



## JST41 Series 40A TRIACs

Rev.19.0

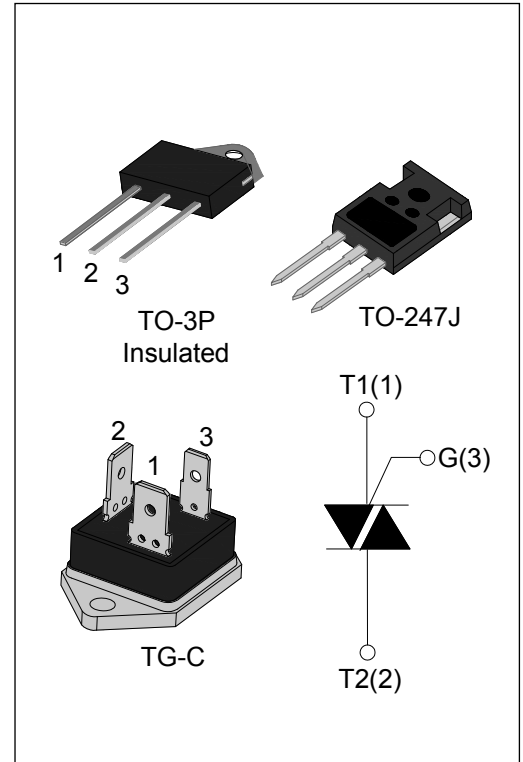
### DESCRIPTION:

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<sub>RMS</sub>, complying with UL standards (File ref: E252906). All the packages are RoHS compliant. (2011/65/EU)

### MAIN FEATURES

Symbol	Value	Unit
I <sub>T(RMS)</sub>	40	A
V <sub>DRM</sub> / V <sub>RPM</sub>	1600	V



### ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Storage junction temperature range	T <sub>stg</sub>	-40-150	°C
Operating junction temperature range	T <sub>j</sub>	-40-125	°C
Repetitive peak off-state voltage (T <sub>j</sub> =25°C)	V <sub>DRM</sub>	1600	V
Repetitive peak reverse voltage (T <sub>j</sub> =25°C)	V <sub>RPM</sub>	1600	V
RMS on-state current	TO-3P(Ins) (T <sub>c</sub> =75°C)	40	A
	TG-C (T <sub>c</sub> =90°C)		
	TO-247J (T <sub>c</sub> =85°C)		
Non repetitive surge peak on-state current (full cycle, tp=16.7ms)	I <sub>TSM</sub>	420	A
I <sup>2</sup> t value for fusing (tp=10ms)	I <sup>2</sup> t	1000	A <sup>2</sup> s
Critical rate of rise of on-state current (I <sub>G</sub> = 2 × I <sub>GT</sub> )	dI/dt	50	A/μs

Peak gate current	$I_{GM}$	8	A
Average gate power dissipation	$P_{G(AV)}$	1	W
Peak gate power	$P_{GM}$	10	W

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

Symbol	Test Condition	Quadrant		Value	Unit
$I_{GT}$	$V_D=12V R_L=33\Omega$	I - II -III	MAX	50	mA
$V_{GT}$		I - II -III	MAX	1.3	V
$V_{GD}$	$V_D=V_{DRM} T_j=125^{\circ}C$ $R_L=3.3K\Omega$	I - II -III	MIN	0.2	V
$I_L$	$I_G=1.2I_{GT}$	I -III	MAX	80	mA
		II		200	
$I_H$	$I_T=100mA$		MAX	100	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=125^{\circ}C$		MIN	1500	V/ $\mu s$

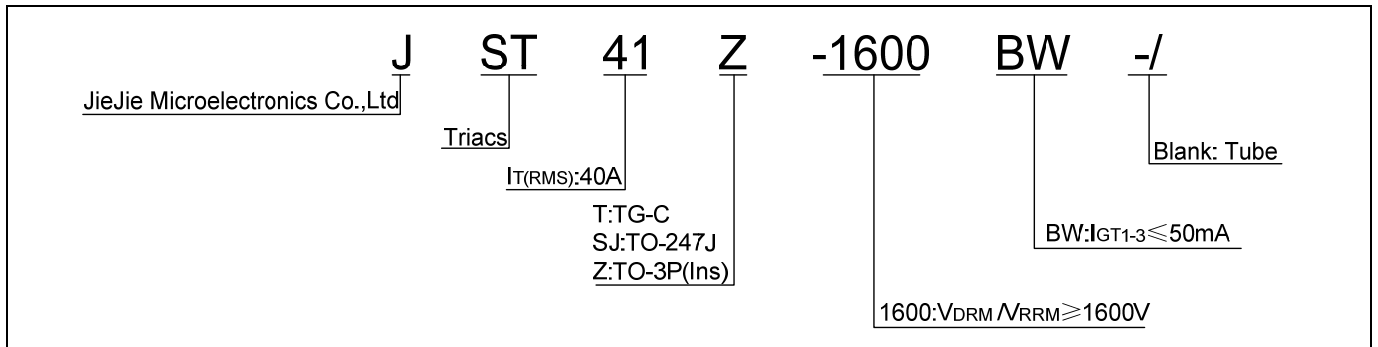
**STATIC CHARACTERISTICS**

Symbol	Parameter		Value(MAX)	Unit
$V_{TM}$	$I_{TM}=60A t_p=380\mu s$	$T_j=25^{\circ}C$	1.8	V
$V_{TO}$	Threshold voltage	$T_j=125^{\circ}C$	0.97	V
$R_d$	Dynamic resistance	$T_j=125^{\circ}C$	22	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

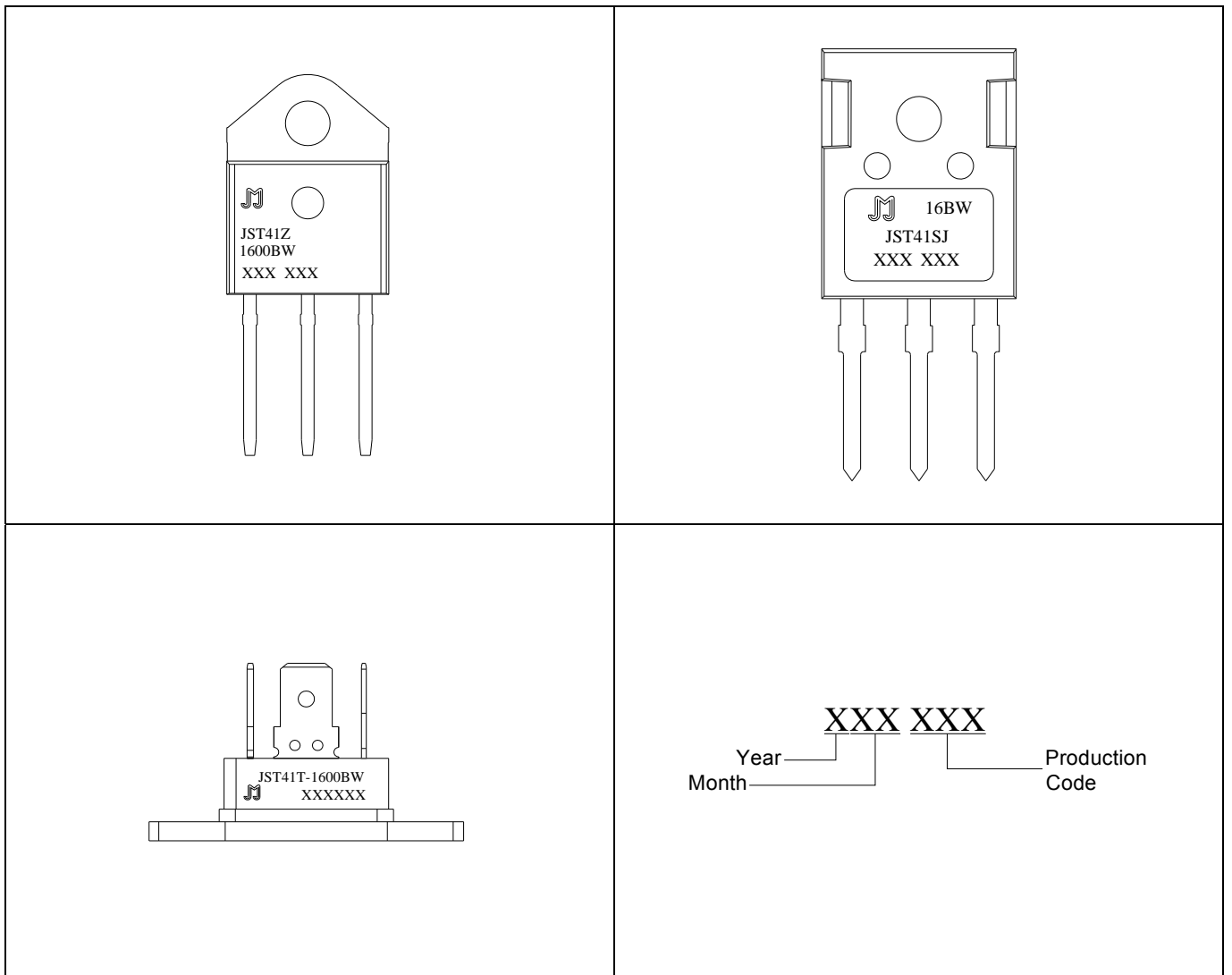
**THERMAL RESISTANCES**

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TO-3P(Ins)	0.6	$^{\circ}C/W$
		TG-C	0.25	
		TO-247J	0.45	

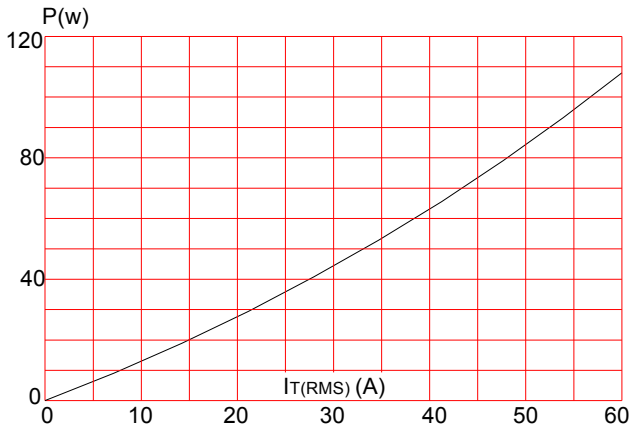
ORDERING INFORMATION



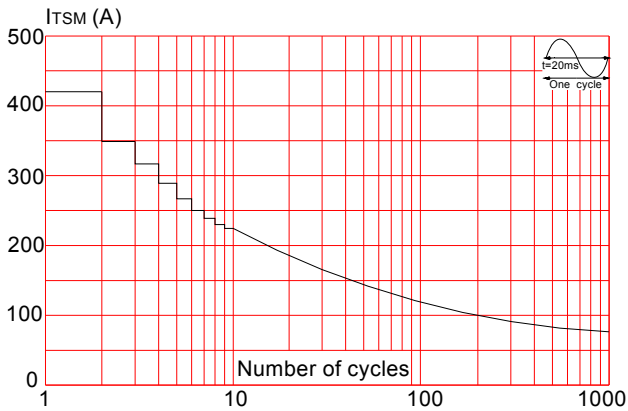
MARKING



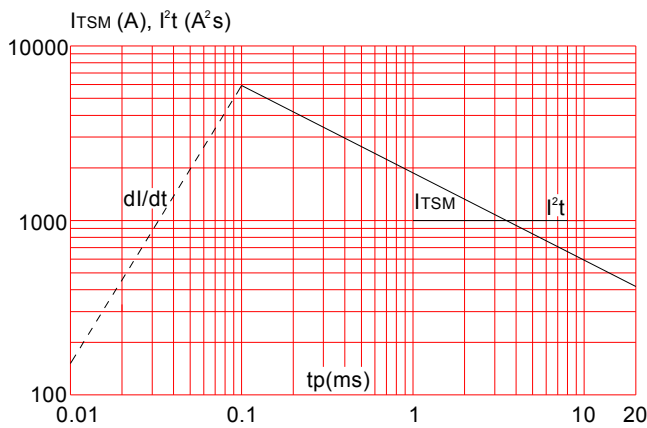
**FIG.1** Maximum power dissipation versus RMS on-state current



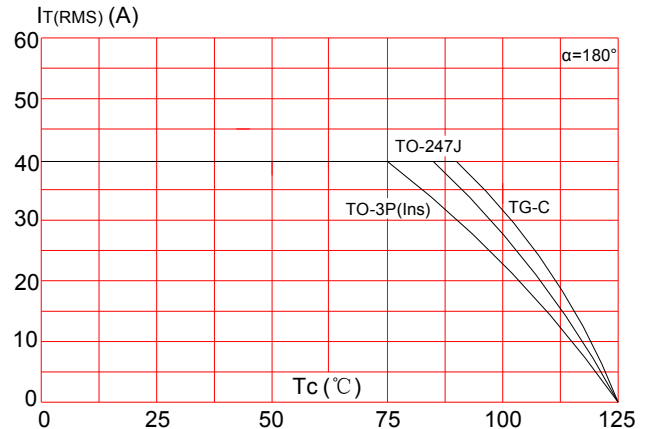
**FIG.3:** Surge peak on-state current versus number of cycles



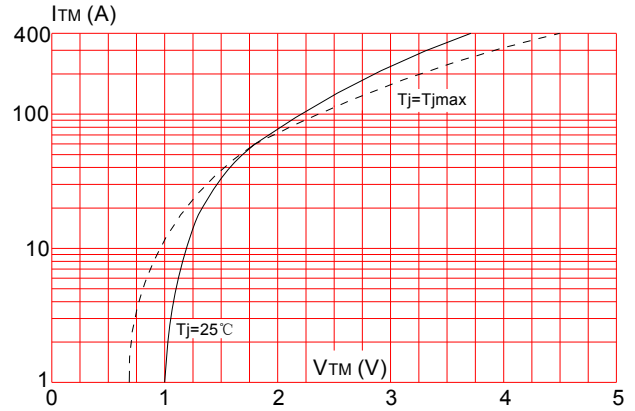
**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 20\text{ms}$ , and corresponding value of  $I^2t$  ( $di/dt < 50\text{A}/\mu\text{s}$ )



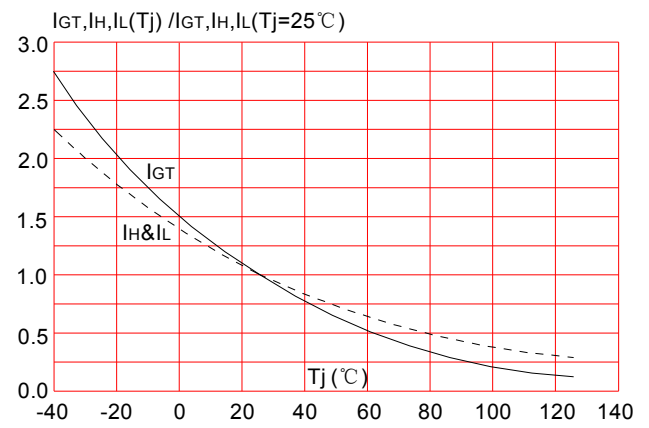
**FIG.2:** RMS on-state current versus case temperature



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



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



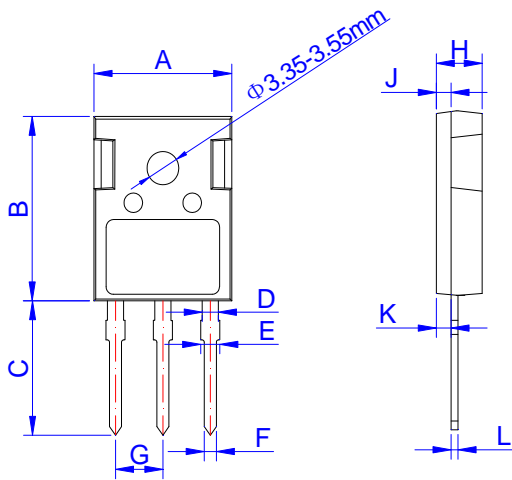
**ORDERING INFORMATION**

Order code	Voltage $V_{DRM}/V_{RRM}$ (V)	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
JST41T-1600BW	1600	50	TG-C	10	Tube
JST41SJ-1600BW			TO-247J	30	
JST41Z-1600BW			TO-3P(Ins)		

**Document Revision History**

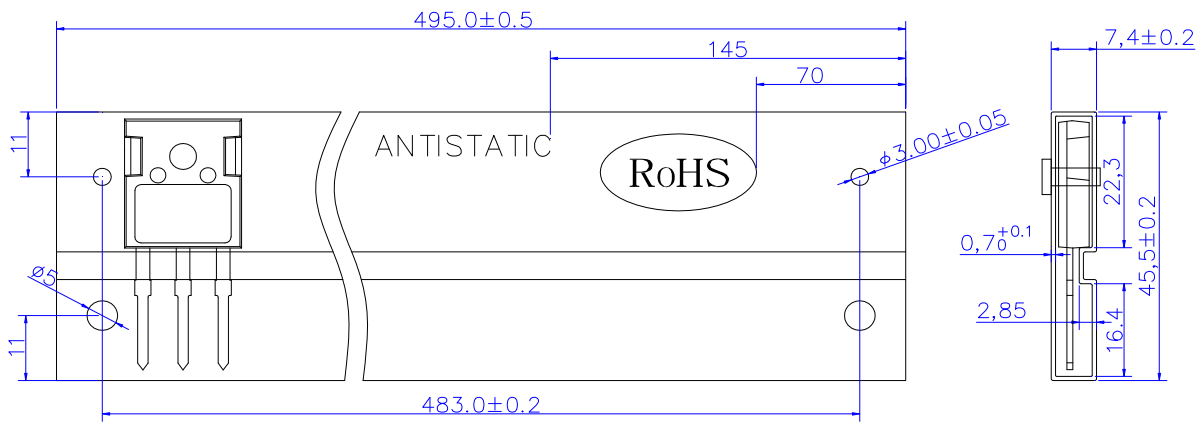
Date	Revision	Changes
Dec 23, 2021	18	Last update
Dec 30, 2021	19	Renew I <sub>TSM</sub>

PACKAGE MECHANICAL DATA



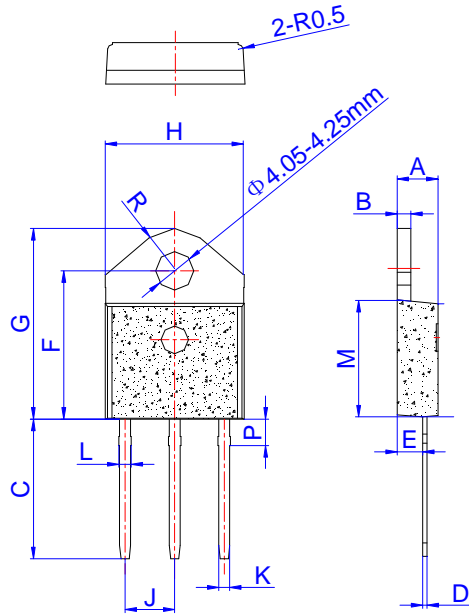
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	15.50	15.80	16.10	0.610	0.622	0.634
B	20.80	21.00	22.20	0.819	0.827	0.835
C	19.70	20.00	20.30	0.776	0.787	0.799
D	1.80	2.00	2.20	0.071	0.079	0.087
E	1.90	2.10	2.30	0.075	0.083	0.091
F	1.00	1.20	1.40	0.039	0.047	0.055
G		5.44			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

DELIVERY MODE



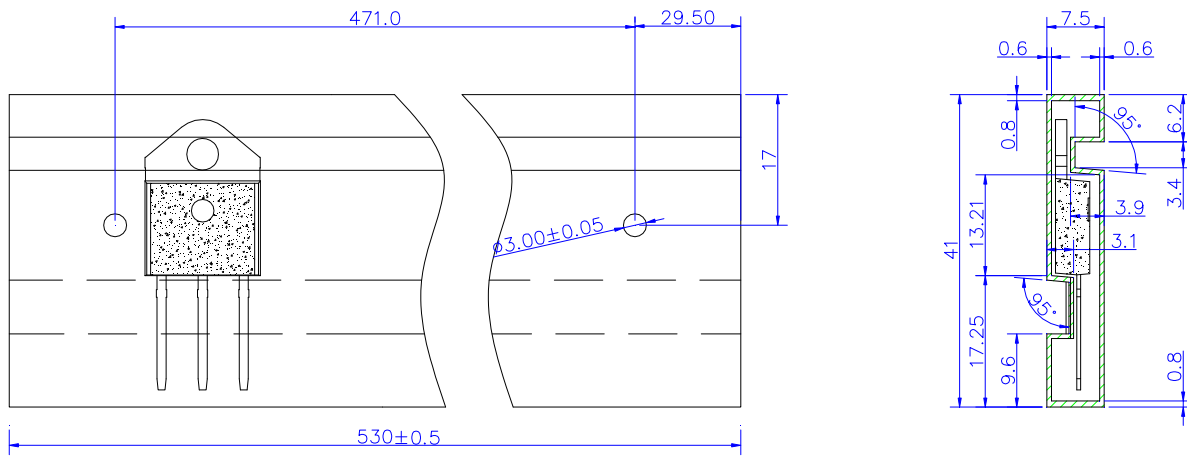
PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-247J	TUBE	30	450	2,250

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	1.25		1.45	0.049		0.057
M	12.37		12.77	0.487		0.503
P	2.80		3.00	0.110		0.118
R		4.35			0.171	

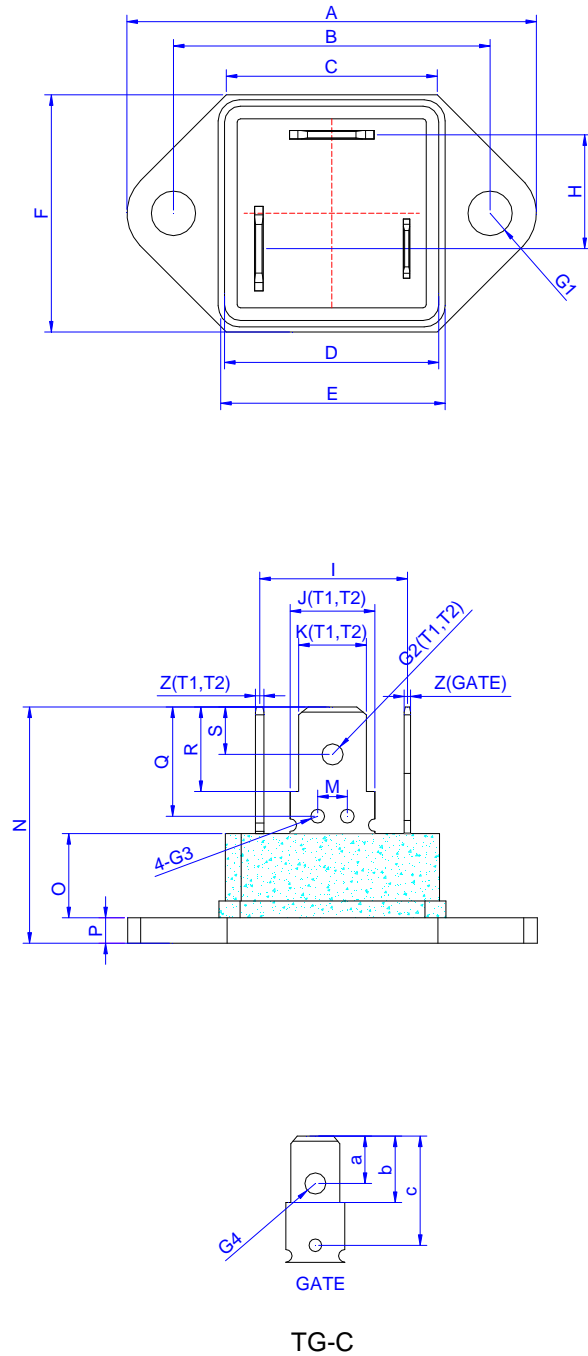
DELIVERY MODE



PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-3P	TUBE	30	450	2,250



**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	

**DELIVERY MODE**

PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON (PCS)
TG-C	TUBE	10	100	500



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