

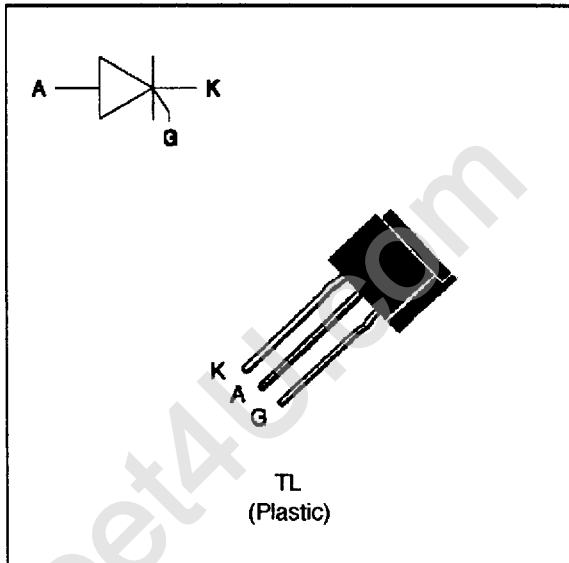
FEATURES

- 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 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 + 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 ²	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	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.

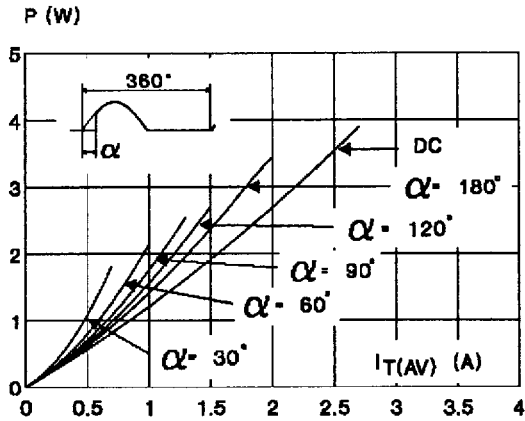


Fig.2 : Correlation between maximum average power dissipation and maximum allowable temperatures (T_{amb} and T_{lead}).

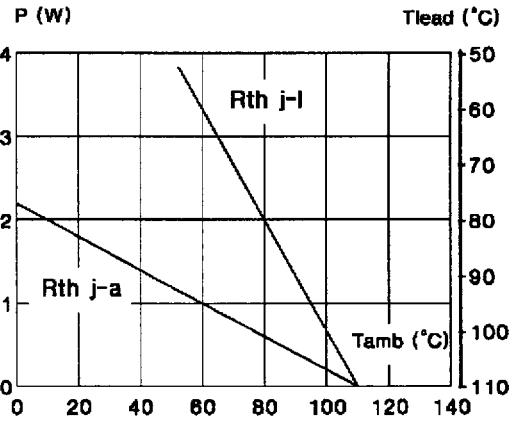


Fig.3 : Average on-state current versus leads temperature.

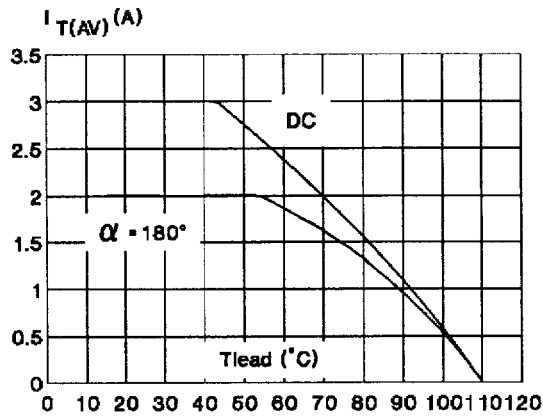


Fig.4 : Thermal transient impedance junction to ambient versus pulse duration.

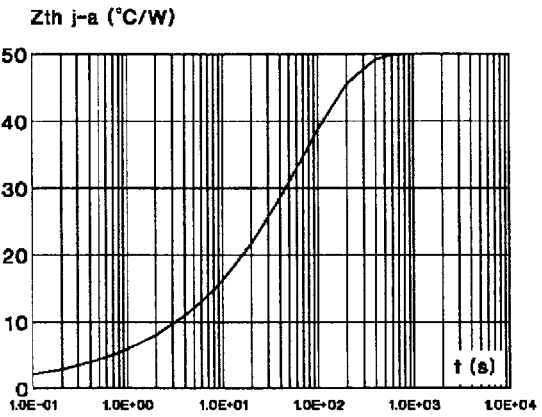


Fig.5 : Relative variation of gate trigger current versus junction temperature.

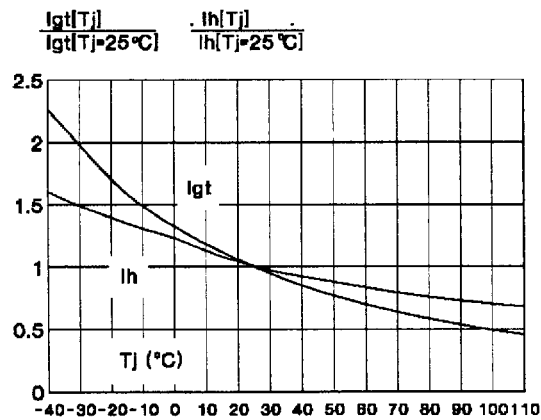


Fig.6 : Non repetitive surge peak on-state current versus number of cycles.

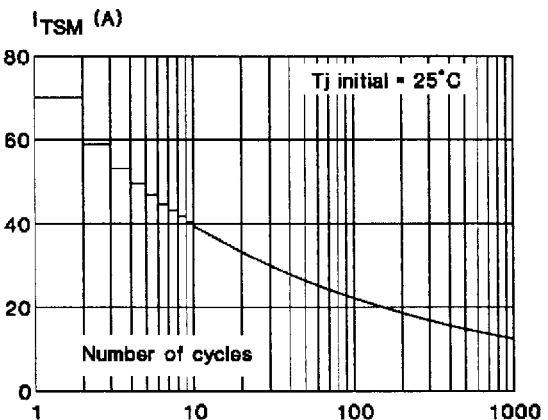


Fig.7 : Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t \leq 10$ ms, and corresponding value of I^2t .

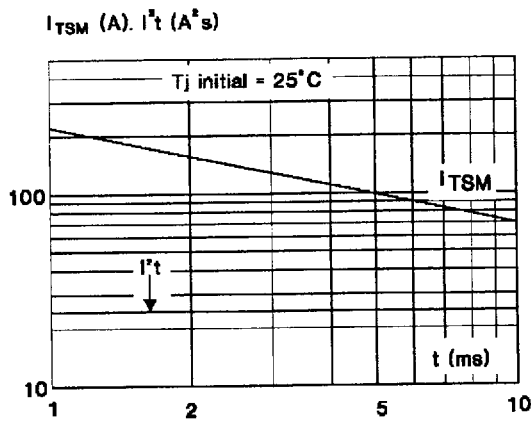
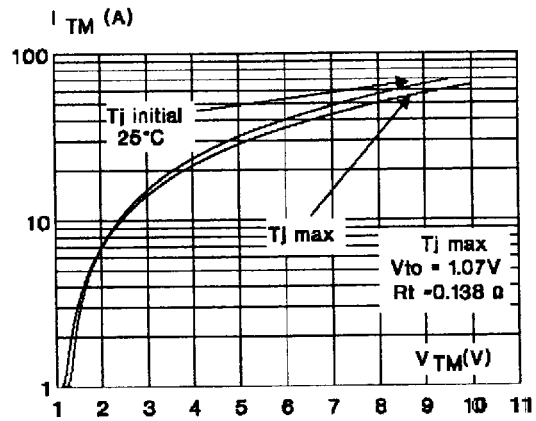
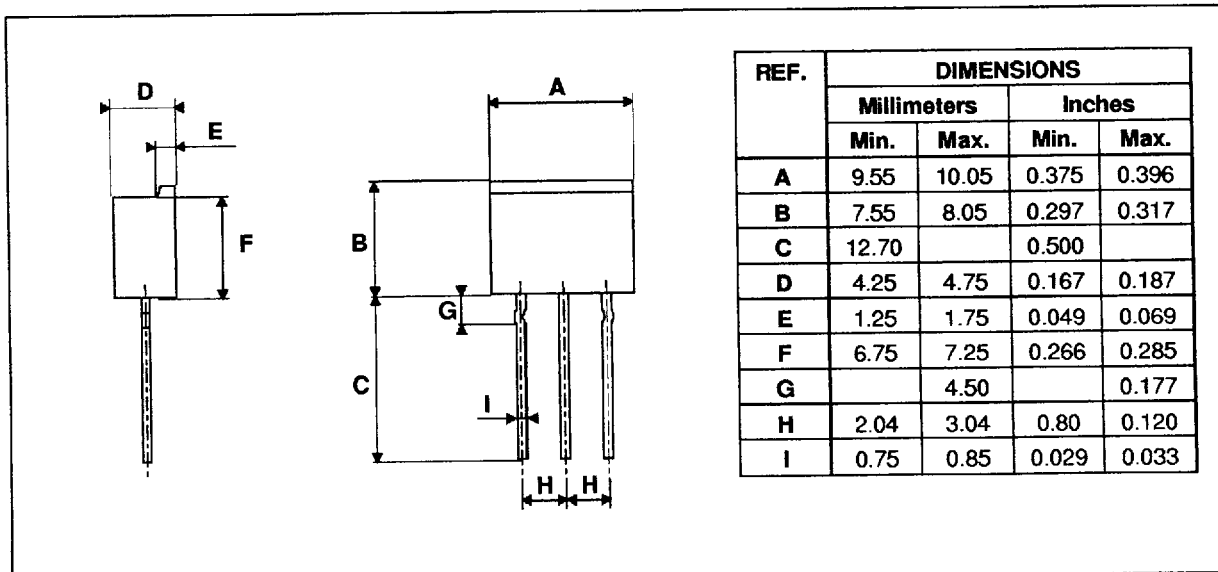


Fig.8 : On-state characteristics (maximum values).



PACKAGE MECHANICAL DATA

TL Plastic



Marking : type number
Weight : 0.8 g

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