



JST41 Series 40A TRIACs

Rev.13.0

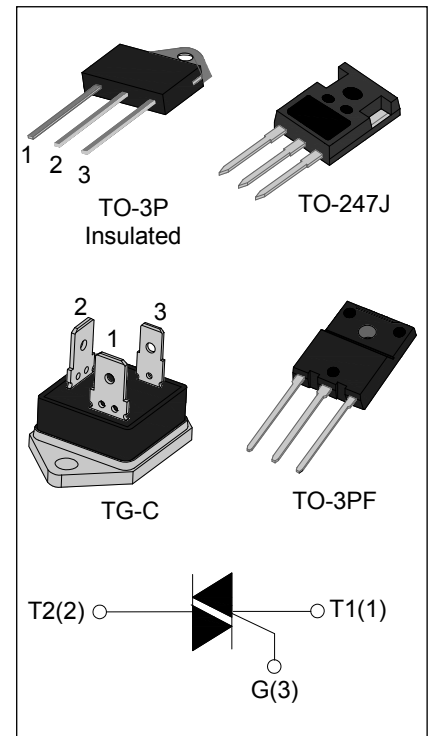
DESCRIPTION:

With high ability to withstand the shock loading of large current, JST41 series triacs 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.

From all three terminals to external heatsink, JST41Z provides a rated insulation voltage of 2500 V_{RMS}, complying with UL standards (File ref: E252906).

MAIN FEATURES

Symbol	Value	Unit
I _{T(RMS)}	40	A
V _{DRM} / V _{RRM}	600/800/1200/1600	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°C)	V _{DRM}	600/800/1200/1600	V
Repetitive peak reverse voltage (T _j =25°C)	V _{RRM}	600/800/1200/1600	V
RMS on-state current	TO-3P(Ins)/ TO-3PF (T _c =60°C)	40	A
	TG-C (T _c =85°C)		
	TO-247J (T _c =75°C)		
Non repetitive surge peak on-state current (full cycle, F=50Hz)	I _{TSM}	400	A
I ² t value for fusing (tp=10ms)	I ² t	880	A ² s
Critical rate of rise of on-state current (I _G = 2 × I _{GT})	dI/dt	50	A/μs
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
				GW	BW	CW	TW	
I_{GT}	$V_D=12\text{V } R_L=33\Omega$	I - II -III	MAX	70	50	35	5	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	100	80	70	20	mA
		II		150	100	80	35	
I_H	$I_T=100\text{mA}$		MAX	80	60	50	15	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=125^{\circ}\text{C}$		MIN	1500	1500	1000	100	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	1.3	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	1000	V/ μs

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
V_{TM}	$I_{TM} = 60A$ $t_p = 380\mu s$	$T_j = 25^\circ C$	1.5	V
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

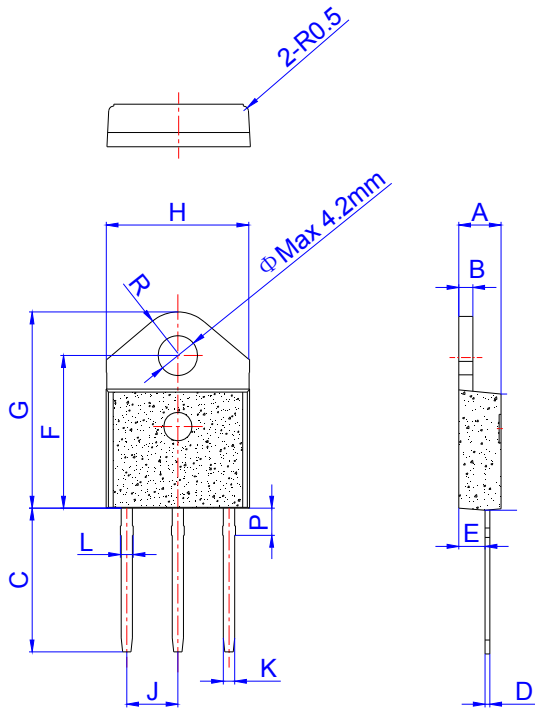
THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TO-3P(Ins)	1.1	$^\circ C/W$
		TO-3PF	1.13	
		TG-C	0.65	
		TO-247J	0.9	

ORDERING INFORMATION

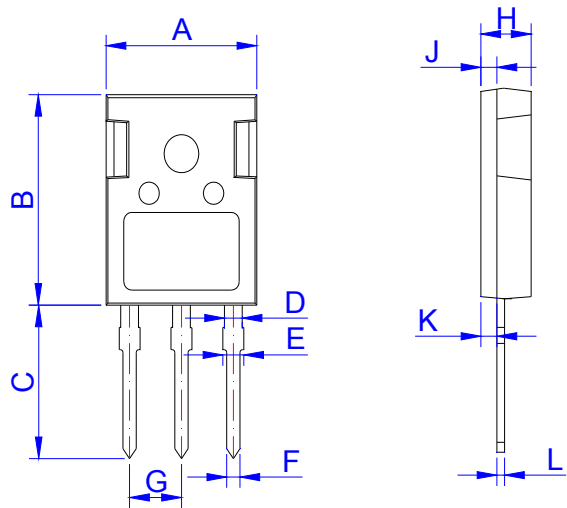
<p>JieJie Microelectronics Co.,Ltd</p>	<p>J</p> <p>Triacs</p> <p>$I_{T(RMS)}: 40A$</p> <p>SJ:TO-247J T:TG-C</p> <p>Z:TO-3P(Ins) UF:TO-3PF</p>	<p>ST</p>	<p>41</p>	<p>Z</p>	<p>-600</p> <p>600:$V_{DRM} V_{RRM} \geq 600V$</p> <p>800:$V_{DRM} V_{RRM} \geq 800V$</p> <p>1200:$V_{DRM} V_{RRM} \geq 1200V$</p> <p>1600:$V_{DRM} V_{RRM} \geq 1600V$</p>	<p>BW</p> <p>TW:$I_{GT1-3} \leq 5mA$</p> <p>CW:$I_{GT1-3} \leq 35mA$</p> <p>BW:$I_{GT1-3} \leq 50mA$</p> <p>GW:$I_{GT1-3} \leq 70mA$</p> <p>B:$I_{GT1-3} \leq 50mA$ $I_{GT4} \leq 70mA$</p>
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PACKAGE MECHANICAL DATA



TO-3P Ins

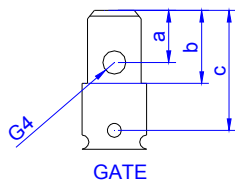
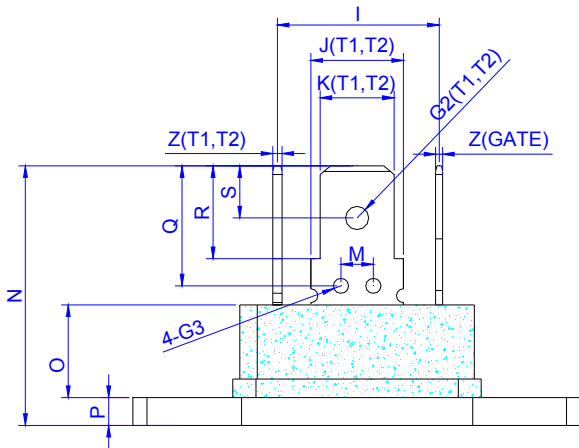
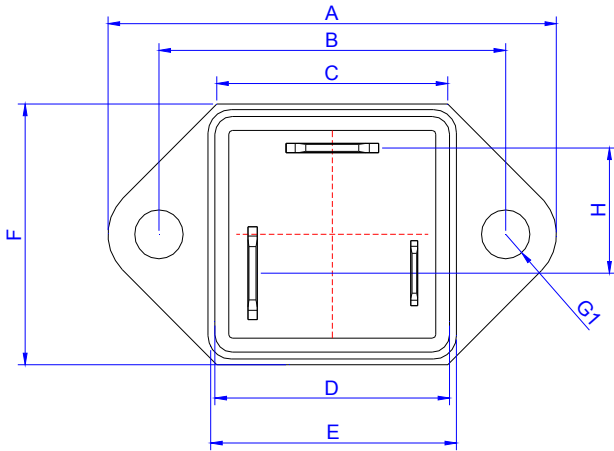
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	1.45		1.55	0.057		0.061
C	14.35		15.60	0.565		0.614
D	0.50		0.70	0.020		0.028
E	2.70		2.90	0.106		0.114
F	15.80		16.50	0.622		0.650
G	20.40		21.10	0.803		0.831
H	15.10		15.50	0.594		0.610
J	5.40		5.65	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	



TO-247J

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	15.50	15.80	16.10	0.610	0.622	0.634
B	20.80	21.00	22.20	0.819	0.828	0.874
C	19.70	20.00	20.30	0.776	0.787	0.799
D	1.80	2.00	2.20	0.071	0.079	0.087
E	1.90	2.10	2.30	0.075	0.083	0.091
F	1.00	1.20	1.40	0.039	0.047	0.055
G		5.44			0.214	
H	4.80	5.00	5.20	0.189	0.197	0.205
J	1.90	2.00	2.10	0.075	0.079	0.083
K	2.20	2.35	2.50	0.087	0.093	0.098
L	0.41	0.60	0.79	0.016	0.024	0.031

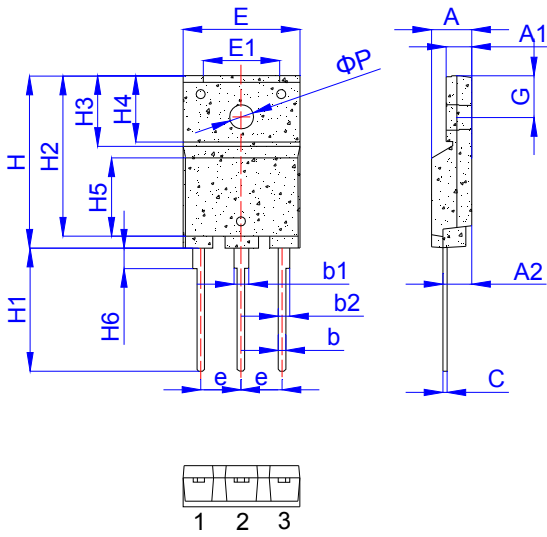
PACKAGE MECHANICAL DATA



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			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 MECHANICAL DATA



TO-3PF

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	5.30	5.50	5.70	0.209	0.217	0.224
A1	3.25	3.45	3.65	0.128	0.136	0.144
A2	3.15	3.35	3.55	0.124	0.132	0.140
b	0.85	1.0	1.15	0.033	0.039	0.045
b1	1.85	2.0	2.15	0.073	0.079	0.085
b2	1.45	1.6	1.75	0.057	0.063	0.069
C	0.40	0.50	0.60	0.016	0.020	0.024
e	5.30	5.45	5.60	0.209	0.215	0.221
E	15.40	15.60	15.80	0.606	0.614	0.622
E1	10.00	10.20	10.40	0.394	0.402	0.410
H	22.80	23.00	23.20	0.898	0.906	0.913
H1	16.00	16.50	17.00	0.630	0.650	0.670
H2	21.20	21.40	21.60	0.835	0.843	0.851
H3	9.10	9.30	9.50	0.358	0.366	0.374
H4	8.55	8.75	8.95	0.337	0.344	0.351
H5	10.20	10.40	10.60	0.402	0.409	0.416
H6	2.55	0.70	2.85	0.100	0.106	0.112
G	5.30	5.50	5.70	0.209	0.217	0.224
ΦP	3.05	3.20	3.35	0.120	0.126	0.132

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

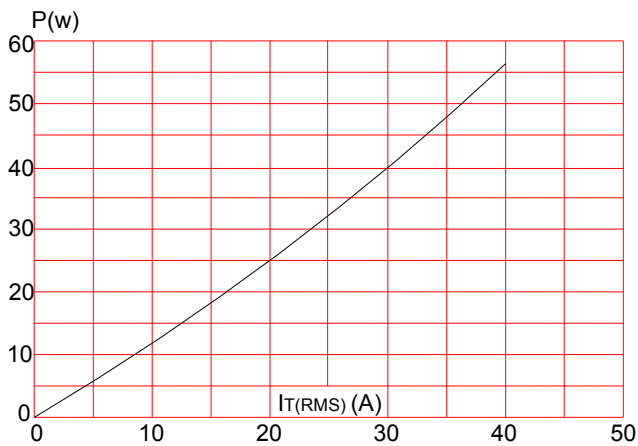


FIG.2: RMS on-state current versus case temperature

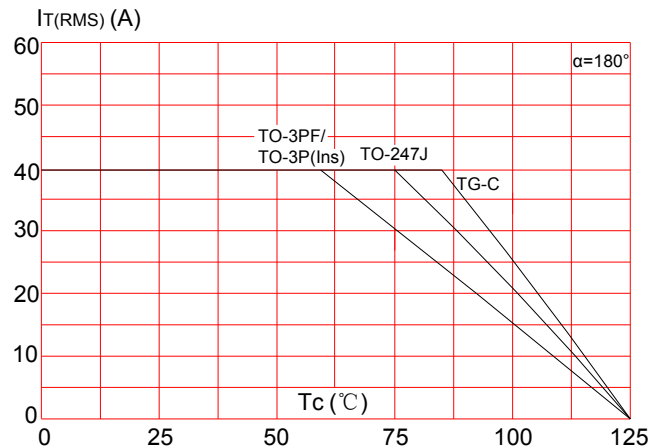


FIG.3: Surge peak on-state current versus number of cycles

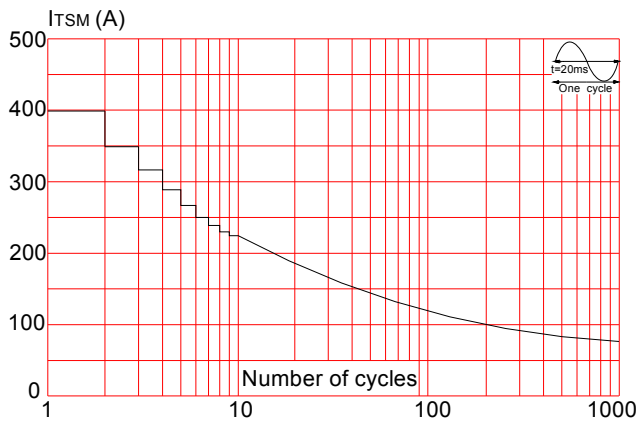


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I^2t ($dI/dt < 50\text{A}/\mu\text{s}$)

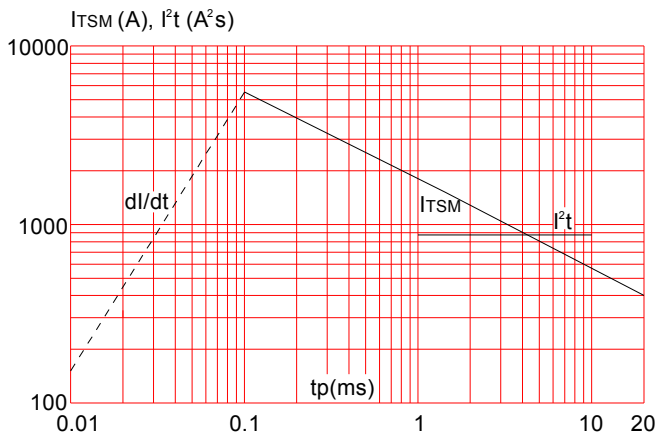


FIG.4: On-state characteristics (maximum values)

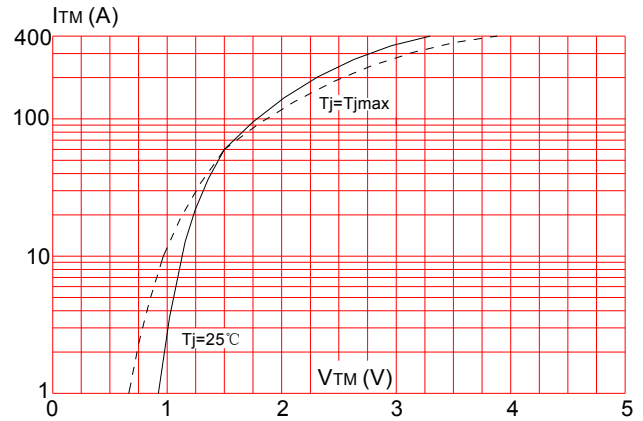
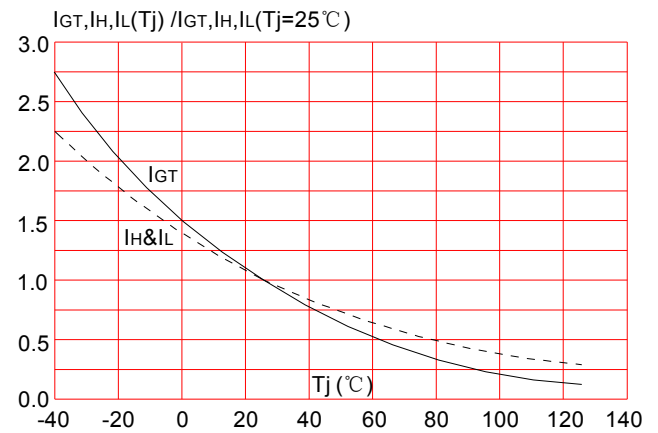


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature




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