SGS-THOMSON
MICROELECTRONICS

TYS 606-05 → 8
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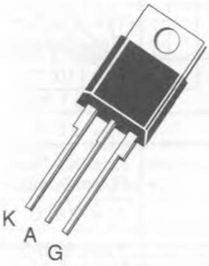
SENSITIVE GATE THYRISTORS

- OPERATES DIRECTLY FROM LOW SIGNAL
- GLASS PASSIVATED CHIP
- POSSIBILITY OF MOUNTING ON PRINTED CIRCUIT



TO 220 AB
(Plastic)

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T\,(RMS)}$	RMS on-state Current (1)	T_c = 75 °C	6	A
$I_{T\,(AV)}$	Mean on-state Current (1)	T_c = 75 °C	3.8	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C) (2)	t = 8.3 ms	52	A
		t = 10 ms	50	
I^2t	I^2t Value for Fusing	t = 10 ms	12.5	A^2s
di/dt	Critical Rate of Rise of on-state Current (3)		100	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 110 – 40 to 110	°C °C

Symbol	Parameter	TYS606-.. or TYS607-..						Unit
		05	1	2	4	6	8	
V_{DRM} V_{RRM}	Repetitive Peak off-state Voltage (4)	50	100	200	400	600	800	V

(1) Single phase circuit, 180° conduction angle.
(2) Half sine wave.
(3) I_G = 5 mA dI_G/dt = 1 A/µs.
(4) T_j = 110 °C R_{GK} = 1 KΩ.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\,(j-c)}$ $R_{th\,(j-a)}$	Junction-case for DC Junction-ambient	5.5 60	°C/W °C/W

GATE CHARACTERISTICS (maximum values)

P_{GM} = 20 W (t_p = 20 µs)
I_{FGM} = 2 A (t_p = 20 µs)
V_{RGM} = 5 V
$P_{G(AV)}$ = 0.5 W
V_{FGM} = 15 V (t_p = 20 µs)

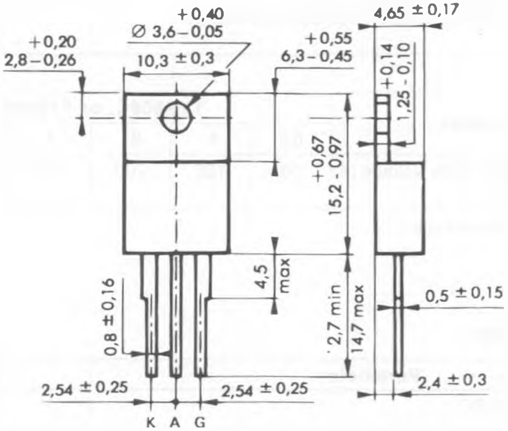
ELECTRICAL CHARACTERISTICS

Symbol	Types	Test Conditions	Min.	Typ.	Max.	Unit
I_{GT}	TYS606	T_j = 25 °C V_D = 12 V R_L = 140 Ω Pulse Duration > 20 µs			0.2	mA
	TYS607				0.5	
V_{GT}		T_j = 25 °C V_D = 12 V R_L = 140 Ω Pulse Duration > 20 µs			1.5	V
V_{GD}		T_j = 110 °C V_D = V_{DRM} R_L = 3.3 kΩ R_{GK} = 1 kΩ	0.1			V
I_H		T_j = 25 °C I_T = 50 mA R_{GK} = 1 kΩ			6	mA
I_L		T_j = 25 °C V_D = 12 V I_G = 10 mA Pulse Duration > 20 µs R_{GK} = 1 kΩ		10		mA
V_{TM}		T_j = 25 °C I_{TM} = 12 A t_p = 10 ms			1.85	V
I_{DRM}		V_{DRM} specified R_{GK} = 1 kΩ T_j = 25 °C			0.01	mA
		T_j = 110 °C			0.5	
I_{RRM}		V_{RRM} specified R_{GK} = 1 kΩ T_j = 25 °C			0.01	mA
		T_j = 110 °C			0.5	
t_{gt}		T_j = 25 °C V_D = V_{DRM} I_T = 12 A I_G = 10 mA dI_G/dt = 0.15 A/µs		1.5		µs
t_q		T_j = 110 °C I_T = 12 A V_R = 24 V V_D = 67 % V_{DRM} di/dt = 10 A/µs dv/dt = 10 V/µs R_{GK} = 1 kΩ		100		µs
dv/dt*		T_j = 110 °C R_{GK} = 1 kΩ Linear Slope up to V_D = 67 % V_{DRM}		10		V/µs

* For higher guaranteed values, please consult us.

PACKAGE MECHANICAL DATA

TO 220 AB Plastic



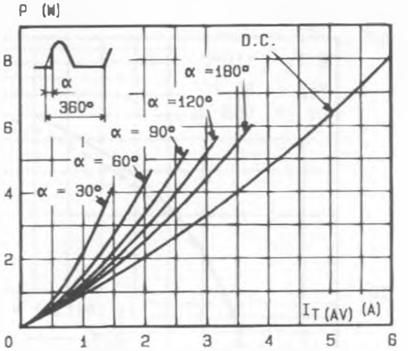


Fig.1 - Maximum mean power dissipation versus mean on-state current.

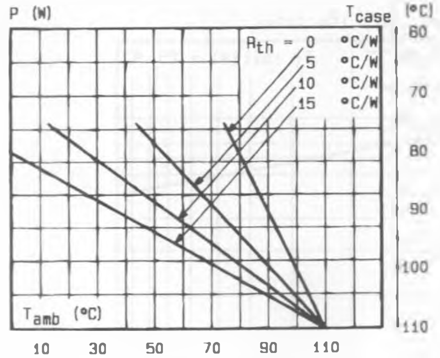


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

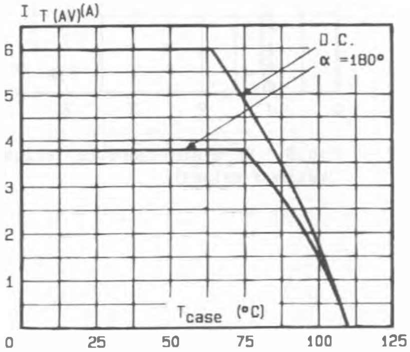


Fig.3 - Mean on-state current versus case temperature.

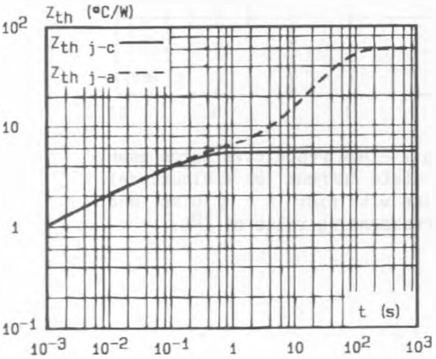


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

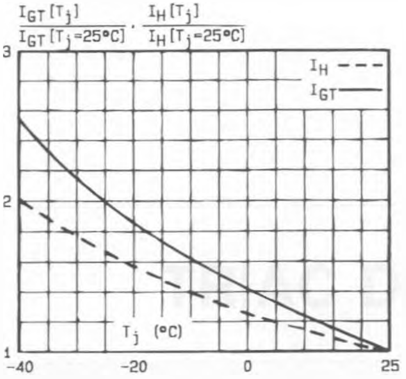


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

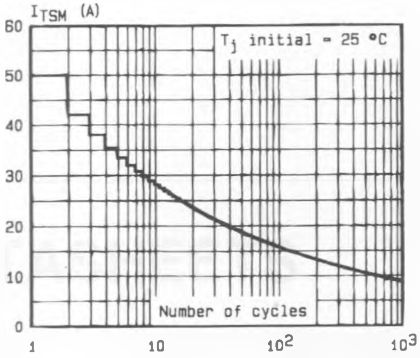


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

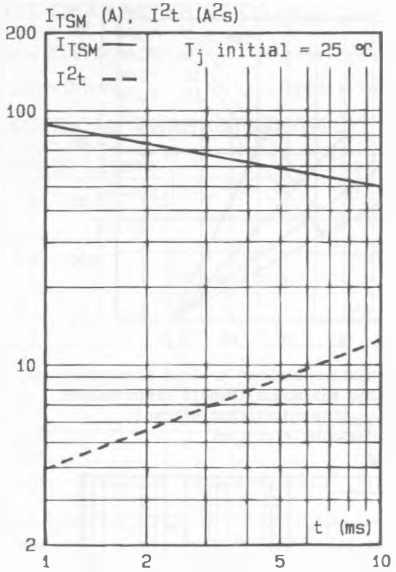


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t \leqslant 10$ ms, and corresponding value of I^2t.

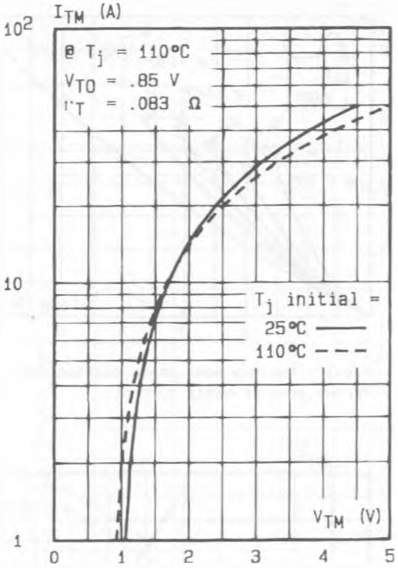


Fig.8 - On-state characteristics (maximum values).