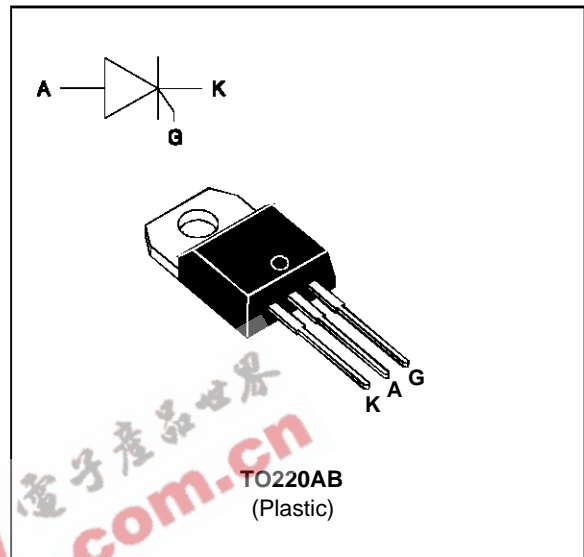


**FEATURES**

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

**DESCRIPTION**

The TYN/TXN 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 <sub>T(RMS)</sub>	RMS on-state current (180° conduction angle)	TXN TYN T <sub>c</sub> =80°C T <sub>c</sub> =90°C	12	A
I <sub>T(AV)</sub>	Average on-state current (180° conduction angle, single phase circuit)	TXN TYN T <sub>c</sub> =80°C T <sub>c</sub> =90°C	8	A
I <sub>TSM</sub>	Non repetitive surge peak on-state current (T <sub>j</sub> initial = 25°C)	tp=8.3 ms	125	A
		tp=10 ms	120	
i <sup>2</sup> <sub>t</sub>	i <sup>2</sup> <sub>t</sub> value	tp=10 ms	72	A <sup>2</sup> s
di/dt	Critical rate of rise of on-state current Gate supply : I <sub>G</sub> = 100 mA di <sub>G</sub> /dt = 1 A/μs		100	A/μs
T <sub>stg</sub> T <sub>j</sub>	Storage and operating junction temperature range		- 40 to + 150 - 40 to + 125	°C °C
T <sub>I</sub>	Maximum lead temperature for soldering during 10 s at 4.5 mm from case		260	°C

Symbol	Parameter	TYN/TXN							Unit
		0512	112	212	412	612	812	1012	
V <sub>DRM</sub> V <sub>RRM</sub>	Repetitive peak off-state voltage T <sub>j</sub> = 125 °C	50	100	200	400	600	800	1000	V

## TXN/TYN 0512 ---> TXN/TYN 1012

### 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	

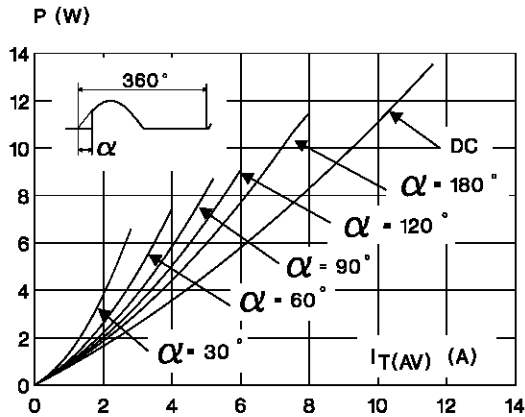
### GATE CHARACTERISTICS (maximum values)

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

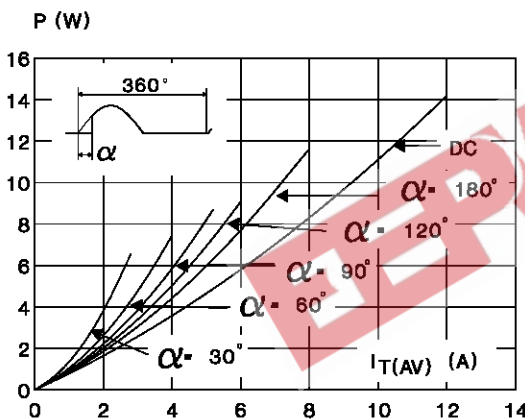
### ELECTRICAL CHARACTERISTICS

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= 125°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	mA
VTM	ITM= 24A tp= 380μs	Tj=25°C MAX	1.6	V
IDRM IRRM	VDRM Rated VRRM Rated	Tj=25°C MAX	0.01	mA
		Tj= 125°C	3	
dV/dt	Linear slope up to VD=67%VDRM gate open	Tj= 125°C MIN	200	V/μs
tq	VD=67%VDRM ITM= 24A VR= 25V dITM/dt=30 A/μs dVD/dt= 50V/μs	Tj= 125°C TYP	70	μs

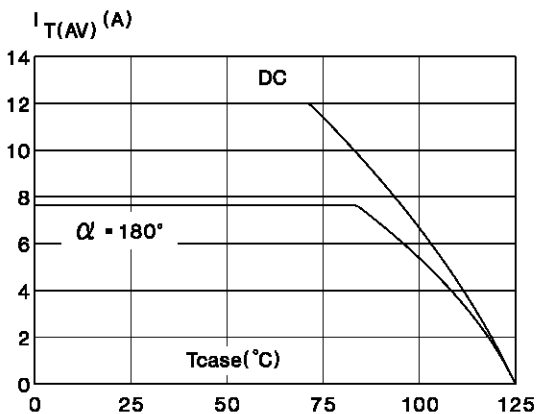
**Fig.1** : Maximum average power dissipation versus average on-state current (TXN).



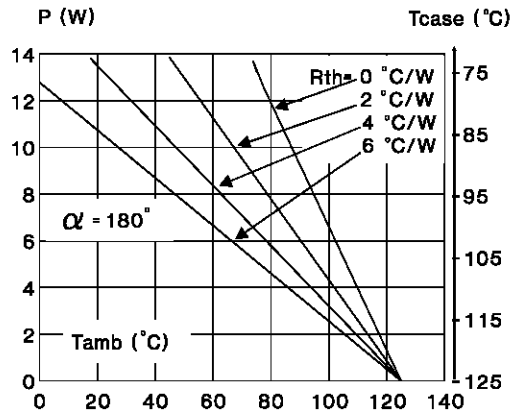
**Fig.3** : Maximum average power dissipation versus average on-state current (TYN).



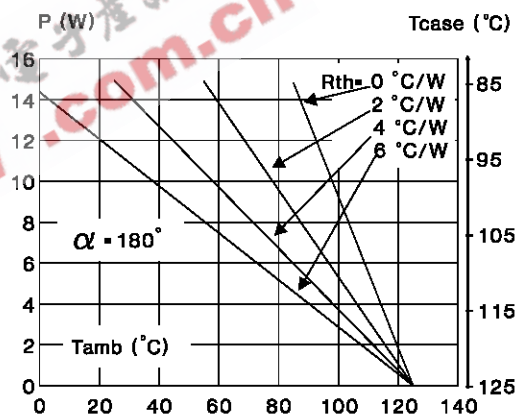
**Fig.5** : Average on-state current versus case temperature (TXN).



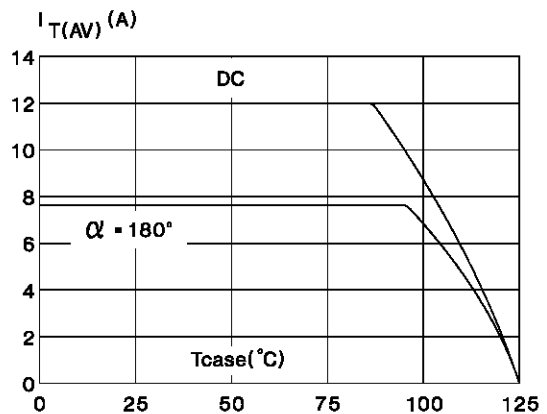
**Fig.2** : Correlation between maximum average power dissipation and maximum allowable temperatures ( $T_{amb}$  and  $T_{case}$ ) for different thermal resistances heatsink + contact (TXN).



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

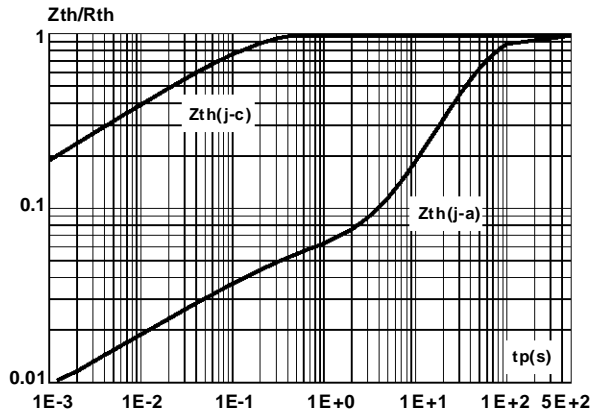


**Fig.6** : Average on-state current versus case temperature (TYN).

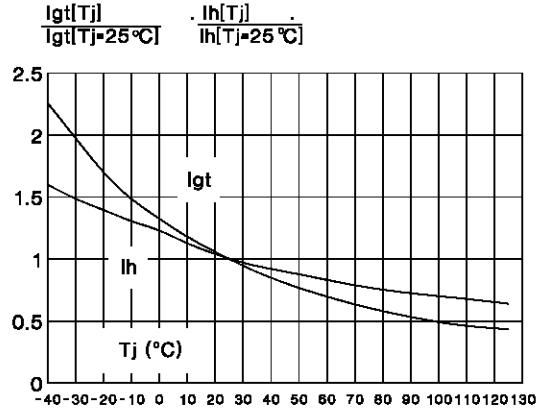


**TXN/TYN 0512 ---> TXN/TYN 1012**

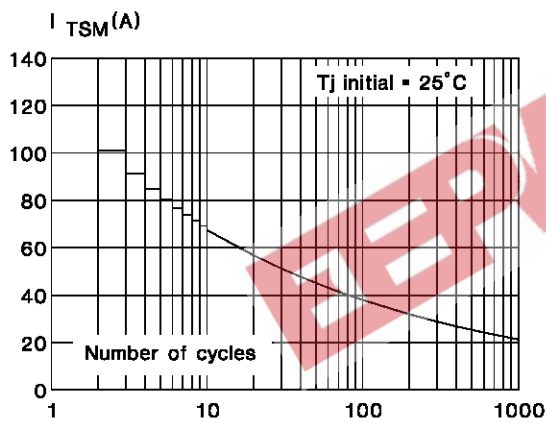
**Fig.7 :** Relative variation of thermal impedance versus pulse duration.



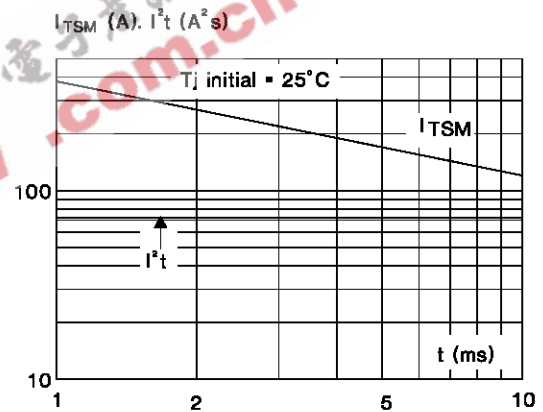
**Fig.8 :** Relative variation of gate trigger current versus junction temperature.



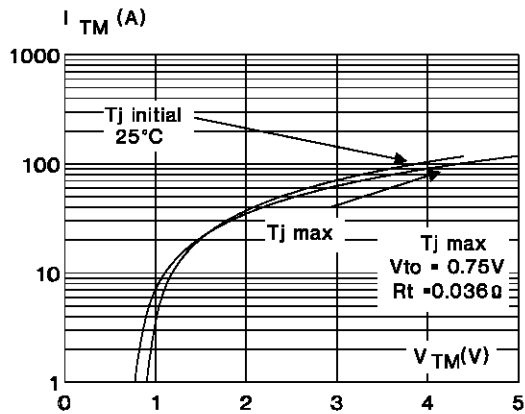
**Fig.9 :** Non repetitive surge peak on-state current versus number of cycles.



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

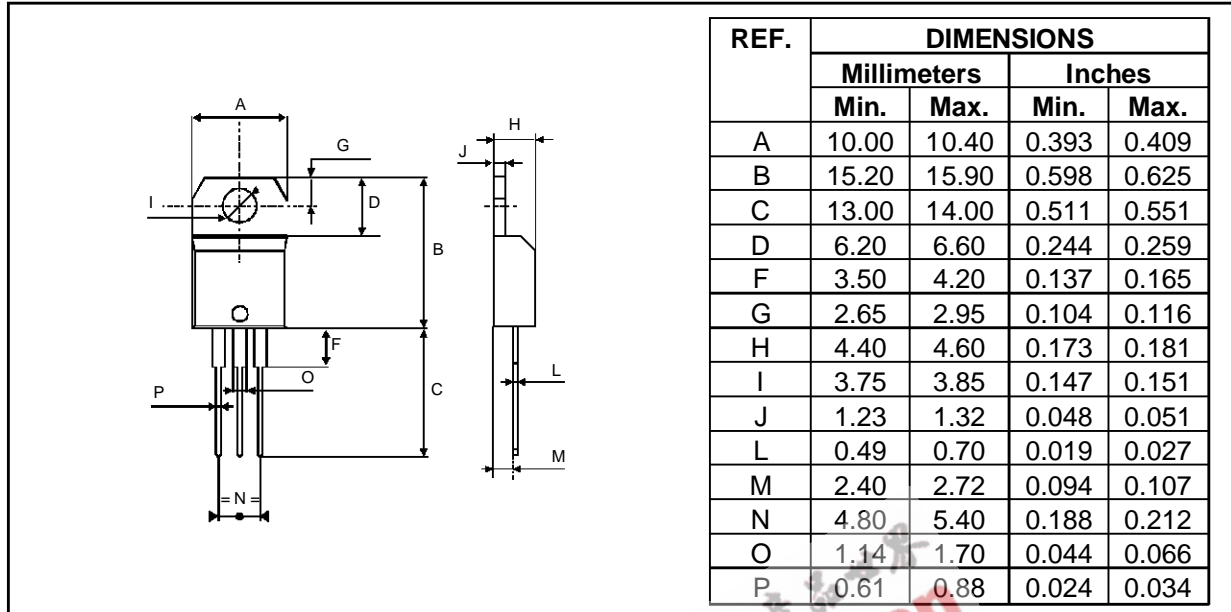


**Fig.11 :** On-state characteristics (maximum values).



**PACKAGE MECHANICAL DATA**

TO220AB Plastic



Cooling method : by conduction (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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