

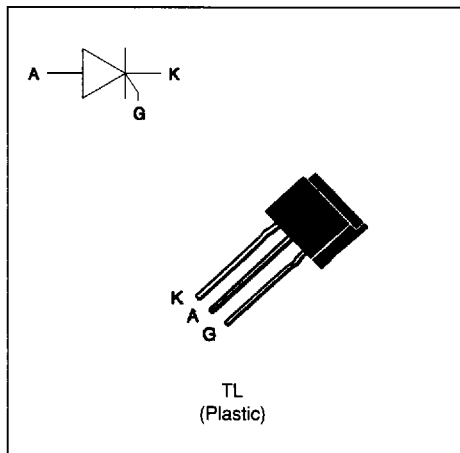
**FEATURES**

- 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
$I_T(\text{RMS})$	RMS on-state current (180° conduction angle)	$T_I = 55^\circ\text{C}$	3	A
$I_T(\text{AV})$	Average on-state current (180° conduction angle, single phase circuit)	$T_I = 55^\circ\text{C}$	2	A
$I_{TSM}$	Non repetitive surge peak on-state current ( $T_J$ initial = $25^\circ\text{C}$ )	$t_p = 8.3 \text{ ms}$	73	A
		$t_p = 10 \text{ ms}$	70	
$I_2t$	$I_2t$ value	$t_p = 10 \text{ ms}$	25	$\text{A}^2\text{s}$
$di/dt$	Critical rate of rise of on-state current Gate supply : $I_G = 150 \text{ mA}$ $di_G/dt = 1 \text{ A}/\mu\text{s}$		100	$\text{A}/\mu\text{s}$
$T_{stg}$ $T_J$	Storage and operating junction temperature range		- 40 to + 150 - 40 to + 125	$^\circ\text{C}$ $^\circ\text{C}$
$T_I$	Maximum lead temperature for soldering during 4 s at 4.5 mm from case		230	$^\circ\text{C}$

Symbol	Parameter	TL					Unit
		1006	2006	4006	6006	8006	
$V_{DRM}$ $V_{RRM}$	Repetitive peak off-state voltage $T_J = 125^\circ\text{C}$	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

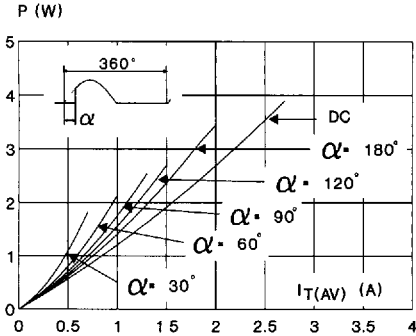
**GATE CHARACTERISTICS** (maximum values)

PG (AV) = 1W PGM = 20W (tp = 20 μs) IFGM = 2A (tp = 20 μs) VFGM = 16V (tp = 20 μs) VRGM = 5 V.

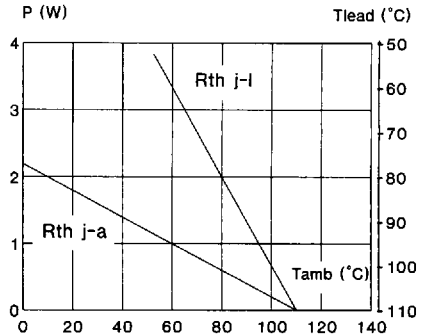
**ELECTRICAL CHARACTERISTICS**

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 = 90mA dIG/dt = 0.8A/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		1	
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

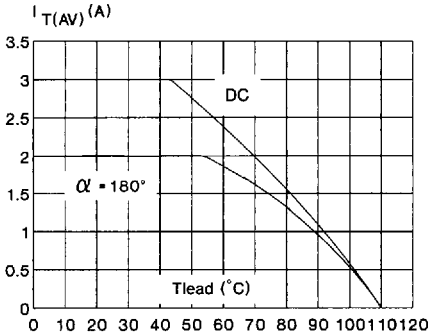
**Fig.1** : Maximum average power dissipation versus average on-state current.



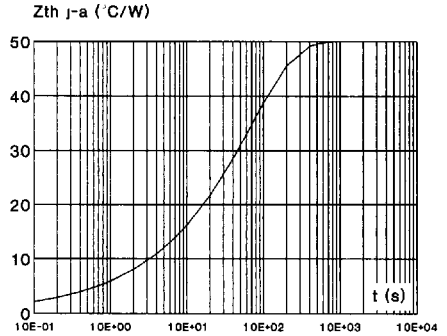
**Fig.2** : Correlation between maximum average power dissipation and maximum allowable temperatures ( $T_{amb}$  and  $T_{lead}$ ).



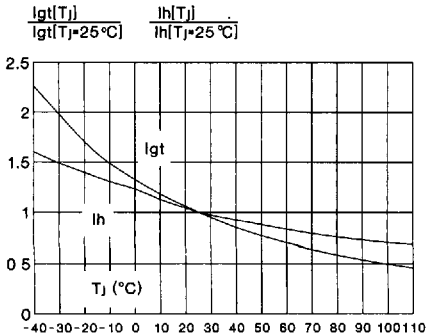
**Fig.3** : Average on-state current versus leads temperature.



**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.

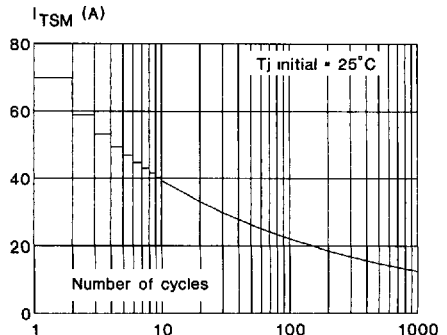


Fig.7 : Non repetitive surge peak on-state current for a sinusoidal pulse with width :  $t \leq 10$  ms, and corresponding value of  $I^2t$ .

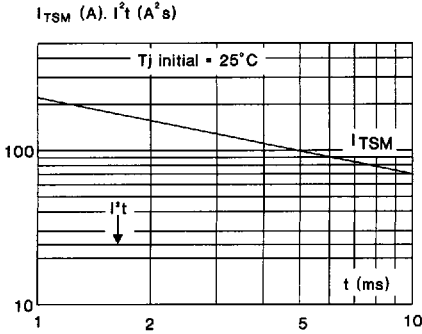
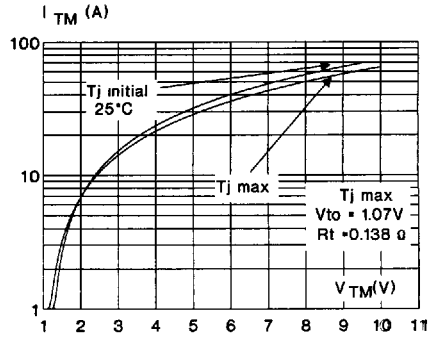
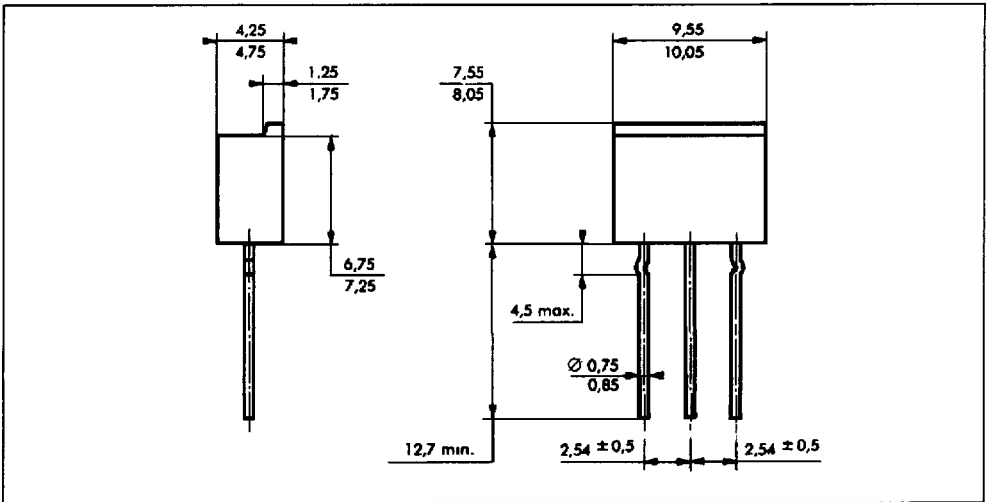


Fig.8 : On-state characteristics (maximum values).



PACKAGE MECHANICAL DATA (in millimeters)

TL Plastic



Cooling method : A  
 Marking : type number  
 Weight : 0.8 g  
 Polarity : N A  
 Stud torque : N A