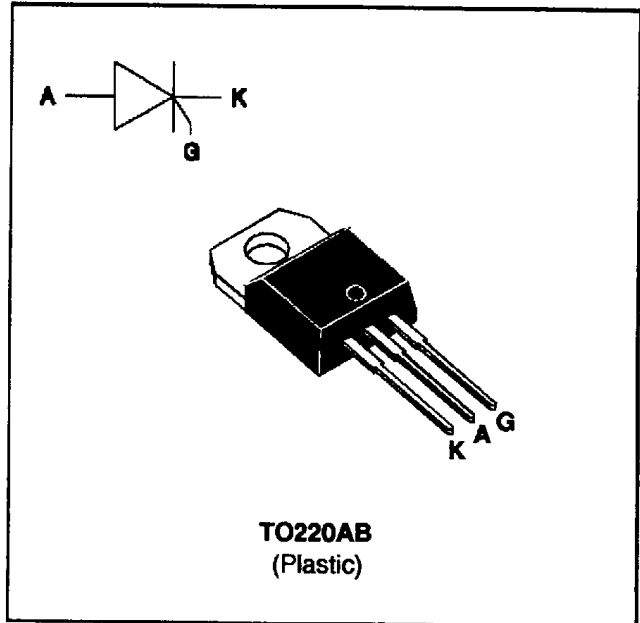




FEATURES

- HIGH SURGE CAPABILITY
- HIGH ON-STATE CURRENT
- HIGH STABILITY AND RELIABILITY



DESCRIPTION

The TYN 204 ---> TYN 1004 Family of Silicon Controlled Rectifiers uses a high performance glass passivated 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) | $T_c = 115\text{ °C}$ | 4 | A |
| $I_T(AV)$ | Average on-state current (180° conduction angle, single phase circuit) | $T_c = 115\text{ °C}$ | 2.5 | A |
| I_{TSM} | Non repetitive surge peak on-state current (T_j initial = 25°C) | $t_p = 8.3\text{ ms}$ | 63 | A |
| | | $t_p = 10\text{ ms}$ | 60 | |
| I^2t | I^2t value | $t_p = 10\text{ ms}$ | 18 | A ² s |
| di/dt | Critical rate of rise of on-state current Gate supply : $I_G = 100\text{ mA}$ $di_G/dt = 1\text{ A}/\mu\text{s}$ | | 100 | A/ μs |
| T_{stg} T_j | Storage and operating junction temperature range | | - 40 to + 150 | °C |
| | | | - 40 to + 125 | °C |
| T_l | Maximum lead temperature for soldering during 10 s at 4.5 mm from case | | 260 | °C |

| Symbol | Parameter | TYN | | | | | Unit |
|------------------------|--|-----|-----|-----|-----|------|------|
| | | 204 | 404 | 604 | 804 | 1004 | |
| V_{DRM} V_{RRM} | Repetitive peak off-state voltage $T_j = 125\text{ °C}$ | 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 | 2.5 | °C/W |

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 |
|--------------|--|-----------|-----|-------|------|
| IGT | VD=12V (DC) RL=33Ω | Tj=25°C | MAX | 15 | 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 | I _T = 100mA gate open | Tj=25°C | MAX | 30 | mA |
| VTM | ITM= 8A 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 | V/μs |
| tq | VD=67%VDRM ITM= 8A VR= 25V dITM/dt=30 A/μs dVD/dt= 50V/μs | Tj= 110°C | TYP | 70 | μs |

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

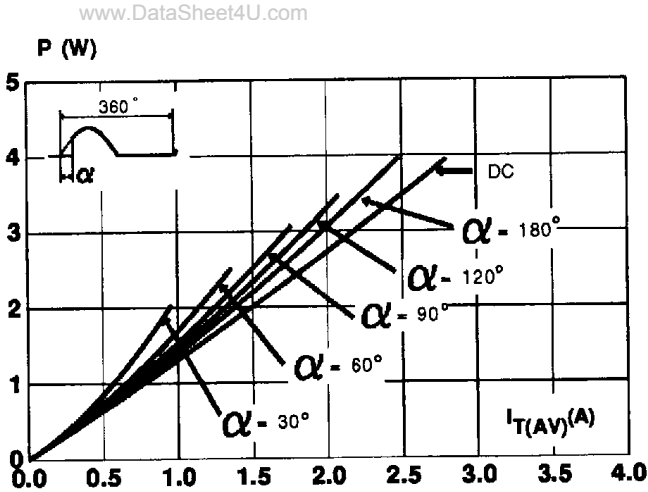


Fig.2 : Correlation between maximum average power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

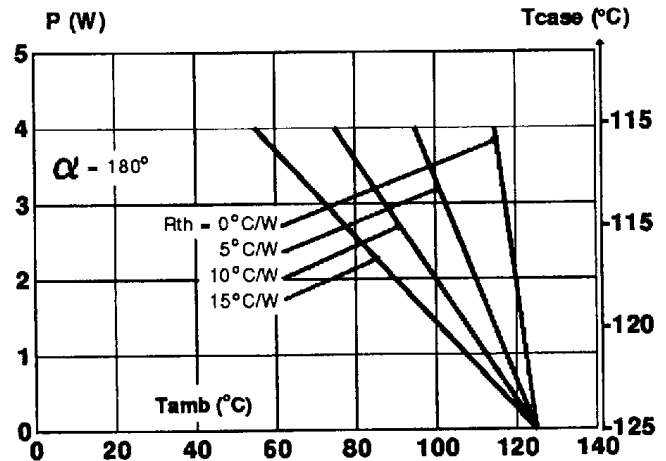


Fig.3 : Average on-state current versus case temperature.

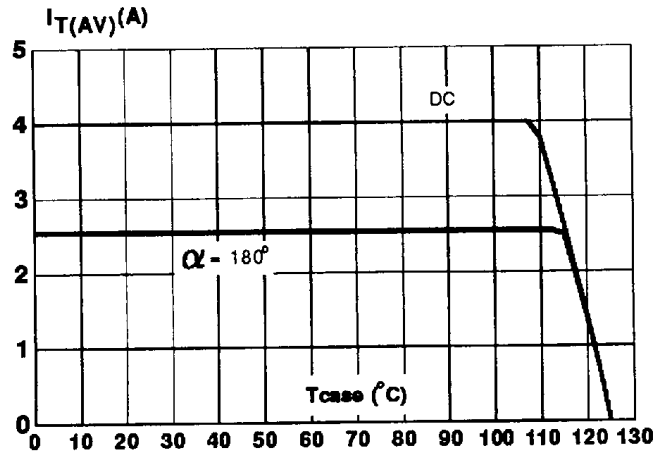


Fig.4 : Relative variation of thermal impedance versus pulse duration.

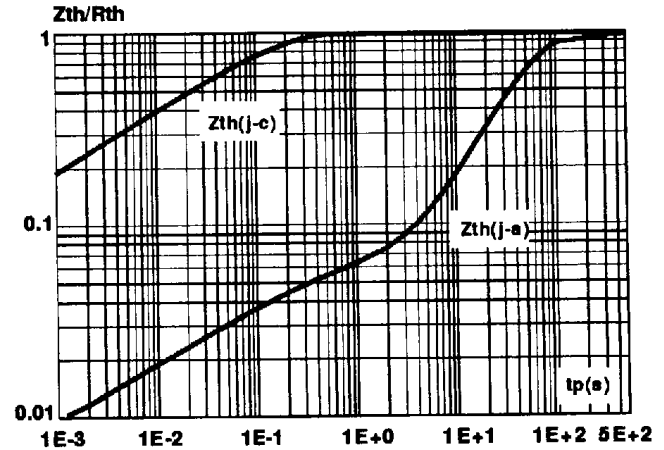


Fig.5 : Relative variation of gate trigger current versus junction temperature.

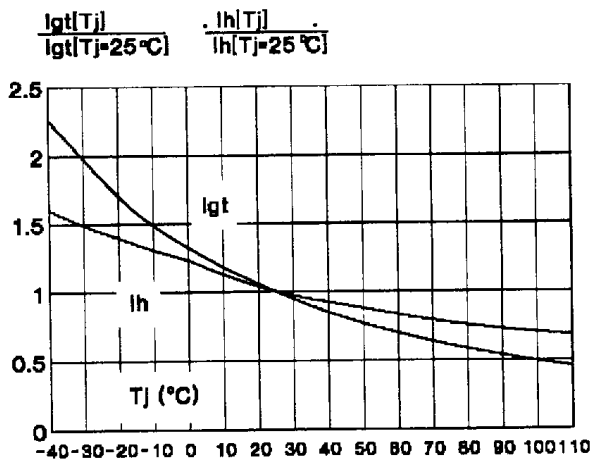


Fig.6 : Non repetitive surge peak on-state current versus number of cycles.

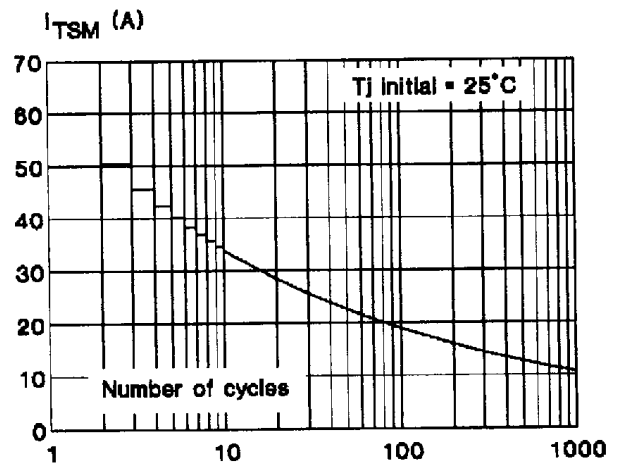
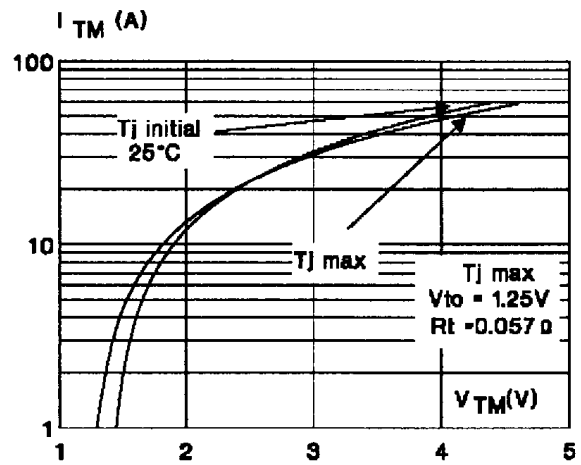
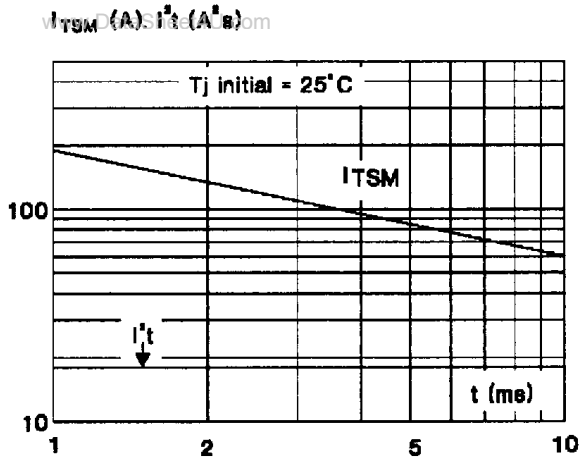


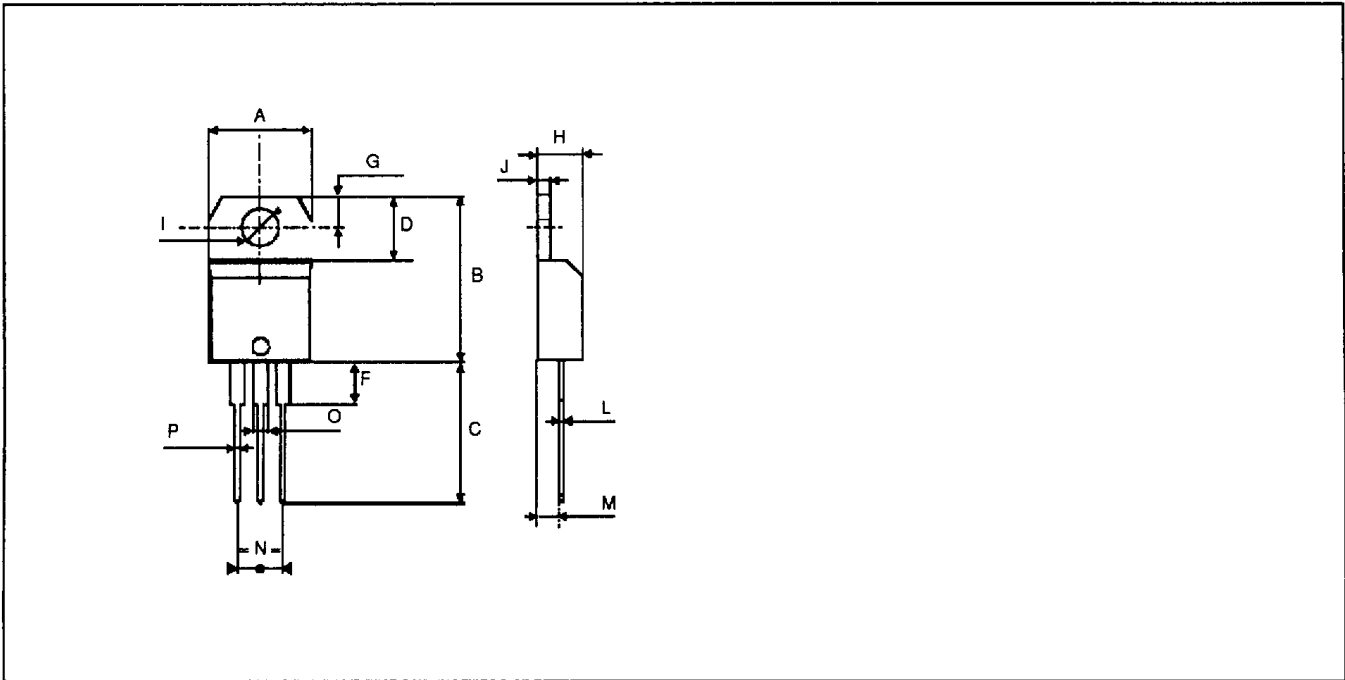
Fig.7 : Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t \leq 10$ ms, and corresponding value of I^2t .

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



PACKAGE MECHANICAL DATA

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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