

## SILICON PLANAR EPITAXIAL HIGH-SPEED DIODES

The BAS29, BAS31 and the BAS35 are silicon planar epitaxial diodes encapsulated in a SOT-23 envelope. The BAS29 consists of a single diode. The BAS31 has two diodes in series and the BAS35 has two diodes with a common anode. All diodes are designed for switching inductive loads in semi-electronic telephone exchanges.

### QUICK REFERENCE DATA (per diode)

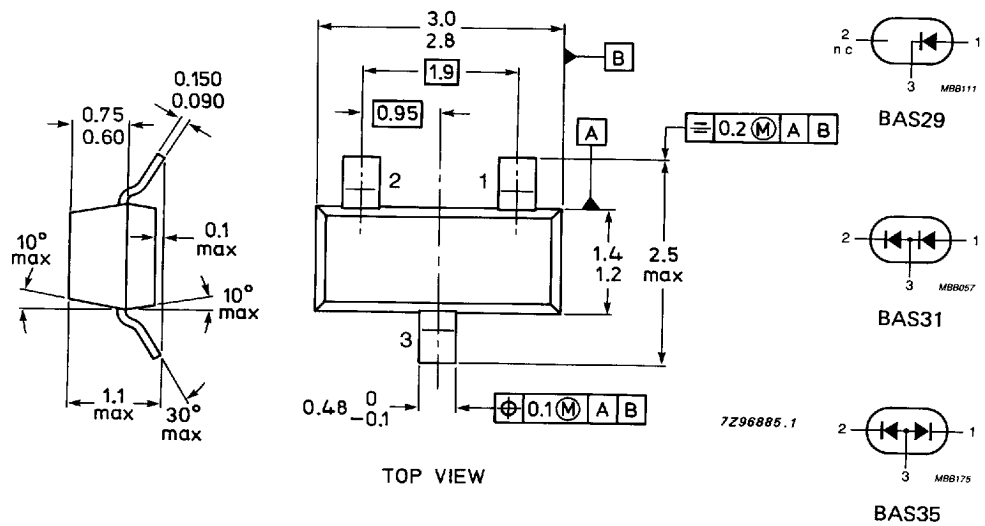
Continuous reverse voltage	$V_R$	max.	90 V
Repetitive peak forward current	$I_{FRM}$	max.	600 mA
Forward current	$I_F$	max.	250 mA
Junction temperature	$T_j$	max.	150 °C
Forward voltage at $I_F = 50$ mA	$V_F$	<	0,84 V
Reverse recovery time when switched from $I_F = 30$ mA to $I_R = 30$ mA; $R_L = 100 \Omega$ ; measured at $I_R = 3$ mA	$t_{rr}$	<	50 ns

### MECHANICAL DATA

Fig. 1 SOT-23.

Dimensions in mm

Marking code:  
 BAS29 = L20  
 BAS31 = L21  
 BAS35 = L22



**RATINGS** (per diode)

Limiting values in accordance with the Absolute Maximum System (IEC 134)

Continuous reverse voltage	$V_R$	max.	90 V
Repetitive peak forward current	$I_{FRM}$	max.	600 mA
Repetitive peak reverse current	$I_{RRM}$	max.	600 mA
Average rectified forward current (averaged over any 20 ms period)	$I_{F(AV)}$	max.	250 mA
Non-repetitive peak forward current			
$t = 1 \mu s; T_j = 25 \text{ }^\circ\text{C}$ prior to surge; per crystal	$I_{FSM}$	max.	3 A
$t = 1 \text{ s}; T_j = 25 \text{ }^\circ\text{C}$ prior to surge; per crystal			0,75 A
Forward current (DC)	$I_F$	max.	250 mA
Repetitive peak reverse energy			
$t_p \geq 50 \mu s; f \leq 20 \text{ Hz}; T_j = 25 \text{ }^\circ\text{C}$	$E_{RRM}$	max.	5,0 mJ
Storage temperature	$T_{stg}$		-65 to + 150 $^\circ\text{C}$
Junction temperature	$T_j$	max.	150 $^\circ\text{C}$

**THERMAL RESISTANCE\***

From junction to ambient**	$R_{thj-a}$	=	430 K/W
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**CHARACTERISTICS** (per diode)

$T_j = 25 \text{ }^\circ\text{C}$  unless otherwise specified

Forward voltage			
$I_F = 10 \text{ mA}$	$V_F$	<	0,75 V
$I_F = 50 \text{ mA}$	$V_F$	<	0,84 V
$I_F = 100 \text{ mA}$	$V_F$	<	0,90 V
$I_F = 200 \text{ mA}$	$V_F$	<	1,00 V
$I_F = 400 \text{ mA}$	$V_F$	<	1,25 V
Reverse current			
$V_R = 90 \text{ V}$	$I_R$	<	100 nA
$V_R = 90 \text{ V}; T_j = 150 \text{ }^\circ\text{C}$	$I_R$	<	100 $\mu\text{A}$
Reverse avalanche breakdown voltage			
$I_R = 1 \text{ mA}$	$V_{(BR)R}$		120 to 175 V
Diode capacitance			
$V_R = 0; f = 1 \text{ MHz}$	$C_d$	<	35 pF
Reverse recovery time when switched from			
$I_F = 30 \text{ mA}$ to $I_R = 30 \text{ mA}; R_L = 100 \Omega;$			
measured at $I_R = 3 \text{ mA}$	$t_{rr}$	<	50 ns

\* See Thermal Characteristics.

\*\* When mounted on a ceramic substrate of 8 mm x 10 mm x 0,7 mm.