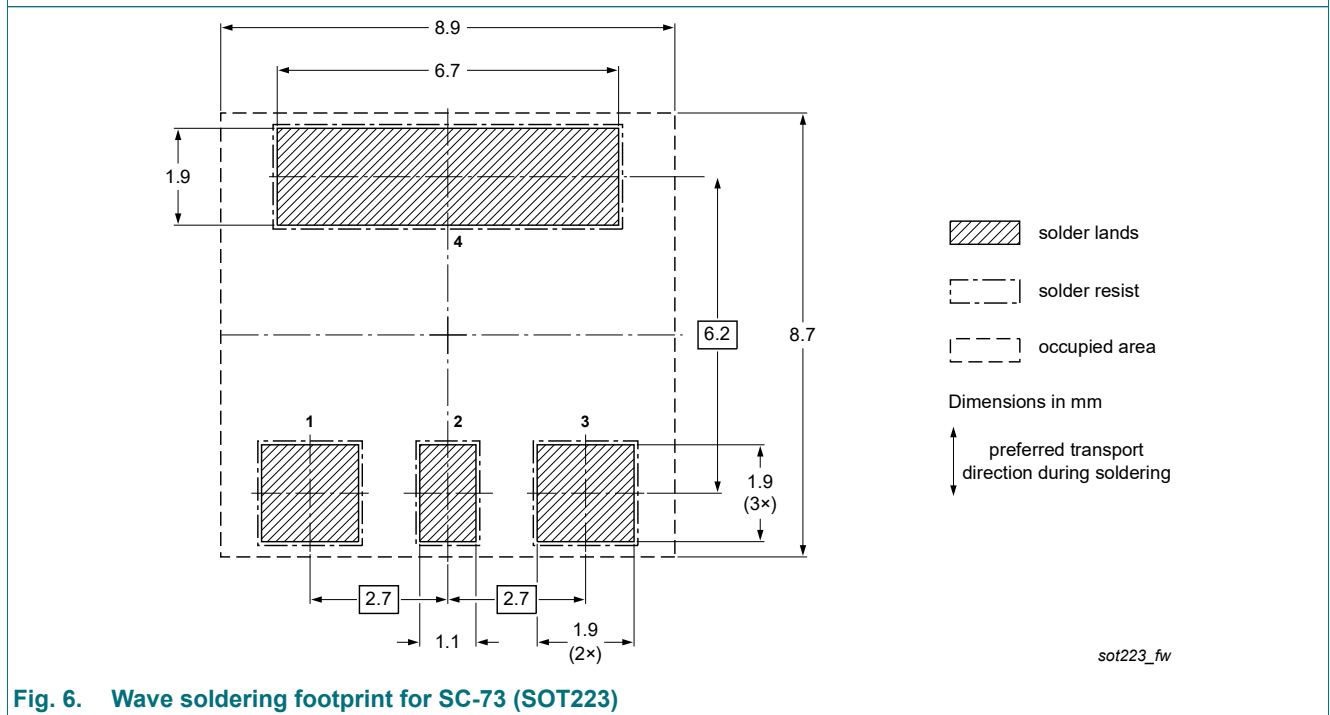


Fig. 6. Wave soldering footprint for SC-73 (SOT223)

14. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
BAT160S-Q v.1	20220922	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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