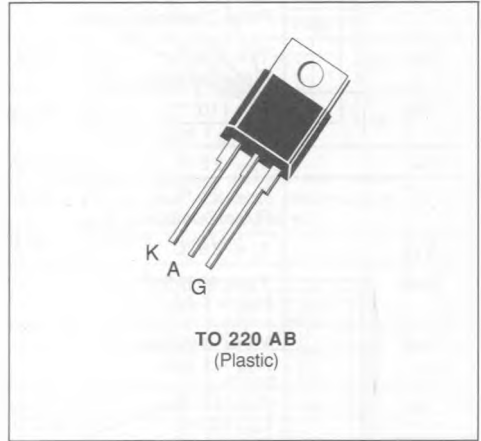


SENSITIVE GATE THYRISTORS

- OPERATES DIRECTLY FROM LOW SIGNAL
- GLASS PASSIVATED CHIP
- POSSIBILITY OF MOUNTING ON PRINTED CIRCUIT



ABSOLUTE RATINGS (limiting values)

| Symbol | Parameter | Value | Unit |
|--------------------|--|---------------------------------|--------------------------------------|
| $I_{T(RMS)}$ | RMS on-state Current (1) | $T_c = 75^\circ\text{C}$ 6 | A |
| $I_{T(AV)}$ | Mean on-state Current (1) | $T_c = 75^\circ\text{C}$ 3.8 | A |
| I_{TSM} | Non Repetitive Surge Peak on-state Current (T_j initial = 25°C) (2) | $t = 8.3\text{ ms}$ | 52 |
| | | $t = 10\text{ ms}$ | 50 |
| I^2t | I^2t Value for Fusing | $t = 10\text{ ms}$ | A^2s |
| di/dt | Critical Rate of Rise of on-state Current (3) | 100 | $\text{A}/\mu\text{s}$ |
| T_{stg} T_j | Storage and Operating Junction Temperature Range | - 40 to 110 - 40 to 110 | $^\circ\text{C}$ $^\circ\text{C}$ |

| Symbol | Parameter | TYS606... or TYS607-.. | | | | | | Unit |
|------------------------|---------------------------------------|------------------------|-----|-----|-----|-----|-----|------|
| | | 05 | 1 | 2 | 4 | 6 | 8 | |
| V_{DRM} V_{RRM} | Repetitive Peak off-state Voltage (4) | 50 | 100 | 200 | 400 | 600 | 800 | V |

(1) Single phase circuit, 180° conduction angle.

(2) Half sine wave.

(3) $I_G = 5\text{ mA}$ $di_G/dt = 1\text{ A}/\mu\text{s}$.

(4) $T_i = 110^\circ\text{C}$ $R_{GK} = 1\text{ K}\Omega$.

THERMAL RESISTANCES

| Symbol | Parameter | Value | Unit |
|---------------|----------------------|-------|---------------------------|
| $R_{th(j-c)}$ | Junction-case for DC | 5.5 | $^\circ\text{C}/\text{W}$ |
| $R_{th(j-a)}$ | Junction-ambient | 60 | $^\circ\text{C}/\text{W}$ |

GATE CHARACTERISTICS (maximum values)

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

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

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

$P_{G(AV)} = 0.5 \text{ W}$

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

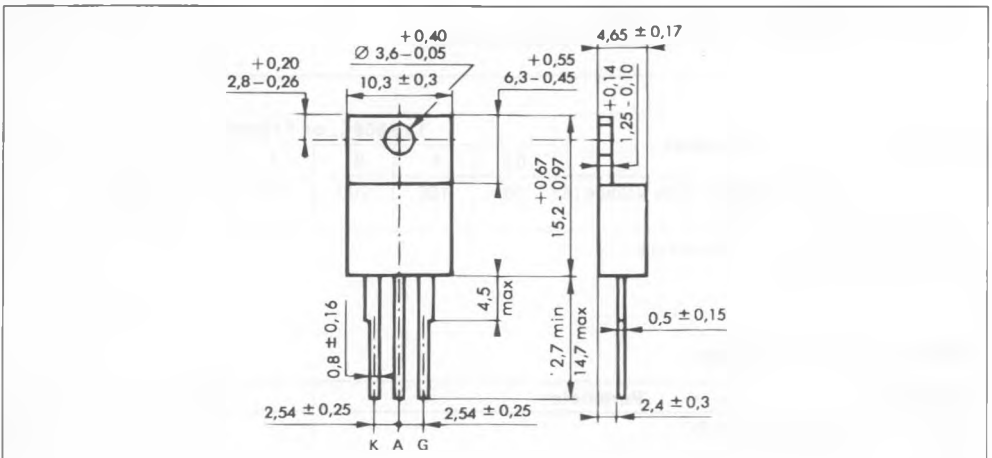
ELECTRICAL CHARACTERISTICS

| Symbol | Types | Test Conditions | Min. | Typ. | Max. | Unit |
|-----------|--------|--|------------------------------------|------|------|------------------|
| I_{GT} | TYS606 | $T_j = 25 \text{ }^\circ\text{C}$ $V_D = 12 \text{ V}$ $R_L = 140 \text{ } \Omega$ | | | 0.2 | mA |
| | TYS607 | Pulse Duration > 20 μs | | | 0.5 | |
| V_{GT} | | $T_j = 25 \text{ }^\circ\text{C}$ $V_D = 12 \text{ V}$ $R_L = 140 \text{ } \Omega$ Pulse Duration > 20 μs | | | 1.5 | V |
| V_{GD} | | $T_j = 110 \text{ }^\circ\text{C}$ $V_D = V_{DRM}$ $R_L = 3.3 \text{ k}\Omega$ $R_{GK} = 1 \text{ k}\Omega$ | 0.1 | | | V |
| I_H | | $T_j = 25 \text{ }^\circ\text{C}$ $I_T = 50 \text{ mA}$ $R_{GK} = 1 \text{ k}\Omega$ | | | 6 | mA |
| I_L | | $T_j = 25 \text{ }^\circ\text{C}$ $V_D = 12 \text{ V}$ $I_G = 10 \text{ mA}$ Pulse Duration > 20 μs $R_{GK} = 1 \text{ k}\Omega$ | | 10 | | mA |
| V_{TM} | | $T_j = 25 \text{ }^\circ\text{C}$ $I_{TM} = 12 \text{ A}$ $t_p = 10 \text{ ms}$ | | | 1.85 | V |
| I_{DRM} | | V_{DRM} specified $R_{GK} = 1 \text{ k}\Omega$ | $T_j = 25 \text{ }^\circ\text{C}$ | | 0.01 | mA |
| | | | $T_j = 110 \text{ }^\circ\text{C}$ | | 0.5 | |
| I_{RRM} | | V_{RRM} specified $R_{GK} = 1 \text{ k}\Omega$ | $T_j = 25 \text{ }^\circ\text{C}$ | | 0.01 | mA |
| | | | $T_j = 110 \text{ }^\circ\text{C}$ | | 0.5 | |
| t_{gt} | | $T_j = 25 \text{ }^\circ\text{C}$ $V_D = V_{DRM}$ $I_G = 10 \text{ mA}$ $dI_G/dt = 0.15 \text{ A}/\mu\text{s}$ | | | 1.5 | μs |
| t_q | | $T_j = 110 \text{ }^\circ\text{C}$ $I_T = 12 \text{ A}$ $V_R = 24 \text{ V}$ $V_D = 67\% V_{DRM}$ $dI/dt = 10 \text{ A}/\mu\text{s}$ $R_{GK} = 1 \text{ k}\Omega$ $dv/dt = 10 \text{ V}/\mu\text{s}$ | | | 100 | μs |
| dv/dt^* | | $T_j = 110 \text{ }^\circ\text{C}$ $R_{GK} = 1 \text{ k}\Omega$ Linear Slope up to $V_D = 67\% V_{DRM}$ | | 10 | | V/ μs |

* For higher guaranteed values, please consult us.

PACKAGE MECHANICAL DATA

TO 220 AB Plastic



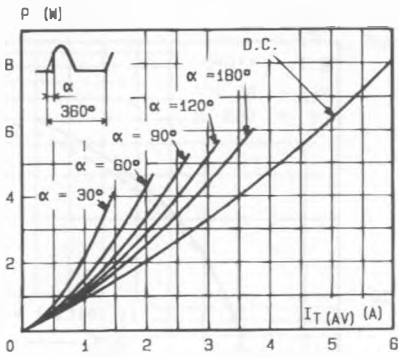


Fig.1 - Maximum mean power dissipation versus mean on-state current.

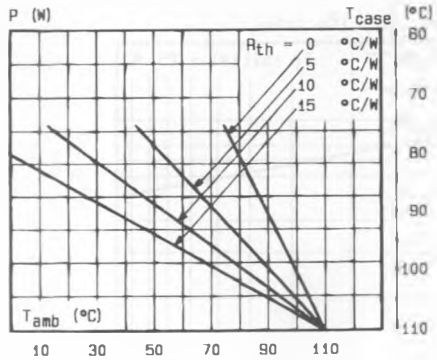


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

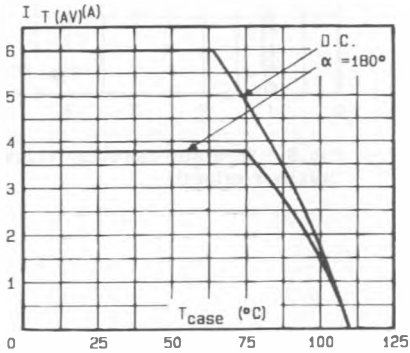


Fig.3 - Mean on-state current versus case temperature.

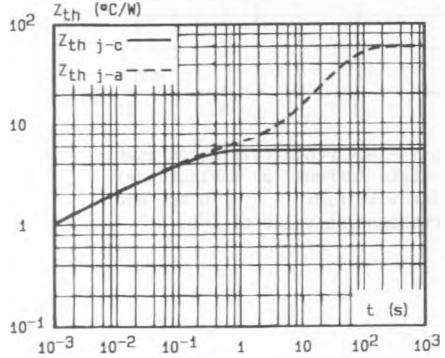


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

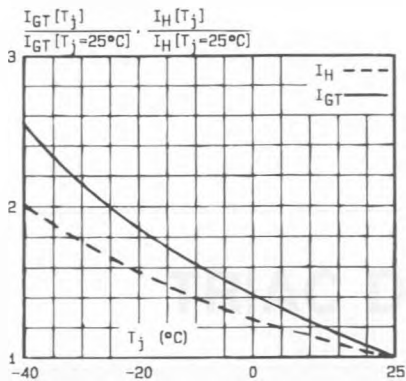


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

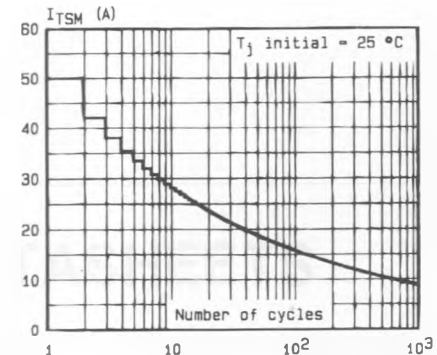


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

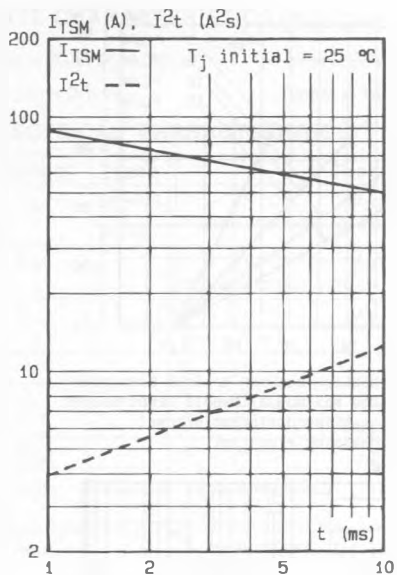


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t \leq 10$ ms, and corresponding value of I^2t .

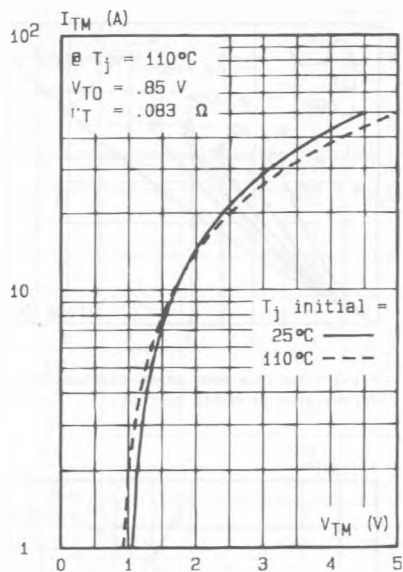


Fig.8 - On-state characteristics (maximum values).