

# ZP2400- RECTIFIER DIODE

Shanghai Sunco Electronics Co., Ltd.

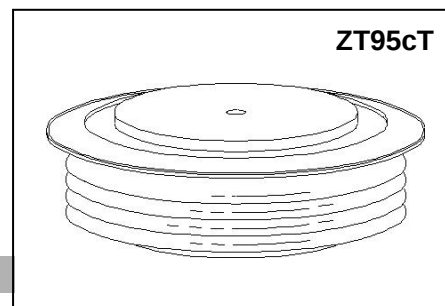
5400-6500V <sup>RRM</sup>

\*\*\*\*\*

## GENERAL PURPOSE HIGH POWER STANDARD RECTIFIER

### Features:

- . All Diffused Structure
- . High Surge rating
- . Blocking capability up to 6500 volts
- . Ceramic Housing Hermetic Package
- . Pressure Assembled Device



## ELECTRICAL CHARACTERISTICS AND RATINGS

### Reverse Blocking

| Device Type | $V_{RRM}$ (1) | $V_{RSM}$ (1) |
|-------------|---------------|---------------|
| ZP2400-54   | 5400          | 5600          |
| ZP2400-56   | 5600          | 5800          |
| ZP2400-58   | 5800          | 6000          |
| ZP2400-60   | 6000          | 6200          |
| ZP2400-65   | 6500          | 6700          |

$V_{RRM}$  = Repetitive peak reverse voltage

$V_{RSM}$  = Non repetitive peak reverse voltage (2)

|                                 |           |                    |
|---------------------------------|-----------|--------------------|
| Repetitive peak reverse leakage | $I_{RRM}$ | 5 mA<br>200 mA (3) |
|---------------------------------|-----------|--------------------|

Notes:

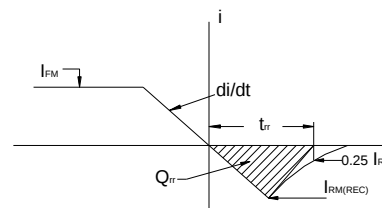
All ratings are specified for  $T_j = 25^\circ\text{C}$  unless otherwise stated.

(1) All voltage ratings are specified for an applied 50Hz/60Hz sinusoidal waveform over the temperature range 0 to  $+150^\circ\text{C}$ .

(2) 10 msec. max. pulse width

(3) Maximum value for  $T_j = 150^\circ\text{C}$ .

(4) See parameter definition below:



REVERSE RECOVERY CHARACTERIST

### Conducting - on state

| Parameter                                     | Symbol        | Min. | Max.              | Typ. | Units                | Conditions                                                                               |
|-----------------------------------------------|---------------|------|-------------------|------|----------------------|------------------------------------------------------------------------------------------|
| Average value of on-state current             | $I_{F(AV)}$   |      | 2400              |      | A                    | Sinewave, $180^\circ$ , $T_c = 100^\circ\text{C}$                                        |
| RMS value of on-state current                 | $I_{FRMS}$    |      | 3768              |      | A                    | Nominal value                                                                            |
| Peak one cycle surge (non repetitive) current | $I_{FSM}$     |      | 36000             |      | A                    | 10 msec (50Hz), sinusoidal wave-shape, $180^\circ$ conduction, $T_j = 150^\circ\text{C}$ |
| I square t                                    | $I^2t$        |      | $6.5 \times 10^6$ |      | $\text{A}^2\text{s}$ | 10 msec                                                                                  |
| Peak on-state voltage                         | $V_{FM}$      |      | 1.55              |      | V                    | $I_{FM} = 5000\text{A}$ ; $T_j = 25^\circ\text{C}$                                       |
| Threshold voltage                             | $V_{FO}$      |      | 0.95              |      | V                    | $T_j = 150^\circ\text{C}$ , $I = 0.5 \pi I_{F(AV)}$ to $1.5 \pi I_{F(AV)}$               |
| Slope resistance                              | $r_F$         |      | 0.11              |      | m $\Omega$           | $T_j = 150^\circ\text{C}$ , $I = 0.5 \pi I_{F(AV)}$ to $1.5 \pi I_{F(AV)}$               |
| Reverse Recovery Current (4)                  | $I_{RM(REC)}$ |      |                   |      | A                    | $I_{FM} = 500\text{A}$ ; $di/dt = -10\text{A/s}$ ; $T_{jmax}$                            |
| Reverse Recovery Charge (4)                   | $Q_{rr}$      |      |                   | 7000 | $\mu\text{C}$        | $I_{FM} = 500\text{A}$ ; $di/dt = -10\text{A/s}$ ; $T_{jmax}$                            |
| Reverse Recovery Time (4)                     | $t_{rr}$      |      |                   |      | $\mu\text{s}$        | $I_{FM} = 500\text{A}$ ; $di/dt = -10\text{A/s}$ ; $T_{jmax}$                            |

| 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 | $R_{\theta(j-c)}$ |      | 0.008 |      | °C/W  | Double sided cooled |
| Thermal resistance - case to heatsink | $R_{\theta(c-s)}$ |      | 0.002 |      | °C/W  | Double sided cooled |
| Mounting force                        | P                 | 55   | 65    | 60   | kN    |                     |
| Weight                                | W                 |      |       | 1.40 | kg.   |                     |

\* Mounting surfaces smooth, flat and greaseless

**CASE OUTLINE AND DIMENSIONS**