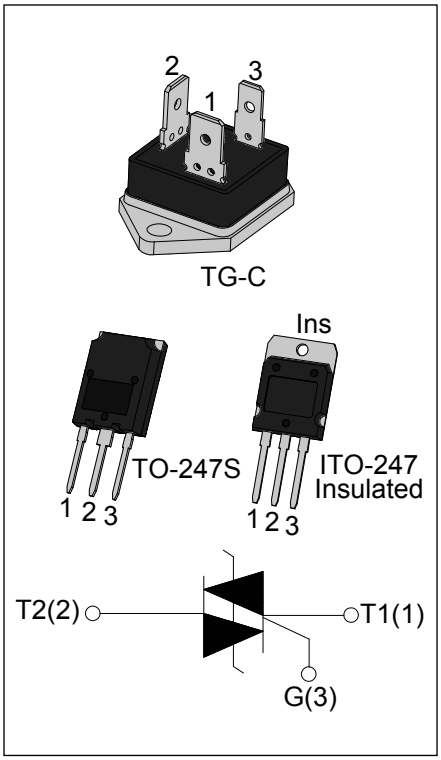
JST80 Series 80A TRIACs

Rev.8.0

DESCRIPTION:

With high ability to withstand the shock loading of large current, JST80 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 pins to external heatsink, JST80IS triac provides an insulation voltage of 2500 V_{RMS}, complying with UL standards.
(File: E252906) All the packages are RoHS compliant. (2011/65/EU)



MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	80	A
V_{DRM} /V_{RRM}	1200/1600	V

ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage junction temperature range		T_{stg}	-40-150	℃
Operating junction temperature range		T_j	-40-125	℃
Repetitive peak off-state voltage (T_j=25℃)		V_{DRM}	1200/1600	V
Repetitive peak reverse voltage (T_j=25℃)		V_{RRM}	1200/1600	V
RMS on-state current	TO-247S/ ITO-247(Ins) (T_C=85℃)	$I_{T(RMS)}$	80	A
	TG-C (T_C=90℃)			
Non repetitive surge peak on-state current (full cycle, F=50Hz)		I_{TSM}	800	A
I^2t value for fusing (tp=10ms)		I^2t	3200	A^2s
Critical rate of rise of on-state current (I_G =2×I_{GT})		dI/dt	100	A/μs

Peak gate current	I_{GM}	8	A
Average gate power dissipation	$P_{G(AV)}$	2	W
Peak gate power	P_{GM}	10	W

ELECTRICAL CHARACTERISTICS (T_j=25℃ unless otherwise specified)

Symbol	Test Condition	Quadrant		Value	Unit
I_{GT}	V_D =12V R_L =33Ω	Ⅰ-Ⅱ-Ⅲ	MAX	50	mA
V_{GT}		Ⅰ-Ⅱ-Ⅲ	MAX	1.3	V
V_{GD}	V_D =V_{DRM} T_j =125℃ R_L =3.3KΩ	Ⅰ-Ⅱ-Ⅲ	MIN	0.2	V
I_L	I_G =1.2I_{GT}	Ⅰ-Ⅲ	MAX	80	mA
		Ⅱ		120	
I_H	I_T =100mA		MAX	70	mA
dV/dt	V_D=2/3V_{DRM} Gate Open T_j =125℃		MIN	1500	V/μs

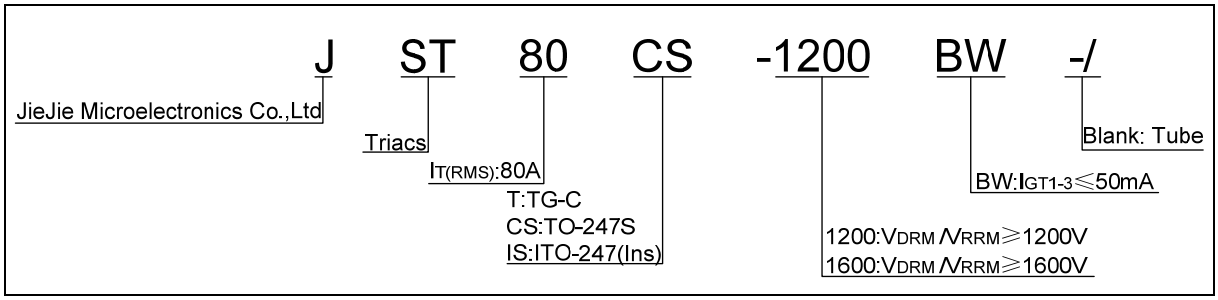
STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
V_{TM}	I_{TM} =120A tp=380μs	T_j=25℃	1.5	V
I_{DRM}	V_D =V_{DRM} V_R =V_{RRM}	T_j=25℃	20	μA
I_{RRM}		T_j=125℃	10	mA
V_{TO}	Threshold voltage	T_j=125℃	0.95	V
R_d	Dynamic resistance	T_j=125℃	8.5	mΩ

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TO-247S ITO-247 (Ins)	0.35	℃/W
		TG-C	0.31	

ORDERING INFORMATION



MARKING

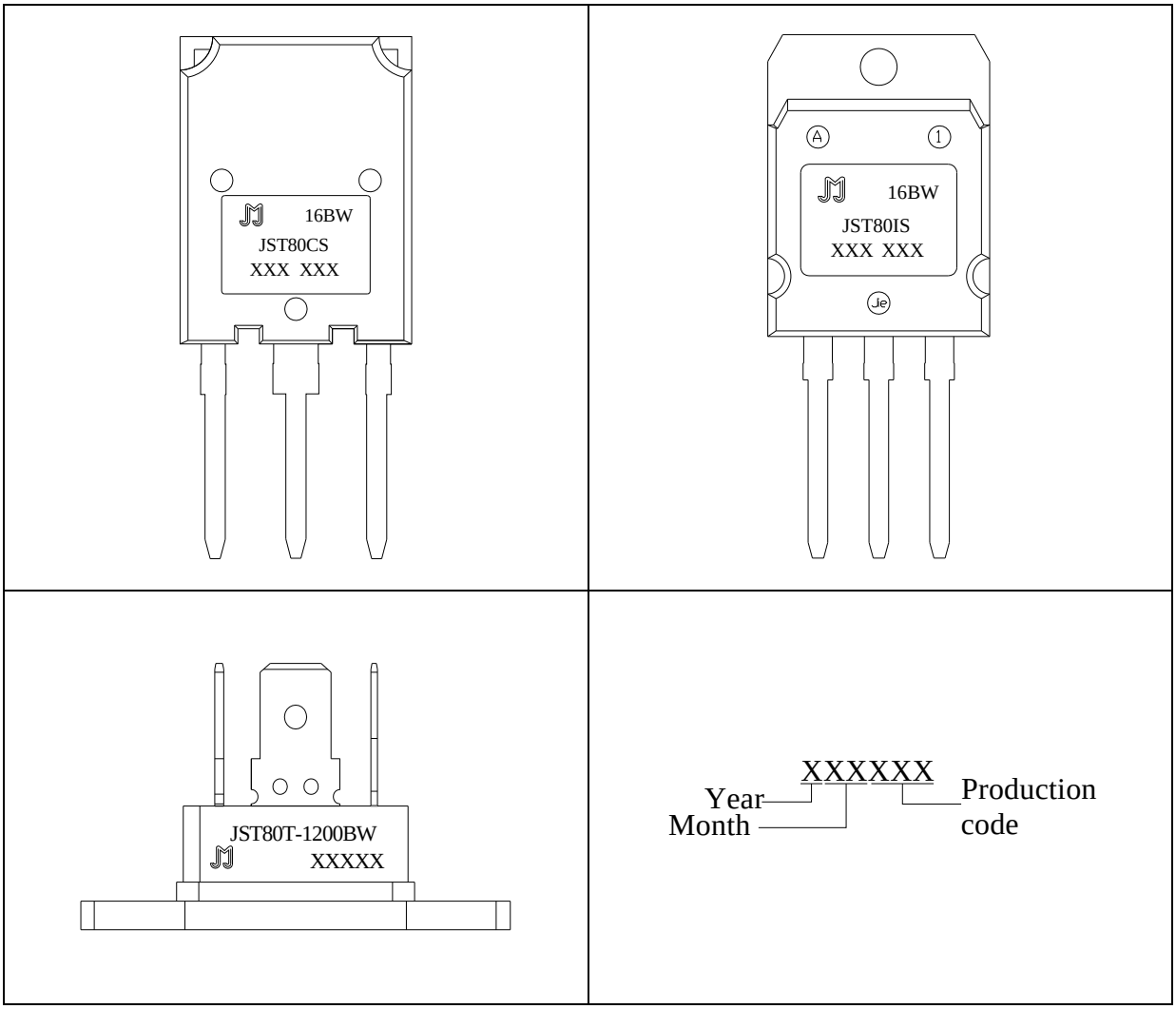


FIG.1: Maximum power dissipation versus RMS on-state current

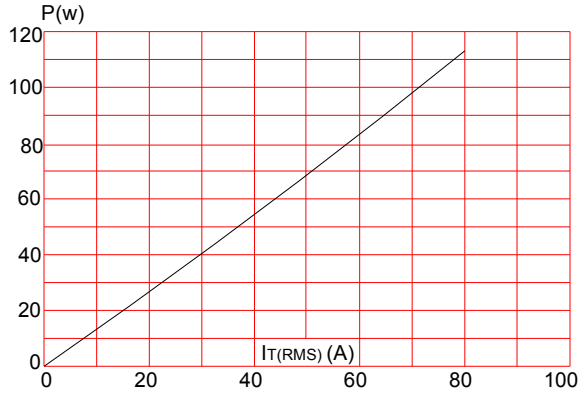


FIG.2: RMS on-state current versus case temperature

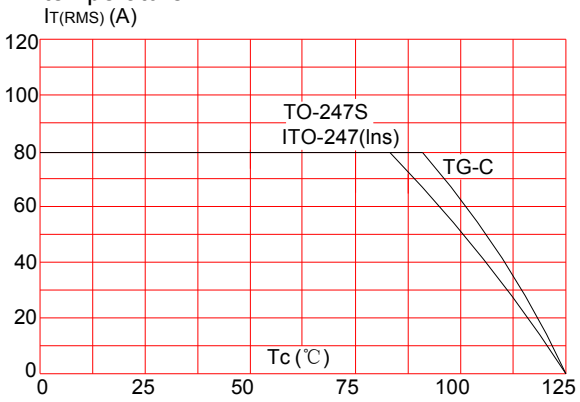


FIG.3: Surge peak on-state current versus number of cycles

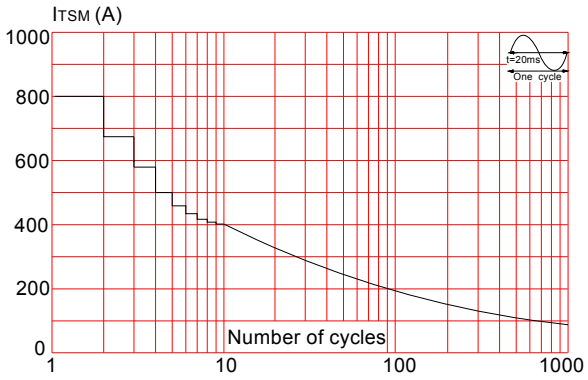


FIG.4: On-state characteristics (maximum values)

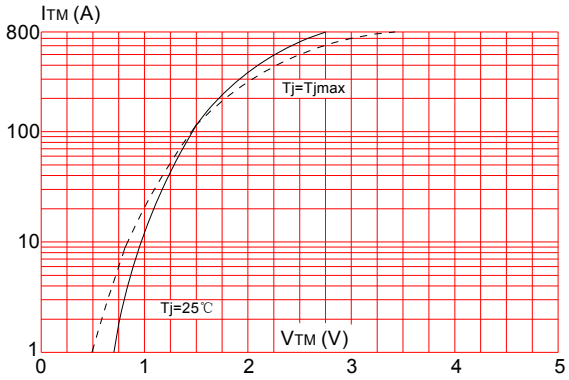


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp<20ms, and corresponging value of I^2t (dI/dt < 100A/μs)

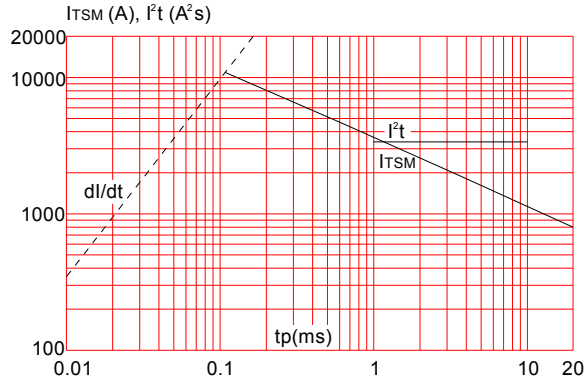
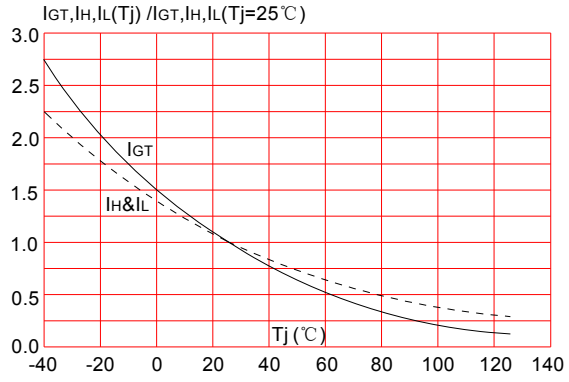
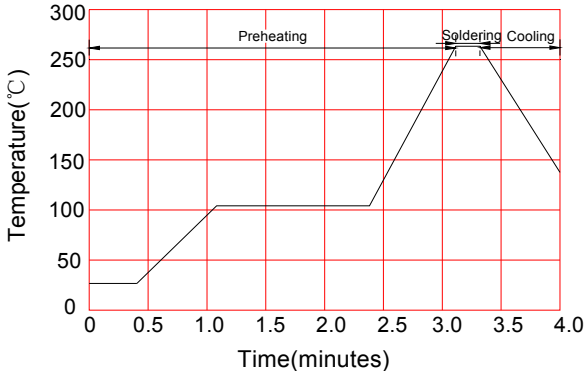


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



Wave Soldering



Item	Conditions
Peak Temperature	265℃
Dipping Time	10 seconds
Soldering	1 time

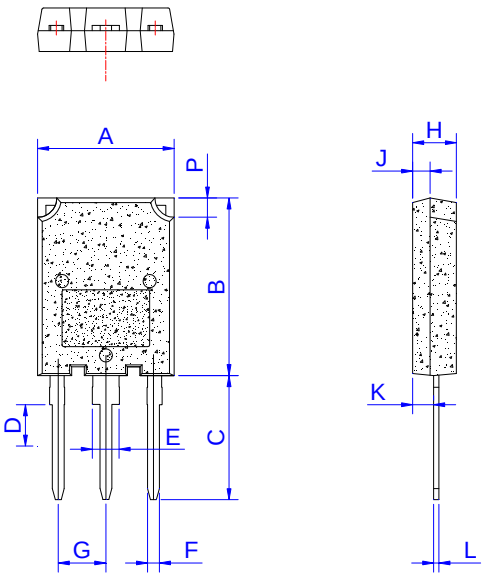
ORDERING INFORMATION

Order code	Voltage V_{DRM}/V_{RRM} (V)	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
JST80T-1200/1600BW	1200/1600	50	TG-C	10	Tube
JST80CS-1200/1600BW			TO-247S	30	
JST80IS-1200/1600BW			ITO-247	25	

Document Revision History

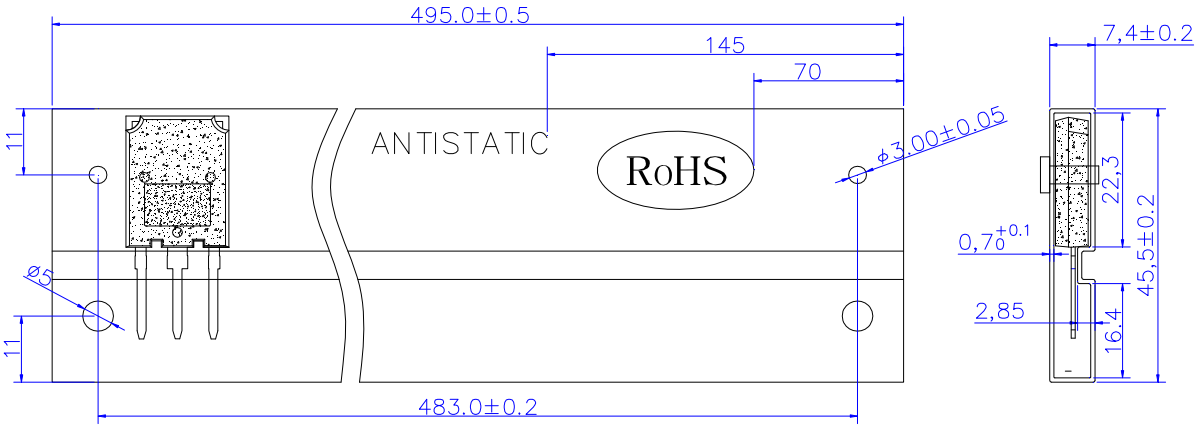
Date	Revision	Changes
July 22, 2021	8	Add Vto & Rd

PACKAGE MECHANICAL DATA



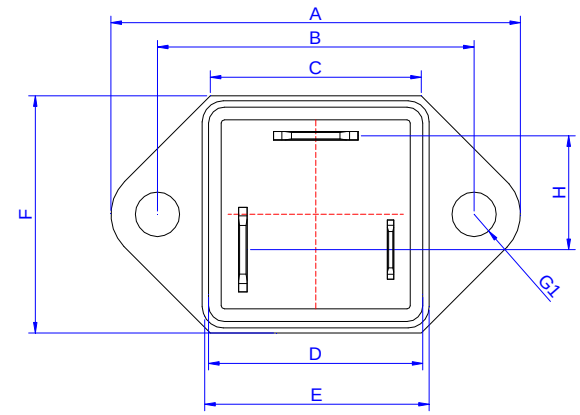
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	15.1		16.1	0.594		0.634
B	19.8		20.8	0.78		0.819
C	13.8		14.8	0.543		0.583
D	3.00		4.00	0.118		0.157
E	2.75		3.35	0.108		0.132
F	1.30		1.50	0.051		0.059
G	5.10		5.80	0.201		0.228
H	4.50		5.50	0.177		0.217
J	1.45		2.15	0.057		0.085
K	1.90		2.80	0.075		0.110
L	0.55		0.80	0.022		0.031
P	2.00		2.40	0.079		0.094

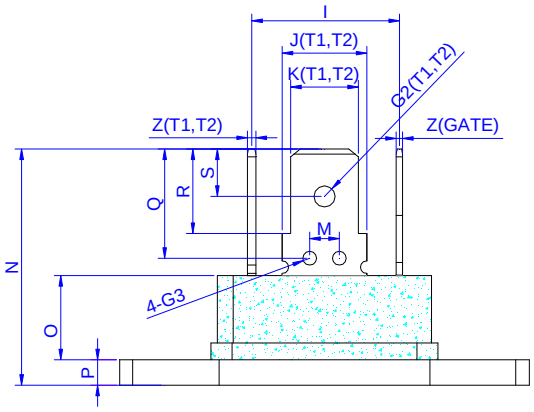
DELIVERY MODE

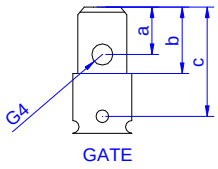


PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-247S	TUBE	30	450	2,250

PACKAGE MECHANICAL DATA







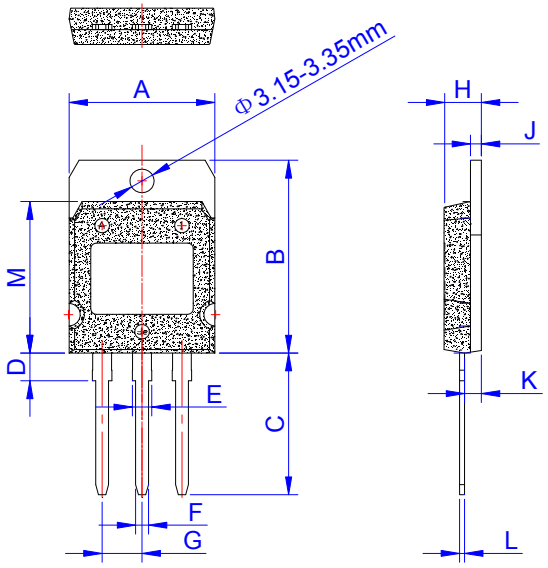
TG-C

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	

DELIVERY MODE

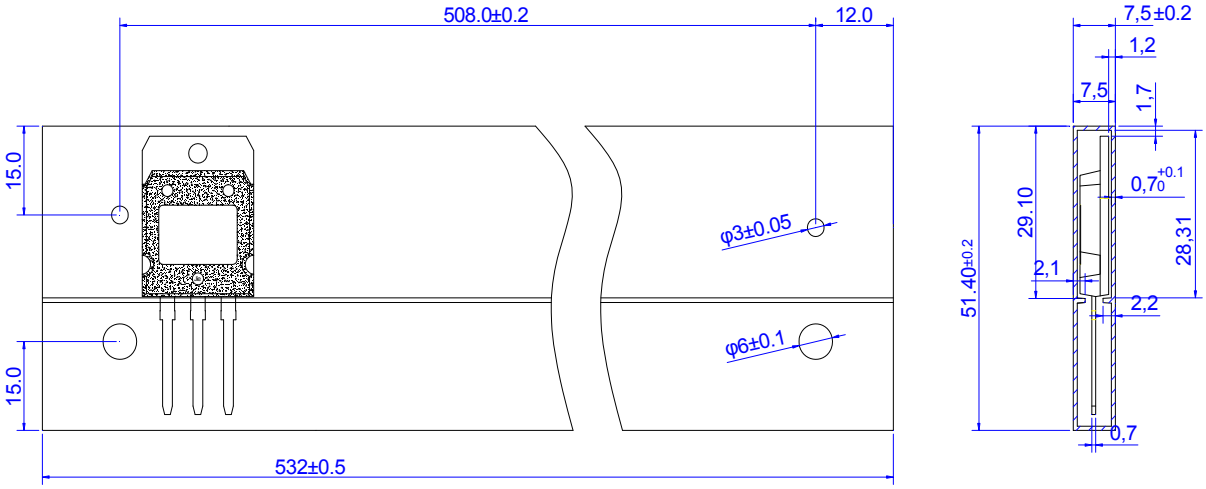
PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON (PCS)
TG-C	TUBE	10	100	500

PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	19.7	19.9	20.1	0.776	0.783	0.791
B	26.9	27.1	27.3	1.059	1.067	1.075
C	19.4	19.9	20.4	0.764	0.783	0.803
D	3.80	3.90	4.00	0.150	0.154	0.157
E	2.56	2.66	2.76	0.101	0.105	0.109
F	1.66	1.76	1.86	0.065	0.069	0.073
G		5.45			0.215	
H	5.05	5.10	5.50	0.199	0.201	0.217
J	1.45	1.50	1.55	0.057	0.059	0.061
K	2.20	2.30	2.40	0.087	0.091	0.094
L	0.60	0.70	0.80	0.024	0.028	0.031
M	21.2	21.3	21.4	0.835	0.839	0.843

DELIVERY MODE



PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
ITO-247	TUBE	25	400	1,600

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