SGS-THOMSON MICROELECTRONICS

# 1N5335B / 1N5388B

## 5W ZENER DIODES

### FEATURES

- VOLTAGE RANGE : 3.9 V to 200 V
- HERMETICALLY SEALED PLASTIC CASE
- HIGH SURGE CAPABILITY : 180 W (8.3 ms) .

**CB417**

### DESCRIPTION

5 W Zener diodes.

**ABSOLUTE RATINGS** (Tamb = 25°C)

| Symbol | Parameter | | Value | Unit |
|---|---|---|---|---|
| P | Power dissipation on infinite heatsink | $T_{amb}$ = 75°C | 5 | W |
| $T_{stg}$<br>$T_j$ | Storage temperature range<br>Maximum junction temperature | | - 65 to + 200<br>200 | °C<br>°C |
| $T_L$ | Maximum lead temperature for soldering during 10s at 5mm from case | | 230 | °C |

**THERMAL RESISTANCES**

| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $R_{th}$ (j-a) | Junction to lead | 25 | °C/W |
| $R_{th}$(j-a) | Junction to ambient on printed circuit with recommended pad layout. | 75 | °C/W |

**ELECTRICAL CHARACTERISTIC** (Tamb= 25°C)

| TYPES | $V_{ZT}$ @ $I_{ZT}$ nom. (1) | $I_{ZT}$ (1) | $R_{ZT}$ @ $I_{ZT}$ max. (1) | $R_{ZK}$ @ $I_{ZK}$ max. 1.0mA | $I_R$ @ $V_R$ max. | | $\alpha V_Z$ typ. | $I_{ZM}$ max. $T_{amb}$=75°C (2) | $\Delta V_Z$ max. (3) | $I_{ZSM}$ max. (4) |
|---|---|---|---|---|---|---|---|---|---|---|
| | V | mA | Ω | Ω | µA | V | $10^{-4}$/°C | mA | V | A |
| 1N5335B | 3.9 | 320 | 2.0 | 500 | 50 | 1.0 | -5 | 1220 | 0.54 | 18.8 |
| 1N5339B | 5.6 | 220 | 1.0 | 400 | 1 | 2.0 | 2.5 | 865 | 0.25 | 13.1 |
| 1N5342B | 6.8 | 175 | 1.0 | 200 | 10 | 5.2 | 4 | 700 | 0.15 | 10.8 |
| 1N5344B | 8.2 | 150 | 1.5 | 200 | 10 | 6.2 | 4.8 | 580 | 0.20 | 8.9 |
| 1N5347B | 10 | 125 | 2.0 | 125 | 5 | 7.6 | 5.5 | 475 | 0.22 | 7.3 |
| 1N5349B | 12 | 100 | 2.5 | 125 | 2 | 9.1 | 6.5 | 395 | 0.25 | 10.1 |
| 1N5352B | 15 | 75 | 2.5 | 75 | 1 | 11.5 | 7 | 315 | 0.25 | 8.1 |
| 1N5355B | 18 | 65 | 2.5 | 75 | 0.5 | 13.7 | 7.5 | 264 | 0.40 | 6.7 |
| 1N5359B | 24 | 50 | 3.5 | 100 | 0.5 | 18.2 | 8 | 198 | 0.55 | 5.0 |
| 1N5361B | 27 | 50 | 5.0 | 120 | 0.5 | 20.6 | 8.5 | 176 | 0.60 | 4.5 |
| 1N5363B | 30 | 40 | 8.0 | 140 | 0.5 | 22.8 | 8.5 | 158 | 0.60 | 4.0 |
| 1N5365B | 36 | 30 | 11 | 160 | 0.5 | 27.4 | 9 | 132 | 0.65 | 3.4 |
| 1N5366B | 39 | 30 | 14 | 170 | 0.5 | 29.7 | 9 | 122 | 0.65 | 3.1 |
| 1N5383B | 150 | 8 | 330 | 1500 | 0.5 | 114 | 9.5 | 31.6 | 3 | 0.81 |
| 1N5388B | 200 | 5 | 480 | 1850 | 0.5 | 152 | 10 | 23.6 | 5 | 0.60 |

Note 1 : Pulse test : tp ≤ 50ms δ < 2%
Note 2 : On infinite heatsink : L = 10mm
Note 3 : Measured between 10 % and 50 % of $I_{ZM}$
Note 4 : rectangular waveform (tp = 10ms)
Tolerance on nominal VZT : ± 5 %
Forward voltage drop : $V_F \leq 1.2$ V (Tamb = 25°C, $I_F$ = 1A)

**Fig. 1 :** Power dissipation versus ambient temperature.

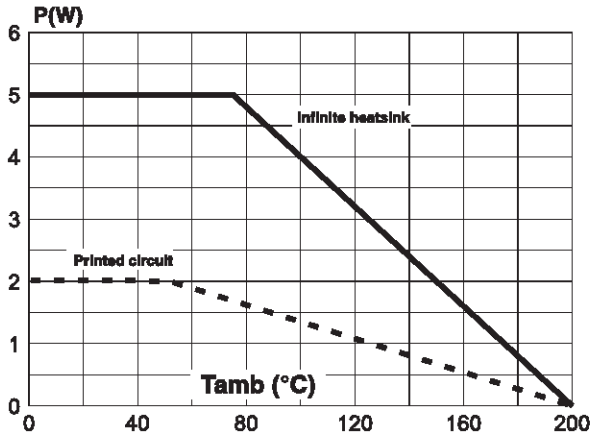



**Fig. 2 :** Thermal resistance versus lead length.

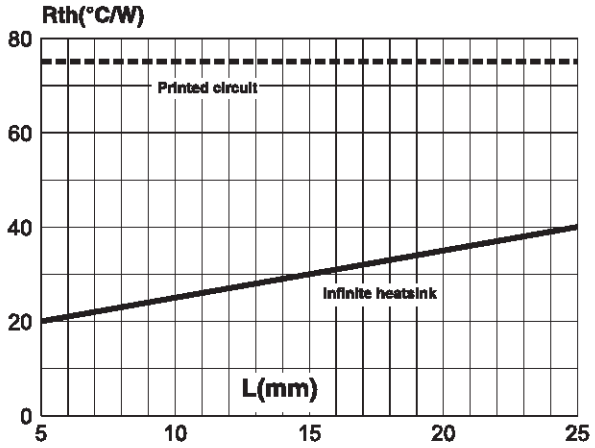


**Fig. 3 :** Relative variation of thermal impedance junction to ambient versus pulse duration (PC board FR4, $L_{leads}$ = 10mm).

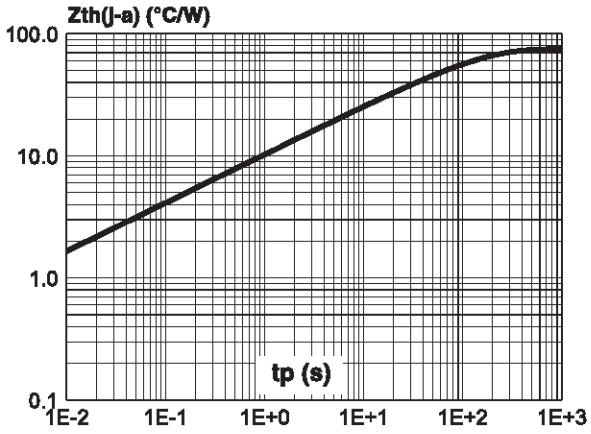



**Fig. 4 :** Capacitance versus reverse applied voltage.

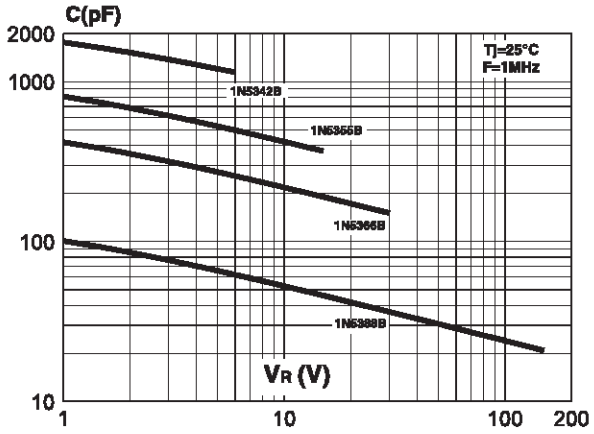



**Fig. 5 :** Peak forward current versus peak forward voltage drop (typical values).

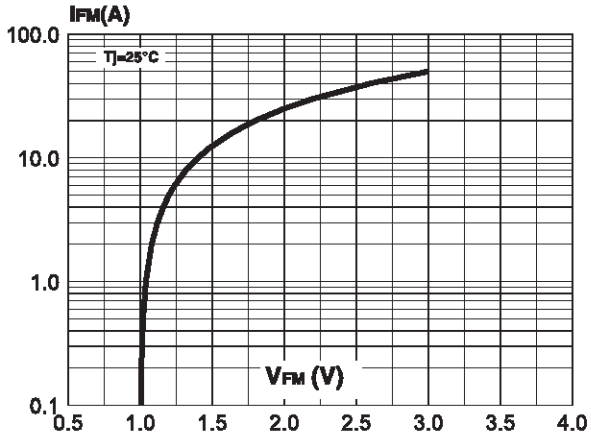



**Fig. 6 :** Reverse current versus regulation voltage (typical values).

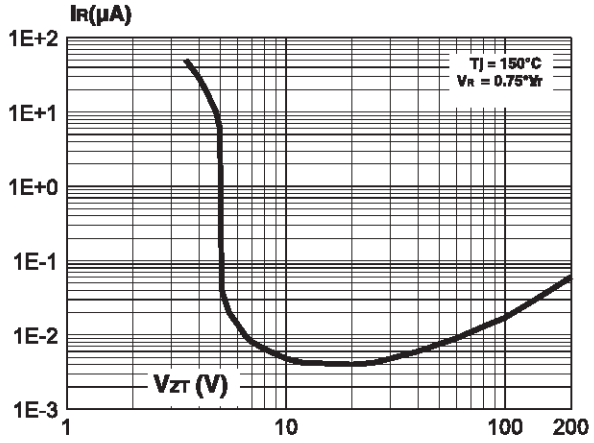



**Fig. 7 :** Differential resistance versus regulation voltage (typical values).

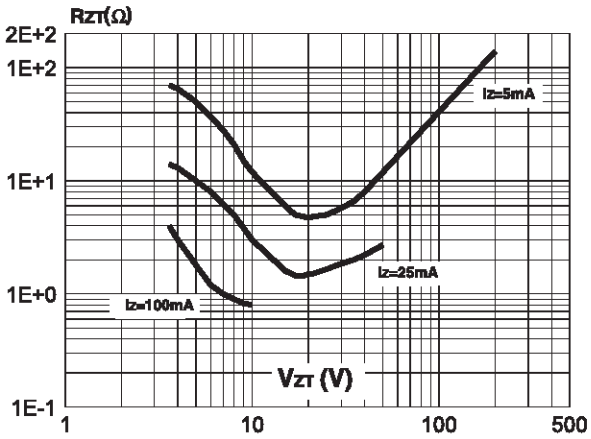
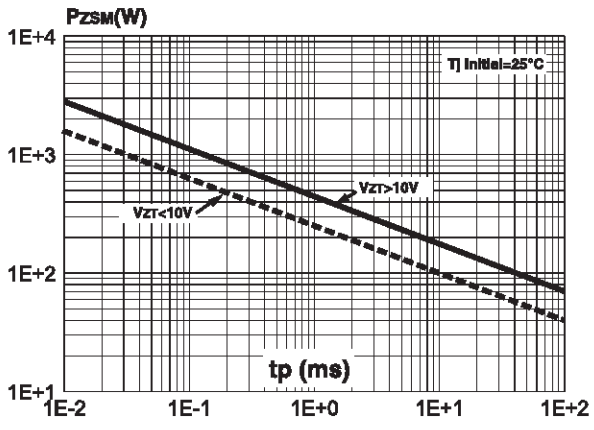
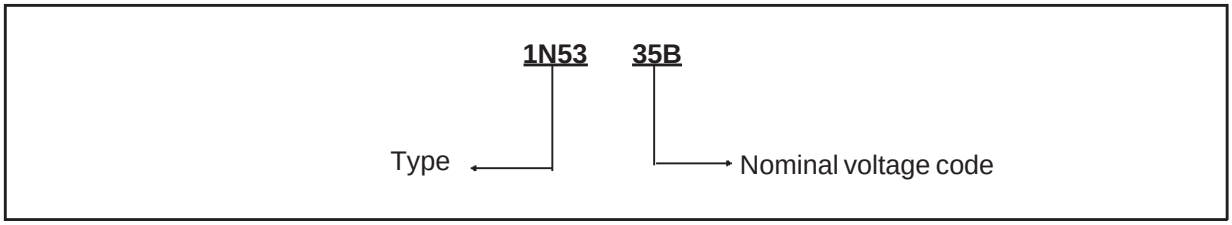



**Fig. 8 :** Peak pulse power versus pulse duration (rectangular waveform) (maximum values).



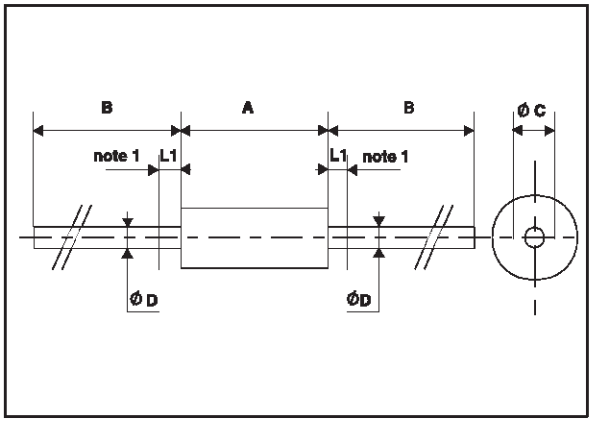
**MARKING :** Logo, Date Code, Type Code, Cathode Band (for unidirectional types only).

**ORDER CODE**




**PACKAGE MECHANICAL DATA**

CB417 (Plastic)




| REF. | DIMENSIONS | | | |
|---|---|---|---|---|
| | Millimetres | | Inches | |
| | Min. | Max. | Min. | Max. |
| A | | 8.89 | | 0.350 |
| B | 25.4 | | 1.000 | |
| ∅C | | 3.683 | | 0.145 |
| ∅ D | | 1.092 | | 0.043 |
| L1 | | 1.270 | | 0.050 |
| Note 1 : The lead is not controlled within zone L1. | | | | |

**Packaging** : standard packaging is in tape and reel.

**Weight** = 0.65 g.