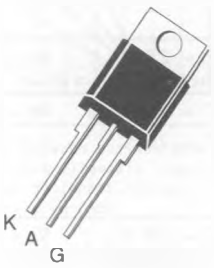
SGS-THOMSON MICROELECTRONICS

TXN/TYN 058,G,K→1008,G,K

THYRISTORS

- GLASS PASSIVATED CHIP
- POSSIBILITY OF MOUNTING ON PRINTED CIRCUIT
- AVAILABLE IN NON-INSULATED VERSION –> TYN SERIES OR IN INSULATED VERSION –> TXN SERIES (INSULATING VOLTAGE 2500 V_{RMS})
- UL RECOGNIZED FOR TXN SERIES (E81734)



TO 220 AB
(Plastic)

DESCRIPTION

SCR 's designed for motor control, heating controls, power supplies...

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (1)	T_c = 75 °C	8	A
$I_{T(AV)}$	Mean on-state Current (1)	T_c = 75 °C	5	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C) (2)	t = 8.3 ms	84	A
		t = 10 ms	80	
I^2t	I^2t Value for Fusing	t = 10 ms	32	A^2s
di/dt	Critical Rate of Rise of on-state Current (3)		50	A/µs
T_{stg} T_j	Storage and Operating Junction Temperature Range		– 40 to 110 – 40 to 110	°C °C

Symbol	Parameter	TXN/TYN ..., G, K							Unit
		058	108	208	408	608	808	1008	
V_{DRM} V_{RRM}	Repetitive Peak off-state Voltage (4)	50	100	200	400	600	800	1000	V

(1) Single phase circuit, 180° conduction angle.
(2) Half sine wave.
(3) I_G = 400 mA di_G/dt = 1 A/µs.
(4) T_j = 110 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-c)}$	Junction-case for D.C.	4.7	°C/W
$R_{th\ (j-a)}$	Junction-ambient	60	°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	Test Conditions		Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs	Without Suffix			15	mA
		Suffix G			25	
		Suffix K			40	
V_{GT}	T_j = 25 °C V_D = 12 V R_L = 33 Ω Pulse Duration > 20 µs				1.5	V
V_{GD}	T_j = 110 °C V_D = V_{DRM} R_L = 3.3 kΩ		0.2			V
I_H	T_j = 25 °C I_T = 100 mA Gate Open	Without Suffix			30	mA
		Suffix G			45	
		Suffix K			60	
I_L	T_j = 25 °C V_D = 12 V I_G = 80 mA Pulse Duration > 20 µs			50		mA
V_{TM}	T_j = 25 °C I_{TM} = 16 A t_p = 10 ms				1.6	V
I_{DRM}	V_{DRM} Specified	T_j = 25 °C			0.01	mA
		T_j = 110 °C			1	
I_{RRM}	V_{RRM} Specified	T_j = 25 °C			0.01	mA
		T_j = 110 °C			1	
t_{gt}	T_j = 25 °C V_D = V_{DRM} I_T = 16 A I_G = 40 mA di_G/dt = 0.45 A/µs			2		µs
t_q	T_j = 110 °C I_T = 16 A V_R = 25 V V_D = 67 % V_{DRM} di/dt = 30 A/µs Gate Open dv/dt = 50 V/µs			70		µs
dv/dt*	T_j = 110 °C Gate Open Linear Slope up to V_D = 67 % V_{DRM}	Without Suffix	200			V/µs
		Suffix G	500			
		Suffix K	750			

* For higher guaranteed values, please consult us.

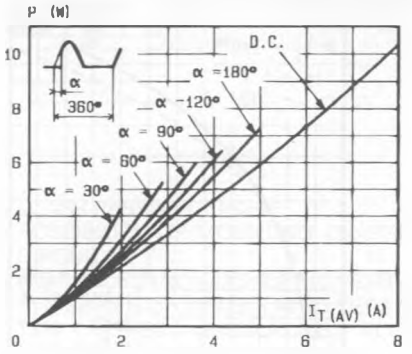


Fig.1 - Maximum mean power dissipation versus mean on-state current.

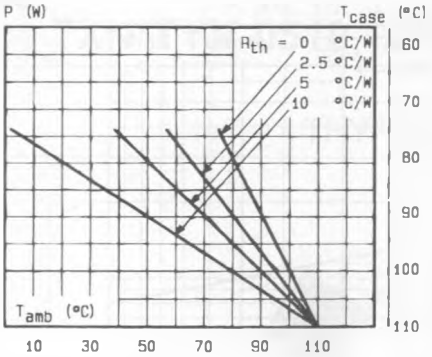


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

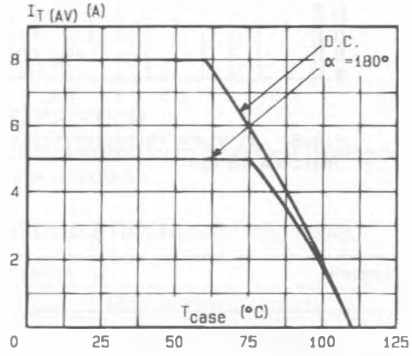


Fig.3 - Mean on-state current versus case temperature.

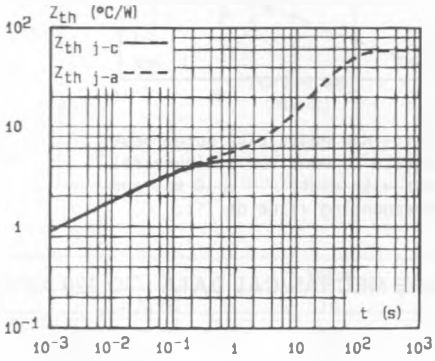


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

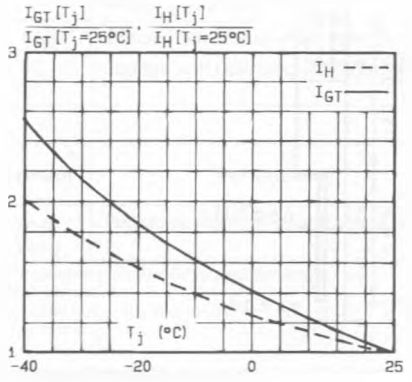


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

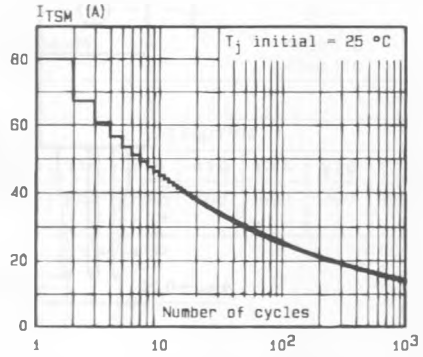


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

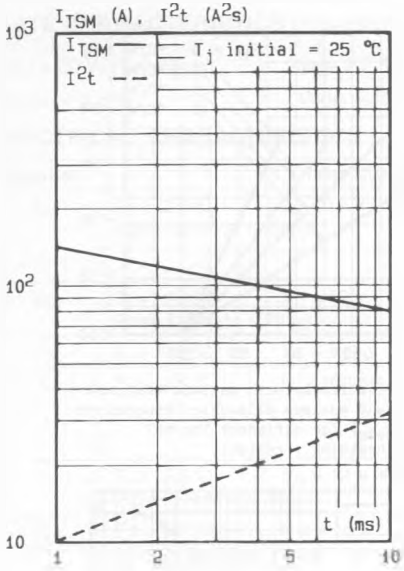


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ≤ 10 ms, and corresponding value of I^2t.

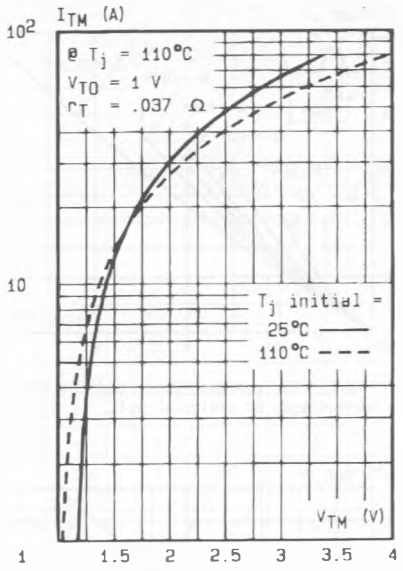
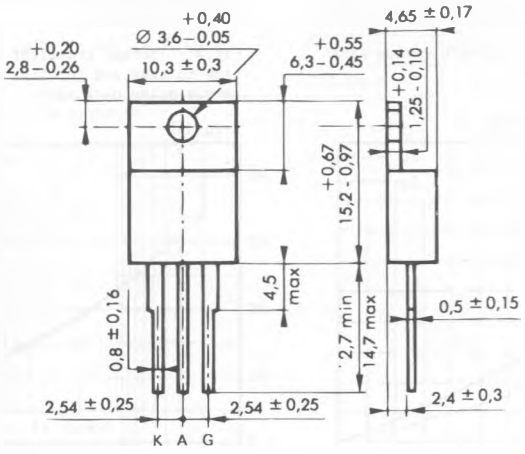


Fig.8 - On-state characteristics (maximum values).

PACKAGE MECHANICAL DATA : TO 220 AB Plastic



Cooling method : by conduction (method C)
Marking : type number
Weight : 2 g