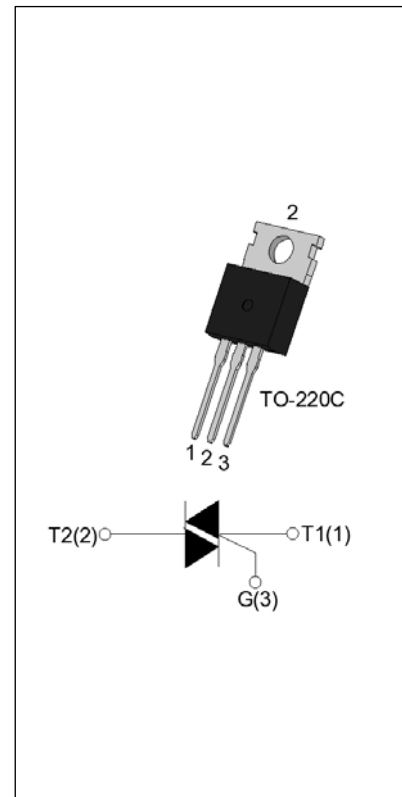


JST04C-600SW 4A TRIAC

Rev.A.1.2

DESCRIPTION:

The JST04C-600SW 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. JST04C-600SW snubberless triac is especially recommended for use on inductive loads. It can be driven directly through the MCU I/O port. From T2 terminals to external heatsink. Package TO-220C is RoHS compliant.


MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	4	A
V_{DRM}/V_{RRM}	600	V
$I_{GT\ I/II/III}$	10/10/10	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 ($T_c \leq 111^\circ\text{C}$)	$I_{T(RMS)}$	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}	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.	10	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.	20	mA
		II		35	
I_H	$I_T=100\text{mA}$		MAX.	15	mA
dV/dt	$V_D=400\text{V}$ Gate Open $T_j=125^{\circ}\text{C}$		MIN.	300	V/ μs
$(dI/dt)_c$	$(dV/dt)_c=10\text{V}/\mu\text{s}$, $T_j=125^{\circ}\text{C}$		MIN.	2.5	A/ms
t_{on}	$I_G=20\text{mA}$ $I_A=200\text{mA}$ $I_R=20\text{mA}$ $T_j=25^{\circ}\text{C}$		TYP.	2.5	μs
t_{off}				25	

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)	2.2	$^{\circ}\text{C}/\text{W}$
$R_{th(j-a)}$	junction to ambient (AC)	60	$^{\circ}\text{C}/\text{W}$

ORDERING INFORMATION

J	ST	04	C	-600	SW
JieJie Microelectronics Co., Ltd.	Triacs				
	IT(RMS):4A				
		C:TO-220C			
					SW:IGT1-3≤10mA
				600:VDRM /VRRM≥600V	

MARKING

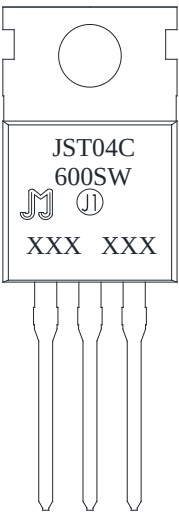
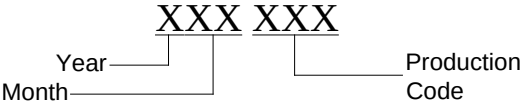
	
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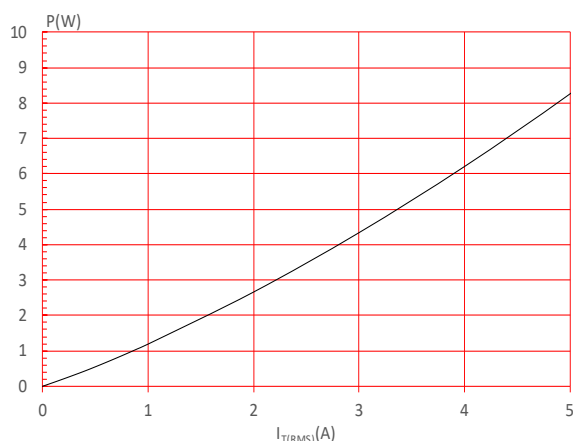
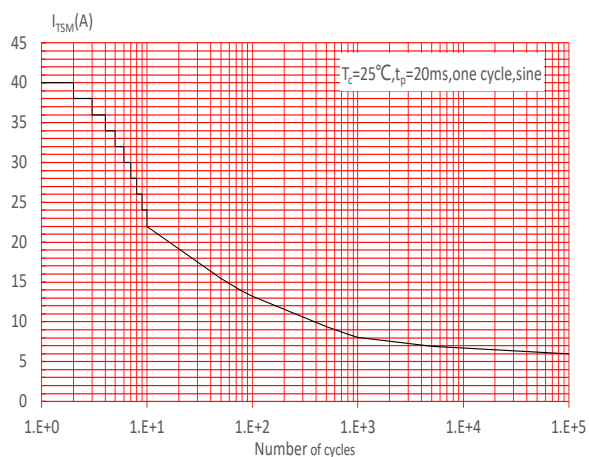
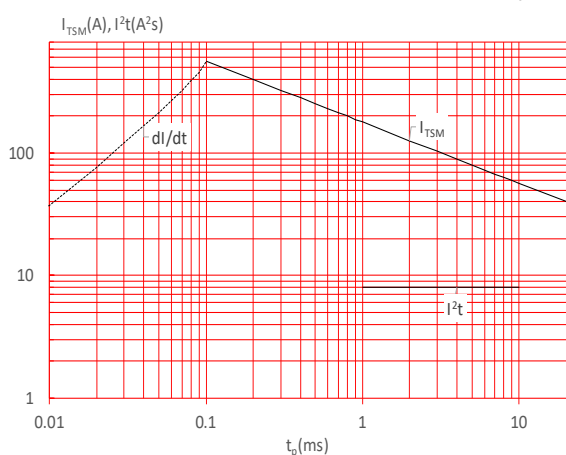
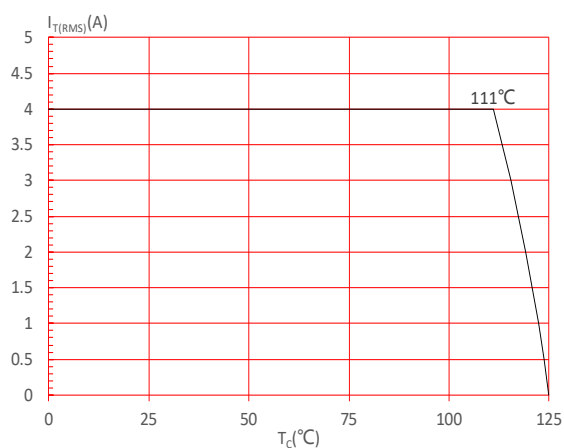
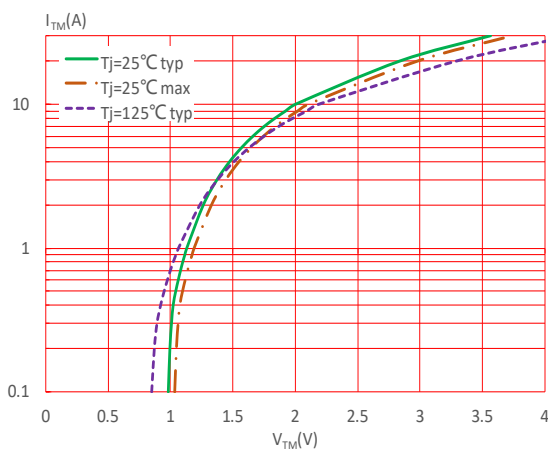
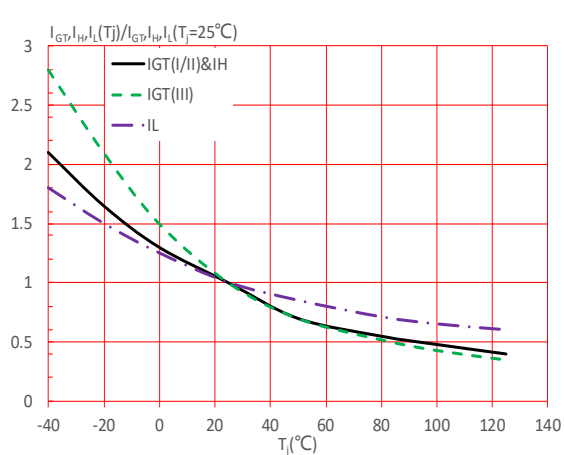
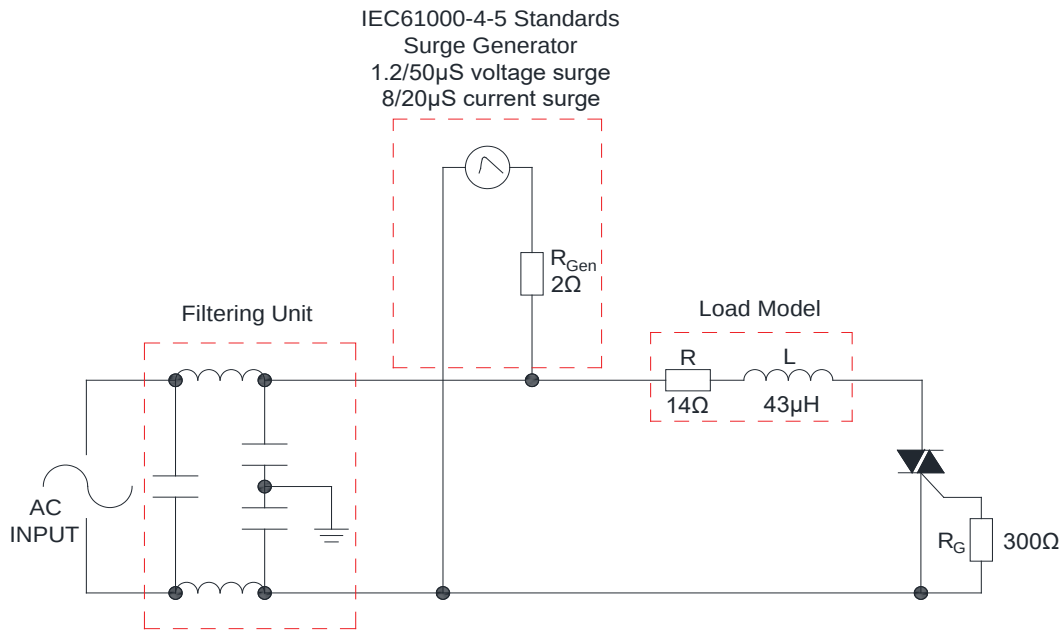
FIG.1: Maximum power dissipation versus RMS on-state current**FIG.3:** Surge peak on-state current versus number of cycles**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20ms$, and corresponding value of I^2t ($di/dt < 100A/\mu s$)**FIG.2:** RMS on-state 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			
JST04C-600SW	600	10	TO-220C	50	Tube

Document Revision History

Date	Revision	Changes
Apr.11, 2023	A.1.0	Last updated
Jul.5, 2024	A.1.1	Renew dl/dt
Oct.15, 2025	A.1.2	Revise PACKAGE MECHANICAL DATA

Technical drawing of a 3-pin plug. The drawing includes a top view, a front view, and a side view. The top view shows a circular hole with a diameter of $\varnothing 3.45-3.65\text{mm}$. The front view shows the plug with dimensions: E (total width), L (width of the top section), $L3$ (height of the top section), H (total height), $L1$ (height of the top section), K (height of the middle section), $L2$ (width of the middle section), B (width of the bottom section), G (width of the bottom section), M (width of the bottom section), and $H1$ (height of the bottom section). The side view shows dimensions: A (width of the top section), $C2$ (width of the top section), D (height of the middle section), $C3$ (width of the bottom section), and C (width of the bottom section).

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.70		0.90	0.028		0.035
C	0.45		0.60	0.018		0.024
C2	1.25		1.35	0.049		0.053
C3	2.20		2.60	0.087		0.102
D	8.90		9.90	0.350		0.390
E	9.90		10.30	0.390		0.406
E1	0.80		1.20	0.031		0.047
F	6.30		6.90	0.248		0.272
G	2.40		2.70	0.094		0.106
H	28.00		29.80	1.102		1.173
H1	2.15		2.55	0.085		0.100
I	4.70		5.10	0.185		0.201
K	9.90		10.30	0.390		0.406
L1	2.70		3.30	0.106		0.130
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
M	4.80		5.20	0.189		0.205

The technical drawings show the dimensions of the device. The top view (left) indicates a total width of 520 ± 0.5 mm and a total height of 530 ± 0.5 mm. The printing area is a rectangle with a width of 80 mm and a height of 44.5 ± 0.05 mm. The distance from the left edge to the printing area is 5 mm, and the distance from the right edge is 5.5 mm. The distance from the top edge to the printing area is 3 mm. The bottom view (right) shows a total width of 18 mm and a total height of 33 mm. The printing area is a rectangle with a width of 7 ± 0.2 mm and a height of 3.8 mm. The distance from the left edge to the printing area is 2.4 mm, and the distance from the right edge is 0.6 mm. The distance from the top edge to the printing area is 3.8 mm. The bottom view also shows a 90° angle and a dimension of $\phi 3 \pm 0.05$ mm.

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

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