



## JST41 Series 40A TRIACs

Rev.4.0

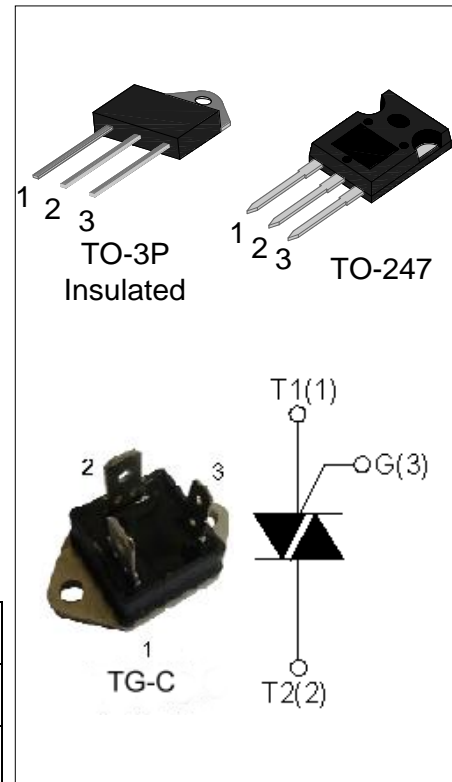
### DESCRIPTION:

JST41 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.

JST41Z provides insulation voltage rated at 2500V RMS from all three terminals to external heatsink complying with UL standards (File ref: E252906).

### MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	40	A
$V_{DRM}/V_{RRM}$	600 and 800 and 1200 and 1600	V



### ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage junction temperature range		$T_{stg}$	-40-150	°C
Operating junction temperature range		$T_j$	-40-125	°C
Repetitive peak off-state voltage ( $T_j=25^\circ\text{C}$ )		$V_{DRM}$	600/800/1200/1600	V
Repetitive peak reverse voltage ( $T_j=25^\circ\text{C}$ )		$V_{RRM}$	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	TO-3P(Ins) ( $T_C=80^\circ\text{C}$ )	$I_{T(RMS)}$	40	A
	TO-247/ TG-C ( $T_C=90^\circ\text{C}$ )			
Non repetitive surge peak on-state current (full cycle, $F=50\text{Hz}$ )		$I_{TSM}$	400	A
$I^2t$ value for fusing ( $t_p=10\text{ms}$ )		$I^2t$	880	$\text{A}^2\text{s}$
Critical rate of rise of on-state current ( $I_G=2 \times I_{GT}$ )		$di/dt$	50	$\text{A}/\mu\text{s}$

Peak gate current	$I_{GM}$	4	A
Average gate power dissipation	$P_{G(AV)}$	1	W
Peak gate power	$P_{GM}$	10	W

**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
$I_{DRM}$	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^\circ C$	10	$\mu A$
$I_{RRM}$		$T_j=125^\circ C$	5	mA

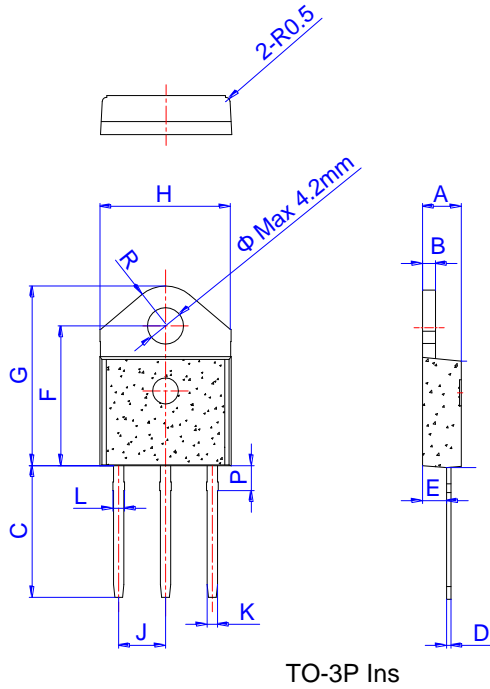
**THERMAL RESISTANCES**

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TO-3P(Ins)	0.9	$^\circ C/W$
		TO-247/ TG-C	0.8	

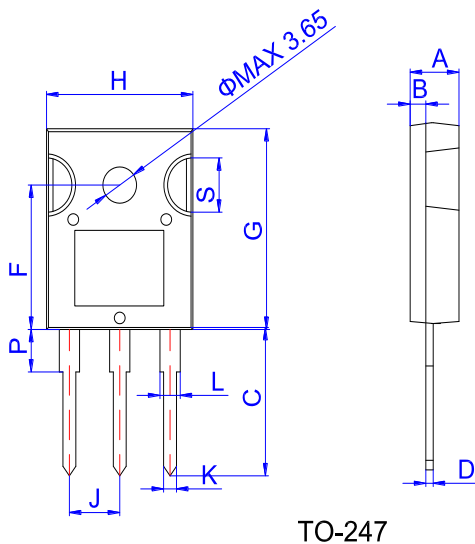
**ORDERING INFORMATION**

JieJie Microelectronics Co.,Ltd	<b>J</b> Triacs $I_{T(RMS)}:40A$	<b>ST</b>	<b>41</b>	<b>Z</b> Z:TO-3P(Ins) S:TO-247 T:TG-C	<b>-600</b>	<b>BW</b> BW: $I_{GT3}\leq 50mA$ 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

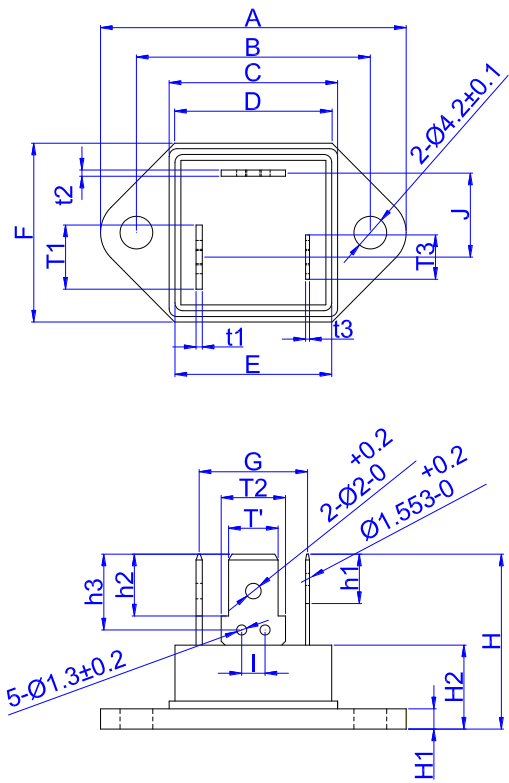


Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	1.45		1.55	0.057		0.061
C	14.35		15.60	0.565		0.614
D	0.50		0.70	0.020		0.028
E	2.70		2.90	0.106		0.114
F	15.80		16.50	0.622		0.650
G	20.40		21.10	0.803		0.831
H	15.10		15.50	0.594		0.610
J	5.40		5.65	0.213		0.222
K	1.10		1.40	0.043		0.055
L	1.35		1.50	0.053		0.059
P	2.80		3.00	0.110		0.118
R		4.35			0.171	



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.9		5.4	0.193		0.213
B	1.6		2.0	0.063		0.079
C	14.35		15.4	0.565		0.606
D	0.5		0.8	0.020		0.031
F	14.4		15.1	0.567		0.594
G	19.7		20.6	0.775		0.811
H	15.4		16.2	0.606		0.638
J	5.3		5.6	0.209		0.220
K	1.3		1.5	0.051		0.059
L	2.8		3.3	0.110		0.130
P	3.7		4.2	0.146		0.165
S	5.35		5.65	0.211		0.222

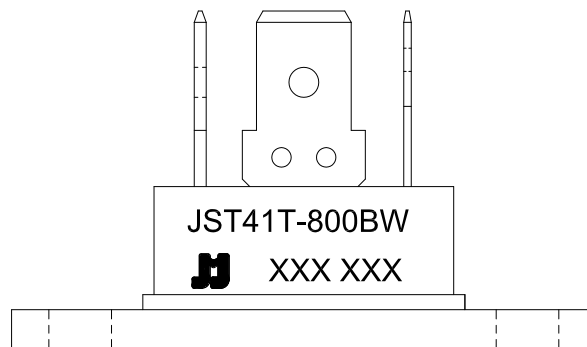
PACKAGE MECHANICAL DATA



TG-C

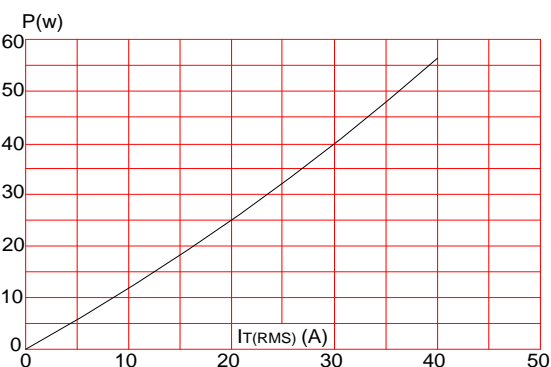
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			39.2			1.543
B	29.8	30.0	30.2	1.173	1.181	1.189
C			21.6			0.85
D			20.2			0.795
E			20.5			0.791
F			23			0.906
T1、T2		8.10			0.318	
T3		5.65			0.222	
T'		6.35			0.25	
t1、t2		0.8			0.031	
t3		0.6			0.023	
G		13.9			0.547	
H1		2.6			0.102	
H2		10.8			0.425	
H			22.8			0.886
h1	6.2	6.35	6.5	0.244	0.25	0.256
h2	7.8	7.95	8.1	0.307	0.313	0.319
h3	9.45	9.75	10.05	0.372	0.384	0.396
I	2.7	3.0	3.3	0.106	0.118	0.130
J		10.8			0.425	

MARKING

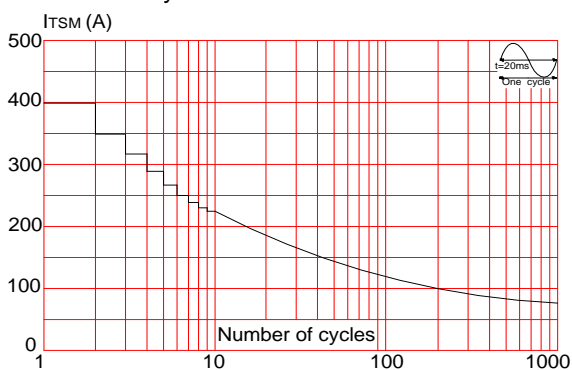


TG-C marking

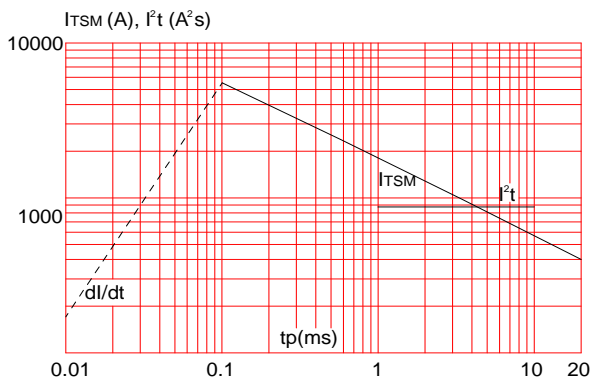
**FIG.1** Maximum power dissipation versus RMS on-state current



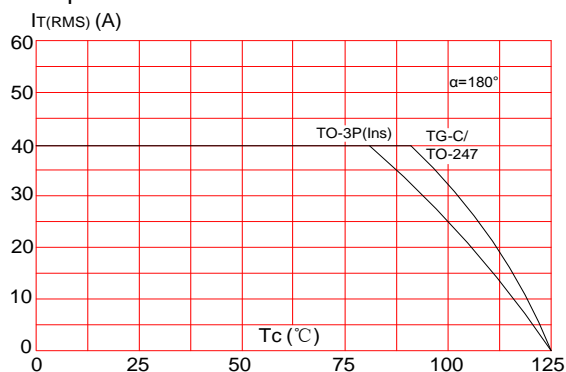
**FIG.3:** Surge peak on-state current versus number of cycles



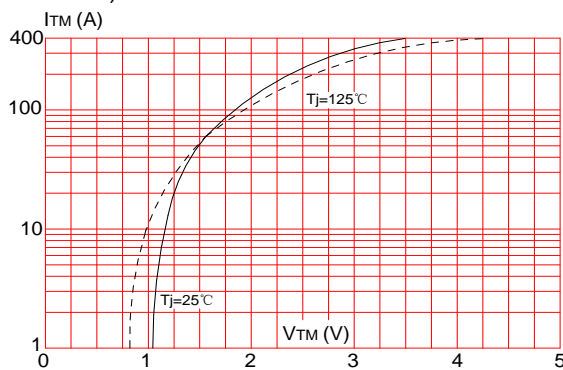
**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 20\text{ms}$ , and corresponding value of  $I^2t$  ( $di/dt < 50\text{A}/\mu\text{s}$ )



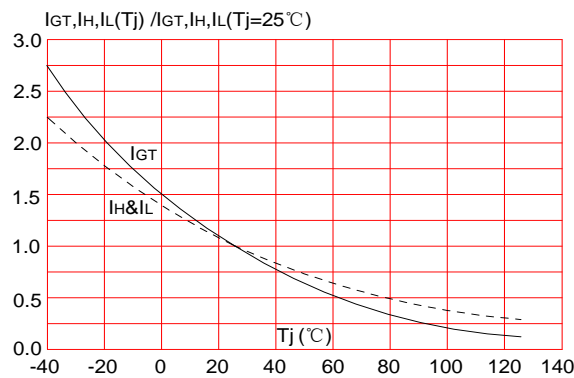
**FIG.2:** RMS on-state current versus case temperature




**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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