

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

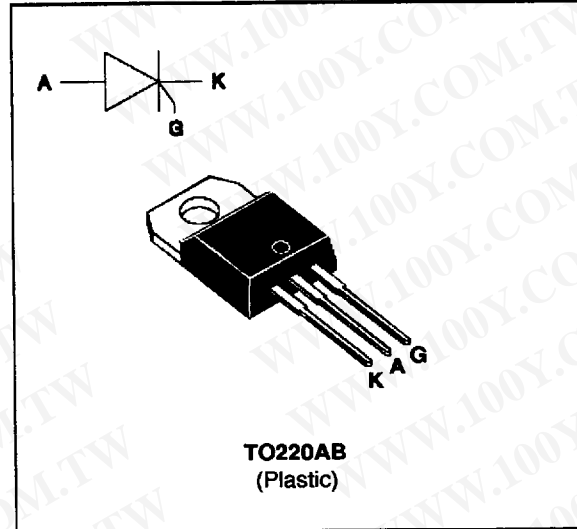
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FEATURES

- 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
$I_T(RMS)$	RMS on-state current (180° conduction angle)	$T_c = 95\text{ }^\circ\text{C}$ 25	A
$I_T(AV)$	Average on-state current (180° conduction angle, single phase circuit)	$T_c = 95\text{ }^\circ\text{C}$ 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	$t_p = 10\text{ ms}$ 310	A ² s
di/dt	Critical rate of rise of on-state current Gate supply : $I_G = 100\text{ mA}$ $di_G/dt = 1\text{ A}/\mu\text{s}$	100	A/ μs
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 $T_j = 125\text{ }^\circ\text{C}$	200	400	600	800	1000	1200	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	1.3	°C/W

GATE CHARACTERISTICS (maximum values)

PG (AV) = 1W PGM = 10W (tp = 20 μs) IFGM = 4A (tp = 20 μs) VRGM = 5 V.

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ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Value	Unit
IGT	VD=12V (DC) RL=33Ω Tj=25°C MAX	40	mA
VGT	VD=12V (DC) RL=33Ω Tj=25°C MAX	1.5	V
VGD	VD=VDRM RL=3.3kΩ Tj= 125°C MIN	0.2	V
tgt	VD=VDRM IG = 200mA dIG/dt = 1.5A/μs Tj=25°C TYP	2	μs
IL	IG= 1.2 IGT Tj=25°C TYP	80	mA
IH	IT= 100mA gate open Tj=25°C MAX	50	mA
VTM	ITM= 50A tp= 380μs Tj=25°C MAX	1.6	V
IDRM	VDRM Rated Tj=25°C MAX	0.01	mA
IRRM	VRRM Rated Tj= 125°C	4	
dV/dt	Linear slope up to VD=67%VDRM gate open Tj= 125°C MIN	500	V/μs
tq	VD=67%VDRM ITM= 50A VR= 25V dITM/dt=30 A/μs dVD/dt= 50V/μs Tj= 125°C TYP	70	μs

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

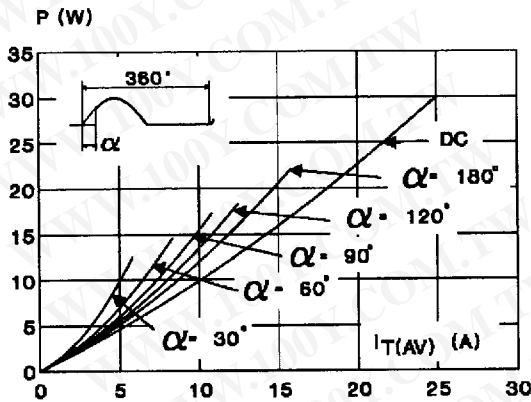


Fig.2 : Correlation between maximum average power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

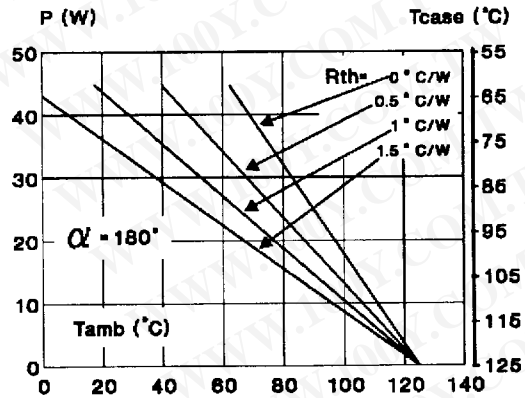


Fig.3 : Average on-state current versus case temperature.

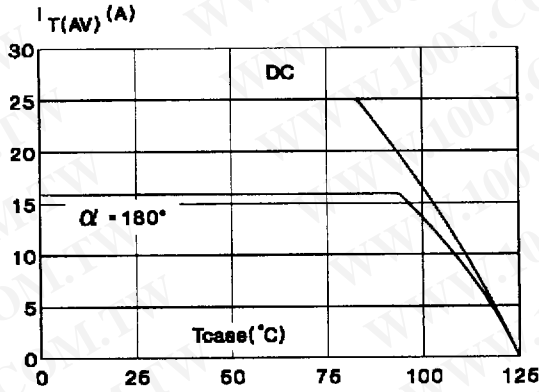


Fig.4 : Relative variation of thermal impedance versus pulse duration.

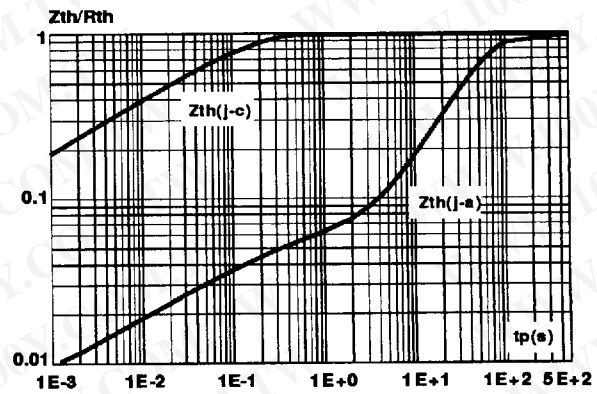


Fig.5 : Relative variation of gate trigger current versus junction temperature.

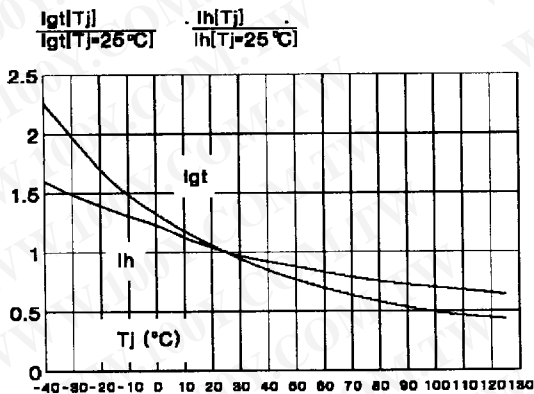
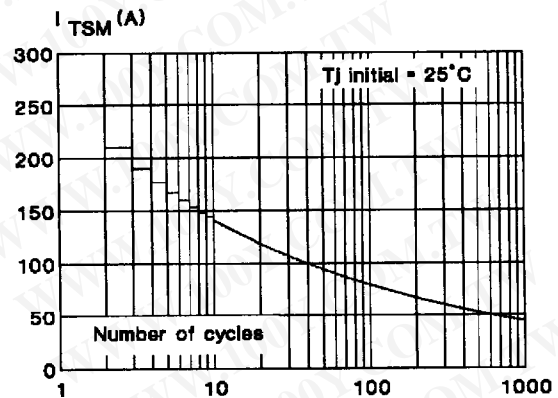


Fig.6 : Non repetitive surge peak on-state current versus number of cycles.



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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 .

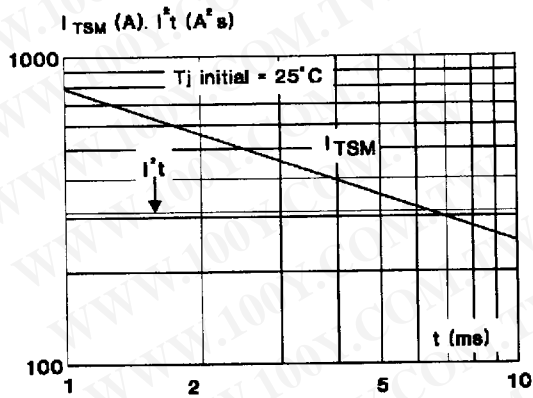
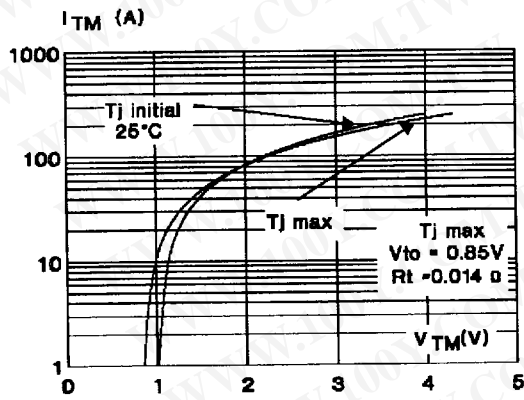
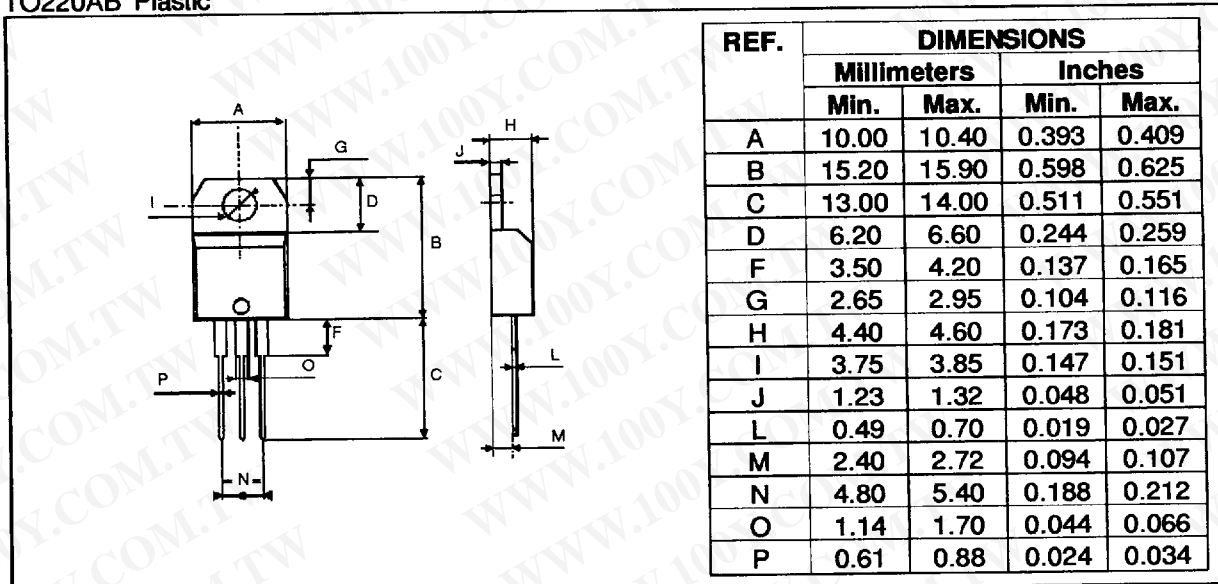


Fig.8 : On-state characteristics (maximum values).



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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