

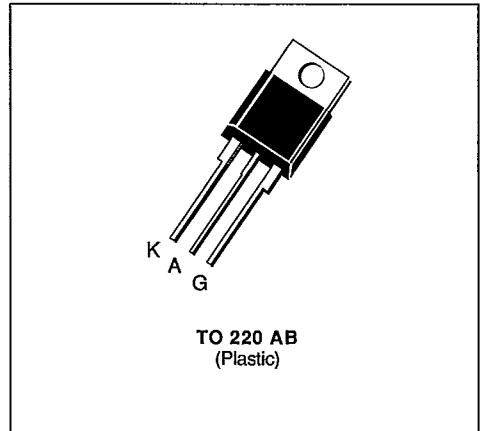

SGS-THOMSON
 MICROELECTRONICS

TXN/TYN 058,G,K → 1008,G,K

S G S-THOMSON

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) | $T_c = 75\text{ °C}$ | 8 | A |
| $I_{T(AV)}$ | Mean on-state Current (1) | $T_c = 75\text{ °C}$ | 5 | A |
| I_{TSM} | Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C) (2) | $t = 8.3\text{ ms}$ | 84 | A |
| | | $t = 10\text{ ms}$ | 80 | |
| I^2t | I^2t Value for Fusing | $t = 10\text{ ms}$ | 32 | A ² s |
| dI/dt | Critical Rate of Rise of on-state Current (3) | | 50 | A/μs |
| T_{stg} T_j | Storage and Operating Junction Temperature Range | | - 40 to 110 | °C |
| | | | - 40 to 110 | °C |

| Symbol | Parameter | TXN/TYN ..., G, K | | | | | | Unit | |
|------------------------|---------------------------------------|-------------------|-----|-----|-----|-----|-----|------|------|
| | | 058 | 108 | 208 | 408 | 608 | 808 | | 1008 |
| 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) $I_G = 400\text{ mA}$ $di/dt = 1\text{ A/μs}$.

 (4) $T_j = 110\text{ °C}$.

THERMAL RESISTANCES

| Symbol | Parameter | Value | Unit |
|---------------|------------------------|-------|------|
| $R_{th(j-c)}$ | Junction-case for D.C. | 4.7 | °C/W |
| $R_{th(j-a)}$ | Junction-ambient | 60 | °C/W |

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T-25-15

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} | $T_j = 25 \text{ }^\circ\text{C}$ $V_D = 12 \text{ V}$ $R_L = 33 \text{ } \Omega$ Pulse Duration > 20 μs | Without Suffix | | 15 | mA |
| | | Suffix G | | 25 | |
| | | Suffix K | | 40 | |
| V_{GT} | $T_j = 25 \text{ }^\circ\text{C}$ $V_D = 12 \text{ V}$ $R_L = 33 \text{ } \Omega$ Pulse Duration > 20 μs | | | 1.5 | V |
| V_{GD} | $T_j = 110 \text{ }^\circ\text{C}$ $V_D = V_{DRM}$ $R_L = 3.3 \text{ k}\Omega$ | 0.2 | | | V |
| I_H | $T_j = 25 \text{ }^\circ\text{C}$ $I_T = 100 \text{ mA}$ Gate Open | Without Suffix | | 30 | mA |
| | | Suffix G | | 45 | |
| | | Suffix K | | 60 | |
| I_L | $T_j = 25 \text{ }^\circ\text{C}$ $V_D = 12 \text{ V}$ $I_G = 80 \text{ mA}$ Pulse Duration > 20 μs | | 50 | | mA |
| V_{TM} | $T_j = 25 \text{ }^\circ\text{C}$ $I_{TM} = 16 \text{ A}$ $t_p = 10 \text{ ms}$ | | | 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_{gt} | $T_j = 25 \text{ }^\circ\text{C}$ $V_D = V_{DRM}$ $I_G = 40 \text{ mA}$ $di/dt = 0.45 \text{ A}/\mu\text{s}$ | | 2 | | μs |
| t_q | $T_j = 110 \text{ }^\circ\text{C}$ $I_T = 16 \text{ A}$ $V_D = 67 \% V_{DRM}$ $di/dt = 30 \text{ A}/\mu\text{s}$ $dv/dt = 50 \text{ V}/\mu\text{s}$ | | 70 | | μs |
| dv/dt^* | $T_j = 110 \text{ }^\circ\text{C}$ Gate Open Linear Slope up to $V_D = 67 \% V_{DRM}$ | Without Suffix | 200 | | V/ μs |
| | | Suffix G | 500 | | |
| | | Suffix K | 750 | | |

* For higher guaranteed values, please consult us.

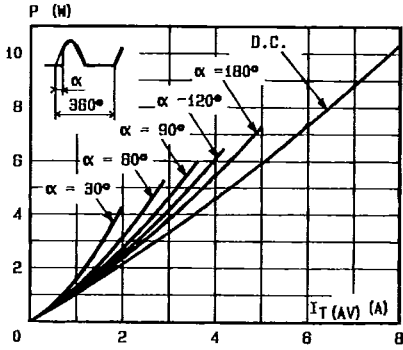


Fig. 1 - Maximum mean power dissipation versus mean on-state current.

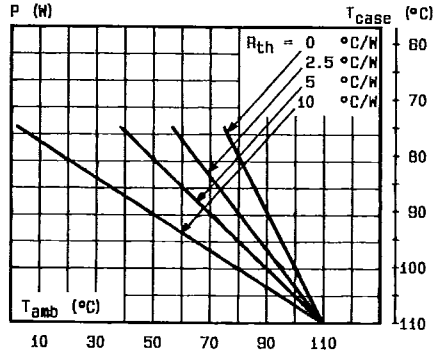


Fig. 2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

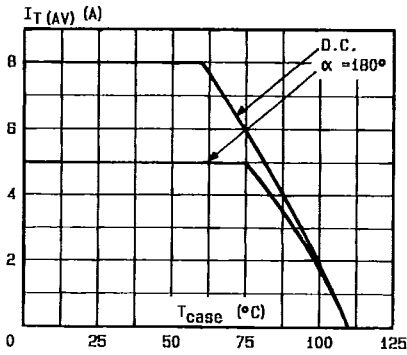


Fig. 3 - Mean on-state current versus case temperature.

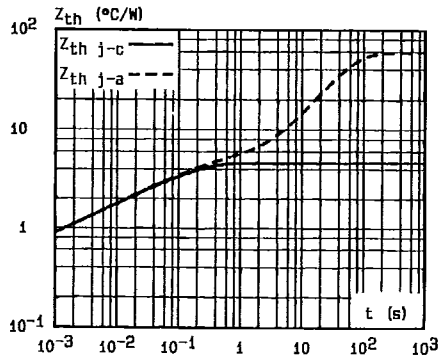


Fig. 4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

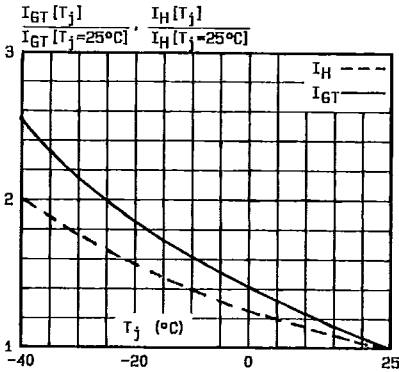


Fig. 5 - Relative variation of gate trigger current and holding current versus junction temperature.

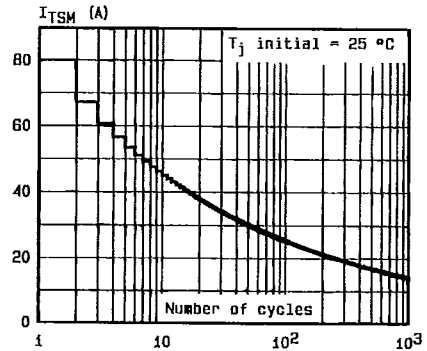


Fig. 6 - Non repetitive surge peak on-state current versus number of cycles.

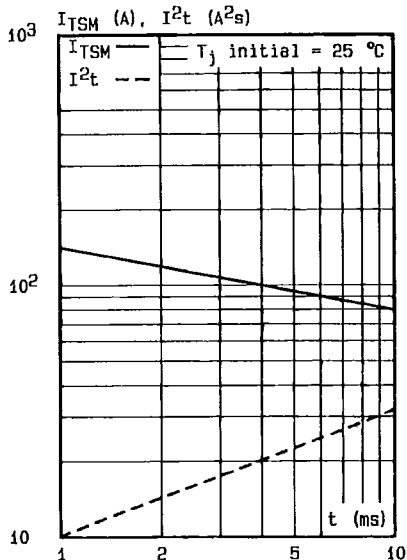


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t \leq 10$ ms, and corresponding value of I^2t .

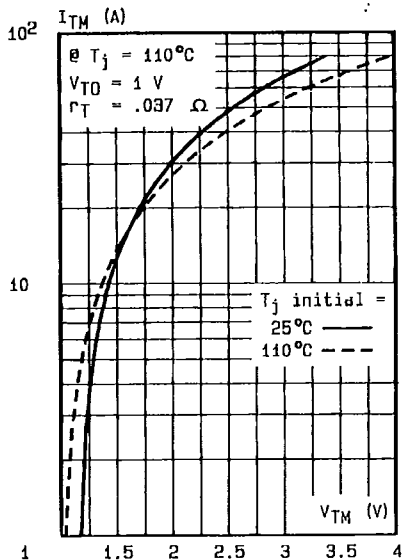
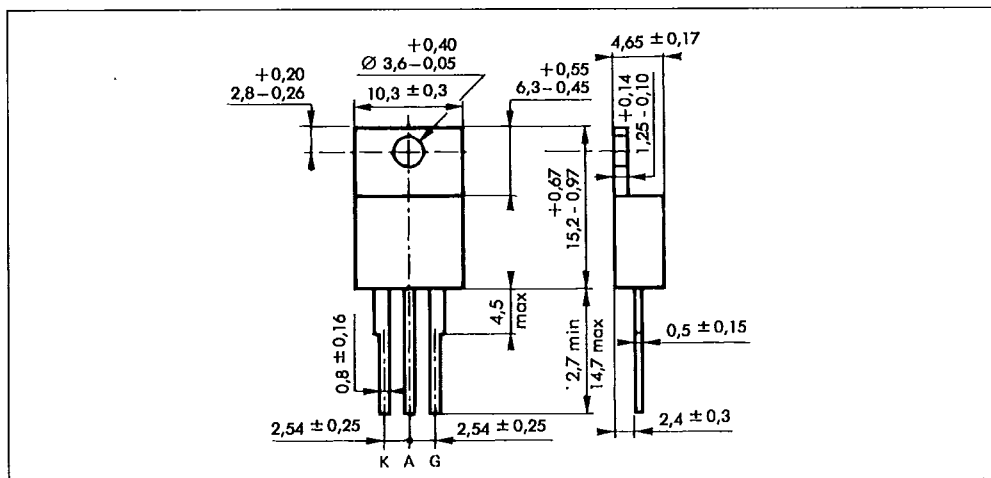


Fig.8 - On-state characteristics (maximum values).

PACKAGE MECHANICAL DATA : TO 220 AB Plastic



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

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This datasheet has been downloaded from:

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Datasheets for electronic components.