

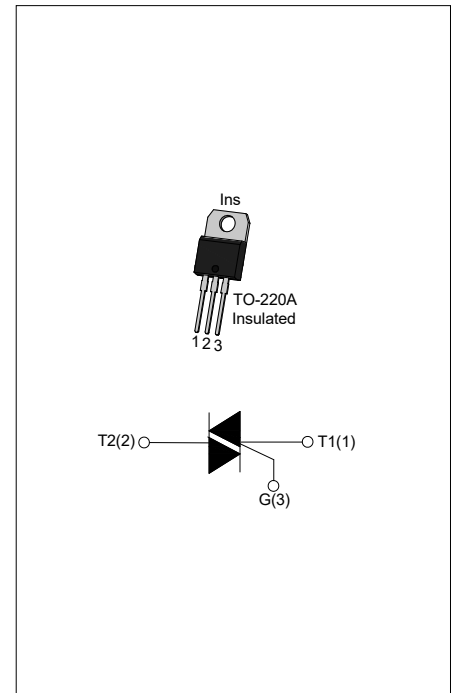


JST12A-600B 12A TRIACs

Rev.1

DESCRIPTION:

With high ability to withstand the shock loading of large current, JST12A-600B triacs provide high dv/dt rate with strong resistance to electromagnetic interface. With high commutation performances, From all three terminals to external heatsink, JST12A-600B provides a rated insulation voltage of 2500 V_{RMS}, complying with UL standards (File ref: E252906). Package TO-220B is RoHS compliant. (2011/65/EU)



MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	12	A
V_{DRM} / V_{RRM}	600	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 ($T_j=25^{\circ}C$)		V_{DRM}	600	V
Repetitive peak reverse voltage ($T_j=25^{\circ}C$)		V_{RRM}	600	V
RMS on-state current	TO-220A(Ins) ($T_c=80^{\circ}C$)	$I_{T(RMS)}$	12	A
Non repetitive surge peak on-state current (full cycle, F=50Hz)		I_{TSM}	120	A
I^2t value for fusing ($t_p=10ms$)		I^2t	78	A ² s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$)	I - II - III	di/dt	50	A/ μ s
Peak gate current		I_{GM}	4	A
Average gate power dissipation		$P_{G(AV)}$	1	W
Peak gate power		P_{GM}	5	W

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

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	50	mA
		II		100	
I_H	$I_T=100\text{mA}$		MAX	50	mA
dv/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=125^{\circ}\text{C}$		MIN	500	V/ μs
(dv/dt) _c	(di/dt) _c =5.3A/ms $T_j=125^{\circ}\text{C}$		MIN	10	V/ μs

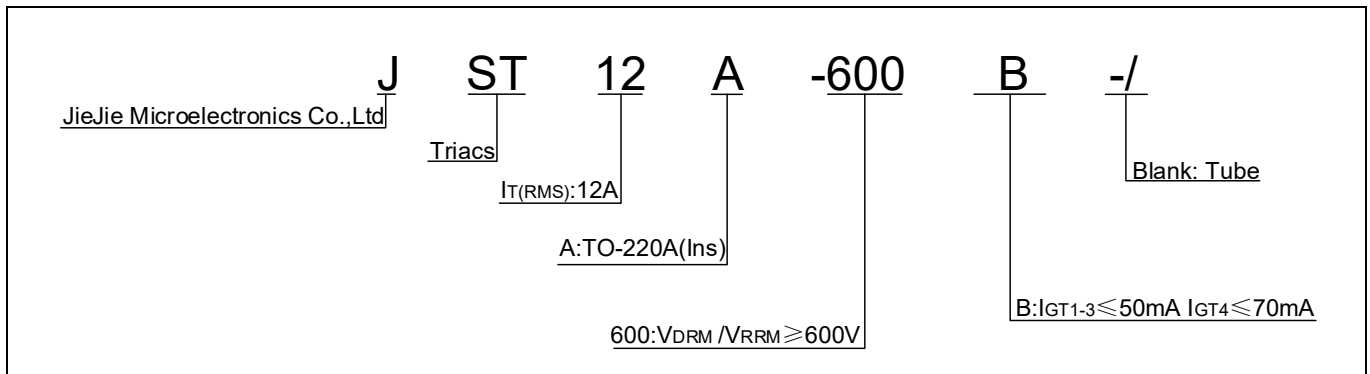
STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
V_{TM}	$I_{TM}=17\text{A}$ $t_p=380\mu\text{s}$	$T_j=25^{\circ}\text{C}$	1.5	V
V_{TO}	Threshold voltage	$T_j=125^{\circ}\text{C}$	0.95	V
R_d	Dynamic resistance	$T_j=125^{\circ}\text{C}$	26	m Ω
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^{\circ}\text{C}$	5	μA
I_{RRM}		$T_j=125^{\circ}\text{C}$	1	mA

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TO-220A(Ins)	2.5	$^{\circ}\text{C}/\text{W}$

ORDERING INFORMATION



MARKING

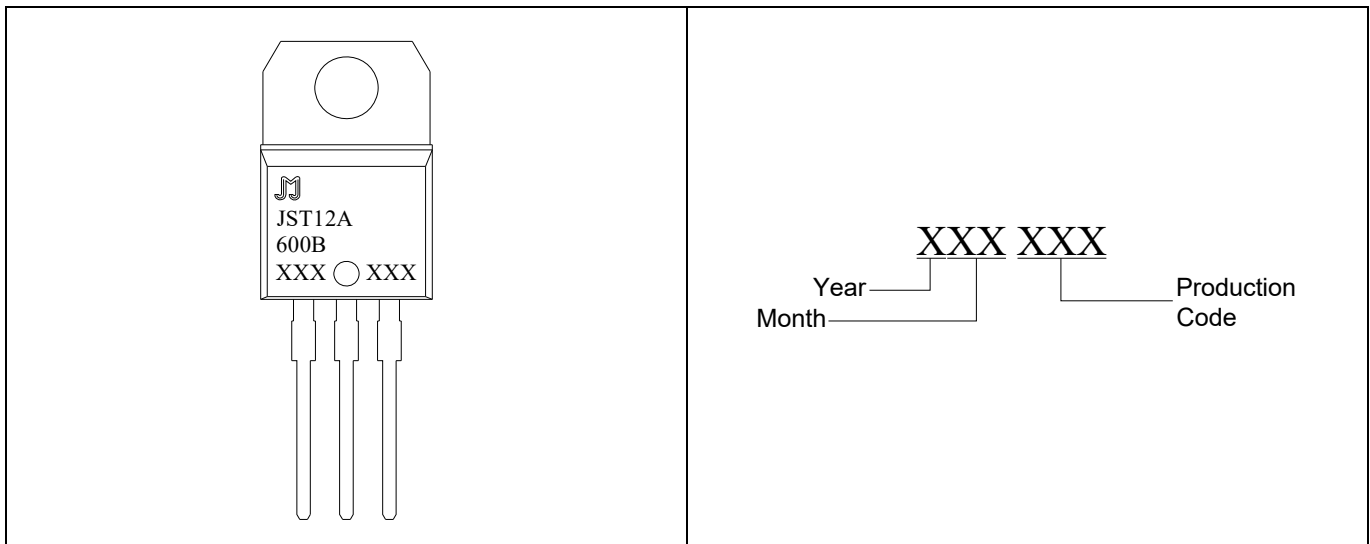


FIG.1 Maximum power dissipation versus RMS on-state current

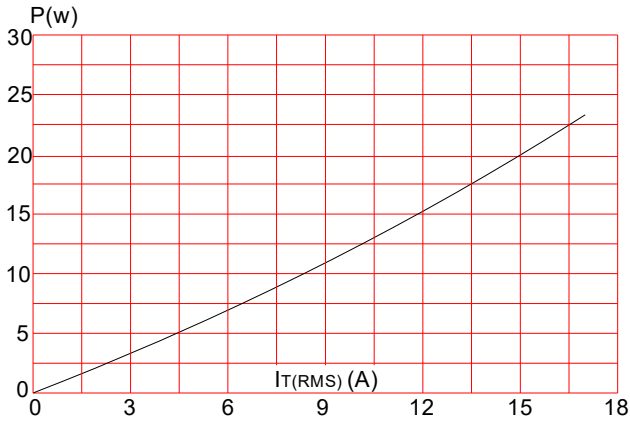


FIG.3: Surge peak on-state current versus number of cycles

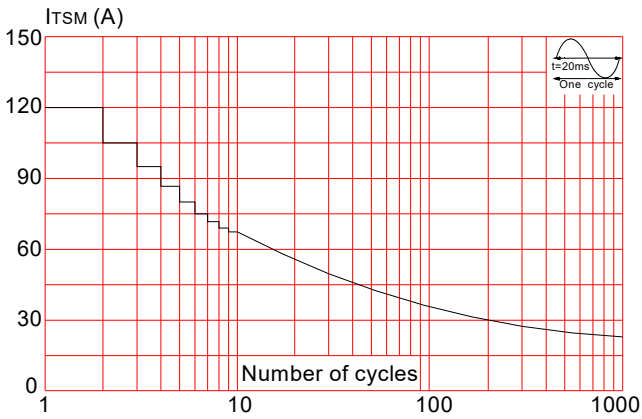


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I^2t (di/dt (I-II-III) $< 50\text{A}/\mu\text{s}$)

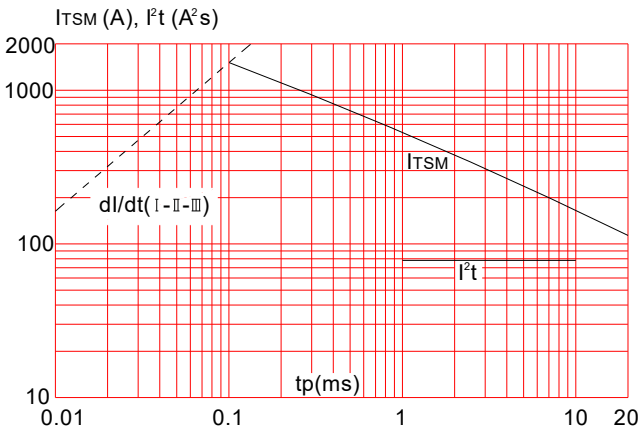


FIG.2: RMS on-state current versus case temperature

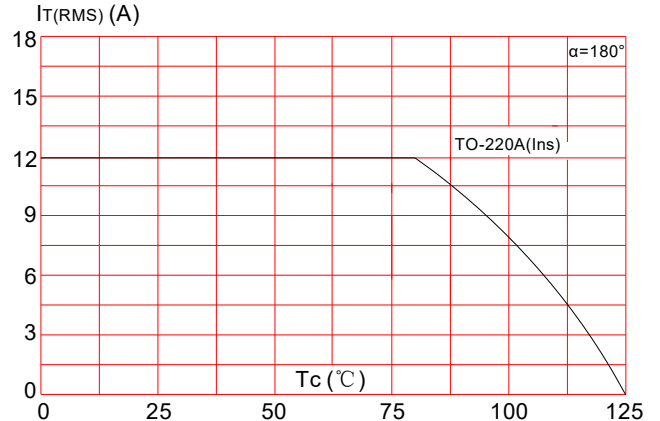


FIG.4: On-state characteristics (maximum values)

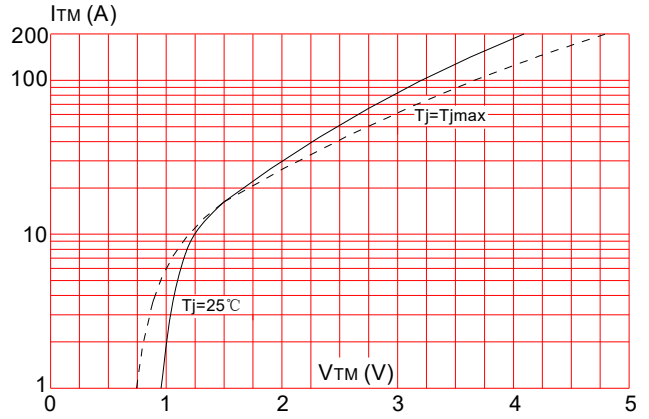
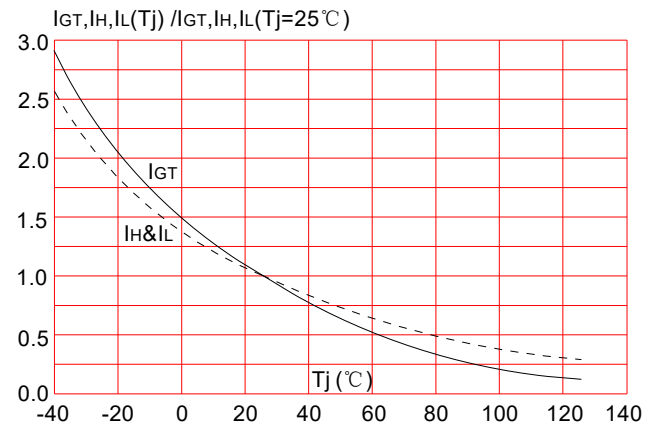


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



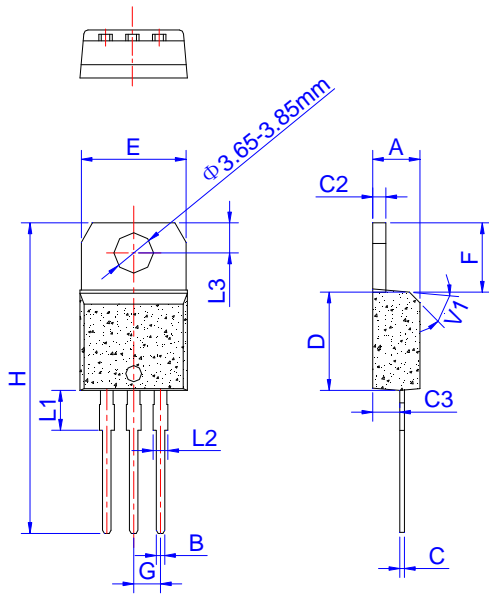
ORDERING INFORMATION

Order code	Voltage V_{DRM}/V_{RRM} (V)	IGT(mA)		Package	Base qty. (pcs)	Delivery mode
		I - II -III	IV			
JST12A-600B	600	50	70	TO-220A(Ins)	50	Tube

Document Revision History

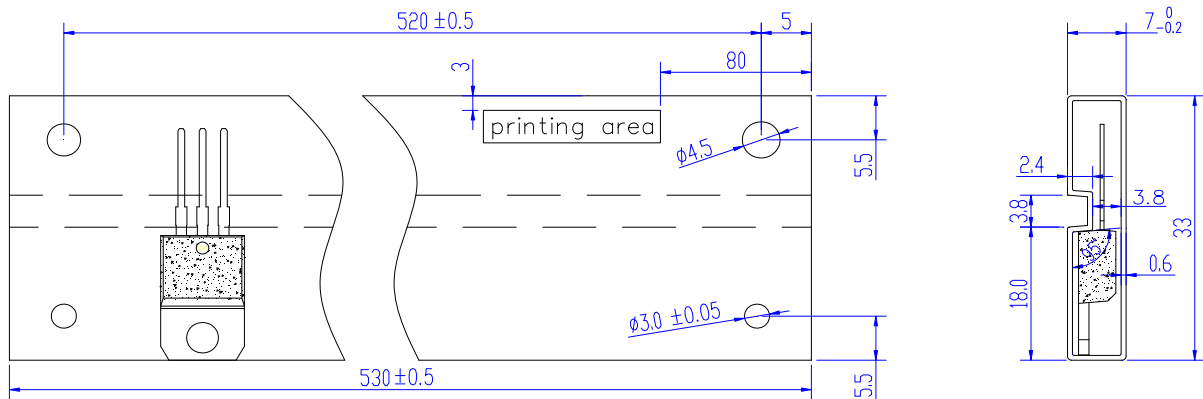
Date	Revision	Changes
Mar 15, 2022	1	Last update

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	6.55		6.95	0.258		0.274
G	2.40		2.70	0.094		0.106
H	28.0		29.8	1.102		1.173
L1		3.75			0.148	
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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