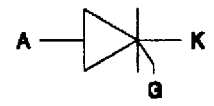
SGS-THOMSON MICROELECTRONICS

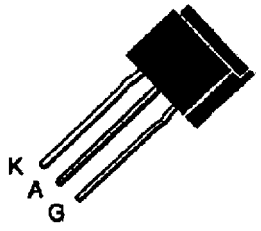
TL 1006 ---> TL 8006

SCR

FEATURES

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





TL
(Plastic)

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)	Tl = 55 °C	3	A
$I_{T(AV)}$	Average on-state current (180° conduction angle, single phase circuit)	Tl = 55 °C	2	A
I_{TSM}	Non repetitive surge peak on-state current (Tj initial = 25°C)	tp = 8.3 ms	73	A
		tp = 10 ms	70	
I^2t	I^2t value	tp = 10 ms	25	A^2s
dI/dt	Critical rate of rise of on-state current Gate supply : I_G = 100 mA di_G/dt = 1 A/µs		100	A/µs
Tstg Tj	Storage and operating junction temperature range		- 40 to + 150 - 40 to + 110	°C °C
Tl	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 Tj = 110 °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)

$P_{G\ (AV)}$ = 1W P_{GM} = 10W (tp = 20 µs) I_{FGM} = 4A (tp = 20 µs) V_{RGM} = 5 V.

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Value	Unit
I_{GT}	V_D=12V (DC) R_L=33Ω	Tj=25°C	MAX	15	mA
V_{GT}	V_D=12V (DC) R_L=33Ω	Tj=25°C	MAX	1.5	V
V_{GD}	V_D=V_{DRM} R_L=3.3kΩ	Tj= 110°C	MIN	0.2	V
tgt	V_D=V_{DRM} I_G = 40mA dI_G/dt = 0.5A/µs	Tj=25°C	TYP	1.5	µs
I_L	I_G= 1.2 I_{GT}	Tj=25°C	TYP	40	mA
I_H	I_T= 100mA gate open	Tj=25°C	TYP	20	mA
V_{TM}	ITM= 6A tp= 380µs	Tj=25°C	MAX	1.9	V
I_{DRM} I_{RRM}	V_{DRM} Rated V_{RRM} Rated	Tj=25°C	MAX	0.01	mA
		Tj= 110°C		1	
dV/dt	Linear slope up to V_D=67%V_{DRM} gate open	Tj= 110°C	MIN	200	V/µs
tq	V_D=67%V_{DRM} I_{TM}= 6A V_R= 10V dI_{TM}/dt=10 A/µs dV_D/dt= 20V/µs	Tj= 110°C	TYP	70	µs

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

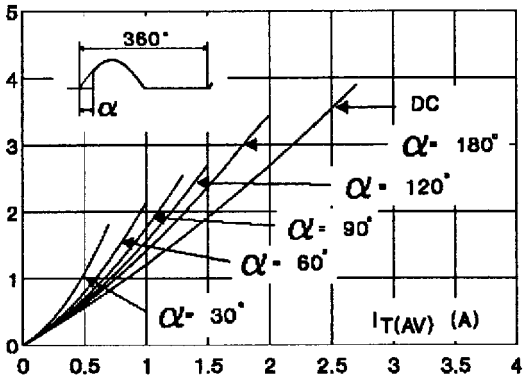


Fig.2 : Correlation between maximum average power dissipation and maximum allowable temperatures (T_{amb} and T_{lead}).

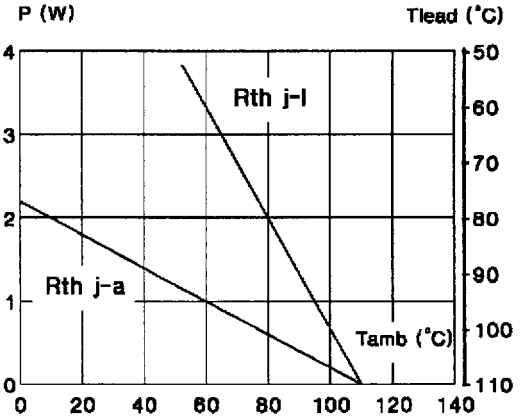


Fig.3 : Average on-state current versus leads temperature.

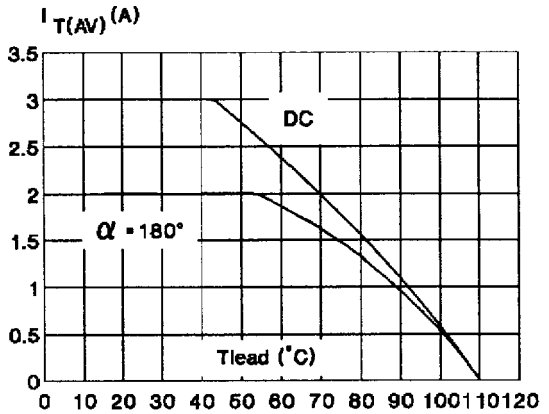


Fig.4 : Thermal transient impedance junction to ambient versus pulse duration.

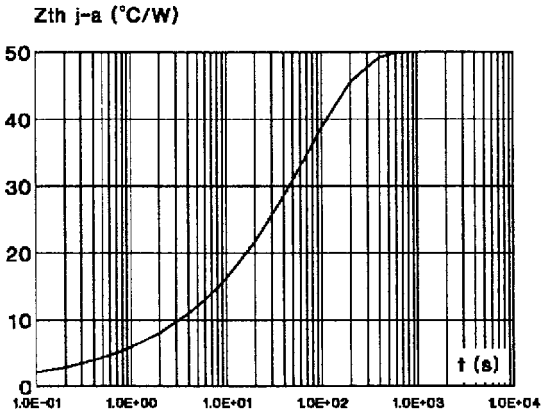


Fig.5 : Relative variation of gate trigger current versus junction temperature.

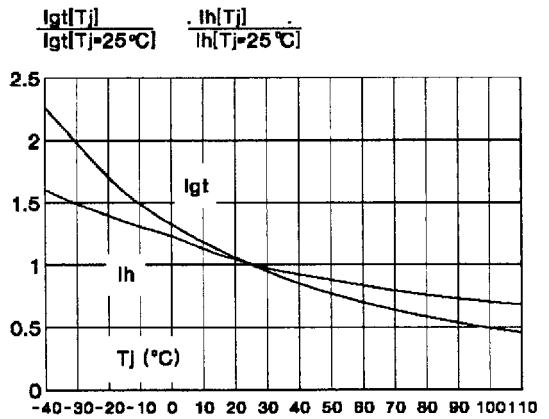


Fig.6 : Non repetitive surge peak on-state current versus number of cycles.

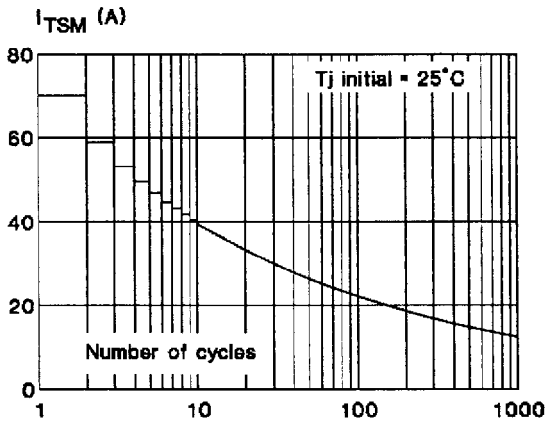


Fig.7 : Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ≤ 10 ms, and corresponding value of I^2t.

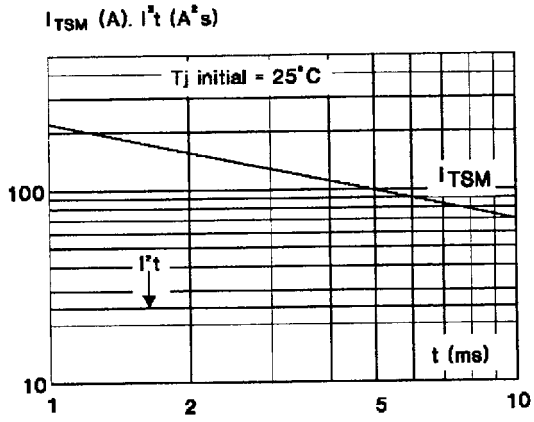
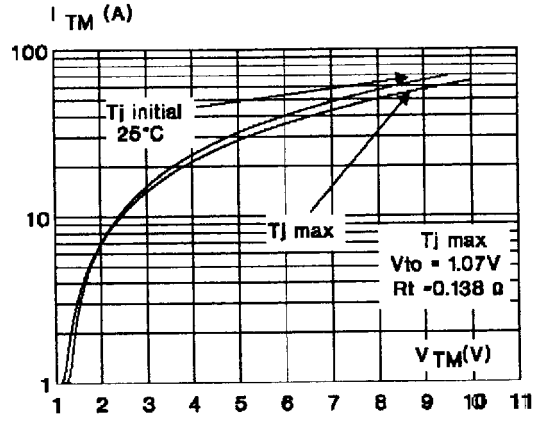
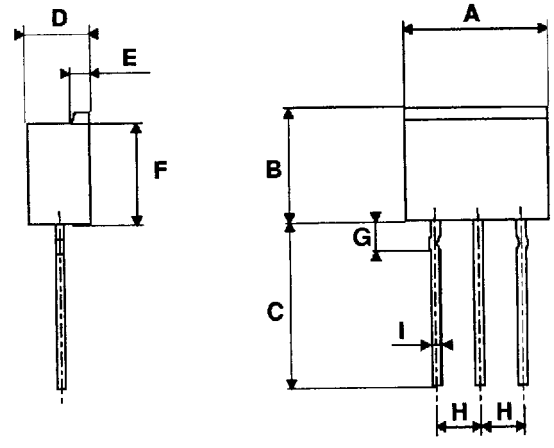


Fig.8 : On-state characteristics (maximum values).



PACKAGE MECHANICAL DATA

TL Plastic



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	9.55	10.05	0.375	0.396
B	7.55	8.05	0.297	0.317
C	12.70		0.500	
D	4.25	4.75	0.167	0.187
E	1.25	1.75	0.049	0.069
F	6.75	7.25	0.266	0.285
G		4.50		0.177
H	2.04	3.04	0.80	0.120
I	0.75	0.85	0.029	0.033

Marking : type number
Weight : 0.8 g