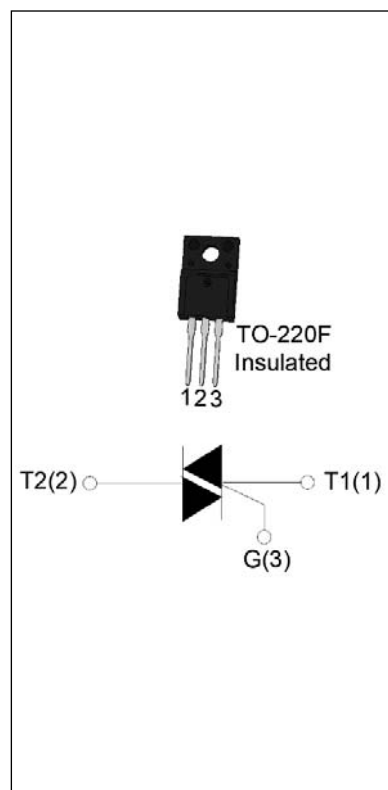


JST04F-600BW 4A TRIAC

Rev.A.1.1

DESCRIPTION:

The JST04F-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. JST04F-600BW snubberless triac is especially recommended for use on inductive loads. By using an external plastic package, JST04F-600BW provides a rated insulation voltage of 2000 VRMS, complying with UL standards (File ref: E252906). Package TO-220F is RoHS compliant.


MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	4	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 ($T_c \leq 97^\circ\text{C}$)	$I_{T(RMS)}$	4	A
Non repetitive surge peak on-state current (full cycle , $t_p=20\text{ms}$, $T_j=25^\circ\text{C}$)	I_{TSM}	40	A
Non repetitive surge peak on-state current (full cycle , $t_p=16.6\text{ms}$, $T_j=25^\circ\text{C}$)		44	
I^2t value for fusing ($t_p=10\text{ms}$, $T_j=25^\circ\text{C}$)	I^2t	8	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}	4	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	V
V_{GD}	$V_D=V_{DRM}$ $T_j=125^{\circ}\text{C}$ $R_L=3.3\text{k}\Omega$	I - II -III	MIN.	0.2	V
I_L	$I_G=1.2I_{GT}$	I -III	MAX.	70	mA
		II		80	
I_H	$I_T=100\text{mA}$		MAX.	60	mA
dV/dt	$V_D=400\text{V}$ Gate Open $T_j=125^{\circ}\text{C}$		MIN.	2000	V/ μs
$(dI/dt)_c$	$(dV/dt)_c=20\text{V}/\mu\text{s}$, $T_j=125^{\circ}\text{C}$		MIN.	10	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.	5	μs
t_{off}				50	

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$I_{TM}=5\text{A}$ $t_p=380\mu\text{s}$	$T_j=25^{\circ}\text{C}$	1.65	V
V_{TO}	Threshold voltage	$T_j=125^{\circ}\text{C}$	0.799	V
R_D	Dynamic resistance	$T_j=125^{\circ}\text{C}$	151	m Ω
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^{\circ}\text{C}$	5	μA
I_{RRM}		$T_j=125^{\circ}\text{C}$	0.2	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (AC)	4.5	$^{\circ}\text{C}/\text{W}$
$R_{th(j-a)}$	junction to ambient (AC)	60	$^{\circ}\text{C}/\text{W}$

ORDERING INFORMATION

<u>J</u>	<u>ST</u>	<u>04</u>	<u>F</u>	<u>-600</u>	<u>BW</u>
JieJie Microelectronics Co., Ltd.	Triacs	$I_{T(RMS)}:4A$	$F:TO-220F(Ins)$		$BW:I_{GT1-3} \leq 50mA$
				$600:V_{DRM}/V_{RRM} \geq 600V$	

MARKING

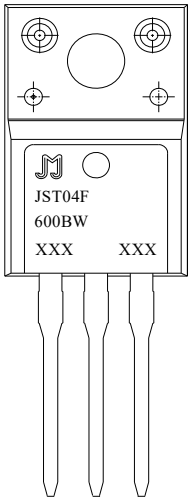
	XXX XXX Year Month Production Code
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FIG.1: Maximum power dissipation versus RMS on-state current

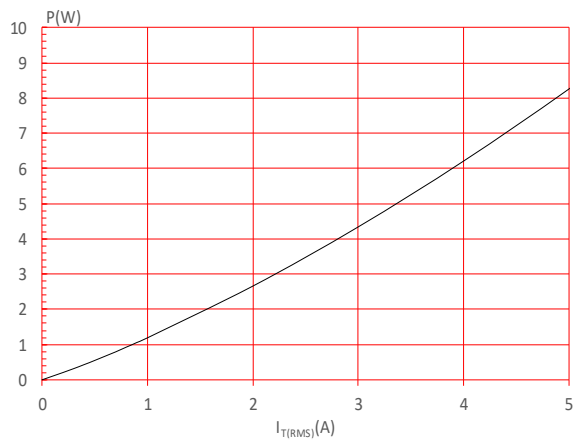


FIG.3: Surge peak on-state current versus number of cycles

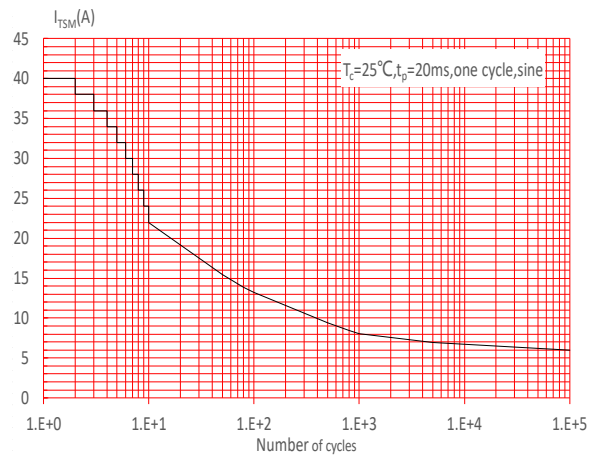


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I^2t ($di/dt < 100\text{A}/\mu\text{s}$)

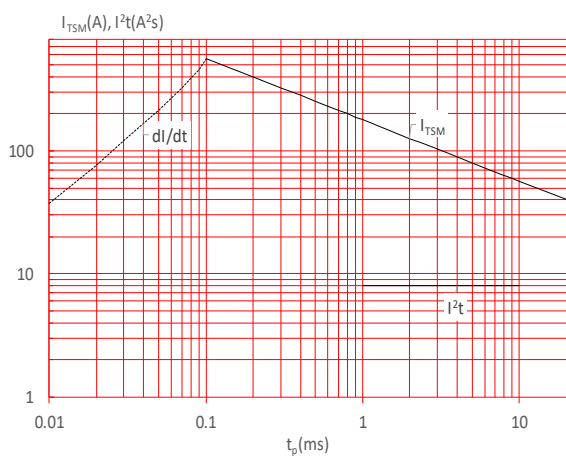


FIG.2: RMS on-state current versus case temperature

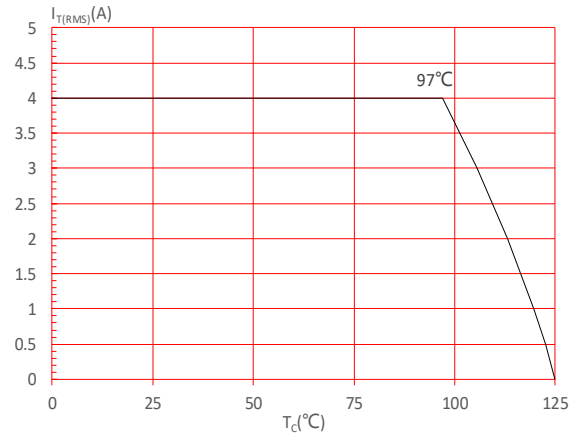


FIG.4: On-state characteristics

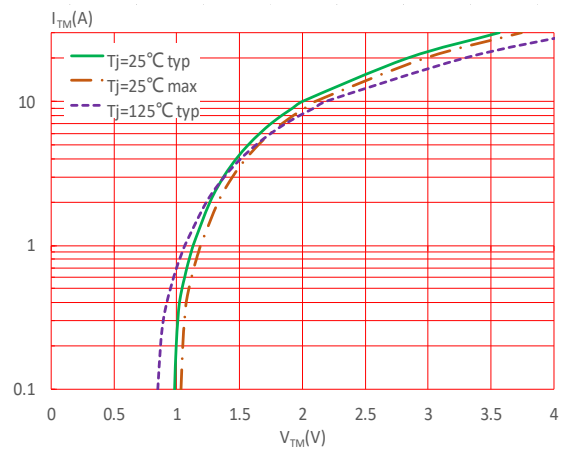


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature

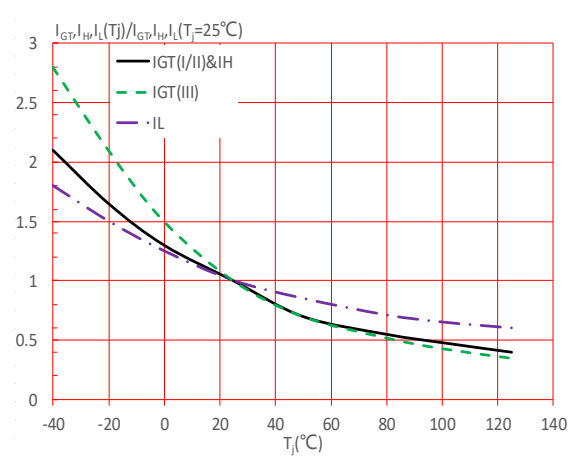
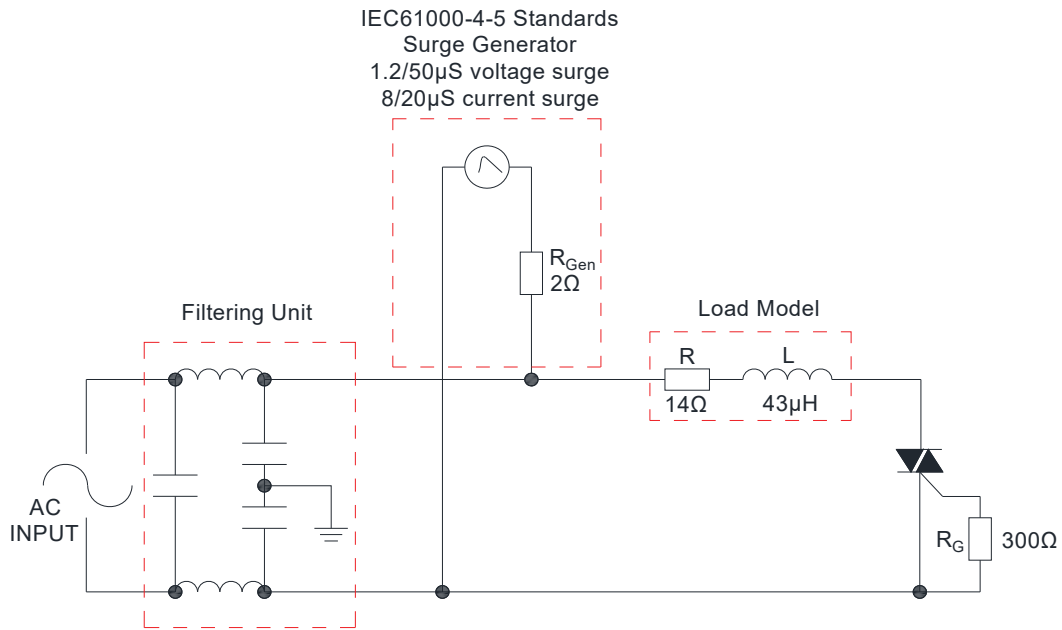


FIG.7: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards

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 _{DRM} /V _{RRM} (V)	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
		I - II - III			
JST04F-600BW	600	50	TO-220F(Ins)	50	Tube

Document Revision History

Date	Revision	Changes
Apr.11, 2023	A.1.0	Last updated
Oct.10, 2025	A.1.1	Revise PACKAGE MECHANICAL DATA

Technical drawing of a 3-pin plug, showing three views: a top view, a front view, and a side view. The drawing includes the following dimensions and labels:

- Top View:** Shows the circular face of the plug with two pins. Dimensions include E (total width), I (pin spacing), $L3$ (pin diameter), and a hole diameter of $\phi 3.05-3.25mm$.
- Front View:** Shows the plug's profile with dimensions H (total height), $L1$ (top section height), K (bottom section height), G (base width), M (pin base width), B (pin diameter), and J (total pin length).
- Side View:** Shows the plug's profile with dimensions A (total height), $C2$ (top section height), F (middle section height), D (bottom section height), $C3$ (base width), and C (pin diameter).

Technical drawing of a 3D-printed part, showing three views: front, top, and side. The drawing includes dimensions in millimeters (mm).

Front View:

- Overall width: 520 ± 0.5 mm
- Overall height: 5.5 mm
- Central slot width: 80 mm
- Slot depth: 3 mm
- Printing area label: "printing area"
- Bottom hole diameter: $\phi 3.0 \pm 0.05$ mm
- Top hole diameter: $\phi 4.5$ mm

Top View:

- Overall width: 530 ± 0.5 mm
- Overall height: 5.5 mm
- Central slot width: 80 mm
- Slot depth: 3 mm
- Printing area label: "printing area"
- Bottom hole diameter: $\phi 3.0 \pm 0.05$ mm
- Top hole diameter: $\phi 4.5$ mm

Side View:

- Overall width: $7.0_{-0.2}^{+0}$ mm
- Overall height: 33 mm
- Central slot width: 2.4 mm
- Slot depth: 3.8 mm
- Printing area label: "printing area"
- Bottom hole diameter: $\phi 3.0 \pm 0.05$ mm
- Top hole diameter: $\phi 4.5$ mm

<http://www.jjwdz.com>

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