

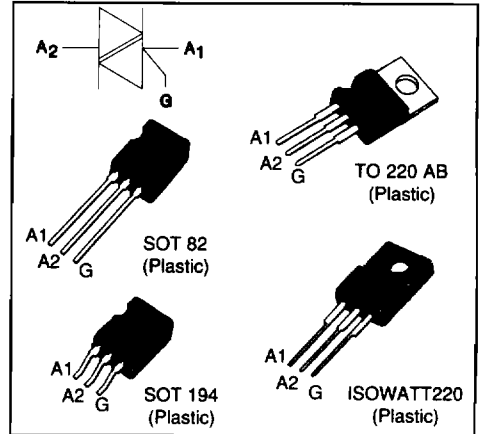
HIGH PERFORMANCE TRIACS

FEATURES

- $I_{TRMS} = 4\text{ A}$
- $V_{DRM} = 400\text{ V to }800\text{ V}$
- SENSITIVE GATE : $I_{GT} \leq 10\text{ mA}$
- HIGH COMMUTATION : $(di/dt)_c > 3.5\text{ A/ms}$

DESCRIPTION

The T410 / T435 high voltage TRIAC Families are high performance planar diffused PNPN devices glass passivated technology. Packaged either in TO 220 AB, SOT 82, SOT 194 and ISOWATT220 these products are intended for all bi-directional switch applications.



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit	
$I_{T(RMS)}$	RMS on-state current (360° conduction angle)	TO 220 AB SOT 194/SOT 82	$T_c = 110\text{ °C}$	4	A
		ISOWATT220	$T_c = 100\text{ °C}$		
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25°C)		$t_p = 8.3\text{ ms}$	35	A
			$t_p = 10\text{ ms}$	30	
i_2t	i_2t value		$t_p = 10\text{ ms}$	4.5	A ² s
di/dt	Critical rate of rise of on-state current Gate supply : $I_G = 100\text{ mA}$ $di_G/dt = 1\text{ A}/\mu\text{s}$		Repetitive $F = 50\text{ Hz}$	10	A/ μs
			Non Repetitive	50	
T_{stg} T_j	Storage and operating junction temperature range			- 40 to + 125 - 40 to + 125	°C °C
T_l	Maximum lead temperature for soldering during 10 s at 4.5 mm from case			230	°C

Symbol	Parameter	T410 or T435				Unit
		-400	-600	-700	-800	
V_{DRM} V_{RRM}	Repetitive peak off-state voltage $T_j = 125\text{ °C}$	400	600	700	800	V

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
Rth (j-a)	Junction to ambient	SOT 82 / SOT 194	100	°C/W
		TO 220 AB	60	
		ISOWATT220	50	
Rth (j-c) DC	Junction to case for DC	SOT 82 / SOT 194 TO 220 AB	3.5	°C/W
		ISOWATT220	5.3	
Rth (j-c) AC	Junction to case for 360° conduction angle (F = 50 Hz)	SOT 82 / SOT 194 TO 220 AB	2.6	°C/W
		ISOWATT220	4	

GATE CHARACTERISTICS (maximum values)

$P_{G(AV)} = 1 \text{ W}$ $P_{GM} = 40 \text{ W}$ (tp = 20 μs) $I_{GM} = 4 \text{ A}$ (tp = 20 μs) $V_{GM} = 16 \text{ V}$ (tp = 20 μs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions		Quadrant		Suffix		Unit
					T410	T435	
IGT	$V_D = 12\text{V}$ (DC) $R_L = 33\Omega$	$T_j = 25^\circ\text{C}$	I-II-III	MAX	10	35	mA
VGT	$V_D = 12\text{V}$ (DC) $R_L = 33\Omega$	$T_j = 25^\circ\text{C}$	I-II-III	MAX	1.5		V
VGD	$V_D = V_{DRM}$ $R_L = 3.3\text{k}\Omega$	$T_j = 125^\circ\text{C}$	I-II-III	MIN	0.2		V
tgt	$V_D = V_{DRM}$ $I_G = 350\text{mA}$ $di_G/dt = 1\text{A}/\mu\text{s}$ $I_{TM} = 5.5\text{A}$	$T_j = 25^\circ\text{C}$	I-II-III	TYP	2		μs
I _L	$I_G = 1.2 I_{GT}$	$T_j = 25^\circ\text{C}$	I-II-III	MAX	30	60	mA
I _H *	$I_T = 100\text{mA}$ gate open	$T_j = 25^\circ\text{C}$		MAX	15	35	mA
V _{TM} *	$I_{TM} = 5.5\text{A}$ tp = 380μs	$T_j = 25^\circ\text{C}$		MAX	1.75		V
I _{DRM} I _{RRM}	V _{DRM} Rated V _{RRM} Rated	$T_j = 25^\circ\text{C}$ $T_j = 125^\circ\text{C}$		MAX MAX	0.01 2		mA
dV/dt *	Linear slope up to $V_D = 67\% V_{DRM}$ gate open	$V_{DRM} = 400\text{V} / 600\text{V}$ $V_{DRM} = 700\text{V} / 800\text{V}$	$T_j = 125^\circ\text{C}$	MIN	50 30	250 250	V/μs
(di/dt) _c *	dV/dt = 0.1V/μs dV/dt = 20V/μs	$T_j = 125^\circ\text{C}$		MIN MIN	2.7 1.8	5.3 3.5	A/ms

* For either polarity of electrode A2 voltage with reference to electrode A1.

ORDERING INFORMATION

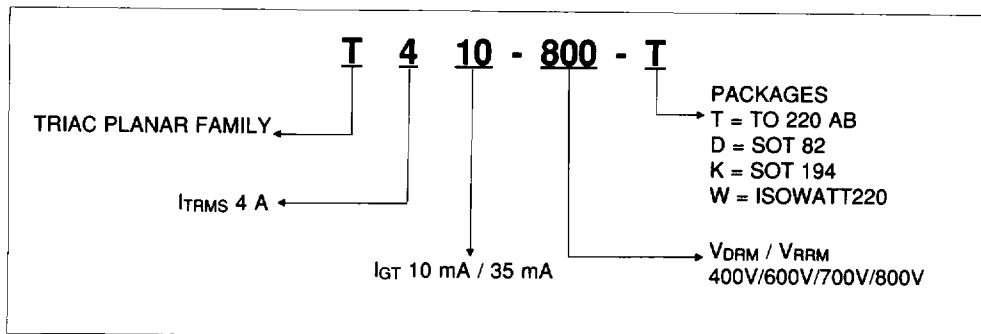


Fig.1 : Maximum RMS power dissipation versus RMS on-state current (F=50Hz).
(Curves are cut off by (di/dt)c limitation)

Fig.2 : Correlation between maximum RMS power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact (TO220 AB / SOT 82 / SOT 194).

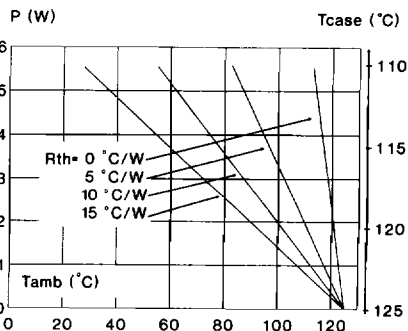
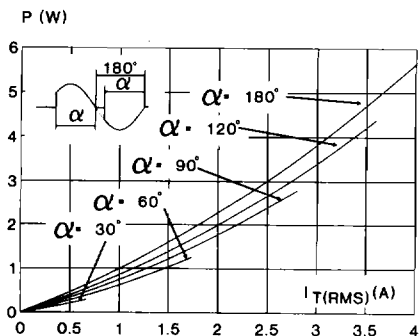


Fig.3 : Correlation between maximum RMS power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact (ISOWATT220).

Fig.4 : RMS on-state current versus case temperature.

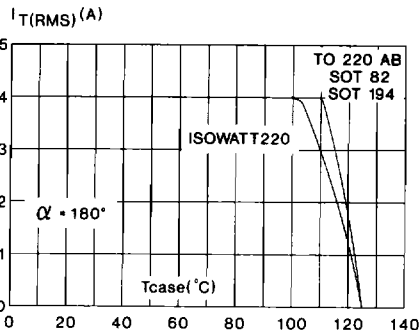
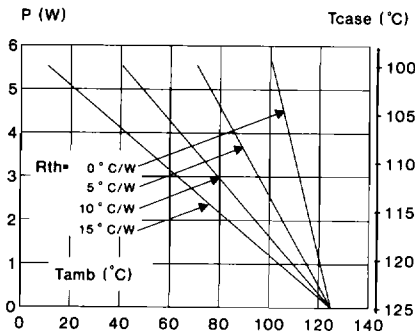


Fig.5 : Thermal transient impedance junction to case and junction to ambient versus pulse duration.

(Zth j-a : TO220 AB only); (Zth j-c : SOT 82 / SOT 194 / TO 220 AB only)

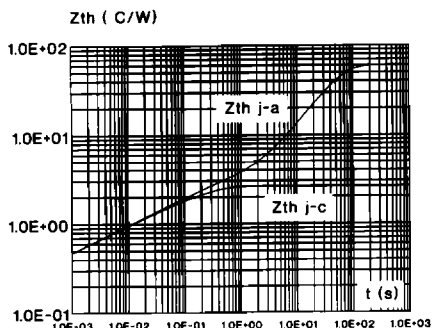


Fig.6 : Relative variation of gate trigger current and holding current versus junction temperature.

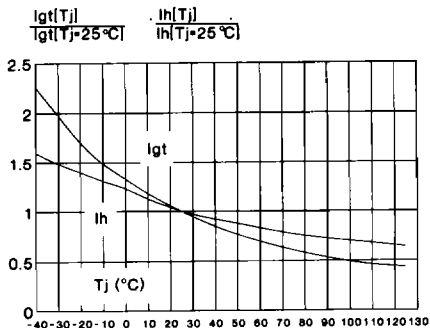


Fig.7 : Non Repetitive surge peak on-state current versus number of cycles.

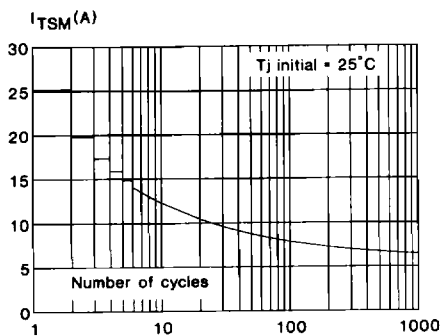


Fig.8 : Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t \leq 10ms$, and corresponding value of I^2t .

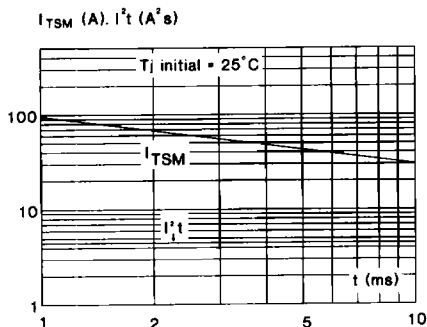
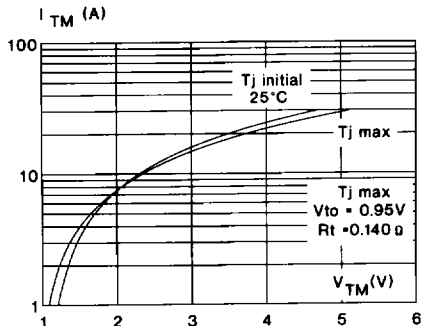
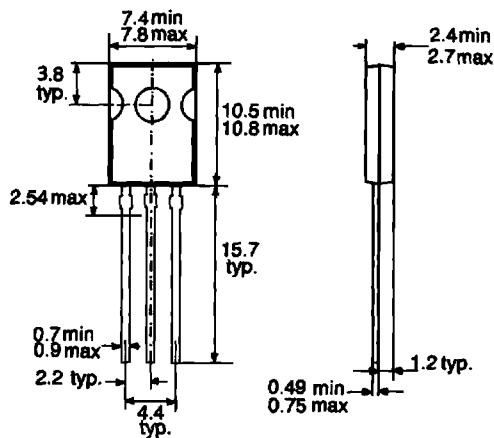


Fig.9 : On-state characteristics (maximum values).

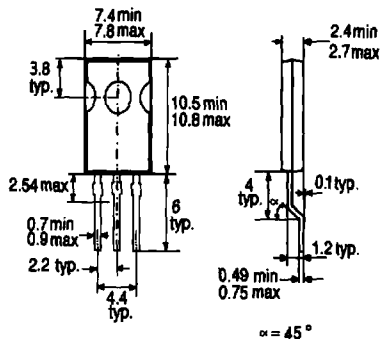


PACKAGE MECHANICAL DATA (in millimeters)
SOT 82 Plastic



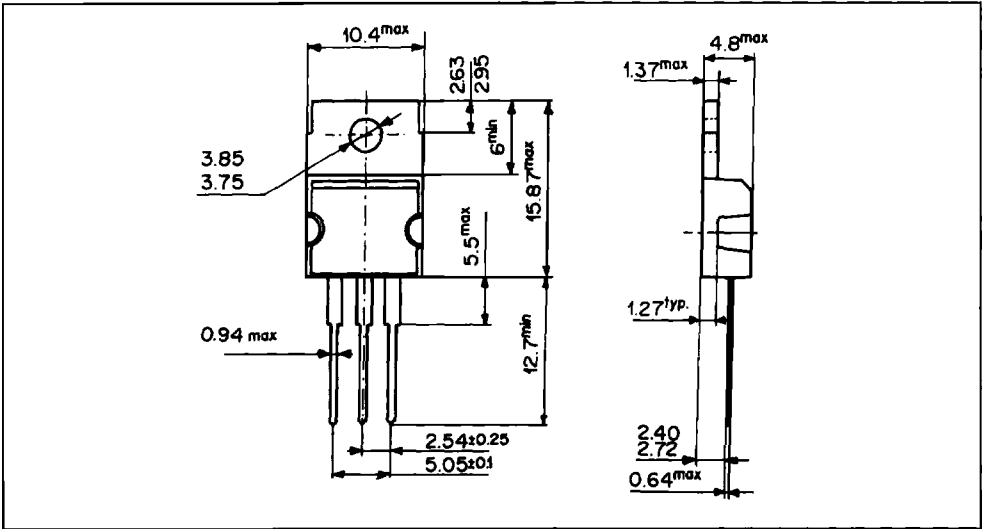
Cooling Method : C
 Marking : Type number
 Weight : 0.72g
 Polarity : N A
 Stud torque : N A

PACKAGE MECHANICAL DATA (in millimeters)
SOT 194 Plastic



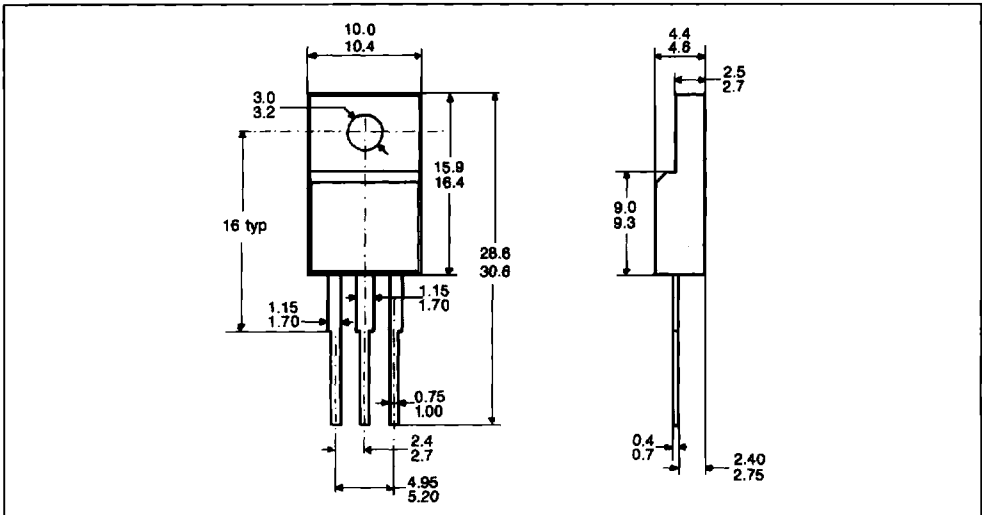
Cooling Method : C
 Marking : Type number
 Weight : 0.68g
 Polarity : N A
 Stud torque : N A

PACKAGE MECHANICAL DATA (in millimeters)
TO 220 AB Plastic



Cooling Method : C
 Marking : Type number
 Weight : 2 g
 Polarity : N A
 Stud torque : N A

PACKAGE MECHANICAL DATA (in millimeters)
ISOWATT220 Plastic



Cooling Method : C
 Marking : Type number
 Weight : 2.1g
 Polarity : N A
 Stud torque : N A

TRIAC 6 A FAMILY

SNUBBERLESS "H.C.T."						
INSULATED	UNINSULATED	SENSITIVITY I _{GT} (mA)			V _{RRM} Range (V)	PACKAGE
		Q I	Q II	Q III		
BTA06-xxx BW	BTB06-xxx BW	50	50	50	400 to 800	TO220AB
BTA06-xxx CW	BTB06-xxx CW	35	35	35	400 to 800	TO220AB
T635-xxx W *		35	35	35	400 to 800	ISOWATT220
	T635-xxx T *	35	35	35	400 to 800	TO220AB
	T635-xxx D *	35	35	35	400 to 800	SOT 82
	T635-xxx K *	35	35	35	400 to 800	SOT 194

LOGIC LEVEL "H.C.T."						
INSULATED	UNINSULATED	SENSITIVITY I _{GT} (mA)			V _{RRM} Range (V)	PACKAGE
		Q I	Q II	Q III		
BTA06-xxx SW	BTB06-xxx SW	10	10	10	400 to 700	TO220AB
BTA06-xxx TW	BTB06-xxx TW	5	5	5	400 to 700	TO220AB
T610-xxx W *		10	10	10	400 to 800	ISOWATT220
	T610-xxx T *	10	10	10	400 to 800	TO220AB
	T610-xxx D *	10	10	10	400 to 800	SOT 82
	T610-xxx K *	10	10	10	400 to 800	SOT 194

SENSITIVE							
INSULATED	UNINSULATED	SENSITIVITY I _{GT} (mA)				V _{RRM} Range (V)	PACKAGE
		Q I	Q II	Q III	Q IV		
BTA06-xxx A	BTB06-xxx A	10	10	10	25	400 to 700	TO220AB
BTA06-xxx S	BTB06-xxx S	10	10	10	10	400 to 700	TO220AB
BTA06-xxx D	BTB06-xxx D	5	5	5	10	400 to 700	TO220AB
BTA06-xxx T	BTB06-xxx T	5	5	5	5	400 to 700	TO220AB

STANDARD							
INSULATED	UNINSULATED	SENSITIVITY I _{GT} (mA)				V _{RRM} Range (V)	PACKAGE
		Q I	Q II	Q III	Q IV		
BTA06-xxx B	BTB06-xxx B	50	50	50	100	400 to 800	TO220AB
BTA06-xxx C	BTB06-xxx C	25	25	25	50	400 to 800	TO220AB

LIGHT DIMMERS							
INSULATED	UNINSULATED	SENSITIVITY I _{GT} (mA)				V _{RRM} Range (V)	PACKAGE
		Q I	Q II	Q III	Q IV		
BTA06-xxx GP		50	50	50	75	400 to 600	TO220AB

DEDICATED DEVICES						
INSULATED	UNINSULATED	AUTOMATIC VOLTAGE SWITCH			V _{RRM} Range (V)	PACKAGE
AVS08-CBI	AVS08-CB				500	TO220AB

* In development

H.C.T. (HIGH COMMUTATION TECHNOLOGY)