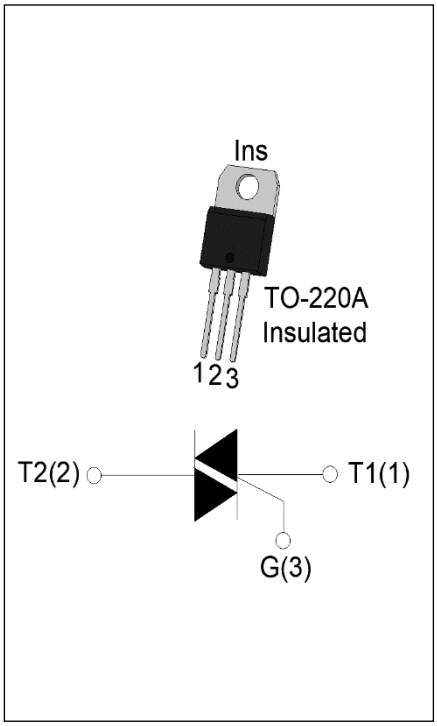
JST12A-1000C 12A TRIAC

Rev.A.1.0

DESCRIPTION:

The JST12A-1000C triac is suitable for general purpose AC switching. It can be used as an ON/OFF function in applications such as heating regulation, induction motor starting circuits, for phase control operation in light dimmers, motor speed controllers. By using an internal ceramic pad, JST12A-1000C provides a rated insulation voltage of 2500 VRMS, complying with UL standards (File ref: E252906). Package TO-220A is RoHS compliant.



MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	12	A
V_{DRM} /V_{RRM}	1000	V
$I_{GT\ I\ /\ II\ /\ III\ /\ IV}$	25/25/25/50	mA

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}	1000	V
Repetitive peak reverse voltage (T_j=25℃)		V_{RRM}	1000	V
RMS on-state current (T_C≤87℃)		$I_{T(RMS)}$	12	A
Non repetitive surge peak on-state current (full cycle , t_p=20ms , T_j=25℃)		I_{TSM}	120	A
Non repetitive surge peak on-state current (full cycle , t_p=16.6ms , T_j=25℃)			132	
I^2t value for fusing (t_p=10ms , T_j=25℃)		I^2t	72	A^2s
Critical rate of rise of on-state current (I_G=2×I_{GT} , f=100Hz , T_j=125℃)	I - II	dI/dt	80	A/μs
	III-IV		40	
Peak gate current (t_p=20μs , T_j=125℃)		I_{GM}	4	A
Average gate power dissipation (T_j=125℃)		$P_{G(AV)}$	0.5	W
Peak gate power		P_{GM}	10	W

Peak pulse voltage (T_j=25℃; non-repetitive,off-state;FIG.7)	V_{pp}	1	kV

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.	25	mA
		Ⅳ		50	
V_{GT}		ALL	MAX.	1	V
V_{GD}	V_D=V_{DRM} T_j=125℃ R_L=3.3KΩ	ALL	MIN.	0.2	V
I_L	I_G=1.2I_{GT}	Ⅰ-Ⅲ-Ⅳ	MAX.	40	mA
		Ⅱ		90	
I_H	I_T=500mA		MAX.	30	mA
dV/dt	V_D=670V Gate Open T_j=125℃		MIN.	300	V/μs
(dV/dt)c	(dI/dt)c=5.3A/ms, T_j=125℃		MIN.	6	V/μs
t_{on}	I_G=80mA I_A=400mA I_R=40mA T_j=25℃		TYP.	5	μs
t_{off}				50	

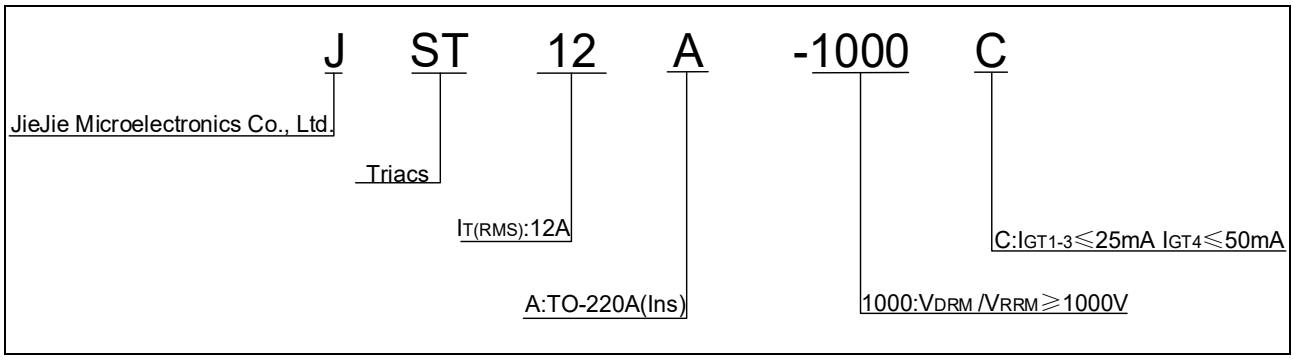
STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	I_{TM}=17A t_p=380μs	T_j=25℃	1.5	V
V_{TO}	Threshold voltage	T_j=125℃	0.77	V
R_D	Dynamic resistance	T_j=125℃	35	mΩ
I_{DRM}	V_D=V_{DRM} V_R=V_{RRM}	T_j=25℃	5	μA
I_{RRM}		T_j=125℃	1	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (AC)	2.3	℃/W
$R_{th(j-a)}$	junction to ambient (AC)	60	℃/W

ORDERING INFORMATION



MARKING

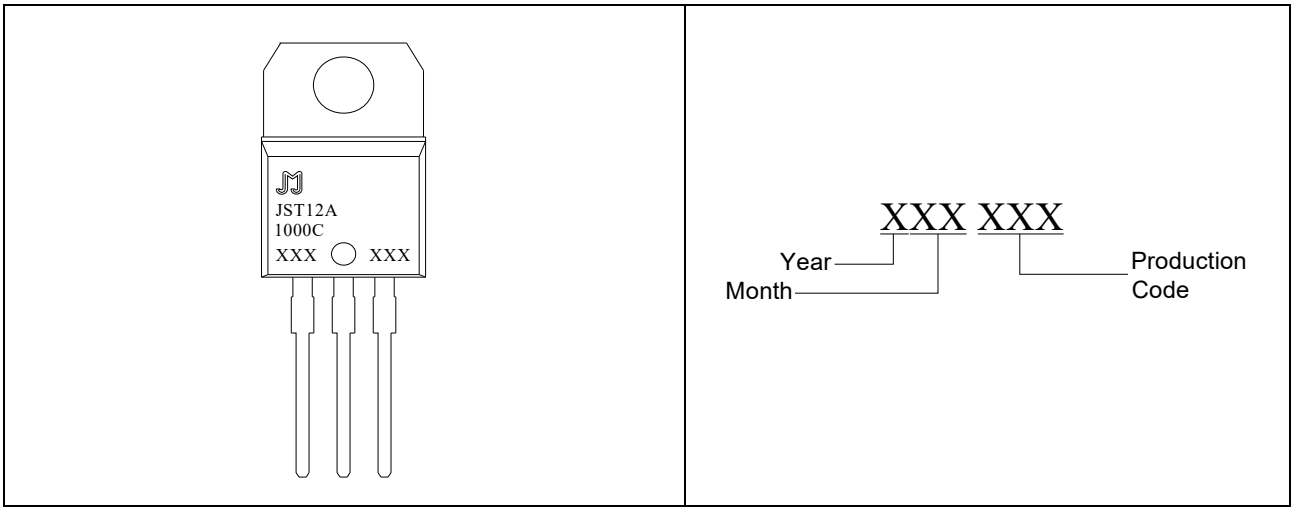


FIG.1 Maximum power dissipation versus RMS on-state current

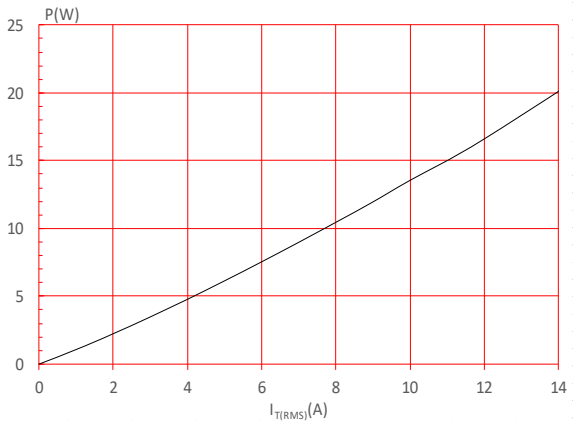


FIG.2: RMS on-state current versus case temperature

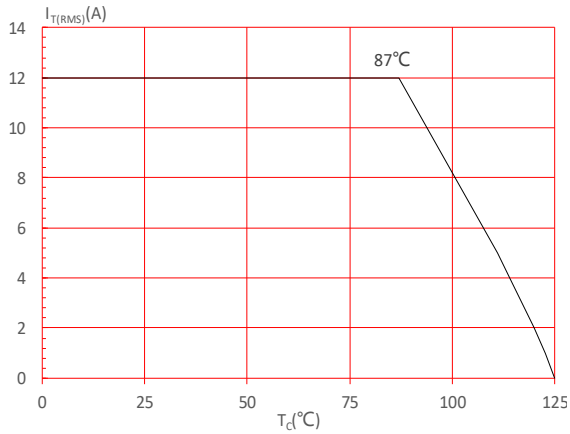


FIG.3: Surge peak on-state current versus number of cycles

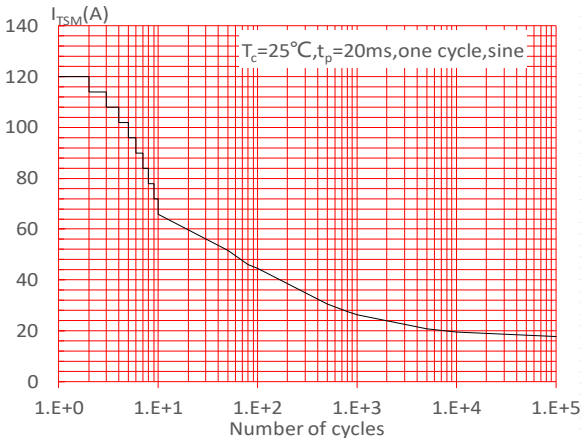


FIG.4: On-state characteristics

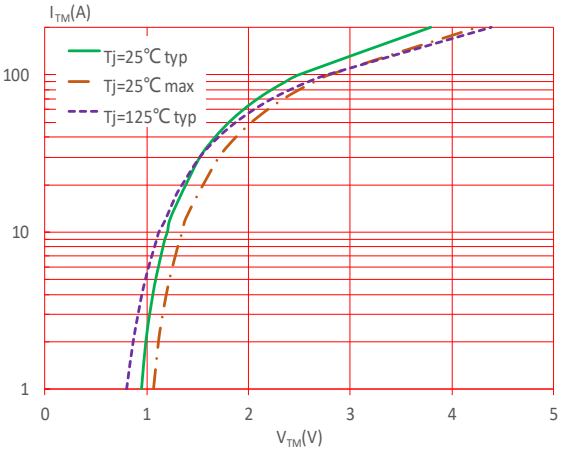


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width t_p<20ms, and corresponding value of I^2t (Ⅰ-Ⅱ: dI/dt<80A/μs; Ⅲ-Ⅳ: dI/dt<40A/μs)

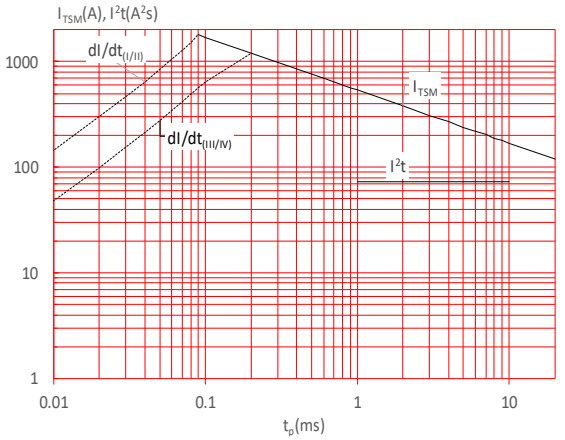


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature

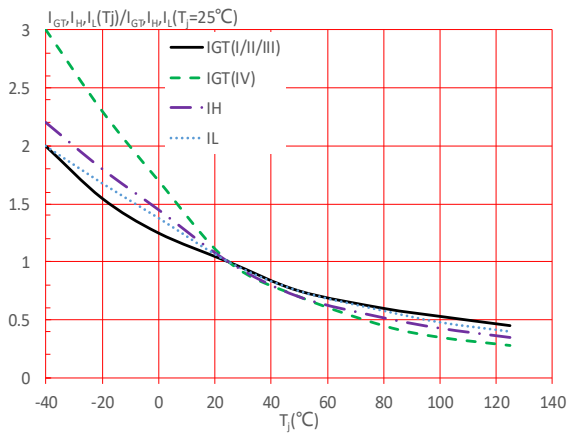
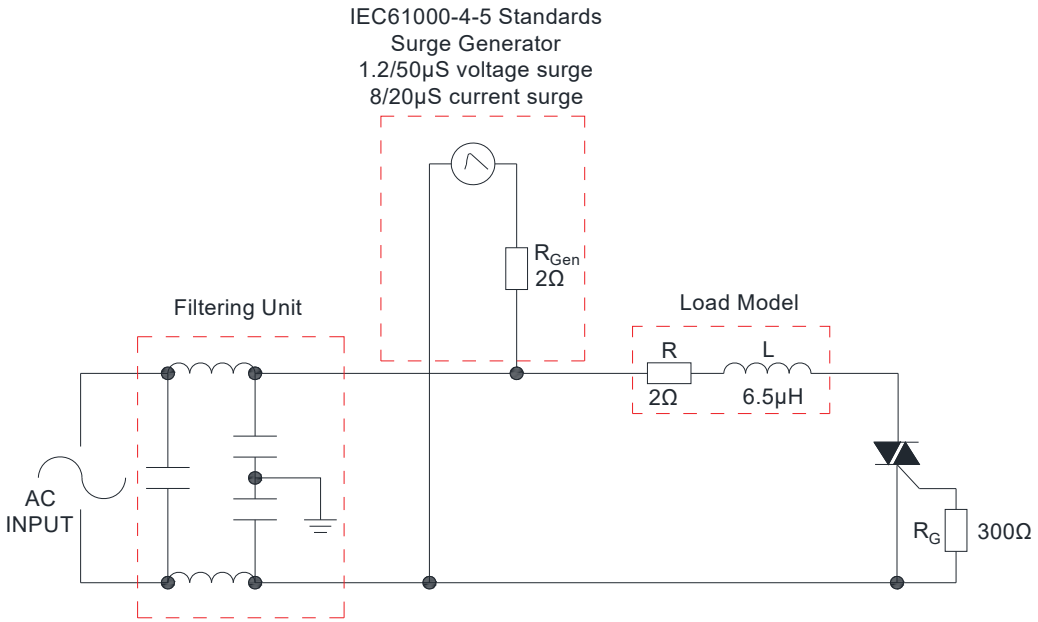


FIG.7：Test circuit for inductive and resistive loads to IEC-61000-4-5 standards



SHAPING AND SOLDERING PARAMETERS

Refer to《Instructions for installation of plastic-sealed in-line power devices》released by JieJie.

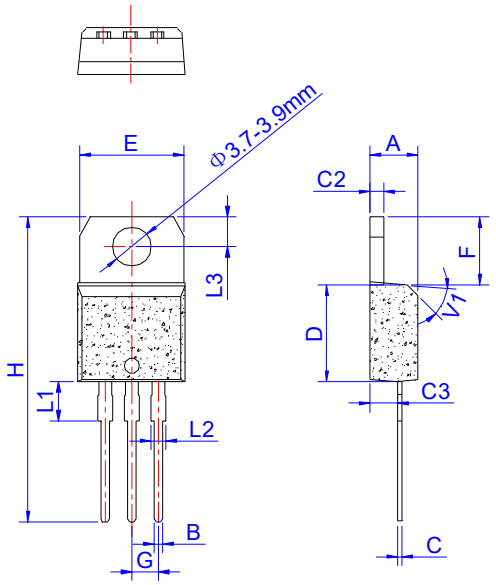
ORDERING INFORMATION

Order code	Voltage V_{DRM}/V_{RRM} (V)	IGT(mA)		Package	Base qty. (pcs)	Delivery mode
		Ⅰ-Ⅱ-Ⅲ	Ⅳ			
JST12A-1000C	1000	25	50	TO-220A(Ins)	50	Tube

Document Revision History

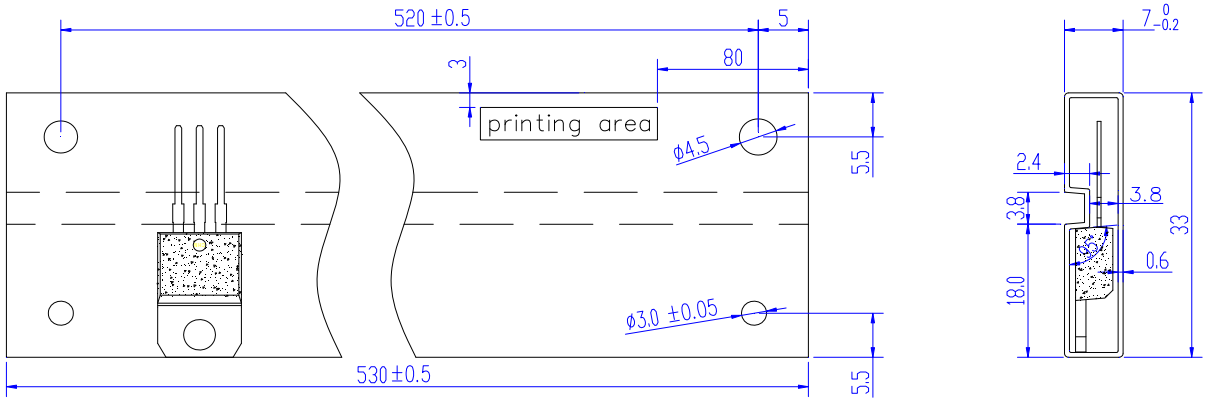
Date	Revision	Changes
May.17, 2023	A.1.0	Last updated

PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.80		10.4	0.386		0.409
F	6.25		6.85	0.246		0.270
G	2.40		2.70	0.094		0.106
H	28.0		29.8	1.102		1.173
L1	3.45		4.05	0.136		0.159
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
V1		45°			45°	

DELIVERY MODE



PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-220A	TUBE	50	1,000	5,000

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