

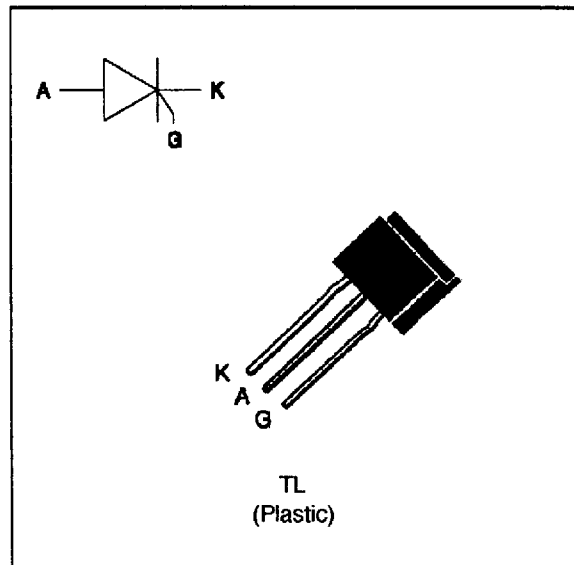
**FEATURES**

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

**DESCRIPTION**

The TL 1006 ----> TL 8006 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)	$T_I = 55\text{ °C}$	3	A
$I_{T(AV)}$	Average on-state current (180° conduction angle, single phase circuit)	$T_I = 55\text{ °C}$	2	A
$I_{TSM}$	Non repetitive surge peak on-state current ( $T_j$ initial = 25°C)	$t_p = 8.3\text{ ms}$	73	A
		$t_p = 10\text{ ms}$	70	
$I^2t$	$I^2t$ value	$t_p = 10\text{ ms}$	25	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 + 110	°C °C
$T_I$	Maximum lead temperature for soldering during 4 s at 4.5 mm from case		230	°C

Symbol	Parameter	TL					Unit
		1006	2006	4006	6006	8006	
$V_{DRM}$ $V_{RRM}$	Repetitive peak off-state voltage $T_j = 110\text{ °C}$	100	200	400	600	800	V

**THERMAL RESISTANCES**

Symbol	Parameter	Value	Unit
Rth (j-a)	Junction to ambient on printed circuit with Cu surface 1cm <sup>2</sup>	50	°C/W
Rth (j-l) DC	Junction to leads for DC	15	°C/W

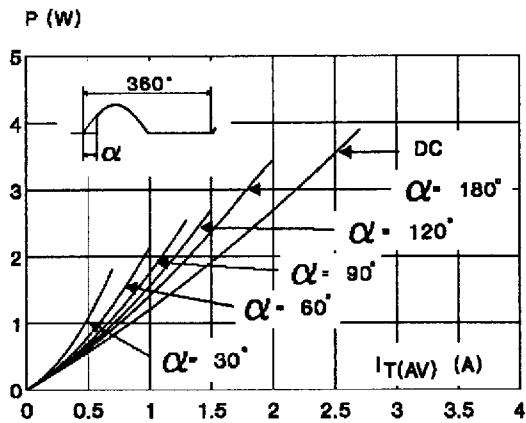
**GATE CHARACTERISTICS (maximum values)**

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

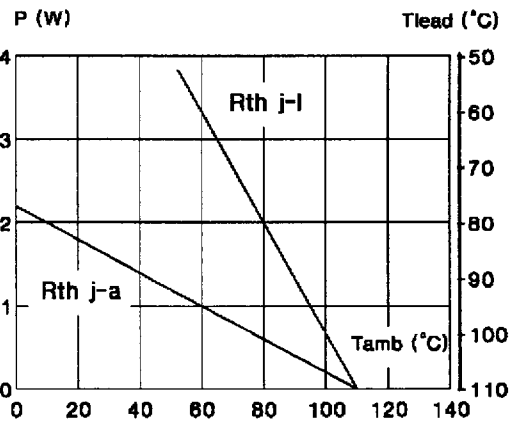
**ELECTRICAL CHARACTERISTICS**

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	1.5	μs
IL	IG= 1.2 IGT Tj=25°C TYP	40	mA
IH	IT= 100mA gate open Tj=25°C TYP	20	mA
VTM	ITM= 6A tp= 380μs Tj=25°C MAX	1.9	V
IDRM IRRM	VDRM Rated VRRM Rated Tj=25°C MAX	0.01	mA
		Tj= 110°C	
dV/dt	Linear slope up to VD=67%VDRM gate open Tj= 110°C MIN	200	V/μs
tq	VD=67%VDRM ITM= 6A VR= 10V dITM/dt=10 A/μs dVD/dt= 20V/μs Tj= 110°C TYP	70	μs

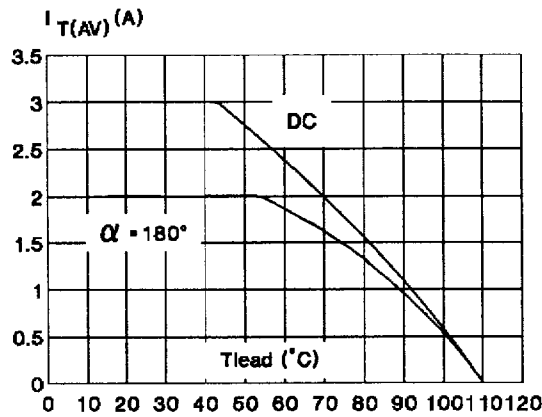
**Fig.1 :** Maximum average power dissipation versus average on-state current.



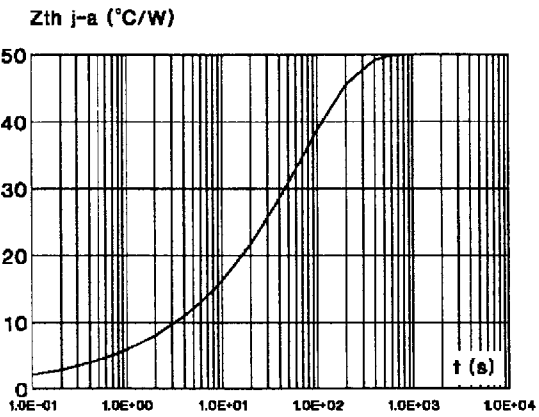
**Fig.2 :** Correlation between maximum average power dissipation and maximum allowable temperatures ( $T_{amb}$  and  $T_{lead}$ ).



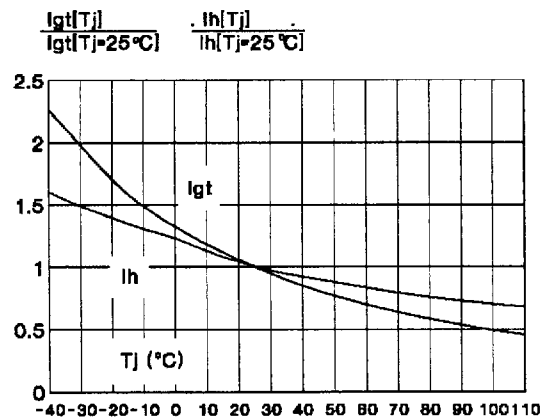
**Fig.3 :** Average on-state current versus leads temperature.



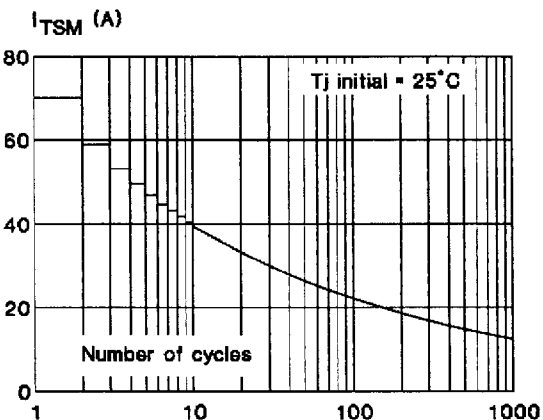
**Fig.4 :** Thermal transient impedance junction to ambient versus pulse duration.



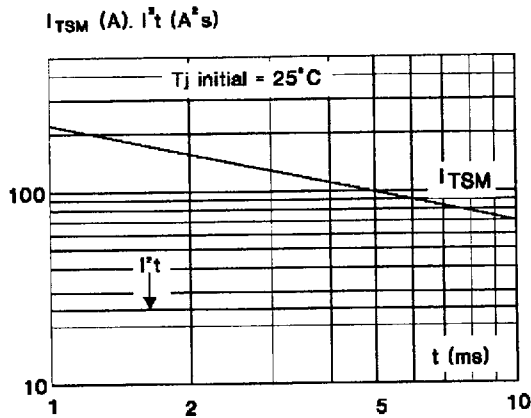
**Fig.5 :** Relative variation of gate trigger current versus junction temperature.



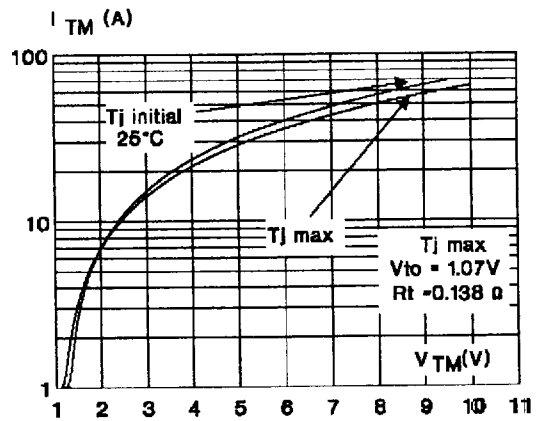
**Fig.6 :** Non repetitive surge peak on-state current versus number of cycles.



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

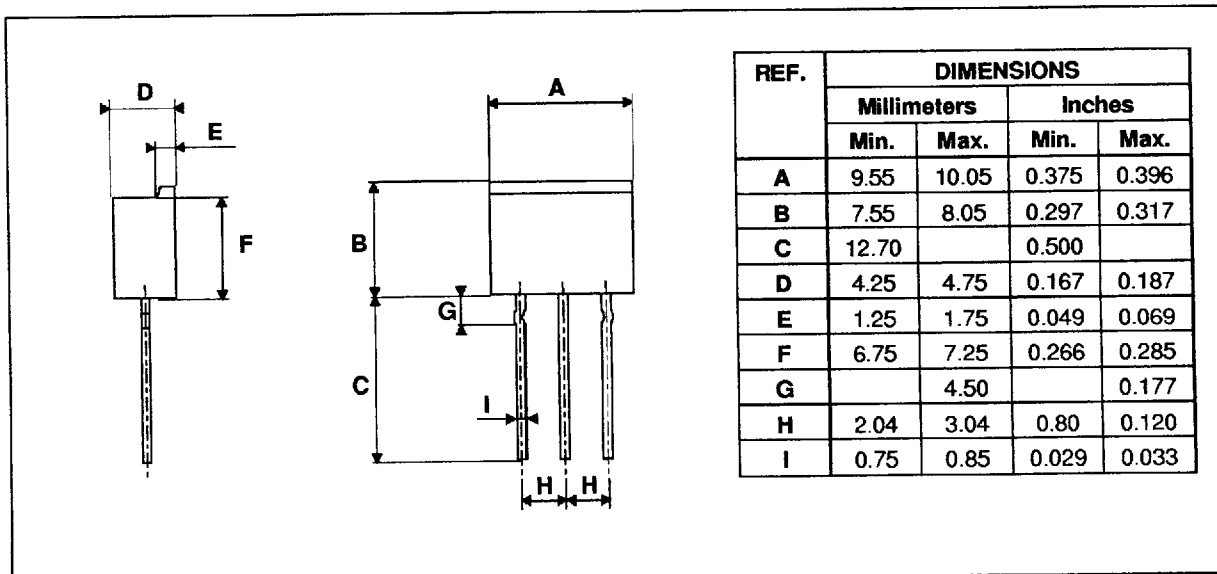


**Fig.8** : On-state characteristics (maximum values).



**PACKAGE MECHANICAL DATA**

TL Plastic



Marking : type number  
Weight : 0.8 g

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