

# General purpose controlled avalanche (double) diodes

**BAS29; BAS31; BAS35**

**FEATURES**

- Small plastic SMD package
- Switching speed: max. 50 ns
- General application
- Continuous reverse voltage: max. 90 V
- Repetitive peak reverse voltage: max. 110 V
- Repetitive peak forward current: max. 600 mA
- Repetitive peak reverse current: max. 600 mA.

**APPLICATIONS**

- General purpose switching in e.g. surface mounted circuits.

**DESCRIPTION**

General purpose switching diodes fabricated in planar technology, and encapsulated in small rectangular plastic SMD SOT23 packages. The BAS29 consists of a single diode. The BAS31 has two diodes in series. The BAS35 has two diodes with a common anode.

**MARKING**

TYPE NUMBER	MARKING CODE
BAS29	L20
BAS31	L21
BAS35	L22

**PINNING**

PIN	DESCRIPTION		
	BAS29	BAS31	BAS35
1	anode	anode	cathode (k1)
2	not connected	cathode	cathode (k2)
3	cathode	common connection	common anode

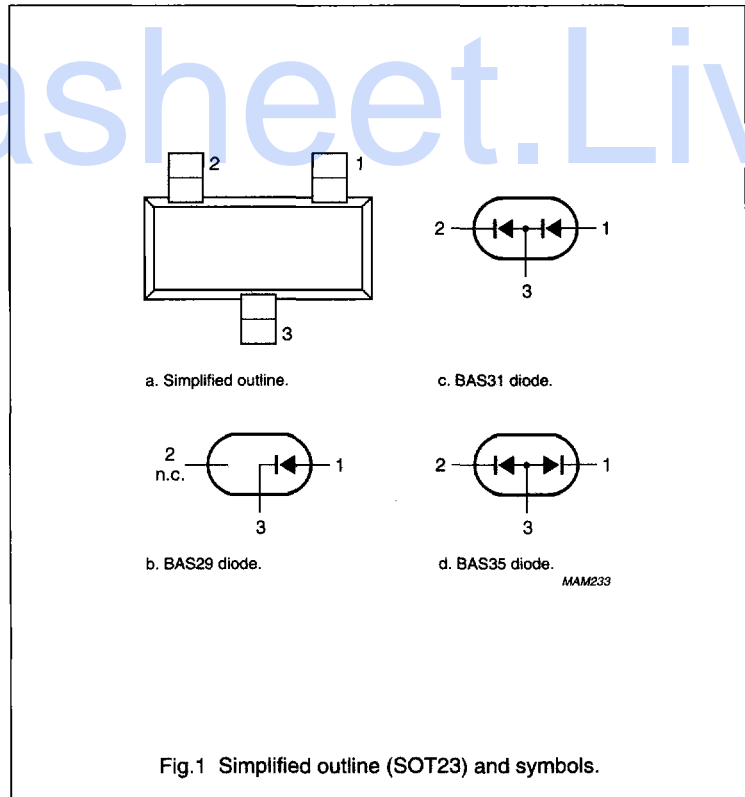


Fig.1 Simplified outline (SOT23) and symbols.

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### LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
<b>Per diode</b>					
$V_{RRM}$	repetitive peak reverse voltage		–	110	V
$V_R$	continuous reverse voltage		–	90	V
$I_F$	continuous forward current	single diode loaded; see Fig.2; note 1	–	250	mA
		double diode loaded; see Fig.2; note 1	–	150	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			
		$t = 1\ \mu\text{s}$	–	10	A
		$t = 100\ \mu\text{s}$	–	4	A
		$t = 1\ \text{s}$	–	0.75	A
$P_{tot}$	total power dissipation	$T_{amb} = 25\text{ °C}$ ; note 1	–	250	mW
$I_{RRM}$	repetitive peak reverse current		–	600	mA
$E_{RRM}$	repetitive peak reverse energy	$t_p \geq 50\ \mu\text{s}$ ; $f \leq 20\ \text{Hz}$ ; $T_j = 25\text{ °C}$	–	5.0	mJ
$T_{stg}$	storage temperature		–65	+150	°C
$T_j$	junction temperature		–	150	°C

### Note

1. Device mounted on an FR4 printed-circuit board.

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### ELECTRICAL CHARACTERISTICS

$T_j = 25\text{ °C}$ ; unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
<b>Per diode</b>					
$V_F$	forward voltage	see Fig.3			
		$I_F = 10\text{ mA}$	–	750	mV
		$I_F = 50\text{ mA}$	–	840	mV
		$I_F = 100\text{ mA}$	–	900	mV
		$I_F = 200\text{ mA}$	–	1.0	V
		$I_F = 400\text{ mA}$	–	1.25	V
$I_R$	reverse current	see Fig.5			
		$V_R = 90\text{ V}$	–	100	nA
		$V_R = 90\text{ V}; T_j = 150\text{ °C}$	–	100	$\mu\text{A}$
$V_{(BR)R}$	reverse avalanche breakdown voltage	$I_R = 1\text{ mA}$	120	170	V
$C_d$	diode capacitance	$f = 1\text{ MHz}; V_R = 0$ ; see Fig.6	–	35	pF
$t_{rr}$	reverse recovery time	when switched from $I_F = 30\text{ mA}$ to $I_R = 30\text{ mA}$ ; $R_L = 100\ \Omega$ ; measured at $I_R = 3\text{ mA}$ ; see Fig.7	–	50	ns

### THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-t_p}$	thermal resistance from junction to tie-point		360	K/W
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	500	K/W

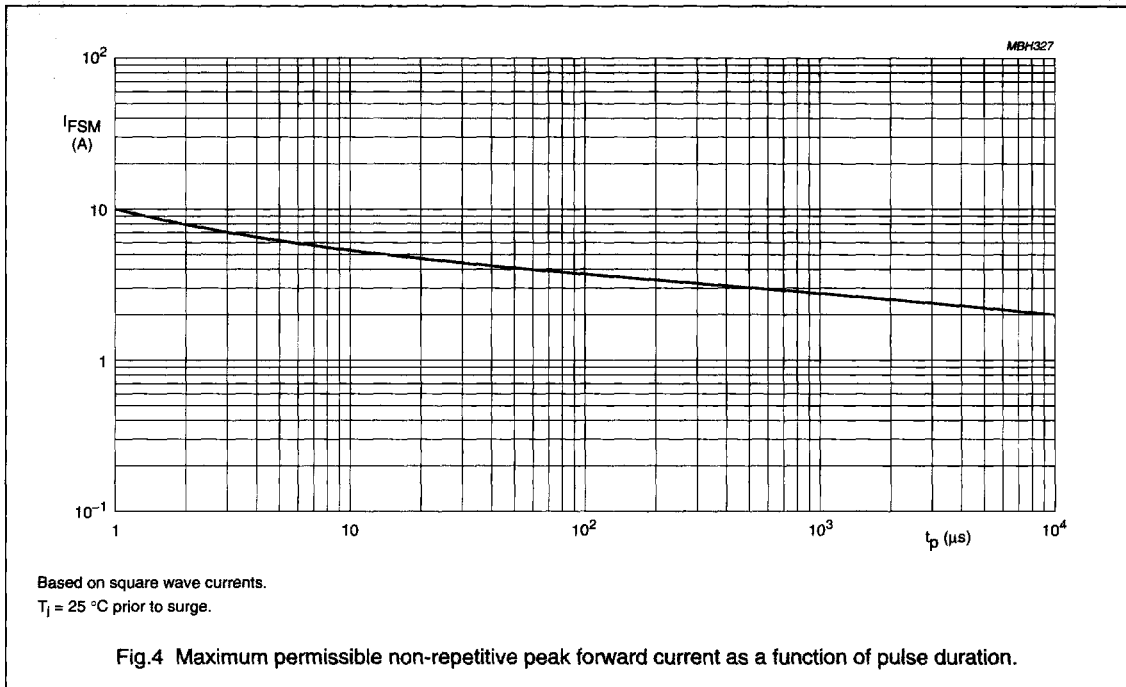
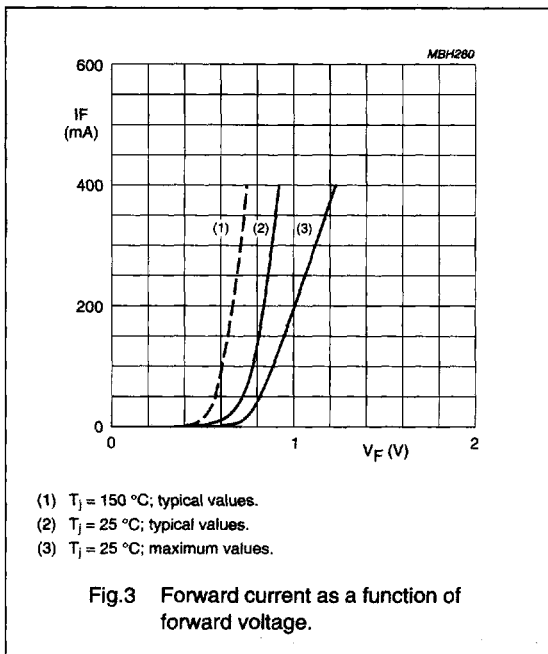
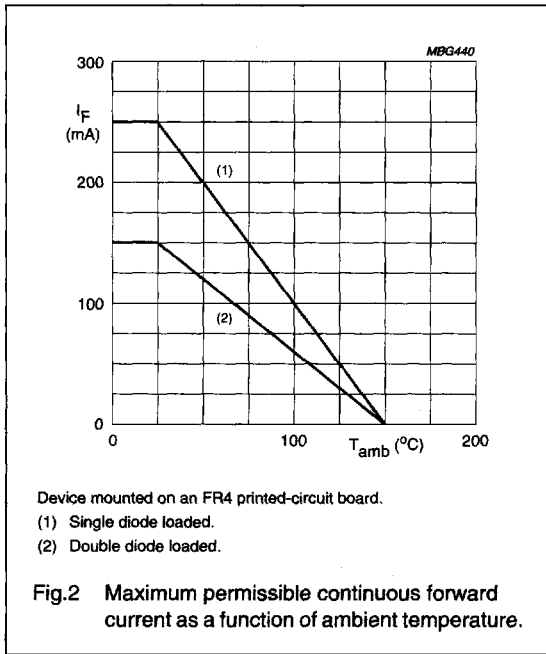
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## GRAPHICAL DATA



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