

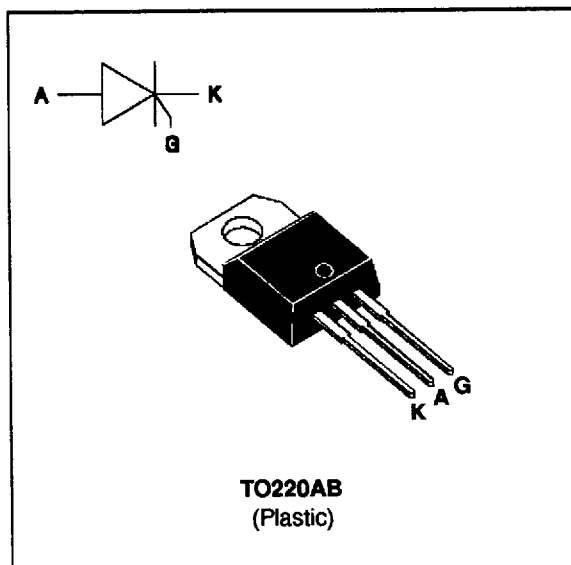
## SCR

### 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
$I_T(RMS)$	RMS on-state current (180° conduction angle)	TXN TYN	$T_c=100^\circ C$ $T_c=105^\circ C$		8	A
$I_T(AV)$	Average on-state current (180° conduction angle, single phase circuit)	TXN TYN	$T_c=100^\circ C$ $T_c=105^\circ C$		5	A
$I_{TSM}$	Non repetitive surge peak on-state current ( $T_j$ initial = 25°C)		$t_p=8.3$ ms		84	A
			$t_p=10$ ms		80	
$i^2t$	$i^2t$ value		$t_p=10$ ms		32	A <sup>2</sup> s
$di/dt$	Critical rate of rise of on-state current Gate supply : $I_G = 100$ mA $di_G/dt = 1$ A/ $\mu$ s				50	A/ $\mu$ s
$T_{stg}$ $T_j$	Storage and operating junction temperature range				- 40 to + 150 - 40 to + 125	$^\circ C$ $^\circ C$
$T_l$	Maximum lead temperature for soldering during 10 s at 4.5 mm from case				260	$^\circ C$

Symbol	Parameter	TYN/TXN							Unit
		058	108	208	408	608	808	1008	
$V_{DRM}$ $V_{RRM}$	Repetitive peak off-state voltage $T_j = 125^\circ C$	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.

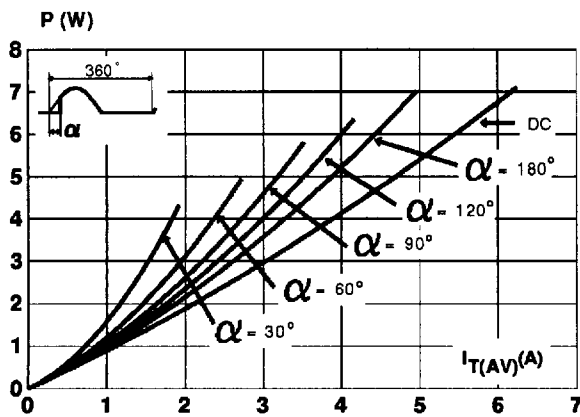
# ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions				Value		Unit
					BLANK	G	
IGT	VD=12V (DC) RL=33Ω	TJ=25°C	MAX		15	25	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	IT= 100mA gate open	TJ=25°C	MAX		30	45	mA
VTM	ITM= 16A 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	500	V/μs
tq	VD=67%VDRM ITM= 16A VR= 25V dITM/dt=30 A/μs dVD/dt= 50V/μs	TJ= 110°C	TYP		70		μs

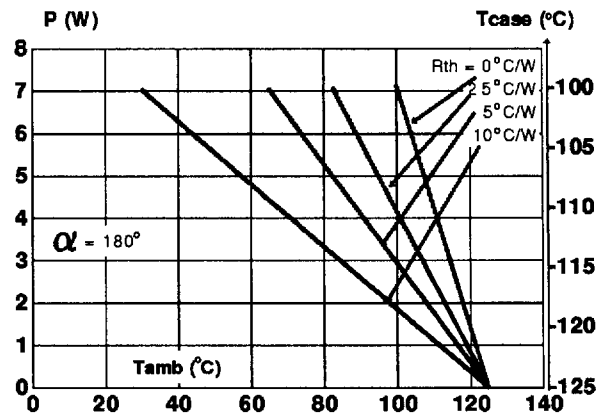
Package	I <sub>T(RMS)</sub>	V <sub>DRM</sub> / V <sub>RRM</sub>	Sensitivity Specification	
	A	V	BLANK	G
TXN (Insulated)	8	50	X	X
		100	X	X
		200	X	X
		400	X	X
		600	X	X
		800	X	X
		1000	X	X
TYN (Uninsulated)		50	X	X
		100	X	X
		200	X	X
		400	X	X
		600	X	X
		800	X	X
		1000	X	X

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

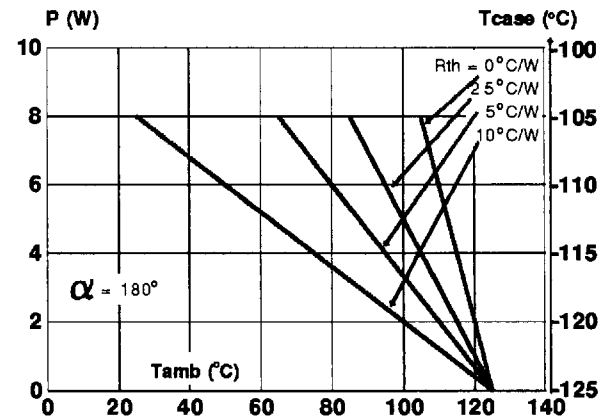
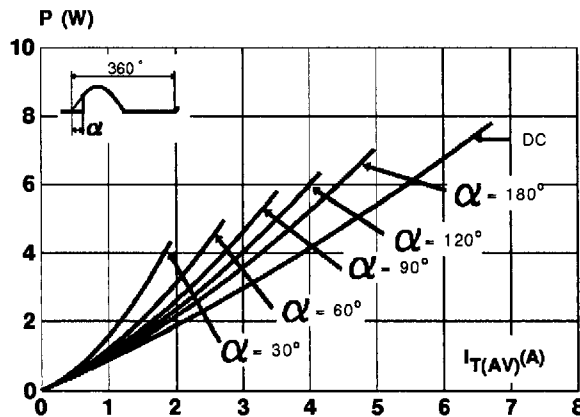
**Fig.2** : Correlation between maximum average power dissipation and maximum allowable temperatures ( $T_{amb}$  and  $T_{case}$ ) for different thermal resistances heatsink + contact (TXN).



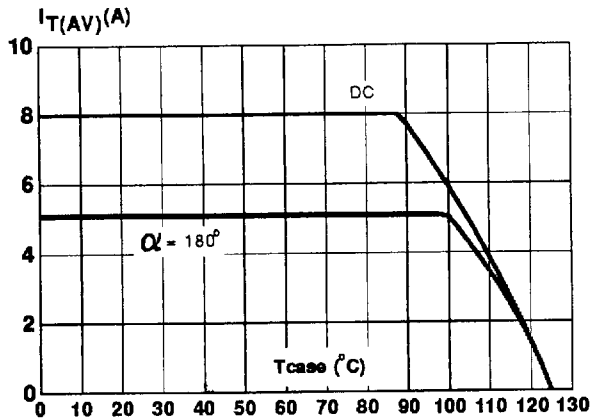
**Fig.3** : Maximum average power dissipation versus average on-state current (TXN).



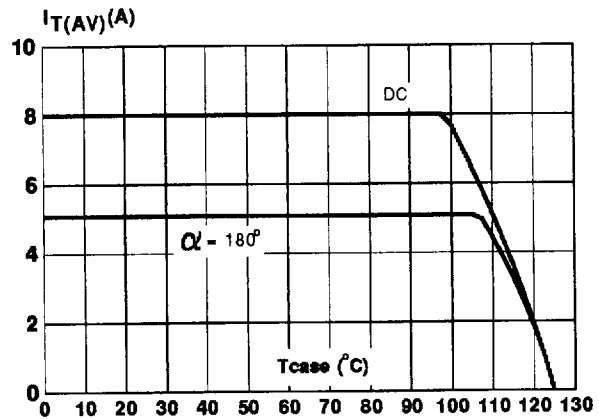
**Fig.4** : Correlation between maximum average power dissipation and maximum allowable temperatures ( $T_{amb}$  and  $T_{case}$ ) for different thermal resistances heatsink + contact (TXN).



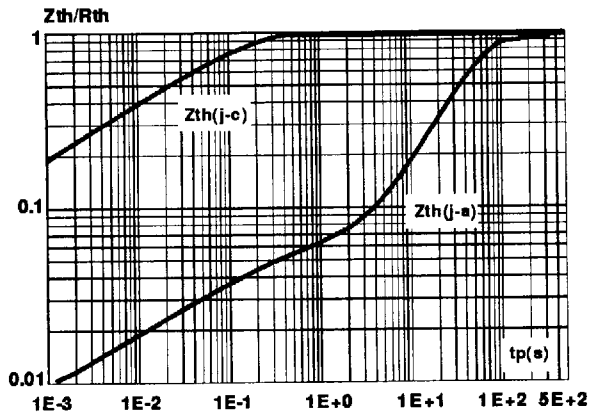
**Fig.5 :** Average on-state current versus case temperature (TXN).



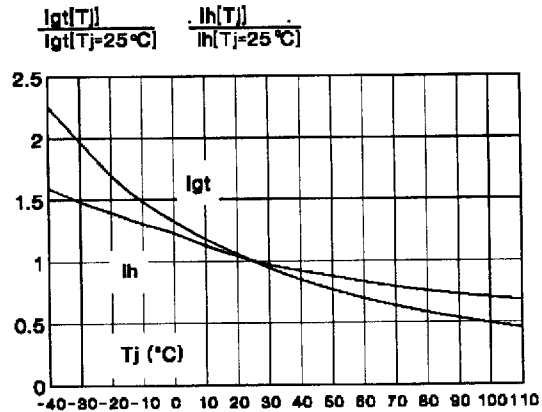
**Fig.6 :** Average on-state current versus case temperature (TYN).



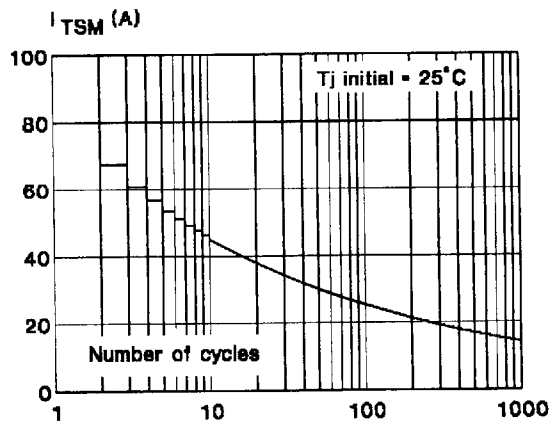
**Fig.7 :** Relative variation of thermal impedance versus pulse duration.



**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  $I^2t$ .

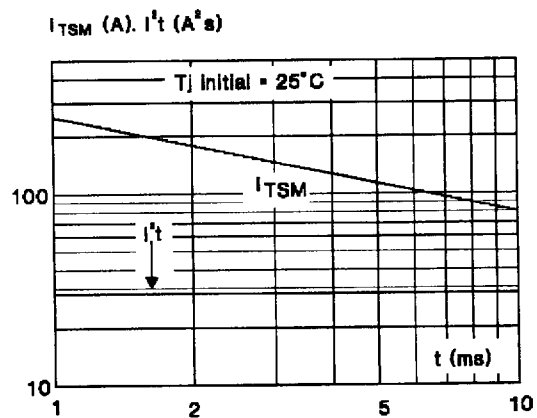
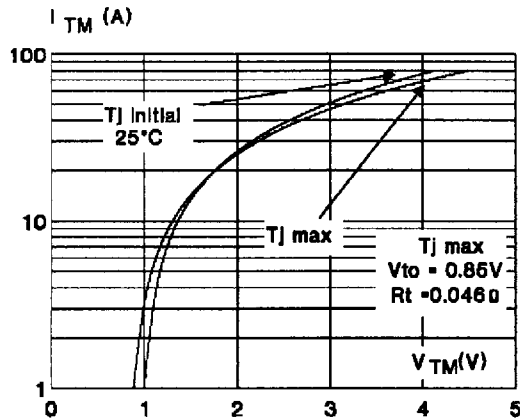
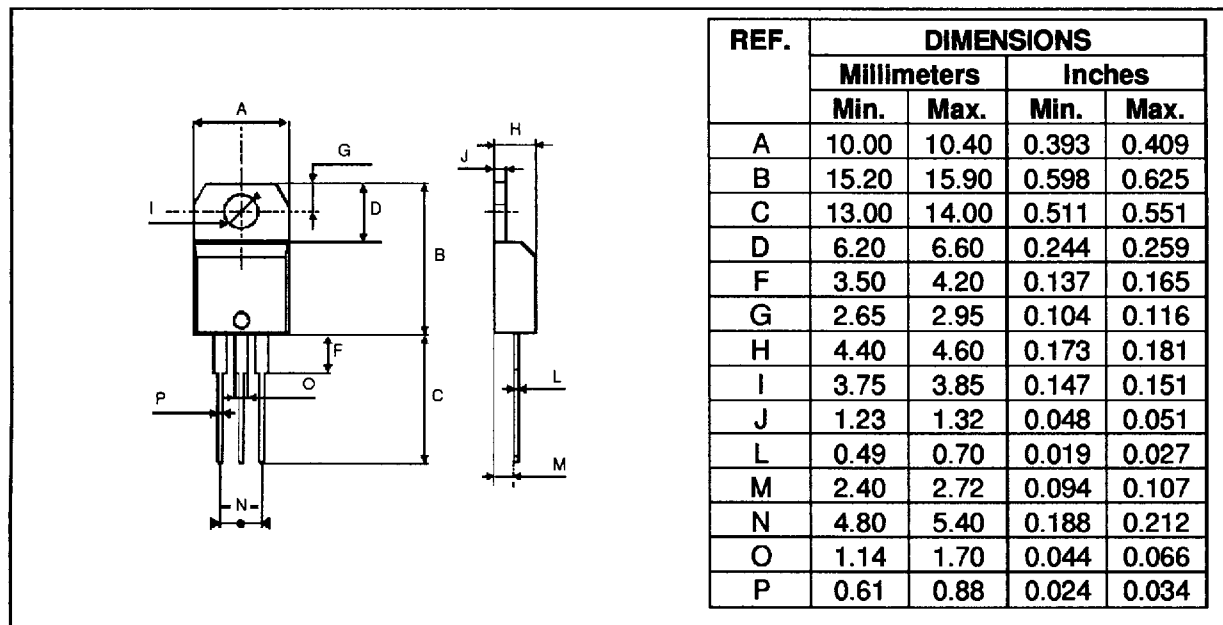


Fig.11 : On-state characteristics (maximum values).

**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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