

**JST41TE Series 41A TRIACs**

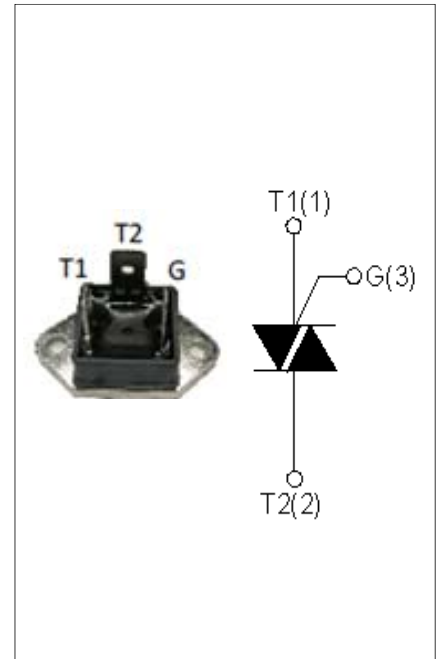
Rev.1.1 June 19 2023

**DESCRIPTION:**

JST41TE series triacs, with high ability to withstand the shock loading of large current, provide high dv/dt rate with strong resistance to electromagnetic interference. With high commutation performances, 3 quadrants products especially recommended for use on inductive load.

**MAIN FEATURES**

Symbol	Value	Unit
$I_{T(RMS)}$	41	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 ( $T_c=90^{\circ}C$ )	$I_{T(RMS)}$	41
Non repetitive surge peak on-state current (full cycle, F=50Hz)	$I_{TSM}$	400	A
$I^2t$ value for fusing ( $t_p=10ms$ )	$I^2t$	880	$A^2s$
Critical rate of rise of on-state current ( $I_G = 2 \times I_{GT}$ )	$di/dt$	50	$A/\mu s$
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	60	mA
dv/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=125^\circ\text{C}$		MIN	1000	V/ $\mu\text{s}$
(dv/dt)c	Without snubber $T_j=125^\circ\text{C}$		MIN	20	V/ $\mu\text{s}$

**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/ $\mu\text{s}$
(dv/dt)c	Without snubber $T_j=125^\circ\text{C}$		MIN	30	V/ $\mu\text{s}$

## STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
$V_{TM}$	$I_{TM} = 60A$ $t_P = 380\mu s$	$T_j = 25^\circ C$	1.55	V
$V_{TO}$	Threshold voltage	$T_j = 125^\circ C$	0.85	V
$R_d$	Dynamic resistance	$T_j = 125^\circ C$	9	m $\Omega$
$I_{DRM}$	$V_D = V_{DRM}$ $V_R = V_{RRM}$	$T_j = 25^\circ C$	10	$\mu A$
$I_{RRM}$		$T_j = 125^\circ C$	5	mA

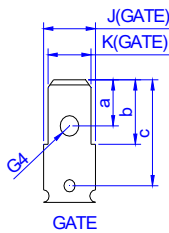
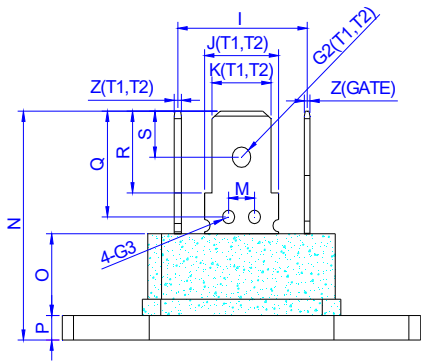
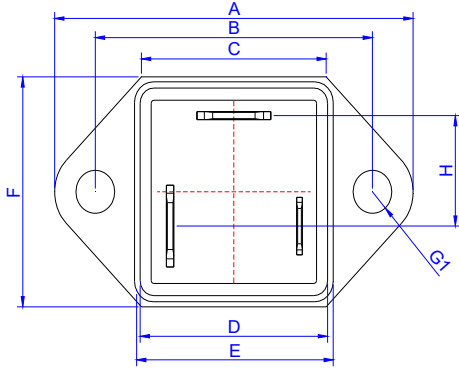
## THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TG-C	1.45	$^\circ C/W$
	Mounting torque(M4) Recommended value 1.0~1.4		1.5(Max)	N·m

## ORDERING INFORMATION

JieJie Microelectronics Co., Ltd JieJie Semiconductor Co., Ltd	<b>J</b> Triacs $I_{T(RMS)}: 41A$	<b>ST</b> T: TG-C	<b>41</b>	<b>T</b>	<b>E</b> Gate electrode thickness: 0.8mm	<b>-600</b>	<b>BW</b> 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: $V_{DRM}/V_{RRM} \geq 1600V$
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**PACKAGE MECHANICAL DATA**

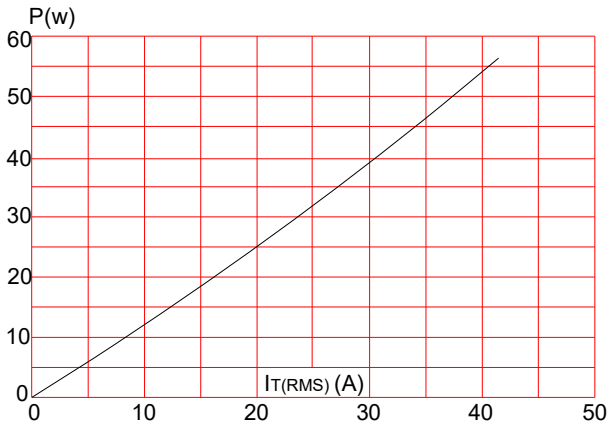


Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			39.2			1.543
B	29.8	30.0	30.2	1.173	1.181	1.189
C			20.2			0.795
D			20.5			0.807
E			21.6			0.85
F			23			0.906
G1	Φ4.1	Φ4.2	Φ4.3	Φ0.161	Φ0.165	Φ0.169
H		10.3			0.406	
I		13.9			0.547	
J(T1,T2)		8			0.315	
K(T1,T2)		6.4			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	0.372	0.384	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)		0.8			0.032	
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	9.45	9.75	10.1	0.372	0.384	0.398
Z(GATE)		0.8			0.0315	
J(GATE)		5.6			0.220	
K(GATE)		4.65			0.183	

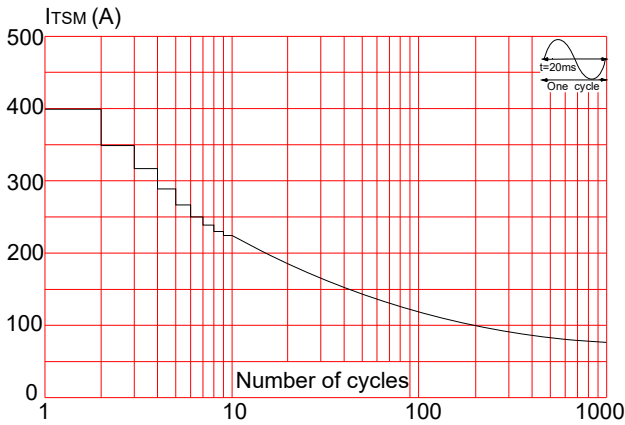
**PACKAGE INFORMATION TG-C**

OUTLINE	UNIT WEIGHT (g/PCS) typ.	TUBE (PCS)	INNER BOX (PCS)	PER CARTON (PCS)	PER CARTON WEIGHT(Kg)	PER CARTON SIZE(cm)
BOX	22	10	100	500	15	46x26.5x18

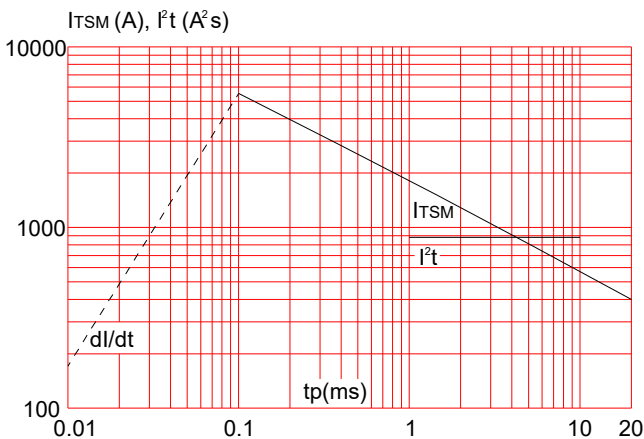
**FIG.1** Maximum power dissipation versus RMS on-state current



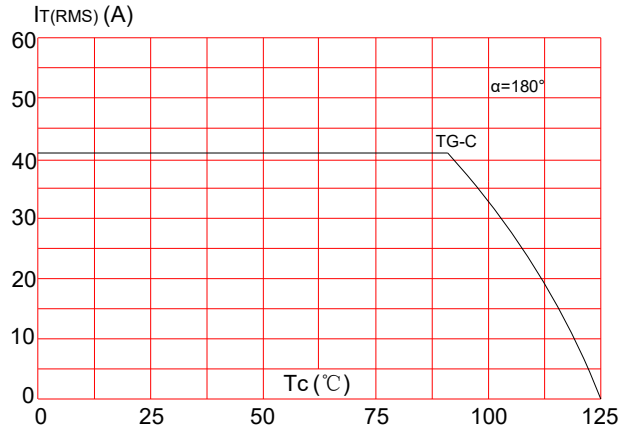
**FIG.3:** Surge peak on-state current versus number of cycles



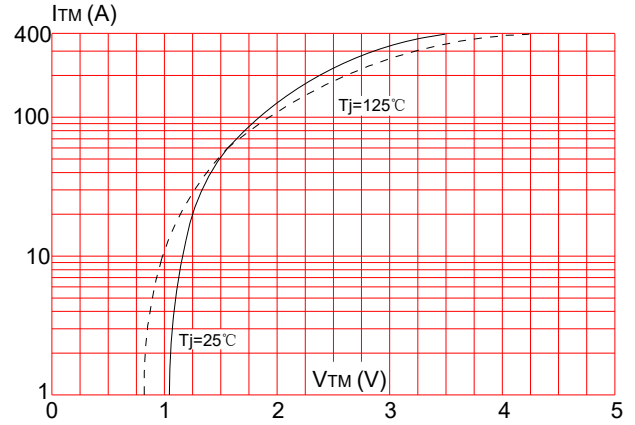
**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 20\text{ms}$ , and corresponding value of  $I^2t(dI/dt < 50\text{A}/\mu\text{s})$



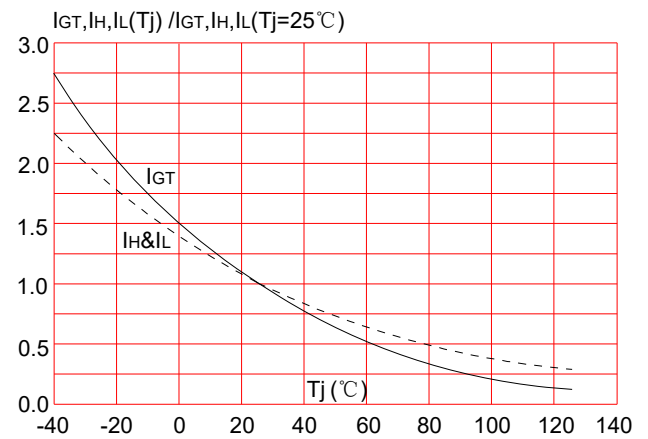
**FIG.2:** RMS on-state current versus case temperature



**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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