

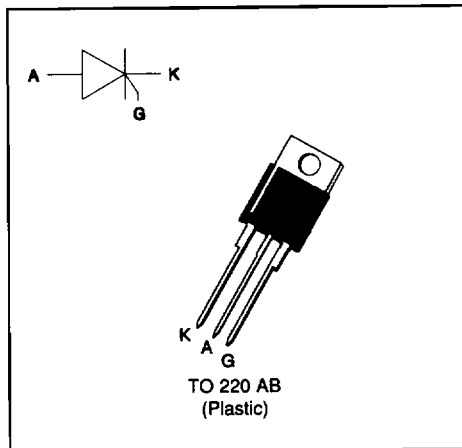
SENSITIVE GATE SCR

FEATURES

- LOW $I_{GT} \leq 200 \mu A$
- LOW $I_H \leq 6 mA$
- $I_{T(RMS)} = 6 A$

DESCRIPTION

The TYS 606 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
$I_{T(RMS)}$	RMS on-state current (180° conduction angle)	$T_c = 75^\circ C$	6	A
$I_{T(AV)}$	Average on-state current (180° conduction angle, single phase circuit)	$T_c = 75^\circ C$	3.8	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = $25^\circ C$)	$t_p = 8.3 ms$	52	A
		$t_p = 10 ms$	50	
i_{2t}	i_{2t} value	$t_p = 10 ms$	12.5	A ² s
di/dt	Critical rate of rise of on-state current Gate supply : $I_G = 5 mA$ $di_G/dt = 1 A/\mu s$		100	A/ μs
T_{stg} T_j	Storage and operating junction temperature range		- 40 to + 150 - 40 to + 110	$^\circ C$ $^\circ C$
T_l	Maximum lead temperature for soldering during 10 s at 4.5 mm from case		230	$^\circ C$

Symbol	Parameter	TYS 606-						Unit
		05	1	2	4	6	8	
V_{DRM} V_{RRM}	Repetitive peak off-state voltage $T_j = 110^\circ C$ $R_{GK} = 1 K\Omega$	50	100	200	400	600	800	V

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
Rth (j-a)	Junction to ambient	60	°C/W
Rth (j-c) DC	Junction to case for DC	5.5	°C/W

GATE CHARACTERISTICS (maximum values)

P_G (AV) = 0.5W P_{GM} = 20W (tp = 20 μ s) I_{FGM} = 1A (tp = 20 μ s) V_{FGM} = 16V (tp = 20 μ s) V_{RGM} = 5 V.

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Value	Unit
I_{GT}	$V_D=12V$ (DC) $R_L=140\Omega$	$T_j=25^\circ C$	MAX	0.2	mA
V_{GT}	$V_D=12V$ (DC) $R_L=140\Omega$	$T_j=25^\circ C$	MAX	1	V
V_{GD}	$V_D=V_{DRM}$ $R_L=3.3k\Omega$ $R_{GK}=1k\Omega$	$T_j=110^\circ C$	MIN	0.1	V
tgt	$V_D=V_{DRM}$ $I_G=12.5mA$ $di_G/dt=0.12A/\mu s$	$T_j=25^\circ C$	TYP	1.5	μs
I_L	$I_G=1.2 I_{GT}$ $R_{GK}=1k\Omega$	$T_j=25^\circ C$	MAX	10	mA
I_H	$I_T=50mA$ $R_{GK}=1k\Omega$	$T_j=25^\circ C$	MAX	6	mA
V_{TM}	$I_{TM}=12A$ tp= 380 μs	$T_j=25^\circ C$	MAX	1.85	V
I_{DRM} I_{RRM}	V_{DRM} Rated $R_{GK}=1k\Omega$ V_{RRM} Rated $R_{GK}=1k\Omega$	$T_j=25^\circ C$	MAX	0.01	mA
		$T_j=110^\circ C$		0.5	
dV/dt	Linear slope up to $V_D=67\%V_{DRM}$ $R_{GK}=1k\Omega$ $C_{GK}=0.1\mu F$	$T_j=110^\circ C$	MIN	10	V/ μs
T_q	$V_D=67\%V_{DRM}$ $I_{TM}=12A$ $V_R=24V$ $dI_{TM}/dt=10 A/\mu s$ $dV_D/dt=2V/\mu s$ $R_{GK}=1k\Omega$	$T_j=110^\circ C$	TYP	100	μs

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

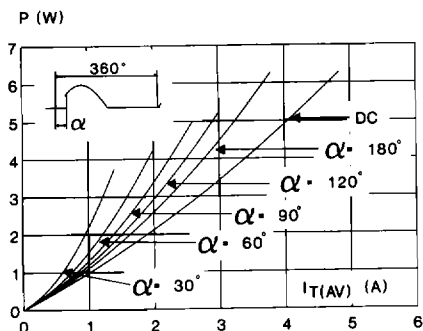


Fig.2 : Correlation between maximum average power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

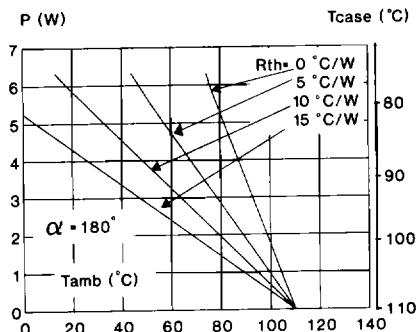


Fig.3 : Average on-state current versus case temperature.

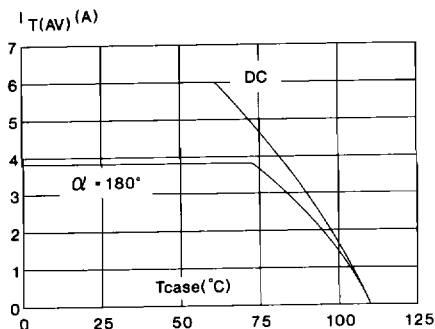


Fig.4 : Thermal transient impedance junction to ambient versus pulse duration.

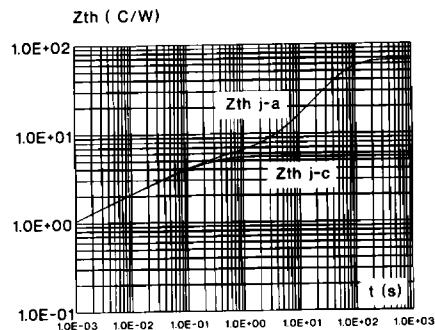


Fig.5 : Relative variation of gate trigger current versus junction temperature.

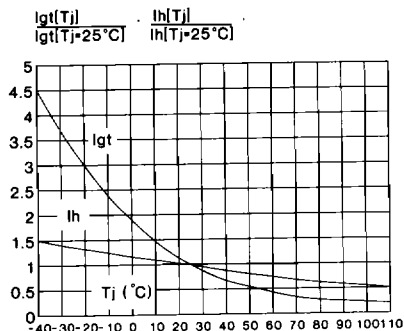


Fig.6 : Non repetitive surge peak on-state current versus number of cycles.

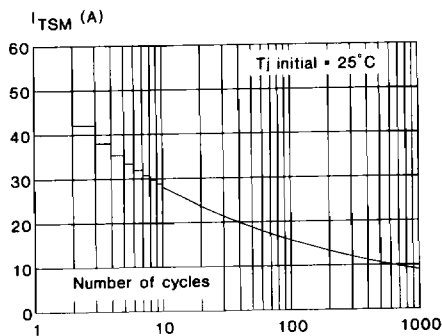


Fig.7 : Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t \leq 10$ ms, and corresponding value of I^2t .

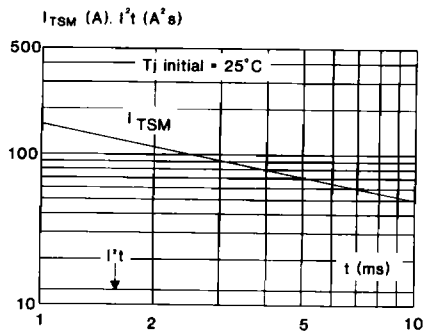
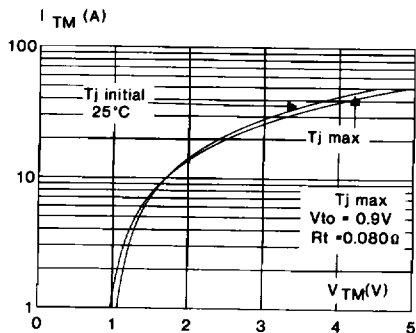
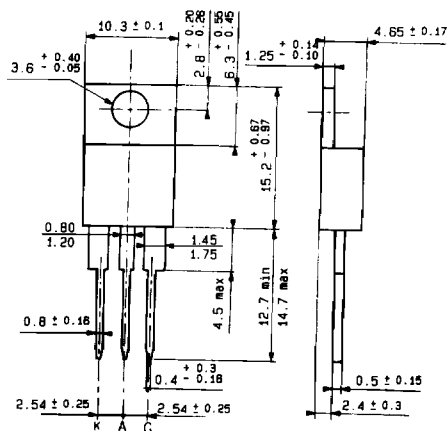


Fig.8 : On-state characteristics (maximum values).



PACKAGE MECHANICAL DATA (in millimeters)

TO 220 AB Plastic



Cooling method : by conduction (method C)

Marking : type number

Weight : 2 g

Polarity : N A

Stud torque : N A