T630W

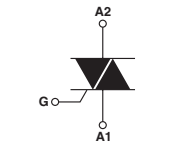
6 A Snubberless™ Triac

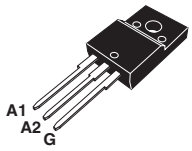
Features

- $I_{T(RMS)}$ = 6 A
- $V_{DRM} = V_{RRM}$ = 600 and 800 V

Description

The high commutation performance of this device is based on Snubberless technology from ST. The T630W is especially suited for high inductance loads. This device complies with UL standards (Ref. E81734).





ISOWATT220AB
(Plastic)

Table 1. Device summary

Symbol	Value	Unit
$I_{T(RMS)}$	6	A
V_{DRM}/V_{RRM}	600 and 800	V
I_{GT}	30	mA

1 Characteristics

Table 2. Absolute ratings (limiting values)

Symbol	Parameter			Value	Unit
$I_{T(RMS)}$	On-state rms current (full sine wave)		T_c = 105°C	6	A
I_{TSM}	Non repetitive surge peak on-state current (full cycle, T_j initial = 25°C)	F = 50 Hz	t = 20 ms	80	A
		F = 60 Hz	t = 16.7 ms	84	
I^2t	I^2t Value for fusing	t_p = 10 ms		36	A^2s
dI/dt	Critical rate of rise of on-state current I_G = 2 x I_{GT} , $t_r \leq$ 100 ns	F = 120 Hz		50	A/µs
I_{GM}	Peak gate current	t_p = 20 µs	T_j = 125°C	4	A
$P_{G(AV)}$	Average gate power dissipation		T_j = 125°C	1	W
T_{stg} T_j	Storage junction temperature range Operating junction temperature range			- 40 to + 150 - 40 to + 125	°C

Table 3. Electrical characteristics (T_j = 25 °C, unless otherwise specified)

Symbol	Test conditions		Quadrant		Value	Unit
I_{GT} (1)	V_D = 12 V R_L = 30 Ω		I - II - III	Max.	30	mA
V_{GT}			I - II - III	Max.	1.3	V
V_{GD}	V_D = V_{DRM} R_L = 3.3 kΩ	T_j = 125 °C	I - II - III	Min.	0.2	V
I_H (2)	I_T = 100 mA			Max.	50	mA
I_L	I_G = 1.2 I_{GT}		I - III	Max.	70	mA
			II		80	
dV/dt (2)	V_D = 67 %V_{DRM} gate open	T_j = 125 °C		Min.	500	V/µs
(dI/dt)c (2)	Without snubber	T_j = 125 °C		Min.	4.5	A/ms

1. Minimum I_{GT} is guaranted at 5% of I_{GT} max.
2. For both polarities of A2 referenced to A1

Table 4. Static characteristics

Symbol	Test conditions			Value	Unit
V_T (1)	I_{TM} = 8.5 A t_p = 380 µs	T_j = 25 °C	Max.	1.4	V
V_{t0} (1)	Threshold voltage	T_j = 125 °C	Max.	0.85	V
R_d (1)	Dynamic resistance	T_j = 125 °C	Max.	50	mΩ
I_{DRM} I_{RRM}	V_{DRM} = V_{RRM}	T_j = 25 °C	Max.	5	µA
		T_j = 125 °C		1	mA

1. For both polarities of A2 referenced to A1

Table 5. Thermal resistance

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction to case (AC) (360° conduction angle)	3.4	°C/W
$R_{th(j-a)}$	Junction to ambient	50	°C/W

Figure 1. Maximum power dissipation versus rms on-state current

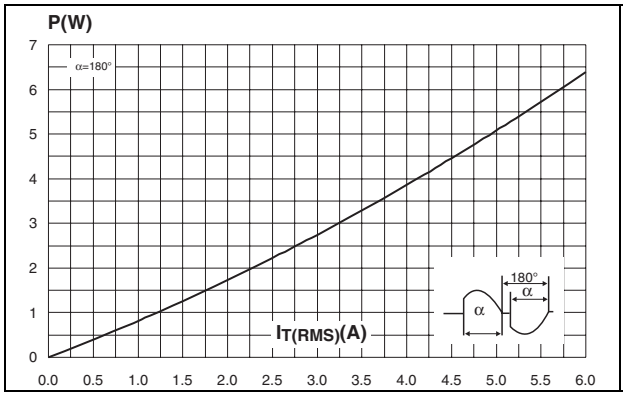


Figure 2. On-state rms current versus case temperature

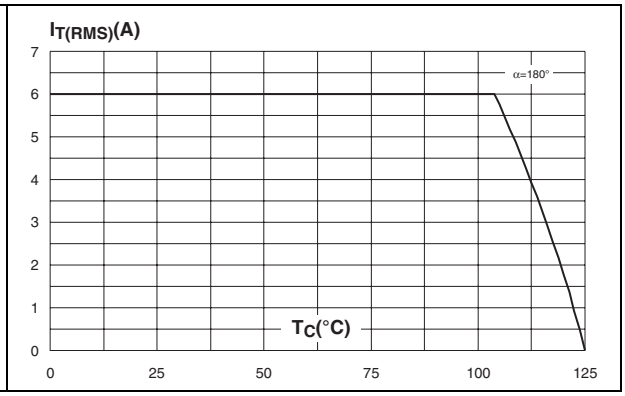


Figure 3. Relative variation of thermal impedance versus pulse duration

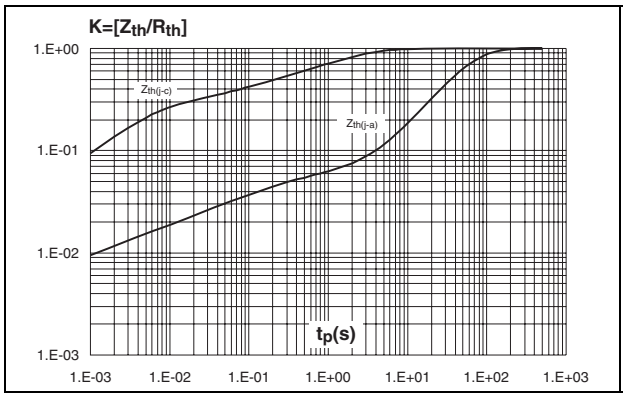


Figure 4. On-state characteristics (maximum values)

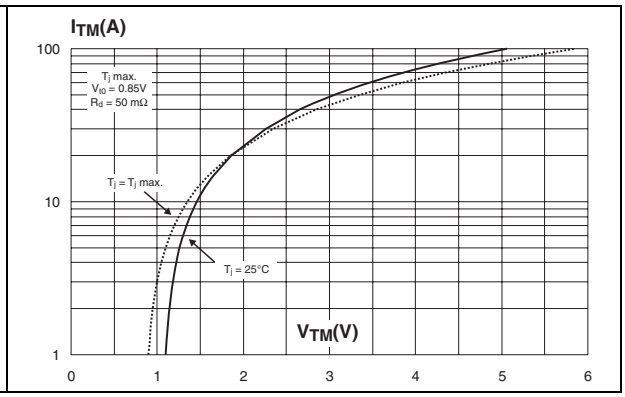


Figure 5. Surge peak on-state current versus number of cycles

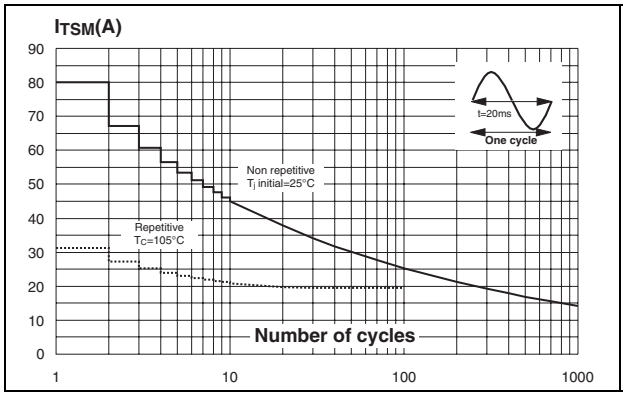


Figure 6. Non-repetitive surge peak on-state current for a sinusoidal

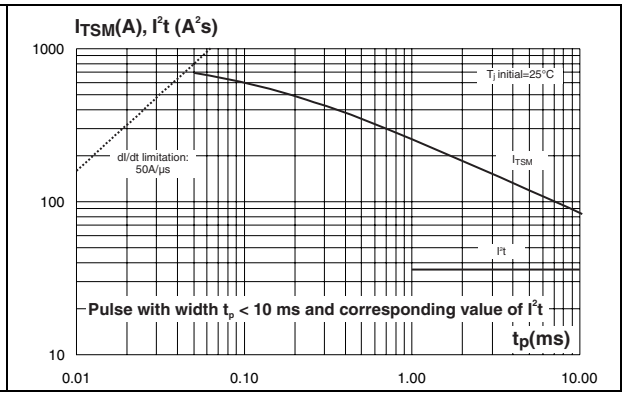


Figure 7. Relative variation of gate trigger current, holding current and latching

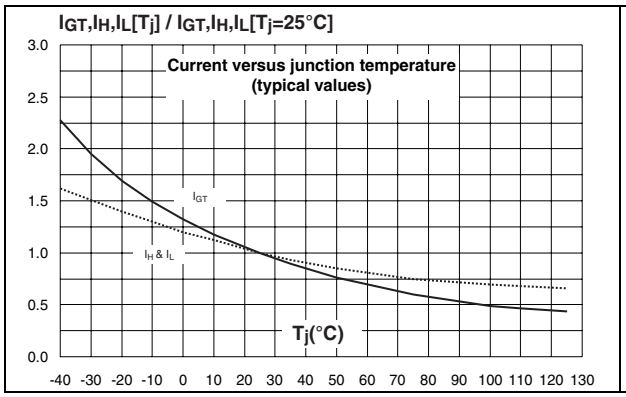


Figure 8. Relative variation of critical rate of decrease of main current versus reapplied (dV/dt)c (typical value)

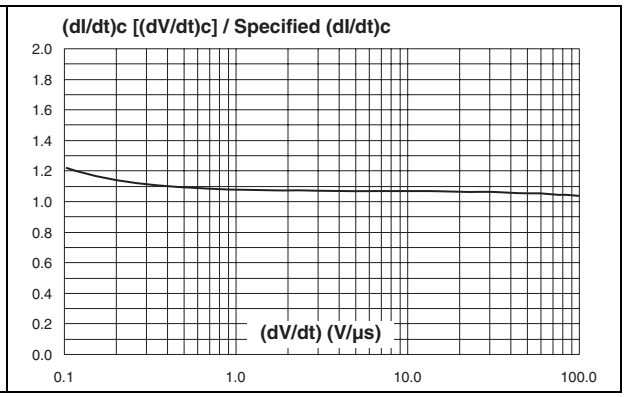
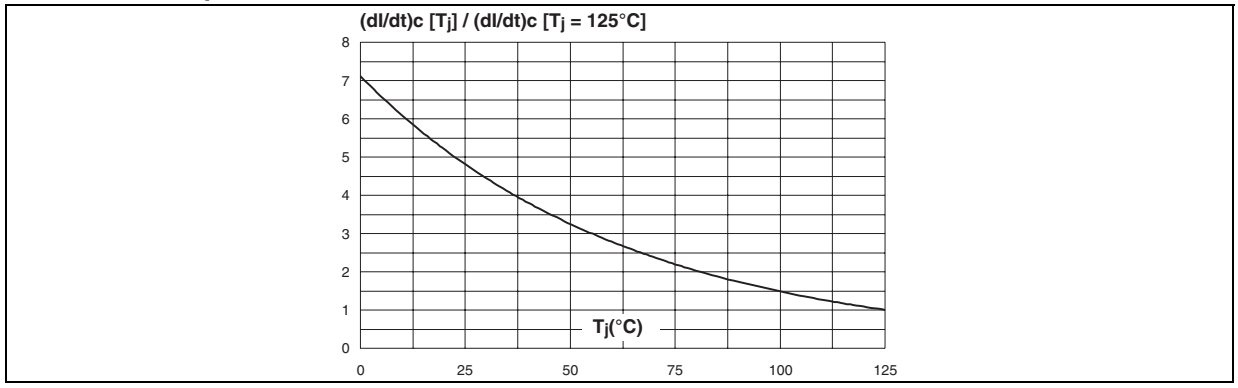
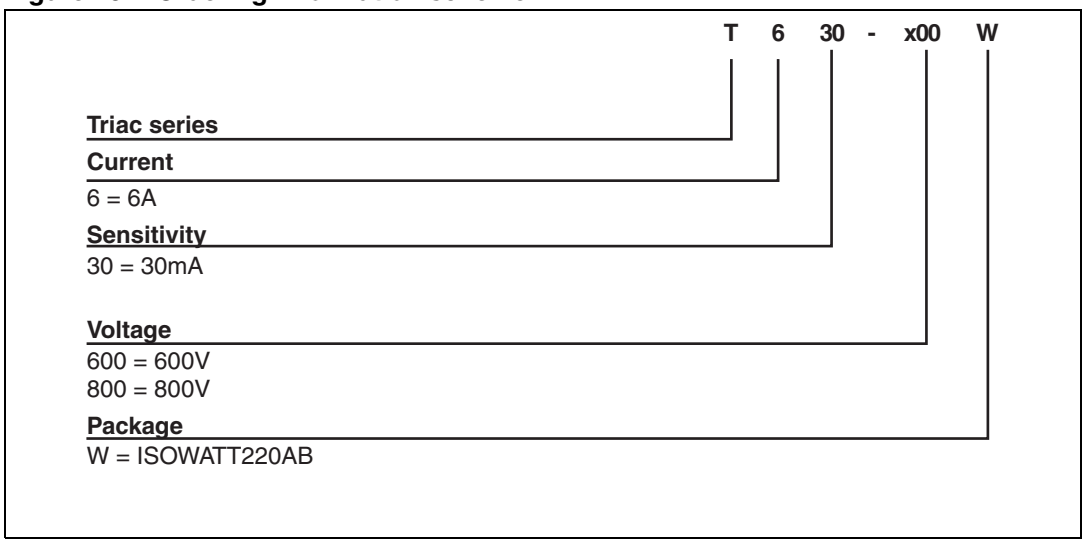


Figure 9. Relative variation of critical rate of decrease of main current versus junction temperature



2 Ordering information scheme

Figure 10. Ordering information scheme

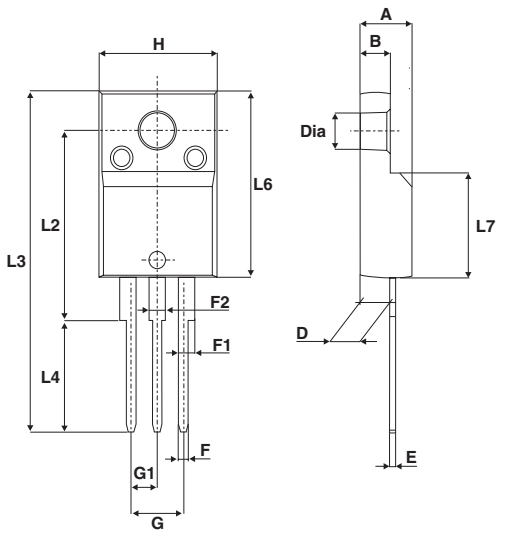


3 Package information

- Epoxy meets UL94, V0
- Cooling method: by conduction (C)
- Recommended torque: 0.4 to 0.6 N·m

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK® packages, depending on their level of environmental compliance. ECOPACK® specifications, grade definitions and product status are available at: www.st.com. ECOPACK® is an ST trademark.

Table 6. ISOWATT220AB dimensions



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

4 Ordering information

Table 7. Ordering information

Order code	Marking	Package	Weight	Base qty	Delivery mode
T630-600W	T630600W	ISOWATT220AB	2.3 g	50	Tube
T630-800W	T630800W				

5 Revision history

Table 8. Document revision history

Date	Revision	Changes
March-2004	2	Last release.
09-Feb-2010	3	Document split into T620W and T630W. This document provides information for the T630W.

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