

# JST25 Series 25A TRIACs

## DESCRIPTION:

High current density due to double mesa technology, SIPOS and Glass Passivation.

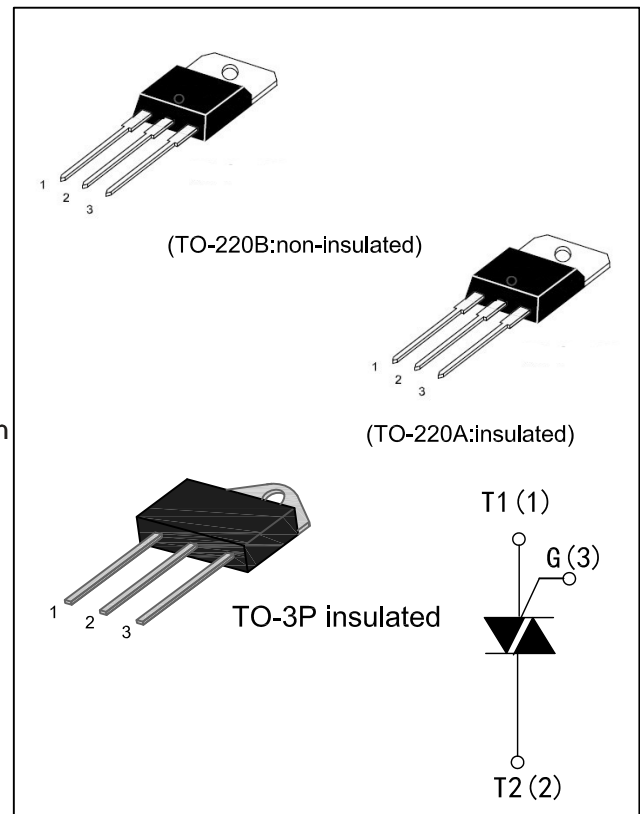
JST25A/JST25B/JST25Z series triacs is suitable for general purpose AC switching, They can be used as an ON/OFF function in applications such as static relays, heating regulation, induction motor starting circuits... or for phase control operation, light dimmers, motor speed controllers.

JST25-CW-BW Series are 3 quadrants triacs, They are specially recommended for use on inductive loads.

JST25A JST25Z series provide a 2500V RMS isolation voltage from all three terminals to external heat sink.

## MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	25	A
$V_{DRM}/V_{RRM}$	600 / 800	V
$V_{TM}$	1.5	V



## ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage junction temperature range		$T_{stg}$	-40 to +150	°C
Operating junction temperature range		$T_j$	-40 to +125	°C
Repetitive Peak Off-state Voltage ( $T_j=25^\circ\text{C}$ ) Repetitive Peak Reverse Voltage ( $T_j=25^\circ\text{C}$ )	JST25x06	$V_{DRM}$ $V_{RRM}$	600	V
	JST25x08		800	
Non repetitive Surge Peak Off-state Voltage ( $t_p=10\text{ms}, T_j=25^\circ\text{C}$ )		$V_{DSM}$	$V_{DRM}+100$	V
Non repetitive Peak Reverse Voltage ( $t_p=10\text{ms}, T_j=25^\circ\text{C}$ )		$V_{RSM}$	$V_{RRM}+100$	
RMS on-state current (full sine wave)	TO-220A $T_c=75^\circ\text{C}$	$I_{T(RMS)}$	25	A
	TO-220B $T_c=100^\circ\text{C}$			
Non repetitive surge peak on-state current (full cycle, $T_j=25^\circ\text{C}$ )	$f=60\text{Hz}, t=16.7\text{ms}$	$I_{TSM}$	260	A
	$f=50\text{Hz}, t=20\text{ms}$		250	
$I^2t$ Value for fusing	$t_p=10\text{ms}$	$I^2t$	340	$\text{A}^2\text{s}$
Critical rate of rise of on-state current ( $I_G=2 \times I_{GT}, t_r \leq 100\text{ns}, f=120\text{Hz}, T_j=125^\circ\text{C}$ )		$di/dt$	50	$\text{A}/\mu\text{s}$
Peak gate current ( $t_p=20\mu\text{s}, T_j=125^\circ\text{C}$ )		$I_{GM}$	4	A
Peak Gate Power Dissipation ( $t_p=20\mu\text{s}, T_j=125^\circ\text{C}$ )		$P_{GM}$	10	W
Average gate power dissipation ( $T_j=125^\circ\text{C}$ )		$P_{G(AV)}$	1	W

ELECTRICAL CHARACTERISTICS(T<sub>j</sub>=25°C unless otherwise specified)

Symbol	Test Condition	Quadrant		Limits		Unit
				CW(C)	BW(B)	
I <sub>GT</sub>	V <sub>D</sub> =12V R <sub>L</sub> =33Ω	I-II-III	MAX.	35	50	mA
V <sub>GT</sub>		I-II-III	MAX.	1.3		V
V <sub>GD</sub>	V <sub>D</sub> =V <sub>DRM</sub> R <sub>L</sub> =3.3KΩ T <sub>j</sub> =125°C	I-II-III	MIN.	0.2		V
I <sub>L</sub>	I <sub>G</sub> =1.2I <sub>GT</sub>	I-III	MAX.	70	80	mA
		II	MAX.	80	100	mA
I <sub>H</sub>	I <sub>T</sub> =100mA		MAX.	50	75	mA
dV/dt	V <sub>D</sub> =67%V <sub>DRM</sub> gate open T <sub>j</sub> =125°C		MIN.	500	1000	V/μs
(di/dt) <sub>c</sub>	Without snubber T <sub>j</sub> =125°C		MIN.	13	22	A/ms

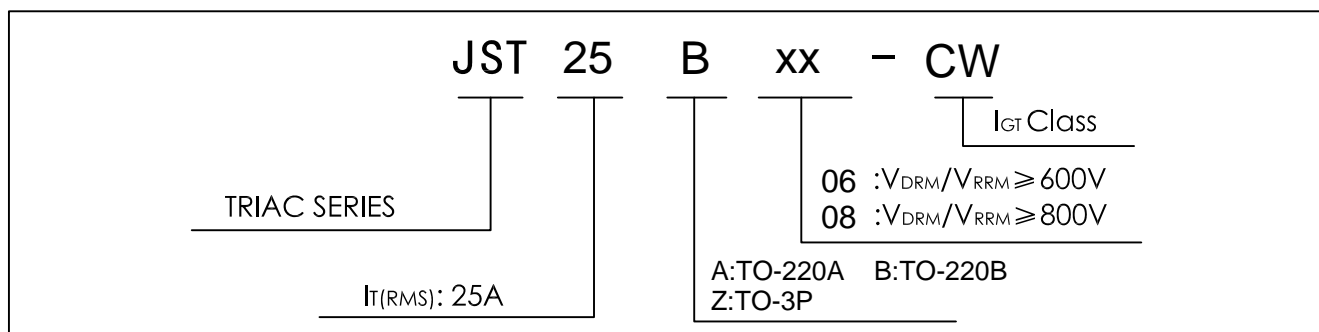
STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V <sub>TM</sub>	I <sub>TM</sub> =35A, t <sub>p</sub> =380μs	T <sub>j</sub> =25°C	1.5	V
I <sub>DRM</sub> I <sub>RRM</sub>	V <sub>D</sub> =V <sub>DRM</sub> V <sub>R</sub> =V <sub>RRM</sub>	T <sub>j</sub> =25°C	5	μA
		T <sub>j</sub> =125°C	3	mA

THERMAL RESISTANCES

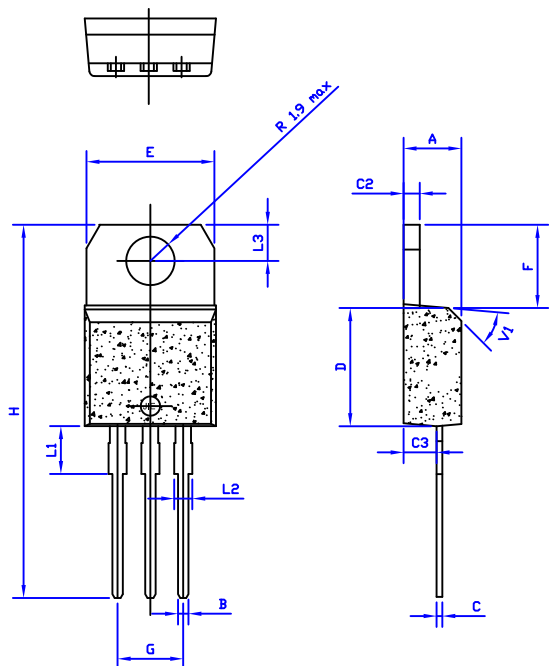
Symbol	Parameter		Value	Unit
R <sub>th(j-c)</sub>	Junction to Case(AC)	TO-220A	1.7	°C/W
		TO-220B	0.8	
R <sub>th(j-a)</sub>	Junction to ambient (S=1cm <sup>2</sup> )	TO-220A	60	°C/W
		TO-220B	60	

ORDERING INFORMATION



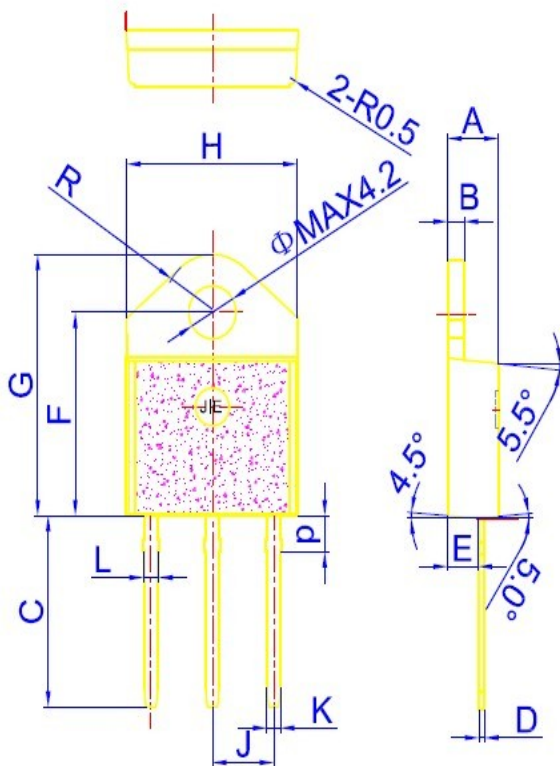
PACKAGE MECHANICAL DATA

TO-220A insulated package and TO-220B non-insulated package



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.4		4.6	0.173		1.181
B	0.61		0.88	0.024		0.034
C	0.46		0.70	0.018		0.027
C2	1.23		1.32	0.048		0.051
C3	2.4		2.72	0.094		0.107
D	8.6		9.7	0.338		0.382
E	9.8		10.4	0.386		0.409
F	6.2		6.6	0.244		0.259
G	4.8		5.4	0.189		0.213
H	28.0		29.8	11.0		11.7
L1		3.75			0.147	
L2	1.14		1.7	0.044		0.066
L3	2.65		2.95	0.104		0.116
V1		40°			40°	

TO-3P



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.4		4.6	0.173		0.181
B	1.45		1.55	0.057		0.061
C	14.35		15.6	0.565		0.614
D	0.5		0.7	0.020		0.028
E	2.7		2.9	0.106		0.114
F	15.8		16.5	0.622		0.650
G	20.4		21.1	0.815		0.831
H	15.1		15.5	0.594		0.610
J	5.4		5.65	0.213		0.222
K	1.2		1.4	0.047		0.055
L	1.35		1.50	0.053		0.059
P	2.8		3.0	0.110		0.118
R		4.6			0.181	

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

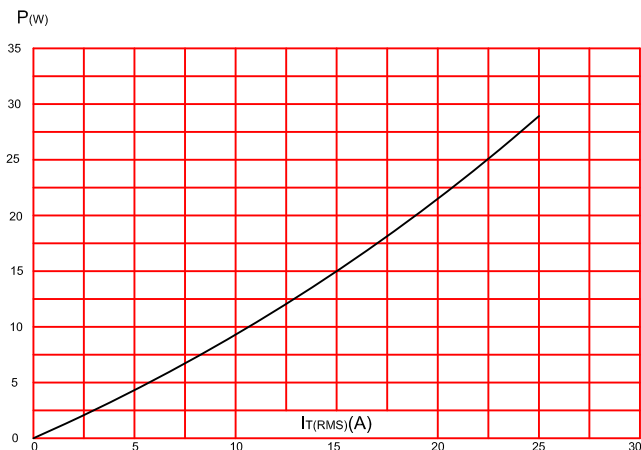


FIG.2:RMS on-state current versus case temperature(full cycle)

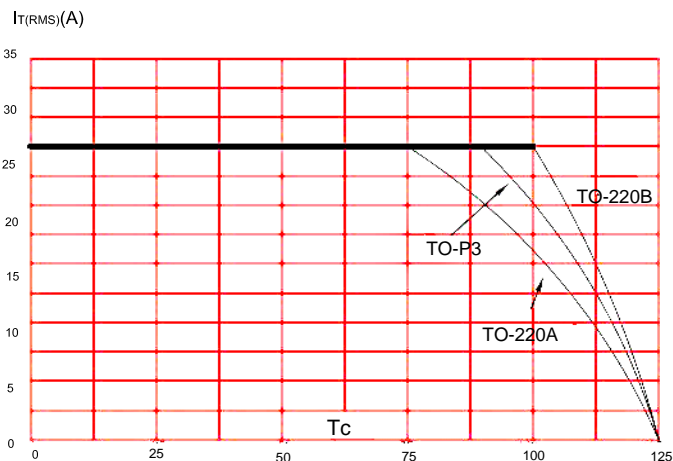


FIG.3:On-state characteristics (maximum values).

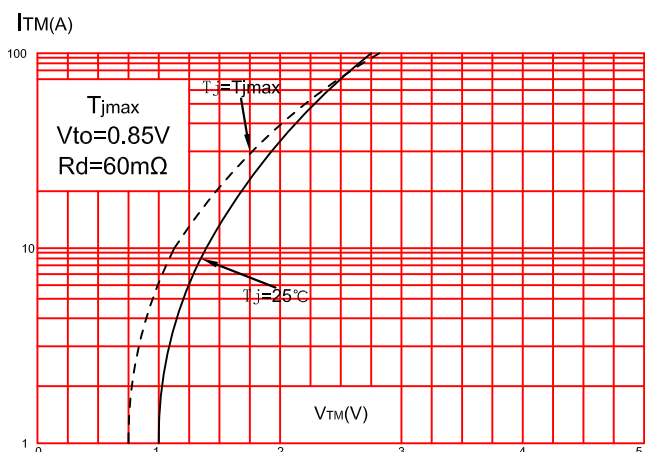


FIG.4:Surge peak on-state current versus number of cycles.

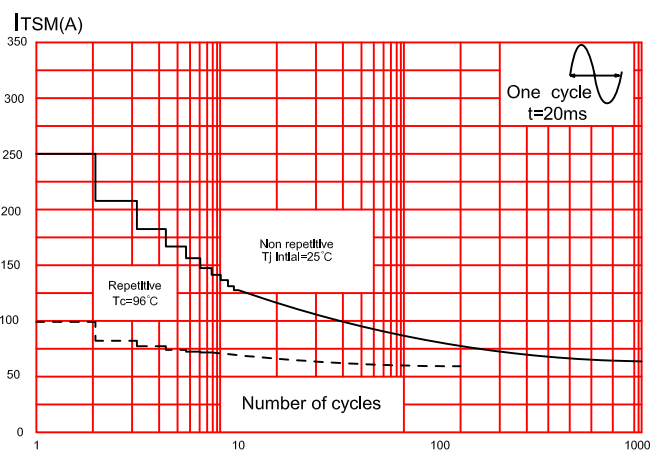


FIG.5:Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10ms$ , and corresponding value of  $I^2t$ .

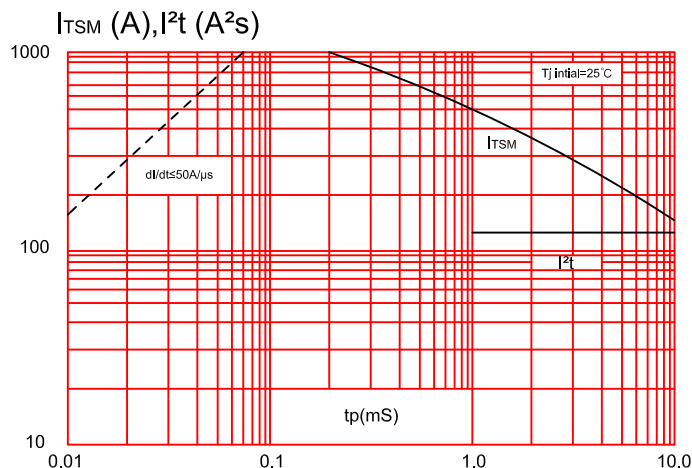


FIG.6:Relative variations of gate trigger current, holding current and latching current versus junction temperature(typical values)

