

# 500mw ZENER DIODE BZY88-C2V7 ~ BZY88-C33

NEC Type BZY88- Series are DHD (Double Heatsink Diode) construction planar type zener diodes possessing an allowable power dissipation of 500m watt.

**FEATURES**

- DHD (Double Heatsink Diode) Construction.
- Planar process.
- DO35 Glass sealed package.

**APPLICATIONS**

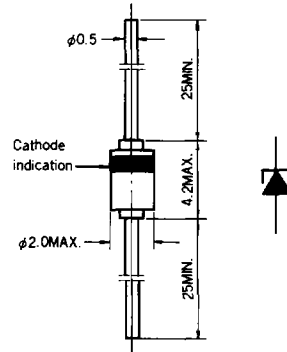
Circuits for,  
Constant Voltage, Constant Current,  
Waveform clipper, Surge absorber, etc.

**MAXIMUM RATINGS**

Power Dissipation (P)	500mW (See Fig. 1)
Junction Temperature (T <sub>j</sub> )	175°C
Storage Temperature (T <sub>stg</sub> )	- 65 to +175°C
Thermal Resistance (R <sub>th(j-a)</sub> )	300°C/W*

\*Valid provided that leads are kept at ambient temperature at a distance of 8mm from case.

**OUTLINE DRAWING (Unit : mm)**



ELECTRICAL CHARACTERISTICS (T<sub>a</sub> = 25°C)

Type Number	*Zener Voltage V <sub>Z</sub> (V) at I <sub>Z</sub> = 5mA		Dynamic Impedance Z <sub>Z</sub> (Ω) at I <sub>Z</sub> = 5mA	Dynamic Knee Impedance Z <sub>Zk</sub> (Ω) at I <sub>Z</sub> = 1mA	Reverse Voltage (V) V <sub>R</sub> (V) at I <sub>r</sub> = 100nA	Temp. Coeff. of V <sub>Z</sub> γ <sub>Z</sub> (10 <sup>-4</sup> /°C)
	Min.	Max.	Max.	Max.	Min.	Nominal
BZY88-C2V7	2.5	2.9	83	500	—	-6.0
-C3V0	2.8	3.2	90	500	—	-6.0
-C3V3	3.1	3.5	90	500	—	-5.5
-C3V6	3.4	3.8	90	500	—	-5.0
-C3V9	3.7	4.1	90	500	—	-3.5
-C4V3	4.0	4.6	90	500	—	-1.0
-C4V7	4.4	5.0	78	500	—	+1.0
-C5V1	4.8	5.4	60	480	0.8	+2.0
-C5V6	5.2	6.0	40	400	1.0	+2.5
-C6V2	5.8	6.6	10	200	2.0	+3.0
-C6V8	6.4	7.2	8	150	3.0	+4.0
-C7V5	7.0	7.9	7	50	5.0	+5.0
-C8V2	7.7	8.7	7	50	6.0	+5.5
-C9V1	8.5	9.6	10	50	7.0	+6.0
-C10	9.4	10.6	15	70	7.5	+6.5
-C11	10.4	11.6	20	70	8.5	+7.0
-C12	11.4	12.7	20	90	9.0	+7.0
-C13	12.4	14.1	25	110	10.0	+7.0
-C15	13.8	15.6	30	110	11.0	+7.5
-C16	15.3	17.1	40	170	12.0	+7.5
-C18	16.8	19.1	50	170	14.0	+8.0
-C20	18.8	21.2	50	220	15.0	+8.0
-C22	20.8	23.3	55	220	17.0	+8.0
-C24	22.8	25.6	80	220	18.0	+8.0
-C27	25.1	28.9	80	250	20.0	+8.0
-C30	28.0	32.0	80	250	22.5	+8.0
-C33	31.0	35.0	80	250	25.0	+8.0

Note : \*tested with pulse

Fig. 1 P - Ta Rating

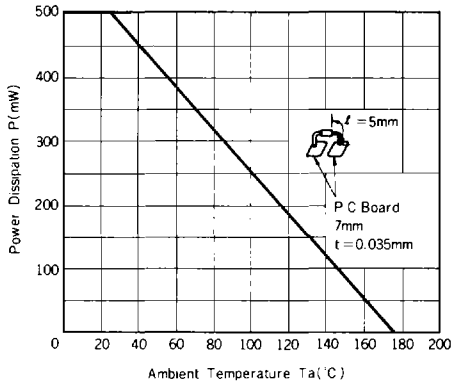


Fig. 2 R<sub>th</sub> - S Characteristic

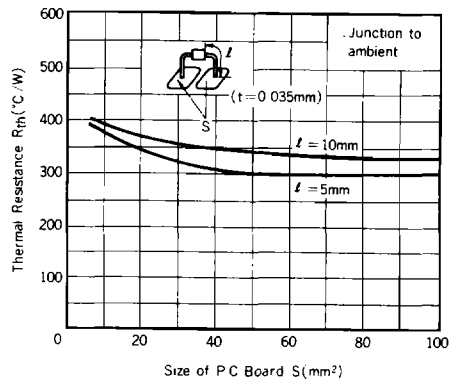


Fig. 3 U<sub>Z</sub> - I<sub>Z</sub> Characteristic

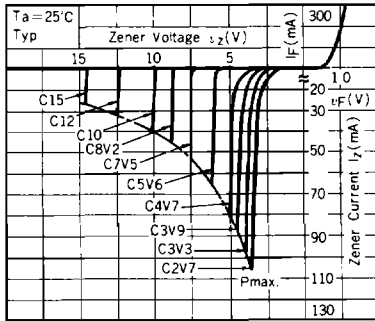


Fig. 4 U<sub>Z</sub> - I<sub>Z</sub> Characteristic

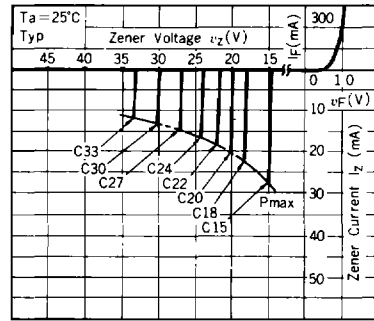


Fig. 5 Z<sub>Z</sub> - I<sub>Z</sub> Characteristic

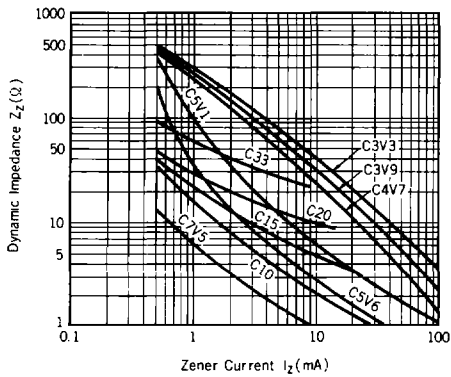


Fig. 6 Z<sub>Z</sub> - V<sub>Z</sub> Characteristic

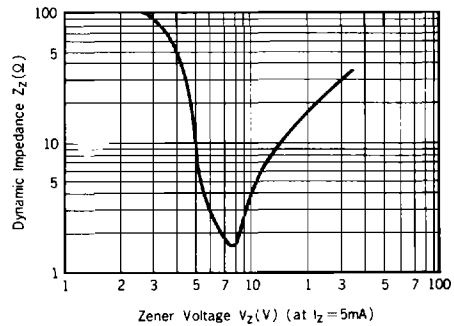


Fig. 7  $\gamma_{zth} - V_z$  Characteristic

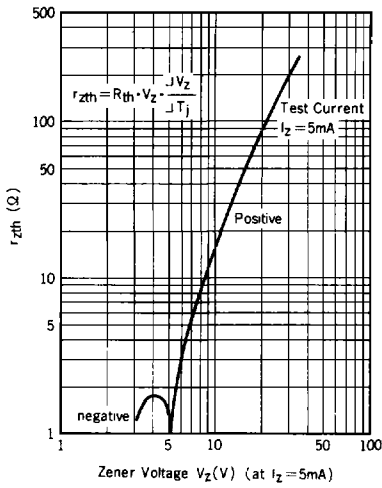


Fig. 8  $\gamma_z - V_z$  Characteristic

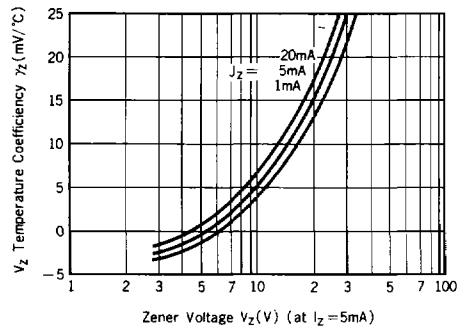


Fig. 9  $\Delta V_z - T_a$  Characteristic

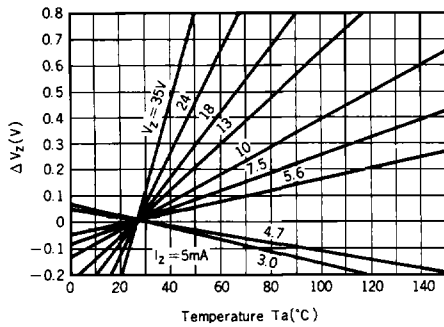


Fig. 10  $\Delta V_z - V_z$  Characteristic

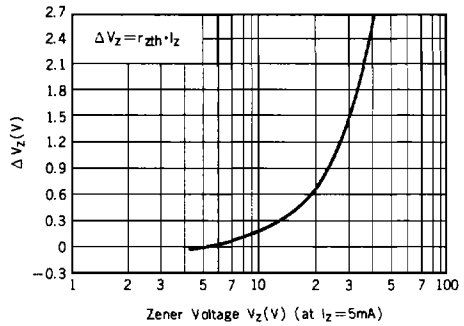


Fig. 11 PRSM Rating

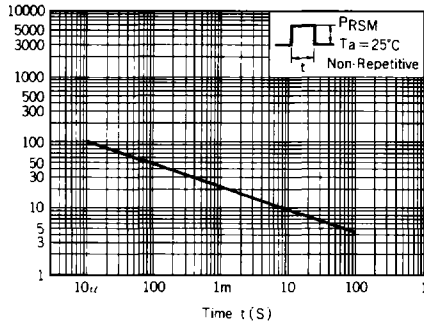


Fig. 12  $Z_{th}$  Characteristic

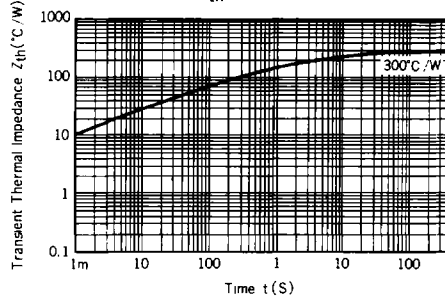
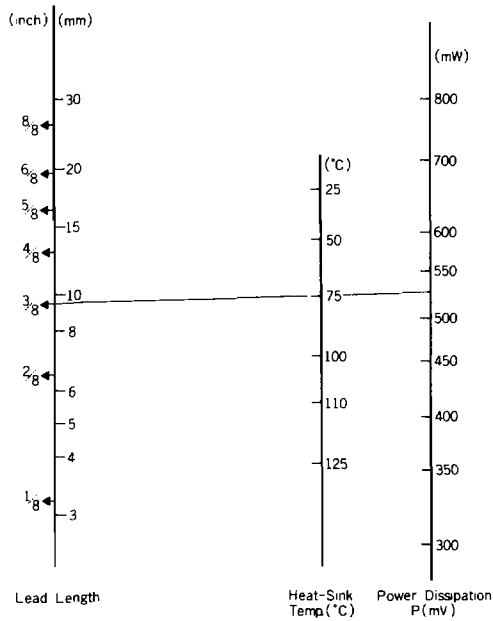


Fig. 13 Power Dissipation Nomogram



**Example of use of power dissipation nomogram**

Given : Lead length = 8 (mm)

Heat sink temperature =  $25^\circ\text{C}$

Problem : Determine power dissipation of the zener diode

Solution : As shown on dashed line on nomogram,  $P = 525$  (mW)