

JST25T Series 25A TRIACs

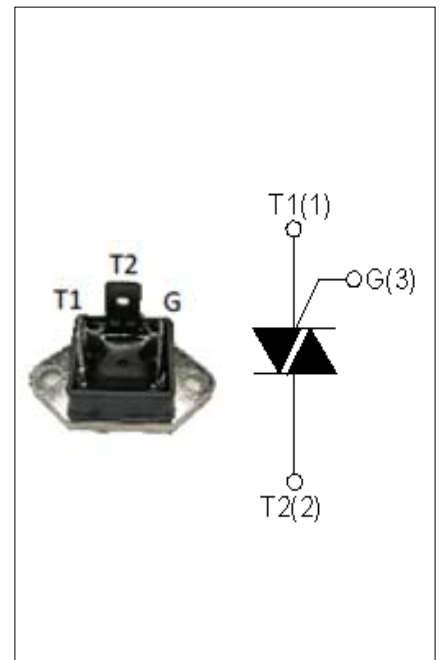
Rev.4.1 Sept.27 2019

DESCRIPTION:

JST25T series triacs, with high ability to withstand the shock loading of large current, provide high dv/dt rate with strong resistance to electromagnetic interface. With high commutation performances, 3 quadrants products especially recommended for use on inductive load.

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	25	A
V_{ISO}	2500	V
V_{DRM}/V_{RRM}	600 and 800 and 1200 and 1600	V



ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage temperature range		T_{stg}	-40-150	°C
Operating junction temperature range		T_j	-40-125	°C
Repetitive peak off-state voltage ($T_j=25^{\circ}C$)		V_{DRM}	600 /800/1200/1600	V
Repetitive peak reverse voltage ($T_j=25^{\circ}C$)		V_{RRM}	600 /800/1200/1600	V
Non repetitive surge peak off-state voltage		V_{DSM}	$V_{DRM} + 100$	V
Non repetitive peak reverse voltage		V_{RSM}	$V_{RRM} + 100$	V
RMS on-state current	TG-C ($T_c=90^{\circ}C$)	$I_{T(RMS)}$	25	A
Non repetitive surge peak on-state current (full cycle, F=50Hz)		I_{TSM}	250	A
I^2t value for fusing ($t_p=10ms$)		I^2t	500	A ² s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$)		di/dt	50	A/ μ s
Peak gate current		I_{GM}	4	A
Average gate power dissipation		$P_{G(AV)}$	1	W
Peak gate power		P_{GM}	10	W
Insulation voltage (A.C,F=50Hz,1min)		V_{ISO}	2500	V

ELECTRICAL CHARACTERISTICS ($T_J=25^{\circ}\text{C}$ unless otherwise specified)

3 Quadrants

Symbol	Test Condition	Quadrant		Value	Unit
I_{GT}	$V_D=12\text{V } R_L=33\Omega$	I - II -III	MAX	50	mA
V_{GT}		I - II -III	MAX	1.3	V
V_{GD}	$V_D=V_{DRM} T_J=125^{\circ}\text{C}$ $R_L=3.3\text{K}\Omega$	I - II -III	MIN	0.2	V
I_L	$I_G=1.2I_{GT}$	I -III	MAX	80	mA
		II		100	
I_H	$I_T=100\text{mA}$		MAX	75	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_J=125^{\circ}\text{C}$		MIN	1000	V/ μs
$(dV/dt)_c$	Without snubber, $T_J=125^{\circ}\text{C}$		MIN	20	V/ μs

4 Quadrants

Symbol	Test Condition	Quadrant		Value	Unit
I_{GT}	$V_D=12\text{V } R_L=33\Omega$	I - II -III	MAX	50	mA
		IV		70	
V_{GT}		ALL	MAX	1.5	V
V_{GD}	$V_D=V_{DRM} T_J=125^{\circ}\text{C}$ $R_L=3.3\text{K}\Omega$	ALL	MIN	0.2	V
I_L	$I_G=1.2I_{GT}$	I -III-IV	MAX	90	mA
		II		100	
I_H	$I_T=100\text{mA}$		MAX	80	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_J=125^{\circ}\text{C}$		MIN	500	V/ μs
$(dV/dt)_c$	Without snubber, $T_J=125^{\circ}\text{C}$		MIN	30	V/ μs

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
V_{TM}	$I_{TM}=35A$ $t_P=380\mu s$	$T_j=25^{\circ}C$	1.55	V
V_{TO}	Threshold voltage	$T_j=125^{\circ}C$	0.85	V
R_d	Dynamic resistance	$T_j=125^{\circ}C$	11.4	mΩ
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^{\circ}C$	10	μA
I_{RRM}		$T_j=125^{\circ}C$	5	mA

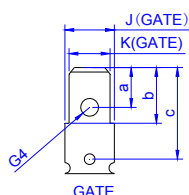
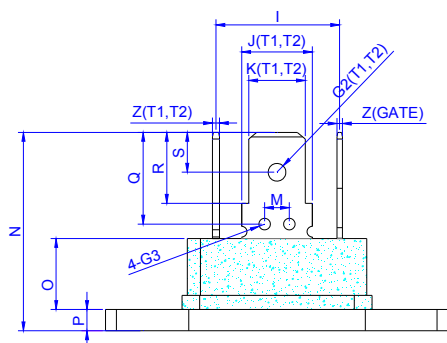
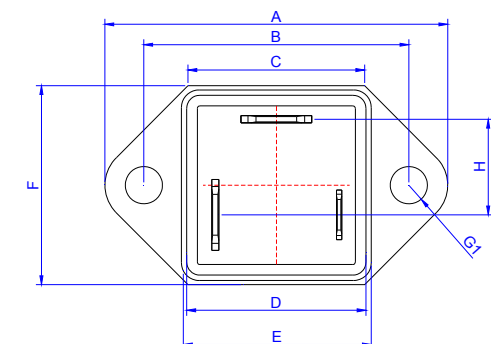
THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TG-C	1.55	°C/W
$R_{th(j-a)}$	junction to ambient(AC)	TG-C	7.0	°C/W
	Mounting torque(M4) Recommended value 1.0~1.4(10~14)		1.5(15)	N·m

ORDERING INFORMATION

JieJie Microelectronics Co.,Ltd JieJie Semiconductor Co.,Ltd	J	ST	25	T	-600	BW
	Triacs	$I_{T(RMS)}:25A$	T:TG-C			BW: $I_{GT1-3} \leq 50mA$ B: $I_{GT1-3} \leq 50mA$ $I_{GT4} \leq 70mA$ 600: $V_{DRM}/V_{RRM} \geq 600V$ 800: $V_{DRM}/V_{RRM} \geq 800V$ 1200: $V_{DRM}/V_{RRM} \geq 1200V$ 1600: $V_{DRM}/V_{RRM} \geq 1600V$

PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			39.2			1.543
B	29.8	30.0	30.2	1.173	1.181	1.189
C			20.2			0.795
D			20.5			0.807
E			21.6			0.85
F			23			0.905
G1	Φ4.1	Φ4.2	Φ4.3	Φ0.161	Φ0.165	Φ0.169
H		10.3			0.406	
I		13.9			0.547	
J(T1,T2)		8			0.315	
K(T1,T2)		6.4			0.252	
M	2.7	3.0	3.3	0.106	0.118	0.130
N			22.8			0.898
O		8.2			0.323	
P		2.5			0.098	
Q	9.45	9.75	10.1	0.374	0.383	0.398
R	7.8	7.95	8.1	0.307	0.313	0.319
S	4.3	4.5	4.7	0.169	0.177	0.185
Z(T1,T2)	0.78	0.8	0.85	0.0307	0.0315	0.0335
G2(T1,T2)		Φ2	Φ2.2		Φ0.079	Φ0.087
G3	Φ1.1	Φ1.3	Φ1.5	Φ0.043	Φ0.051	Φ0.059
G4		Φ1.55	Φ1.75		Φ0.061	Φ0.069
a	2.95	3.15	3.35	0.116	0.124	0.132
b	6.2	6.35	6.5	0.244	0.25	0.256
c	9.35	9.75	10	0.368	0.384	0.393
Z(GATE)	0.58	0.6	0.65	0.0228	0.0236	0.0256
J(GATE)		5.6			0.221	
K(GATE)		4.65			0.183	

PACKAGE INFORMATION-TG-C

OUTLINE	UNIT WEIGHT (g/PCS) typ.	INNER BOX (PCS)	PER CARTON (PCS)	PER CARTON WEIGHT(Kg)	PER CARTON SIZE(cm)
BOX	21.5	80	720	18	53×37.5×27

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

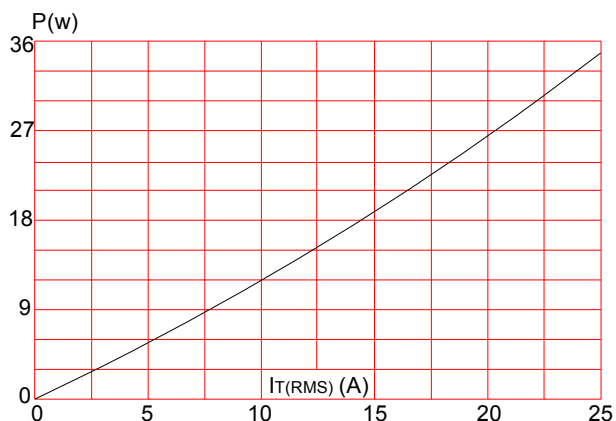


FIG.3: Surge peak on-state current versus number of cycles

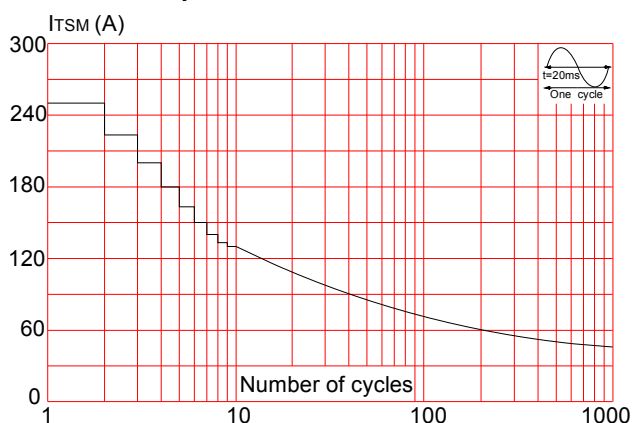


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I^2t ($di/dt < 50\text{A}/\mu\text{s}$)

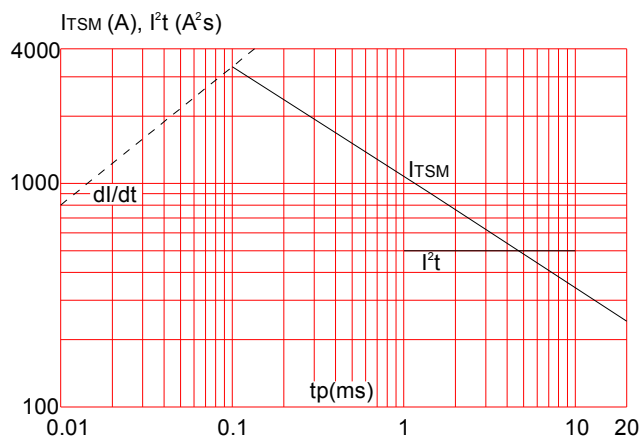


FIG.2: RMS on-state current versus case temperature

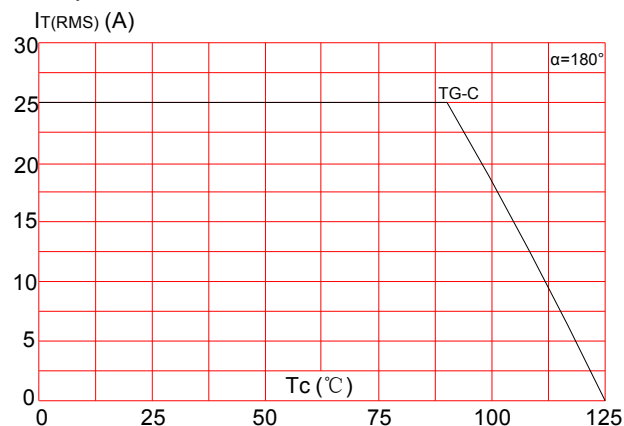


FIG.4: On-state characteristics (maximum values)

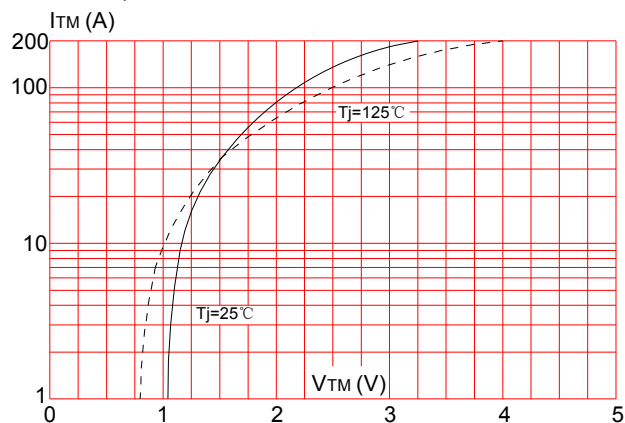
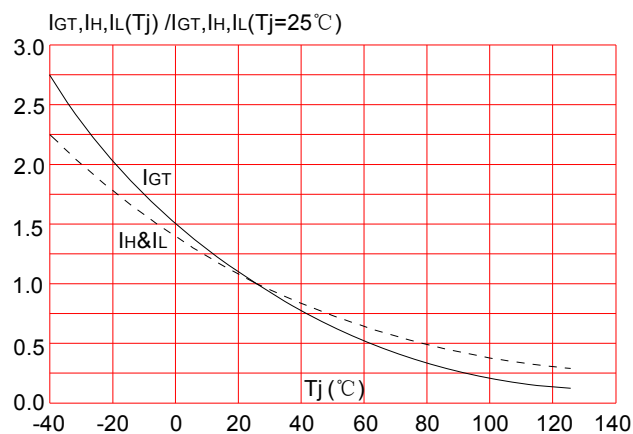


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



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