



SGS-THOMSON
MICROELECTRONICS

TYN 204 ---> TYN 1004

SCR

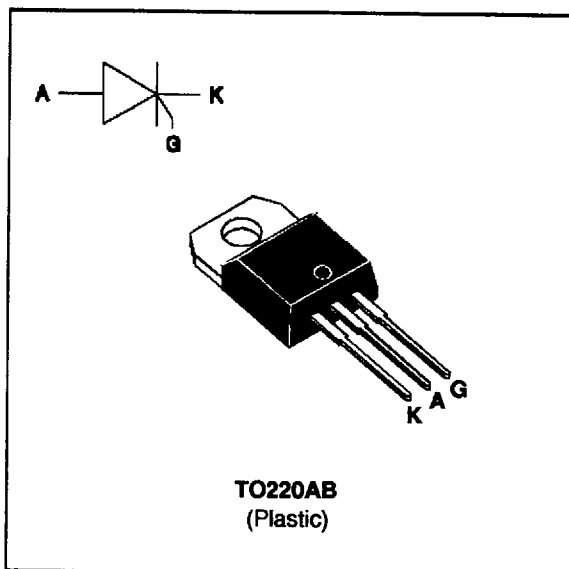
FEATURES

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

DESCRIPTION

The TYN 204 ---> TYN 1004 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)	$T_c = 115^\circ C$	4	A
$I_T(AV)$	Average on-state current (180° conduction angle, single phase circuit)	$T_c = 115^\circ C$	2.5	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = $25^\circ C$)	$t_p = 8.3$ ms	63	A
		$t_p = 10$ ms	60	
I^2_t	I^2_t value	$t_p = 10$ ms	18	A ² s
di/dt	Critical rate of rise of on-state current Gate supply : $I_G = 100$ mA $di_G/dt = 1$ A/ μ s		100	A/ μ 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					Unit
		204	404	604	804	1004	
V_{DRM} V_{RRM}	Repetitive peak off-state voltage $T_j = 125^\circ C$	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)

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

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Value	Unit
IGT	VD=12V (DC) RL=33Ω	TJ=25°C	MAX	15	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	mA
VTM	ITM= 8A 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	V/μs
tq	VD=67%VDRM ITM= 8A VR= 25V dITM/dt=30 A/μs dVD/dt= 50V/μs	TJ= 110°C	TYP	70	μs

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

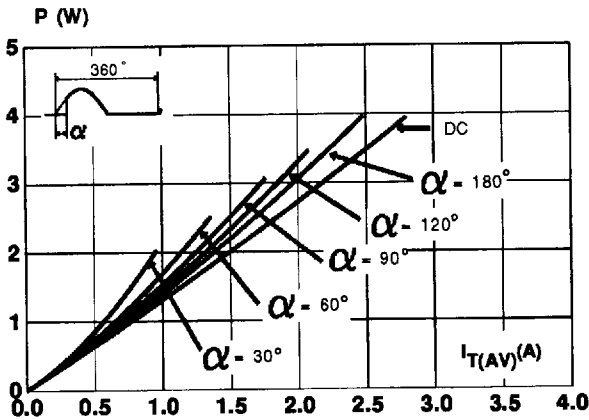


Fig.3 : Average on-state current versus case temperature.

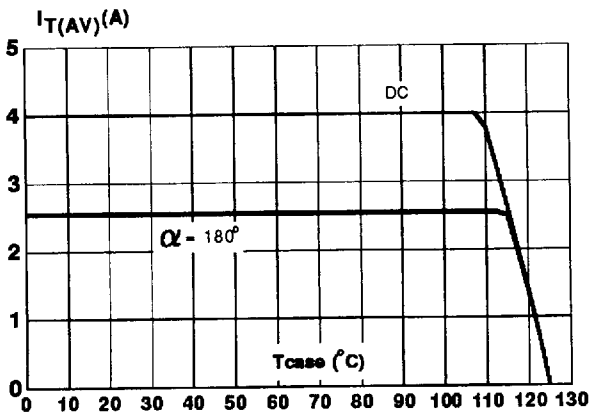


Fig.5 : Relative variation of gate trigger current versus junction temperature.

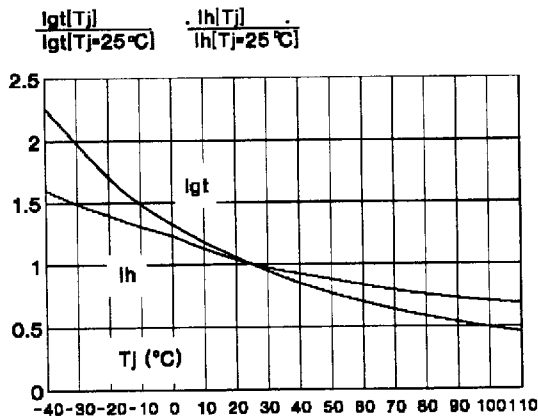


Fig.2 : Correlation between maximum average power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

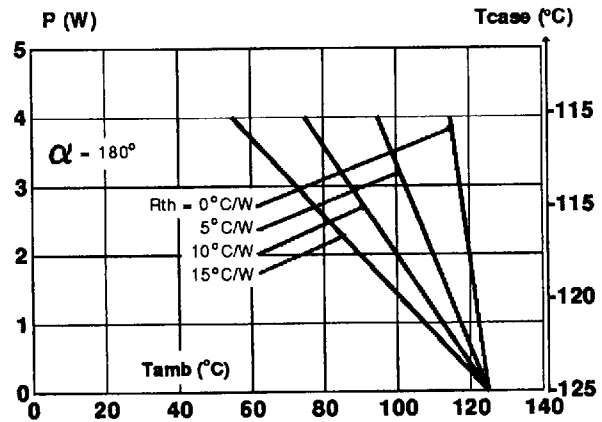


Fig.4 : Relative variation of thermal impedance versus pulse duration.

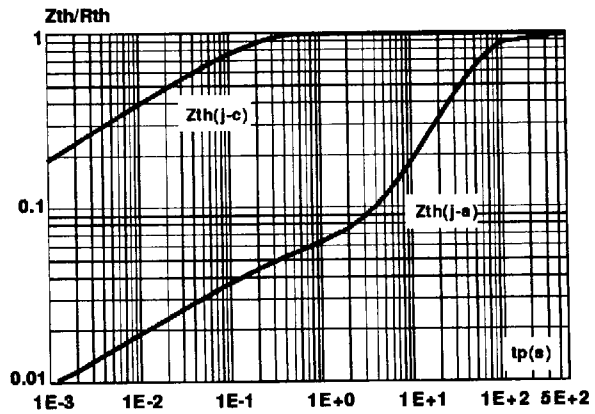


Fig.6 : Non repetitive surge peak on-state current versus number of cycles.

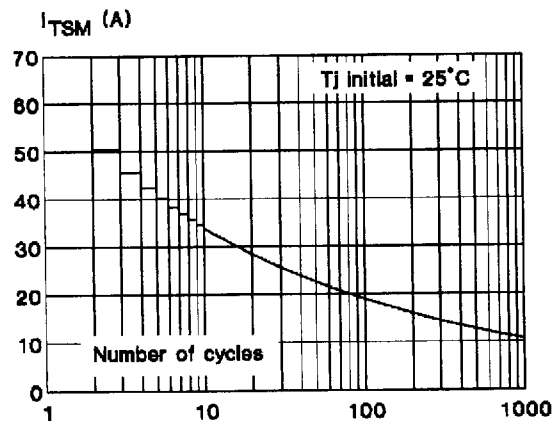


Fig.7 : Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t \leq 10$ ms, and corresponding value of I^2t .

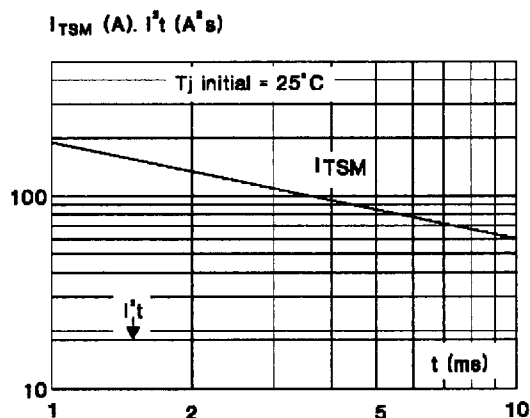
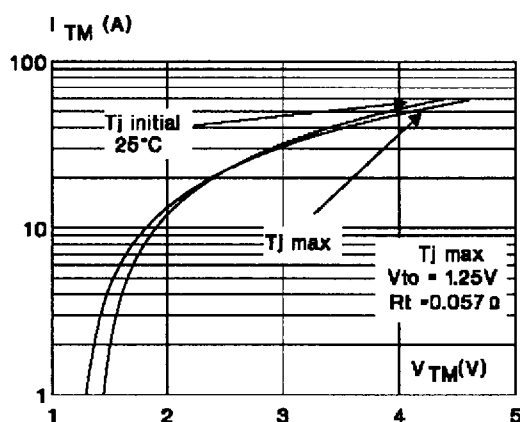
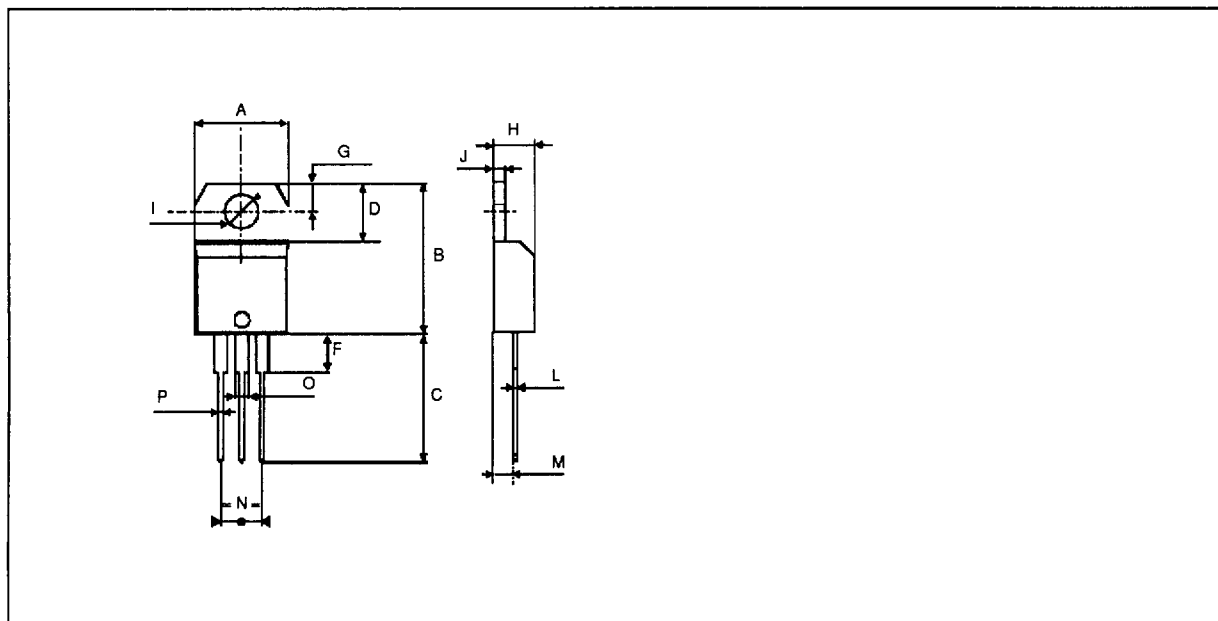


Fig.8 : On-state characteristics (maximum values).



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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