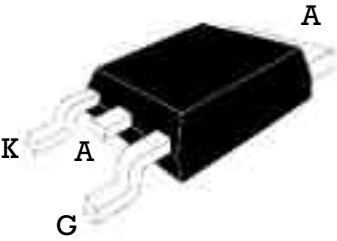


SURFACE MOUNT SCR

| | |
|--|--|
| <p>DPAK (Plastic)</p>  | <p>On-State Current 4 Amp</p> <p>Gate Trigger Current < 200 μA</p> <p>Off-State Voltage 200 V ÷ 600 V</p> |
| | <p>These series of Silicon Controlled Rectifier use a high performance PNP technology.</p> <p>These parts are intended for general purpose applications where high gate sensitivity is required using surface mount technology.</p> |

Absolute Maximum Ratings, according to IEC publication No. 134

| SYMBOL | PARAMETER | CONDITIONS | Min. | Max. | Unit |
|--------------|---------------------------------|--|------|------|------------------|
| $I_{T(RMS)}$ | On-state Current | 180° Conduction Angle, $T_C = 115\text{ }^\circ\text{C}$ | 4 | | A |
| $I_{T(AV)}$ | Average On-State Current | Half Cycle, $\theta = 180^\circ$, $T_C = 115\text{ }^\circ\text{C}$ | 2.5 | | A |
| I_{TSM} | Non-repetitive On-State Current | Half Cycle, 60 Hz | 33 | | A |
| I_{TSM} | Non-repetitive On-State Current | Half Cycle, 50 Hz | 30 | | A |
| I^2t | Fusing Current | $t = 10\text{ ms}$, Half Cycle | 4.5 | | A^2s |
| V_{GRM} | Peak Reverse Gate Voltage | $I_{GR} = 10\mu A$ | 8 | | V |
| I_{GM} | Peak Gate Current | 20 μ s max. | | 1.2 | A |
| P_{GM} | Peak Gate Dissipation | 20 μ s max. | | 3 | W |
| $P_{G(AV)}$ | Gate Dissipation | 20 ms max. | | 0.2 | W |
| T_j | Operating Temperature | | -40 | +125 | $^\circ\text{C}$ |
| T_{stg} | Storage Temperature | | -40 | +150 | $^\circ\text{C}$ |
| T_{sld} | Soldering Temperature | 10s max | | 260 | $^\circ\text{C}$ |

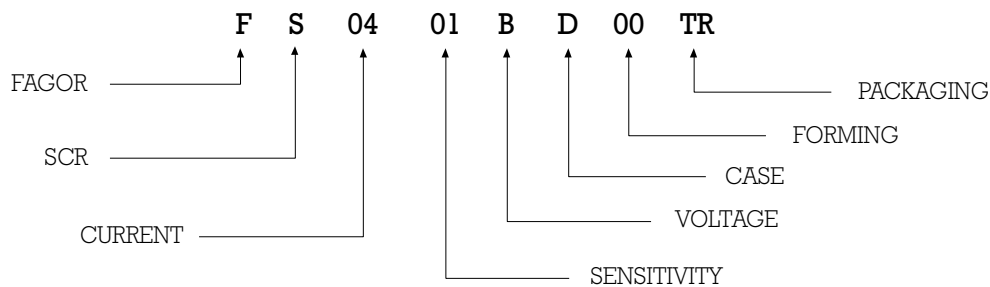
| SYMBOL | PARAMETER | CONDITIONS | VOLTAGE | | | Unit |
|------------------------|-----------------------------------|-----------------------|---------|-----|-----|------|
| | | | B | D | M | |
| V_{DRM} V_{RRM} | Repetitive Peak Off State Voltage | $R_{GK} = 1\text{ K}$ | 200 | 400 | 600 | V |

SURFACE MOUNT SCR

Electrical Characteristics

| SYMBOL | PARAMETER | CONDITIONS | SENSITIVITY | | | | Unit | |
|---------------------|--|---|-------------|-----|----|-----|------|--------------|
| | | | 01 | 04 | 02 | 03 | | |
| I_{GT} | Gate Trigger Current | $V_D = 12 V_{DC}, R_L = 33 \Omega, T_j = 25^\circ C$ | MIN | 1 | 15 | | 20 | μA |
| | | | MAX | 20 | 50 | 200 | 200 | |
| I_{DRM} / I_{RRM} | Off-State Leakage Current | $V_D = V_{DRM}, R_{GK} = 220 \Omega, T_j = 125^\circ C$ | MAX | 1 | | | | mA |
| | | $V_R = V_{RRM}, T_j = 25^\circ C$ | MAX | 5 | | | | μA |
| V_{TM} | On-state Voltage | at $I_T = 8 \text{ Amp}, t_p = 380 \mu s, T_j = 25^\circ C$ | MAX | 1.6 | | | | V |
| V_{GT} | Gate Trigger Voltage | $V_D = 12 V_{DC}, R_L = 33 \Omega, T_j = 25^\circ C$ | MAX | 0.8 | | | | V |
| V_{GD} | Gate Non Trigger Voltage | $V_D = V_{DRM}, R_L = 3.3 K \Omega, R_{GK} = 220 \Omega, T_j = 125^\circ C$ | MIN | 0.1 | | | | V |
| I_H | Holding Current | $I_T = 50 \text{ mA}, R_{GK} = 1K \Omega, T_j = 25^\circ C$ | MAX | 5 | | | | mA |
| I_L | Latching Current | $I_G = 1 \text{ mA}, R_{GK} = 1K \Omega, T_j = 25^\circ C$ | MAX | 6 | | | | mA |
| dv / dt | Critical Rate of Voltage Rise | $V_D = 0.67 \times V_{DRM}, R_{GK} = 220 \Omega, T_j = 125^\circ C$ | MIN | 10 | 10 | 5 | 10 | V/ μs |
| di / dt | Critical Rate of Current Rise | $I_G = 2 \times I_{GT}, T_r = 100 \text{ ns}, F = 60 \text{ Hz}, T_j = 125^\circ C$ | MIN | 50 | | | | A/ μs |
| $R_{th(j-c)}$ | Thermal Resistance Junction-Case for DC | | | 3 | | | | $^\circ C/W$ |
| $R_{th(j-a)}$ | Thermal Resistance Junction-Amb ($S=0.5 \text{ cm}^2$) | | | 70 | | | | $^\circ C/W$ |

PART NUMBER INFORMATION



SURFACE MOUNT SCR

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

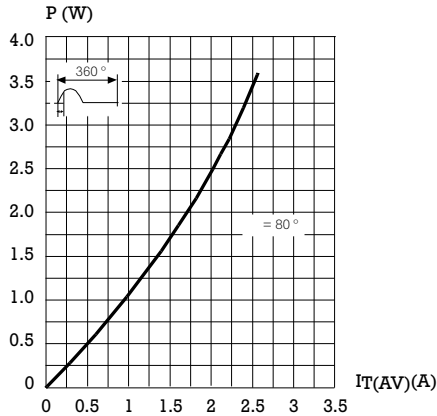


Fig. 3: Average and DC on-state current versus ambient temperature (device mounted on FR4 with recommended pad layout)

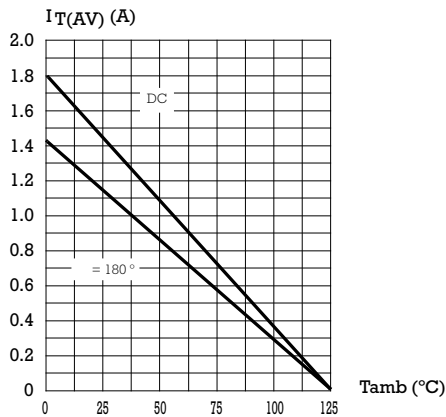


Fig. 4-2: Relative variation of thermal impedance junction to ambient versus pulse duration. (recommended pad layout)

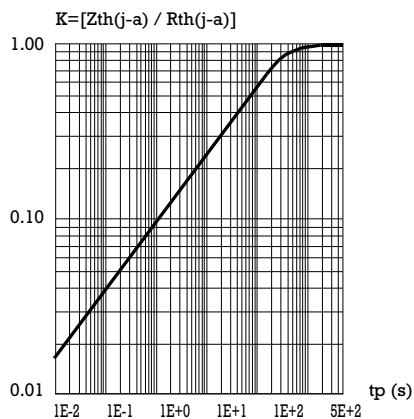


Fig. 2: Correlation between maximum average power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink+contact.

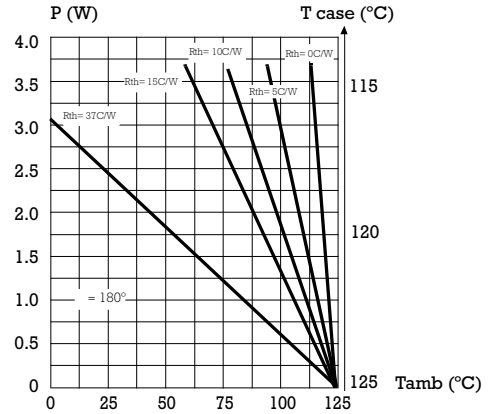


Fig. 4-1: Relative variation of thermal impedance junction to case versus pulse duration.

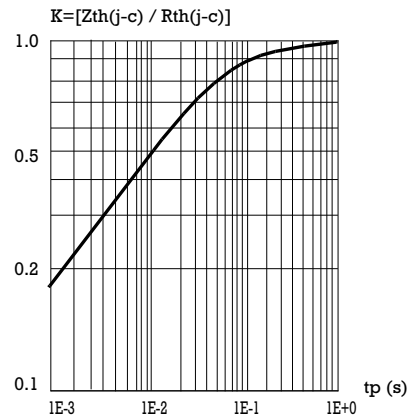
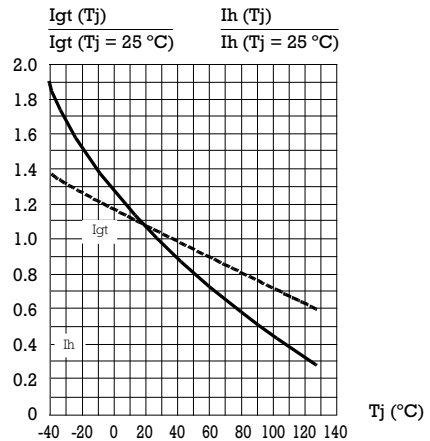


Fig. 5: Relative variation of gate trigger current and holding current versus junction temperature.



SURFACE MOUNT SCR

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

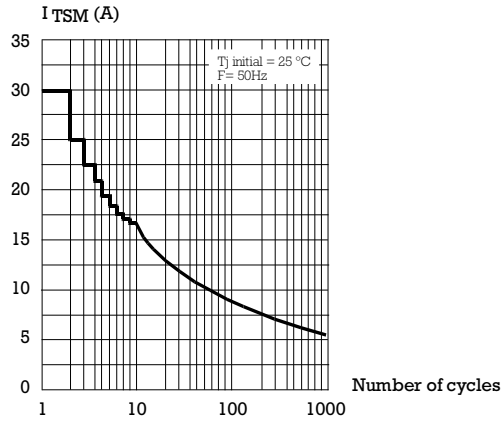


Fig. 7: Non repetitive surge peak on-state current for a sinusoidal pulse with width: $t_p < 10$ ms, and corresponding value of I^2t .

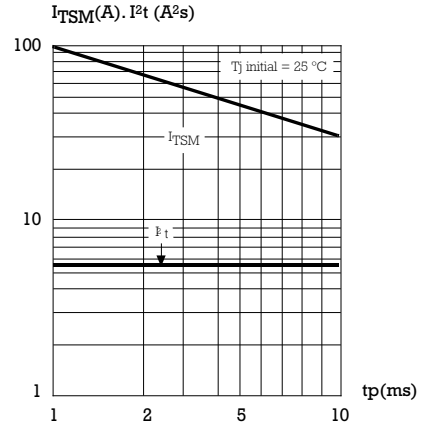


Fig. 8: On-state characteristics (maximum values).

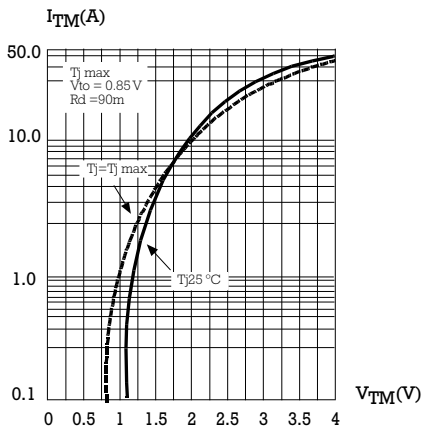


Fig. 9: Thermal resistance junction to ambient versus copper surface under tab (Epoxy printed circuit board FR4, copper thickness: 35µm).

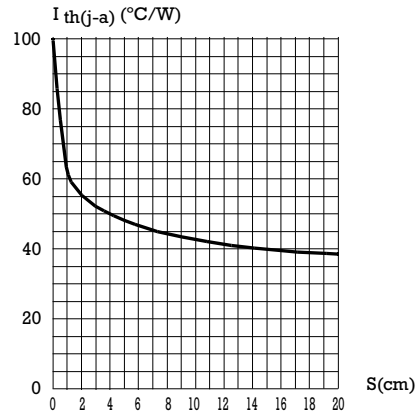
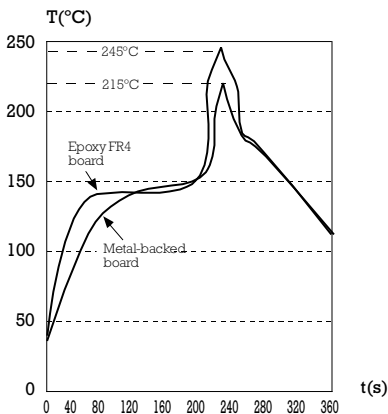
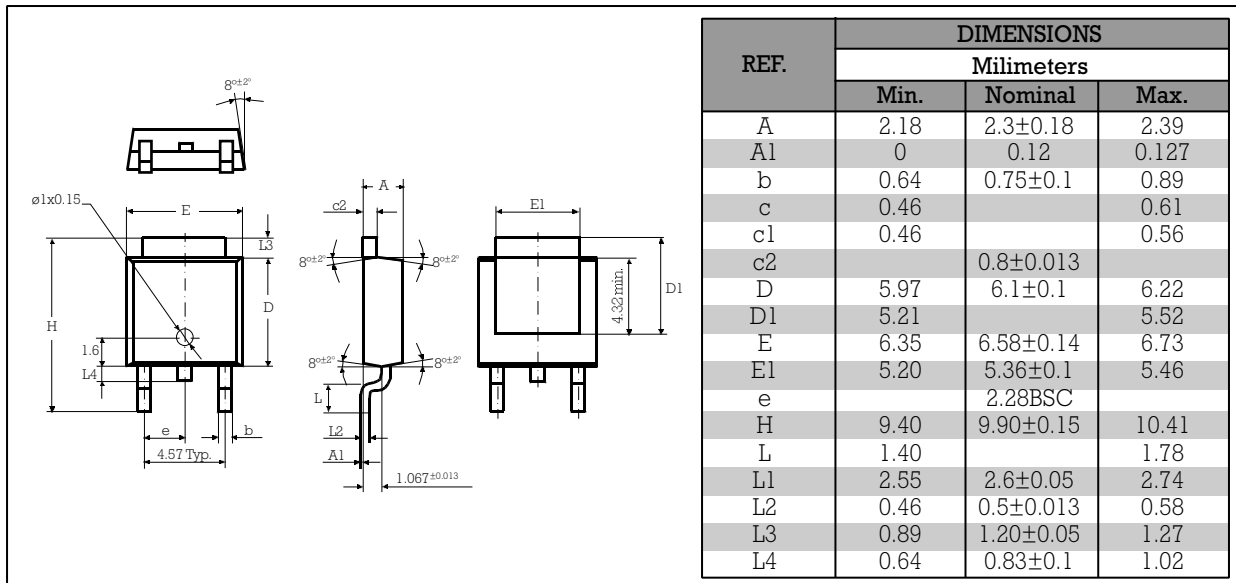


Fig. 10: Typical reflow soldering heat profile, either for mounting on FR4 or metal-backed boards.



SURFACE MOUNT SCR

PACKAGE MECHANICAL DATA DPAK TO 252-AA



Marking: type number
Weight: 0.2 g

FOOT PRINT

