

HIGH TEMPERATURE TRIAC FOR HOT APPLIANCES

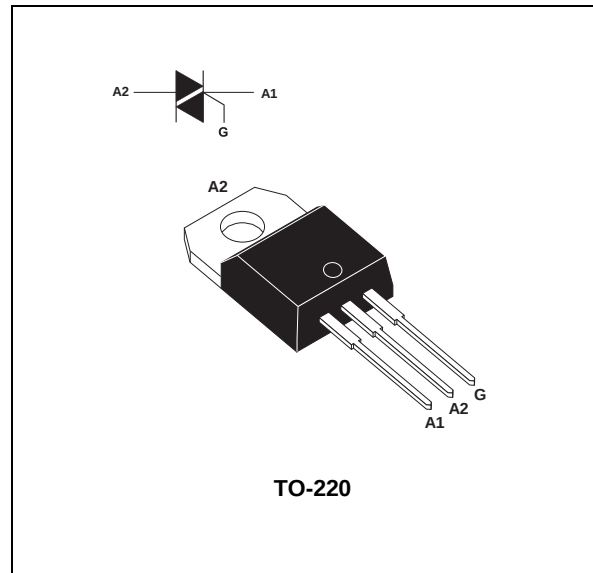
MAIN FEATURES :

- HIGH JUNCTION TEMPERATURE:
T_j (MAX) = 150°C
- I_{T(RMS)} = 25 A
- V_{DRM}/V_{RRM} = 600 V
- SENSITIVITY : I_{GT} (MAX) = 50mA

DESCRIPTION

Specifically developed for use in high temperature and harsh environments, the T2550H-600T triac is perfectly suited to driving heating elements found in hot appliances such as ovens, electric ranges or halogen ranges.

The T2550H-600T, which is specified for use in temperature up to T_j = 150 °C, offers the additional benefit of improved thermal resistance (1 °C/W). Thanks to this feature, heatsink dimensionning can be optimized to suit typical conditions in such applications. The devices surge features, which have proven to be highly performing, ensure safe operation under peak inrush current conditions - for example, in halogen ranges.



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value	Unit
V _{RRM} V _{DRM}	Repetitive peak-off state voltage	T _j = 150 °C	600	V
I _{T(RMS)}	RMS on-state current (360° conduction angle)	T _c = 120 °C	25	A
I _{TSM}	Non repetitive surge peak on-state current (T _j initial = 25°C)	tp = 8.3 ms	260	A
		tp = 10 ms	250	
I ² t	I ² t Value for fusing	tp = 10 ms	310	A ² s
di/dt	Critical rate of rise of on-state current (T _j initial = 25 °C) I _G = 60 mA tr ≤ 100ns	Repetitive F = 50 Hz	20	A/μs
		Non Repetitive	100	
T _{stg} T _j	Storage and operating junction temperature range		- 40 to + 150	°C

T2550H-600T

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
Rth(j-c)	Junction to case for DC	1.3	°C/W
Rth(j-c)	Junction to case for AC 360 ° conduction angle (F = 50 Hz)	1	°C/W

GATE CHARACTERISTICS

$P_{G(AV)} = 1 \text{ W}$

$P_{GM} = 10 \text{ W}$ (tp = 20 µs)

$I_{GM} = 4 \text{ A}$ (tp = 20 µs)

Symbol	Test Conditions		Quadrant		Value	Unit
I_{GT}	$V_D = 12 \text{ V (DC)}$ $R_L = 33 \Omega$	$T_j = 25 \text{ °C}$	I - II - III	MIN	5	mA
				MAX	50	
V_{GT}	$V_D = 12 \text{ V (DC)}$ $R_L = 33 \Omega$	$T_j = 25 \text{ °C}$	I - II - III	MAX	1.3	V
V_{GD}	$V_D = V_{DRM}$ $R_L = 3.3 \text{ k}\Omega$	$T_j = 150 \text{ °C}$	I - II - III	MIN	0.15	V
I_H	$I_T = 500 \text{ mA}$ Gate open	$T_j = 25 \text{ °C}$		MAX	75	mA
I_L	$I_G = 1.2 I_{GT}$	$T_j = 25 \text{ °C}$	I - II - III	MAX	90	mA
V_{TM}	$I_{TM} = 35 \text{ A}$ tp = 380 µs	$T_j = 25 \text{ °C}$		MAX	1.5	V
I_{DRM}	$V_D = V_{DRM}$	$T_j = 25 \text{ °C}$		MAX	5	µA
I_{RRM}	$V_R = V_{RRM}$	$T_j = 150 \text{ °C}$		MAX	8.5	mA
	$V_D / V_R = 400 \text{ V}$ (operating application conditions)	$T_j = 150 \text{ °C}$		MAX	5.5	
dV/dt	$V_D = 67\% V_{DRM}$ Gate open	$T_j = 150 \text{ °C}$		MIN	250	V/µs
(dI/dt)c	(dV/dt)c = 5 V/µs	$T_j = 150 \text{ °C}$		MIN	10	A/ms
	Without snubber				7	

ORDER INFORMATION

T	25	50	H	-	600	T
↓	↓	↓	↓		↓	↓
Triac	Current	Gate Sensitivity	High Temperature Triac		Voltage	Package T: TO-220

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

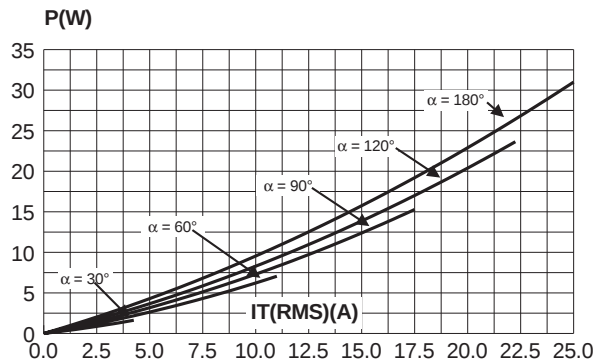


Fig. 2: Correlation between maximum power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink+contact.

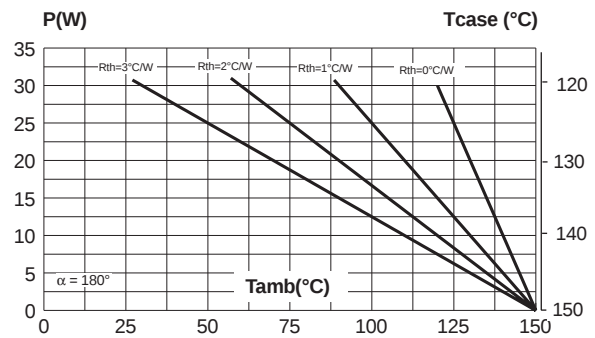


Fig. 3: RMS on-state current versus case temperature.

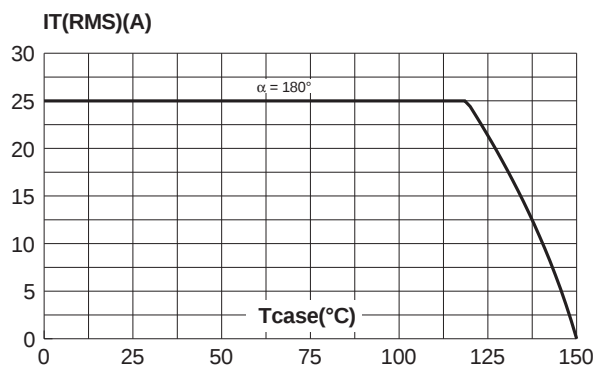


Fig. 4: Relative variation of thermal impedance versus pulse duration.

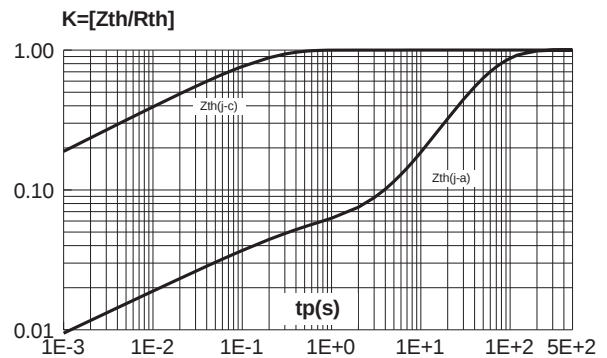


Fig. 5: Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values).

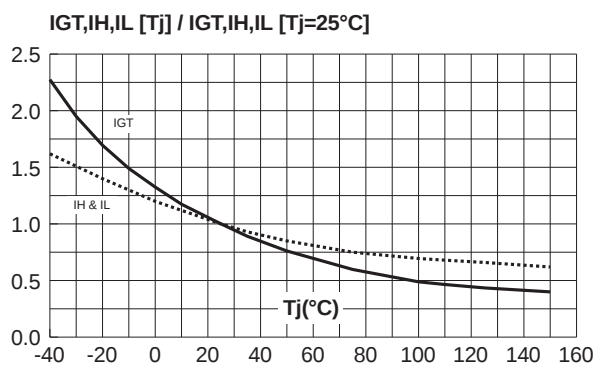


Fig. 6: Surge peak on-state current versus number of cycles.

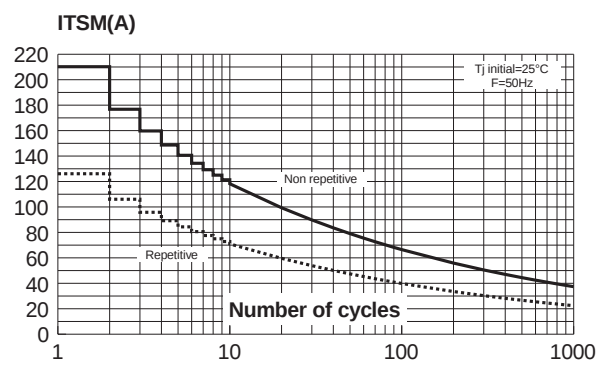


Fig. 7: Non repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I^2t .

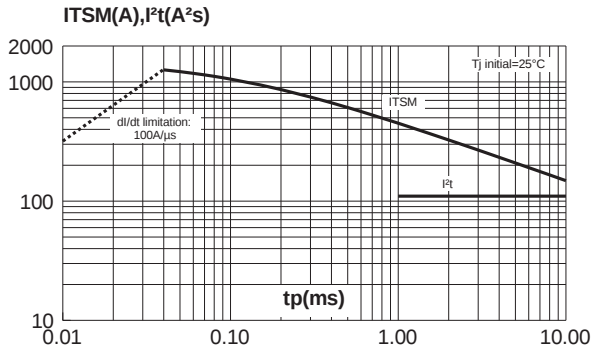


Fig. 8: On-state characteristics (maximum values).

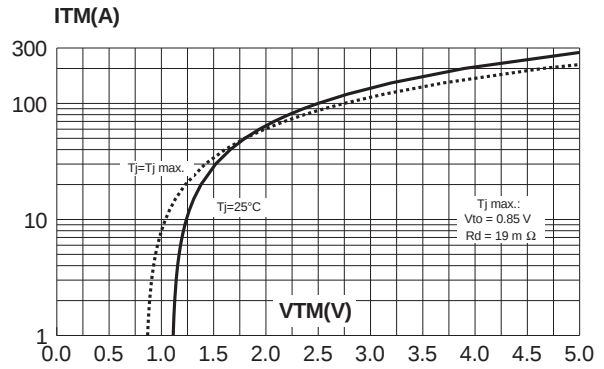


Fig. 9: Relative variation of critical rate of decrease of main current versus junction temperature (typical values).

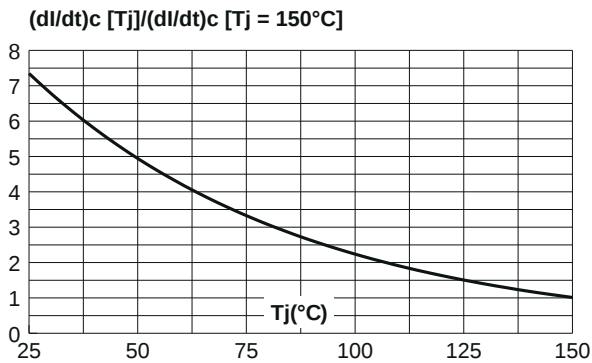


Fig. 10: Typical variation of leakage current versus junction temperature for different values of blocking voltage.

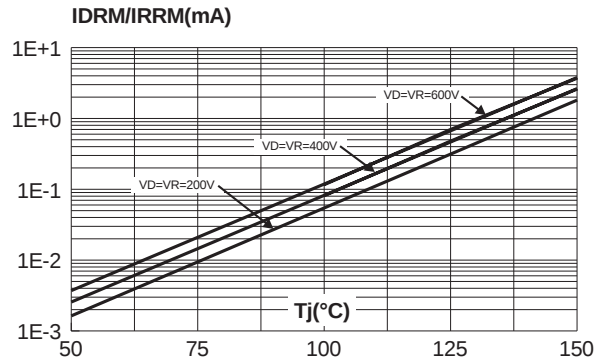
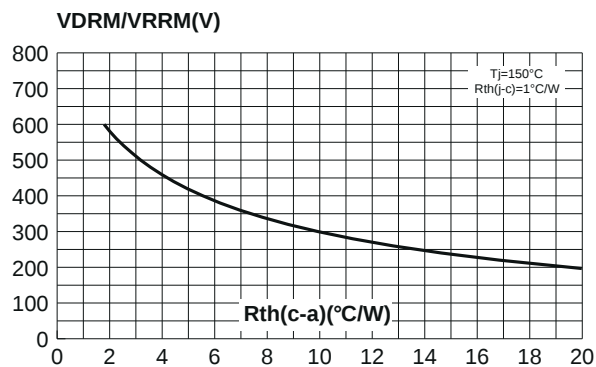


Fig. 11: Acceptable repetitive peak off state voltage versus thermal resistance case-ambient.



PACKAGE MECHANICAL DATA **TO-220 (Plastic)**

REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	15.20		15.90	0.598		0.625
a1		3.75			0.147	
a2	13.00		14.00	0.511		0.551
B	10.00		10.40	0.393		0.409
b1	0.61		0.88	0.024		0.034
b2	1.23		1.32	0.048		0.051
C	4.40		4.60	0.173		0.181
c1	0.49		0.70	0.019		0.027
c2	2.40		2.72	0.094		0.107
e	2.40		2.70	0.094		0.106
F	6.20		6.60	0.244		0.259
I	3.75		3.85	0.147		0.151
I4	15.80	16.40	16.80	0.622	0.646	0.661
L	2.65		2.95	0.104		0.116
I2	1.14		1.70	0.044		0.066
I3	1.14		1.70	0.044		0.066
M		2.60			0.102	

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