

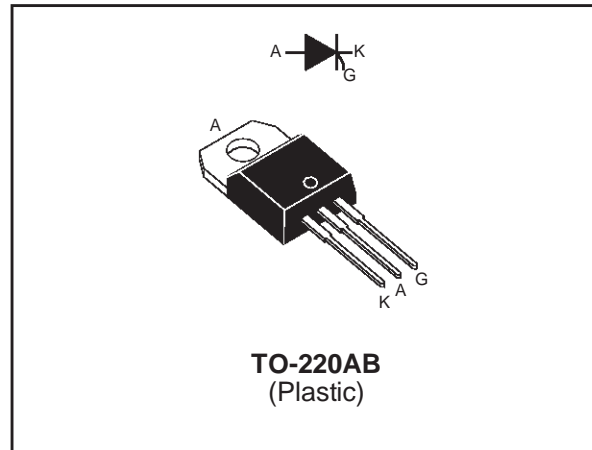
FEATURES

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

DESCRIPTION

The TYN612T and TYN812T Family of SCR uses a high performance glass passivated technology.

This general purpose Family of SCR 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)	$T_c = 110^\circ\text{C}$	12	A
$I_{T(AV)}$	Average on-state current (180° conduction angle)	$T_c = 110^\circ\text{C}$	8	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25°C)	$t_p = 8.3\text{ms}$ $t_p = 10\text{ms}$	125 120	A
I^2t	I^2t Value for fusing	$t_p = 10\text{ms}$	72	A ² s
di/dt	Critical rate of rise of on-state current $I_G = 100\text{mA}$ $di_G/dt = 1\text{A}/\mu\text{s}$.		100	A/ μs
T_{stg} T_j	Storage junction temperature range Operating junction temperature range		- 40 to + 150 - 40 to + 125	°C
TI	Maximum lead temperature for soldering during 10s		260	°C

Symbol	Parameter	TYN		Unit
		612T	812T	
V_{DRM}	Repetitive peak off-state voltage	600	800	V
V_{RRM}	$T_j = 125^\circ\text{C}$			

TYN612T/812T

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
Rth(j-a)	Junction to ambient	60	°C/W
Rth(j-c)	Junction to case for DC	1.3	°C/W

GATE CHARACTERISTICS (maximum values)

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

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions		Type	Value	Unit
I_{GT}	$V_D = 12 \text{ V (DC)}$ $R_L = 33 \Omega$	$T_j = 25^\circ \text{C}$	MIN	0.5	mA
			MAX	5	
V_{GT}	$V_D = 12 \text{ V (DC)}$ $R_L = 33 \Omega$	$T_j = 25^\circ \text{C}$	MAX	1.3	V
V_{GD}	$V_D = V_{DRM}$ $R_L = 3.3 \text{ k}\Omega$	$T_j = 125^\circ \text{C}$	MIN	0.2	V
I_L	$I_G = 1.2 I_{GT}$	$T_j = 25^\circ \text{C}$	MAX	30	mA
I_H	$I_T = 100 \text{ mA}$ gate open	$T_j = 25^\circ \text{C}$	MAX	15	mA
V_{TM}	$I_{TM} = 24 \text{ A}$ tp = 380 μs	$T_j = 25^\circ \text{C}$	MAX	1.6	V
I_{DRM}	$V_D = V_{DRM}$	$T_j = 25^\circ \text{C}$	MAX	5	μA
I_{RRM}	$V_R = V_{RRM}$	$T_j = 125^\circ \text{C}$	MAX	1	mA
dV/dt	$V_D = 67\% V_{DRM}$ gate open	$T_j = 125^\circ \text{C}$	MIN	40	V/μs

ORDERING INFORMATION

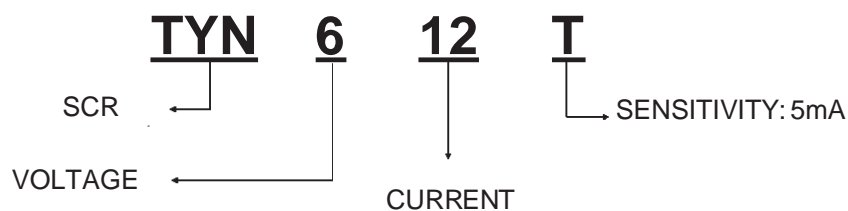


Fig. 1: Maximum average power dissipation versus average on-state current.

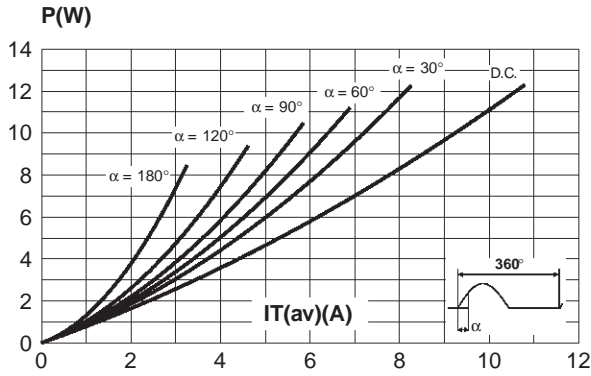


Fig. 2: Correlation between maximum average power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances $R_{th(sink+contact)}$.

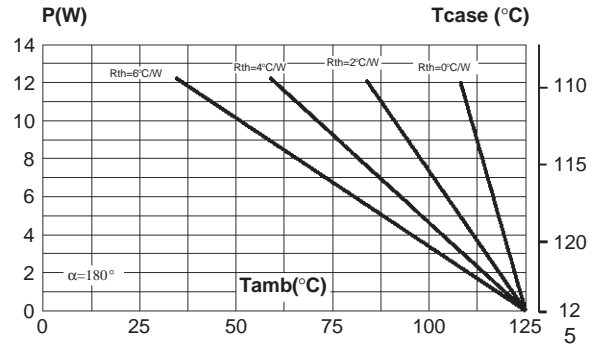


Fig. 3: Average and DC on-state current versus case temperature.

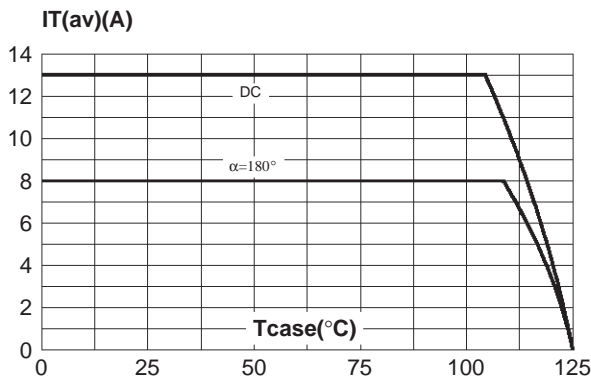


Fig. 4: Relative variation of thermal impedance junction to case versus pulse duration.

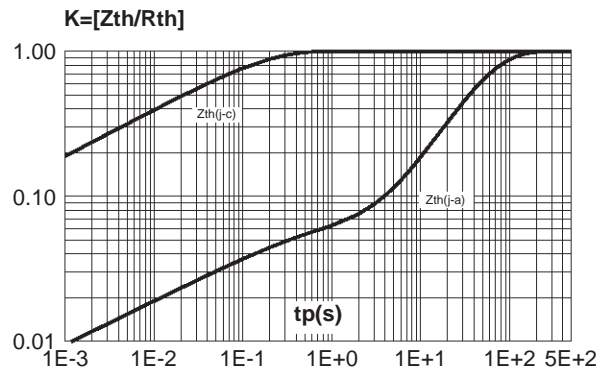


Fig. 5: Relative variation of gate trigger current and holding current versus junction temperature.

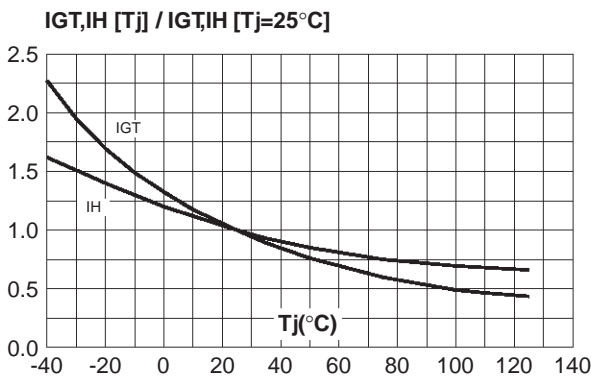


Fig. 6: Non repetitive surge peak on-state current versus number of cycles.

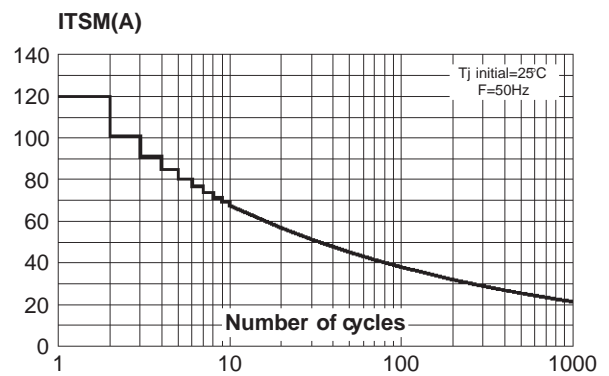


Fig. 7: Non repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I^2t .

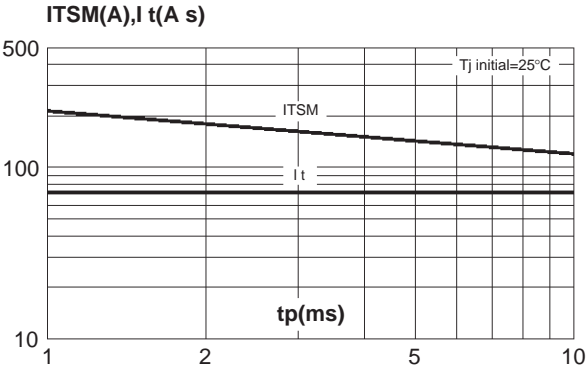
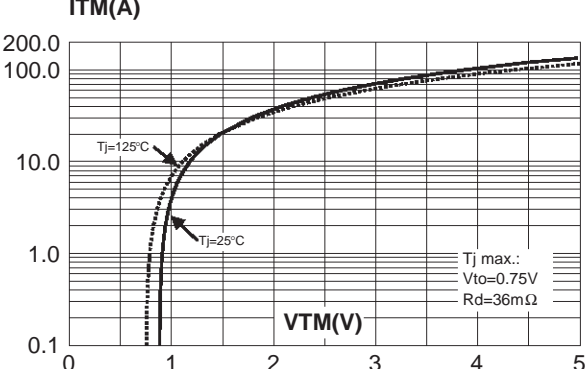
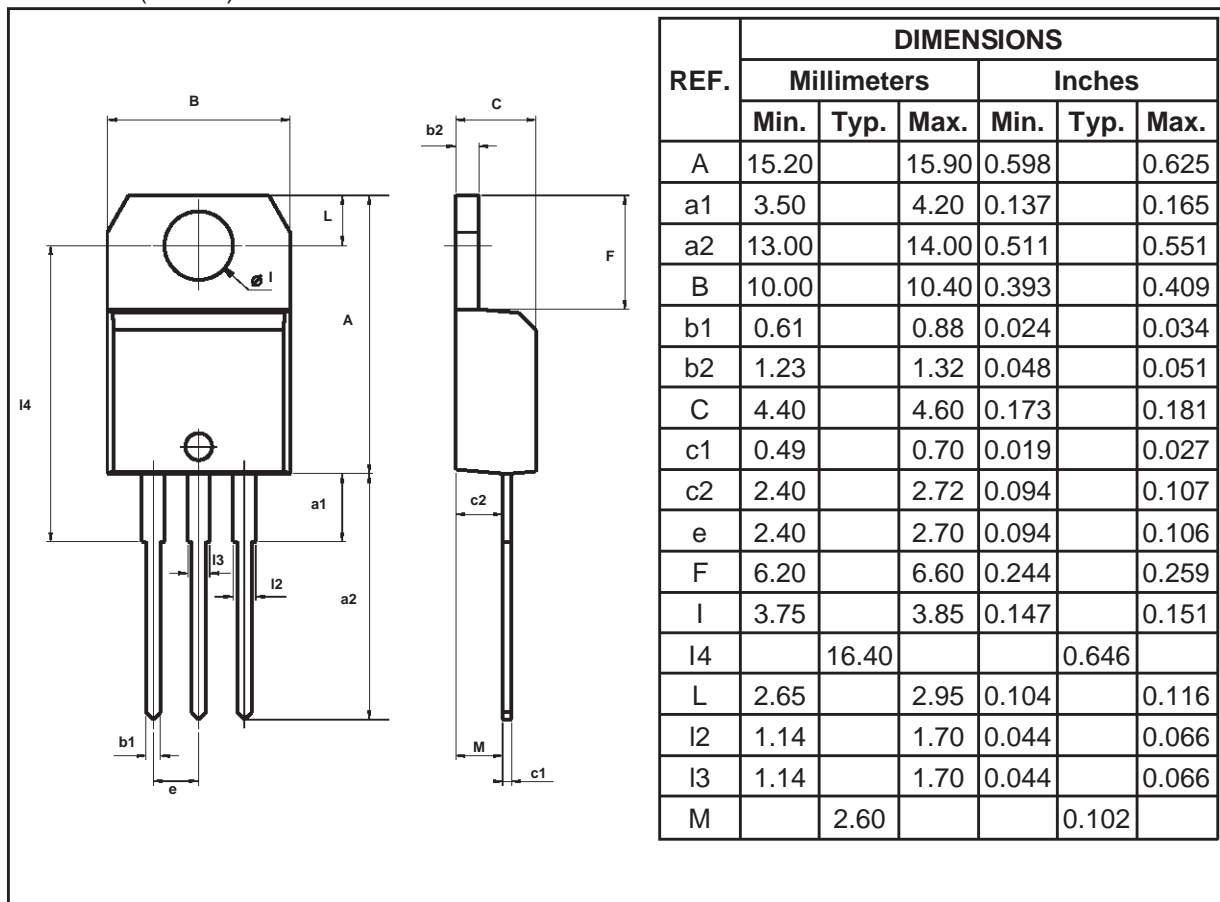


Fig. 8: On-state characteristics (maximum values).



PACKAGE MECHANICAL DATA

TO-220AB (Plastic)



Marking	Package	Weight	Base qty	Delivery mode
Type number	TO-220AB	2.3 g.	250 units	Plastic bag

- Recommended torque value: 0.8 m.N.
- Maximum torque value: 1 m.N.

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