

High-speed diode

BAV10

FEATURES

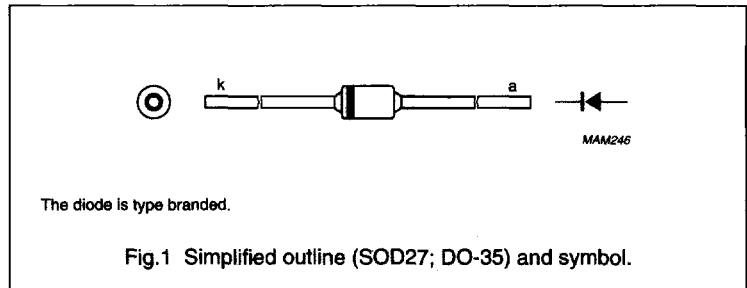
- Hermetically sealed leaded glass SOD27 (DO-35) package
- High switching speed: max. 6 ns
- General application
- Continuous reverse voltage: max. 60 V
- Repetitive peak reverse voltage: max. 60 V
- Repetitive peak forward current: max. 600 mA.

APPLICATIONS

- High-speed switching.

DESCRIPTION

The BAV10 is a high-speed switching diode fabricated in planar technology, and encapsulated in the hermetically sealed leaded glass SOD27 (DO-35) package.



LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{RRM}	repetitive peak reverse voltage		–	60	V
V_R	continuous reverse voltage		–	60	V
I_F	continuous forward current	see Fig.2; note 1	–	300	mA
I_{FRM}	repetitive peak forward current		–	600	mA
I_{FSM}	non-repetitive peak forward current	square wave; $T_j = 25\text{ °C}$ prior to surge; see Fig.4 $t = 1\ \mu\text{s}$ $t = 100\ \mu\text{s}$ $t = 1\ \text{s}$	–	9 3 1	A A A
P_{tot}	total power dissipation	$T_{amb} = 25\text{ °C}$; note 1	–	350	mW
T_{stg}	storage temperature		–65	+200	°C
T_j	junction temperature		–	200	°C

Note

1. Device mounted on an FR4 printed circuit-board; lead length 10 mm.

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ELECTRICAL CHARACTERISTICS $T_j = 25\text{ }^\circ\text{C}$; unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_F	forward voltage	see Fig.3			
		$I_F = 10\text{ mA}$	–	750	mV
		$I_F = 200\text{ mA}$	–	1.0	V
		$I_F = 500\text{ mA}$	–	1.25	V
		$I_F = 200\text{ mA}; T_j = 100\text{ }^\circ\text{C}$	–	950	mV
I_R	reverse current	see Fig.5			
		$V_R = 60\text{ V}$	–	100	nA
		$V_R = 60\text{ V}; T_j = 150\text{ }^\circ\text{C}$	–	100	μA
C_d	diode capacitance	$f = 1\text{ MHz}; V_R = 0$; see Fig.6	–	2.5	pF
t_{rr}	reverse recovery time	when switched from $I_F = 400\text{ mA}$ to $I_R = 400\text{ mA}$; $R_L = 100\text{ }\Omega$; measured at $I_R = 40\text{ mA}$; see Fig.7	–	6	ns
V_{fr}	forward recovery voltage	when switched from $I_F = 400\text{ mA}$; $t_r = 30\text{ ns}$; see Fig.8	–	2	V
		when switched from $I_F = 400\text{ mA}$; $t_r = 10\text{ ns}$; see Fig.8	–	1.5	V

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-tp}$	thermal resistance from junction to tie-point	lead length 10 mm	240	K/W
$R_{th\ j-a}$	thermal resistance from junction to ambient	lead length 10 mm; note 1	500	K/W

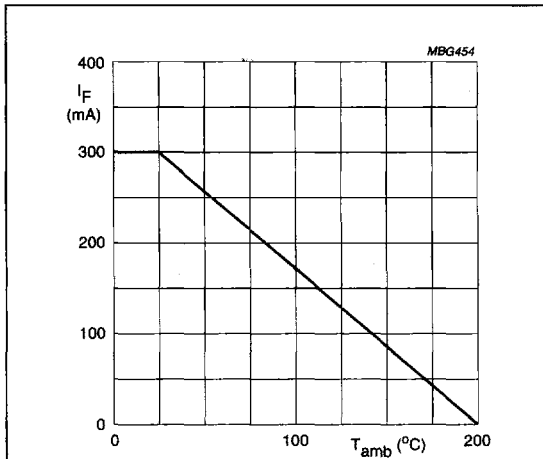
Note

1. Device mounted on a printed circuit-board without metallization pad.

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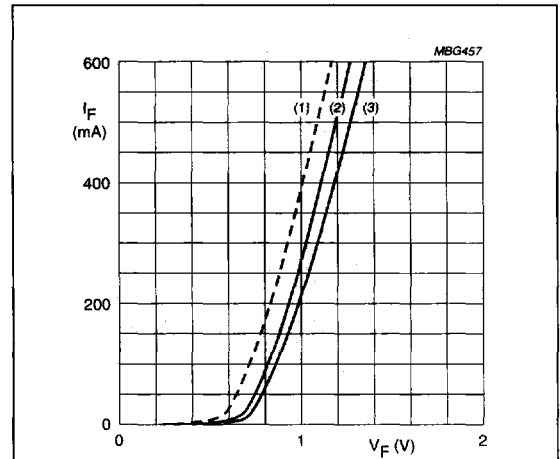
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GRAPHICAL DATA



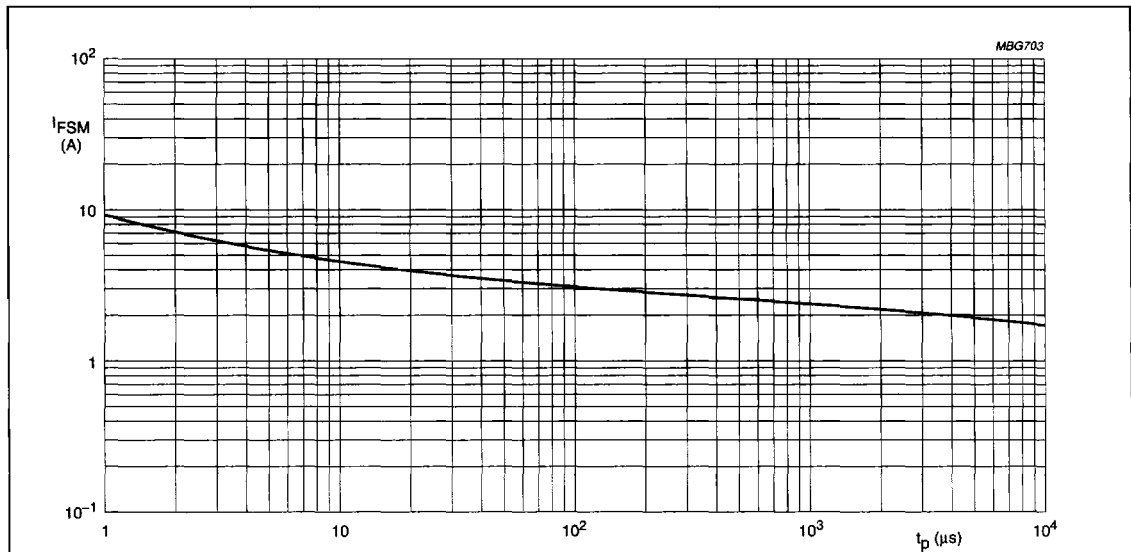
Device mounted on an FR4 printed-circuit board; lead length 10 mm.

Fig. 2 Maximum permissible continuous forward current as a function of ambient temperature.



- (1) $T_j = 175\text{ }^\circ\text{C}$; typical values.
- (2) $T_j = 25\text{ }^\circ\text{C}$; typical values.
- (3) $T_j = 25\text{ }^\circ\text{C}$; maximum values.

Fig. 3 Forward current as a function of forward voltage.

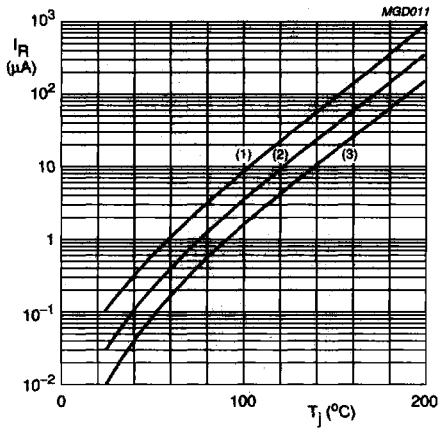


Based on square wave currents.
 $T_j = 25\text{ }^\circ\text{C}$ prior to surge.

Fig. 4 Maximum permissible non-repetitive peak forward current as a function of pulse duration.

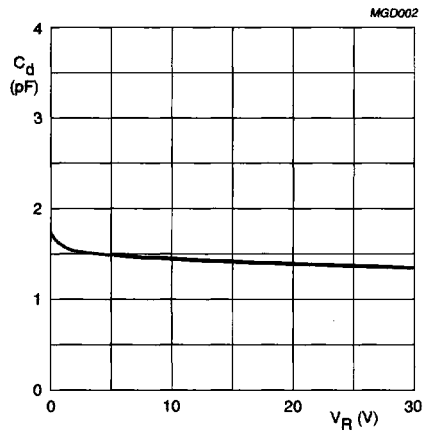
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- (1) $V_R = 60$ V; maximum values.
- (2) $V_R = 60$ V; typical values.
- (3) $V_R = 30$ V; typical values.

Fig.5 Reverse current as a function of junction temperature.



$f = 1$ MHz; $T_J = 25$ $^{\circ}C$.

Fig.6 Diode capacitance as a function of reverse voltage; typical values.

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