

BAV102; BAV103

Single general-purpose switching diodes

1. Product profile

1.1 General description

Single general-purpose switching diodes, fabricated in planar technology, and encapsulated in small hermetically sealed glass SOD80C Surface-Mounted Device (SMD) packages.

Table 1. Product overview

Type number	Package		Configuration
	NXP	JEITA	
BAV102	SOD80C	-	single
BAV103			

1.2 Features

- High switching speed: $t_{rr} \leq 50$ ns
- Low leakage current
- Low capacitance: $C_d \leq 5$ pF
- Small hermetically sealed glass SMD package

1.3 Applications

- High-speed switching
- General-purpose switching
- Voltage clamping
- Reverse polarity protection

1.4 Quick reference data

Table 2. Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
I_F	forward current	[1][2]	-	-	250	mA
V_R	reverse voltage					
	BAV102		-	-	150	V
	BAV103		-	-	200	V
t_{rr}	reverse recovery time	[3]	-	-	50	ns


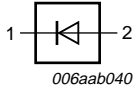
[1] Pulse test: $t_p \leq 300$ μ s; $\delta \leq 0.02$.

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

[3] When switched from $I_F = 30$ mA to $I_R = 30$ mA; $R_L = 100$ Ω ; measured at $I_R = 3$ mA.

2. Pinning information

Table 3. Pinning

Pin	Description	Simplified outline	Symbol
1	cathode	[1]	
2	anode		

[1] The marking band indicates the cathode.

3. Ordering information

Table 4. Ordering information

Type number	Package		
	Name	Description	Version
BAV102	-	hermetically sealed glass surface-mounted package;	SOD80C
BAV103	-	2 connectors	

4. Marking

Table 5. Marking codes

Type number	Marking code ^[1]
BAV102	marking band
BAV103	

[1] green: made in Philippines

5. Limiting values

Table 6. Limiting values

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

Symbol	Parameter	Conditions	Min	Max	Unit
V_{RRM}	repetitive peak reverse voltage				
		BAV102	-	200	V
		BAV103	-	250	V
V_R	reverse voltage				
		BAV102	-	150	V
		BAV103	-	200	V
I_F	forward current	[1][2]	-	250	mA
I_{FRM}	repetitive peak forward current		-	625	mA

Table 6. Limiting values ...continued

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

Symbol	Parameter	Conditions	Min	Max	Unit
I_{FSM}	non-repetitive peak forward current	square wave	[3]		
		$t_p = 1 \mu s$	-	9	A
		$t_p = 100 \mu s$	-	3	A
		$t_p = 1 s$	-	1	A
P_{tot}	total power dissipation	$T_{amb} \leq 25 \text{ }^\circ\text{C}$	[2]	400	mW
T_j	junction temperature		-	175	$^\circ\text{C}$
T_{amb}	ambient temperature		-65	+175	$^\circ\text{C}$
T_{stg}	storage temperature		-65	+175	$^\circ\text{C}$

[1] Pulse test: $t_p \leq 300 \mu s$; $\delta \leq 0.02$.

[2] Device mounted on an FR4 PCB, single-sided copper, tin-plated and standard footprint.

[3] $T_j = 25 \text{ }^\circ\text{C}$ prior to surge.

6. Thermal characteristics

Table 7. Thermal characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$R_{th(j-a)}$	thermal resistance from junction to ambient	in free air	[1]	-	375	K/W
$R_{th(j-t)}$	thermal resistance from junction to tie-point		-	-	300	K/W

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

7. Characteristics

Table 8. Characteristics

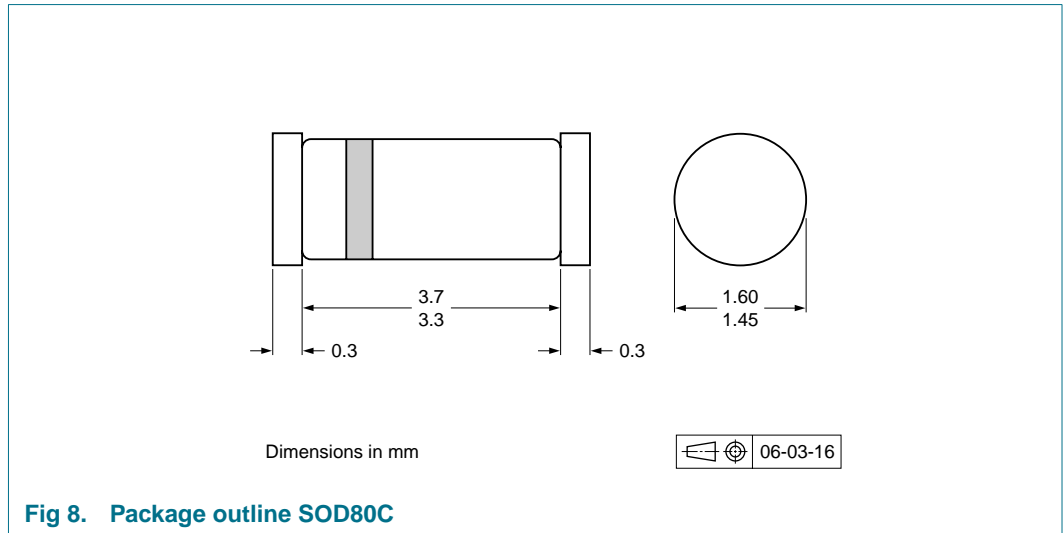
$T_{amb} = 25 \text{ }^\circ\text{C}$ unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit	
V_F	forward voltage		[1]				
		$I_F = 100 \text{ mA}$	-	-	1.0	V	
		$I_F = 200 \text{ mA}$	-	-	1.25	V	
I_R	reverse current	BAV102	$V_R = 150 \text{ V}$	-	-	100	nA
			$V_R = 150 \text{ V}; T_j = 150 \text{ }^\circ\text{C}$	-	-	100	μA
		BAV103	$V_R = 200 \text{ V}$	-	-	100	nA
			$V_R = 200 \text{ V}; T_j = 150 \text{ }^\circ\text{C}$	-	-	100	μA
		C_d	diode capacitance	$f = 1 \text{ MHz}; V_R = 0 \text{ V}$	-	-	5
t_{rr}	reverse recovery time		[2]	-	50	ns	

[1] Pulse test: $t_p \leq 300 \mu s$; $\delta \leq 0.02$.

[2] When switched from $I_F = 30 \text{ mA}$ to $I_R = 30 \text{ mA}$; $R_L = 100 \Omega$; measured at $I_R = 3 \text{ mA}$.

9. Package outline



10. Packing information

Table 9. Packing methods

The indicated -xxx are the last three digits of the 12NC ordering code.^[1]

Type number	Package	Description	Packing quantity	
			2500	10000
BAV102	SOD80C	4 mm pitch, 8 mm tape and reel	-115	-135
BAV103				

[1] For further information and the availability of packing methods, see [Section 14](#).