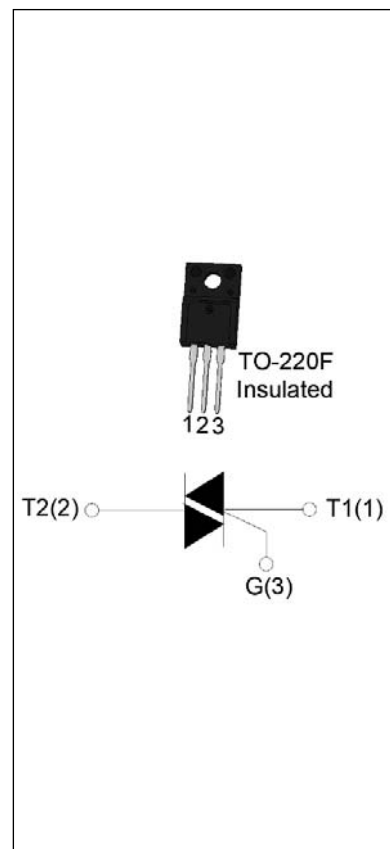


JST06F-600CW 6A TRIAC

Rev.A.1.1

DESCRIPTION:

The JST06F-600CW 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. JST06F-600CW snubberless triac is especially recommended for use on inductive loads. By using an external plastic package, JST06F-600CW 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
$I_{T(RMS)}$	6	A
V_{DRM}/V_{RRM}	600	V
$I_{GT\ I/II/III}$	35/35/35	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 ($T_c \leq 98^\circ\text{C}$)	$I_{T(RMS)}$	6	A
Non repetitive surge peak on-state current (full cycle , $t_p=20\text{ms}$, $T_j=25^\circ\text{C}$)	I_{TSM}	65	A
Non repetitive surge peak on-state current (full cycle , $t_p=16.6\text{ms}$, $T_j=25^\circ\text{C}$)		72	
I^2t value for fusing ($t_p=10\text{ms}$, $T_j=25^\circ\text{C}$)	I^2t	21	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}	3	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.	35	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.	50	mA
		II		60	
I_H	$I_T=100\text{mA}$		MAX.	35	mA
dV/dt	$V_D=400\text{V}$ Gate Open $T_J=125^{\circ}\text{C}$		MIN.	1500	V/ μs
$(dI/dt)_c$	$(dV/dt)_c=20\text{V}/\mu\text{s}$, $T_J=125^{\circ}\text{C}$		MIN.	4	A/ms
t_{on}	$I_G=40\text{mA}$ $I_A=200\text{mA}$ $I_R=20\text{mA}$ $T_J=25^{\circ}\text{C}$		TYP.	3	μs
t_{off}				30	

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$I_{TM}=8.5\text{A}$ $t_p=380\mu\text{s}$	$T_J=25^{\circ}\text{C}$	1.5	V
V_{TO}	Threshold voltage	$T_J=125^{\circ}\text{C}$	0.82	V
R_D	Dynamic resistance	$T_J=125^{\circ}\text{C}$	57	$\text{m}\Omega$
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_J=25^{\circ}\text{C}$	5	μA
I_{RRM}		$T_J=125^{\circ}\text{C}$	0.2	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (AC)	3.2	$^{\circ}\text{C}/\text{W}$
$R_{th(j-a)}$	junction to ambient (AC)	60	$^{\circ}\text{C}/\text{W}$

ORDERING INFORMATION

<u>J</u>	<u>ST</u>	<u>06</u>	<u>F</u>	<u>-600</u>	<u>CW</u>
JieJie Microelectronics Co., Ltd.	Triacs	$I_{T(RMS)}:6A$	$F:TO-220F(Ins)$	$600:V_{DRM}/V_{RRM} \geq 600V$	$CW:I_{GT1-3} \leq 35mA$

MARKING

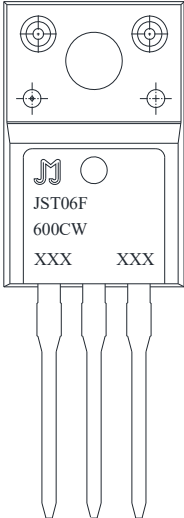
	XXX XXX Year _____ Month _____ Production Code
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FIG.1: Maximum power dissipation versus RMS on-state current

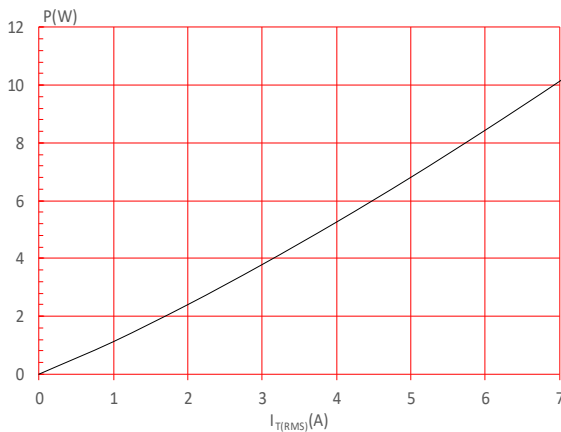


FIG.3: Surge peak on-state current versus number of cycles

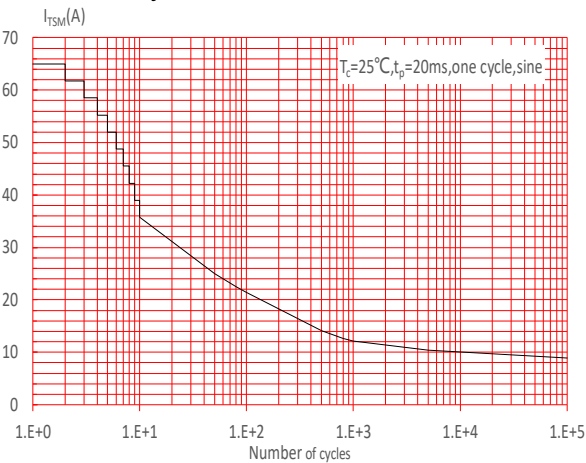


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I^2t ($di/dt < 100\text{A}/\mu\text{s}$)

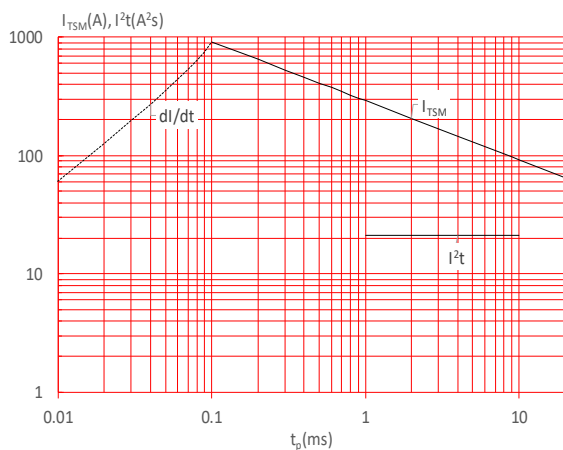


FIG.2: RMS on-state current versus case temperature

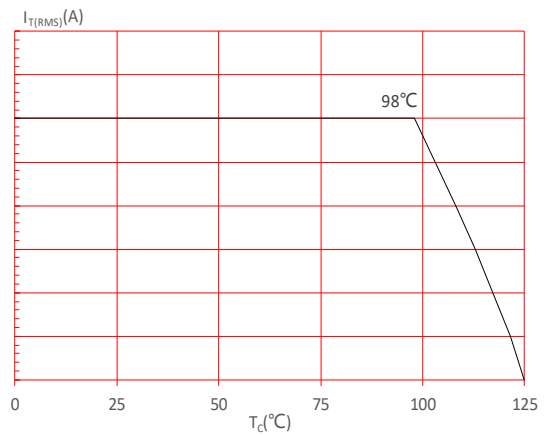


FIG.4: On-state characteristics

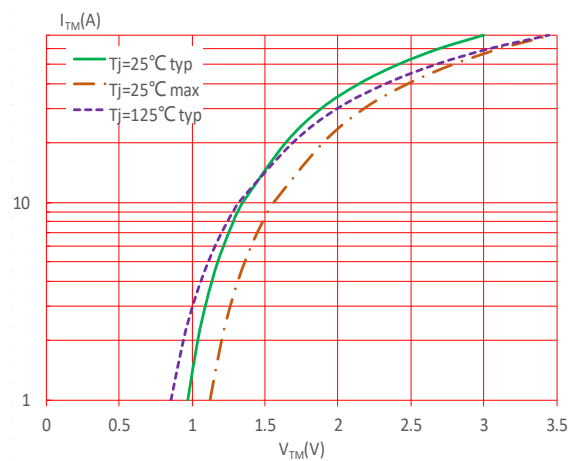


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature

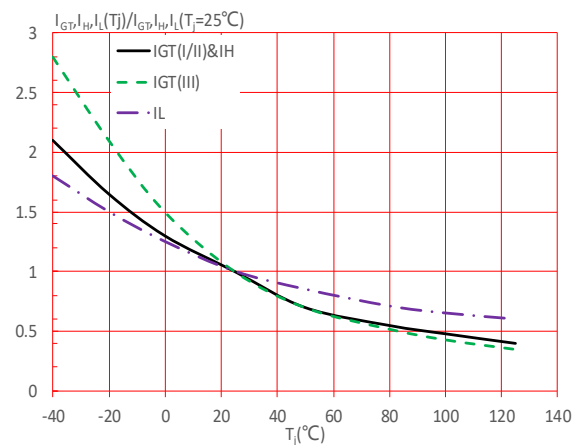
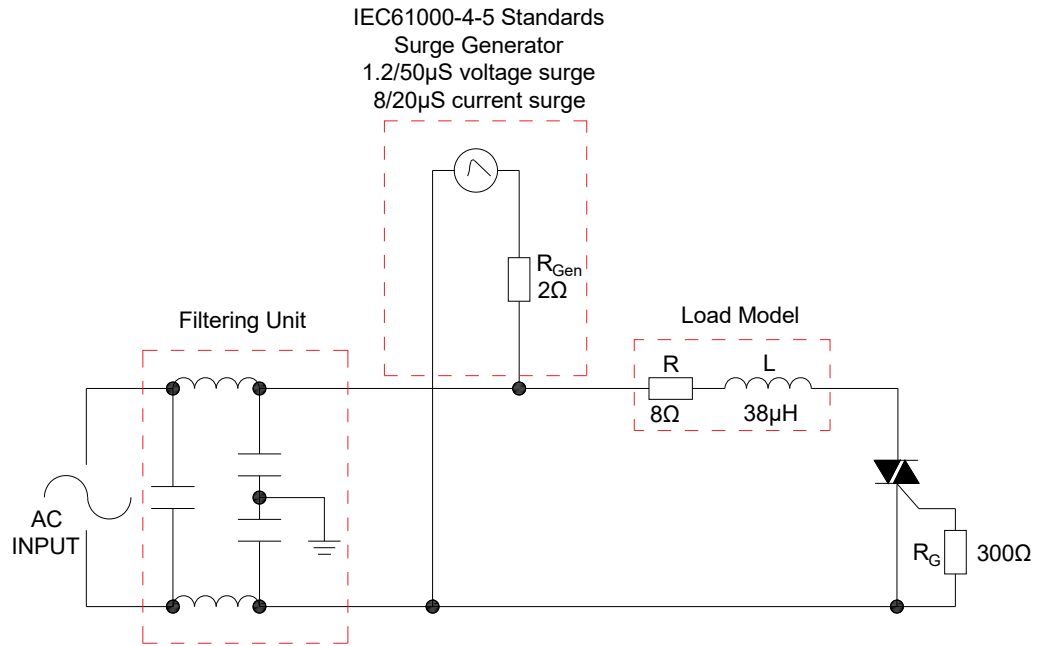


FIG.7: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards



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			
JST06F-600CW	600	35	TO-220F(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 plug, showing front and side views with dimensions and labels.

Front View Dimensions:

- E:** Total width of the plug body.
- I:** Distance between the two outer pins.
- L3:** Width of the top section of the plug body.
- H:** Total height of the plug body.
- L1:** Height of the top section of the plug body.
- L2:** Width of the bottom section of the plug body.
- J:** Height of the bottom section of the plug body.
- K:** Height of the top section of the plug body.
- G:** Distance from the left edge to the center of the bottom section.
- B:** Distance from the center of the bottom section to the right edge.
- M:** Width of the bottom section of the plug body.

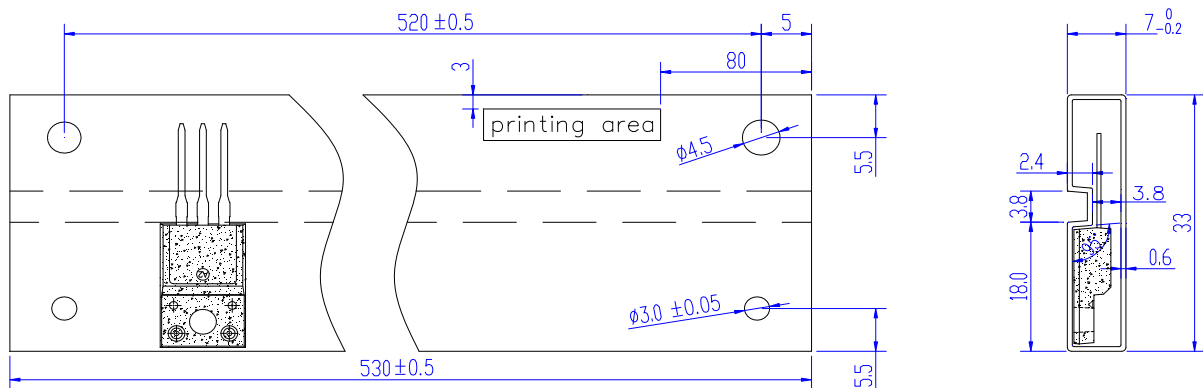
Side View Dimensions:

- A:** Total width of the plug body.
- C2:** Width of the top section of the plug body.
- F:** Height of the top section of the plug body.
- D:** Height of the bottom section of the plug body.
- C3:** Width of the bottom section of the plug body.
- C:** Width of the bottom section of the plug body.

Other Labels:

- Ø 3.05-3.25mm:** Diameter of the central pin.
- 1/2:** Angle of the bottom section of the plug body.

DELIVERY MODE



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

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