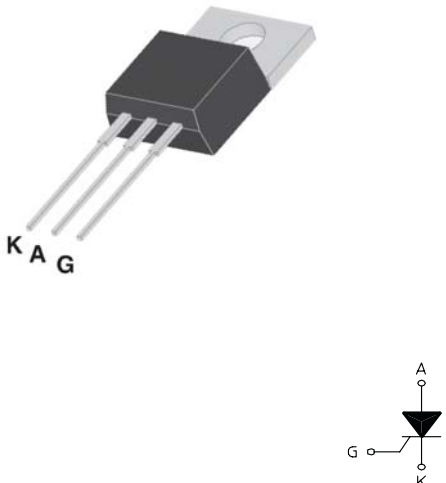


STANDARD SCR

| | |
|---|---|
| <p>TO220-AB</p>  | <p>On-State Current 8 Amp</p> <p>Gate Trigger Current 2 mA to 15 mA</p> <p>Off-State Voltage 200 V ÷ 800 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.</p> | |

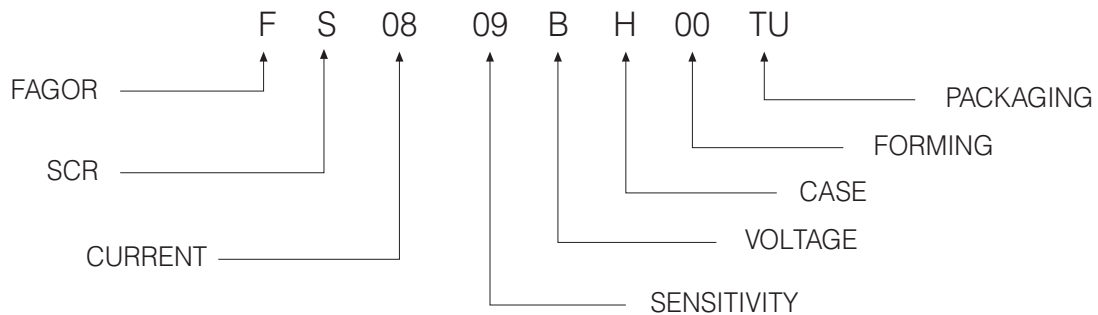
Absolute Maximum Ratings, according to IEC publication No. 134

| SYMBOL | PARAMETER | CONDITIONS | Value | Unit |
|--------------|---------------------------------|---|---------------|------------------|
| $I_{T(RMS)}$ | On-state Current | 180° Conduction Angle, $T_c = 110\text{ °C}$ | 8 | A |
| $I_{T(AV)}$ | Average On-state Current | Half Cycle, $\Theta = 180\text{ °}$, $T_c = 110\text{ °C}$ | 5 | A |
| I_{TSM} | Non-repetitive On-State Current | Half Cycle, 60 Hz | 100 | A |
| I_{TSM} | Non-repetitive On-State Current | Half Cycle, 50 Hz | 95 | A |
| I^2t | Fusing Current | $t_p = 10\text{ms}$, Half Cycle | 45 | A ² s |
| I_{GM} | Peak Gate Current | 20 μs max. | 4 | A |
| P_{GM} | Peak Gate Dissipation | 20 μs max. | 10 | W |
| $P_{G(AV)}$ | Gate Dissipation | 20ms max. | 1 | W |
| T_j | Operating Temperature | | (-40 to +125) | °C |
| T_{stg} | Storage Temperature | | (-40 to +150) | °C |
| T_{sld} | Soldering Temperature | 10s max. | 260 | °C |
| V_{RGM} | Reverse Gate Voltage | | 5 | V |

| SYMBOL | PARAMETER | CONDITIONS | VOLTAGE | | | | | Unit |
|------------------------|-----------------------------------|-----------------------------|---------|-----|-----|-----|-----|------|
| | | | B | D | M | S | N | |
| V_{DRM} V_{RRM} | Repetitive Peak Off State Voltage | $R_{GK} = 1\text{ k}\Omega$ | 200 | 400 | 600 | 700 | 800 | V |

STANDARD SCR
Electrical Characteristics

| SYMBOL | PARAMETER | CONDITIONS | SENSITIVITY | | Uni |
|---------------------|---|--|-------------|------|---------------|
| | | | | 09 | |
| I_{GT} | Gate Trigger Current | $V_D = 12 V_{DC}, R_L = 140\Omega, T_j = 25^\circ C$ | MIN | 2 | mA |
| | | | MAX | 15 | |
| V_{GT} | Gate Trigger Voltage | $V_D = 12 V_{DC}, R_L = 140\Omega, T_j = 25^\circ C$ | MAX | 1.3 | V |
| V_{GD} | Gate Non Trigger Voltage | $V_D = V_{DRM}, R_L = 3.3k\Omega, R_{GK} = 220\Omega, T_j = 125^\circ C$ | MIN | 0.2 | V |
| I_H | Holding Current | $I_T = 500 \text{ mA}$ | MAX | 30 | mA |
| I_L | Latching Current | $I_G = 1.2 I_{GT}$ | MAX | 70 | mA |
| dV / dt | Critical Rate of Voltage Rise | $V_D = 0.67 \times V_{DRM}, \text{ Gate open}, T_j = 125^\circ C$ | MIN | 150 | V/ μs |
| dI / dt | Critical Rate of Current Rise | $I_G = 2 \times I_{GT}, tr \leq 100 \text{ ns}, f = 60 \text{ Hz}, T_j = 125^\circ C$ | MIN | 50 | A/ μs |
| V_{TM} | On-state Voltage | at $I_T = 16 \text{ Amp}, tp = 380 \mu s, T_j = 25^\circ C$ | MAX | 1.6 | V |
| $V_{t(o)}$ | Threshold Voltage | $T_j = 125^\circ C$ | MAX | 0.85 | V |
| r_d | Dynamic resistance | $T_j = 125^\circ C$ | MAX | 46 | m Ω |
| I_{DRM} / I_{RRM} | Off-State Leakage Current | $V_D = V_{DRM}, R_{GK} = 1k\Omega, V_R = V_{RRM}, T_j = 125^\circ C$ $T_j = 25^\circ C$ | MAX | 2 | mA μA |
| | | | MAX | 5 | |
| $R_{th(j-c)}$ | Thermal Resistance Junction-Case for DC | for AC 360° conduction angle | | 1.6 | °C/W |
| $R_{th(j-a)}$ | Thermal Resistance Junction-Amb for DC | $S = 1 \text{ cm}^2$ | | 60 | °C/W |

PART NUMBER INFORMATION


STANDARD SCR

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

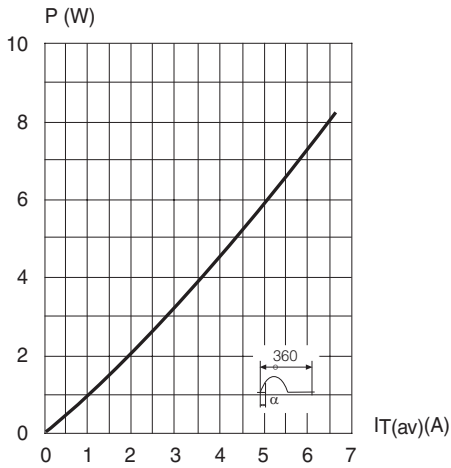


Fig. 2: Average and D.C. on-state current versus case temperature.

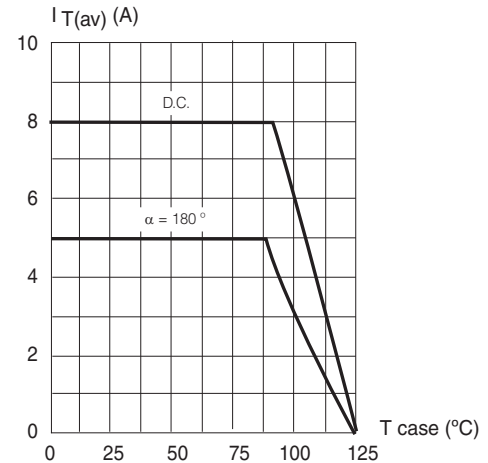


Fig. 3: Relative variation of thermal impedance junction to case versus pulse duration.

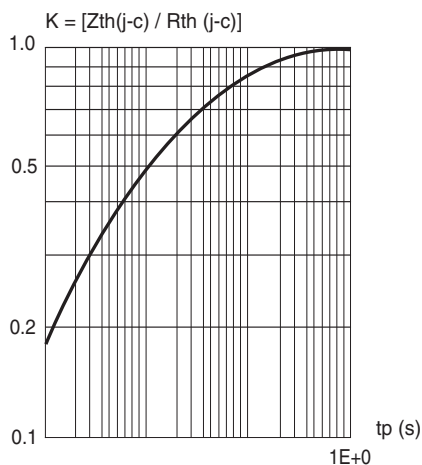


Fig. 4: Relative variation of gate trigger current, holding and latching current versus junction temperature.

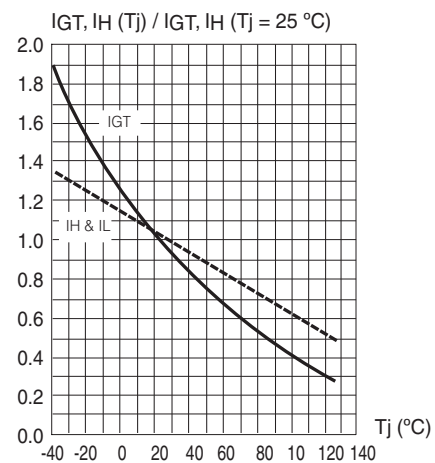


Fig. 5: Non repetitive surge peak on-state current versus number of cycles.

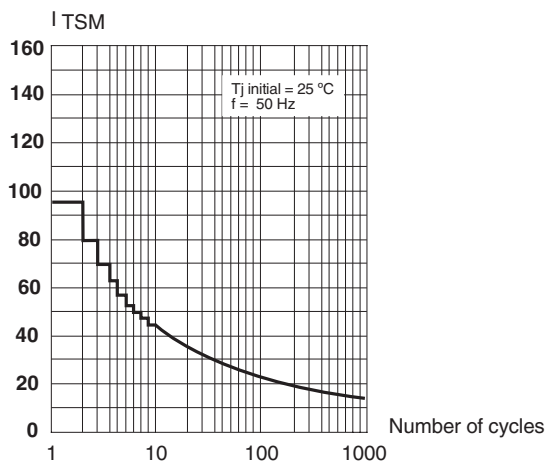
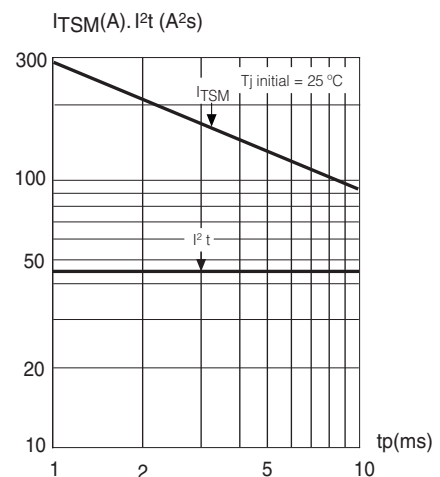
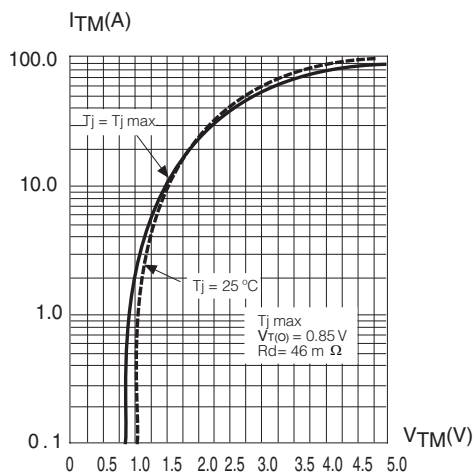


Fig. 6: Non repetitive surge peak on-state current for a sinusoidal pulse with width: $t_p < 10$ ms, and corresponding value of $I^2 t$.



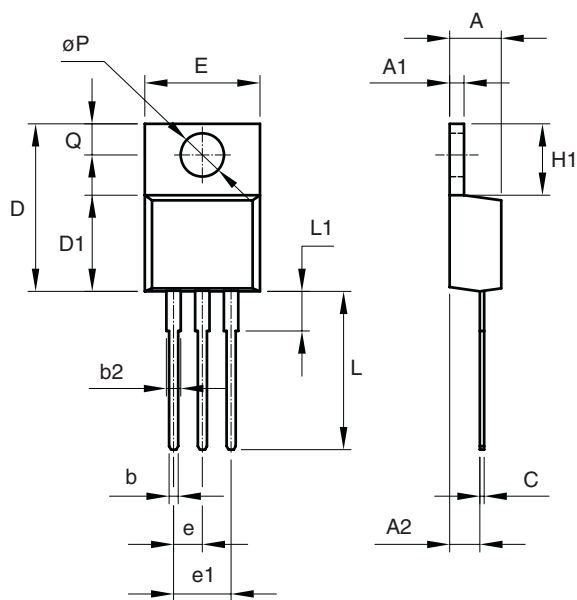
STANDARD SCR

Fig. 7: On-state characteristics (maximum values).



PACKAGE MECHANICAL DATA

TO-220AB



| REF. | DIMENSIONS | |
|------|------------|-------|
| | Milimeters | |
| | Min. | Max. |
| A | 4.47 | 4.67 |
| A1 | 1.17 | 1.37 |
| A2 | 2.52 | 2.82 |
| b | 0.71 | 0.91 |
| b2 | 1.17 | 1.37 |
| c | 0.31 | 0.53 |
| D | 14.65 | 15.35 |
| D1 | 8.50 | 8.90 |
| E | 10.01 | 10.36 |
| e | 2.51 | 2.57 |
| e1 | 4.98 | 5.18 |
| H1 | 6.15 | 6.45 |
| L | 13.40 | 13.96 |
| L1 | 3.56 | 3.96 |
| P | 3.735 | 3.935 |
| Q | 2.59 | 2.89 |

Mounting Torque

1 N.m

(*) Limiting values and life support applications, see Web page.