

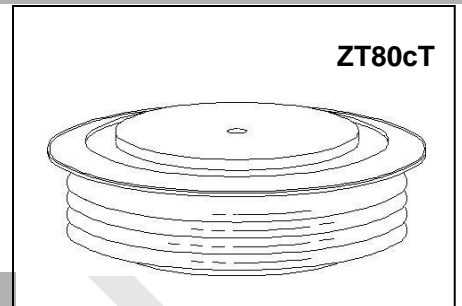


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## GENERAL PURPOSE HIGH POWER STANDARD RECTIFIER

### Features:

- . All Diffused Structure
- . High Surge rating
- . Blocking capability up to 4500 volts
- . Ceramic Housing Hermetic Package
- . Pressure Assembled Device



## ELECTRICAL CHARACTERISTICS AND RATINGS

### Reverse Blocking

| Device Type | V <sub>RRM</sub> (1) | V <sub>RSM</sub> (1) |
|-------------|----------------------|----------------------|
| ZP2500-36   | 3600                 | 3800                 |
| ZP2500-38   | 3800                 | 4000                 |
| ZP2500-40   | 4000                 | 4200                 |
| ZP2500-42   | 4200                 | 4400                 |
| ZP2500-45   | 4500                 | 4700                 |

#### Notes:

All ratings are specified for T<sub>j</sub>=25 °C unless otherwise stated.

(1) All voltage ratings are specified for an applied 50Hz/60Hz sinusoidal waveform over the temperature range 0 to +150 °C.

(2) 10 msec. max. pulse width

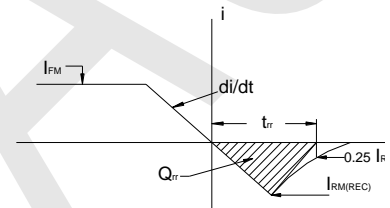
(3) Maximum value for T<sub>j</sub> = 150 °C.

(4) See parameter definition below:

V<sub>RRM</sub> = Repetitive peak reverse voltage

V<sub>RSM</sub> = Non repetitive peak reverse voltage (2)

|                                 |                  |                    |
|---------------------------------|------------------|--------------------|
| Repetitive peak reverse leakage | I <sub>RRM</sub> | 5 mA<br>100 mA (3) |
|---------------------------------|------------------|--------------------|



REVERSE RECOVERY CHARACTERISTIC

### Conducting - on state

| Parameter                                     | Symbol                | Min. | Max.                | Typ. | Units            | Conditions  |
|---|-----------------------|------|---------------------|------|------------------|---|
| Average forward current                       | I <sub>F(AV)</sub>    |      | 2500                |      | A                | Sinewave, 180°, T <sub>c</sub> = 100 °C   |
| RMS forward current                           | I <sub>FRMS</sub>     |      | 3925                |      | A                | Nominal value   |
| Peak one cycle surge (non repetitive) current | I <sub>FSM</sub>      |      | 37500               |      | A                | 10 msec (50Hz), sinusoidal wave-shape, 180° conduction, T <sub>j</sub> = 150 °C |
| I square t                                    | I <sup>2</sup> t      |      | 7 × 10 <sup>6</sup> |      | A <sup>2</sup> s | 10 msec   |
| Peak forward voltage                          | V <sub>FM</sub>       |      | 1.60                |      | V                | I <sub>FM</sub> = 3000A; T <sub>j</sub> = 25 °C                                 |
| Threshold voltage                             | V <sub>FO</sub>       |      | 0.85                |      | V                | T <sub>j</sub> = 150 °C, I = 0.5π I <sub>F(AV)</sub> to 1.5π I <sub>F(AV)</sub> |
| Slope resistance                              | r <sub>F</sub>        |      | 0.15                |      | mΩ               | T <sub>j</sub> = 150 °C, I = 0.5π I <sub>F(AV)</sub> to 1.5π I <sub>F(AV)</sub> |
| Reverse Recovery Current (4)                  | I <sub>RRM(REC)</sub> |      |                     |      | A                | I <sub>FM</sub> = 500 A; di/dt = -10 A/s; T <sub>jmax</sub>                     |
| Reverse Recovery Charge (4)                   | Q <sub>rr</sub>       |      |                     | 5500 | μC               | I <sub>FM</sub> = 500 A; di/dt = -10 A/s; T <sub>jmax</sub>                     |
| Reverse Recovery Time (4)                     | t <sub>rr</sub>       |      |                     |      | μs               | I <sub>FM</sub> = 500 A; di/dt = -10 A/s; T <sub>jmax</sub>                     |

| Parameter                             | Symbol            | Min. | Max.  | Typ. | Units | Conditions          |
|---------------------------------------|-------------------|------|-------|------|-------|---------------------|
| Operating temperature                 | $T_j$             | -40  | +150  |      | °C    |                     |
| Storage temperature                   | $T_{stg}$         | -40  | +150  |      | °C    |                     |
| Thermal resistance - junction to case | $R_{\Theta(j-c)}$ |      | 0.01  |      | °C/W  | Double sided cooled |
| Thermal resistance - case to heatsink | $R_{\Theta(c-s)}$ |      | 0.003 |      | °C/W  | Double sided cooled |
| Mounting force                        | P                 | 32   | 39    | 35   | kN    |                     |
| Weight                                | W                 |      |       | 1.1  | kg.   |                     |

\* Mounting surfaces smooth, flat and greaseless

**CASE OUTLINE AND DIMENSIONS**

