



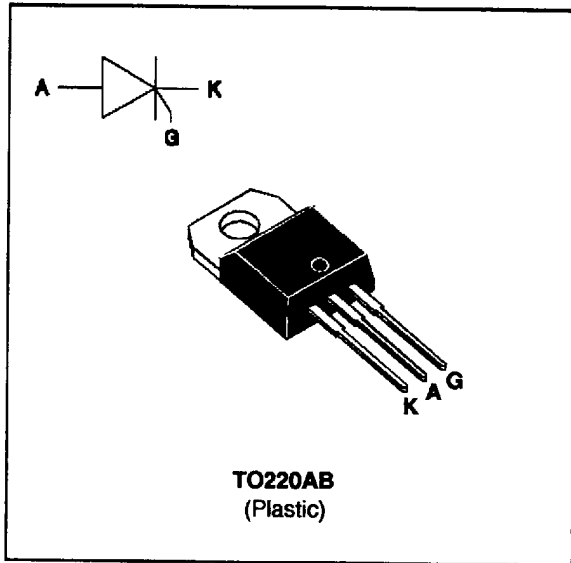
**FEATURES**

- 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)	$T_c = 115\text{ °C}$	4	A
$I_T(AV)$	Average on-state current (180° conduction angle, single phase circuit)	$T_c = 115\text{ °C}$	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 <sup>2</sup> 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/ $\mu\text{s}$
$T_{stg}$ $T_j$	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
		204	404	604	804	1004	
$V_{DRM}$ $V_{RRM}$	Repetitive peak off-state voltage $T_j = 125\text{ °C}$	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.

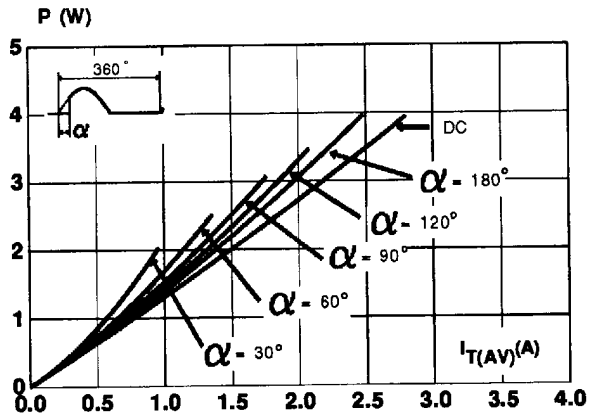


Fig.2 : Correlation between maximum average power dissipation and maximum allowable temperatures (Tamb and Tcase) for different thermal resistances heatsink + contact.

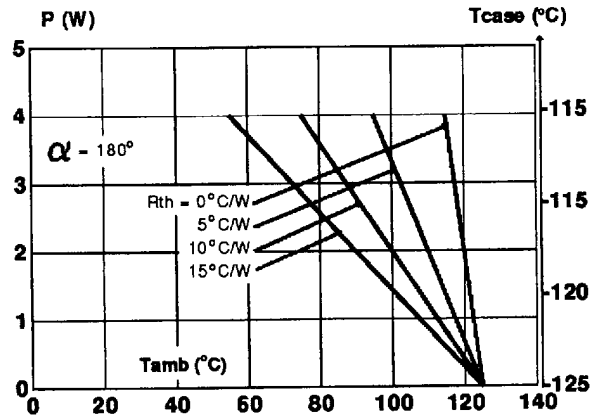


Fig.3 : Average on-state current versus case temperature.

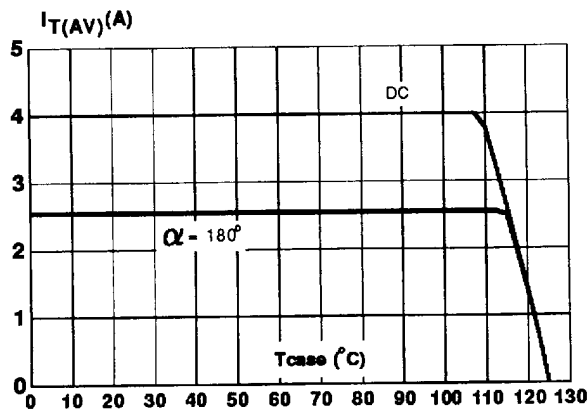


Fig.4 : Relative variation of thermal impedance versus pulse duration.

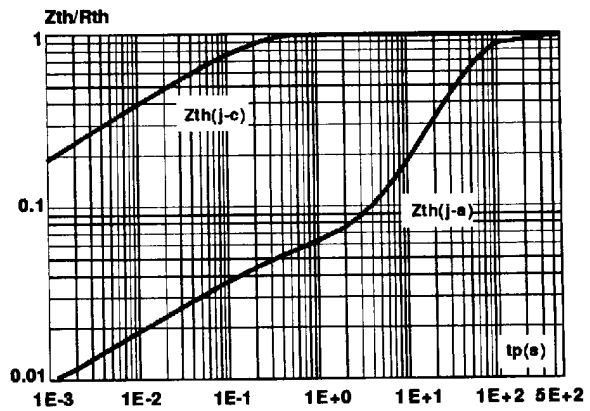


Fig.5 : Relative variation of gate trigger current versus junction temperature.

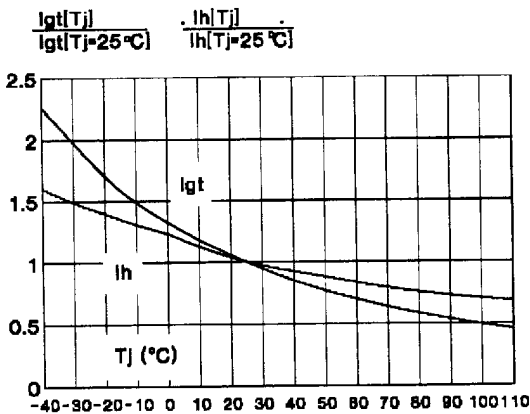
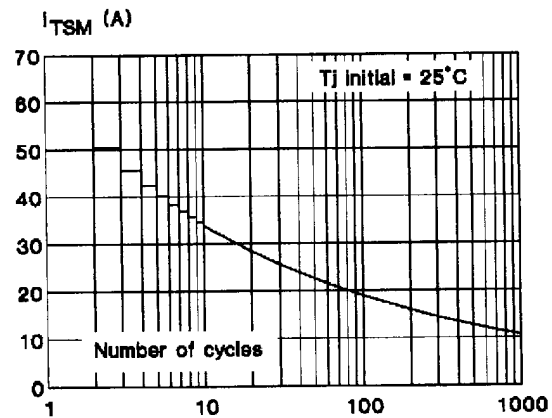
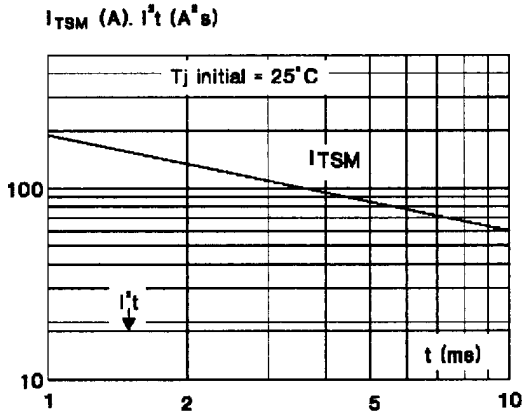


Fig.6 : Non repetitive surge peak on-state current versus number of cycles.

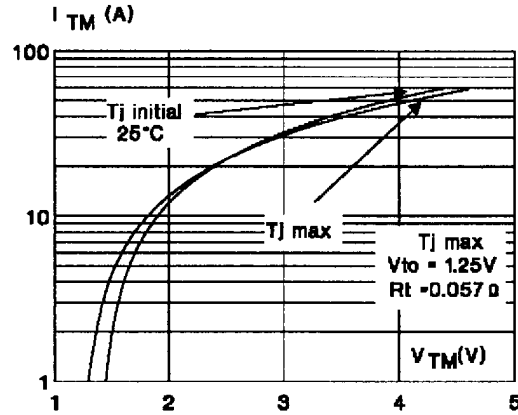


**TYN 204 ---> TYN 1004**

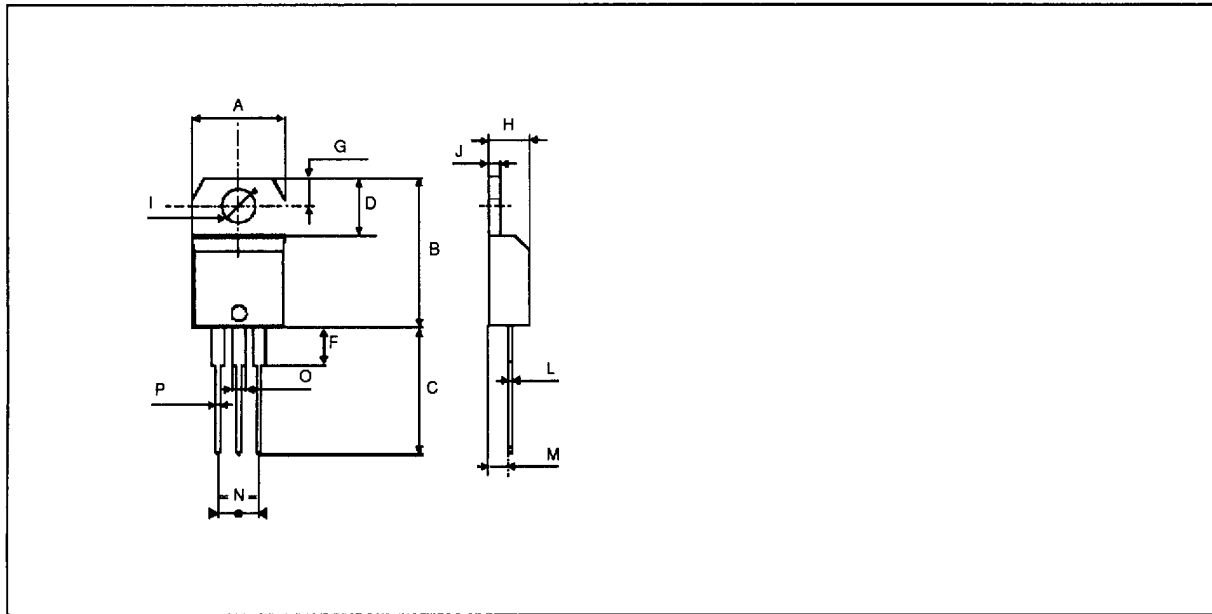
**Fig.7 :** Non repetitive surge peak on-state current for a sinusoidal pulse with width :  $t \leq 10$  ms, and corresponding value of  $I^2t$ .



**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.

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