



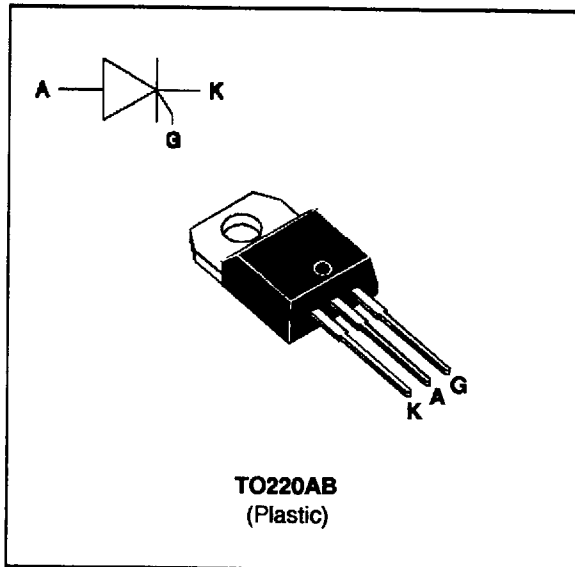
FEATURES

- 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
$I_T(\text{RMS})$	RMS on-state current (180° conduction angle)	$T_c = 115^\circ\text{C}$ 4	A
$I_T(\text{AV})$	Average on-state current (180° conduction angle, single phase circuit)	$T_c = 115^\circ\text{C}$ 2.5	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25°C)	$t_p = 8.3 \text{ ms}$ 63	A
		$t_p = 10 \text{ ms}$ 60	
I^2t	I^2t value	$t_p = 10 \text{ ms}$ 18	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
		204	404	604	804	1004	
V_{DRM} V_{RRM}	Repetitive peak off-state voltage $T_j = 125^\circ\text{C}$	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.

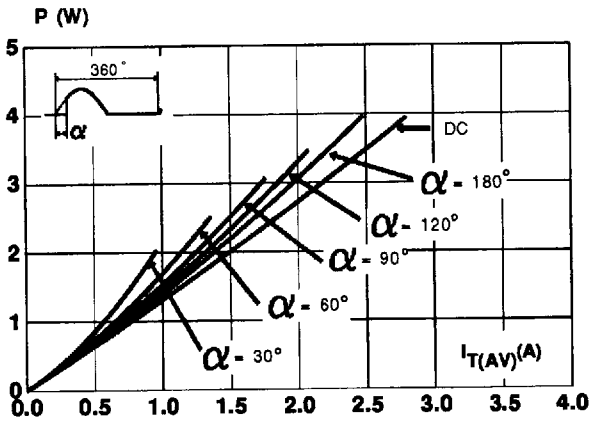


Fig.2 : Correlation between maximum average power dissipation and maximum allowable temperatures (Tamb and Tcase) for different thermal resistances heatsink + contact.

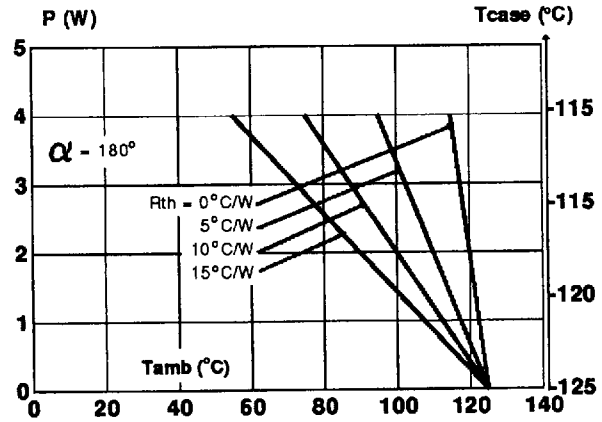


Fig.3 : Average on-state current versus case temperature.

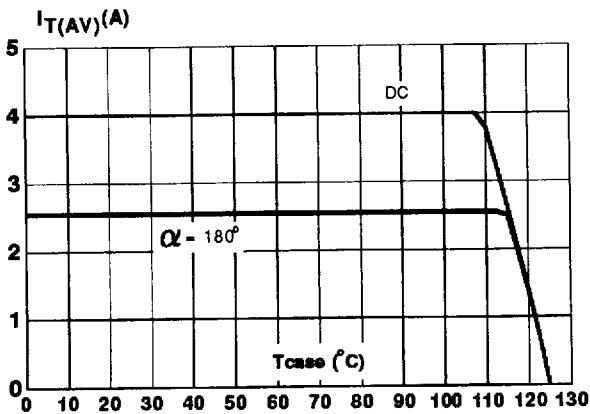


Fig.4 : Relative variation of thermal impedance versus pulse duration.

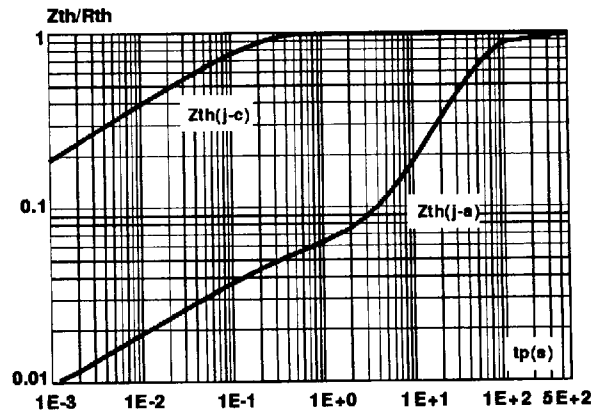


Fig.5 : Relative variation of gate trigger current versus junction temperature.

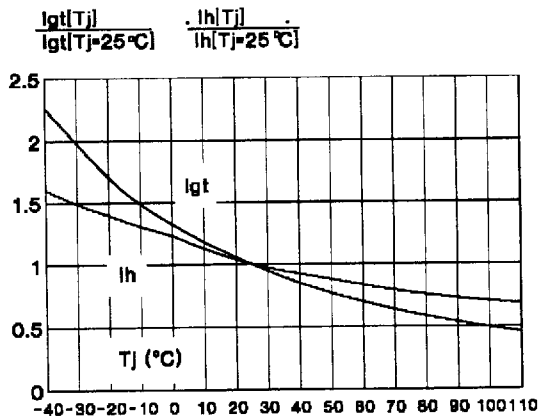
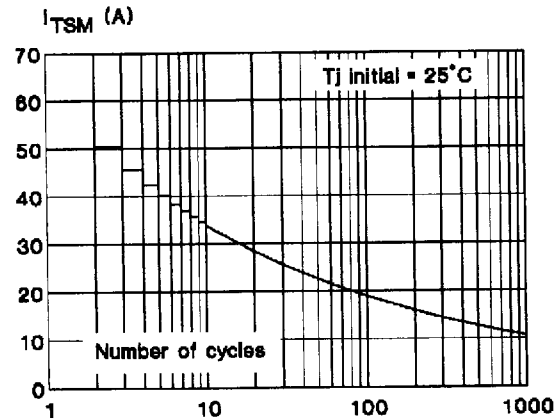


Fig.6 : Non repetitive surge peak on-state current versus number of cycles.



TYN 204 ---> TYN 1004

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 .

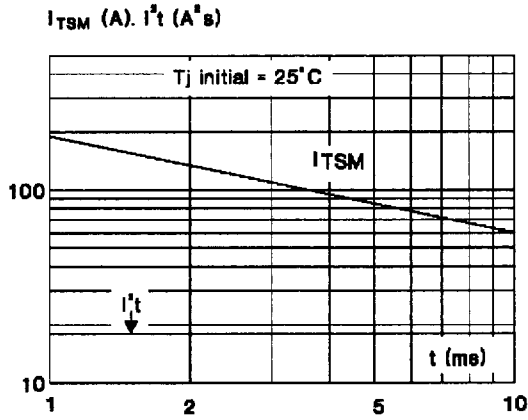
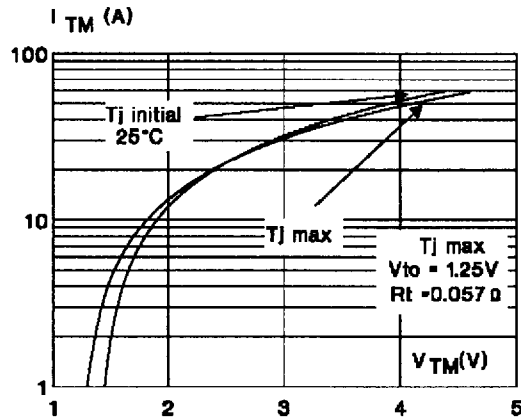
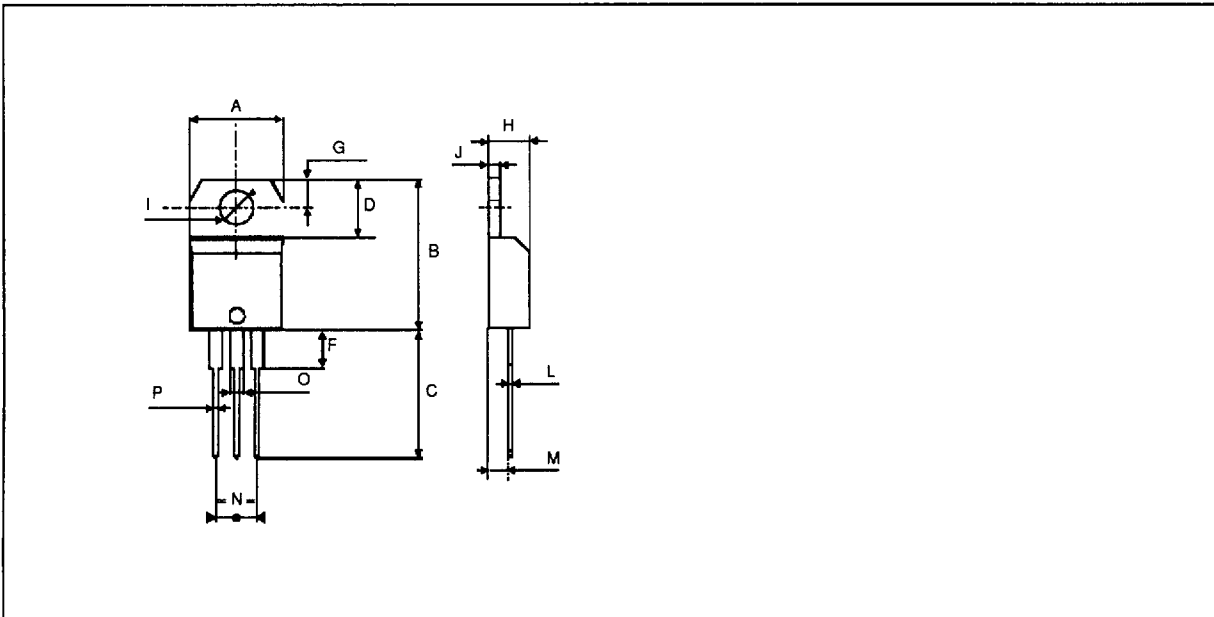


Fig.8 : On-state characteristics (maximum values).



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.

Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied.

SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectronics.

© 1995 SGS-THOMSON Microelectronics - Printed in Italy - All rights reserved.

SGS-THOMSON Microelectronics GROUP OF COMPANIES

Australia - Brazil - France - Germany - Hong Kong - Italy - Japan - Korea - Malaysia - Malta - Morocco - The Netherlands Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A.