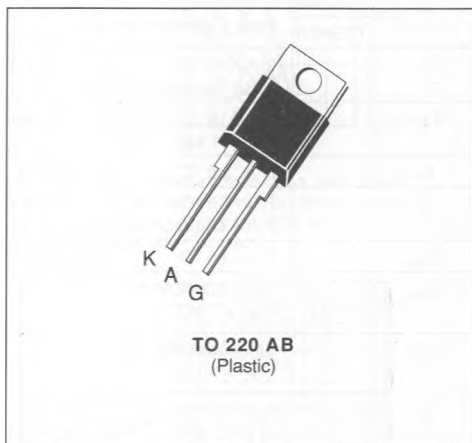


SENSITIVE GATE THYRISTORS

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



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (1)	$T_c = 90\text{ }^\circ\text{C}$	4	A
$I_{T(AV)}$	Mean on-state Current (1)	$T_c = 90\text{ }^\circ\text{C}$	2.5	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = $25\text{ }^\circ\text{C}$) (2)	$t = 8.3\text{ ms}$	52	A
		$t = 10\text{ ms}$	50	
I^2t	I^2t Value for Fusing	$t = 10\text{ ms}$	12.5	A^2s
di/dt	Critical Rate of Rise of on-state Current (3)		100	$\text{A}/\mu\text{s}$
T_{stg} T_j	Storage and Operating Junction Temperature Range		- 40 to 110	$^\circ\text{C}$
			- 40 to 110	$^\circ\text{C}$

Symbol	Parameter	TYS406... or TYS407...						Unit
		0.5	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) $I_G = 5\text{ mA}$ $di_G/dt = 1\text{ A}/\mu\text{s}$.

(4) $T_j = 110\text{ }^\circ\text{C}$ $R_{GK} = 1\text{ K}\Omega$.

THERMAL RESISTANCES

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

GATE CHARACTERISTICS (maximum values)

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

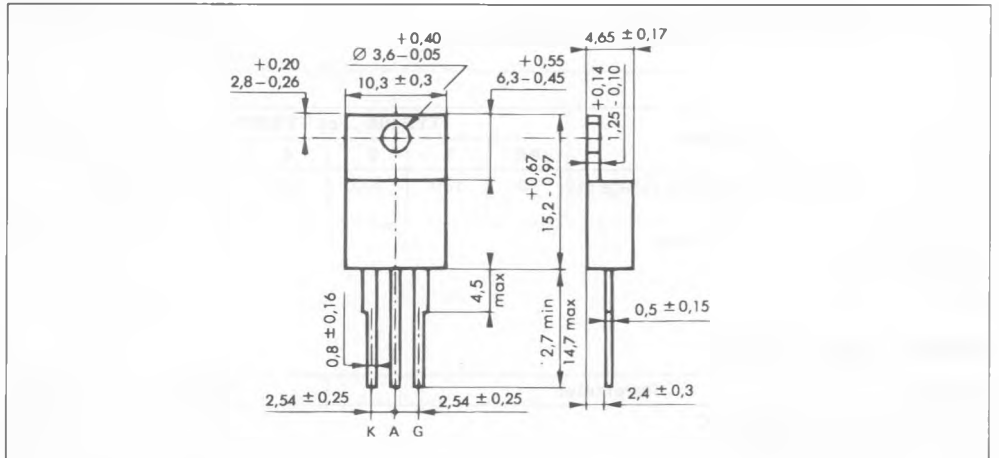
ELECTRICAL CHARACTERISTICS

Symbol	Types	Test Conditions	Min.	Typ.	Max.	Unit
I_{GT}	TYS406	$T_j = 25 \text{ }^\circ\text{C}$ $V_D = 12 \text{ V}$ $R_L = 140 \text{ } \Omega$			0.2	mA
	TYS407	Pulse Duration > 20 μs			0.5	
V_{GT}		$T_j = 25 \text{ }^\circ\text{C}$ $V_D = 12 \text{ V}$ $R_L = 140 \text{ } \Omega$ Pulse Duration > 20 μs			1.5	V
V_{GD}		$T_j = 110 \text{ }^\circ\text{C}$ $V_D = V_{DRM}$ $R_L = 3.3 \text{ k}\Omega$ $R_{GK} = 1 \text{ k}\Omega$	0.1			V
I_H		$T_j = 25 \text{ }^\circ\text{C}$ $I_T = 50 \text{ mA}$ $R_{GK} = 1 \text{ k}\Omega$			6	mA
I_L		$T_j = 25 \text{ }^\circ\text{C}$ $V_D = 12 \text{ V}$ $I_G = 10 \text{ mA}$ Pulse Duration > 20 μs $R_{GK} = 1 \text{ k}\Omega$		10		mA
V_{TM}		$T_j = 25 \text{ }^\circ\text{C}$ $I_{TM} = 8 \text{ A}$ $t_p = 10 \text{ ms}$			1.6	V
I_{DRM}		V_{DRM} specified $R_{GK} = 1 \text{ k}\Omega$	$T_j = 25 \text{ }^\circ\text{C}$		0.01	mA
			$T_j = 110 \text{ }^\circ\text{C}$		0.5	
I_{RRM}		V_{RRM} specified $R_{GK} = 1 \text{ k}\Omega$	$T_j = 25 \text{ }^\circ\text{C}$		0.01	mA
			$T_j = 110 \text{ }^\circ\text{C}$		0.5	
t_{gt}		$T_j = 25 \text{ }^\circ\text{C}$ $V_D = V_{DRM}$ $I_T = 8 \text{ A}$ $I_G = 10 \text{ mA}$ $di_G/dt = 0.15 \text{ A}/\mu\text{s}$		1.5		μs
t_g		$T_j = 110 \text{ }^\circ\text{C}$ $I_T = 8 \text{ A}$ $V_R = 24 \text{ V}$ $V_D = 67 \% V_{DRM}$ $di/dt = 10 \text{ A}/\mu\text{s}$ $dv/dt = 10 \text{ V}/\mu\text{s}$ $R_{GK} = 1 \text{ k}\Omega$		100		μs
dv/dt^*		$T_j = 110 \text{ }^\circ\text{C}$ $R_{GK} = 1 \text{ k}\Omega$ 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



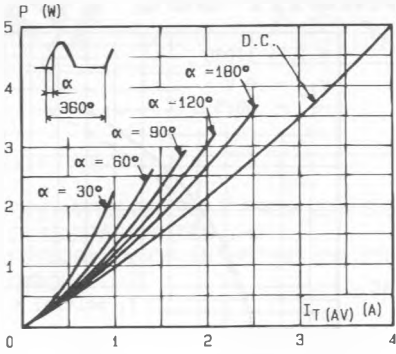


Fig.1 - Maximum mean power dissipation versus mean on-state current.

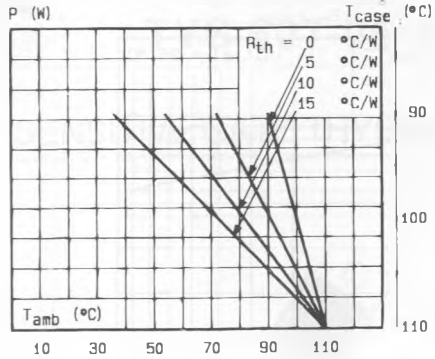


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

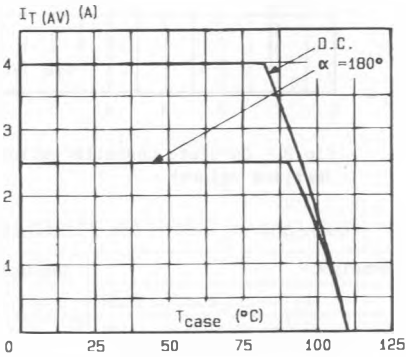


Fig.3 - Mean on-state current versus case temperature.

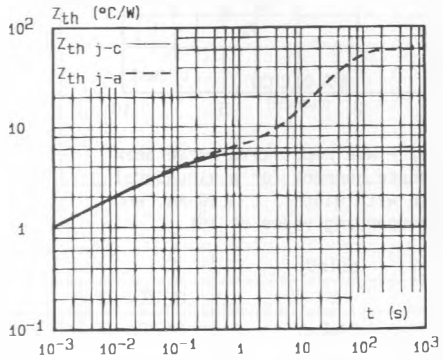


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

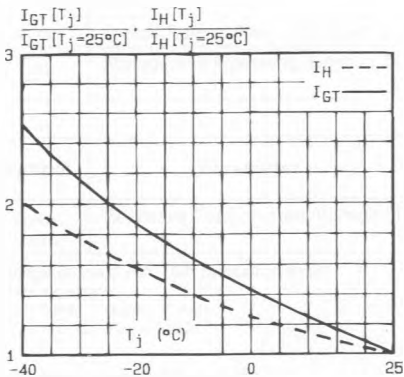


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

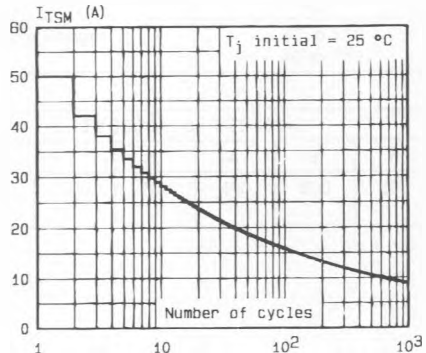


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

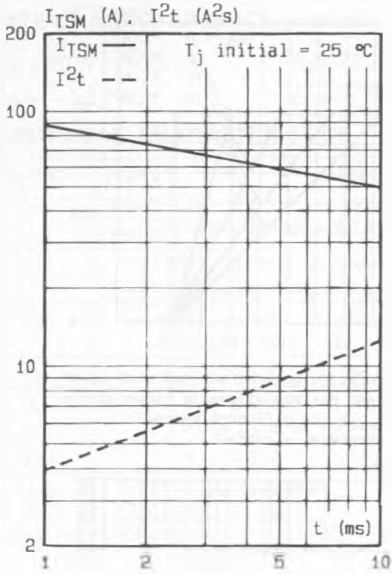


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t \leq 10$ ms, and corresponding value of I^2t .

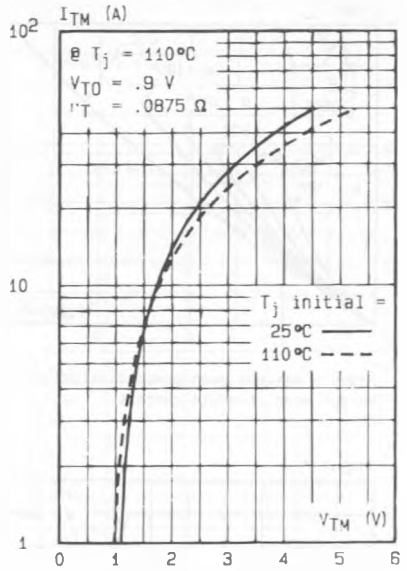


Fig.8 - On-state characteristics (maximum values).