# SILICON PLANAR VARIABLE CAPACITANCE DIODE

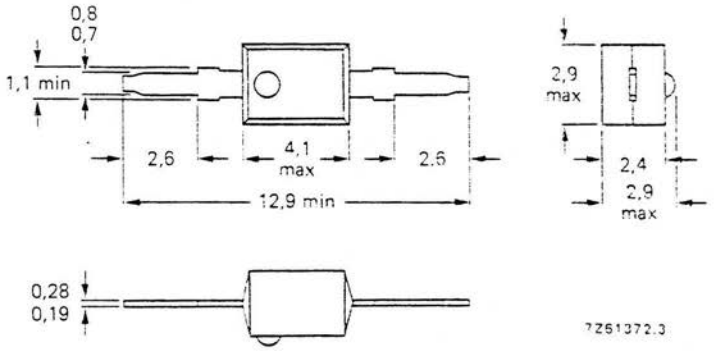
The BB106 is a variable capacitance diode in a plastic envelope intended for electronic tuning in v.h.f. tuners with extended band I (FCC norm).
Diodes will be supplied in matched sets.
The capacitance difference between any two diodes in one set is less than 3% over the voltage range from 0,5 V to 28 V.

| QUICK REFERENCE DATA | | | | |
|---|---|---|---|---|
| Continuous reverse voltage | $V_R$ | max. | 28 | V |
| Reverse current at $V_R$ = 28 V | $I_R$ | < | 50 | nA |
| Diode capacitance at f = 500 kHz | | | | |
| $V_R$ = 3 V | $C_d$ | > | 20 | pF |
| $V_R$ = 25 V | $C_d$ | 4,0 to | 5,6 | pF |
| Capacitance ratio at f = 500 kHz | $\frac{C_d\ (V_R = 3\ V)}{C_d\ (V_R = 25\ V)}$ | 4,5 to | 6,0 | |
| Series resistance at f = 200 MHz<br>$V_R$ is that value at which $C_d$ = 25 pF | $r_D$ | typ.<br>< | 0,4<br>0,6 | Ω<br>Ω |

MECHANICAL DATA

Dimensions in mm

SOD-23




The red band indicates the cathode

The sealing of the plastic envelope withstands the accelerated damp heat test of IEC recommendation 68-2 (test D, severity IV, 6 cycles).

**RATINGS** Limiting values in accordance with the Absolute Maximum System (IEC134)

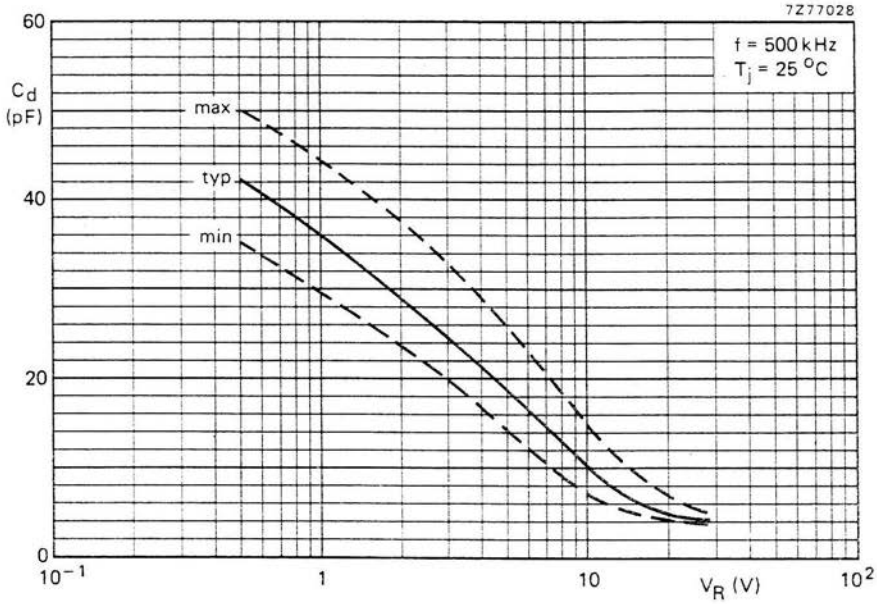
| | | | | |
|---|---|---|---|---|
| Voltages | | | | |
| Continuous reverse voltage | $V_R$ | max. | 28 | V |
| Reverse voltage (peak value) | $V_{RM}$ | max. | 30 | V |
| Current | | | | |
| Forward current (d.c.) | $I_F$ | max. | 20 | mA |
| Temperatures | | | | |
| Storage temperature | $T_{stg}$ | −55 to +100 | | °C |
| → Operating junction temperature | $T_j$ | max. | 85 | °C |

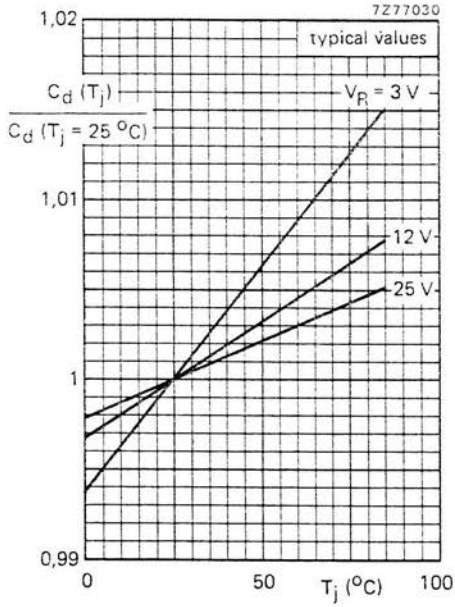
**THERMAL RESISTANCE**

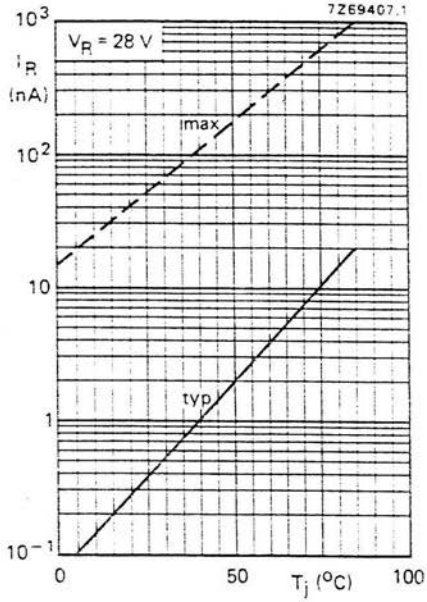
| | | | | |
|---|---|---|---|---|
| From junction to ambient in free air | $R_{th\ j\text{-}a}$ | = | 0,4 | °C/mW |

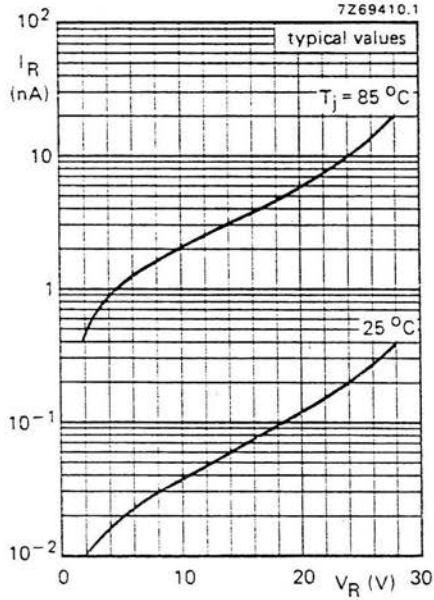
**CHARACTERISTICS** $T_{amb}$ = 25 °C unless otherwise specified

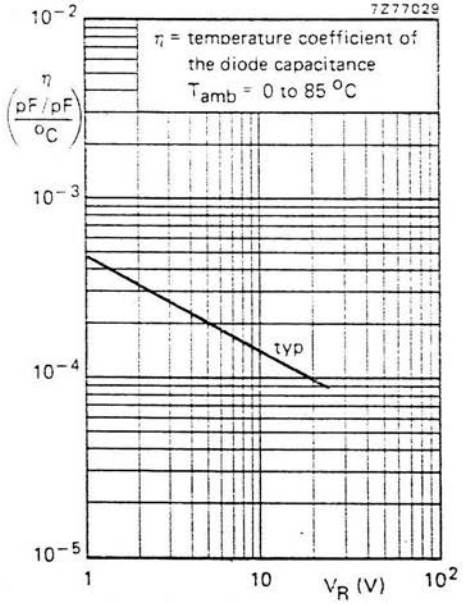
| | | | | |
|---|---|---|---|---|
| Reverse current | | | | |
| $V_R$ = 28 V | $I_R$ | < | 50 | nA |
| → $V_R$ = 28 V; $T_{amb}$ = 85 °C | $I_R$ | < | 1000 | nA |
| Diode capacitance at f = 500 kHz | | | | |
| $V_R$ = 3 V | $C_d$ | > | 20 | pF |
| $V_R$ = 25 V | $C_d$ | 4,0 to 5,6 | | pF |
| Capacitance ratio at f = 500 kHz | $\frac{C_d(V_R = 3\ V)}{C_d(V_R = 25\ V)}$ | 4,5 to 6,0 | | |
| Series resistance at f = 200 MHz | | | | |
| $V_R$ is that value at which $C_d$ = 25 pF | $r_D$ | typ.<br>< | 0,4<br>0,6 | Ω<br>Ω |


7Z77028
f = 500 kHz
$T_j$ = 25 °C
$C_d$ (pF)
max
typ
min
60
40
20
0
$10^{-1}$
1
10
$V_R$ (V)
$10^2$


7Z77030
typical values
$\frac{C_d (T_j)}{C_d (T_j = 25\ °C)}$
$V_R$ = 3 V
12 V
25 V
1,02
1,01
1
0,99
0
50
100
$T_j$ (°C)


7Z69407.1
$10^3$
$V_R$ = 28 V
$I_R$ (nA)
imax
$10^2$
10
typ
1
$10^{-1}$
0
50
$T_j$ (°C)
100


7Z69410.1
$10^2$
typical values
$I_R$ (nA)
$T_j$ = 85 °C
10
1
25 °C
$10^{-1}$
$10^{-2}$
0
10
20
$V_R$ (V)
30


7Z77029
$10^{-2}$
$\eta$ = temperature coefficient of the diode capacitance
$T_{amb}$ = 0 to 85 °C
$\eta$ $\left(\frac{pF/pF}{°C}\right)$
$10^{-3}$
typ
$10^{-4}$
$10^{-5}$
1
10
$V_R$ (V)
$10^2$