

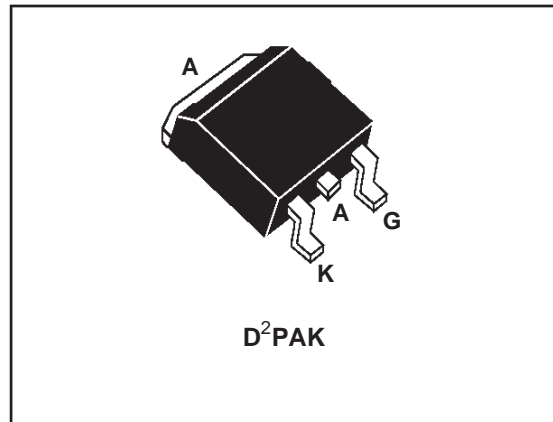
FEATURES

- HIGH SURGE CAPABILITY
- HIGH ON-STATE CURRENT
- HIGH STABILITY AND RELIABILITY

DESCRIPTION

The TN1215 series of Silicon Controlled Rectifiers uses a high performance glass passivated technology.

This SCR is designed for power supplies up to 400Hz on resistive or inductive load.


ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | | Value | Unit |
|--------------------|---|---------------------------|--------------------------------|------------------|
| $I_{T(RMS)}$ | RMS on-state current (180° conduction angle) | $T_c = 110^\circ\text{C}$ | 12 | A |
| $I_{T(AV)}$ | Average on-state current (180° conduction angle) | $T_c = 110^\circ\text{C}$ | 8 | A |
| I_{TSM} | Non repetitive surge peak on-state current (T_j initial = 25°C) | $t_p = 8.3$ ms | 146 | A |
| | | $t_p = 10$ ms | 140 | |
| I^2t | I^2t Value for fusing | $t_p = 10$ ms | 98 | A ² s |
| di/dt | Critical rate of rise of on-state current $I_G = 100$ mA $di_G/dt = 1$ A/μs. | | 100 | A/μs |
| T_{stg} T_j | Storage junction temperature range Operating junction temperature range | | - 40 to + 150 - 40 to + 125 | °C |
| T_I | Maximum temperature for soldering during 10s | | 260 | °C |

| Symbol | Parameter | TN1215- | | Unit |
|------------------------|--|---------|------|------|
| | | 600G | 800G | |
| V_{DRM} V_{RRM} | Repetitive peak off-state voltage $T_j = 125^\circ\text{C}$ | 600 | 800 | V |

TN1215-G

THERMAL RESISTANCES

| Symbol | Parameter | Value | Unit |
|----------|---|-------|------|
| Rth(j-a) | Junction to ambient (S=1cm ²) | 45 | °C/W |
| Rth(j-c) | Junction to case for D.C | 1.3 | °C/W |

GATE CHARACTERISTICS

$P_G (AV) = 1W$ $P_{GM} = 10W$ ($t_p = 20 \mu s$) $I_{GM} = 4A$ ($t_p = 20 \mu s$) $V_{RGM} = 5V$

ELECTRICAL CHARACTERISTICS

| Symbol | Test Conditions | | Type | Value | Unit |
|-----------|------------------------------------|---------------------|------|-------|------------|
| I_{GT} | $V_D = 12V$ (DC) $R_L = 33\Omega$ | $T_j = 25^\circ C$ | MIN | 2 | mA |
| | | | MAX | 15 | |
| V_{GT} | $V_D = 12V$ (DC) $R_L = 33\Omega$ | $T_j = 25^\circ C$ | MAX | 1.3 | V |
| V_{GD} | $V_D = V_{DRM}$ $R_L = 3.3k\Omega$ | $T_j = 125^\circ C$ | MIN | 0.2 | V |
| I_H | $I_T = 100mA$ Gate open | $T_j = 25^\circ C$ | MAX | 30 | mA |
| I_L | $I_G = 1.2 I_{GT}$ | $T_j = 25^\circ C$ | MAX | 60 | mA |
| V_{TM} | $I_{TM} = 24A$ $t_p = 380\mu s$ | $T_j = 25^\circ C$ | MAX | 1.5 | V |
| I_{DRM} | $V_D = V_{DRM}$ | $T_j = 25^\circ C$ | MAX | 5 | μA |
| I_{RRM} | $V_R = V_{RRM}$ | $T_j = 125^\circ C$ | MAX | 3 | mA |
| dV/dt | $V_D = 67\% V_{DRM}$ Gate open | $T_j = 125^\circ C$ | MIN | 200 | V/ μs |

ORDERING INFORMATION Add "-TR" suffix for Tape & Reel shipment

TN 12 15 - 600 G



Fig. 1: Maximum average power dissipation versus average on-state current .

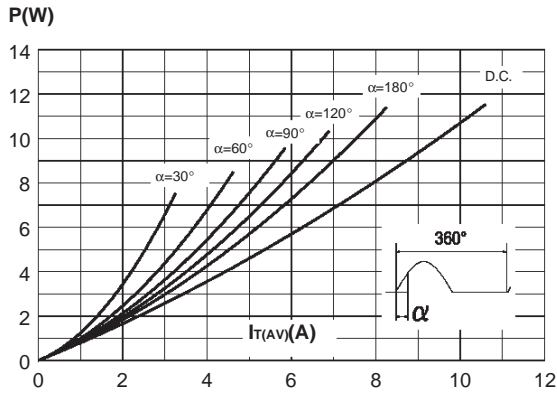


Fig. 2 : Correlation between maximum average power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink+contact.

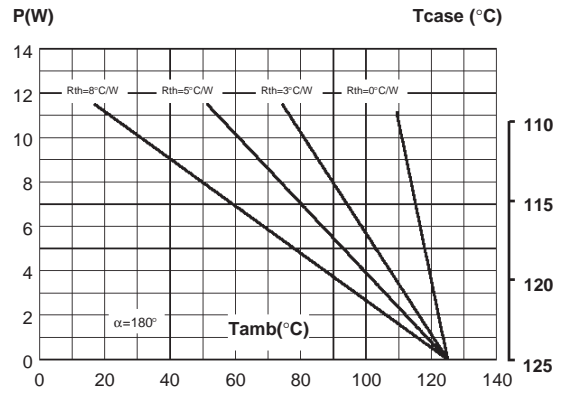


Fig. 3: Average and D.C. on-state current versus case temperature.

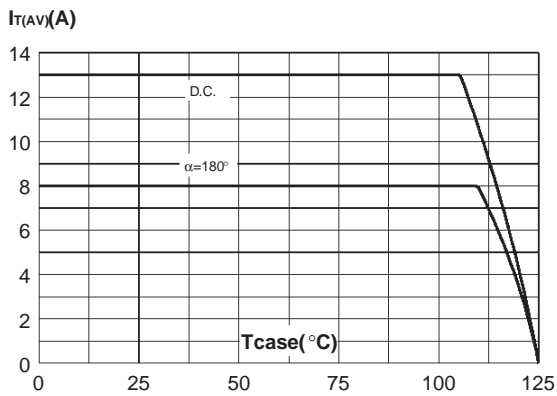


Fig. 4: Relative variation of thermal impedance versus pulse duration.

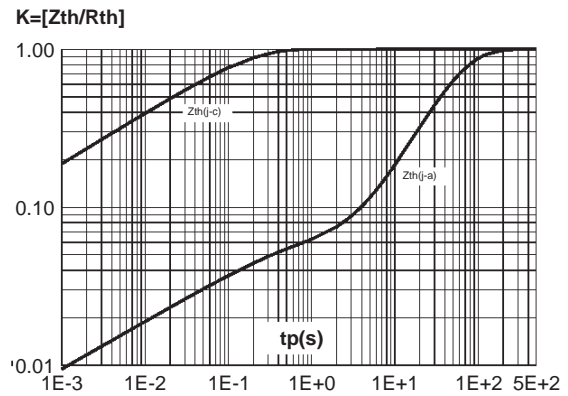


Fig. 5: Relative variation of gate trigger current and holding current versus junction temperature.

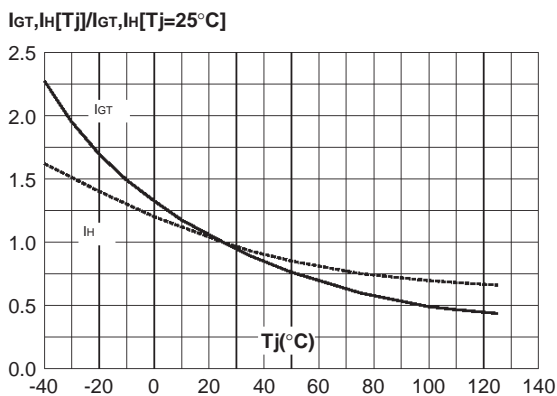


Fig. 6: Non repetitive surge peak on-state current versus number of cycles.

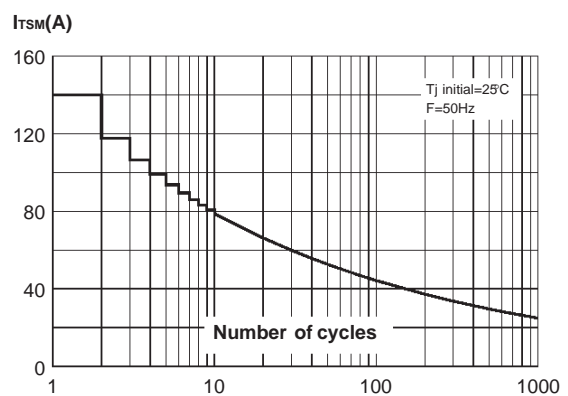


Fig. 7: Non repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I^2t .

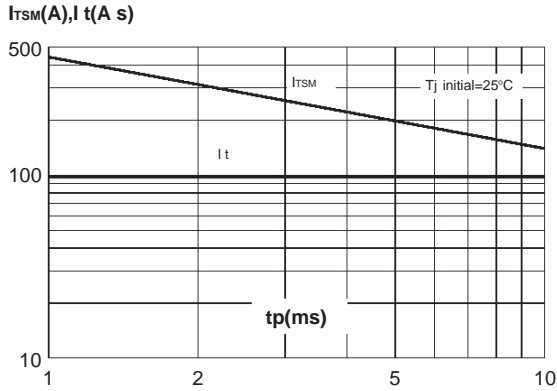


Fig. 8: On-state characteristics (maximum values).

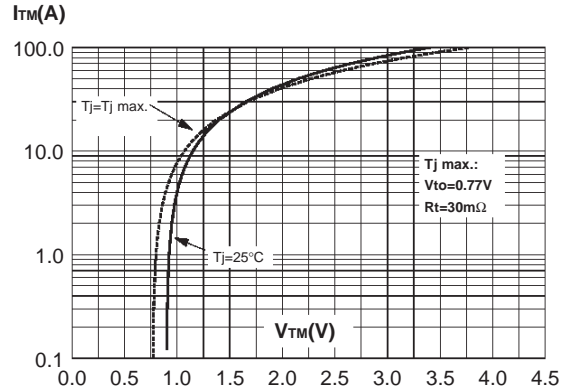


Fig. 9: Thermal resistance junction to ambient versus copper surface under tab (Epoxy printed circuit board FR4, copper thickness: $35\mu\text{m}$).

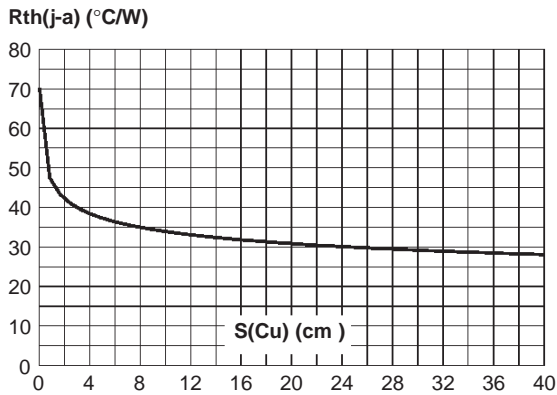
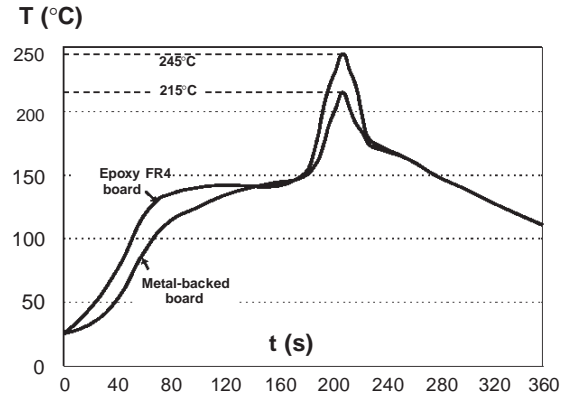
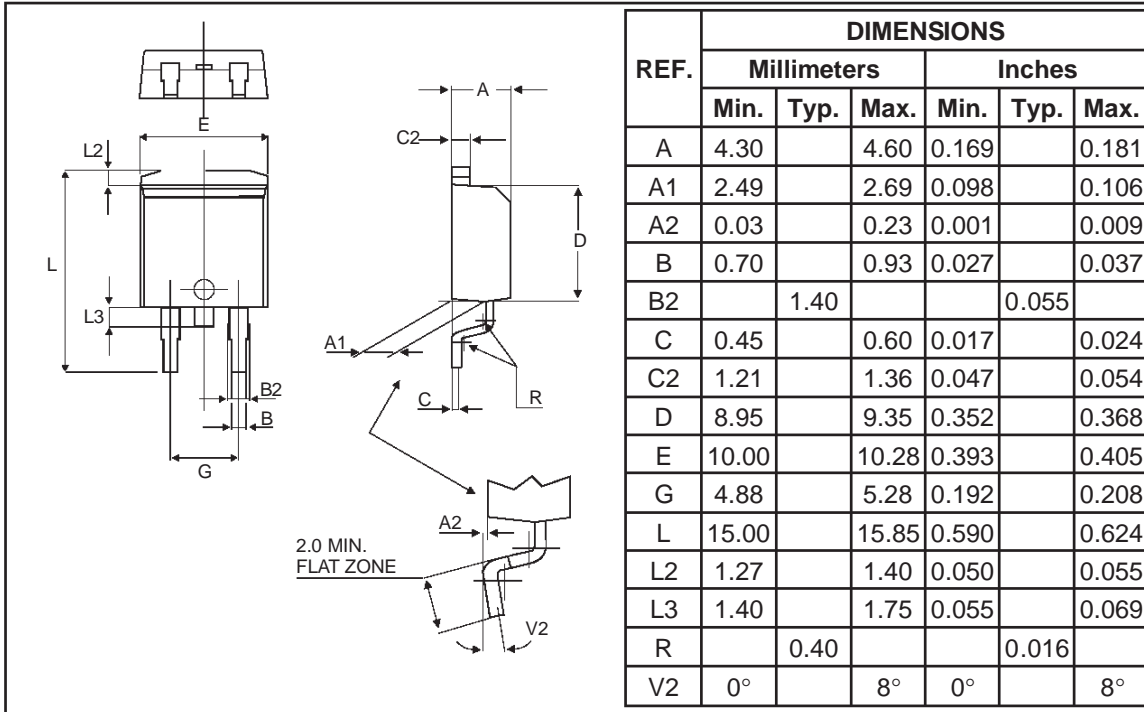


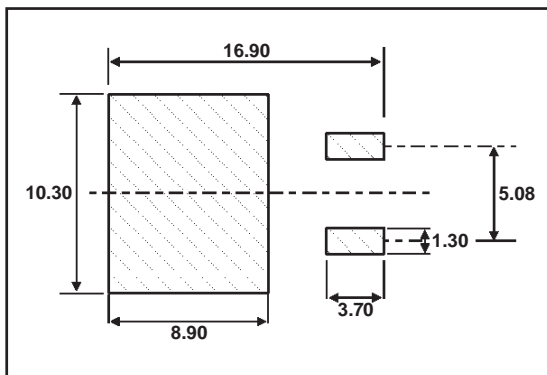
Fig. 10: Typical reflow soldering heat profile, either for mounting on FR4 or metal-backed boards.



PACKAGE MECHANICAL DATA
D²PAK



FOOT PRINT DIMENSIONS (in millimeters)



MARKING: TN1215
x00G

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