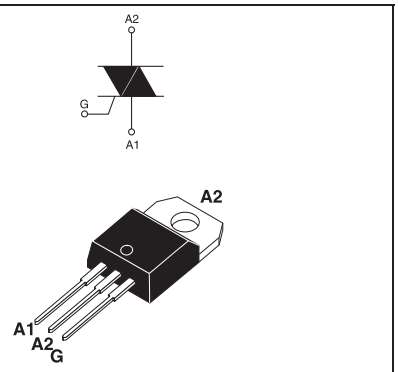
T2550H-600T

SNUBBERLESS™ HIGH TEMPERATURE 25A TRIACs

MAIN FEATURES:

Symbol	Value	Unit
$I_{T(RMS)}$	25	A
V_{DRM}/V_{RRM}	600	V
$I_{GT\ (Q_1)}$	50	mA



TO-220AB

DESCRIPTION

Specifically designed for use in high temperature environment (found in hot appliances such as cookers, ovens, hobs, electric heaters, coffee machines...), the new 25 Amps T25500H triacs provide an enhanced performance in terms of power loss and thermal dissipation. This allows optimization of the heatsinking dimensioning, leading to space and cost effectivness when compared to electro-mechnical solutions.

Based on ST snubberless technology, they offer high commutation switching capabilities and high noise immunity levels. And, thanks to their clip assembly technique, they provide a superior performance in surge current handling.

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter			Value	Unit
$I_{T(RMS)}$	RMS on-state current (full sine wave)		Tc = 125°C	25	A
I_{TSM}	Non repetitive surge peak on-state current (full cycle, Tj initial = 25°C)	F = 60 Hz	t = 16.7 ms	260	A
		F = 50 Hz	t = 20 ms	250	
I^2t	I^2t Value for fusing	tp = 10 ms		340	A^2s
dI/dt	Critical rate of rise of on-state current I_G = 2 x I_{GT} , tr ≤ 100 ns	F = 120 Hz	Tj = 150°C	50	A/µs
V_{DSM}/V_{RSM}	Non repetitive surge peak off-state voltage	tp = 10 ms	Tj = 25°C	700	V
I_{GM}	Peak gate current	tp = 20 µs	Tj = 150°C	4	A
$P_{G(AV)}$	Average gate power dissipation		Tj = 150°C	1	W
T_{stg} T_j	Storage junction temperature range Operating junction temperature range			- 40 to + 150 - 40 to + 150	°C

ELECTRICAL CHARACTERISTICS (Tj = 25°C, unless otherwise specified)

Symbol	Test Conditions	Quadrant		Value	Unit
I_{GT} (1)	V_D = 12 V R_L = 33 Ω	I - II - III	MAX.	50	mA
V_{GT}		I - II - III	MAX.	1.3	V
V_{GD}	$V_D = V_{DRM}$ R_L = 3.3 kΩ Tj = 150°C	I - II - III	MIN.	0.15	V
I_H (2)	I_T = 500 mA		MAX.	75	mA
I_L	$I_G = 1.2\ I_{GT}$	I - II - III	MAX.	90	mA
dV/dt (2)	V_D = 67 % V_{DRM} gate open Tj = 150°C		MIN.	500	V/µs
(dI/dt)c (2)	Without snubber Tj = 150°C		MIN.	11.1	A/ms

STATIC CHARACTERISTICS

Symbol	Test Conditions			Value	Unit
V_{TM} (2)	I_{TM} = 35 A tp = 380 µs	Tj = 25°C	MAX.	1.5	V
V_{to} (2)	Threshold voltage	Tj = 150°C	MAX.	0.80	V
R_d (2)	Dynamic resistance	Tj = 150°C	MAX.	19	mΩ
I_{DRM}	$V_{DRM} = V_{RRM}$	Tj = 25°C	MAX.	5	µA
		Tj = 150°C		8.5	mA
I_{RRM}	V_{DRM} / V_{RRM} = 400 V (at mains peak voltage)	Tj = 150°C		5.5	

Note 1: minimum IGT is guaranted at 10% of IGT max.

Note 2: for both polarities of A2 referenced to A1

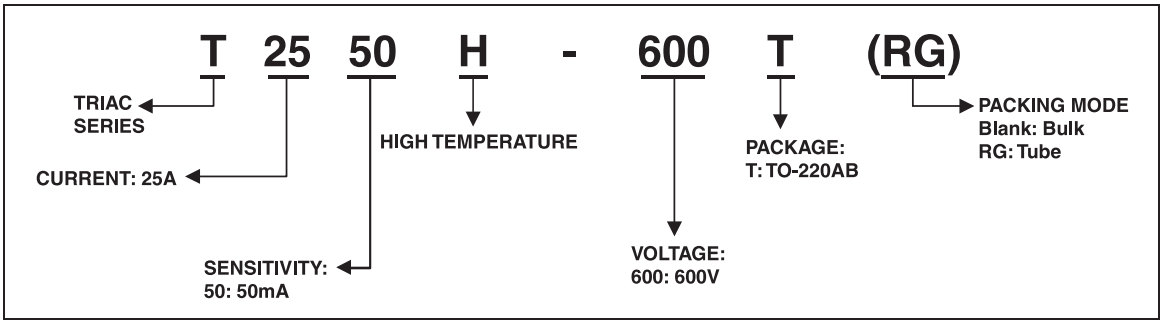
THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction to case (AC)	0.8	°C/W

PRODUCT SELECTOR

Part Number	Voltage	Sensitivity	Type	Package
T2550H-600T	600 V	50 mA	Snubberless	TO-220AB

ORDERING INFORMATION



OTHER INFORMATION

Part Number	Marking	Weight	Base quantity	Packing mode
T2550H-600T	T2550H600T	2.3 g	250	Bulk
T2550H-600TRG	T2550H600T	2.3 g	50	Tube

Fig. 1: Maximum power dissipation versus RMS on-state current (full cycle).

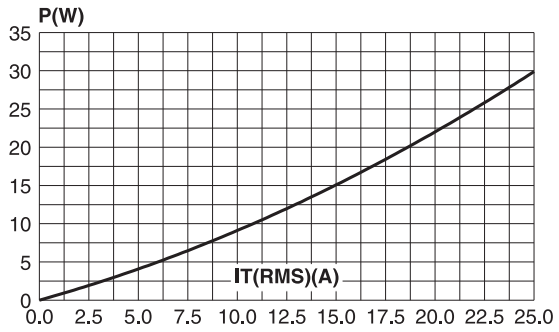


Fig. 2: RMS on-state current versus case temperature (full cycle).

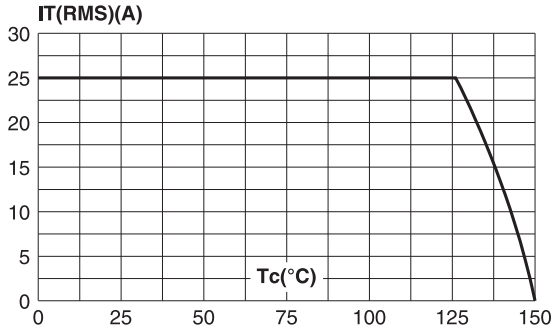


Fig. 3: Relative variation of thermal impedance versus pulse duration.

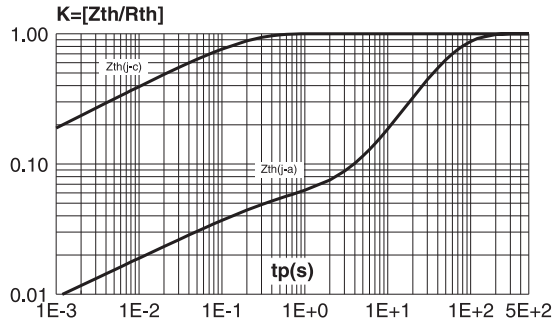


Fig. 4: Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values).

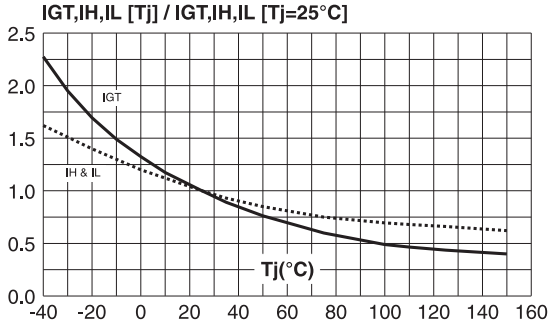


Fig. 5: Surge peak on-state current versus number of cycles.

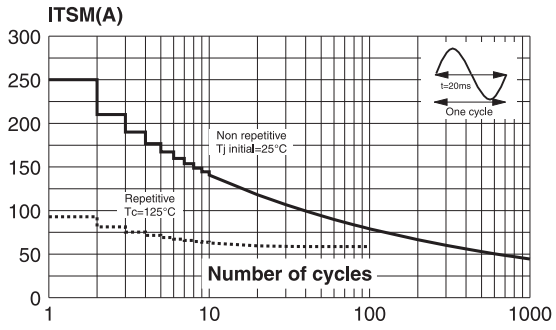


Fig. 6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp < 10ms, and corresponding value of I^2t.

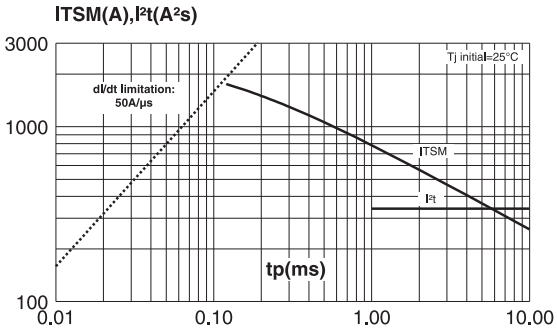


Fig. 7: On-state characteristics (maximum values).

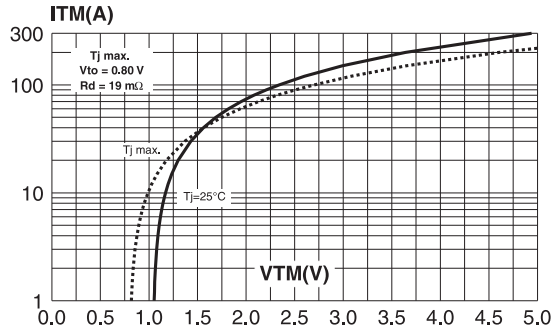


Fig. 8: Relative variation of critical rate of decrease of main current versus junction temperature (typical values).

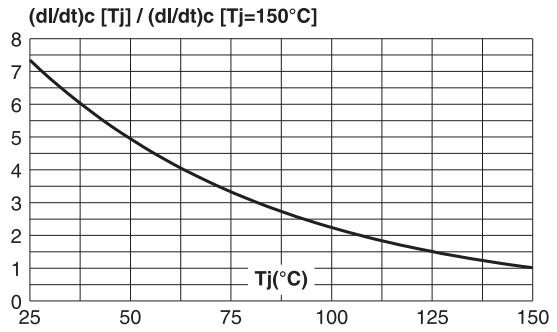


Fig. 9: Relative variation of critical rate of decrease of main current versus (dV/dt)c (typical values).

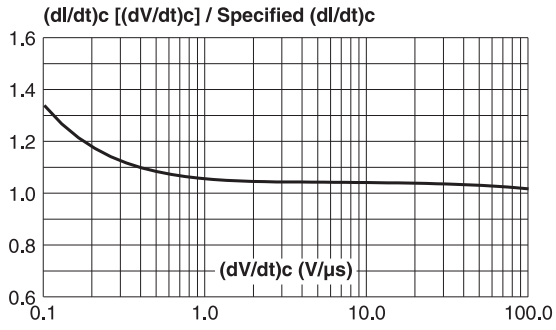


Fig. 10: Leakage current versus junction temperature for different values of blocking voltage (typical values).

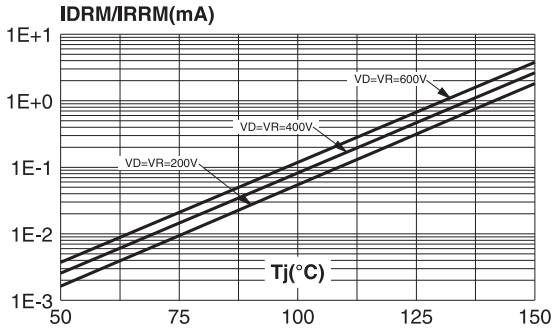
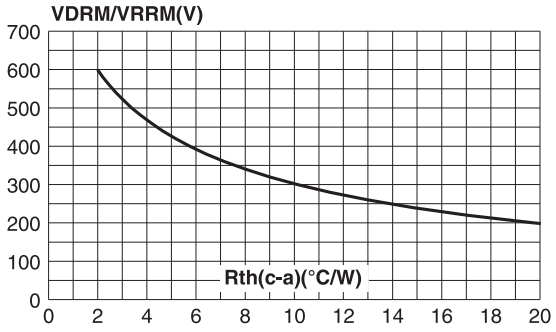
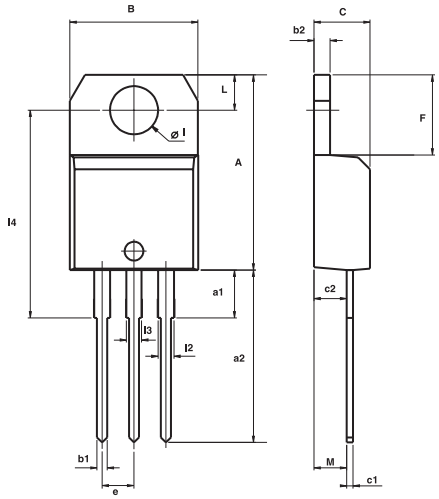


Fig. 11: Acceptable repetitive peak off-state voltage versus case-ambient thermal resistance.



PACKAGE MECHANICAL DATA

TO-220AB (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	