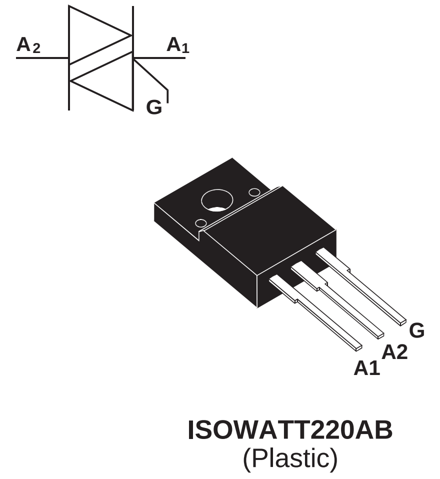
T1620-600W / 700W
T1630-600W

SNUBBERLESS TRIAC

FEATURES

- I_{TRMS} = 16 A
- V_{DRM} = V_{RRM} = 600V to 700V
- EXCELLENT SWITCHING PERFORMANCES
- INSULATING VOLTAGE = 1500$V_{(RMS)}$
- U.L. RECOGNIZED : E81734



ISOWATT220AB
(Plastic)

DESCRIPTION

The T1620-600W/700W and 1630-600W triacs use high performance glass passivated chip technology, housed in a fully molded plastic ISOWATT220AB package.

The SNUBBERLESS^{TM} 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)	Tc= 75°C	16	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25°C)	tp = 16.7 ms (1 cycle, 60 Hz)	165	A
		tp = 10 ms (1/2 cycle, 50 Hz)	195	
I^2t	I^2t Value (half-cycle, 50 Hz)	tp = 10 ms	190	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	°C
Tl	Maximum lead temperature for soldering during 10s at 4.5 mm from case		260	°C

Symbol	Parameter	Value		Unit
		600	700	
V_{DRM} V_{RRM}	Repetitive peak off-state voltage T_j = 125°C	600	700	V

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)	2.5	°C/W

GATE CHARACTERISTICS (maximum values)

$P_{G\ (AV)}$= 1 W P_{GM} = 10 W (tp = 20 µs) I_{GM} = 4 A (tp = 20 µs)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions		Quadrant		T1620	T1630	Unit
I_{GT}	V_D=12V (DC) R_L=33Ω	Tj= 25°C	I-II-III	MAX	20	30	mA
V_{GT}	V_D=12V (DC) R_L=33Ω	Tj= 25°C	I-II-III	MAX	1.5		V
V_{GD}	V_D=V_{DRM} R_L=3.3kΩ	Tj= 125°C	I-II-III	MIN	0.2		V
tgt	V_D=V_{DRM} I_G = 500mA dI_G/dt= 3Aµs	Tj= 25°C	I-II-III	TYP	2		µs
I_H *	I_T= 250mA Gate open	Tj= 25°C		MAX	35	50	
V_{TM} *	I_{TM}= 22.5A tp= 380µs	Tj= 25°C		MAX	1.5		V
I_{DRM} I_{RRM}	VDRM rated V_{RRM} rated	Tj= 25°C		MAX	10		µA
		Tj= 125°C		MAX	2		mA
dV/dt *	Linear slope up to V_D=67%V_{DRM} Gate open	Tj= 125°C		MIN	200	300	V/µs
(dV/dt)c *	(dI/dt)c = 9 A/ms (see note)	Tj= 125°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 9 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 T1620W / T1630W triacs.

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

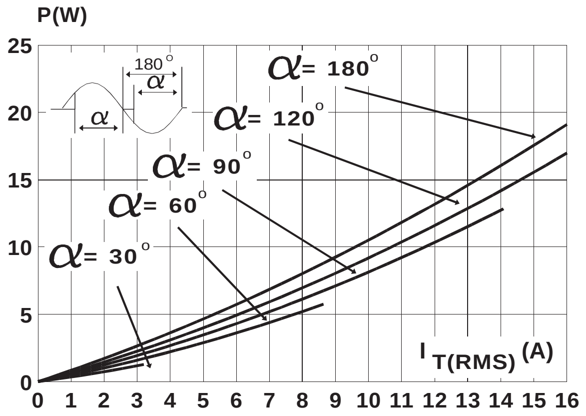


Fig. 2: Correlation between maximum power dissipation and maximum allowable temperature (Tamb and Tcase) for different thermal resistances heatsink + contact.

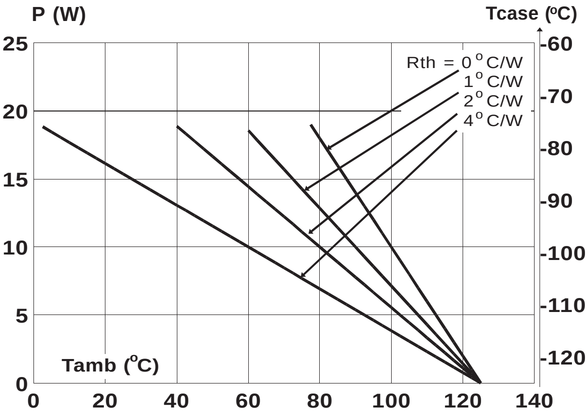


Fig. 3: RMS on-state current versus case temperature.

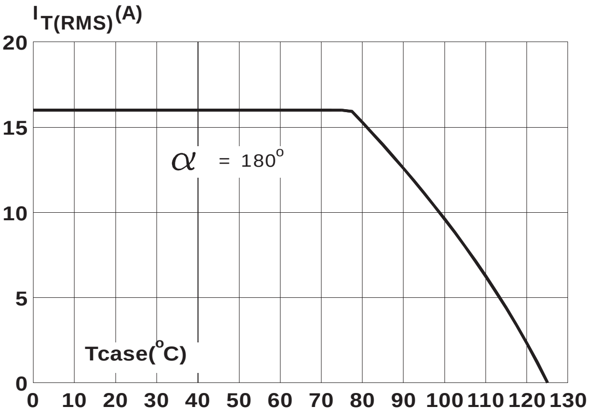


Fig. 4: Thermal transient impedance junction to case and junction to ambient versus pulse duration.

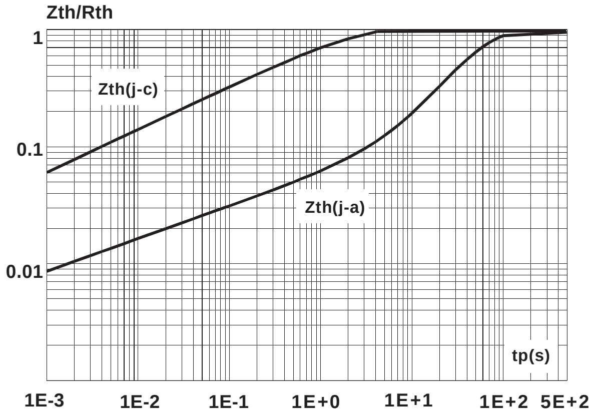


Fig. 5: Relative variation of gate trigger current and holding current versus junction temperature.

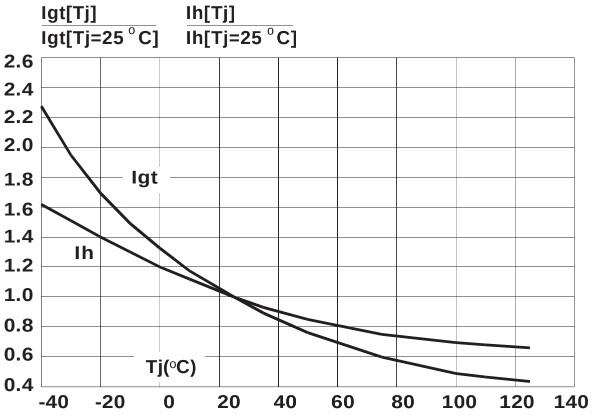


Fig. 6: Non repetitive surge peak on-state current versus number of cycles.

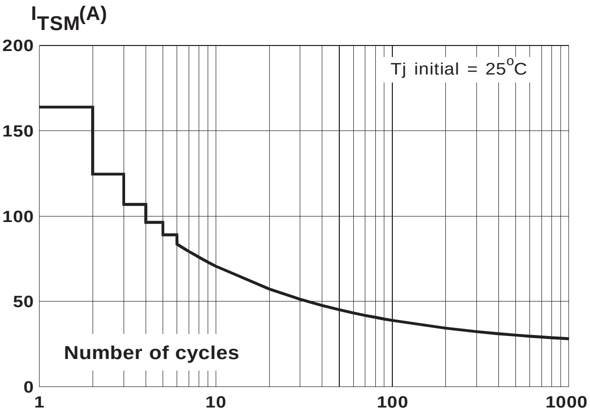


Fig. 7: Non repetitive surge peak on-state current for a sinusoidal pulse with width : tp ® 10ms, and corresponding value of I^2t.

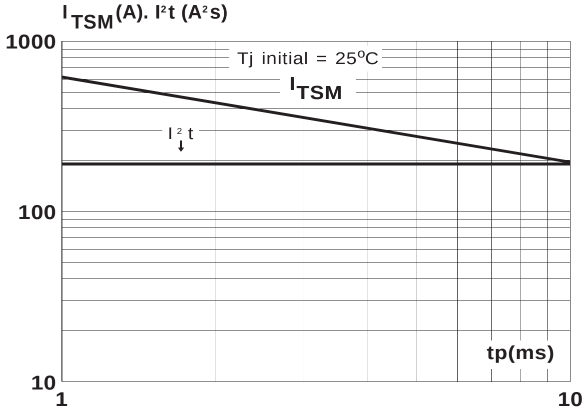
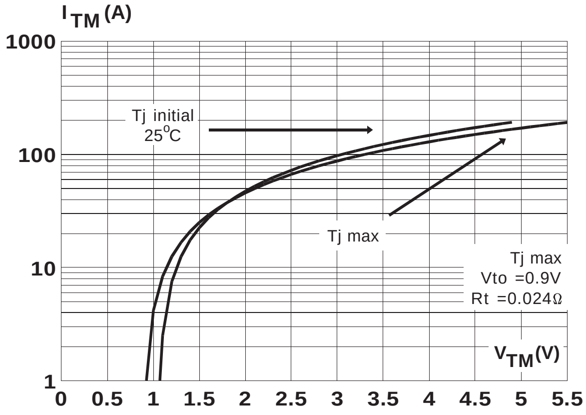
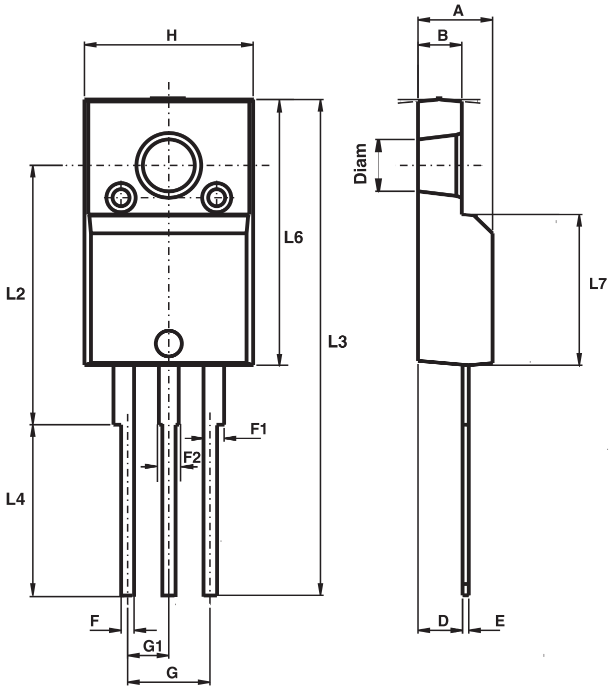


Fig. 8: On-state characteristics (maximum values).



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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