

BAS716

Low-leakage diode

6 August 2026 **Product data sheet**

1. General description

Epitaxial medium-speed switching diode with a low leakage current encapsulated in a SOD523 (SC-79) ultra small and flat lead Surface-Mounted Device (SMD) plastic package.

2. Features and benefits

- Plastic SMD package
- Low leakage current: typ. 0.2 nA
- Switching time: typ. 0.6 us
- Continuous reverse voltage: max. 75 V
- Repetitive peak reverse voltage: max. 85 V
- Repetitive peak forward current: max. 500 mA
- AEC-Q101 qualitfied

3. Applications

- Low leakage current applications in surface mounted circuits.

4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
I_F	forward current	$t_p \leq 300$ µs; $\delta \leq 0.02$; $T_j = 25$ °C		-	-	200	mA
V_{RRM}	repetitive peak reverse voltage	$T_j = 25$ °C		-	-	85	V
V_F	forward voltage	$I_F = 50$ mA; $t_p \leq 300$ µs; $\delta \leq 0.02$; $T_j = 25$ °C		-	0.92	1.1	V
I_R	reverse current	$V_R = 75$ V; pulsed; $T_j = 25$ °C		-	0.2	5	nA
t_{rr}	reverse recovery time	$I_F = 10$ mA; $I_R = 10$ mA; $R_L = 100$ Ω; $I_{R(meas)} = 1$ mA; $T_j = 25$ °C		-	0.6	3	µs

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	K	cathode	 SC-79 (SOD523)	 aaa-032142
2	A	anode		

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6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
BAS716	SC-79	plastic, surface-mounted package; 2 leads; 1.2 mm x 0.8 mm x 0.6 mm body	SOD523

7. Marking

Table 4. Marking codes

Type number	Marking code
BAS716	S1

8. Limiting values

Table 5. Limiting values

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

Symbol	Parameter	Conditions		Min	Max	Unit
V_{RRM}	repetitive peak reverse voltage	T_j = 25 °C		-	85	V
V_R	reverse voltage			-	75	V
I_F	forward current	$t_p \leq$ 300 µs; $\delta \leq$ 0.02; T_j = 25 °C		-	200	mA
I_{FSM}	non-repetitive peak forward current	t_p = 1 µs; square wave; $T_{j(init)}$ = 25 °C		-	4	A
		t_p = 1 ms; square wave; $T_{j(init)}$ = 25 °C		-	1	A
		t_p = 1 s; square wave; $T_{j(init)}$ = 25 °C		-	0.5	A
I_{FRM}	repetitive peak forward current			-	500	mA
P_{tot}	total power dissipation	$T_{amb} \leq$ 25 °C	[1]	-	250	mW
T_j	junction temperature			-	150	°C
T_{amb}	ambient temperature			-55	150	°C
T_{stg}	storage temperature			-65	150	°C

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

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]	-	-	450	K/W
$R_{th(j-sp)}$	thermal resistance from junction to solder point		[2]	-	-	120	K/W

[1] Device mounted on an FR4 PCB, single-sided copper, tin-plated and standard footprint.
[2] Soldering point of cathode tab.

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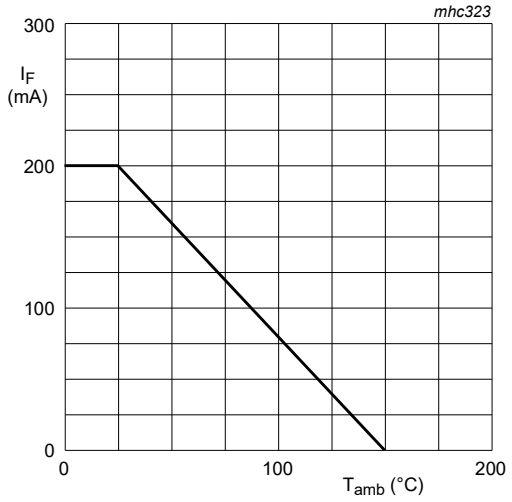
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10. Characteristics

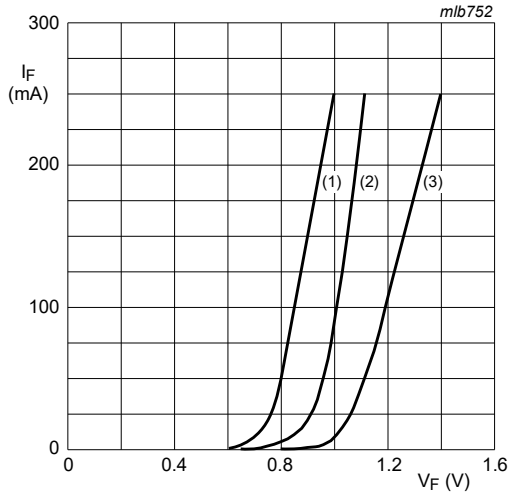
Table 7. Characteristics

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
V_F	forward voltage	I_F = 1 mA; $t_p \leq$ 300 µs; $\delta \leq$ 0.02; T_j = 25 °C		-	0.77	0.9	V
		I_F = 10 mA; $t_p \leq$ 300 µs; $\delta \leq$ 0.02; T_j = 25 °C		-	0.85	1	V
		I_F = 50 mA; $t_p \leq$ 300 µs; $\delta \leq$ 0.02; T_j = 25 °C		-	0.92	1.1	V
		I_F = 150 mA; $t_p \leq$ 300 µs; $\delta \leq$ 0.02; T_j = 25 °C		-	1.02	1.25	V
I_R	reverse current	V_R = 75 V; pulsed; T_j = 25 °C		-	0.2	5	nA
		V_R = 75 V; pulsed; T_j = 150 °C		-	3	80	nA
		V_R = 100 V; pulsed; T_j = 25 °C		-	0.3	-	nA
C_d	diode capacitance	V_R = 0 V; f = 1 MHz; T_j = 25 °C		-	2	-	pF
t_{rr}	reverse recovery time	I_F = 10 mA; I_R = 10 mA; R_L = 100 Ω; $I_{R(meas)}$ = 1 mA; T_j = 25 °C		-	0.6	3	µs



Device mounted on an FR4 printed-circuit board.

Fig. 1. Maximum permissible continuous forward current as a function of ambient temperature.



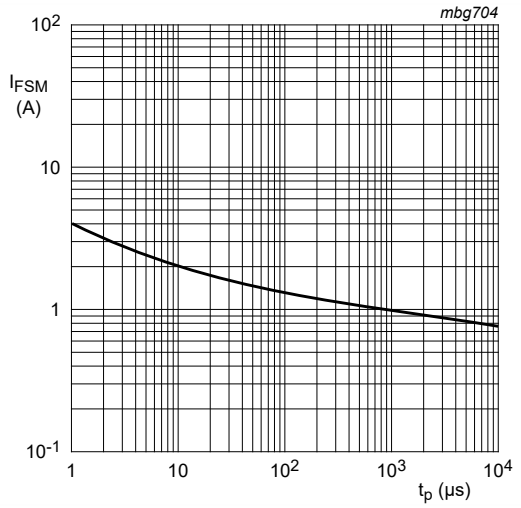
(1) T_{amb} = 150 °C; typical values
(2) T_{amb} = 25 °C; typical values
(3) T_{amb} = 25 °C; maximum values

Fig. 2. Forward current as a function of forward voltage; per diode

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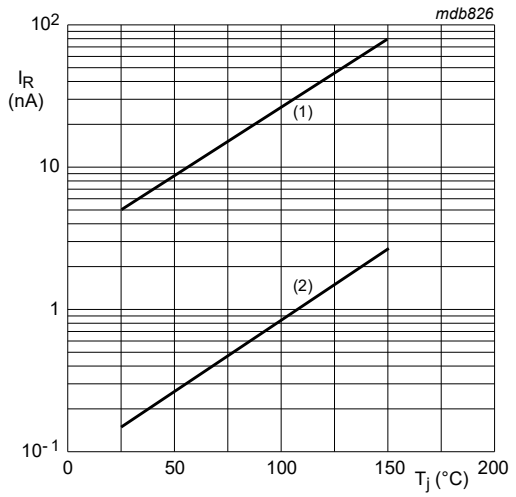
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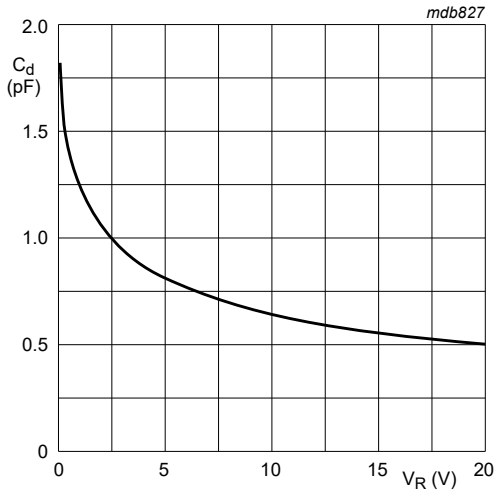
Based on square wave currents.
$T_{j(init)}$ = 25 °C

Fig. 3. Non-repetitive peak forward current as a function of pulse duration; typical values



V_R = 75 V
(1) Maximum values
(2) Typical values

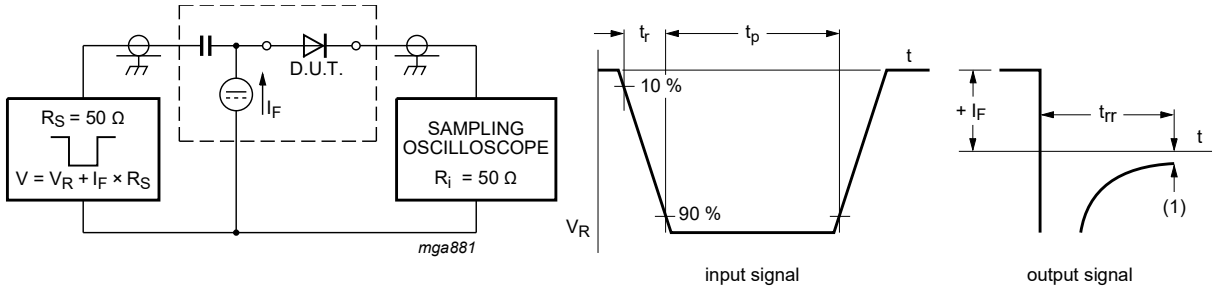
Fig. 4. Reverse current as a function of junction temperature



f = 1 MHz; T_{amb} = 25 °C

Fig. 5. Diode capacitance as a function of reverse voltage; typical values

11. Test information



(1) I_R = 1 mA

Fig. 6. Reverse recovery time test circuit and waveforms

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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

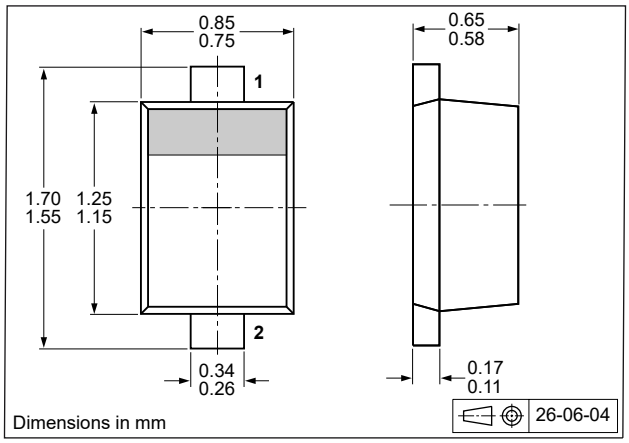


Fig. 7. Package outline SC-79 (SOD523)

13. Soldering

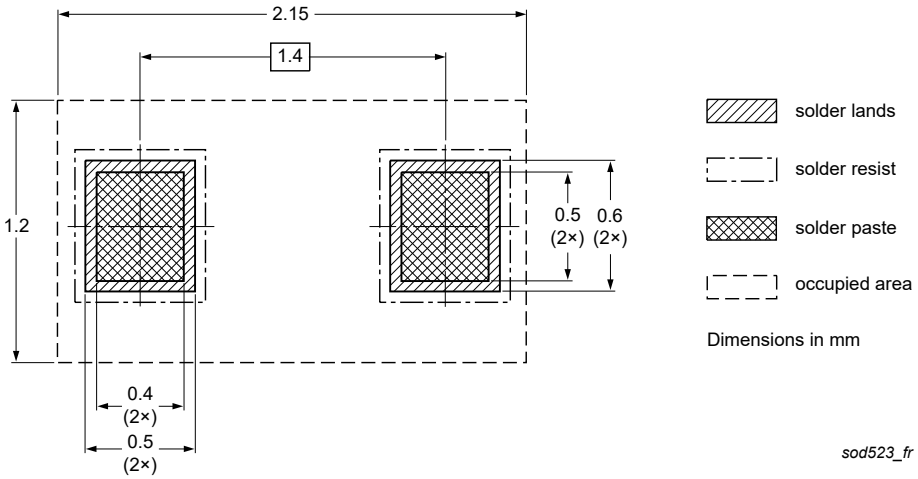


Fig. 8. Reflow soldering footprint for SC-79 (SOD523)

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14. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
BAS716 v.3	20260806	Product data sheet	-	BAS716 v.2
Modifications:	• Aligned SOD523 package outline drawing			
BAS716 v.2	20201002	Product data sheet	-	BAS716 v.1
BAS716 v.1	20031107	Product data sheet	-	-

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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.

[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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