



JST41 Series 40A TRIACs

Rev.8.0

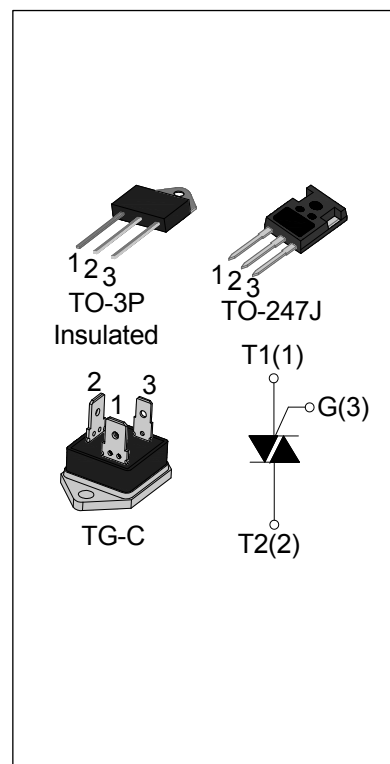
DESCRIPTION:

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 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 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-247J/ TG-C ($T_C=90^{\circ}\text{C}$)			
Non repetitive surge peak on-state current (full cycle, F=50Hz)		I_{TSM}	400	A
I^2t value for fusing (tp=10ms)		I^2t	880	A ² s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$)		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
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	1500	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

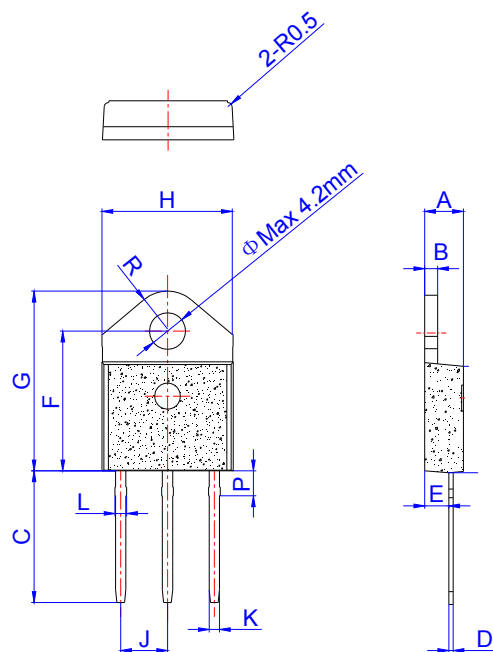
THERMAL RESISTANCES

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

ORDERING INFORMATION

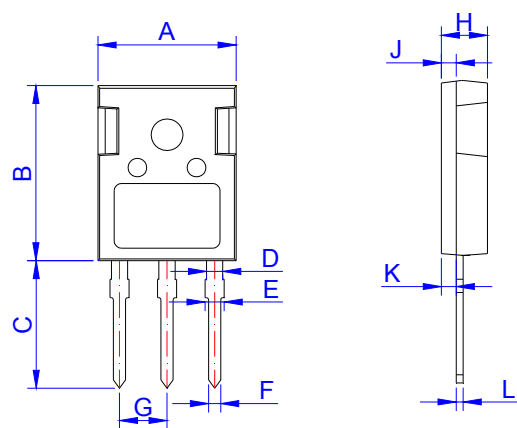
J	ST	41	Z	-600	BW
JieJie Microelectronics Co.,Ltd	Triacs	$I_{T(RMS)}:40A$			BW: $I_{GT1-3}\leq 50mA$ B: $I_{GT1-3}\leq 50mA$ $I_{GT4}\leq 70mA$
		Z:TO-3P(Ins)			600: $V_{DRM}/V_{RRM}\geq 600V$ 800: $V_{DRM}/V_{RRM}\geq 800V$ 1200: $V_{DRM}/V_{RRM}\geq 1200V$ 1600: $V_{DRM}/V_{RRM}\geq 1600V$
		SJ:TO-247J T:TG-C			

PACKAGE MECHANICAL DATA



TO-3P Ins

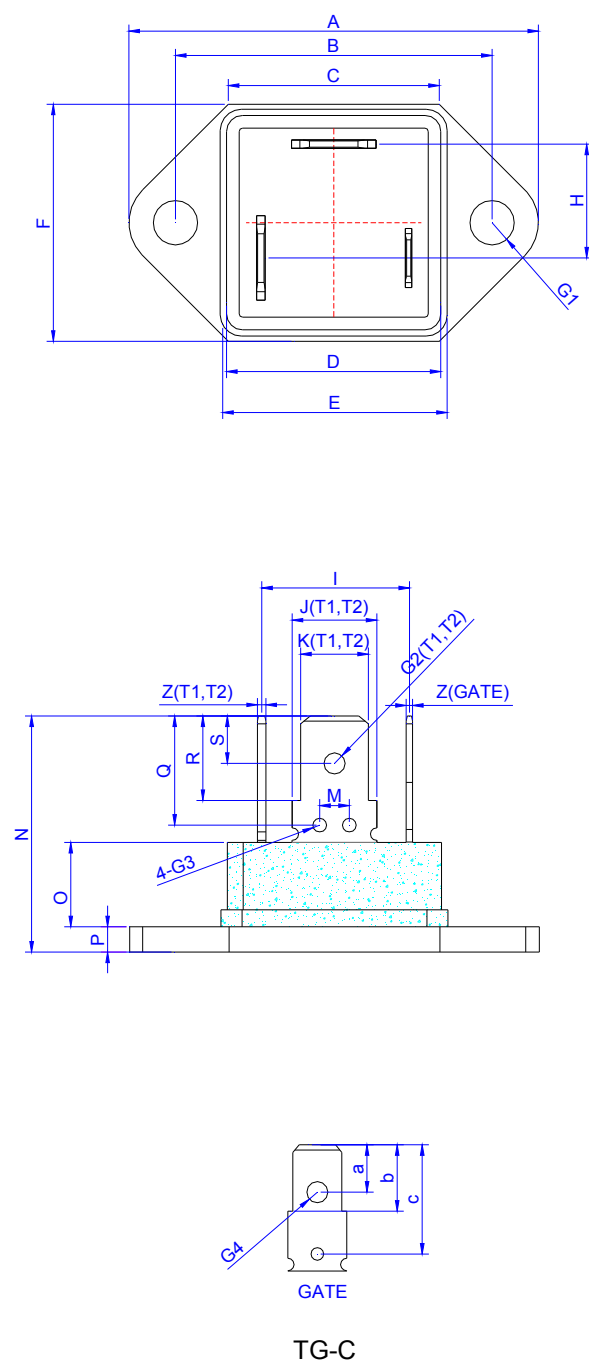
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	1.45		1.55	0.057		0.061
C	14.35		15.60	0.565		0.614
D	0.50		0.70	0.020		0.028
E	2.70		2.90	0.106		0.114
F	15.80		16.50	0.622		0.650
G	20.40		21.10	0.803		0.831
H	15.10		15.50	0.594		0.610
J	5.40		5.65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



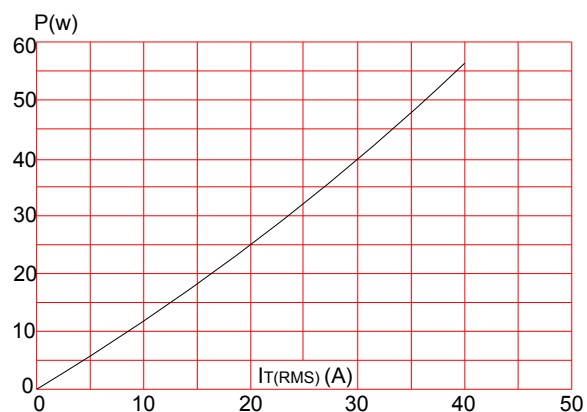
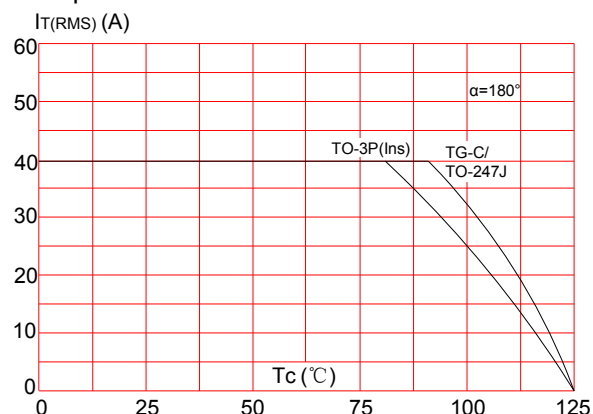
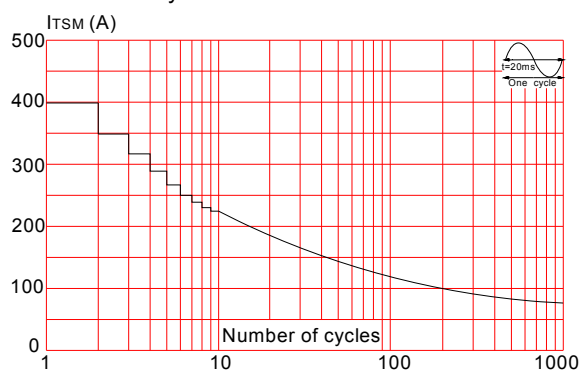
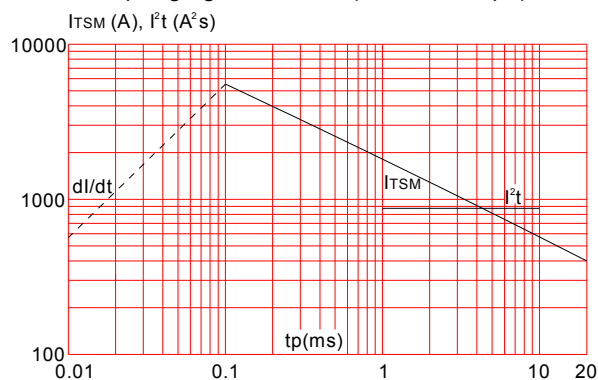
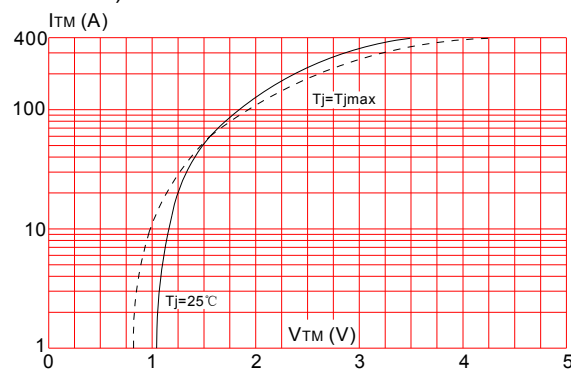
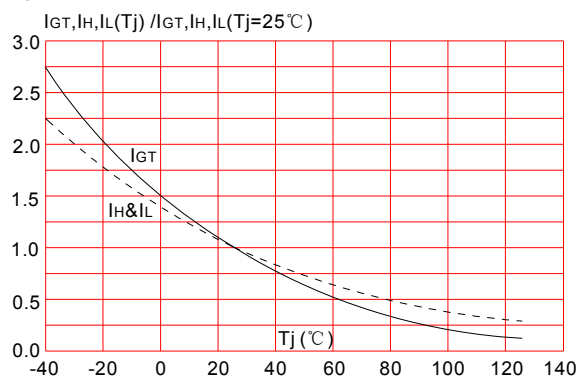
TO-247J

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



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	

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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