

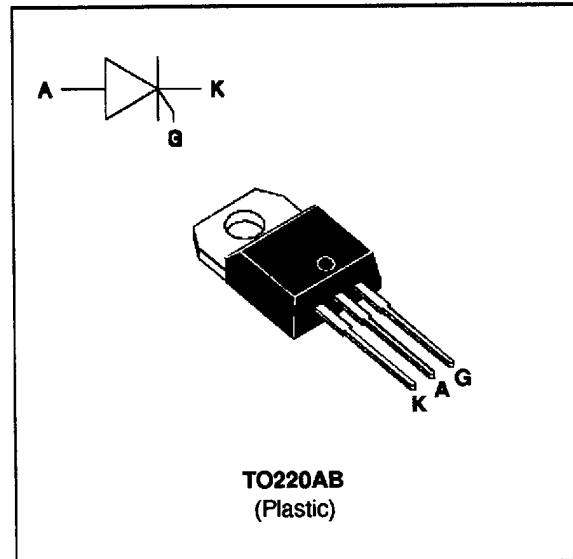


**FEATURES**

- 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 <sub>J</sub> initial = 25°C )	tp=8.3 ms	84	A
		tp=10 ms	80	
$i^2t$	$i^2t$ value	tp=10 ms	32	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		50	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
		058	108	208	408	608	808	1008	
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

**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
					BLANK	G	
IGT	V <sub>D</sub> =12V (DC) R <sub>L</sub> =33Ω	T <sub>J</sub> =25°C	MAX	15	25	mA	
VGT	V <sub>D</sub> =12V (DC) R <sub>L</sub> =33Ω	T <sub>J</sub> =25°C	MAX	1.5		V	
VGD	V <sub>D</sub> =V <sub>DRM</sub> R <sub>L</sub> =3.3kΩ	T <sub>J</sub> = 110°C	MIN	0.2		V	
tgt	V <sub>D</sub> =V <sub>DRM</sub> I <sub>G</sub> = 40mA dI <sub>G</sub> /dt = 0.5A/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	45	mA	
V <sub>TM</sub>	I <sub>TM</sub> = 16A tp= 380μs	T <sub>J</sub> =25°C	MAX	1.8		V	
I <sub>DRM</sub> I <sub>R</sub> RRM	V <sub>DRM</sub> Rated V <sub>R</sub> RRM Rated	T <sub>J</sub> =25°C	MAX	0.01		mA	
		T <sub>J</sub> = 110°C		2			
dV/dt	Linear slope up to V <sub>D</sub> =67%V <sub>DRM</sub> gate open	T <sub>J</sub> = 110°C	MIN	200	500	V/μs	
tq	V <sub>D</sub> =67%V <sub>DRM</sub> I <sub>TM</sub> = 16A V <sub>R</sub> = 25V dI <sub>TM</sub> /dt=30 A/μs dV <sub>D</sub> /dt= 50V/μs	T <sub>J</sub> = 110°C	TYP	70		μs	

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

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).

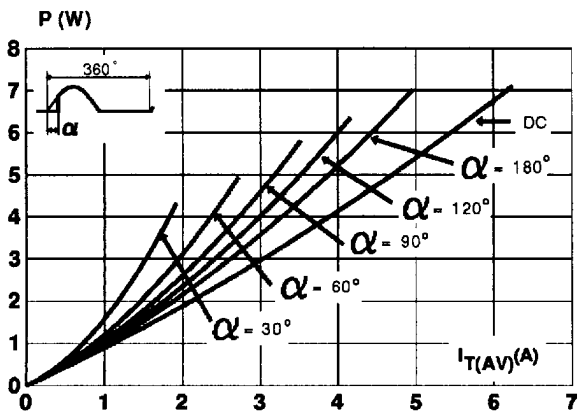


Fig.3 : Maximum average power dissipation versus average on-state current (TYN).

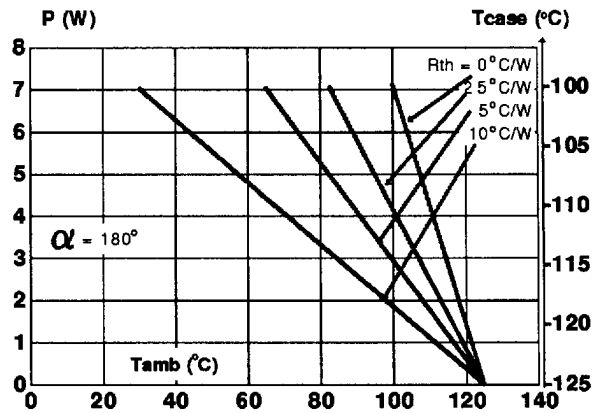


Fig.4 : Correlation between maximum average power dissipation and maximum allowable temperatures ( $T_{amb}$  and  $T_{case}$ ) for different thermal resistances heatsink + contact (TYN).

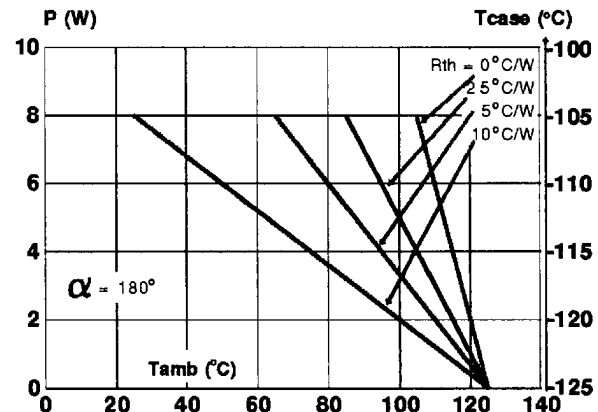
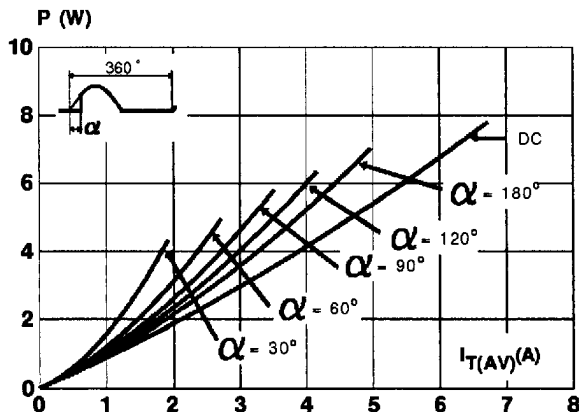


Fig.5 : Average on-state current versus case temperature (TXN).

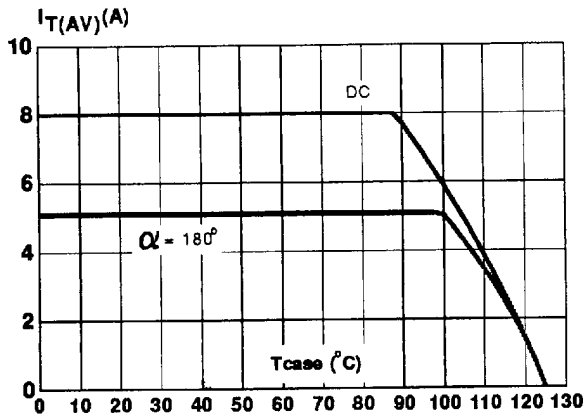


Fig.6 : Average on-state current versus case temperature (TYN).

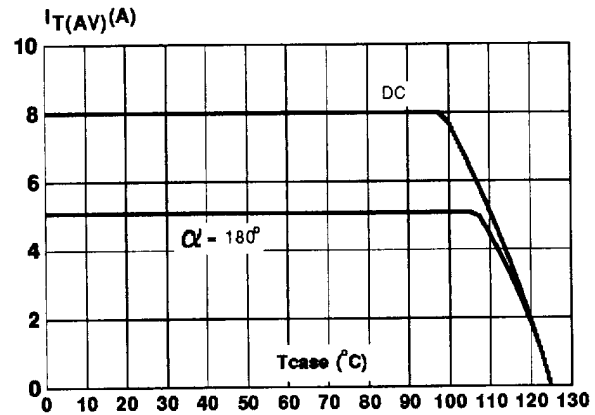


Fig.7 : Relative variation of thermal impedance versus pulse duration.

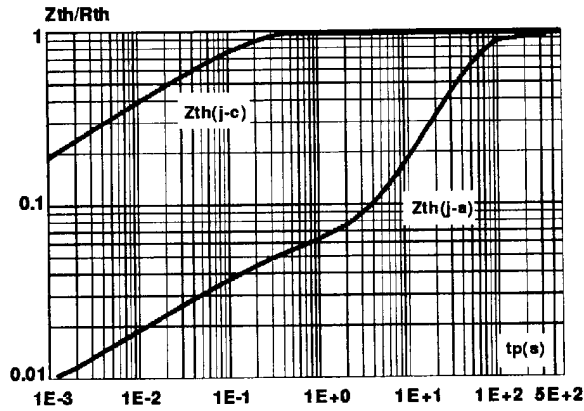


Fig.8 : Relative variation of gate trigger current versus junction temperature.

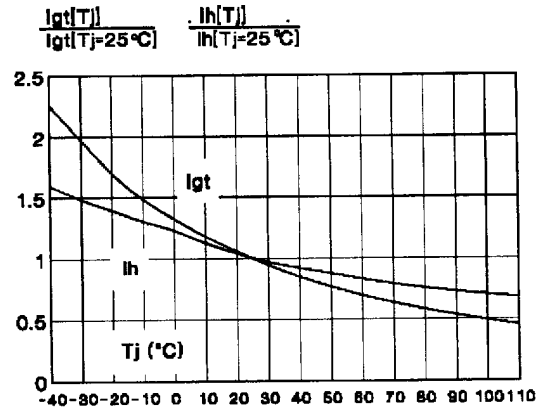


Fig.9 : Non repetitive surge peak on-state current versus number of cycles.

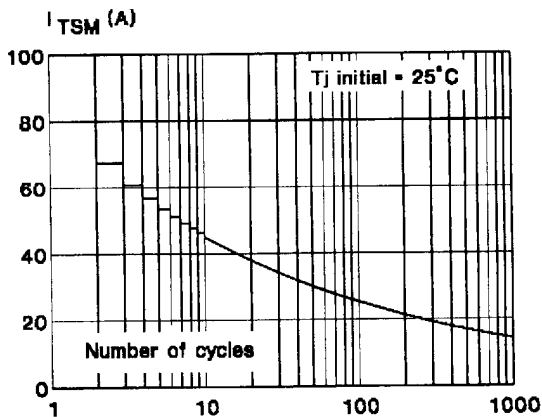


Fig.10 : Non repetitive surge peak on-state current for a sinusoidal pulse with width :  $t \leq 10$  ms, and corresponding value of  $I^2t$ .

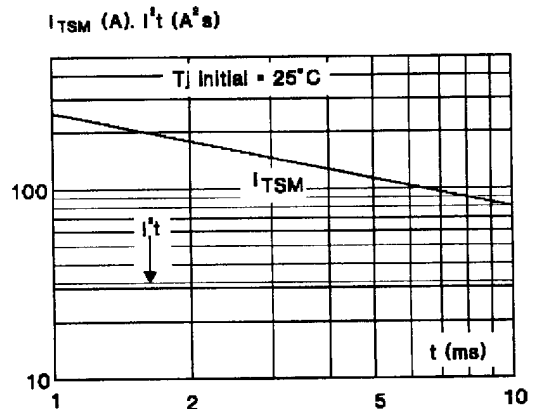
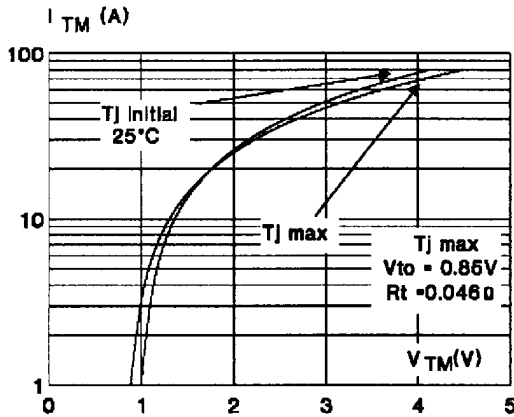
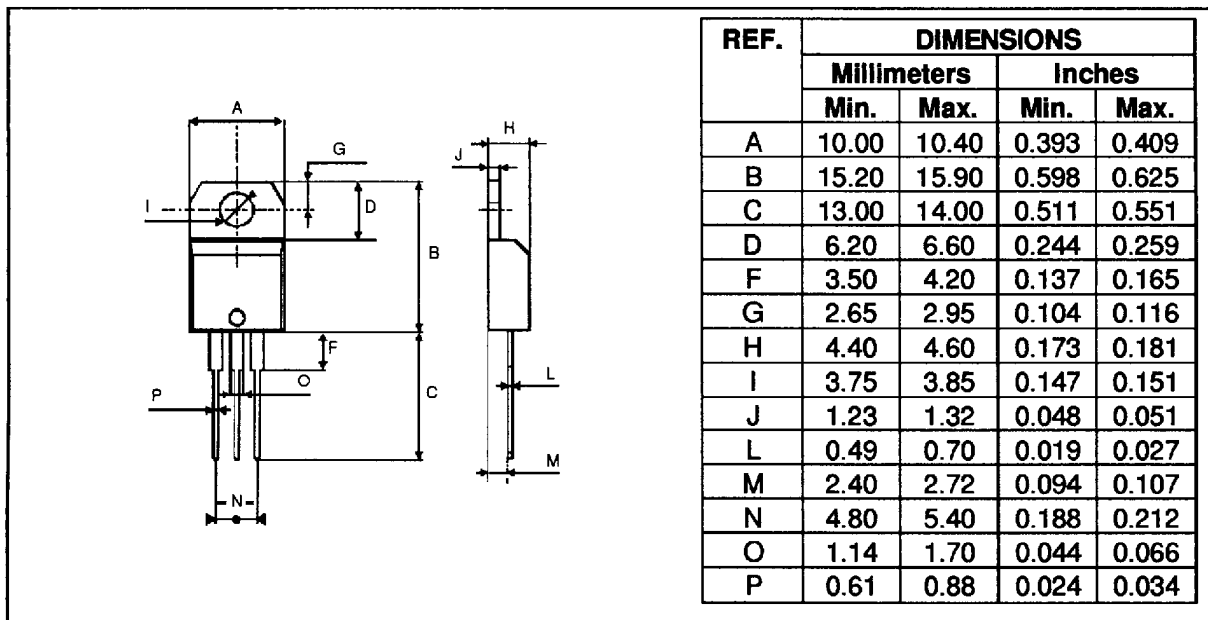


Fig.11 : On-state characteristics (maximum values).



**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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