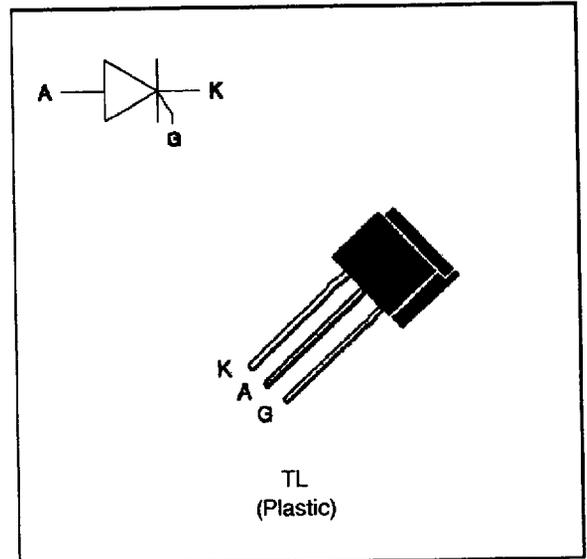


SENSITIVE GATE SCR
FEATURES

- LOW $I_{GT} \leq 200 \mu\text{A}$
- LOW $I_H \leq 5 \text{ mA}$
- $I_T(\text{RMS}) = 4 \text{ A}$

DESCRIPTION

The TLS 106 Silicon Controlled Rectifiers are high performance MESA diffused PNP devices glass passivated sensitive gate technology. These parts are intended to general purpose switching and phase control application.


ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_T(\text{RMS})$	RMS on-state current (180° conduction angle)	$T_I = 25^\circ\text{C}$	4	A
$I_T(\text{AV})$	Average on-state current (180° conduction angle, single phase circuit)	$T_I = 25^\circ\text{C}$	2.5	A
I_{TSM}	Non repetitive surge peak on-state current (T_J initial = 25°C)	$t_p = 8.3 \text{ ms}$	37	A
		$t_p = 10 \text{ ms}$	35	
i^2t	i^2t value	$t_p = 10 \text{ ms}$	6	A^2s
di/dt	Critical rate of rise of on-state current Gate supply : $I_G = 10 \text{ mA}$ $di_G/dt = 0.1 \text{ A}/\mu\text{s}$		100	$\text{A}/\mu\text{s}$
T_{stg} T_J	Storage and operating junction temperature range		- 40 to + 150 - 40 to + 110	$^\circ\text{C}$ $^\circ\text{C}$
T_I	Maximum lead temperature for soldering during 4 s at 4.5 mm from case		230	$^\circ\text{C}$

Symbol	Parameter	TLS 106-					Unit
		05	1	2	4	6	
V_{DRM} V_{RRM}	Repetitive peak off-state voltage $T_J = 110^\circ\text{C}$ $R_{GK} = 1 \text{ K}\Omega$	50	100	200	400	600	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) = 0.2W PGM = 3W (tp = 20 μs) IFGM = 1.2A (tp = 20 μs) VRGM = 5 V.

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Value	Unit
IGT	VD=12V (DC) RL=140Ω Tj=25°C MAX	0.2	mA
VGT	VD=12V (DC) RL=140Ω Tj=25°C MAX	1	V
VGD	VD=VDRM RL=3.3kΩ RGK =1kΩ Tj= 110°C MIN	0.1	V
tgt	VD=VDRM IG = 10mA dIG/dt = 0.1A/μs Tj=25°C TYP	1.5	μs
IL	IG= 1mA RGK =1kΩ Tj=25°C MAX	7	mA
IH	IT= 50mA RGK =1kΩ Tj=25°C MAX	5	mA
VTM	ITM= 4A tp= 380μs Tj=25°C MAX	1.9	V
IDRM IRRM	VDRM Rated RGK =1kΩ VRRM Rated RGK =1kΩ Tj=25°C MAX	0.01	mA
	Tj= 110°C	0.3	
dV/dt	Linear slope up to VD=67%VDRM RGK =1kΩ CGK =0.1μF Tj= 110°C MIN	10	V/μs
tq	VD=67%VDRM ITM= 4A VR= 10V dITM/dt=10 A/μs dVD/dt= 2V/μs RGK =1kΩ Tj= 110°C TYP	100	μs

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

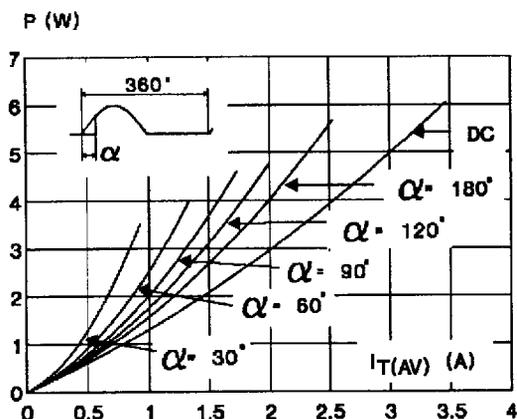


Fig.2 : Correlation between maximum average power dissipation and maximum allowable temperatures (T_{amb} and T_{lead}).

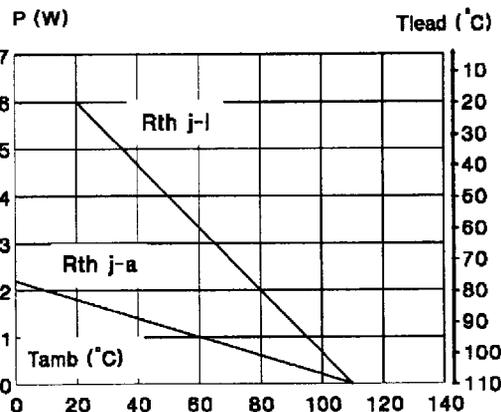


Fig.3 : Average on-state current versus leads temperature.

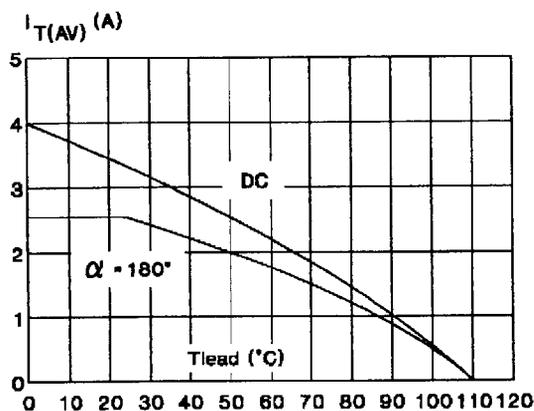


Fig.4 : Thermal transient impedance junction to ambient versus pulse duration.

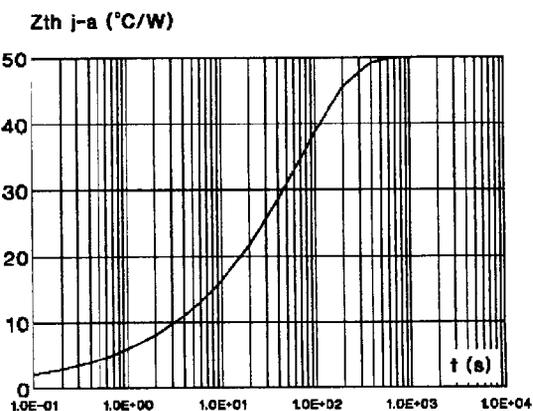


Fig.5 : Relative variation of gate trigger current versus junction temperature.

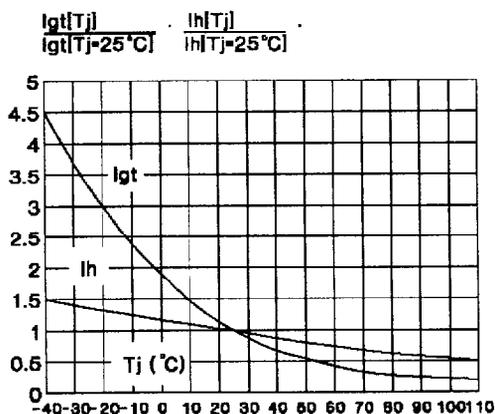
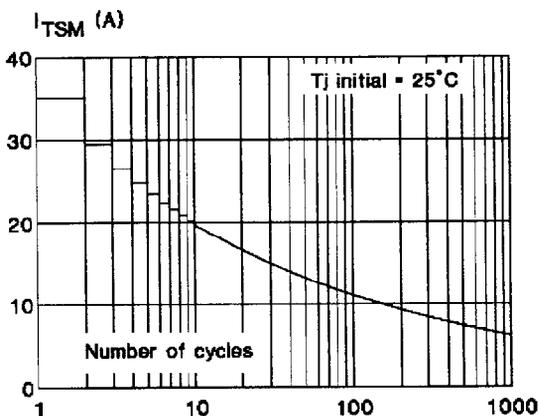


Fig.6 : Non repetitive surge peak on-state current versus number of cycles.



TLS 106

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 .

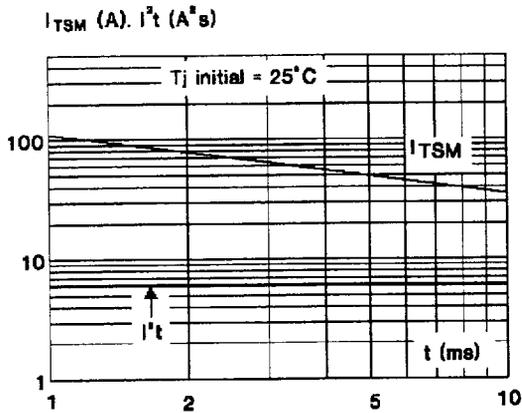
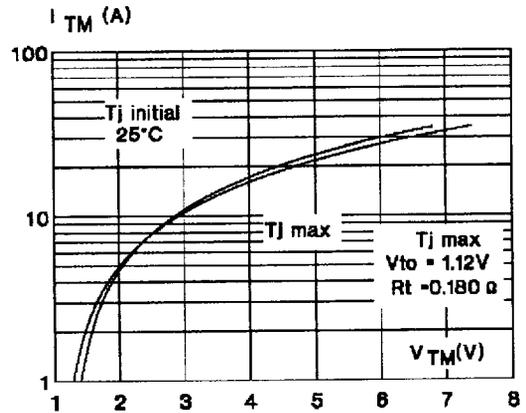
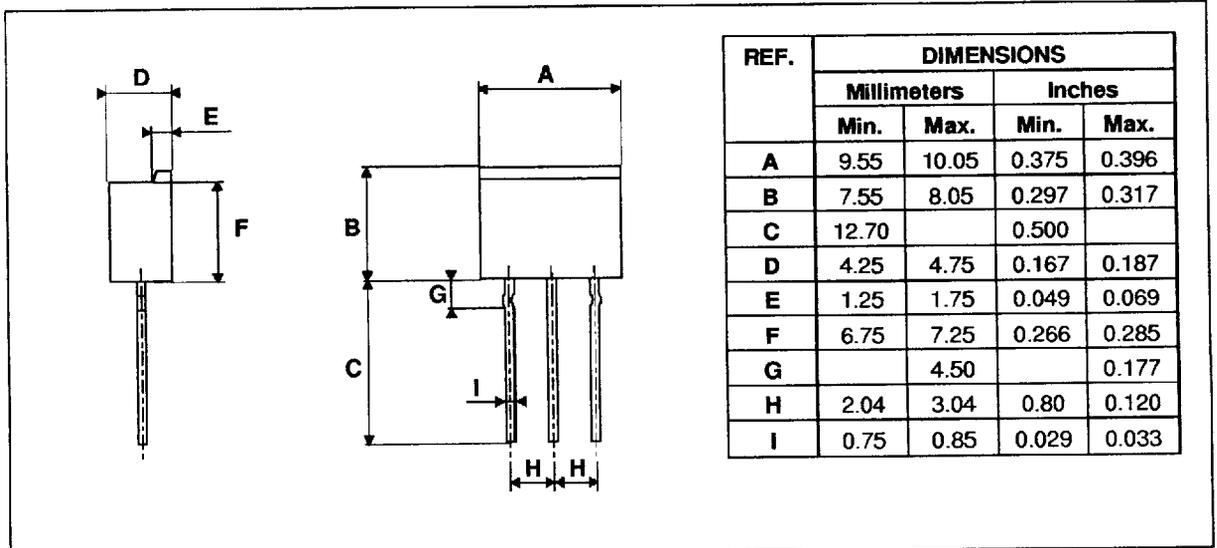


Fig.8 : On-state characteristics (maximum values).



PACKAGE MECHANICAL DATA

TL Plastic



Marking : type number
Weight : 0.8 g

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