

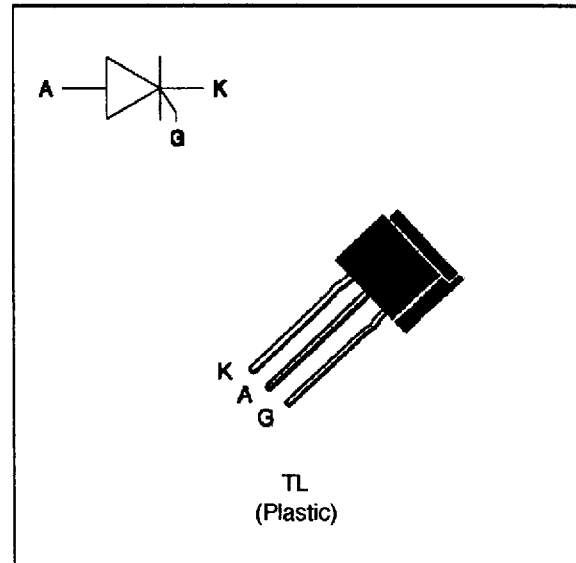
FEATURES

- 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)	$T_I = 55\text{ °C}$	3	A
$I_T(\text{AV})$	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.

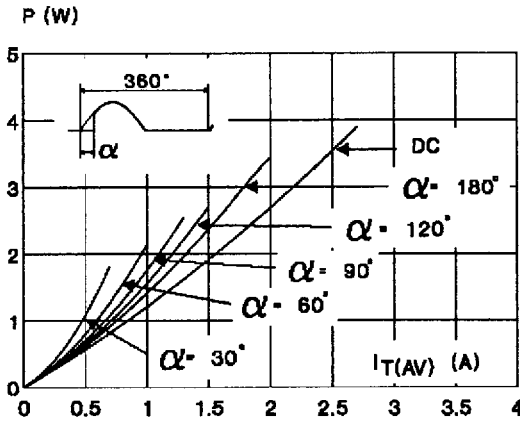


Fig.3 : Average on-state current versus leads temperature.

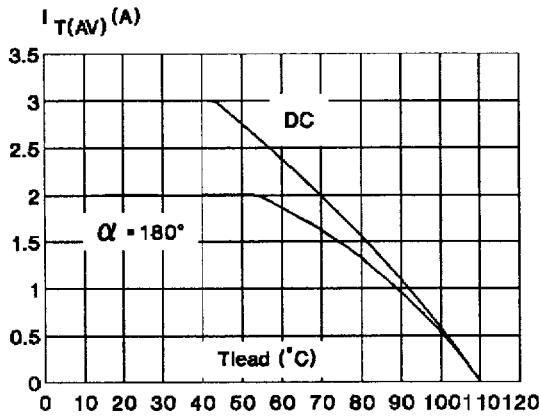


Fig.5 : Relative variation of gate trigger current versus junction temperature.

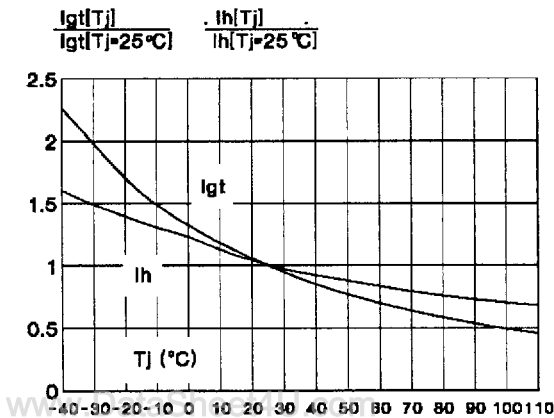


Fig.2 : Correlation between maximum average power dissipation and maximum allowable temperatures (Tamb and Tlead).

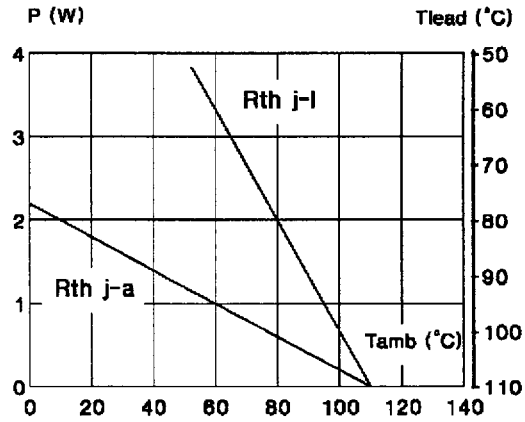


Fig.4 : Thermal transient impedance junction to ambient versus pulse duration.

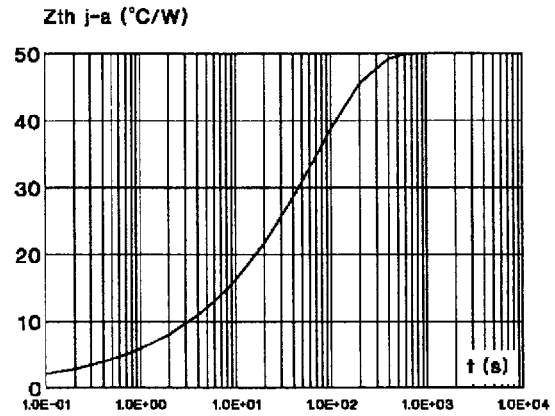


Fig.6 : Non repetitive surge peak on-state current versus number of cycles.

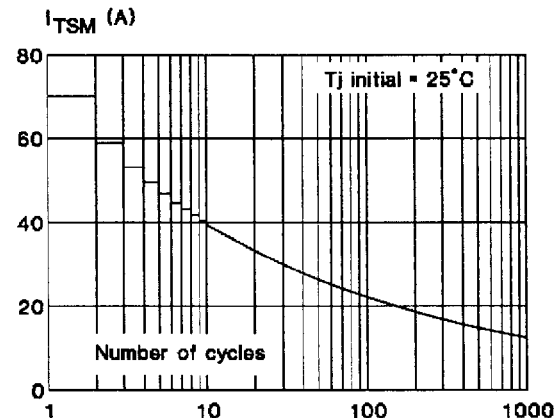


Fig.7 : Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t \leq 10$ ms, and corresponding value of I^2t .

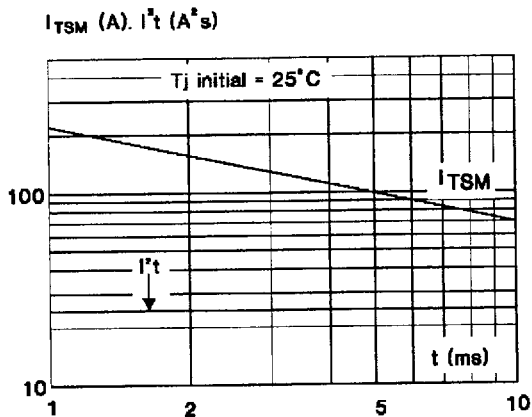
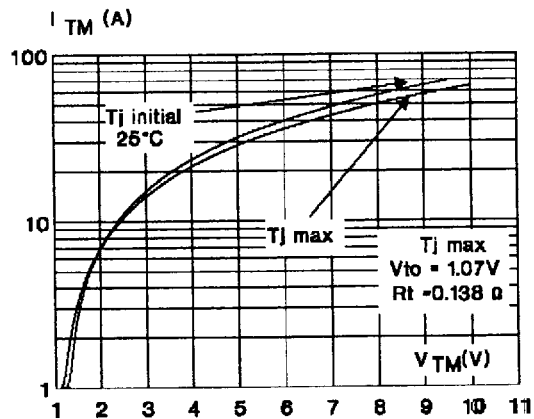


Fig.8 : On-state characteristics (maximum values).



PACKAGE MECHANICAL DATA

TL Plastic

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

Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied.

SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectronics.

© 1995 SGS-THOMSON Microelectronics - Printed in Italy - All rights reserved.

SGS-THOMSON Microelectronics GROUP OF COMPANIES
Australia - Brazil - France - Germany - Hong Kong - Italy - Japan - Korea - Malaysia - Malta - Morocco - The Netherlands - Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A.