

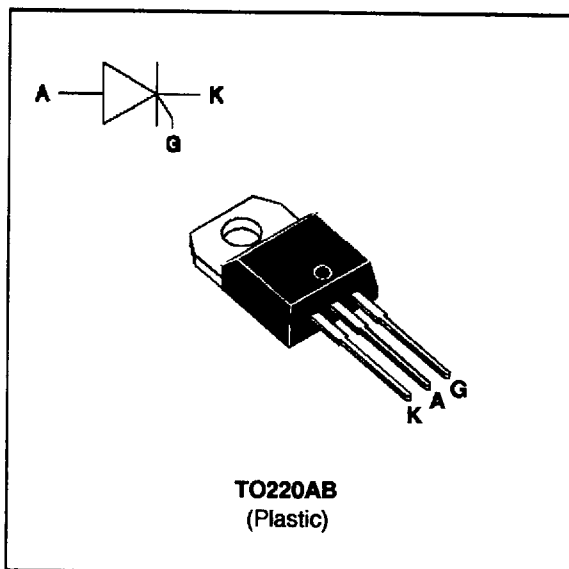
**FEATURES**

- 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^2_t	I^2_t value	$t_p = 10 \text{ ms}$	18	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	$^\circ\text{C}$ $^\circ\text{C}$
T_l	Maximum lead temperature for soldering during 10 s at 4.5 mm from case		260	$^\circ\text{C}$

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.

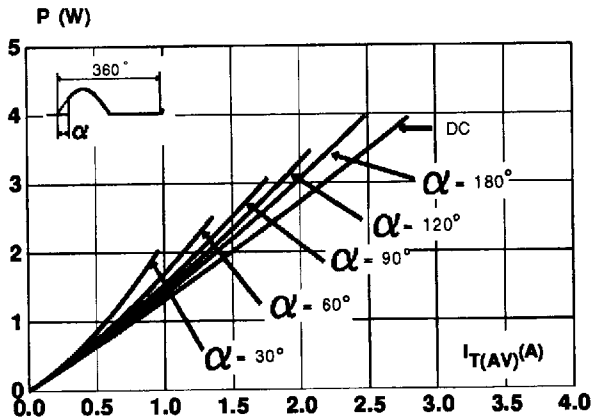


Fig.3 : Average on-state current versus case temperature.

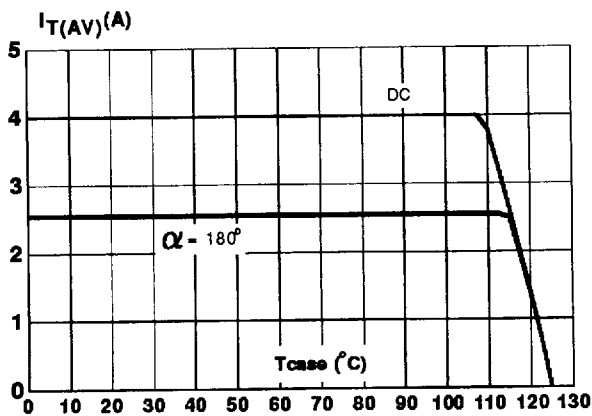


Fig.5 : Relative variation of gate trigger current versus junction temperature.

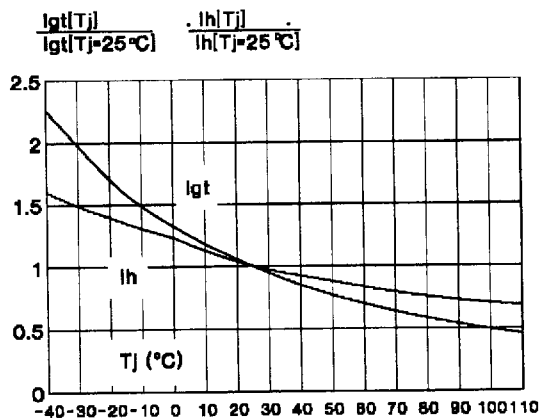


Fig.2 : Correlation between maximum average power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

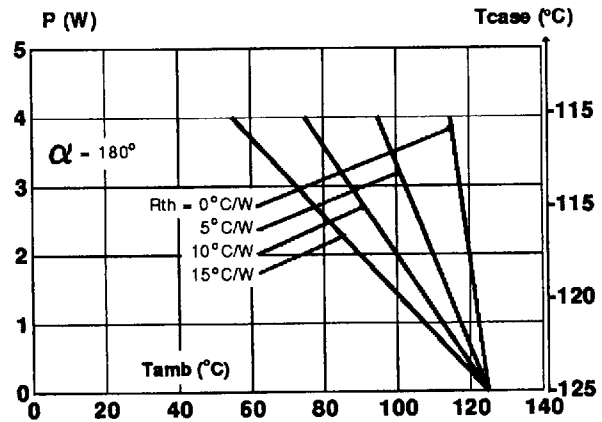


Fig.4 : Relative variation of thermal impedance versus pulse duration.

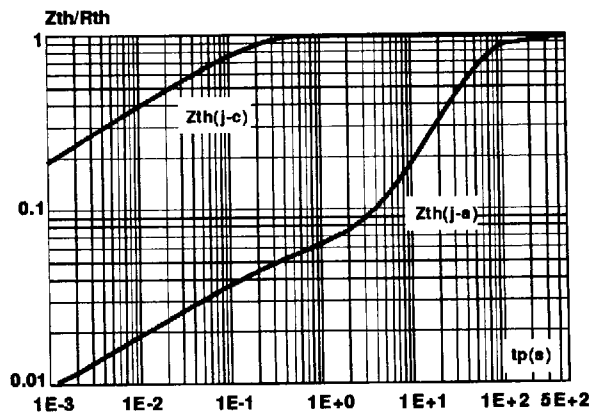


Fig.6 : Non repetitive surge peak on-state current versus number of cycles.

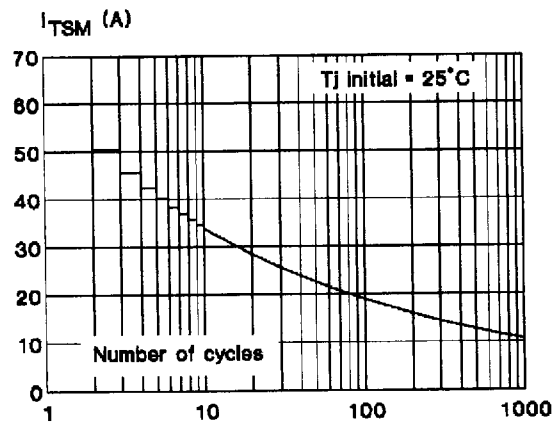


Fig.7 : Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t \leq 10$ ms, and corresponding value of I^2t .

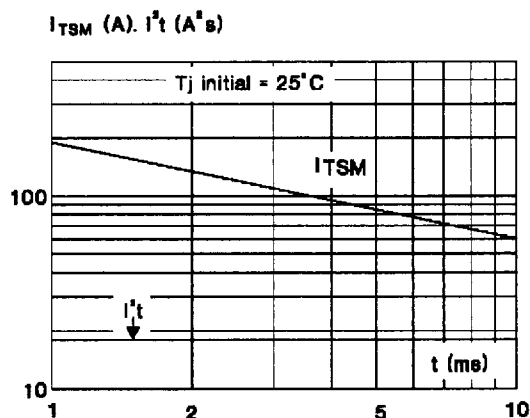
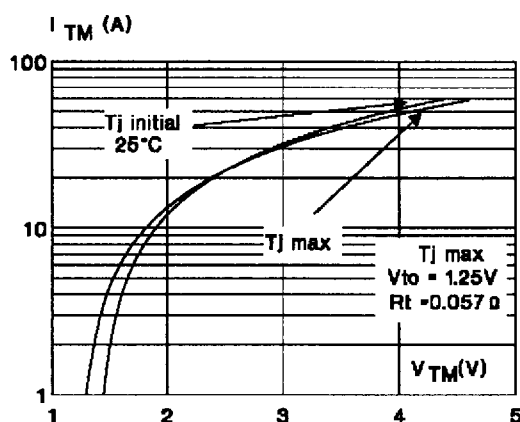
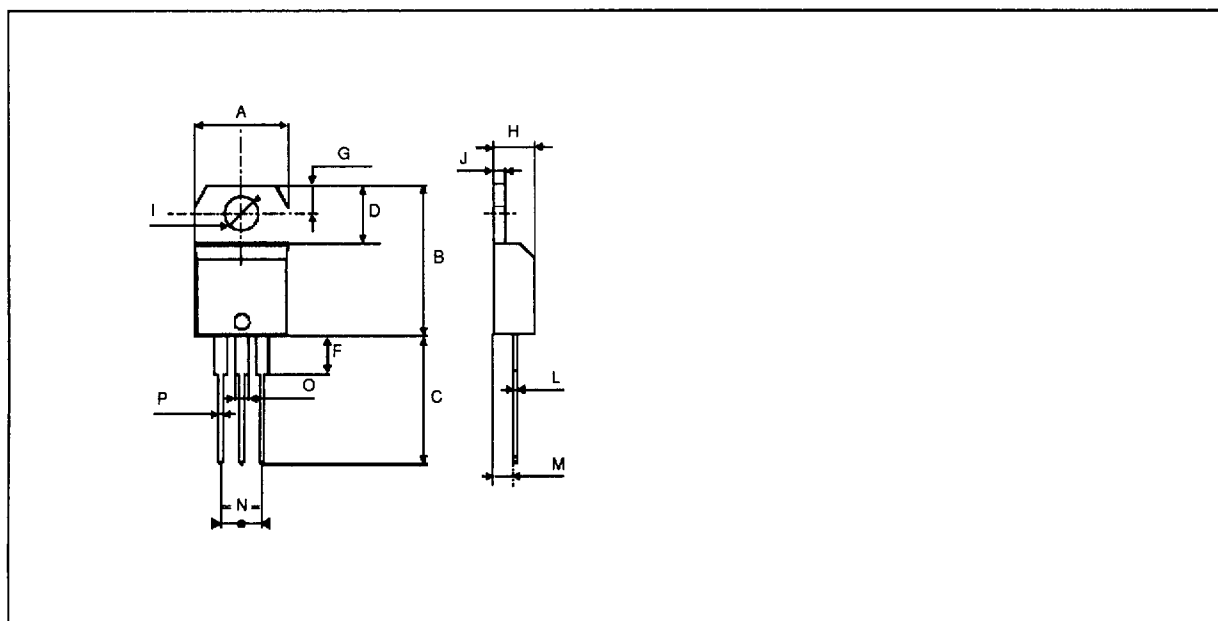


Fig.8 : On-state characteristics (maximum values).



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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