



High-end Power Semiconductor Manufacturer

ZP1250A 3000-3400V Standard Rectifier Diode

- High power cycling capability
- Low on-state and switching losses
- Optimized for line frequency rectifiers
- Designed for traction and industrial applications



| | | | | |
|---------------------------------|-----------|---------------|------|--|
| Average forward current | I_{FAV} | 1250 A | | |
| Repetitive peak reverse voltage | V_{RRM} | 3000 – 3400 V | | |
| V_{RRM}, V | 3000 | 3200 | 3400 | |
| Voltage code | 30 | 32 | 34 | |
| $T_j, ^\circ C$ | -60 – 175 | | | |

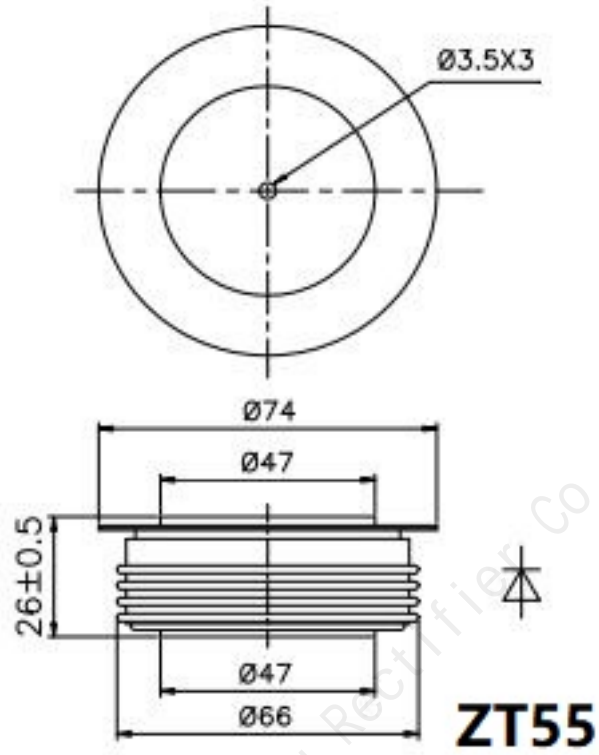
MAXIMUM ALLOWABLE RATINGS

| Symbols and parameters | | Units | Values | Test conditions | |
|------------------------|--------------------------------------|------------------|---------------------|---|---|
| ON-STATE | | | | | |
| I_{FAV} | Average forward current | A | 1250 | $T_c=100\text{ }^\circ C$; Double side cooled; 180° half-sine wave; 50 Hz | |
| I_{FRMS} | RMS forward current | A | 1962 | | |
| I_{FSM} | Surge forward current | kA | 24.0 26.0 | $T_j=T_{j\max}$ $T_j=25\text{ }^\circ C$ | 180° half-sine wave; 50 Hz ($t_p=10\text{ ms}$); single pulse; $V_R=0\text{ V}$; |
| | | | 26.0 29.9 | $T_j=T_{j\max}$ $T_j=25\text{ }^\circ C$ | |
| I^2t | Safety factor | $A^2s\cdot 10^3$ | 2880 3805 | $T_j=T_{j\max}$ $T_j=25\text{ }^\circ C$ | 180° half-sine wave; 50 Hz ($t_p=10\text{ ms}$); single pulse; $V_R=0\text{ V}$; |
| | | | 2805 3710 | $T_j=T_{j\max}$ $T_j=25\text{ }^\circ C$ | |
| BLOCKING | | | | | |
| V_{RRM} | Repetitive peak reverse voltages | V | 3000 – 3400 | $T_{j\min} < T_j < T_{j\max}$; 180° half-sine wave; 50 Hz; | |
| V_{RSM} | Non-repetitive peak reverse voltages | V | 3100 – 3500 | $T_{j\min} < T_j < T_{j\max}$; 180° half-sine wave; 50 Hz; single pulse; | |
| V_R | Reverse continuous voltages | V | $0.75\cdot V_{RRM}$ | $T_j=T_{j\max}$; | |
| THERMAL | | | | | |
| T_{stg} | Storage temperature | $^\circ C$ | -60 – 50 | | |
| T_j | Operating junction temperature | $^\circ C$ | -60 – 175 | | |
| MECHANICAL | | | | | |
| F | Mounting force | kN | 24.0 – 28.0 | | |
| a | Acceleration | m/s^2 | 50 | Device unclamped | |
| | | | 100 | Device clamped | |

CHARACTERISTICS

| Symbols and parameters | | Units | Values | Conditions | |
|------------------------|---|--------------------|------------------|--|---------------------|
| ON-STATE | | | | | |
| V_{FM} | Peak forward voltage, max | V | 2.21 | $T_j=25\text{ }^\circ\text{C}; I_{FM}=3925\text{ A}$ | |
| $V_{F(TO)}$ | Forward threshold voltage, max | V | 1.11 | $T_j=T_{j\text{ max}}$; | |
| r_T | Forward slope resistance, max | $m\Omega$ | 0.730 | $0.5\pi I_{FAV} < I_T < 1.5\pi I_{FAV}$ | |
| BLOCKING | | | | | |
| I_{RRM} | Repetitive peak reverse current, max | mA | 100 | $T_j=T_{j\text{ max}}$; $V_R=V_{RRM}$ | |
| THERMAL | | | | | |
| R_{thjc} | Thermal resistance, junction to case, max | $^\circ\text{C/W}$ | 0.0180 | Direct current | Double side cooled |
| R_{thjc-A} | | | 0.0396 | | Anode side cooled |
| R_{thjc-K} | | | 0.0324 | | Cathode side cooled |
| R_{thck} | Thermal resistance, case to heatsink, max | $^\circ\text{C/W}$ | 0.0040 | Direct current | |
| MECHANICAL | | | | | |
| w | Weight, typ | g | 510 | | |
| D_s | Surface creepage distance | mm (inch) | 38.84 (1.529) | | |
| D_a | Air strike distance | mm (inch) | 22.50 (0.886) | | |

OVERALL DIMENSIONS



All dimensions in millimeters