

BAS70-07-Q

General-purpose dual Schottky diode

2 February 2022 **Product data sheet**

1. General description

General-purpose dual Schottky diode in a small SOT143B Surface-Mounted Device (SMD) plastic package.

2. Features and benefits

- High switching speed
- Low leakage current
- High breakdown voltage
- Low capacitance
- Qualified according to AEC-Q101 and recommended for use in automotive applications

3. Applications

- Ultra high-speed switching
- Voltage clamping

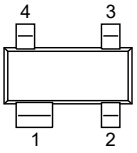
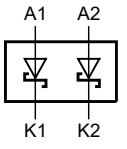
4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
I_F	forward current			-	-	70	mA
V_F	forward voltage	I_F = 1 mA; $t_p \leq$ 300 µs; $\delta \leq$ 0.02; pulsed; T_{amb} = 25 °C		-	-	410	mV
V_R	reverse voltage	T_j = 25 °C		-	-	70	V

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	K1	cathode (diode 1)	 SOT143B	 006aaa434
2	K2	cathode (diode 2)		
3	A2	anode (diode 2)		
4	A1	anode (diode 1)		

6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
BAS70-07-Q	SOT143B	plastic, surface-mounted package; 4 leads; 1.9 mm pitch; 2.9 mm x 1.3 mm x 1 mm body	SOT143B

7. Marking

Table 4. Marking codes

Type number	Marking code[1]
BAS70-07-Q	77%

[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
V_R	reverse voltage	T_j = 25 °C		-	70	V
I_F	forward current			-	70	mA
I_{FRM}	repetitive peak forward current	$t_p \leq$ 1 s; $\delta \leq$ 0.5		-	70	mA
I_{FSM}	non-repetitive peak forward current	$t_p \leq$ 10 ms; $T_{j(init)}$ = 25 °C		-	100	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]	-	-	500	K/W

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

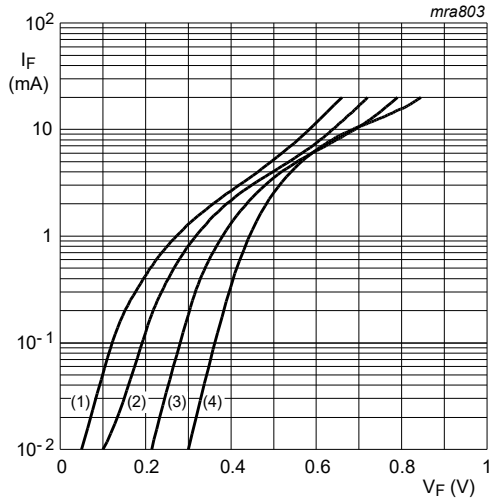
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10. Characteristics

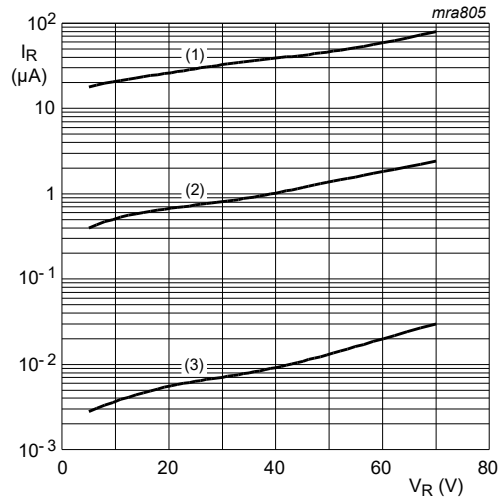
Table 7. Characteristics

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
V_F	forward voltage	I_F = 1 mA; $t_p \leq$ 300 µs; $\delta \leq$ 0.02; pulsed; T_{amb} = 25 °C		-	-	410	mV
		I_F = 10 mA; $t_p \leq$ 300 µs; $\delta \leq$ 0.02; pulsed; T_{amb} = 25 °C		-	-	750	mV
		I_F = 15 mA; $t_p \leq$ 300 µs; $\delta \leq$ 0.02; pulsed; T_{amb} = 25 °C		-	-	1	V
I_R	reverse current	V_R = 50 V; T_{amb} = 25 °C		-	-	100	nA
		V_R = 70 V; T_{amb} = 25 °C		-	-	10	µA
C_d	diode capacitance	V_R = 0 V; f = 1 MHz; T_{amb} = 25 °C		-	-	2	pF



(1) T_{amb} = 125 °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

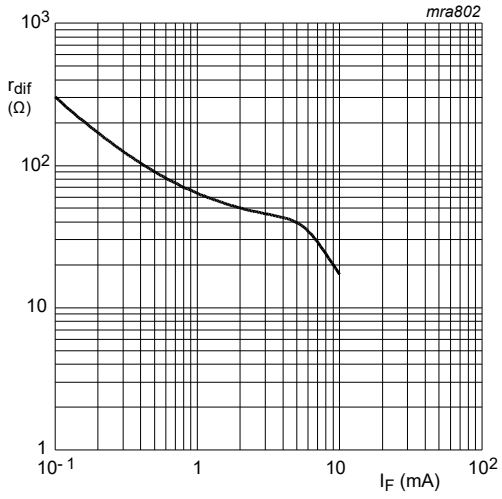


(1) T_{amb} = 125 °C
(2) T_{amb} = 85 °C
(3) T_{amb} = 25 °C

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

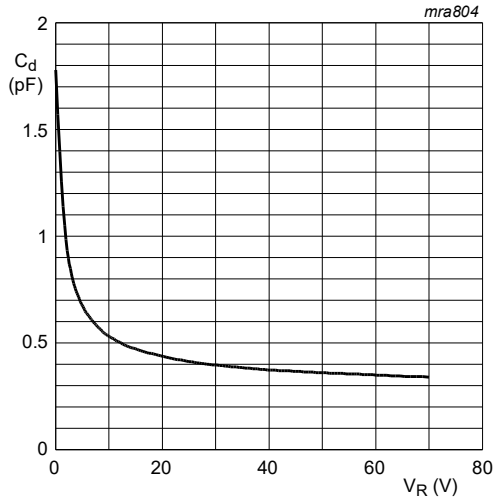
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f = 10 kHz

Fig. 3. Differential forward resistance as a function of forward current; typical values



T_{amb} = 25 °C; f = 1 MHz

Fig. 4. 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

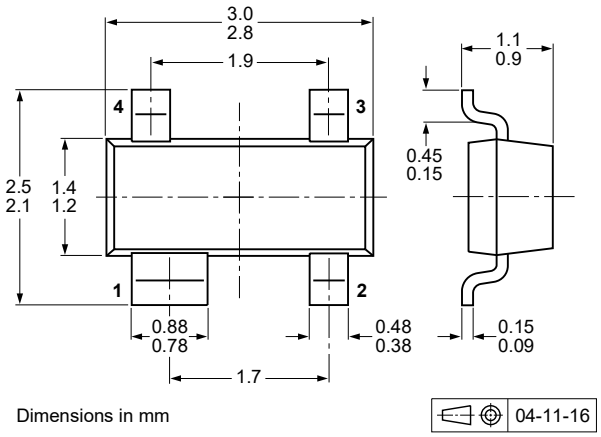


Fig. 5. Package outline SOT143B

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13. Soldering

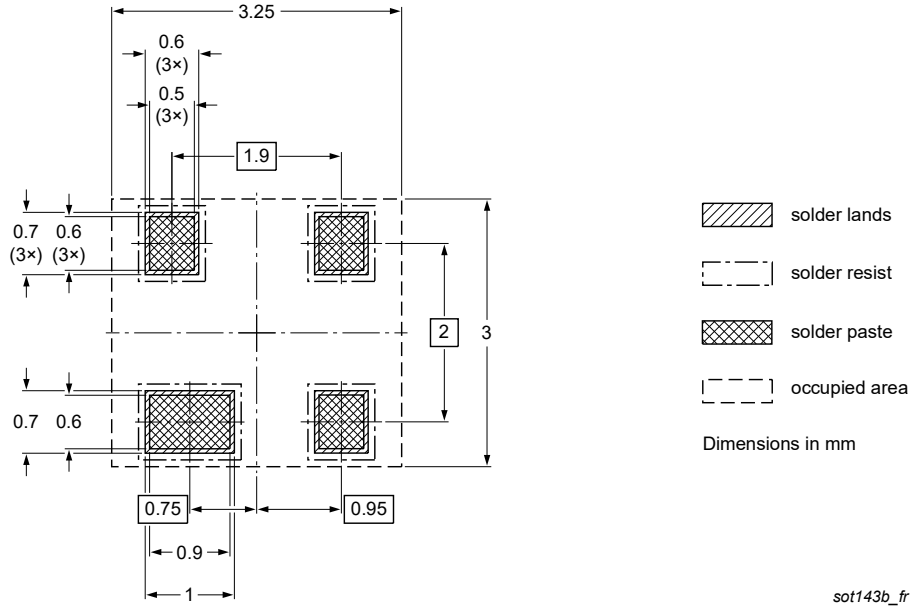


Fig. 6. Reflow soldering footprint for SOT143B

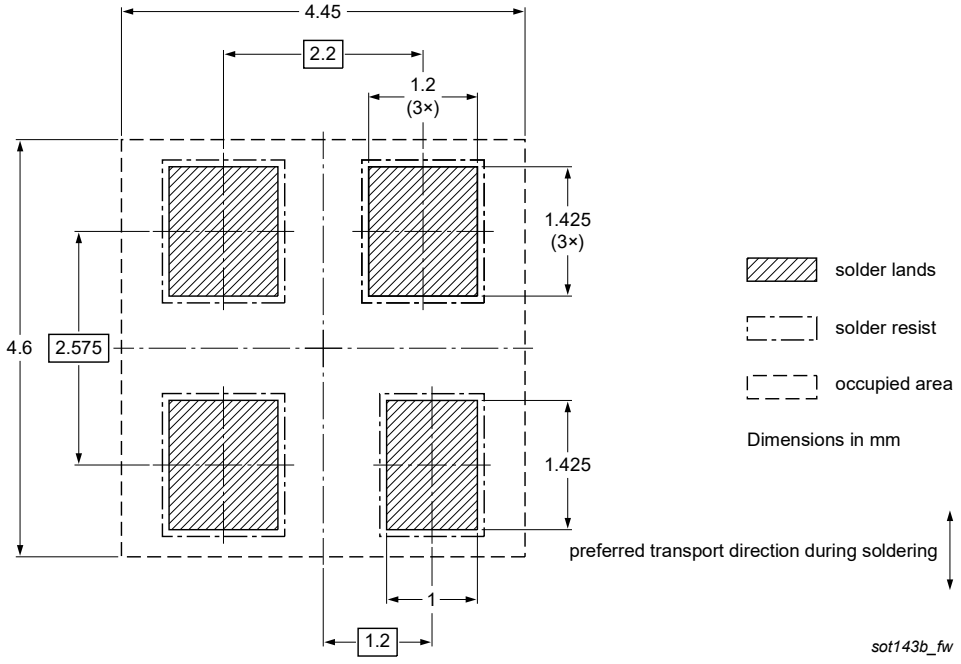


Fig. 7. Wave soldering footprint for SOT143B

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14. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
BAS70-07-Q v.1	20220202	Product data sheet	-	-

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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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