

SILICON PLANAR VARIABLE CAPACITANCE DIODE

The BB249 is a variable capacitance diode in a miniature glass envelope intended for electronic tuning in v.h.f. television tuners with extended band I (FCC and OIRT-norm).

Diodes are supplied in matched sets (minimum 120 pieces and divisible by 12) and the capacitance difference between any two diodes in one set is less than 3% over the voltage range from 0,5 V to 28 V.

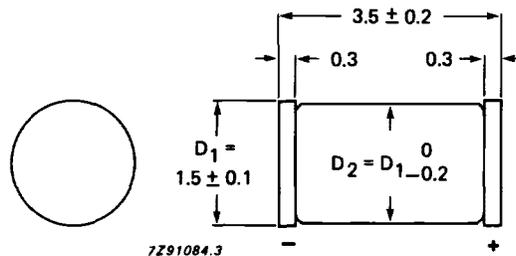
QUICK REFERENCE DATA

Continuous reverse voltage	V_R	max.	28 V
Reverse current at $V_R = 28$ V	I_R	max.	10 nA
Diode capacitance at $f = 500$ kHz			
$V_R = 1$ V	C_d		39 to 46 pF
$V_R = 28$ V	C_d		4,0 to 5,0 pF
Capacitance ratio at $f = 500$ kHz	$\frac{C_d (V_R = 1 \text{ V})}{C_d (V_R = 28 \text{ V})}$		8 to 10
Series resistance at $f = 200$ MHz			
V_R is that value at which $C_d = 25$ pF.	r_s	max.	0,6 Ω

MECHANICAL DATA

Dimensions in mm

Fig.1 SOD-80.



Cathode indicated by black band.

RATINGS

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

Continuous reverse voltage	V_R	max.	28 V
Reverse voltage (peak value)	V_{RM}	max.	30 V
Forward current (d.c.)	I_F	max.	20 mA
Storage temperature	T_{stg}		-55 to + 150 °C
Operating junction temperature	T_j	max.	100 °C

THERMAL RESISTANCE

From junction to ambient in free air	$R_{th\ j-a}$	=	0,6 K/mW
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CHARACTERISTICS

$T_{amb} = 25\text{ °C}$ unless otherwise specified

Reverse current

$V_R = 28\text{ V}$	I_R	max.	10 nA
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$V_R = 28\text{ V}; T_{amb} = 25\text{ °C}$	I_R	max.	200 nA
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Diode capacitance at $f = 500\text{ kHz}$

$V_R = 1\text{ V}$	C_d		39 to 46 pF
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$V_R = 28\text{ V}$	C_d		4,0 to 5,0 pF
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Capacitance ratio at $f = 500\text{ kHz}$

$$\frac{C_d (V_R = 1\text{ V})}{C_d (V_R = 28\text{ V})} \quad 8\text{ to }10$$

Series resistance at $f = 200\text{ MHz}$

V_R is that value at which $C_d = 25\text{ pF}$	r_s	max.	0,6 Ω
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Relative capacitance difference

between two diodes; $V_R = 0,5\text{ to }28\text{ V}$	$\frac{\Delta C}{C}$	max.	3 %
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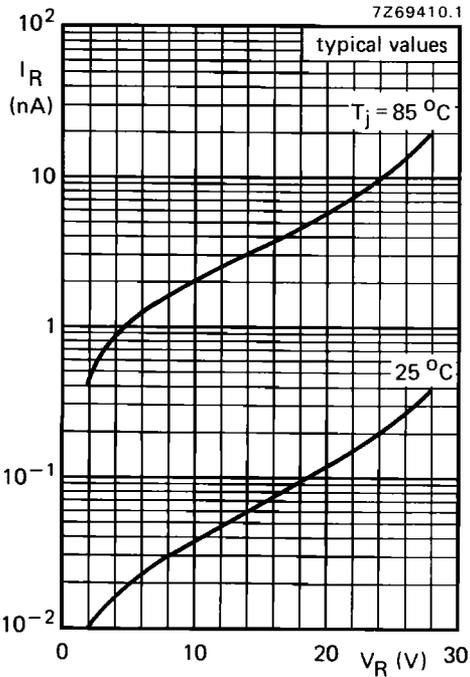


Fig. 2 Typical values.

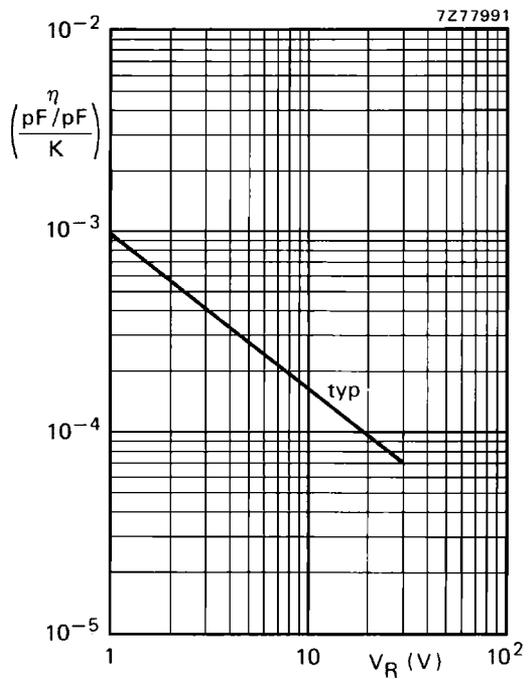


Fig. 3 Temperature coefficient of the diode capacitance; $T_{\text{amb}} = 0$ to 85°C .

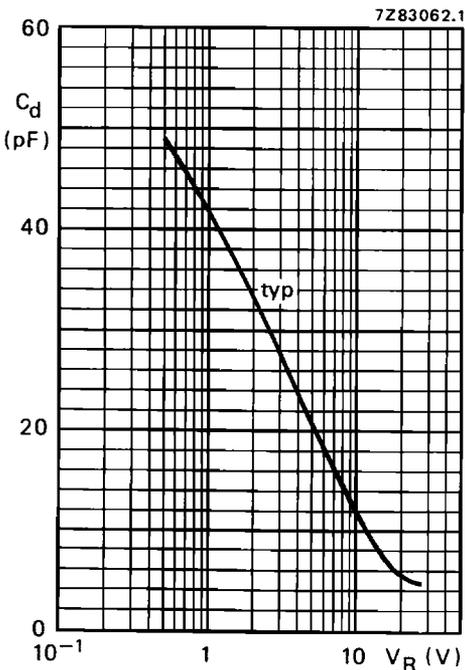


Fig. 4 $f = 500$ kHz; $T_{\text{amb}} = 25^\circ\text{C}$.

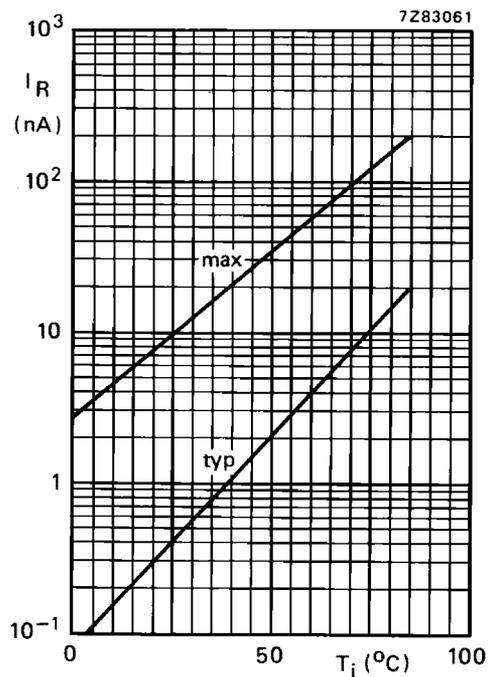


Fig. 5 $V_R = 28$ V.