

ALTERNISTORS

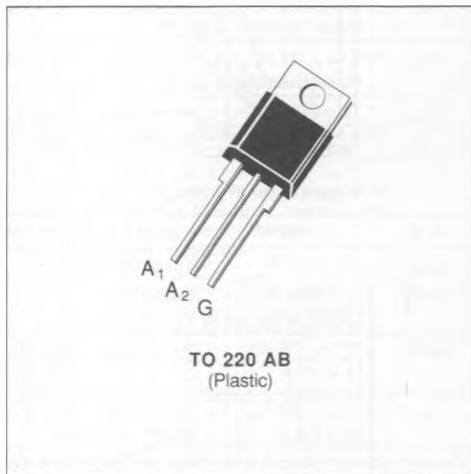
- $(di/dt)_c > 28 \text{ A/ms}$ (400 Hz)
- **INSULATING VOLTAGE** : 2500 V_{RMS}
($t \leq 1 \text{ mn}$ - $F = 50 \text{ Hz}$)
- **UL RECOGNIZED** (E81734)

APPLICATIONS

- **POWER CONTROL ON INDUCTIVE LOAD**
(motor, transformer...)
- **HIGH FREQUENCY OR HIGH $(di/dt)_c$ LEVEL CIRCUITS**

DESCRIPTION

New range of solid state AC - switches with very high commutating capability.


ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	$T_C = 75 \text{ }^\circ\text{C}$	8	A
I_{TSM}	Non Repetitive Surge Peak on-state Current	$t = 10 \text{ ms}$	80	A
		$t = 8.3 \text{ ms}$	85	
		$t = 2.5 \text{ ms}$	115	
I^2t	I^2t Value for Fusing	$t = 10 \text{ ms}$	32	A ² s
di/dt	Critical Rate of Rise of on-state Current (1)		100	A/ μs
T_{stg} T_i	Storage and Operating Junction Temperature Range		- 40 to 150 - 40 to 110	$^\circ\text{C}$ $^\circ\text{C}$

Symbol	Parameter	TXDV				Unit
		208	408	608	808	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	800	V

- (1) $I_G = 1 \text{ A}$ $di_G/dt = 1 \text{ A}/\mu\text{s}$
 (2) $T_i = 110 \text{ }^\circ\text{C}$.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-a)}$	Junction to Ambient	60	$^\circ\text{C}/\text{W}$
$R_{th(j-c)}$ DC	Junction to Case for DC	4	$^\circ\text{C}/\text{W}$
$R_{th(j-c)}$ AC	Junction to Case for 360° Conduction Angle ($F = 50 \text{ Hz}$)	3	$^\circ\text{C}/\text{W}$

GATE CHARACTERISTICS (maximum values)

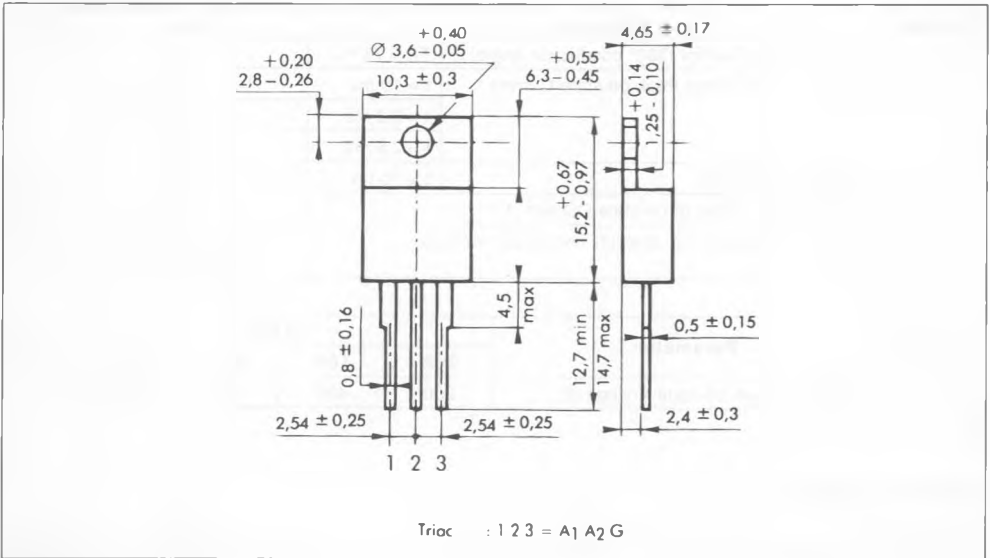
$P_{GM} = 40 \text{ W}$ ($t_p = 10 \mu\text{s}$) $I_{GM} = 4 \text{ A}$ ($t_p = 10 \mu\text{s}$)
 $P_{G(AV)} = 1 \text{ W}$ $V_{GM} = 16 \text{ V}$ ($t_p = 10 \mu\text{s}$)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	$T_j = 25 \text{ }^\circ\text{C}$	$V_D = 12 \text{ V}$	$R_L = 33 \text{ } \Omega$	I-II-III			100	mA
	Pulse Duration > 20 μs							
V_{GT}	$T_j = 25 \text{ }^\circ\text{C}$	$V_D = 12 \text{ V}$	$R_L = 33 \text{ } \Omega$	I-II-III			1.5	V
	Pulse Duration > 20 μs							
V_{GD}	$T_j = 110 \text{ }^\circ\text{C}$	$V_D = V_{DRM}$	$R_L = 3.3 \text{ k}\Omega$	I-II-III	0.2			V
I_H^*	$T_j = 25 \text{ }^\circ\text{C}$	$I_T = 500 \text{ mA}$	Gate Open				100	mA
I_L	$T_j = 25 \text{ }^\circ\text{C}$	$V_D = 12 \text{ V}$	$I_G = 200 \text{ mA}$	I-III		100		mA
				II		200		
V_{TM}^*	$T_j = 25 \text{ }^\circ\text{C}$	$I_{TM} = 11 \text{ A}$	$t_D = 10 \text{ ms}$				1.8	V
I_{DRM}^*	$T_j = 110 \text{ }^\circ\text{C}$	V_{DRM} Specified					2	mA
dv/dt^*	$T_j = 110 \text{ }^\circ\text{C}$	Gate Open			500			V/ μs
	Linear Slope up to $V_D = 67 \% V_{DRM}$							
$(di/dt)_c^*$	$T_C = 75 \text{ }^\circ\text{C}$	$V_D = V_{DRM}$	$I_T = 11 \text{ A}$			7		A/ms
						28		
t_{gt}	$T_j = 25 \text{ }^\circ\text{C}$	$V_D = V_{DRM}$	$I_T = 11 \text{ A}$	I-II-III		2.5		μs
	$I_G = 0.5 \text{ A}$	$di_G/dt = 3.5 \text{ A}/\mu\text{s}$						

* For either polarity of electrode A_2 voltage with reference to electrode A_1 .

PACKAGE MECHANICAL DATA : TO 220 AB Plastic



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

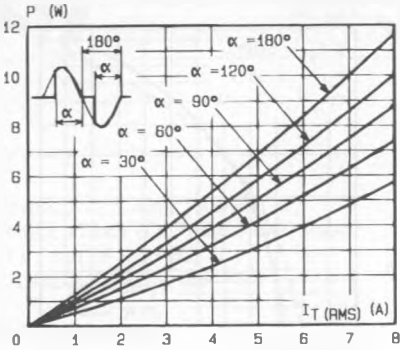


Fig. 1 - Maximum mean power dissipation versus RMS on-state current.

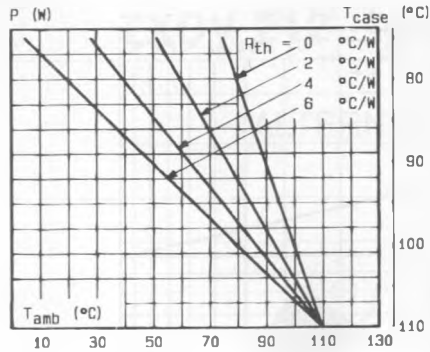


Fig. 2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

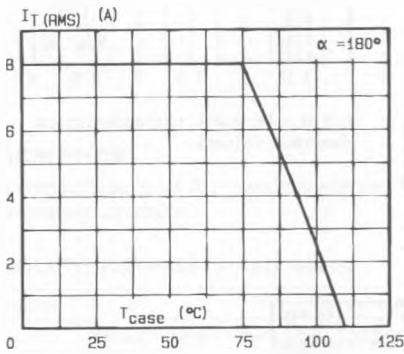


Fig. 3 - RMS on-state current versus case temperature.

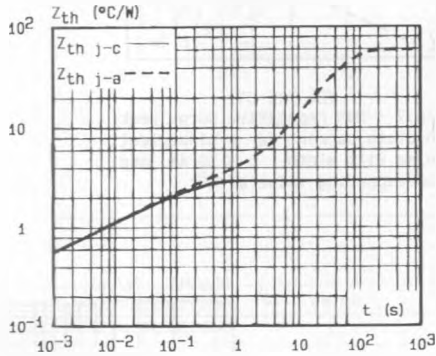


Fig. 4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

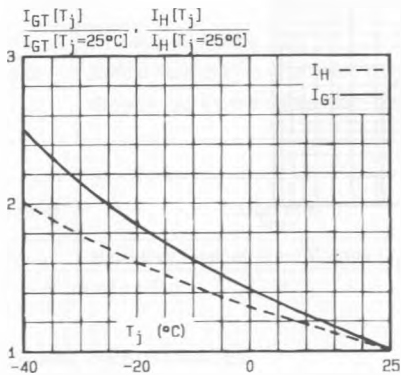


Fig. 5 - Relative variation of gate trigger current and holding current versus junction temperature.

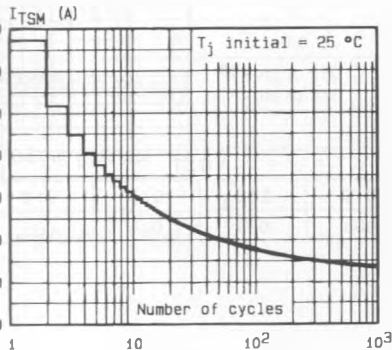


Fig. 6 - Non repetitive surge peak on-state current versus number of cycles.

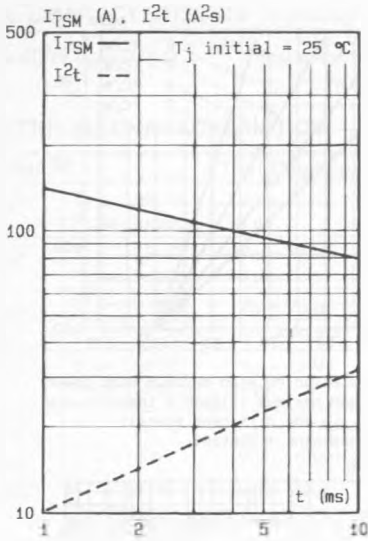


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t \leq 10$ ms, and corresponding value of I^2t .

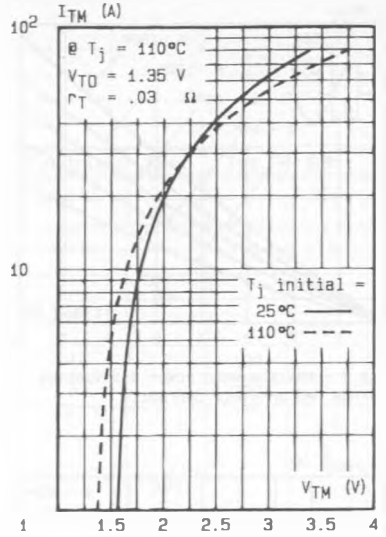


Fig.8 - Un-state characteristics (maximum values).

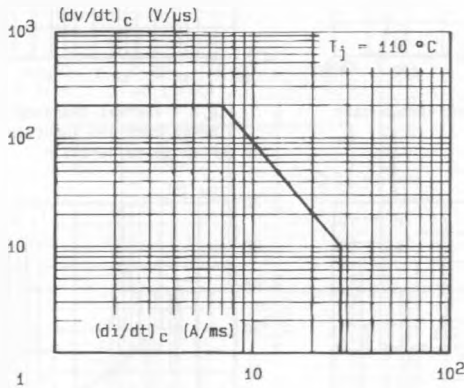


Fig.9 - Safe operating area.