High-speed double diode BAV99

Features

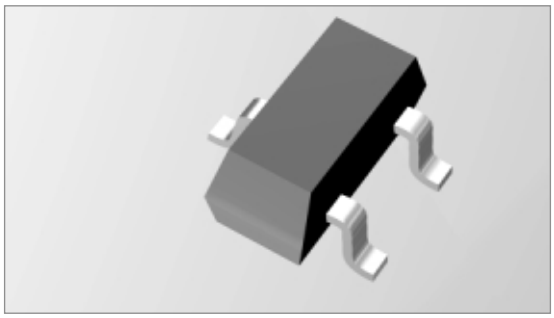
- Small plastic SMD package
- High switching speed: max. 4 ns
- Continuous reverse voltage: max. 75 V
- Repetitive peak reverse voltage: max. 85 V
- Repetitive peak forward current: max. 450 mA

Applications

- High-speed switching in thick and thin-film circuits.

Description

- The BAV99 consists of two high-speed switching diodes connected in series, fabricated in planar technology, and encapsulated in the small SOT23 plastic SMD package.



Pinning

Pin	Description
1	anode
2	cathode
3	common connection

Marking

Type Number	Marking Code
BAV99	A7*

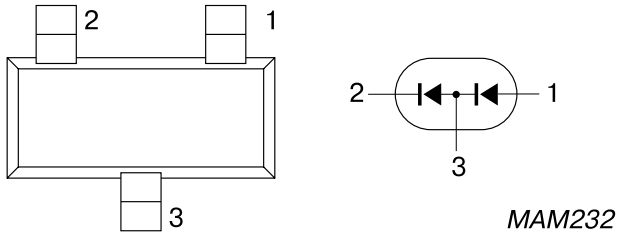


Fig.1 Simplified outline (SOT23) and symbol.

Limiting Values

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

Symbol	Parameter	Conditions	Min.	Max.	Unit
Per diode					
V_{RRM}	repetitive peak reverse voltage		–	85	V
V_R	continuous reverse voltage		–	75	V
I_F	continuous forward current	single diode loaded; see Fig.2 note 1	–	215	mA
		double diode loaded; see Fig.2 note 1	–	125	mA
I_{FRM}	repetitive peak forward current		–	450	mA
I_{FSM}	non-repetitive peak forward current	square wave; T_j =25 °C prior to surge; see Fig.4			
		t=1 µs	–	4	A
		t=1 ms	–	1	A
		t=1 s	–	0.5	A
P_{tot}	total power dissipation	T_{amb} =25 °C; note 1	–	250	mW
T_{stg}	storage temperature		−65	+150	°C
T_j	junction temperature		–	150	°C

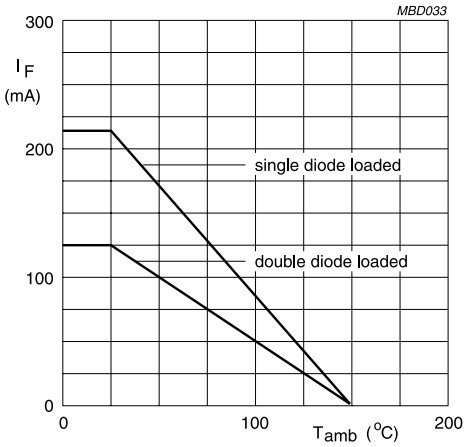
Thermal Characteristics

Symbol	Parameter	Conditions	Value	Unit
$Rth_{j\text{-}tp}$	thermal resistance from junction to tie-point		360	K/W
$Rth_{j\text{-}a}$	thermal resistance from junction to ambient	note 1	500	K/W

Electrical Characteristics

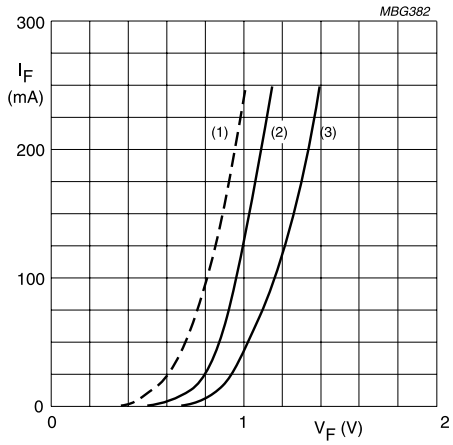
T_j=25 °C unless otherwise specified.

Symbol	Parameter	Conditions	Max.	Unit
Per diode				
V_F	forward voltage	see Fig.3		
		I_F = 1 mA	715	mV
		I_F = 10 mA	855	mV
		I_F = 50mA	1	V
		I_F = 150 mA	1.25	V
I_R	reverse current	see Fig.5		
		V_R =25V	30	nA
		V_R =75V	1	µA
		V_R =25V; T_j = 150 °C	30	µA
		V_R =75V; T_j = 150 °C	50	µA
C_d	diode capacitance	f = 1 MHz; V_R = 0; see Fig.6	1.5	pF
t_{rr}	reverse recovery time	when switched from I_F = 10 mA to I_R = 10 mA; R_L = 100 Ω; measured at I_R = 1 mA; see Fig.7	4	ns
V_{fr}	forward recovery voltage	when switched from I_F = 10 mA; t_r = 20 ns; see Fig.8	1.75	V



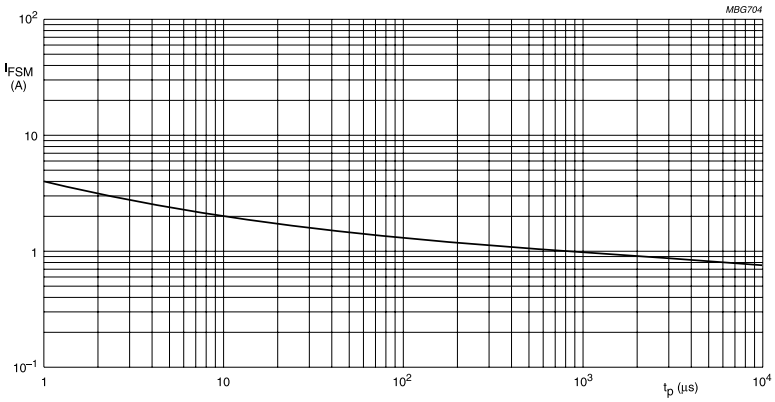
Device mounted on an FR4 printed-circuit board.

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



(1) T_j = 150 °C; typical values.
(2) T_j = 25 °C; typical values.
(3) T_j = 25 °C; maximum values.

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



Based on square wave currents.
T_j = 25 °C prior to surge.

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

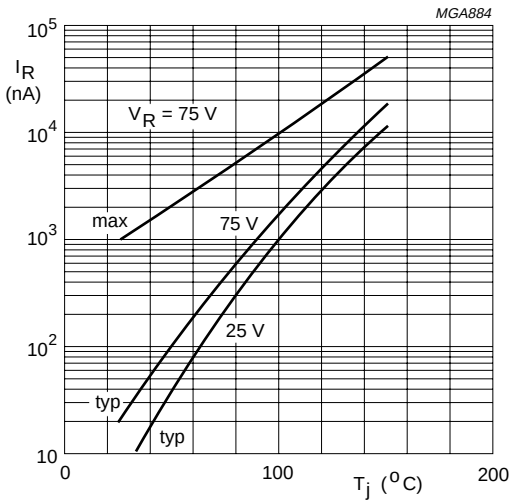


Fig.5 Reverse current as a function of junction temperature.

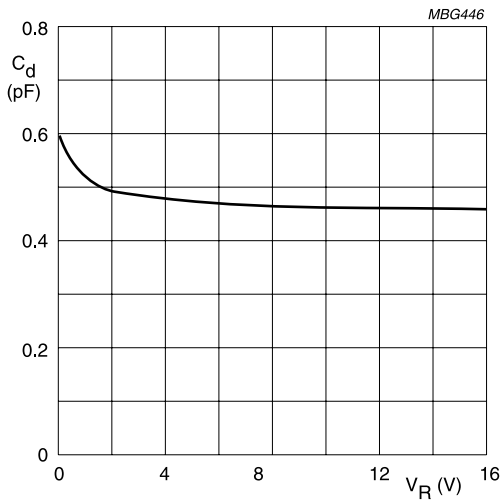
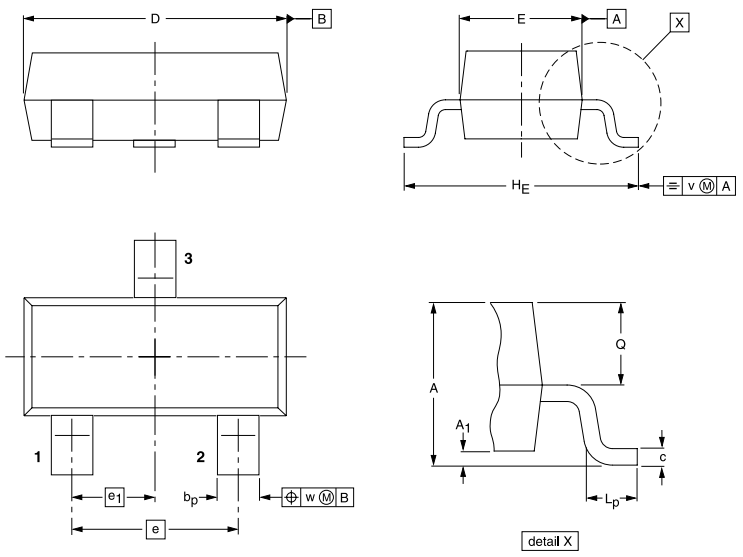


Fig.6 Diode capacitance as a function of reverse voltage; typical values.

Package Outline

Plastic surface mounted package; 3 leads

SOT23



Dimensions (mm are the original dimensions)

Unit	A	A_1 max.	b_p	c	D	E	e	e_1	H_E	L_p	Q	V	w
mm	1.1 0.9	0.1	0.48 0.38	0.15 0.09	3.0 2.8	1.4 1.2	1.9	0.95	2.5 2.1	0.45 0.15	0.55 0.45	0.2	0.1

Outline Version	References				European Projection	Issue Date
	IEC	JEDEC	EIAJ			
SOT23		TO-236AB				99-09-13