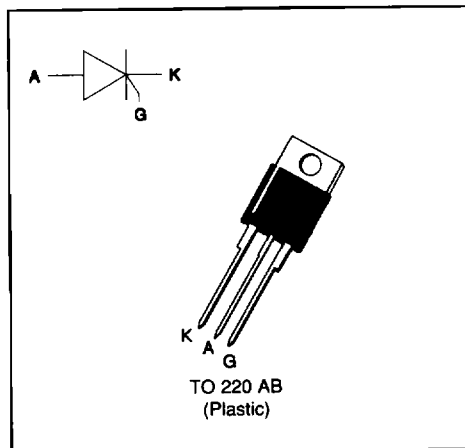


**FEATURES**

- HIGH SURGE CAPABILITY
- HIGH ON-STATE CURRENT
- HIGH STABILITY AND RELIABILITY
- TXN Serie :  
 INSULATED VOLTAGE = 2500V<sub>(RMS)</sub>  
 (UL RECOGNIZED : E81734)

**DESCRIPTION**

The TYN/TXN 0512 ---> TYN/TXN 1012 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)	TXN Tc=80°C Tc=90°C 12	A
$I_T(AV)$	Average on-state current (180° conduction angle, single phase circuit)	TXN Tc=80°C Tc=90°C 8	A
$I_{TSM}$	Non repetitive surge peak on-state current ( $T_j$ initial = 25°C )	tp=8.3 ms	125
		tp=10 ms	120
$I_2^2t$	$I_2^2t$ value	tp=10 ms	72
$di/dt$	Critical rate of rise of on-state current Gate supply : $I_G = 150$ mA $di_G/dt = 1$ A/ $\mu$ s	100	A/ $\mu$ 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	230	°C

Symbol	Parameter	TYN/TXN							Unit
		0512	112	212	412	612	812	1012	
$V_{DRM}$ $V_{RRM}$	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	°C/W
		TYN	2.5	

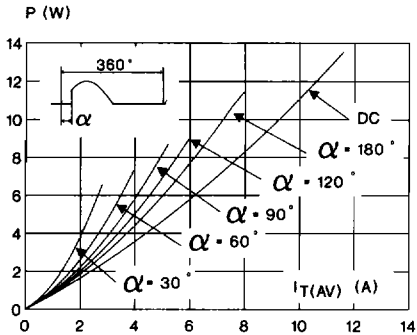
**GATE CHARACTERISTICS (maximum values)**

PG (AV) = 1W    PGM = 40W (tp = 20 μs)    I<sub>FGM</sub> = 4A (tp = 20 μs)    V<sub>FGM</sub> = 16V (tp = 20 μs)    V<sub>RGM</sub> = 5 V.

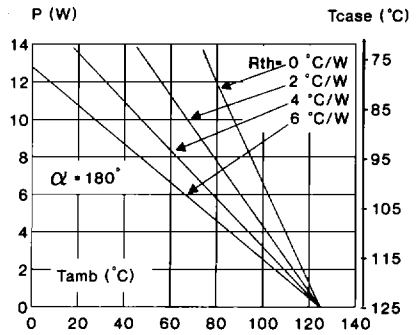
**ELECTRICAL CHARACTERISTICS**

Symbol	Test Conditions			Value	Unit
I <sub>GT</sub>	V <sub>D</sub> =12V (DC) R <sub>L</sub> =33Ω	T <sub>J</sub> =25°C	MAX	15	mA
V <sub>GT</sub>	V <sub>D</sub> =12V (DC) R <sub>L</sub> =33Ω	T <sub>J</sub> =25°C	MAX	1.5	V
V <sub>GD</sub>	V <sub>D</sub> =V <sub>DRM</sub> R <sub>L</sub> =3.3kΩ	T <sub>J</sub> = 125°C	MIN	0.2	V
t <sub>gt</sub>	V <sub>D</sub> =V <sub>DRM</sub> I <sub>G</sub> = 90mA dI <sub>G</sub> /dt = 0.8A/μs	T <sub>J</sub> =25°C	TYP	2	μs
I <sub>L</sub>	I <sub>G</sub> = 1.2 I <sub>GT</sub>	T <sub>J</sub> =25°C	TYP	50	mA
I <sub>H</sub>	I <sub>T</sub> = 100mA gate open	T <sub>J</sub> =25°C	MAX	30	mA
V <sub>TM</sub>	I <sub>TM</sub> = 24A tp= 380μs	T <sub>J</sub> =25°C	MAX	1.6	V
I <sub>DRM</sub> I <sub>RRM</sub>	V <sub>DRM</sub> Rated V <sub>RRM</sub> Rated	T <sub>J</sub> =25°C	MAX	0.01	mA
		T <sub>J</sub> = 125°C		3	
dV/dt	Linear slope up to V <sub>D</sub> =67%V <sub>DRM</sub> gate open	T <sub>J</sub> = 125°C	MIN	200	V/μs
T <sub>q</sub>	V <sub>D</sub> =67%V <sub>DRM</sub> I <sub>TM</sub> = 24A V <sub>R</sub> = 25V dI <sub>TM</sub> /dt=30 A/μs dV <sub>D</sub> /dt= 50V/μs	T <sub>J</sub> = 125°C	TYP	70	μs

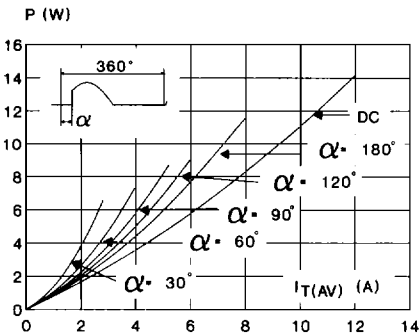
**Fig.1 :** Maximum average power dissipation versus average on-state current (TXN).



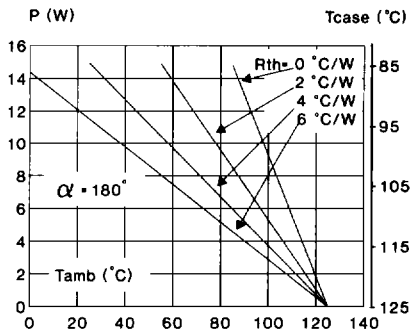
**Fig.2 :** Correlation between maximum average power dissipation and maximum allowable temperatures ( $T_{amb}$  and  $T_{case}$ ) for different thermal resistances heatsink + contact (TXN).



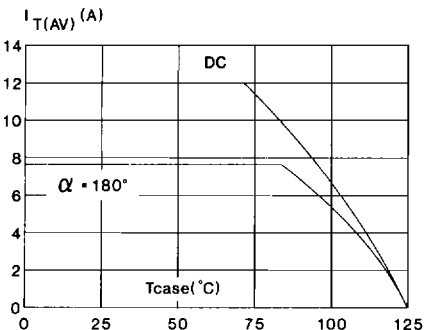
**Fig.3 :** Maximum average power dissipation versus average on-state current (TYN).



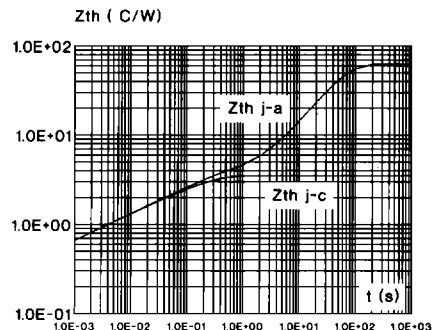
**Fig.4 :** Correlation between maximum average power dissipation and maximum allowable temperatures ( $T_{amb}$  and  $T_{case}$ ) for different thermal resistances heatsink + contact (TYN).



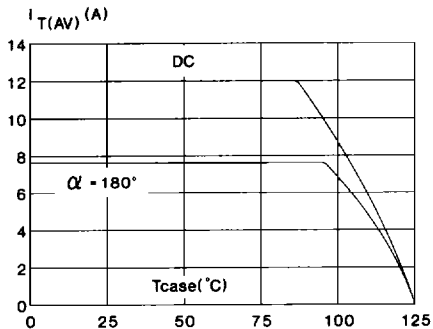
**Fig.5 :** Average on-state current versus case temperature (TXN).



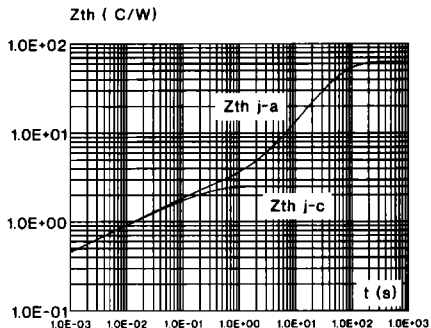
**Fig.6 :** Thermal transient impedance junction to ambient versus pulse duration (TXN).



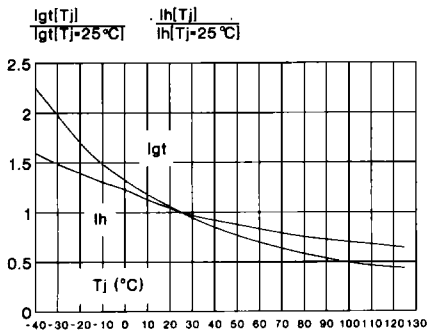
**Fig.7 :** Average on-state current versus case temperature (TYN).



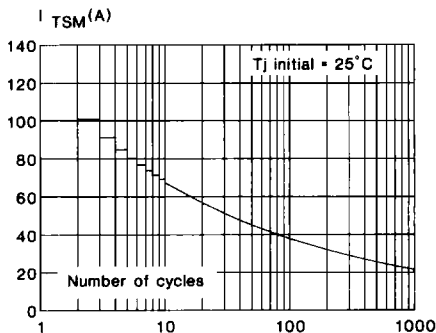
**Fig.8 :** Thermal transient impedance junction to ambient versus pulse duration (TYN).



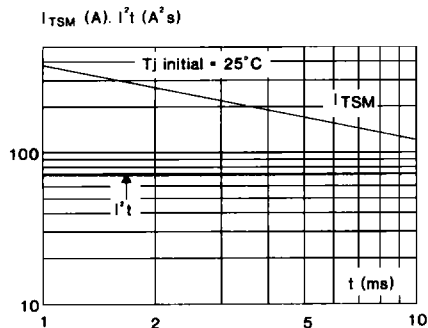
**Fig.9 :** Relative variation of gate trigger current versus junction temperature.



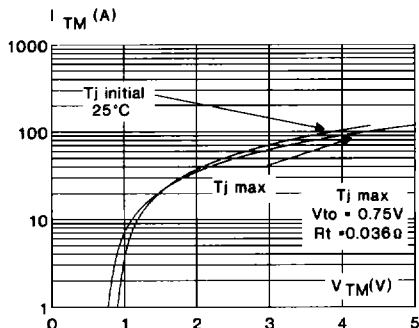
**Fig.10 :** Non repetitive surge peak on-state current versus number of cycles.



**Fig.11 :** Non repetitive surge peak on-state current for a sinusoidal pulse with width :  $t \leq 10$  ms, and corresponding value of  $I^2t$ .

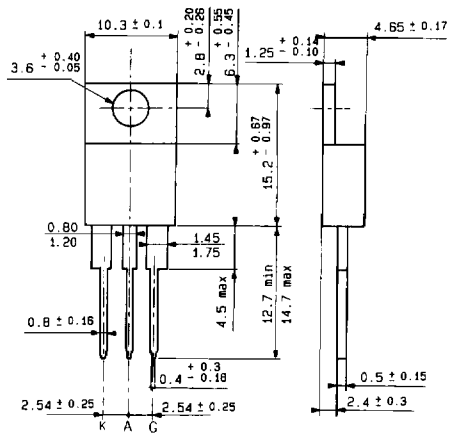


**Fig.12 :** On-state characteristics (maximum values).



**PACKAGE MECHANICAL DATA** (in millimeters)

TO 220 AB Plastic



Cooling method : by conduction (method C)

Marking : type number

Weight : 2 g

Polarity : N A

Stud torque : N A