

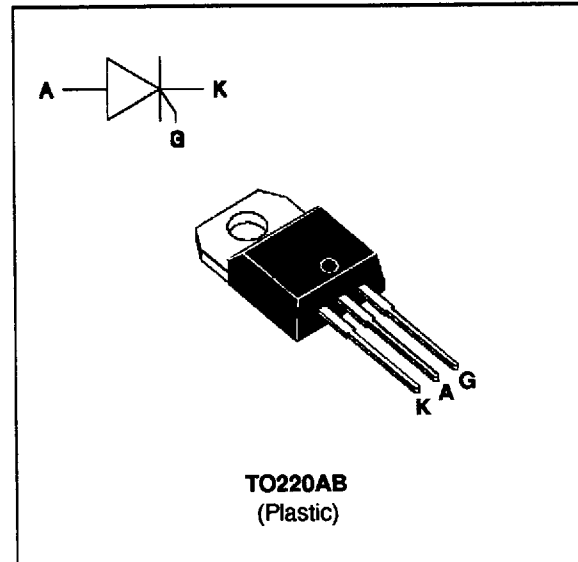
SCR

FEATURES

- HIGH SURGE CAPABILITY
- HIGH ON-STATE CURRENT
- HIGH STABILITY AND RELIABILITY
- TXN Serie :
 INSULATED VOLTAGE = 2500V_(RMS)
 (UL RECOGNIZED : E81734)

DESCRIPTION

The TYN/TXN 058 ---> TYN/TXN 1008 Family of Silicon Controlled Rectifiers uses a high performance glass passivated chips technology. This general purpose Family of Silicon Controlled Rectifiers is designed for power supplies up to 400Hz on resistive or inductive load.


ABSOLUTE RATINGS (limiting values)

| Symbol | Parameter | | Value | Unit |
|--------------------|--|------------------------------------|--------------------------------|------------------|
| $I_T(RMS)$ | RMS on-state current (180° conduction angle) | TXN Tc=100°C TYN Tc=105°C | 8 | A |
| $I_T(AV)$ | Average on-state current (180° conduction angle, single phase circuit) | TXN Tc=100°C TYN Tc=105°C | 5 | A |
| I_{TSM} | Non repetitive surge peak on-state current (T_j initial = 25°C) | $t_p=8.3$ ms | 84 | A |
| | | $t_p=10$ ms | 80 | |
| i^2t | i^2t value | $t_p=10$ ms | 32 | A ² s |
| di/dt | Critical rate of rise of on-state current Gate supply : $I_G = 100$ mA $di_G/dt = 1$ A/ μ s | | 50 | A/ μ s |
| T_{stg} T_j | Storage and operating junction temperature range | | - 40 to + 150 - 40 to + 125 | °C °C |
| T_l | Maximum lead temperature for soldering during 10 s at 4.5 mm from case | | 260 | °C |

| Symbol | Parameter | TYN/TXN | | | | | | | Unit |
|------------------------|---|---------|-----|-----|-----|-----|-----|------|------|
| | | 058 | 108 | 208 | 408 | 608 | 808 | 1008 | |
| V_{DRM} V_{RRM} | Repetitive peak off-state voltage $T_j = 125$ °C | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | V |

THERMAL RESISTANCES

| Symbol | Parameter | Value | Unit |
|--------------|-------------------------|-------|------|
| Rth (j-a) | Junction to ambient | 60 | °C/W |
| Rth (j-c) DC | Junction to case for DC | TXN | 3.5 |
| | | TYN | 2.5 |

GATE CHARACTERISTICS (maximum values)

PG (AV) = 1W PGM = 10W (tp = 20 μs) IFGM = 4A (tp = 20 μs) VRGM = 5 V.

ELECTRICAL CHARACTERISTICS

| Symbol | Test Conditions | | | | Value | | Unit |
|--------------|---|-----------|-----|------|-------|------|------|
| | | | | | BLANK | G | |
| IGT | VD=12V (DC) RL=33Ω | Tj=25°C | MAX | 15 | 25 | mA | |
| VGT | VD=12V (DC) RL=33Ω | Tj=25°C | MAX | 1.5 | | V | |
| VGD | VD=VDRM RL=3.3kΩ | Tj= 110°C | MIN | 0.2 | | V | |
| tgt | VD=VDRM IG = 40mA dIG/dt = 0.5A/μs | Tj=25°C | TYP | 2 | | μs | |
| IL | IG= 1.2 IGT | Tj=25°C | TYP | 50 | | mA | |
| IH | IT= 100mA gate open | Tj=25°C | MAX | 30 | 45 | mA | |
| VTM | ITM= 16A tp= 380μs | Tj=25°C | MAX | 1.8 | | V | |
| IDRM IRRM | VDRM Rated VRRM Rated | Tj=25°C | MAX | 0.01 | | mA | |
| | | Tj= 110°C | | 2 | | | |
| dV/dt | Linear slope up to VD=67%VDRM gate open | Tj= 110°C | MIN | 200 | 500 | V/μs | |
| tq | VD=67%VDRM ITM= 16A VR= 25V dITM/dt=30 A/μs dVD/dt= 50V/μs | Tj= 110°C | TYP | 70 | | μs | |

| Package | $I_{T(RMS)}$ | V_{DRM} / V_{RRM} | Sensitivity Specification | |
|----------------------|--------------|---------------------|---------------------------|---|
| | A | V | BLANK | G |
| TXN (Insulated) | 8 | 50 | X | X |
| | | 100 | X | X |
| | | 200 | X | X |
| | | 400 | X | X |
| | | 600 | X | X |
| | | 800 | X | X |
| | | 1000 | X | X |
| TYN (Uninsulated) | 8 | 50 | X | X |
| | | 100 | X | X |
| | | 200 | X | X |
| | | 400 | X | X |
| | | 600 | X | X |
| | | 800 | X | X |
| | | 1000 | X | X |

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

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

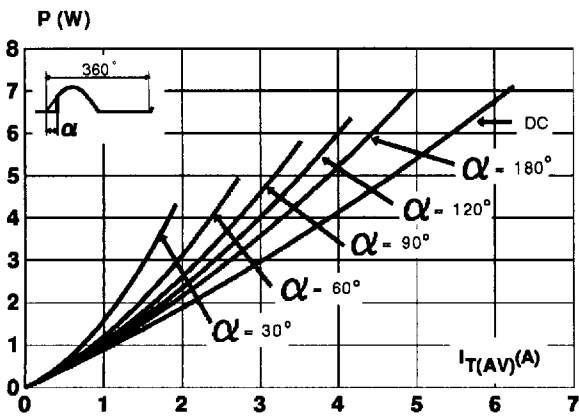


Fig.3 : Maximum average power dissipation versus average on-state current (TYN).

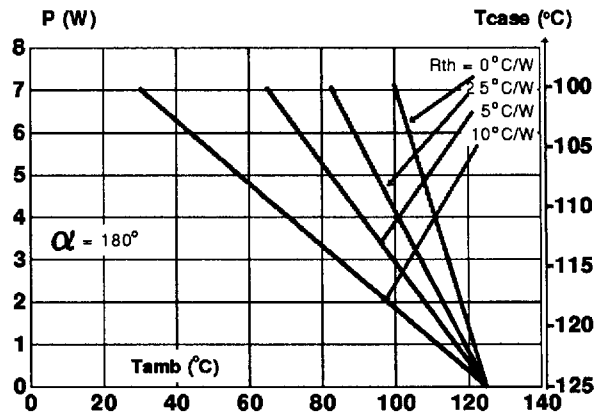
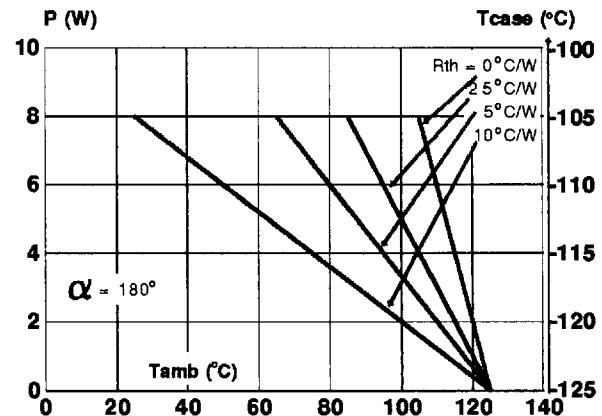
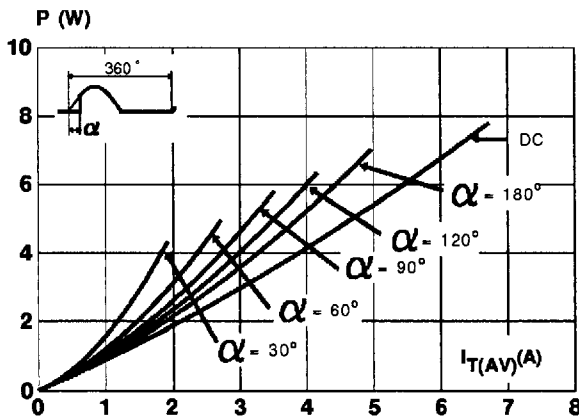


Fig.4 : Correlation between maximum average power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact (TYN).



TXN/TYN 058 (G) ---> TXN/TYN 1008 (G)

Fig.5 : Average on-state current versus case temperature (TXN).

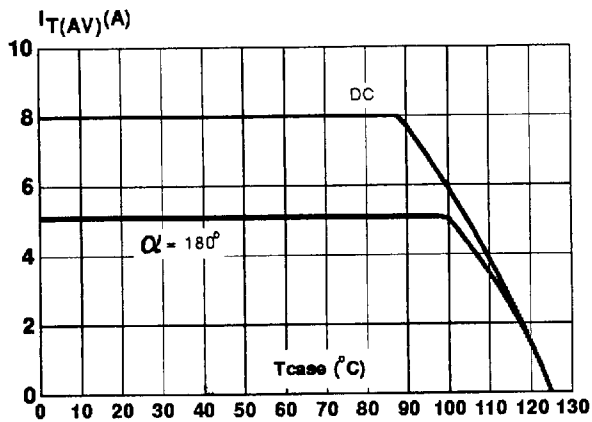


Fig.6 : Average on-state current versus case temperature (TYN).

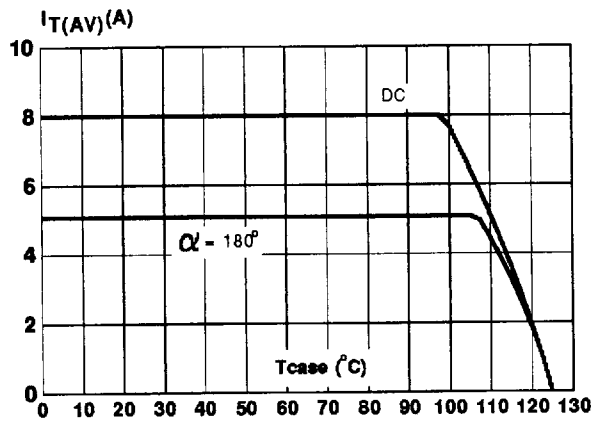


Fig.7 : Relative variation of thermal impedance versus pulse duration.

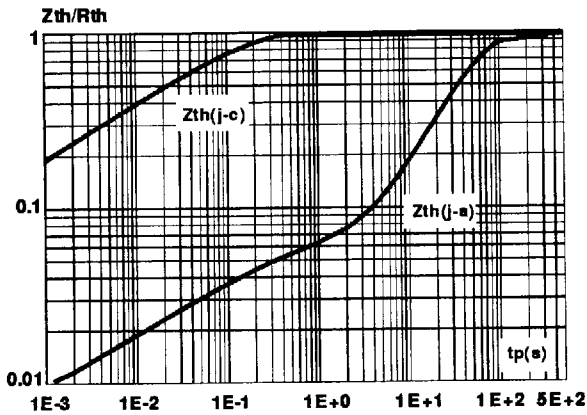


Fig.8 : Relative variation of gate trigger current versus junction temperature.

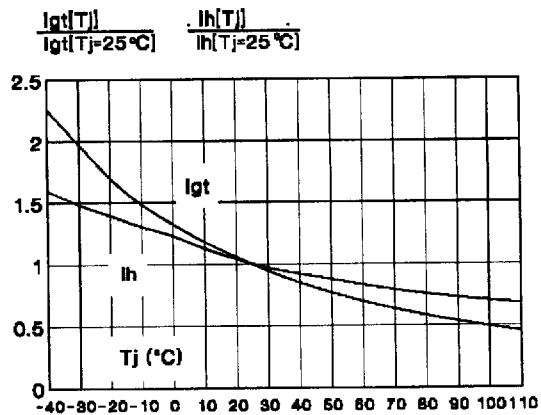


Fig.9 : Non repetitive surge peak on-state current versus number of cycles.

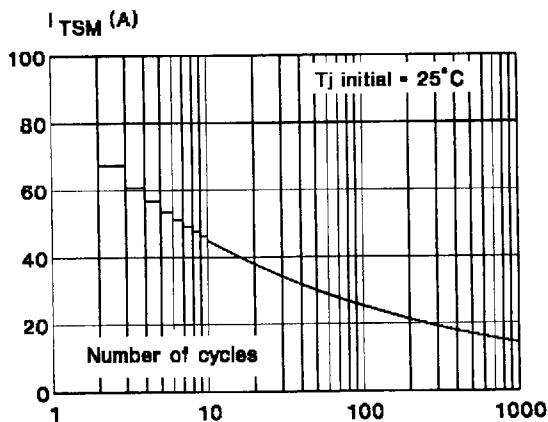


Fig.10 : Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t \leq 10$ ms, and corresponding value of I^2t .

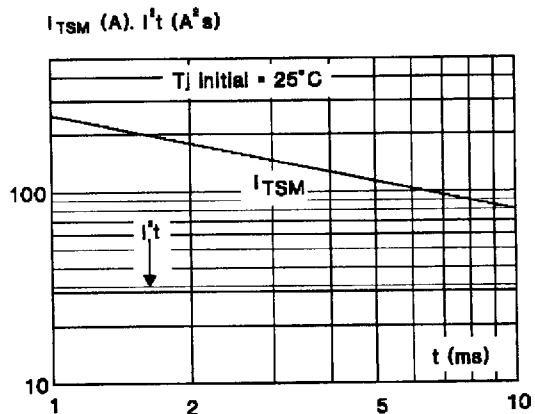
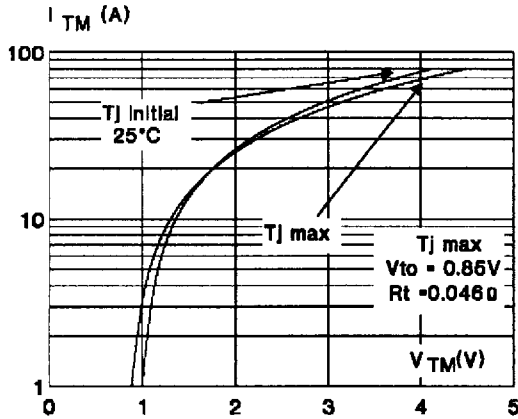
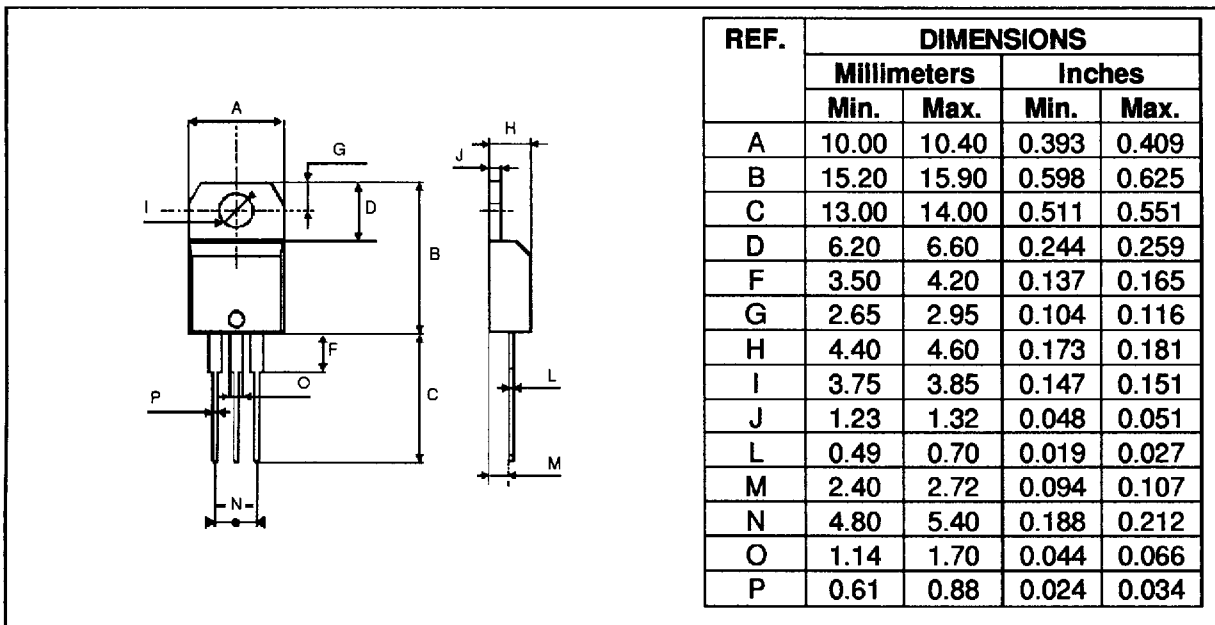


Fig.11 : On-state characteristics (maximum values).



PACKAGE MECHANICAL DATA

TO220AB Plastic



Cooling method : C
 Marking : type number
 Weight : 2.3 g

Recommended torque value : 0.8 m.N.
 Maximum torque value : 1 m.N.

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