

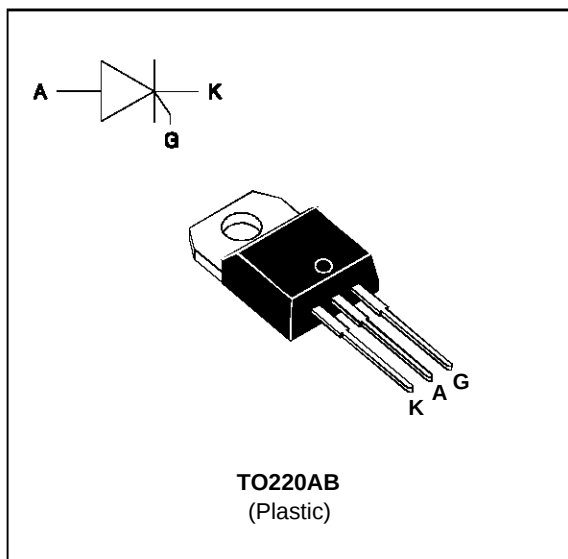
FEATURES

- HIGH SURGE CAPABILITY
- HIGH ON-STATE CURRENT
- HIGH STABILITY AND RELIABILITY

DESCRIPTION

The TYN 0510 ---> TYN 1010 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)	$T_c = 100\text{ }^{\circ}\text{C}$	10	A
$I_T(AV)$	Average on-state current (180° conduction angle, single phase circuit)	$T_c = 100\text{ }^{\circ}\text{C}$	6.4	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25°C)	$t_p = 8.3\text{ ms}$	105	A
		$t_p = 10\text{ ms}$	100	
I_2t	I_2t value	$t_p = 10\text{ ms}$	50	A ² s
di/dt	Critical rate of rise of on-state current Gate supply : $I_G = 100\text{ mA}$ $di_G/dt = 1\text{ A}/\mu\text{s}$		50	A/ μs
T_{stg} T_j	Storage and operating junction temperature range		- 40 to + 150 - 40 to + 125	$^{\circ}\text{C}$ $^{\circ}\text{C}$
T_l	Maximum lead temperature for soldering during 10 s at 4.5 mm from case		260	$^{\circ}\text{C}$

Symbol	Parameter	TYN							Unit
		0510	110	210	410	610	810	1010	
V_{DRM} V_{RRM}	Repetitive peak off-state voltage $T_j = 125\text{ }^{\circ}\text{C}$	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	2.5	°C/W

GATE CHARACTERISTICS (maximum values)

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

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Value	Unit
I_{GT}	$V_D=12V$ (DC) $R_L=33\Omega$	$T_j=25^\circ C$	MAX	15	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	$V_D=V_{DRM}$ $I_G=40mA$ $di_G/dt=0.5A/\mu s$	$T_j=25^\circ C$	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	mA
V_{TM}	$I_{TM}=20A$ tp= 380 μs	$T_j=25^\circ C$	MAX	1.6	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	V/ μs
tq	$V_D=67\%V_{DRM}$ $I_{TM}=20A$ $V_R=25V$ $di_{TM}/dt=30 A/\mu s$ $dV_D/dt=50V/\mu s$	$T_j=110^\circ C$	TYP	70	μs

Fig.1 : Maximum average power dissipation versus average on-state current.

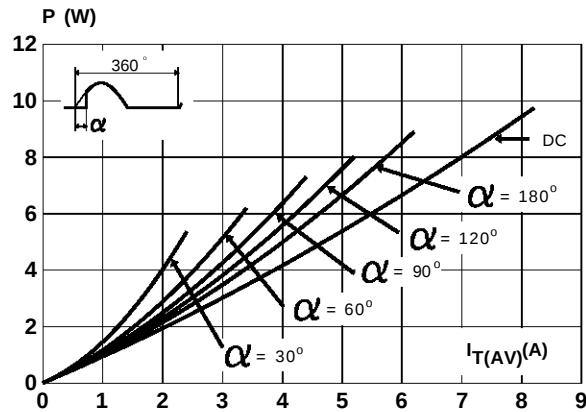


Fig.3 : Average on-state current versus case temperature.

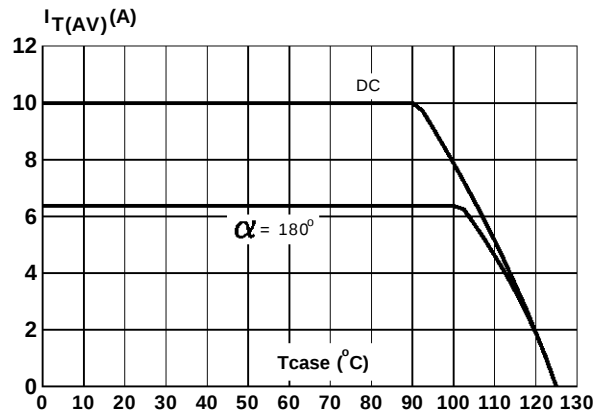


Fig.5 : Relative variation of gate trigger current versus junction temperature.

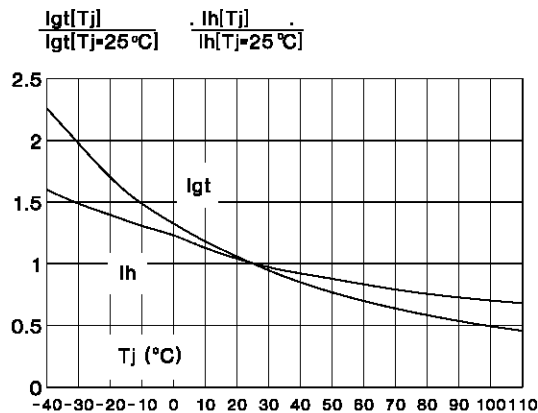


Fig.2 : Correlation between maximum average power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

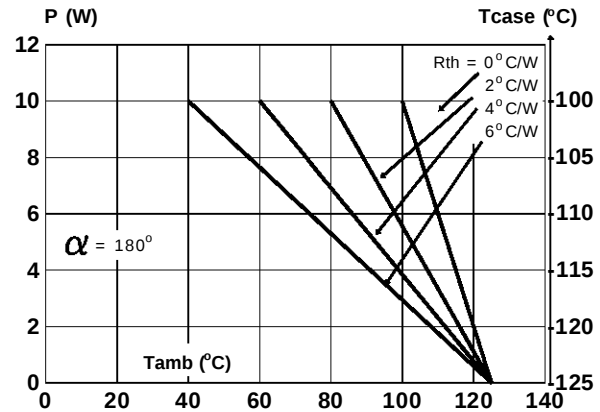


Fig.4 : Relative variation of thermal impedance versus pulse duration.

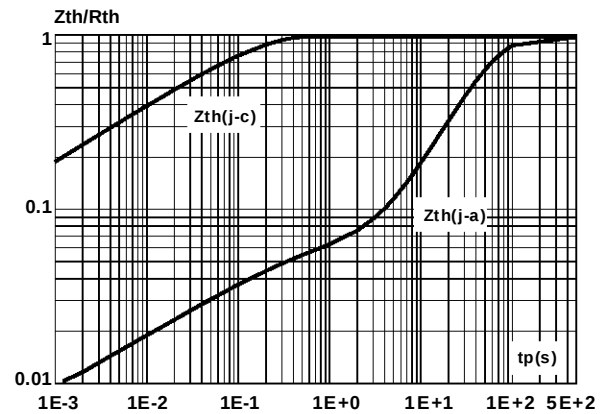
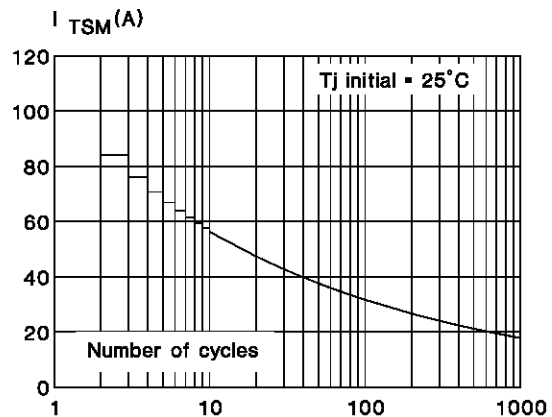


Fig.6 : Non repetitive surge peak on-state current versus number of cycles.



TYN 0510 ---> TYN 1010

Fig.7 : Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t \leq 10$ ms, and corresponding value of I^2t .

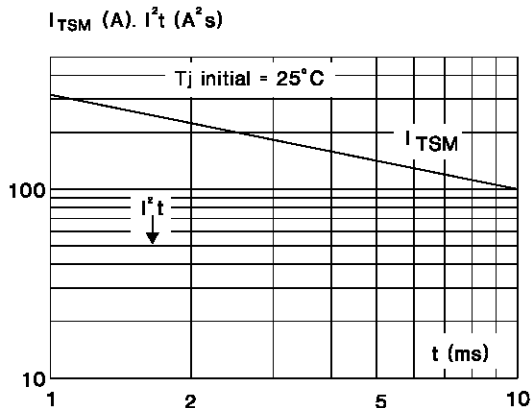
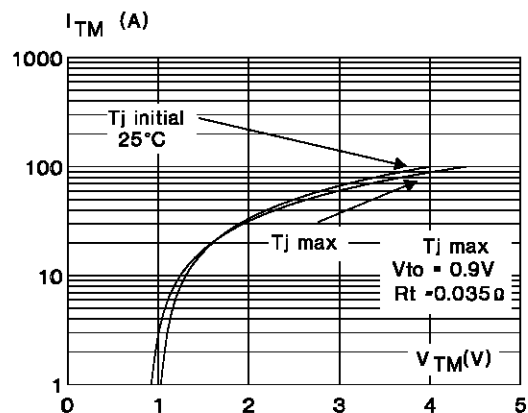
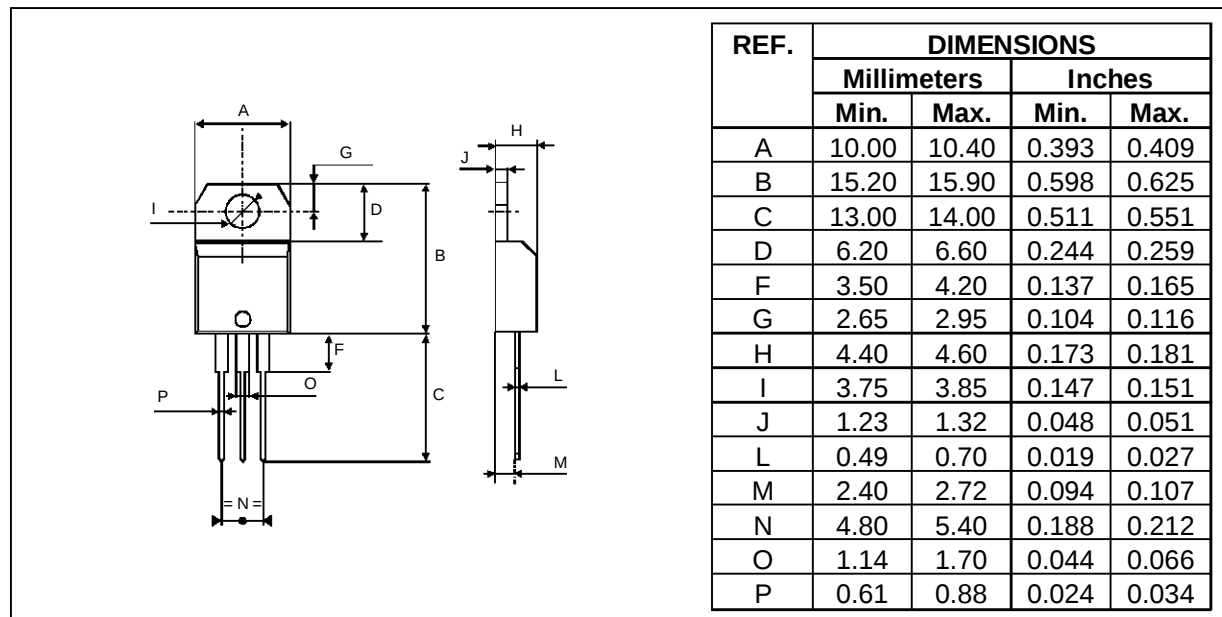


Fig.8 : On-state characteristics (maximum values).



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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