



BAT754S-Q

Dual Schottky barrier diode

21 November 2024

Product data sheet

1. General description

Planar dual Schottky barrier diode with an integrated guard ring for stress protection, encapsulated in a small SOT23 Surface-Mounted Device (SMD) plastic package.

2. Features and benefits

- Low forward voltage
- Low capacitance
- Qualified according to AEC-Q101 and recommended for use in automotive applications

3. Applications

- Ultra high-speed switching
- Line termination
- Voltage clamping
- Reverse polarity protection

4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_F	forward voltage	$I_F = 100 \text{ mA}$; pulsed; $t_p \leq 300 \text{ } \mu\text{s}$; $\delta \leq 0.02$; $T_{\text{amb}} = 25 \text{ } ^\circ\text{C}$	-	600	-	mV
I_R	reverse current	$V_R = 25 \text{ V}$; pulsed; $t_p \leq 300 \text{ } \mu\text{s}$; $\delta \leq 0.02$; $T_{\text{amb}} = 25 \text{ } ^\circ\text{C}$	-	-	2	μA
Per diode						
V_R	reverse voltage		-	-	30	V

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	A1	anode (diode 1)	 SOT23	 006aaa437
2	K2	cathode (diode 2)		
3	K1, A2	cathode (diode 1), anode (diode 2)		

6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
BAT754S-Q	SOT23	plastic, surface-mounted package; 3 terminals; 1.9 mm pitch; 2.9 mm x 1.3 mm x 1 mm body	SOT23

7. Marking

Table 4. Marking codes

Type number	Marking code[1]
BAT754S-Q	2N%

[1] % = placeholder for manufacturing site code

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			-	30	V
I _F	forward current			-	200	mA
I _{FRM}	repetitive peak forward current	t _p < 1 s; δ < 0.5		-	300	mA
I _{FSM}	non-repetitive peak forward current	sine-wave pulse; t _p < 8.3 ms; T _{j(init)} = 25 °C		-	600	mA
T _j	junction temperature			-	125	°C
T _{amb}	ambient temperature			-55	125	°C
T _{stg}	storage temperature			-65	150	°C

9. Thermal characteristics

Table 6. Thermal characteristics

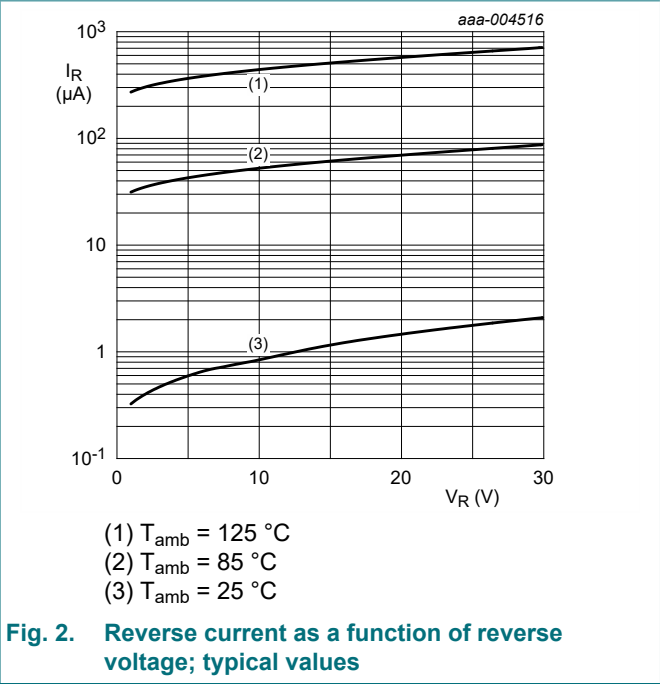
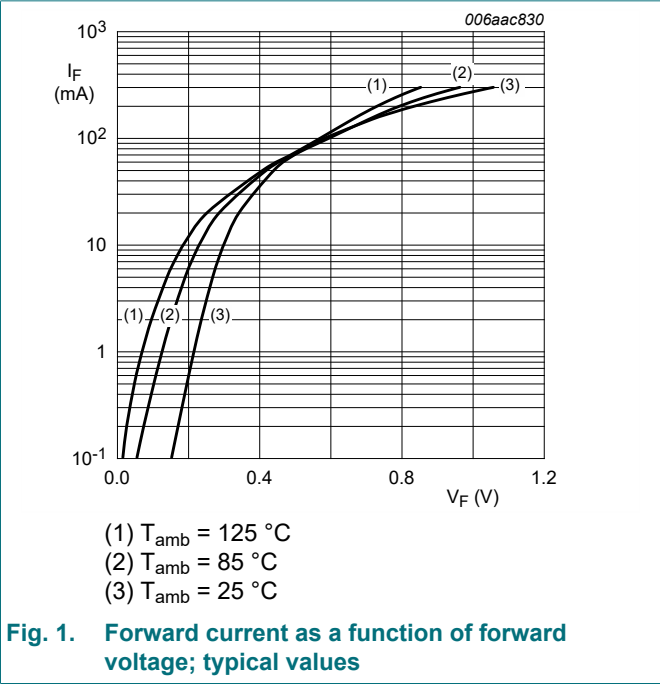
Symbol	Parameter	Conditions		Min	Typ	Max	Unit
R _{th(j-a)}	thermal resistance from junction to ambient	in free air	[1]	-	-	500	K/W

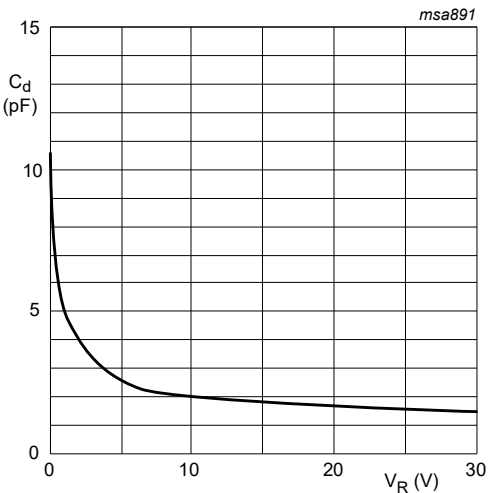
[1] Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated and standard footprint.

10. Characteristics

Table 7. Characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V _F	forward voltage	I _F = 0.1 mA; pulsed; t _p ≤ 300 μs; δ ≤ 0.02; T _{amb} = 25 °C	-	-	200	mV
		I _F = 1 mA; pulsed; t _p ≤ 300 μs; δ ≤ 0.02; T _{amb} = 25 °C	-	-	260	mV
		I _F = 10 mA; pulsed; t _p ≤ 300 μs; δ ≤ 0.02; T _{amb} = 25 °C	-	-	340	mV
		I _F = 30 mA; pulsed; t _p ≤ 300 μs; δ ≤ 0.02; T _{amb} = 25 °C	-	-	420	mV
		I _F = 100 mA; pulsed; t _p ≤ 300 μs; δ ≤ 0.02; T _{amb} = 25 °C	-	600	-	mV
I _R	reverse current	V _R = 25 V; pulsed; t _p ≤ 300 μs; δ ≤ 0.02; T _{amb} = 25 °C	-	-	2	μA
C _d	diode capacitance	V _R = 1 V; f = 1 MHz; T _{amb} = 25 °C	-	-	10	pF





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

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

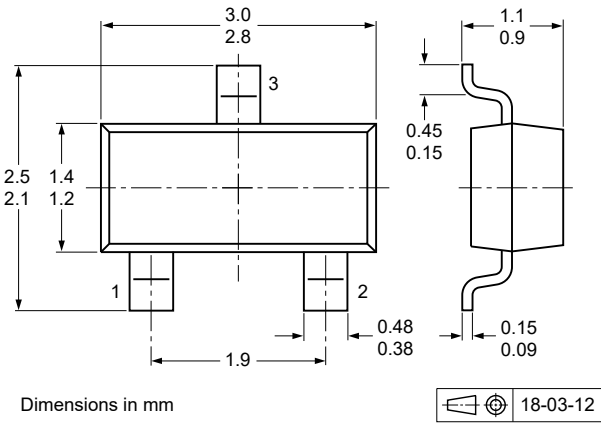


Fig. 4. Package outline SOT23

13. Soldering

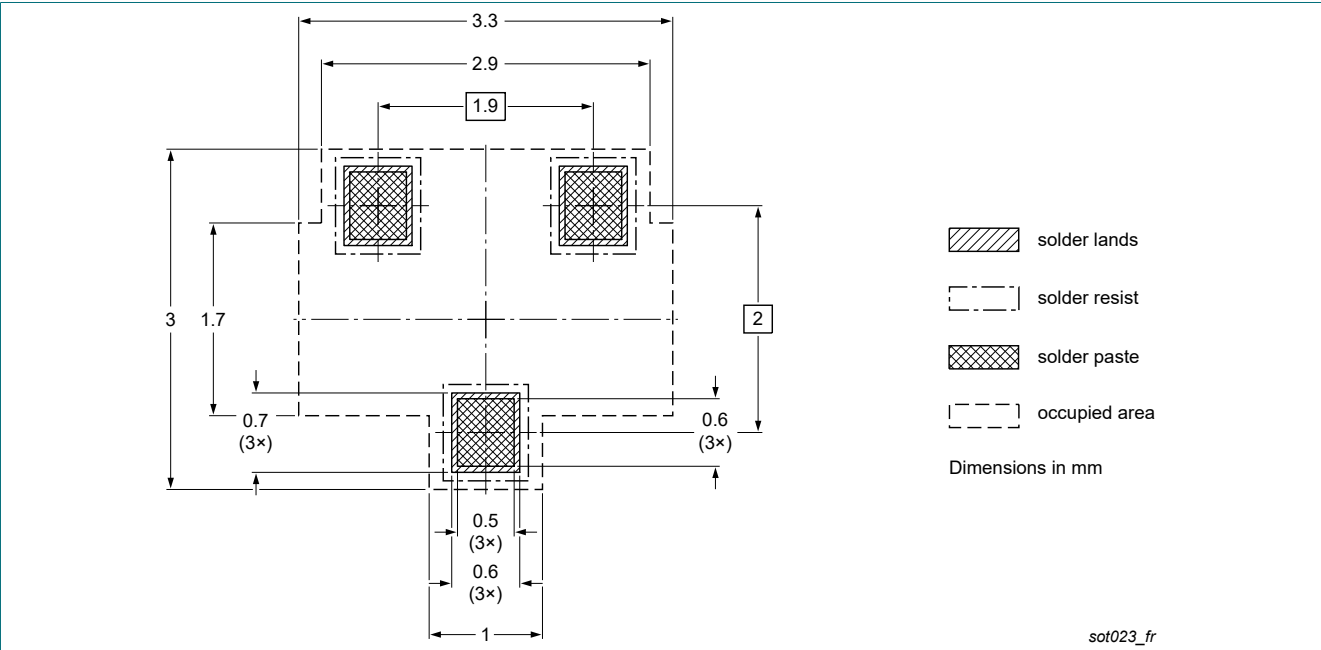


Fig. 5. Reflow soldering footprint for SOT23

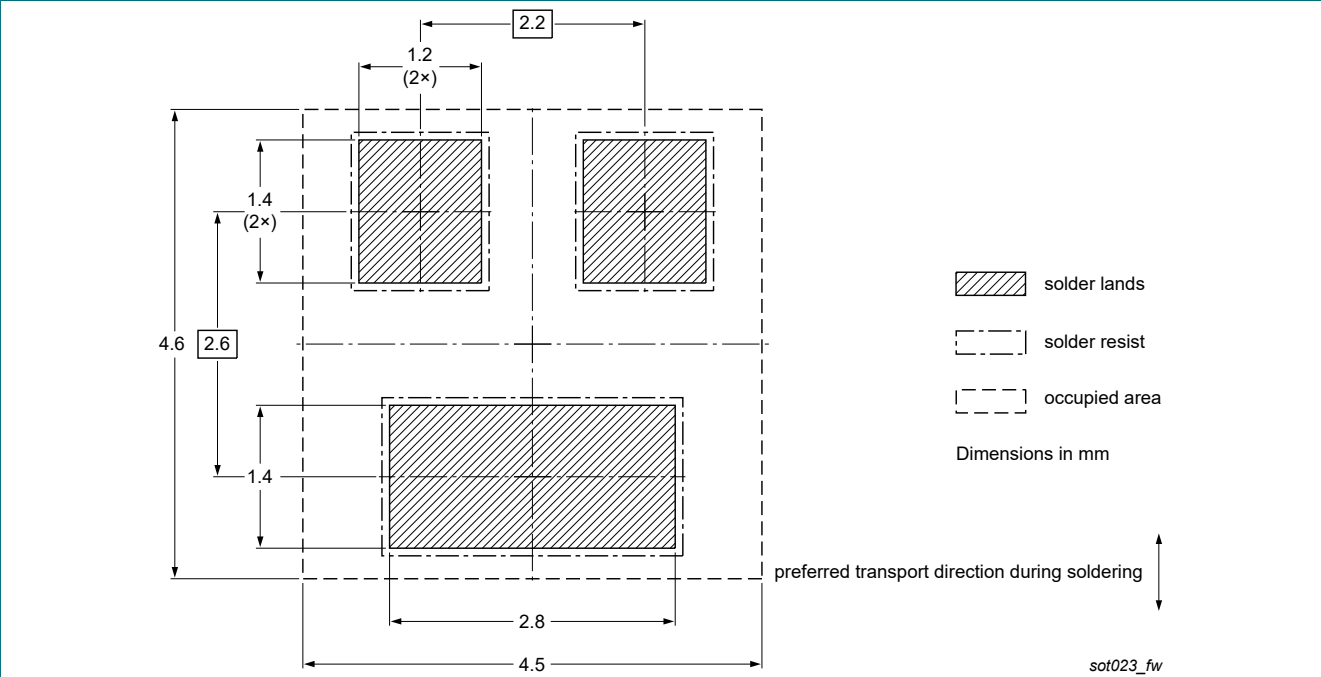


Fig. 6. Wave soldering footprint for SOT23

14. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
BAT754S-Q v.1	20241121	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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