

T-07-19

SILICON PLANAR VARIABLE CAPACITANCE DIODE

The BB909 is a variable capacitance diode in a glass envelope intended for electronic tuning in v.h.f. television tuners for C.A.T.V. applications.

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 2,5% over the voltage range from 1 V to 28 V.

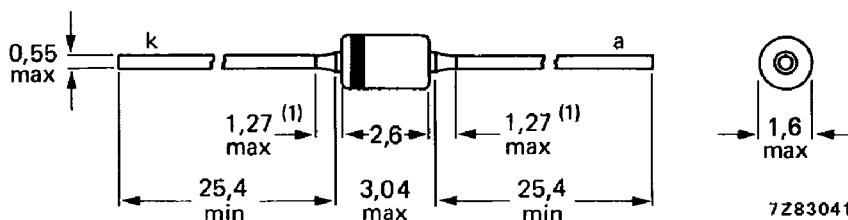
QUICK REFERENCE DATA

Reverse voltage (peak value)	V_{RM}	max.	32 V
Reverse current at $V_R = 28$ V	I_R	<	10 nA
Diode capacitance at $f = 0,5$ MHz			
$V_R = 1$ V	C_d	BB909A	BB909B
$V_R = 28$ V	C_d	> 31	33,5 pF
		2,6–3,0	2,8–3,2 pF
Capacitance ratio at $f = 0,5$ MHz	$\frac{C_d(V_R = 1\text{ V})}{C_d(V_R = 28\text{ V})}$		12–15
Series resistance at $f = 100$ MHz			
V_R is that value at which $C_d = 30$ pF	r_s	typ.	0,7 Ω
		<	0,9 Ω

MECHANICAL DATA

Dimensions in mm

Fig. 1 DO-34 (SOD-68).



(1) Lead diameter in this zone uncontrolled.

BB909B : green cathode ring; body black coloured.

BB909A : additional red band.

BB909A
BB909B

56E D █ 7110826 0040410 T95 █ PHIN

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RATINGS

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

Reverse voltage (peak value)	V_{RM}	max.	32 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_{thj-a}	=	0,6 K/mW
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CHARACTERISTICS

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

Reverse current

$V_R = 28$ V	I_R	<	10 nA
$V_R = 28$ V; $T_{amb} = 85$ °C	I_R	<	200 nA

Diode capacitance at $f = 0,5$ MHz

	BB909A	BB909B
$V_R = 1$ V	$C_d > 31$	$C_d > 33,5$ pF
$V_R = 3$ V	C_d typ. 23	25 pF
$V_R = 28$ V	C_d 2,6-3,0	2,8-3,2 pF

Capacitance ratio at $f = 0,5$ MHz

$$\frac{C_d (V_R = 1 \text{ V})}{C_d (V_R = 28 \text{ V})} \quad 12-15$$

Series resistance at $f = 100$ MHz

V_R is that value at which $C_d = 30$ pF

r_s	typ.	0,7 Ω
	<	0,9 Ω

Tolerance of the capacitance difference between two diodes at $V_R = 1$ to 28 V

$\frac{\Delta C}{C}$	<	2,5 %
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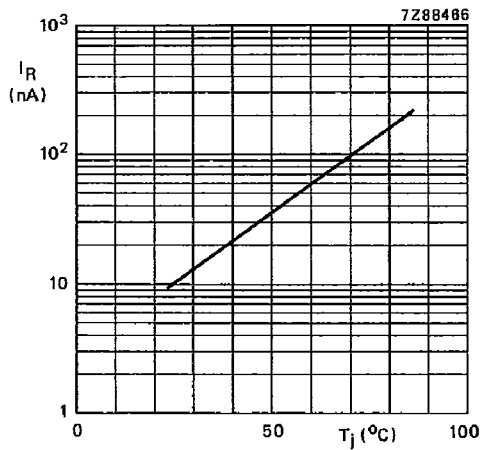


Fig. 2 Reverse current as a function of junction temperature at $V_R = 28$ V.

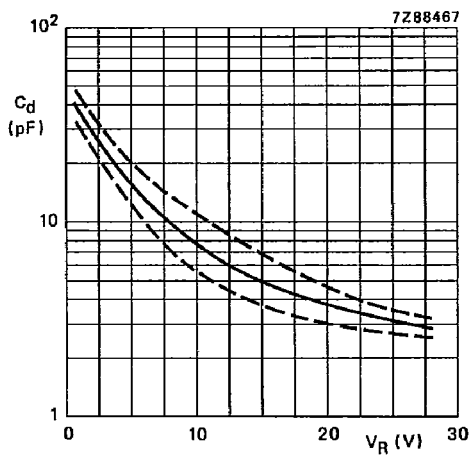


Fig. 3 Diode capacitance as a function of reverse voltage.

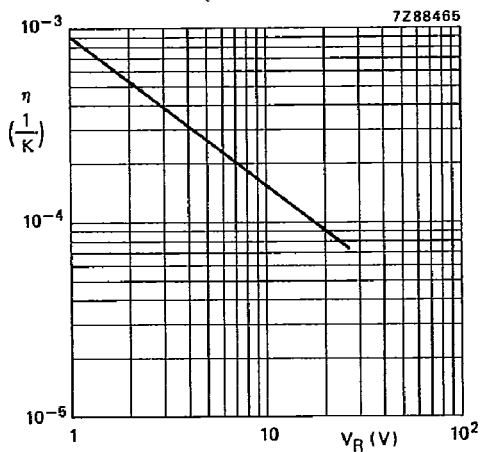


Fig. 4 Temperature coefficient of the diode capacitance as a function of reverse voltage at $T_j = 0$ to 85 °C.