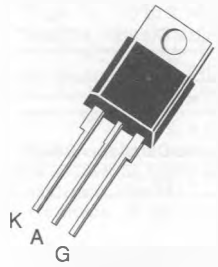
SGS-THOMSON MICROELECTRONICS

TYN 225 → TYN 1225

THYRISTORS

- GLASS PASSIVATED CHIP
- POSSIBILITY OF MOUNTING ON PRINTED CIRCUIT



TO 220 AB
(Plastic)

DESCRIPTION

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

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		TYN 225 to 825	TYN 1025 - 1225	Unit
$I_{T(RMS)}$	RMS on-state Current (1)	T_c = 90 °C	25		A
$I_{T(AV)}$	Mean on-state Current (1)	T_c = 90 °C	16		A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C) (2)	t = 8.3 ms	315	260	A
		t = 10 ms	300	250	
I^2t	I^2t Value for Fusing	t = 10 ms	450	310	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 125 – 40 to 125		°C °C

Symbol	Parameter	TYN 225	425	625	825	1025	1225	Unit
V_{DRM} V_{RRM}	Repetitive Peak off-state Voltage (4)	200	400	600	800	1000	1200	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 = 125 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-c)}$	Junction-case for D.C.	1.5	°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

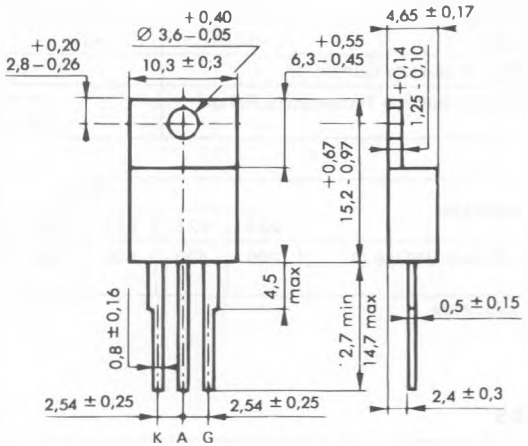
$P_{G(AV)}$ = 0.5 W V_{FGM} = 15 V (t_p = 20 µs)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
I_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω			40	mA
V_{GT}	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	R_L = 33 Ω			1.5	V
V_{GD}	T_j = 125 °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			50	mA
I_L	T_j = 25 °C Pulse Duration > 20 µs	V_D = 12 V	I_G = 80 mA		80		mA
V_{TM}	T_j = 25 °C	I_{TM} = 50 A	t_p = 10 ms			1.6	V
I_{DRM}	T_j = 125 °C	V_{DRM} Specified	TYN 225 → 825		0.2	2.5	mA
			TYN 1025 - 1225		0.5	5	
I_{RRM}	T_j = 125 °C	V_{RRM} Specified	TYN 225 → 825		0.2	2.5	mA
			TYN 1025 - 1225		0.5	5	
t_{gt}	T_j = 25 °C I_G = 80 mA	V_D = V_{DRM} di_G/dt = 0.85 A/µs	I_T = 50 A		2		µs
t_q	T_j = 125 °C V_D = 67 % V_{DRM} Gate Open	I_T = 50 A di/dt = 30 A/µs	V_R = 25 V dv/dt = 50 V/µs		70		µs
dv/dt*	T_j = 125 °C Linear Slope up to V_D = 67 % V_{DRM}	Gate Open	TYN 225 → 825	500	750		V/µs
			TYN 1025 - 1225	250	500		

* For higher guaranteed values, please consult us.

PACKAGE MECHANICAL DATA : TO 220 AB Plastic



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

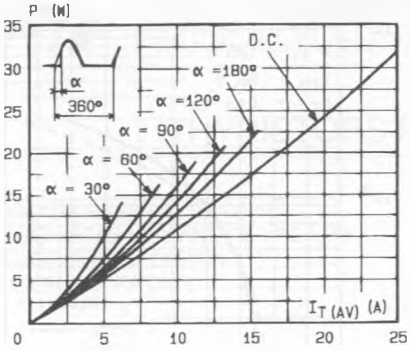


Fig.1 - Maximum mean power dissipation versus mean on-state current.

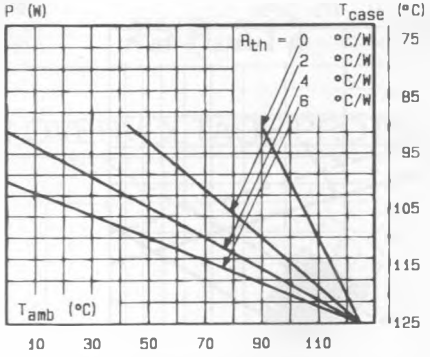


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

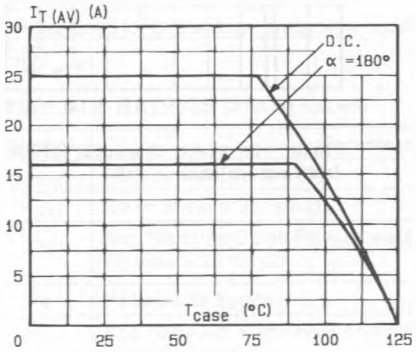


Fig.3 - Mean on-state current versus case temperature.

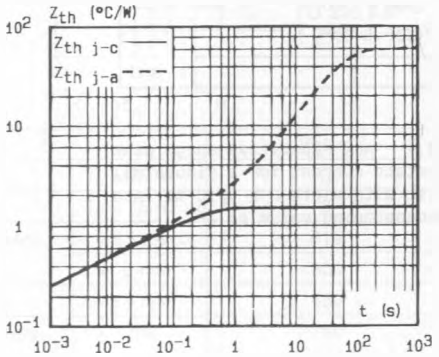


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

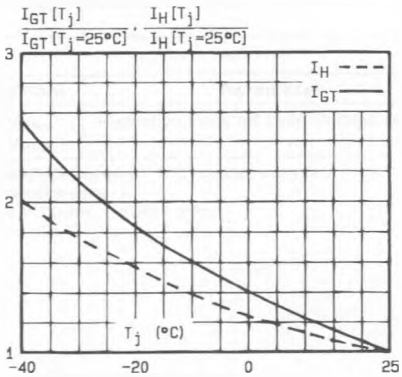


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

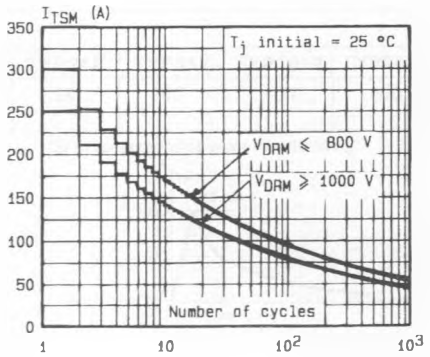


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

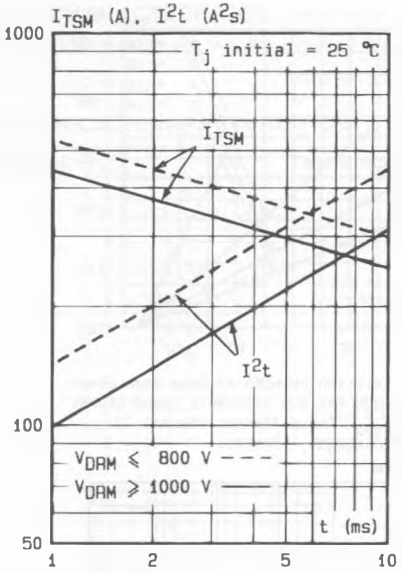


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I^2t.

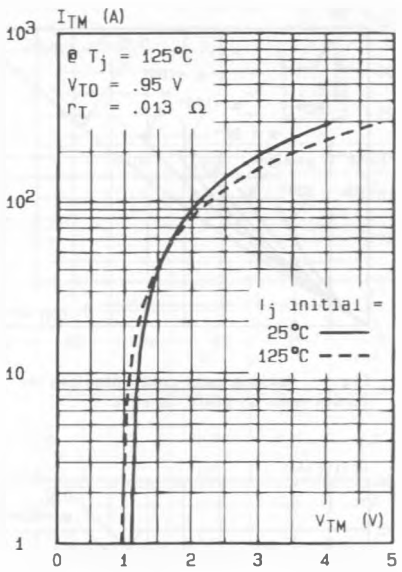


Fig.8 - On-state characteristics (maximum values).