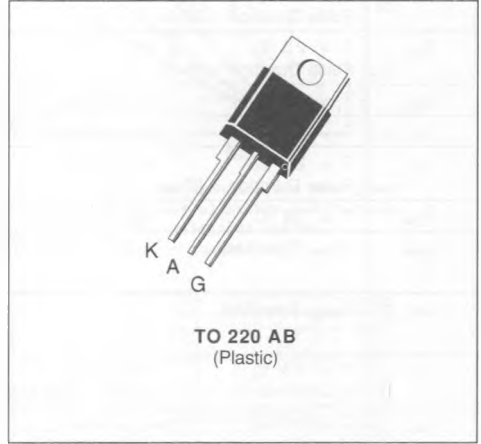




THYRISTORS

- GLASS PASSIVATED CHIP
- POSSIBILITY OF MOUNTING ON PRINTED CIRCUIT
- AVAILABLE IN NON-INSULATED VERSION → TYN SERIES OR IN INSULATED VERSION → TXN SERIES (INSULATING VOLTAGE 2500 V_{RMS})
- UL RECOGNIZED FOR TXN SERIES (E81734)



DESCRIPTION

SCR's designed for motor control, heating controls, power supplies...

ABSOLUTE RATINGS (limiting values)

| Symbol | Parameter | | Value | Unit |
|--------------------|---|--------------------|----------------------------|--------------------------|
| $I_{T(RMS)}$ | RMS on-state Current (1) | $T_c = 80^\circ C$ | 6 | A |
| $I_{T(AV)}$ | Mean on-state Current (1) | $T_c = 80^\circ C$ | 3.8 | A |
| I_{TSM} | Non Repetitive Surge Peak on-state Current (T_j initial = $25^\circ C$) (2) | $t = 8.3$ ms | 84 | A |
| | | $t = 10$ ms | 80 | |
| I^2t | I^2t Value for Fusing | $t = 10$ ms | 32 | A ² s |
| di/dt | Critical Rate of Rise of on-state Current (3) | | 50 | A/ μ s |
| T_{stg} T_j | Storage and Operating Junction Temperature Range | | - 40 to 110 - 40 to 110 | $^\circ C$ $^\circ C$ |

| Symbol | Parameter | TXN/TYN | | | | | | Unit | |
|------------------------|---------------------------------------|---------|-----|-----|-----|-----|-----|------|------|
| | | 056 | 106 | 206 | 406 | 606 | 806 | | 1006 |
| V_{DRM} V_{RRM} | Repetitive Peak off-state Voltage (4) | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | V |

(1) Single phase circuit, 180° conduction angle.
 (2) Half sine wave.
 (3) $I_G = 150$ mA $di/dt = 1$ A/ μ s.
 (4) $T_j = 110^\circ C$.

THERMAL RESISTANCES

| Symbol | Parameter | Value | Unit |
|---------------|------------------------|-------|--------------|
| $R_{th(j-c)}$ | Junction-case for D.C. | 5 | $^\circ C/W$ |
| $R_{th(j-a)}$ | Junction-ambient | 60 | $^\circ C/W$ |

GATE CHARACTERISTICS (maximum values)

$P_{GM} = 20 \text{ W}$ ($t_p = 20 \mu\text{s}$)

$I_{FGM} = 2 \text{ A}$ ($t_p = 20 \mu\text{s}$)

$V_{RGM} = 5 \text{ V}$

$P_G(AV) = 0.5 \text{ W}$

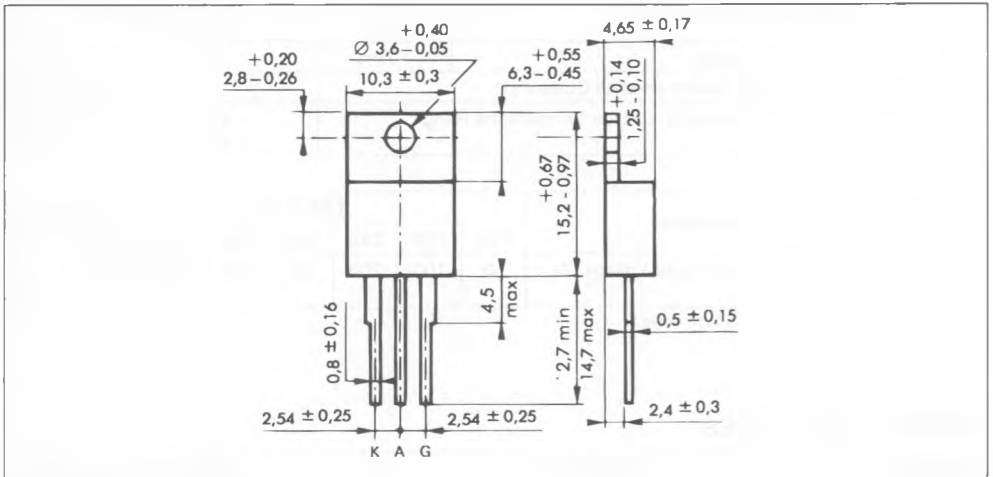
$V_{FGM} = 15 \text{ V}$ ($t_p = 20 \mu\text{s}$)

ELECTRICAL CHARACTERISTICS

| Symbol | Test Conditions | | | Min. | Typ. | Max. | Unit |
|-----------|--|--|--|------------------------------------|------|------|------------------|
| I_{GT} | $T_j = 25 \text{ }^\circ\text{C}$ Pulse Duration > 20 μs | $V_D = 12 \text{ V}$ | $R_L = 33 \text{ } \Omega$ | | | 15 | mA |
| V_{GT} | $T_j = 25 \text{ }^\circ\text{C}$ Pulse Duration > 20 μs | $V_D = 12 \text{ V}$ | $R_L = 33 \text{ } \Omega$ | | | 1.5 | V |
| V_{GD} | $T_j = 110 \text{ }^\circ\text{C}$ | $V_D = V_{DRM}$ | $R_L = 3.3 \text{ k}\Omega$ | 0.2 | | | V |
| I_H | $T_j = 25 \text{ }^\circ\text{C}$ | $I_T = 100 \text{ mA}$ | Gate Open | | | 30 | mA |
| I_L | $T_j = 25 \text{ }^\circ\text{C}$ Pulse Duration > 20 μs | $V_D = 12 \text{ V}$ | $I_G = 30 \text{ mA}$ | | 50 | | mA |
| V_{TM} | $T_j = 25 \text{ }^\circ\text{C}$ | $I_{TM} = 12 \text{ A}$ | $t_p = 10 \text{ ms}$ | | | 1.6 | V |
| I_{DRM} | V_{DRM} Specified | | | $T_j = 25 \text{ }^\circ\text{C}$ | | 0.01 | mA |
| | | | | $T_j = 110 \text{ }^\circ\text{C}$ | | 1 | |
| I_{RRM} | V_{RRM} Specified | | | $T_j = 25 \text{ }^\circ\text{C}$ | | 0.01 | mA |
| | | | | $T_j = 110 \text{ }^\circ\text{C}$ | | 1 | |
| t_{g1} | $T_j = 25 \text{ }^\circ\text{C}$ $I_G = 40 \text{ mA}$ | $V_D = V_{DRM}$ $di_G/dt = 0.45 \text{ A}/\mu\text{s}$ | $I_T = 12 \text{ A}$ | | 2 | | μs |
| t_q | $T_j = 110 \text{ }^\circ\text{C}$ $V_D = 67 \% V_{DRM}$ Gate Open | $I_T = 12 \text{ A}$ $di/dt = 30 \text{ A}/\mu\text{s}$ | $V_R = 25 \text{ V}$ $dv/dt = 50 \text{ V}/\mu\text{s}$ | | 70 | | μs |
| dv/dt^* | $T_j = 110 \text{ }^\circ\text{C}$ Linear Slope up to $V_D = 67 \% V_{DRM}$ | Gate Open | | 200 | | | V/ μs |

* For higher guaranteed values, please consult us.

PACKAGE MECHANICAL DATA : TO 220 AB Plastic



Cooling method : by conduction (method C)
 Marking : type number
 Weight : 2 g

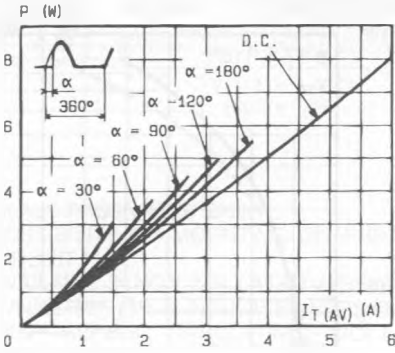


Fig. 1 - Maximum mean power dissipation versus mean on-state current.

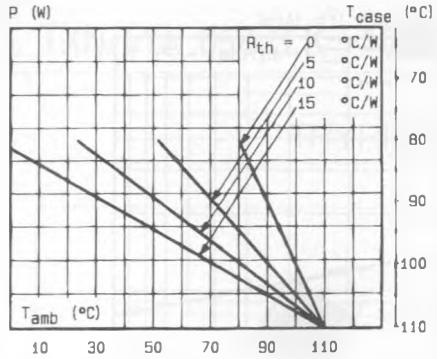


Fig. 2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

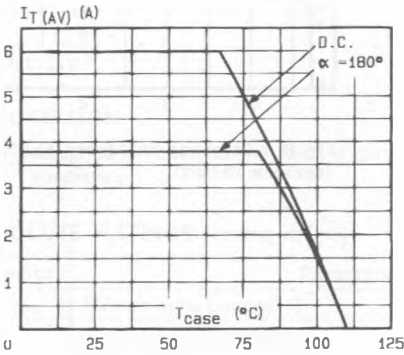


Fig. 3 - Mean on-state current versus case temperature.

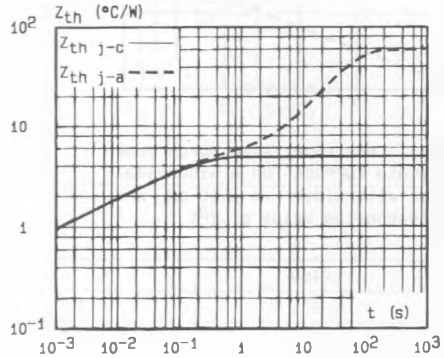


Fig. 4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

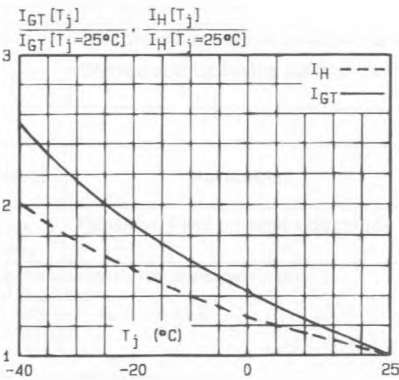


Fig. 5 - Relative variation of gate trigger current and holding current versus junction temperature.

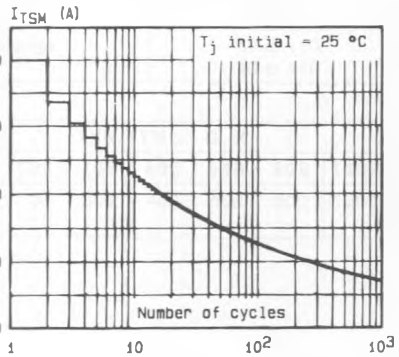


Fig. 6 - Non repetitive surge peak on-state current versus number of cycles.

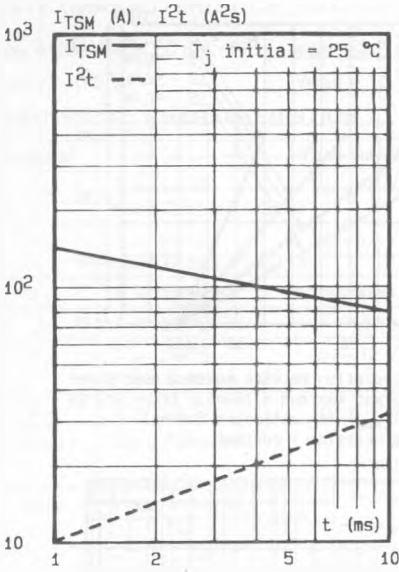


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t \leq 10$ ms, and corresponding value of I^2t .

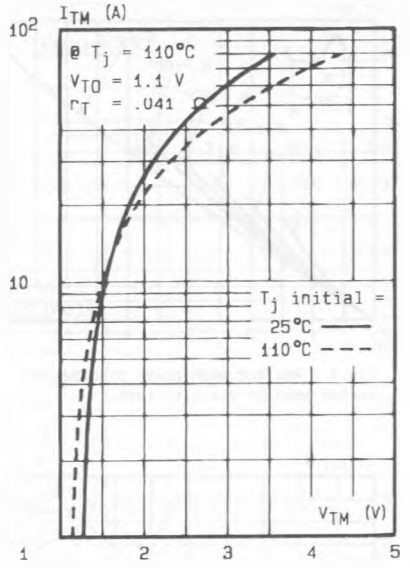


Fig.8 - On-state characteristics (maximum values).