


SGS-THOMSON
MICROELECTRONICS **TYN 225 ---> TYN 1225**

SCR

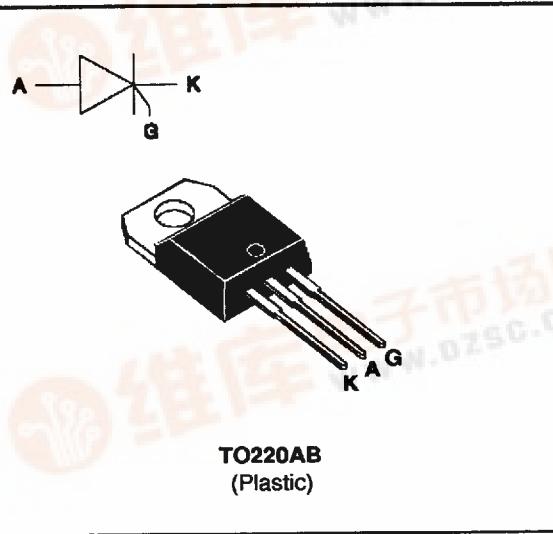
FEATURES

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

DESCRIPTION

The TYN 225 ---> TYN 1025 Family Silicon Controlled Rectifiers are high performance glass passivated chips technology.

This general purpose Family Silicon Controlled Rectifiers is designed for power supply up to 400Hz on resistive or inductive load.

**ABSOLUTE RATINGS (limiting values)**

Symbol	Parameter	Value	Unit	
$I_T(\text{RMS})$	RMS on-state current (180° conduction angle)	25	A	
$I_T(\text{AV})$	Average on-state current (180° conduction angle, single phase circuit)	16	A	
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25°C)	$t_p = 8.3 \text{ ms}$	260	A
		$t_p = 10 \text{ ms}$	250	
I_{2t}	I_{2t} value	$t_p = 10 \text{ ms}$	A^2s	
di/dt	Critical rate of rise of on-state current Gate supply : $I_G = 100 \text{ mA}$ $di_G/dt = 1 \text{ A}/\mu\text{s}$	100	$\text{A}/\mu\text{s}$	
T_{stg} T_j	Storage and operating junction temperature range	- 40 to + 150 - 40 to + 125	°C °C	
T_l	Maximum lead temperature for soldering during 10 s at 4.5 mm from case	260	°C	

Symbol	Parameter	TYN						Unit
		225	425	625	825	1025	1225	
V_{DRM} V_{RRM}	Repetitive peak off-state voltage $T_j = 125 \text{ °C}$	200	400	600	800	1000	1200	V

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THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R _{th} (j-a)	Junction to ambient	60	°C/W
R _{th} (j-c) DC	Junction to case for DC	1.3	°C/W

GATE CHARACTERISTICS (maximum values)

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

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions		Value	Unit
I _{GT}	V _D =12V (DC) R _L =33Ω	T _j =25°C	MAX	40
V _{GT}	V _D =12V (DC) R _L =33Ω	T _j =25°C	MAX	1.5
V _{GD}	V _D =V _{DRM} R _L =3.3kΩ	T _j = 125°C	MIN	0.2
t _{gt}	V _D =V _{DRM} I _G = 200mA dI _G /dt = 1.5A/μs	T _j =25°C	TYP	2
I _L	I _G = 1.2 I _{GT}	T _j =25°C	TYP	80
I _H	I _T = 100mA gate open	T _j =25°C	MAX	50
V _{TM}	I _{TM} = 50A t _p = 380μs	T _j =25°C	MAX	1.6
I _{DRM} I _{RRM}	V _{DRM} Rated V _{RRM} Rated	T _j =25°C	MAX	0.01
		T _j = 125°C		4
dV/dt	Linear slope up to V _D =67%V _{DRM} gate open	T _j = 125°C	MIN	500
t _q	V _D =67%V _{DRM} I _{TM} = 50A V _R = 25V dI _{TM} /dt=30 A/μs dV _D /dt= 50V/μs	T _j = 125°C	TYP	70
				μs

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

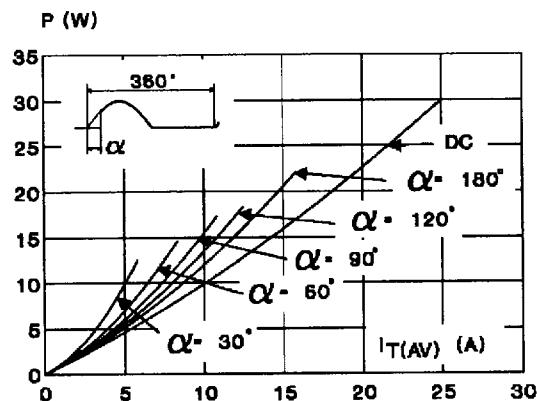


Fig.3 : Average on-state current versus case temperature.

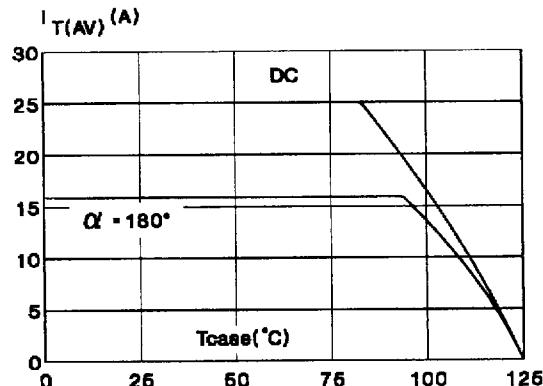


Fig.5 : Relative variation of gate trigger current versus junction temperature.

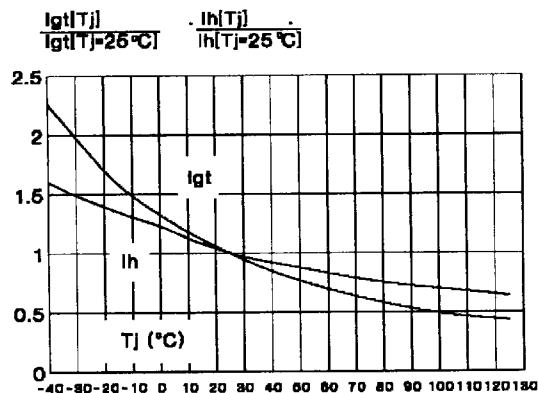


Fig.2 : Correlation between maximum average power dissipation and maximum allowable temperatures (Tamb and Tcase) for different thermal resistances heatsink + contact.

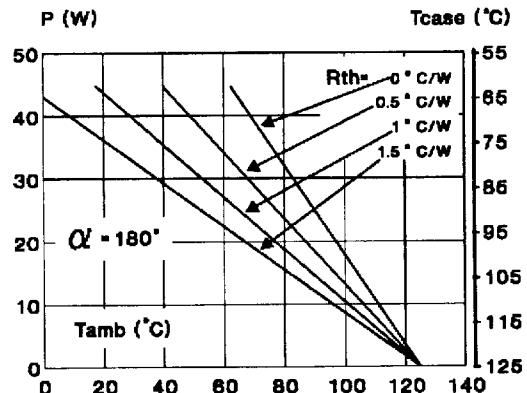


Fig.4 : Relative variation of thermal impedance versus pulse duration.

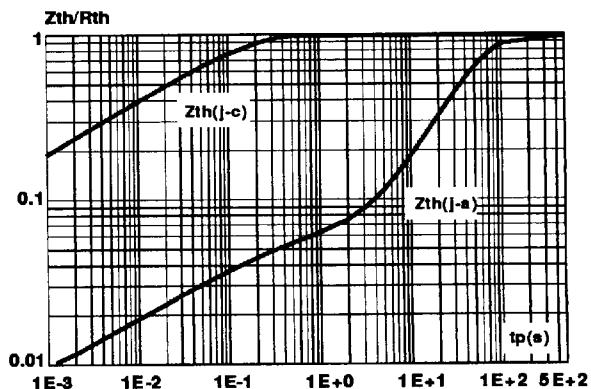
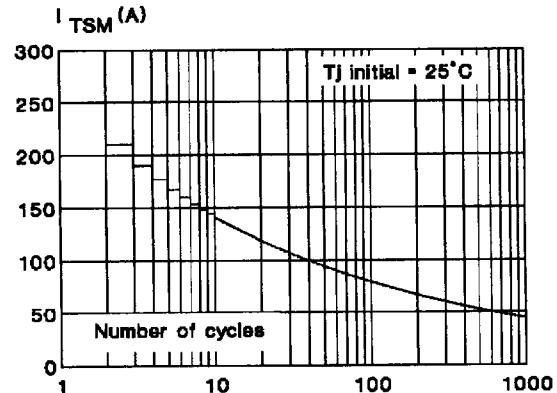


Fig.6 : Non repetitive surge peak on-state current versus number of cycles.



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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 .

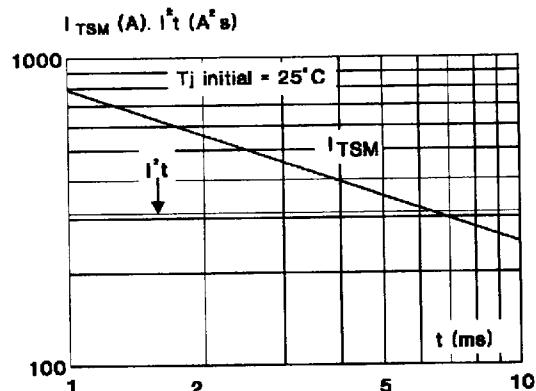
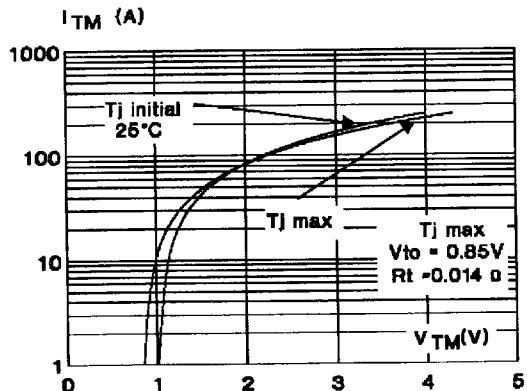
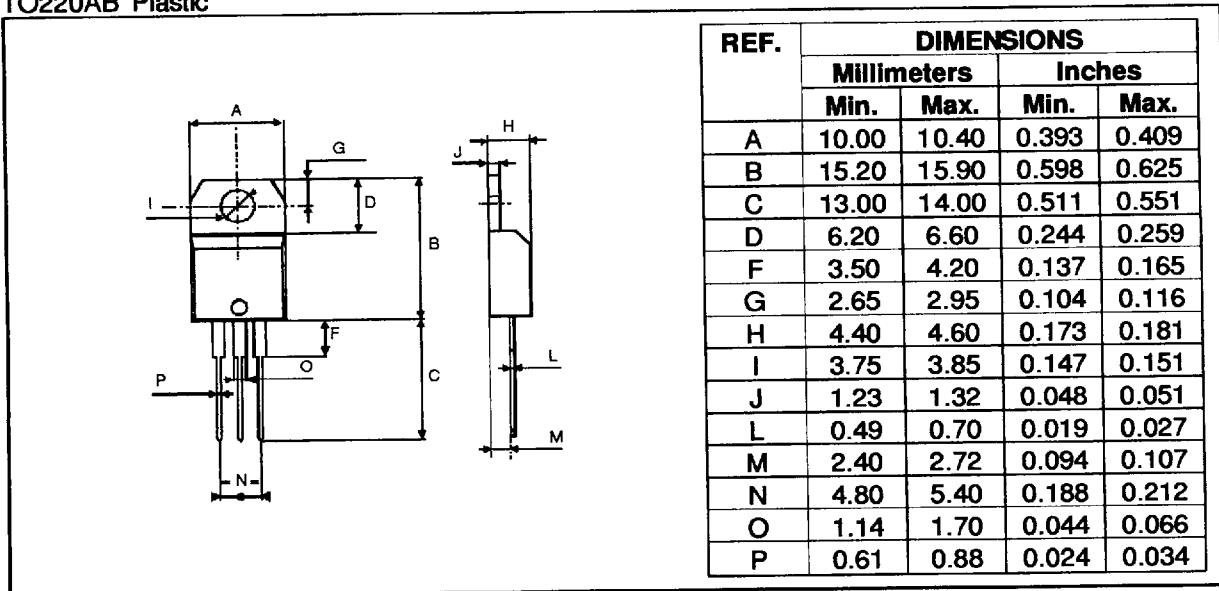


Fig.8 : On-state characteristics (maximum values).



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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