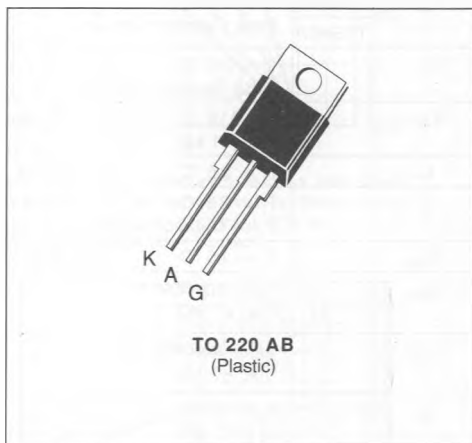


## SENSITIVE GATE THYRISTORS

- 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	$\text{A}^2\text{s}$
$di/dt$	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,  $180^\circ$  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)

$P_{GM} = 20\text{ W}$  ( $t_p = 20\ \mu\text{s}$ )

$I_{FGM} = 2\text{ A}$  ( $t_p = 20\ \mu\text{s}$ )

$V_{RGM} = 5\text{ V}$

$P_{G(AV)} = 0.5\text{ W}$

$V_{FGM} = 15\text{ V}$  ( $t_p = 20\ \mu\text{s}$ )

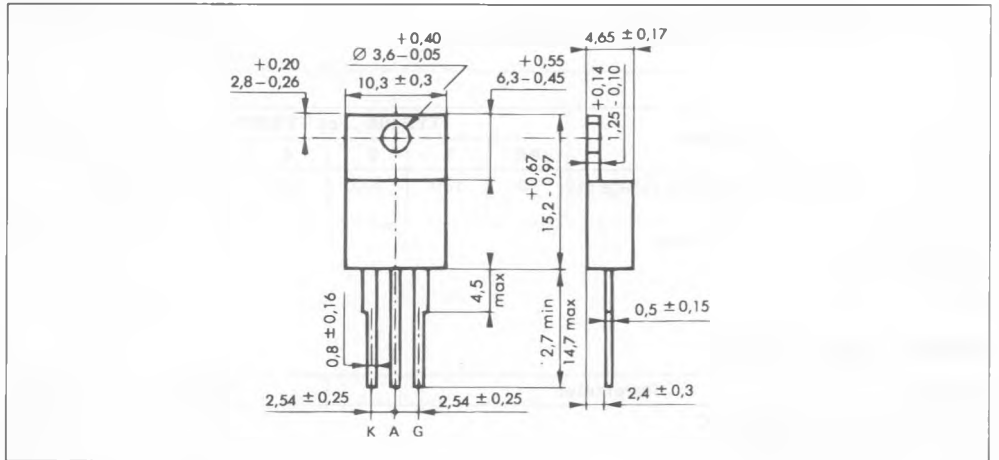
**ELECTRICAL CHARACTERISTICS**

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

\* For higher guaranteed values, please consult us.

**PACKAGE MECHANICAL DATA**

TO 220 AB Plastic



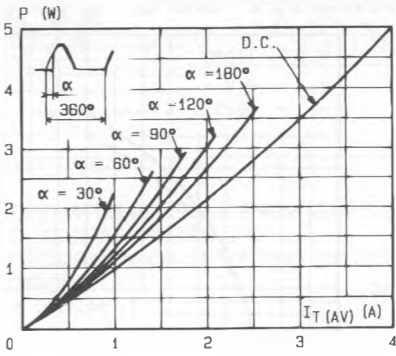


Fig. 1 - Maximum mean power dissipation versus mean on-state current.

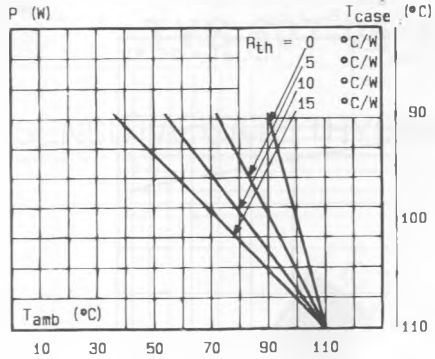


Fig. 2 - Correlation between maximum mean power dissipation and maximum allowable temperatures ( $T_{amb}$  and  $T_{case}$ ) for different thermal resistances heatsink + contact.

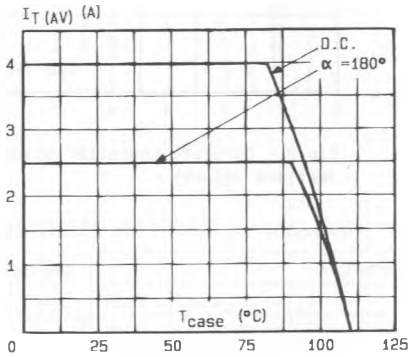


Fig. 3 - Mean on-state current versus case temperature.

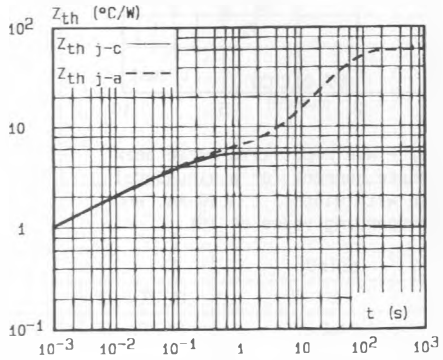


Fig. 4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

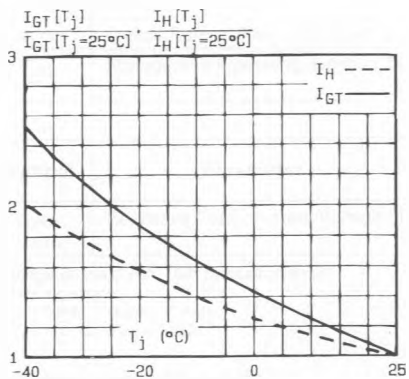


Fig. 5 - Relative variation of gate trigger current and holding current versus junction temperature.

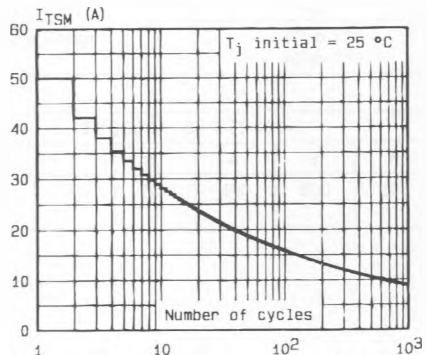


Fig. 6 - Non repetitive surge peak on-state current versus number of cycles.

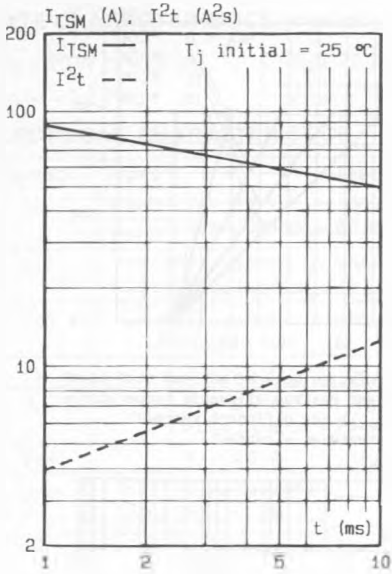


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width :  $t \leq 10$  ms, and corresponding value of  $I^2t$ .

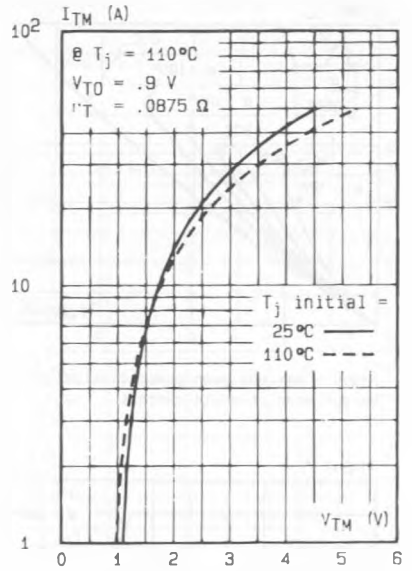


Fig.8 - On-state characteristics (maximum values).