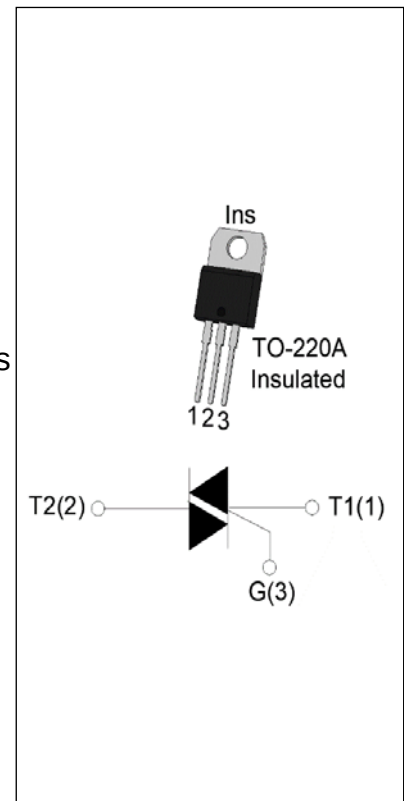


JST30A-600BW 30A TRIAC

Rev.A.1.1

DESCRIPTION:

The JST30A-600BW 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. JST30A-600BW snubberless triac is especially recommended for use on inductive loads. By using an internal ceramic pad, JST30A-600BW 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
$I_{T(RMS)}$	30	A
V_{DRM}/V_{RRM}	600	V
$I_{GT\ I/II/III}$	50/50/50	mA

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	V
Repetitive peak reverse voltage ($T_j=25^\circ\text{C}$)	V_{RRM}	600	V
RMS on-state current ($T_c \leq 75^\circ\text{C}$)	$I_{T(RMS)}$	30	A
Non repetitive surge peak on-state current (full cycle , $t_p=20\text{ms}$, $T_j=25^\circ\text{C}$)	I_{TSM}	300	A
Non repetitive surge peak on-state current (full cycle , $t_p=16.6\text{ms}$, $T_j=25^\circ\text{C}$)		330	
I^2t value for fusing ($t_p=10\text{ms}$, $T_j=25^\circ\text{C}$)	I^2t	450	A^2s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$, $f=100\text{Hz}$, $T_j=125^\circ\text{C}$)	di/dt	100	$\text{A}/\mu\text{s}$
Peak gate current ($t_p=20\mu\text{s}$, $T_j=125^\circ\text{C}$)	I_{GM}	4	A
Average gate power dissipation ($T_j=125^\circ\text{C}$)	$P_{G(AV)}$	0.5	W

Peak gate power	P_{GM}	10	W
Peak pulse voltage ($T_j=25^{\circ}\text{C}$; non-repetitive, off-state; FIG.7)	V_{pp}	2.5	kV

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
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.	0.15	V
I_L	$I_G=1.2I_{GT}$	I -III	MAX.	80	mA
		II		100	
I_H	$I_T=500\text{mA}$		MAX.	75	mA
dV/dt	$V_D=400\text{V}$ Gate Open $T_j=125^{\circ}\text{C}$		MIN.	2500	V/ μs
$(dI/dt)_c$	$(dV/dt)_c=20\text{V}/\mu\text{s}$ $T_j=125^{\circ}\text{C}$		MIN.	25	A/ms
t_{on}	$I_G=80\text{mA}$ $I_A=400\text{mA}$ $I_R=40\text{mA}$ $T_j=25^{\circ}\text{C}$		TYP.	10	μs
t_{off}				70	

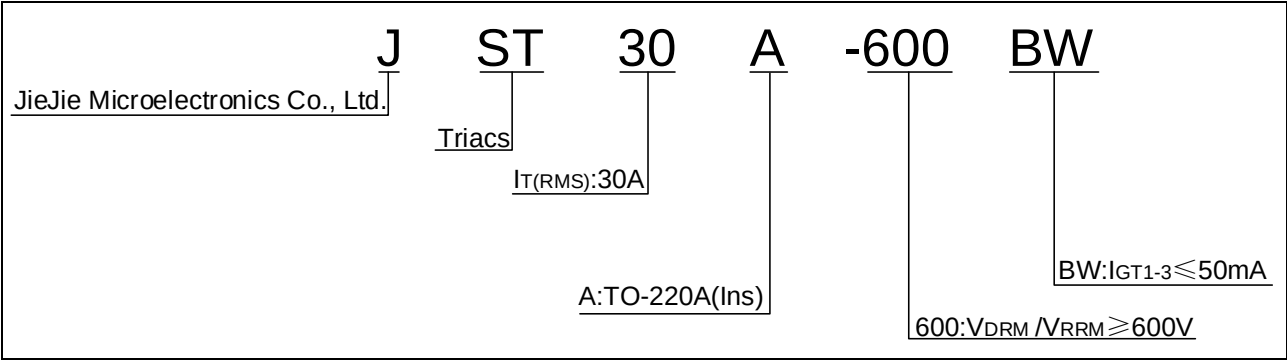
STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$I_{TM}=42\text{A}$ $t_p=380\mu\text{s}$	$T_j=25^{\circ}\text{C}$	1.5	V
V_{TO}	Threshold voltage	$T_j=125^{\circ}\text{C}$	0.72	V
R_D	Dynamic resistance	$T_j=125^{\circ}\text{C}$	25	$\text{m}\Omega$
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^{\circ}\text{C}$	5	μA
I_{RRM}		$T_j=125^{\circ}\text{C}$	1.5	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (AC)	1.2	$^{\circ}\text{C}/\text{W}$
$R_{th(j-a)}$	junction to ambient (AC)	60	$^{\circ}\text{C}/\text{W}$

ORDERING INFORMATION



MARKING

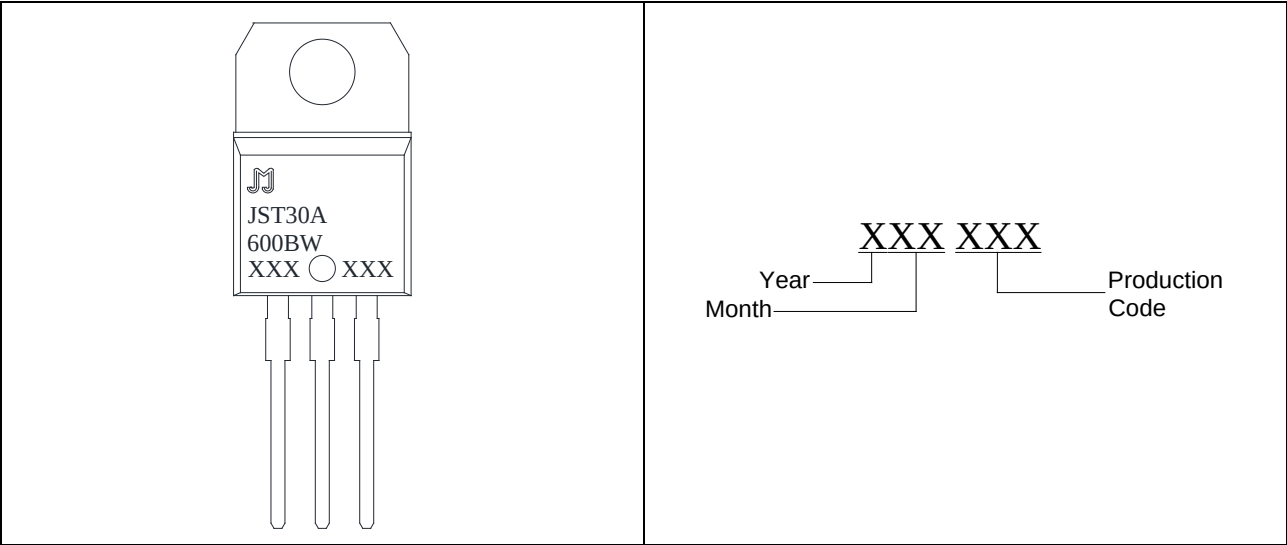


FIG.1: Maximum power dissipation versus RMS on-state current

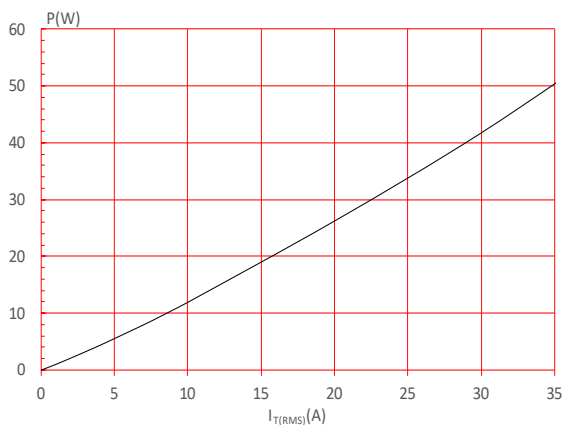


FIG.3: Surge peak on-state current versus number of cycles

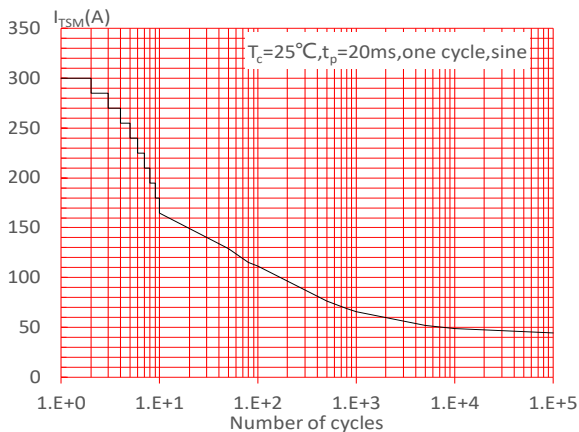


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I^2t ($di/dt < 100\text{A}/\mu\text{s}$)

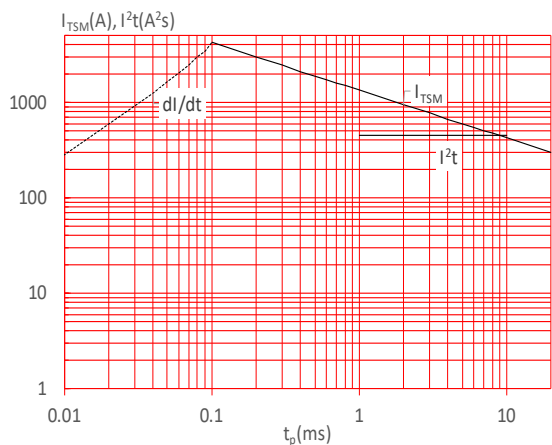


FIG.2: RMS on-state current versus case temperature

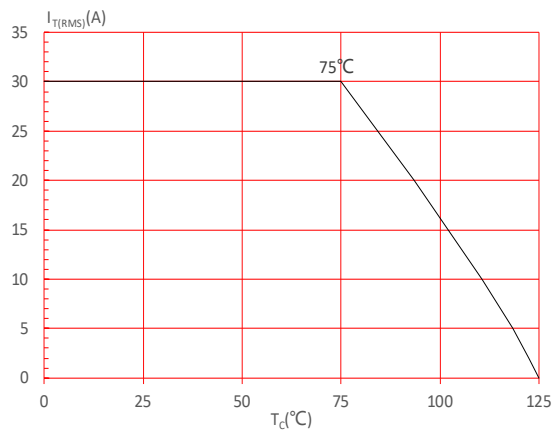


FIG.4: On-state characteristics

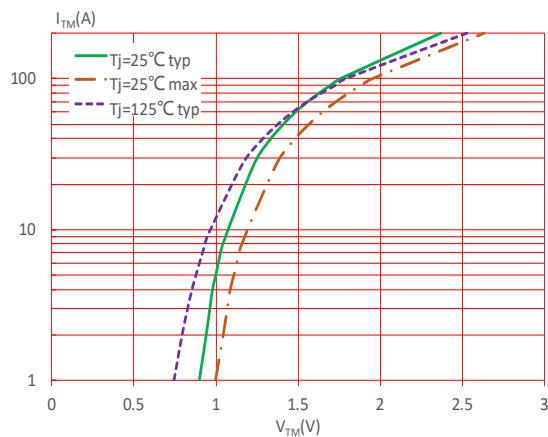


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature

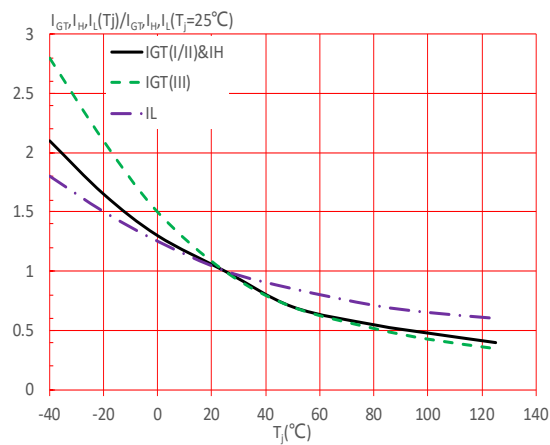
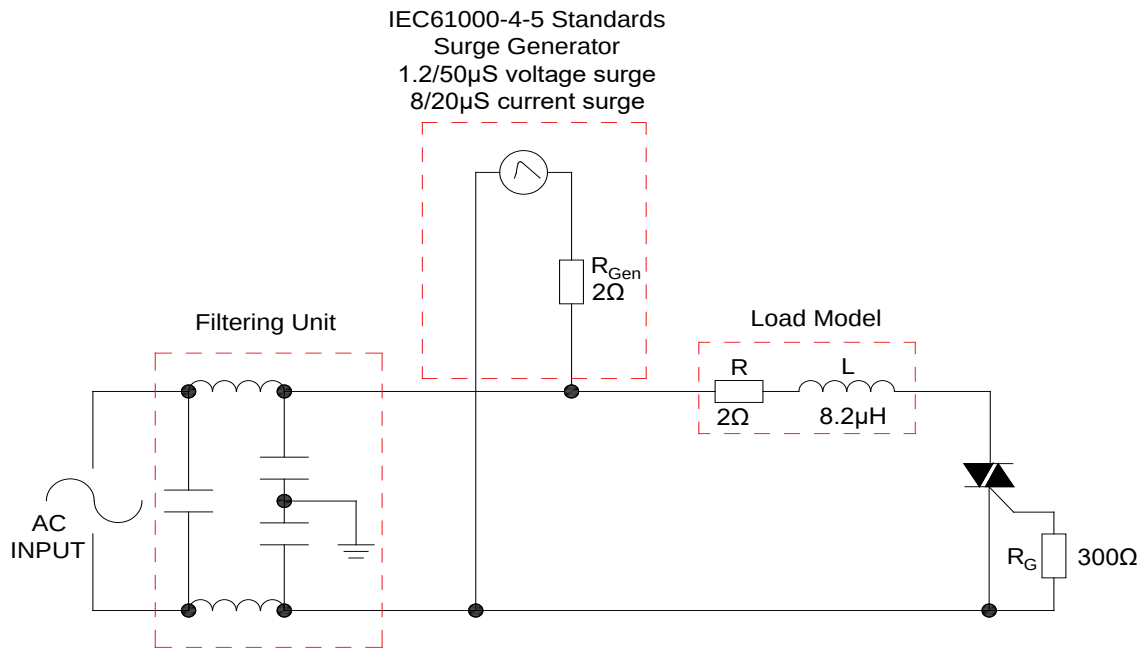


FIG.7: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards



LEAD FORMING AND SOLDERING

Refer to the application note “Assembly Instructions for Thyristors in Through-hole Package” released by JieJie Microelectronics

ORDERING INFORMATION

Order code	Voltage $V_{\text{DRM}}/V_{\text{RRM}}$ (V)	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
		I - II - III			
JST30A-600BW	600	50	TO-220A(Ins)	50	Tube

Document Revision History

Date	Revision	Changes
Apr.11, 2023	A.1.0	Last updated
Oct.13, 2025	A.1.1	Revise PACKAGE MECHANICAL DATA

Technical drawing of a 3-pin connector. The drawing includes a top view, a side view, and a cross-sectional view. The top view shows a rectangular body with a circular hole and three pins. The side view shows the profile of the connector with dimensions A, C2, C3, C, D, F, and V1. The cross-sectional view shows the internal structure with dimensions E, L, L3, L2, G, B, K, H, L1, J, and a central hole with diameter $\Phi 3.7-3.9\text{mm}$. The drawing also includes a detail view of the bottom of the connector showing the pins and the base material with dimensions E1 and H1.

Technical drawing of a 3D printed part, showing three views: top, front, and side. The drawing includes dimensions in millimeters (mm) and a label for the 'printing area'.

Top View Dimensions:

- Overall width: 520 ± 0.5 mm
- Overall height: 530 ± 0.5 mm
- Distance from left edge to center of hole: 80 mm
- Radius of hole: $\phi 4.5$ mm
- Distance from right edge to center of hole: 5 mm
- Distance from top edge to center of hole: 5.5 mm
- Distance from bottom edge to center of hole: 5.5 mm
- Distance from left edge to center of hole: 5 mm

Front View Dimensions:

- Overall width: 520 ± 0.5 mm
- Overall height: 530 ± 0.5 mm
- Distance from left edge to center of hole: 80 mm
- Radius of hole: $\phi 4.5$ mm
- Distance from right edge to center of hole: 5 mm
- Distance from top edge to center of hole: 5.5 mm
- Distance from bottom edge to center of hole: 5.5 mm
- Distance from left edge to center of hole: 5 mm

Side View Dimensions:

- Overall width: 520 ± 0.5 mm
- Overall height: 530 ± 0.5 mm
- Distance from left edge to center of hole: 80 mm
- Radius of hole: $\phi 4.5$ mm
- Distance from right edge to center of hole: 5 mm
- Distance from top edge to center of hole: 5.5 mm
- Distance from bottom edge to center of hole: 5.5 mm
- Distance from left edge to center of hole: 5 mm

Printing Area Label:

The 'printing area' is indicated by a dashed line and a label 'printing area'.

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