

SNUBBERLESS TRIAC

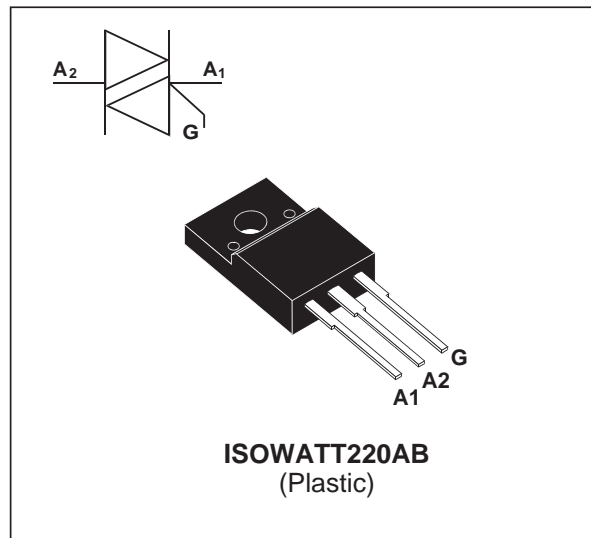
FEATURES

- $I_{T(RMS)} = 6A$
- $V_{DRM} = V_{RRM} = 600V$
- EXCELLENT SWITCHING PERFORMANCES
- INSULATING VOLTAGE = $1500V_{(RMS)}$
- U.L. RECOGNIZED : E81734

DESCRIPTION

The T620-600W and T630-600W triacs use high performance glass passivated chip technology, housed in a fully molded plastic ISOWATT220AB package.

The SNUBBERLESS™ concept offers suppression of R-C network, and is suitable for applications such as phase control and static switch on inductive and resistive loads.



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state current (360° conduction angle)	$T_c = 100^\circ C$	6	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = $25^\circ C$)	$t_p = 16.7$ ms (1 cycle, 60 Hz)	66	A
		$t_p = 10$ ms (1/2 cycle, 50 Hz)	75	
I^2t	I^2t Value (half-cycle, 50 Hz)	$t_p = 10$ ms	28	A^2s
di/dt	Critical rate of rise of on-state current Gate supply : $I_G = 500$ mA $di_G/dt = 1$ A/ μs .	Repetitive $F = 50$ Hz	20	A/ μs
		Non Repetitive	100	
T_{stg} T_j	Storage temperature range Operating junction temperature range		- 40 to + 150 - 40 to + 125	$^\circ C$
TI	Maximum lead temperature for soldering during 10s at 4.5 mm from case		260	$^\circ C$

Symbol	Parameter	Value	Unit
V_{DRM} V_{RRM}	Repetitive peak off-state voltage $T_j = 125^\circ C$	600	V

T620-600W / T630-600W

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
Rth(j-a)	Junction to ambient	50	°C/W
Rth(j-c)	Junction to case for A.C (360° conduction angle)	3.4	°C/W

GATE CHARACTERISTICS (maximum values)

$P_{G(AV)} = 1 \text{ W}$ $P_{GM} = 10 \text{ W}$ ($t_p = 20 \mu\text{s}$) $I_{GM} = 4 \text{ A}$ ($t_p = 20 \mu\text{s}$)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrant		T620	T630	Unit	
I_{GT}	$V_D = 12\text{V (DC)}$ $R_L = 33\Omega$	$T_j = 25^\circ\text{C}$	I-II-III	MAX	20	30	mA
V_{GT}	$V_D = 12\text{V (DC)}$ $R_L = 33\Omega$	$T_j = 25^\circ\text{C}$	I-II-III	MAX	1.5		V
V_{GD}	$V_D = V_{DRM}$ $R_L = 3.3\text{k}\Omega$	$T_j = 125^\circ\text{C}$	I-II-III	MIN	0.2		V
tgt	$V_D = V_{DRM}$ $I_G = 500\text{mA}$ $dI_G/dt = 3\text{A}/\mu\text{s}$	$T_j = 25^\circ\text{C}$	I-II-III	TYP	2		μs
I_H^*	$I_T = 100\text{mA}$ Gate open	$T_j = 25^\circ\text{C}$		MAX	35	50	
V_{TM}^*	$I_{TM} = 8.5\text{A}$ $t_p = 380\mu\text{s}$	$T_j = 25^\circ\text{C}$		MAX	1.5		V
I_{DRM} I_{RRM}	VDRM rated VRRM rated	$T_j = 25^\circ\text{C}$		MAX	10		μA
		$T_j = 125^\circ\text{C}$		MAX	2		mA
dV/dt *	Linear slope up to $V_D = 67\%V_{DRM}$ Gate open	$T_j = 125^\circ\text{C}$		MIN	200	300	V/ μs
(dV/dt)c *	(dI/dt)c = 3.3 A/ms (see note)	$T_j = 125^\circ\text{C}$		MIN	10	20	V/ μs

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

Note : In usual applications where (dI/dt)c is below 3.3 A/ms, the (dV/dt)c is always lower than 10V/ μs , and, therefore, it is **unnecessary** to use a snuber R-C network accross T620W / T630W triacs.

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

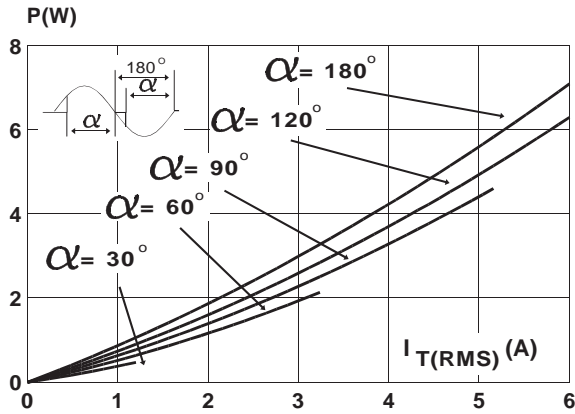


Fig.2 : Correlation between maximum power dissipation and maximum allowable temperature (Tamb and Tcase) for different thermal resistances heatsink + contact.

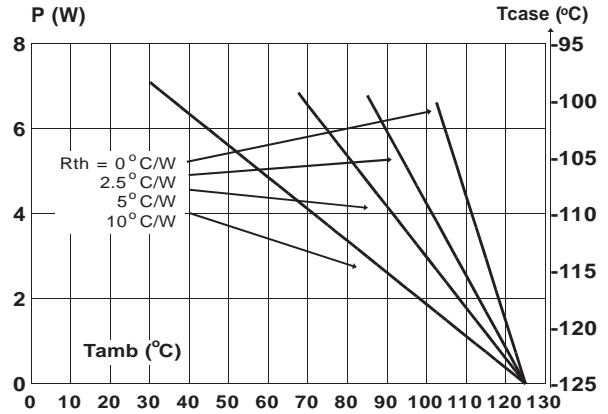


Fig.3 : RMS on-state current versus case temperature.

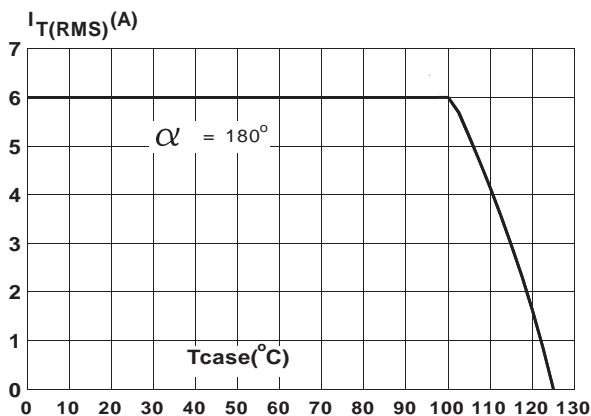


Fig.4 : Thermal transient impedance junction to case and junction to ambient versus pulse duration.

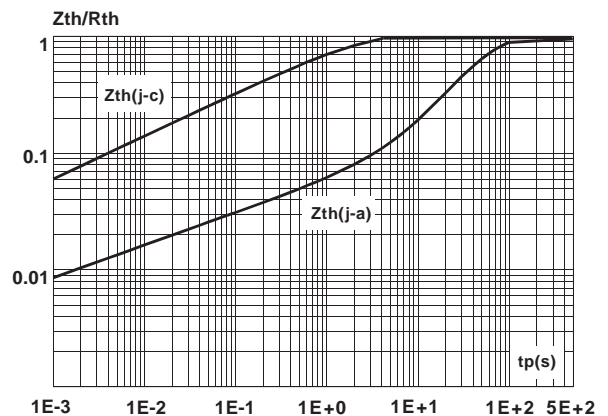


Fig.5 : Relative variation of gate trigger current and holding current versus junction temperature.

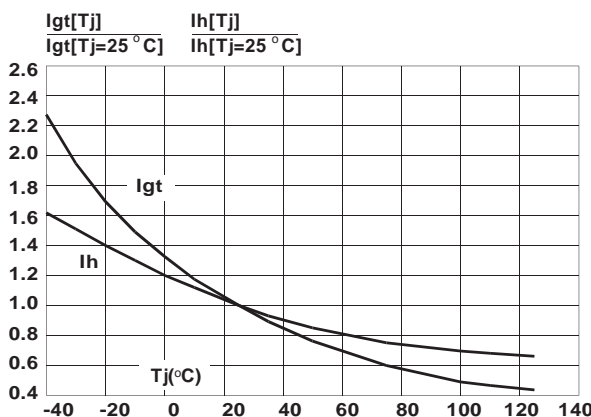
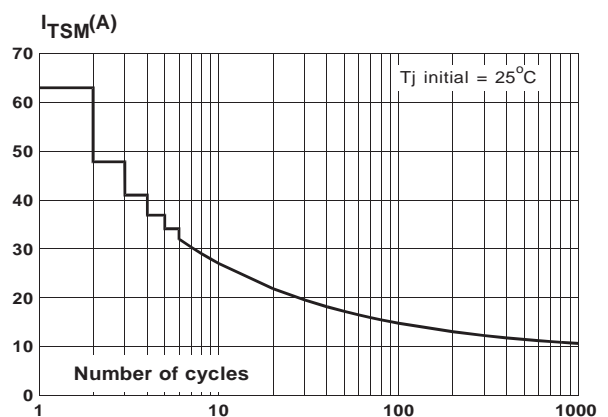


Fig.6 : Non repetitive surge peak on-state current versus number of cycles.



T620-600W / T630-600W

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

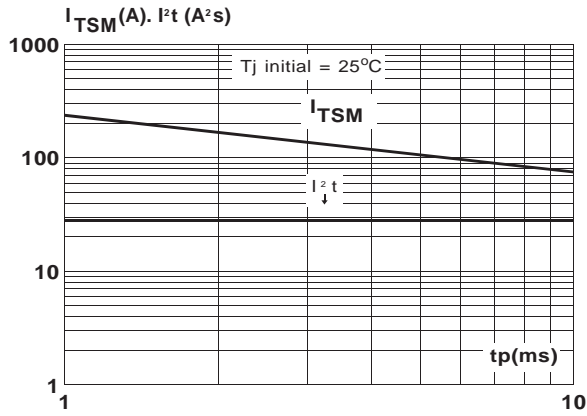
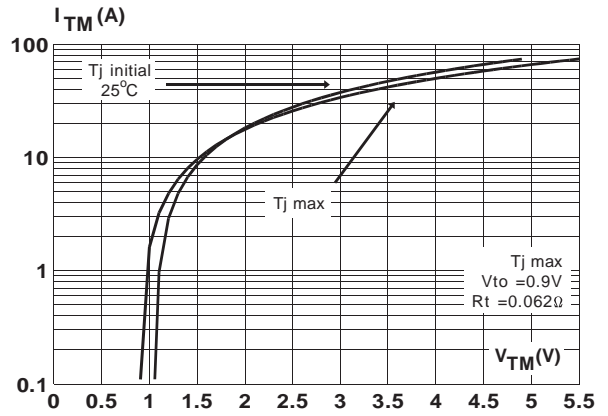


Fig.8 : On-state characteristics (maximum values).



PACKAGE MECHANICAL DATA
 ISOWATT220AB

REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.40	4.60	0.173	0.181
B	2.50	2.70	0.098	0.106
D	2.50	2.75	0.098	0.108
E	0.40	0.70	0.016	0.028
F	0.75	1.00	0.030	0.039
F1	1.15	1.70	0.045	0.067
F2	1.15	1.70	0.045	0.067
G	4.95	5.20	0.195	0.205
G1	2.40	2.70	0.094	0.106
H	10.00	10.40	0.394	0.409
L2	16.00 typ.		0.630 typ.	
L3	28.60	30.60	1.125	1.205
L4	9.80	10.60	0.386	0.417
L6	15.90	16.40	0.626	0.646
L7	9.00	9.30	0.354	0.366
Diam	3.00	3.20	0.118	0.126

- Cooling method : C
- Marking : Type number
- Weight : 2.1g
- Recommended torque value : 0.55 m.N.
- Maximum torque value : 0.70 m.N.

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