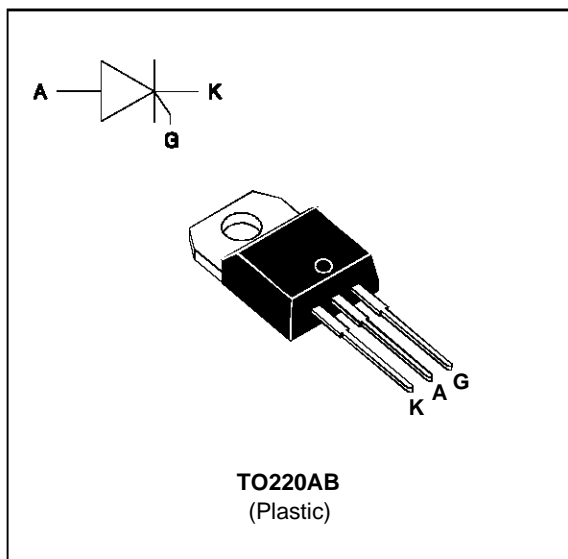


### FEATURES

- 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 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 <sub>T(RMS)</sub>	RMS on-state current (180° conduction angle)	TXN TYN	T <sub>c</sub> =100°C T <sub>c</sub> =105°C	8 A	
I <sub>T(AV)</sub>	Average on-state current (180° conduction angle, single phase circuit)	TXN TYN	T <sub>c</sub> =100°C T <sub>c</sub> =105°C	5 A	
I <sub>TSM</sub>	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 <sup>2</sup> t	I <sup>2</sup> t 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>l</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

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

### 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)

$P_G$  (AV) = 1W    $P_{GM}$  = 10W (tp = 20 μs)    $I_{FGM}$  = 4A (tp = 20 μs)    $V_{RGM}$  = 5 V.

### ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Value		Unit
				BLANK	G	
$I_{GT}$	$V_D=12V$ (DC) $R_L=33\Omega$	$T_j=25^\circ C$	MAX	15	25	mA
$V_{GT}$	$V_D=12V$ (DC) $R_L=33\Omega$	$T_j=25^\circ C$	MAX	1.5		V
$V_{GD}$	$V_D=V_{DRM}$ $R_L=3.3k\Omega$	$T_j=110^\circ C$	MIN	0.2		V
tgt	$V_D=V_{DRM}$ $I_G=40mA$ $dl_G/dt=0.5A/\mu s$	$T_j=25^\circ C$	TYP	2		μs
$I_L$	$I_G=1.2 I_{GT}$	$T_j=25^\circ C$	TYP	50		mA
$I_H$	$I_T=100mA$ gate open	$T_j=25^\circ C$	MAX	30	45	mA
$V_{TM}$	$I_{TM}=16A$ tp= 380μs	$T_j=25^\circ C$	MAX	1.8		V
$I_{DRM}$ $I_{RRM}$	$V_{DRM}$ Rated $V_{RRM}$ Rated	$T_j=25^\circ C$	MAX	0.01		mA
		$T_j=110^\circ C$		2		
dV/dt	Linear slope up to $V_D=67\%V_{DRM}$ gate open	$T_j=110^\circ C$	MIN	200	500	V/μs
tq	$V_D=67\%V_{DRM}$ $I_{TM}=16A$ $V_R=25V$ $dl_{TM}/dt=30 A/\mu s$ $dV_D/dt=50V/\mu s$	$T_j=110^\circ C$	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)		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).

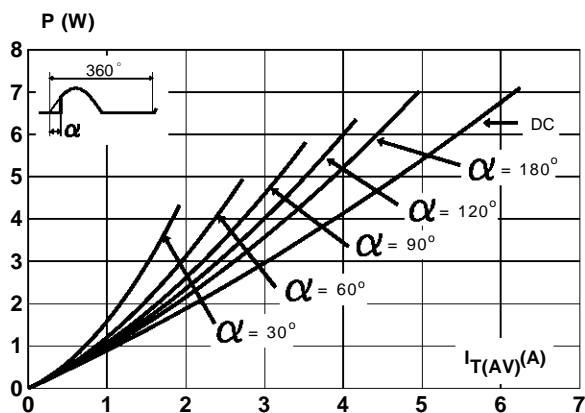


Fig.3 : Maximum average power dissipation versus average on-state current (TYN).

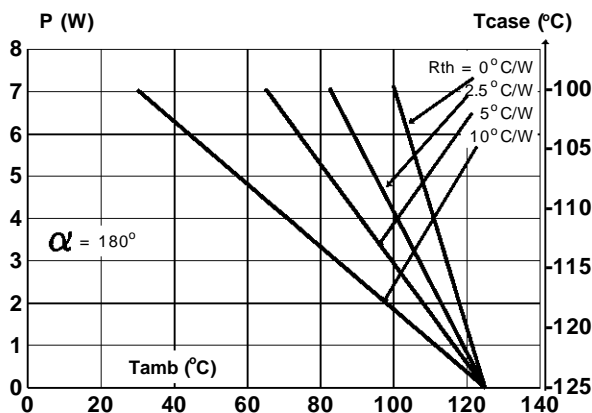
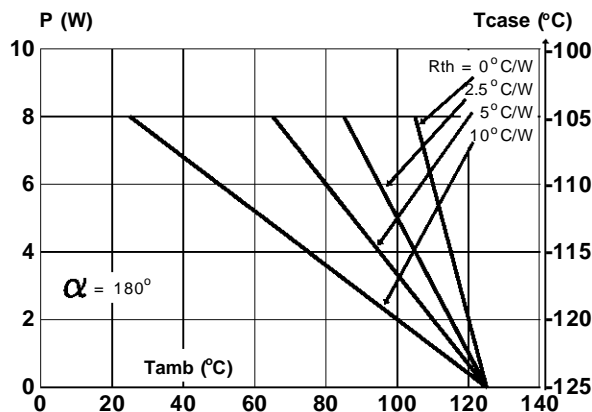
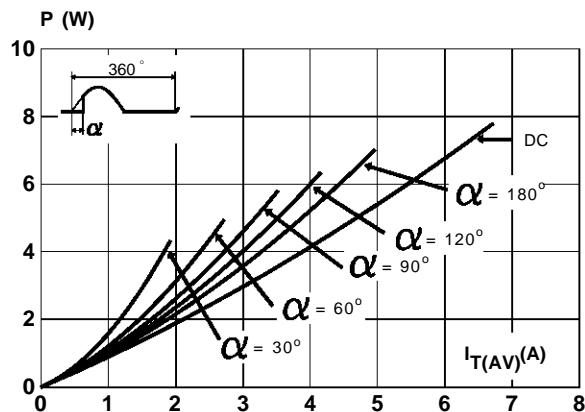
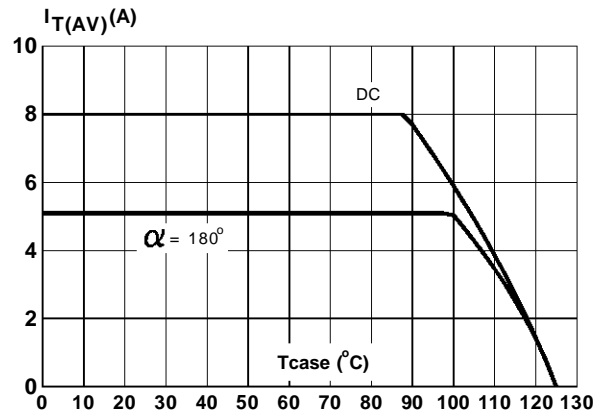


Fig.4 : Correlation between maximum average power dissipation and maximum allowable temperatures ( $T_{amb}$  and  $T_{case}$ ) for different thermal resistances heatsink + contact (TYN).

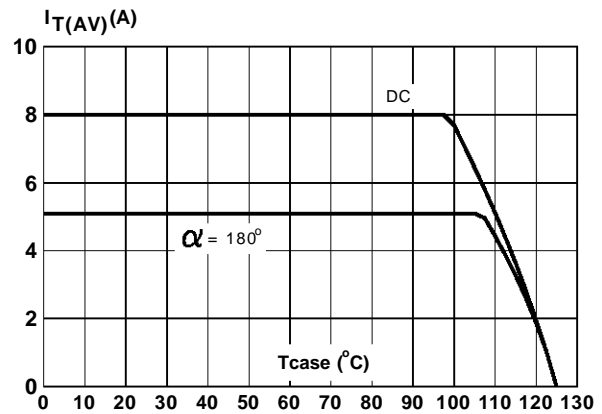


**TXN/TYN 058 (G) ---> TXN/TYN 1008 (G)**

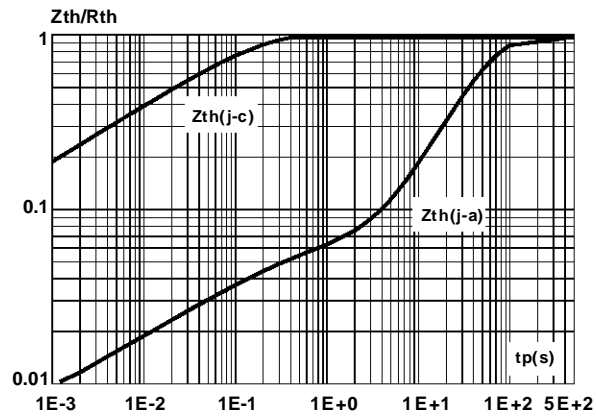
**Fig.5 :** Average on-state current versus case temperature (TXN).



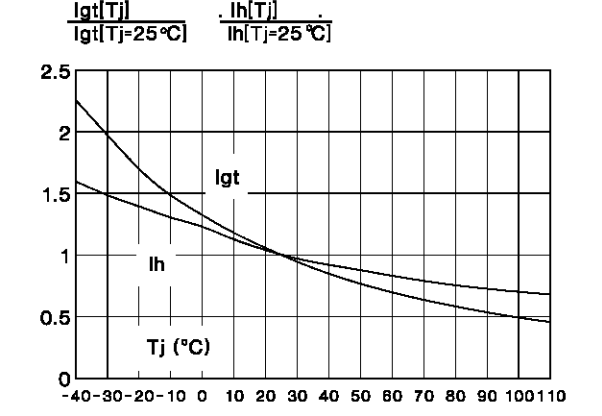
**Fig.6 :** Average on-state current versus case temperature (TYN).



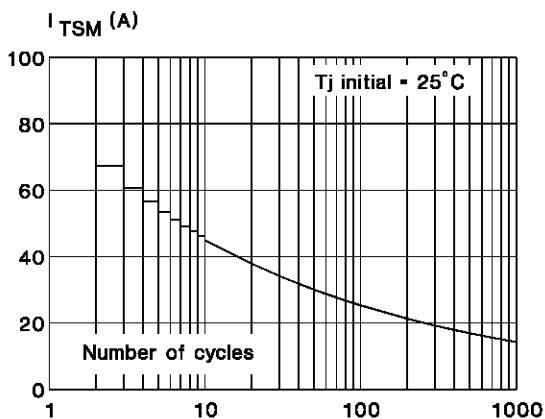
**Fig.7 :** Relative variation of thermal impedance versus pulse duration.



**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  $I^2t$ .

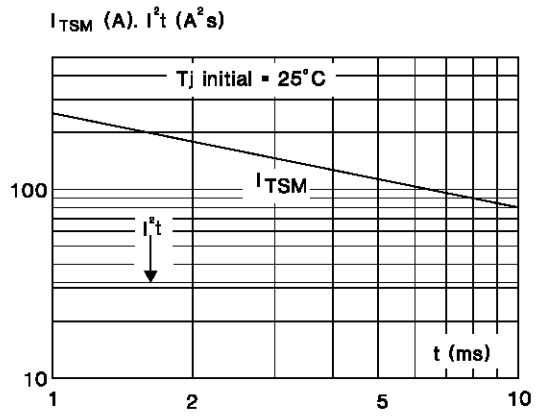
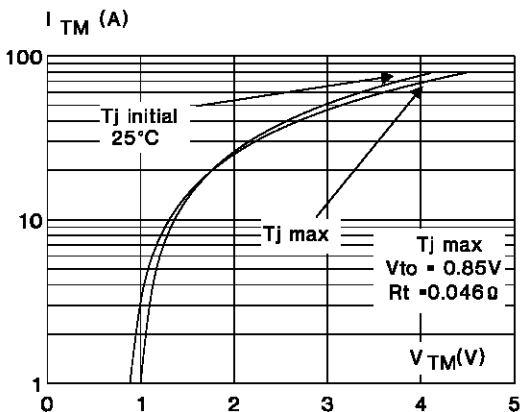
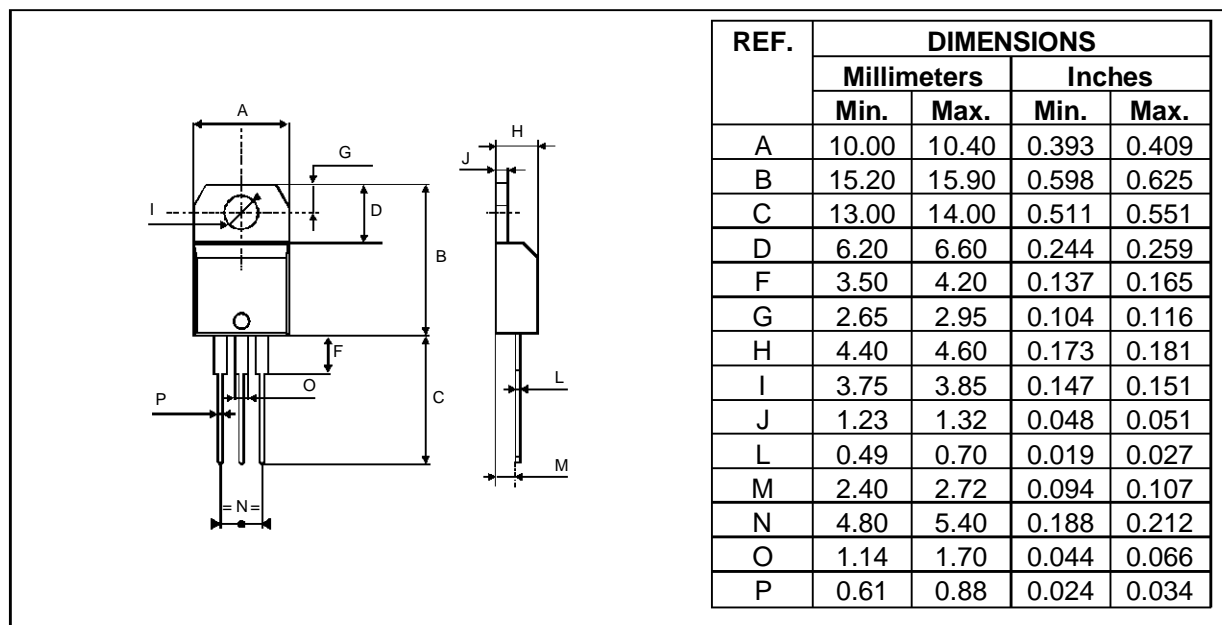


Fig.11 : On-state characteristics (maximum values).



**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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