



# ZP2200- RECTIFIER DIODE

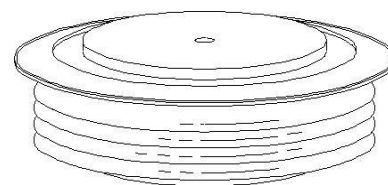
3800-4500V<sub>RRM</sub>

## 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

D11C



## ELECTRICAL CHARACTERISTICS AND RATINGS

### Reverse Blocking

| Device Type | V <sub>RRM</sub> (1) | V <sub>RSM</sub> (1) |
|-------------|----------------------|----------------------|
| ZP2200-38   | 3800                 | 3900                 |
| ZP2200-40   | 4000                 | 4100                 |
| ZP2200-42   | 4200                 | 4300                 |
| ZP2200-44   | 4400                 | 4500                 |
| ZP2200-45   | 4500                 | 4600                 |

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

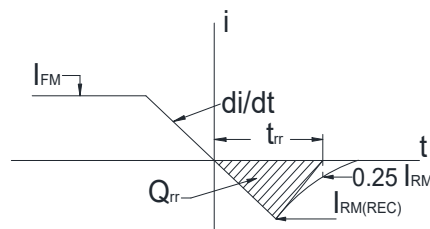
V<sub>RSM</sub> = Non repetitive peak reverse voltage (2)

|                                         |                  |                  |
|-----------------------------------------|------------------|------------------|
| Repetitive peak reverse leakage current | I <sub>RRM</sub> | 5mA<br>80 mA (3) |
|-----------------------------------------|------------------|------------------|

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 :



reverse recovery characteristic

### Conducting - on state

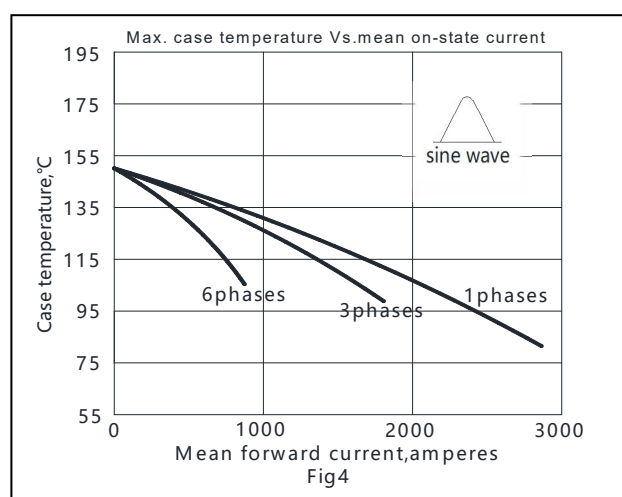
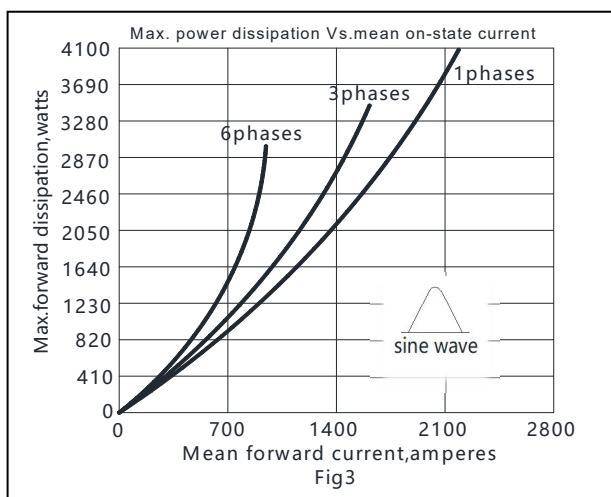
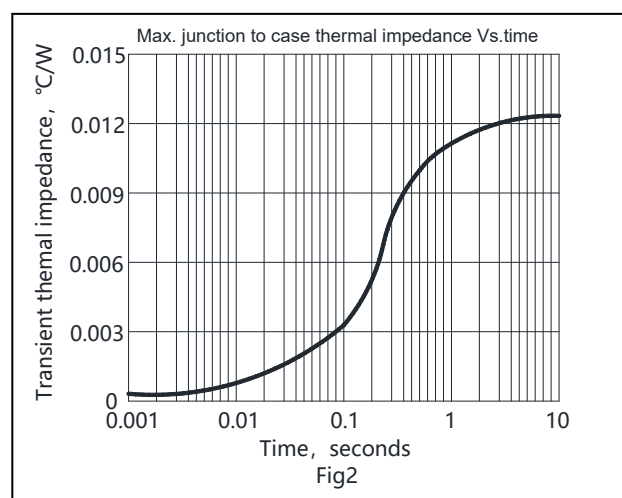
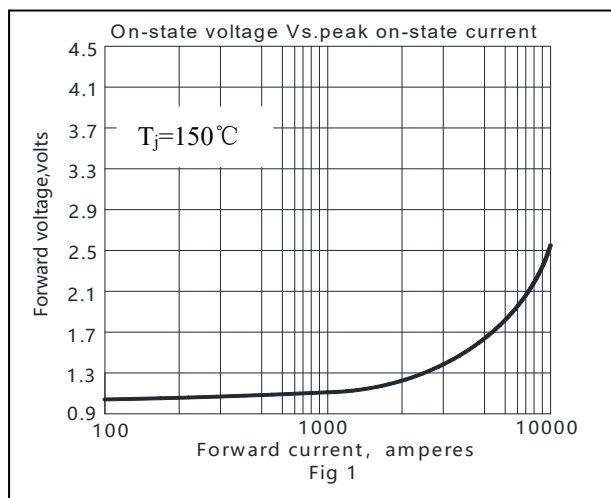
| Parameter                                     | Symbol               | Min. | Max.                  | Typ. | Units            | Conditions                                                                      |
|-----------------------------------------------|----------------------|------|-----------------------|------|------------------|---------------------------------------------------------------------------------|
| Average forward current                       | I <sub>F(AV)</sub>   |      | 2200                  |      | A                | Sinewave 180°, T <sub>c</sub> =100°C                                            |
| RMS forward current                           | I <sub>FRMS</sub>    |      | 3454                  |      | A                | Nominal value                                                                   |
| Peak one cycle surge (non repetitive) current | I <sub>FSM</sub>     |      | 33000                 |      | A                | 10 msec (50Hz), sinusoidal wave-shape, 180° conduction, T <sub>j</sub> =150°C   |
| I square t                                    | I <sup>2</sup> t     |      | 5.4 × 10 <sup>6</sup> |      | A <sup>2</sup> s | 10 msec                                                                         |
| Peak forward voltage                          | V <sub>FM</sub>      |      | 1.5                   |      | V                | I <sub>FM</sub> = 3000A; T <sub>j</sub> =25°C                                   |
| Threshold voltage                             | V <sub>FO</sub>      |      | 0.95                  |      | V                | T <sub>j</sub> =150°C, I = 0.5 π I <sub>F(AV)</sub> to 1.5 π I <sub>F(AV)</sub> |
| Slope resistance                              | r <sub>F</sub>       |      | 0.16                  |      | mΩ               | T <sub>j</sub> =150°C, I = 0.5 π I <sub>F(AV)</sub> to 1.5 π I <sub>F(AV)</sub> |
| Reverse Recovery Current (4)                  | I <sub>RM(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>      |      |                       | 5000 | 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>                     |

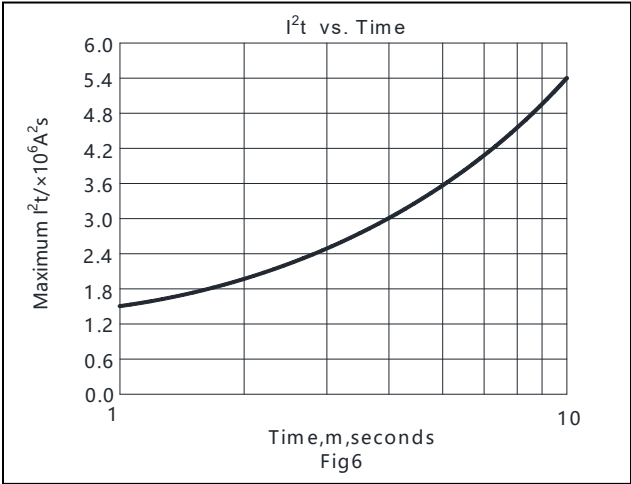
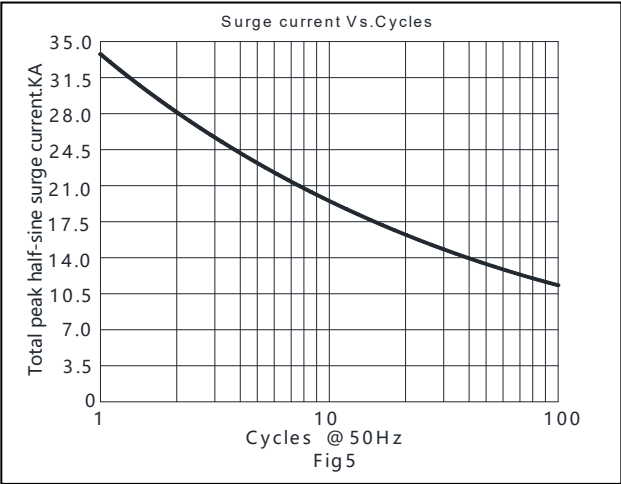
| Parameter                             | Symbol            | Min. | Max.   | Typ. | Units | Conditions          |
|---------------------------------------|-------------------|------|--------|------|-------|---------------------|
| Operating temperature                 | $T_j$             | -40  | +150   |      | °C    |                     |
| Storage temperature                   | $T_{stg}$         | -40  | +150   |      | °C    |                     |
| Thermal resistance - junction to case | $R_{\theta(j-c)}$ |      | 0.0125 |      | °C/W  | Double sided cooled |
| Thermal resistance - case to heatsink | $R_{\theta(c-s)}$ |      | 0.004  |      | °C/W  | Double sided cooled |
| Mounting force                        | F                 | 30   | 37     | 33   | kN    |                     |
| Weight                                | m                 |      |        | 0.85 | kg.   |                     |

\* Mounting surfaces smooth, flat and greaseless

## Graph

## ZP2200-RECTIFIER DIODE





CASE OUTLINE AND DIMENSIONS

