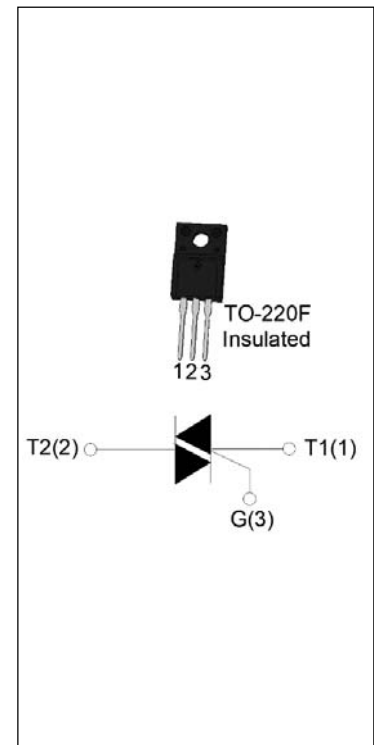


**JST16X-800CW 16A TRIAC**

Rev.A.1.1

DESCRIPTION:

The JST16X-800CW triac is suitable for general purpose AC switching. It is more suitable for the switch functions of washing machines' water valve, positive inversion of motor, heat pump...JST16X-800CW snubberless triac is especially recommended for use on inductive loads. By using an external plastic package, JST16X-800CW 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
$I_{T(RMS)}$	16	A
V_{DRM}/V_{RRM}	800	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 ($T_j=25^{\circ}C$)	V_{DRM}	800	V
Repetitive peak reverse voltage ($T_j=25^{\circ}C$)	V_{RRM}	800	V
RMS on-state current ($T_c \leq 75^{\circ}C$)	$I_{T(RMS)}$	16	A
Non repetitive surge peak on-state current (full cycle , $t_p=20ms$, $T_j=25^{\circ}C$)	I_{TSM}	170	A
Non repetitive surge peak on-state current (full cycle , $t_p=16.6ms$, $T_j=25^{\circ}C$)		180	
I^2t value for fusing ($t_p=10ms$, $T_j=25^{\circ}C$)	I^2t	145	A ² s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$, $f=100Hz$, $T_j=125^{\circ}C$)	di/dt	100	A/ μs
Peak gate current ($t_p=20\mu s$, $T_j=125^{\circ}C$)	I_{GM}	4	A
Average gate power dissipation ($T_j=125^{\circ}C$)	$P_{G(AV)}$	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
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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	$I_T=500\text{mA}$		MAX.	40	mA
dV/dt	$V_D=540\text{V}$ Gate Open $T_j=125^{\circ}\text{C}$		MIN.	1200	V/ μs
$(dI/dt)_c$	$(dV/dt)_c=20\text{V}/\mu\text{s}$ $T_j=125^{\circ}\text{C}$		MIN.	12	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.	5	μs
t_{off}				50	

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$I_{TM}=22.5\text{A}$ $t_p=380\mu\text{s}$	$T_j=25^{\circ}\text{C}$	1.45	V
V_{TO}	Threshold voltage	$T_j=125^{\circ}\text{C}$	0.75	V
R_D	Dynamic resistance	$T_j=125^{\circ}\text{C}$	32	$\text{m}\Omega$
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^{\circ}\text{C}$	5	μA
I_{RRM}		$T_j=125^{\circ}\text{C}$	0.5	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (AC)	2.3	$^{\circ}\text{C}/\text{W}$
$R_{th(j-a)}$	junction to ambient (AC)	60	$^{\circ}\text{C}/\text{W}$

ORDERING INFORMATION

<u>J</u>	<u>ST</u>	<u>16</u>	<u>X</u>	<u>-800</u>	<u>CW</u>
JieJie Microelectronics Co., Ltd.	Triacs	$I_{T(RMS)}:16A$			
		$X:TO-220F(Ins)$			$CW:I_{GT1-3} \leq 35mA$
				$800:V_{DRM}/V_{RRM} \geq 800V$	

MARKING

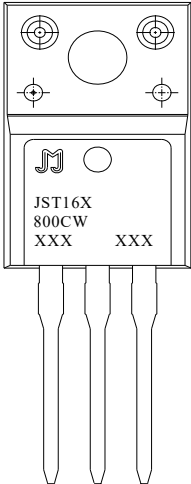
	<u>XXX</u> <u>XXX</u> Year ——— Month ——— Production Code
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FIG.1: Maximum power dissipation versus RMS on-state current

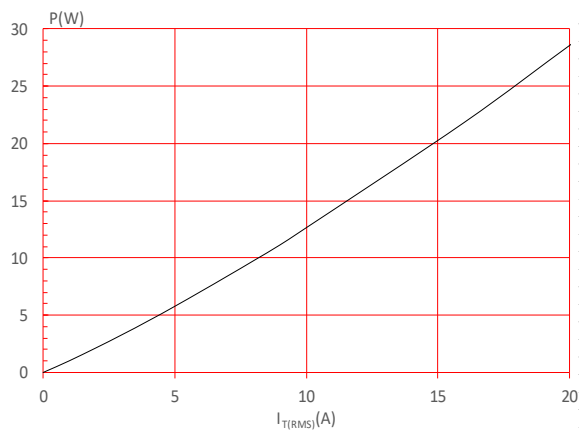


FIG.3: Surge peak on-state current versus number of cycles

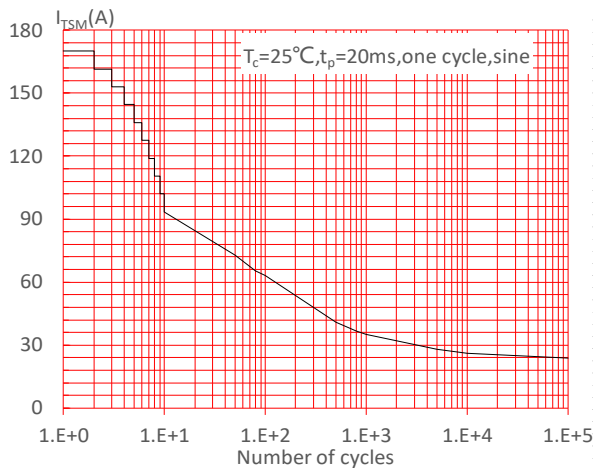


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I^2t ($di/dt < 100\text{A}/\mu\text{s}$)

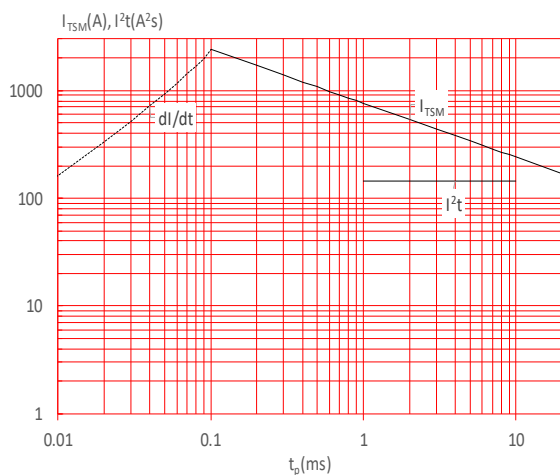


FIG.2: RMS on-state current versus case temperature

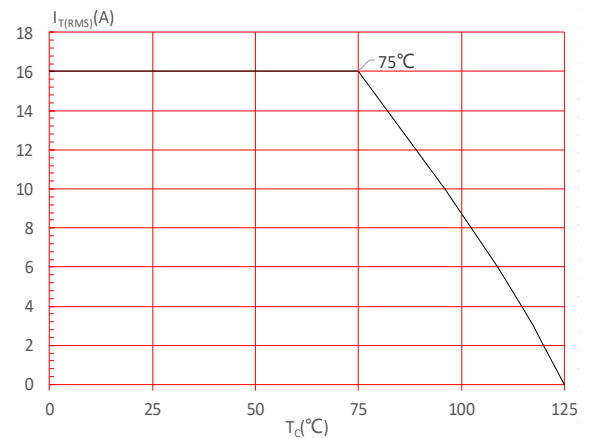


FIG.4: On-state characteristics

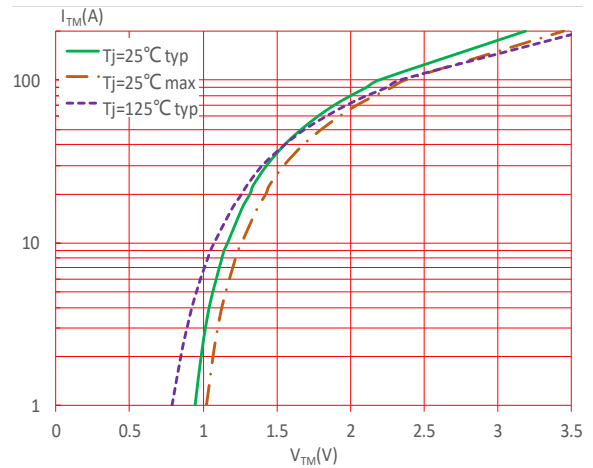


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature

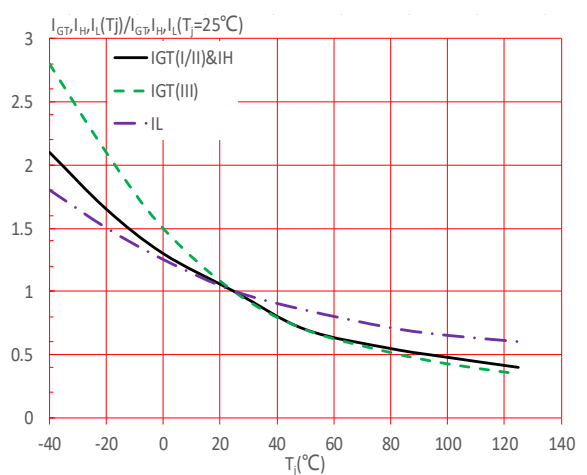
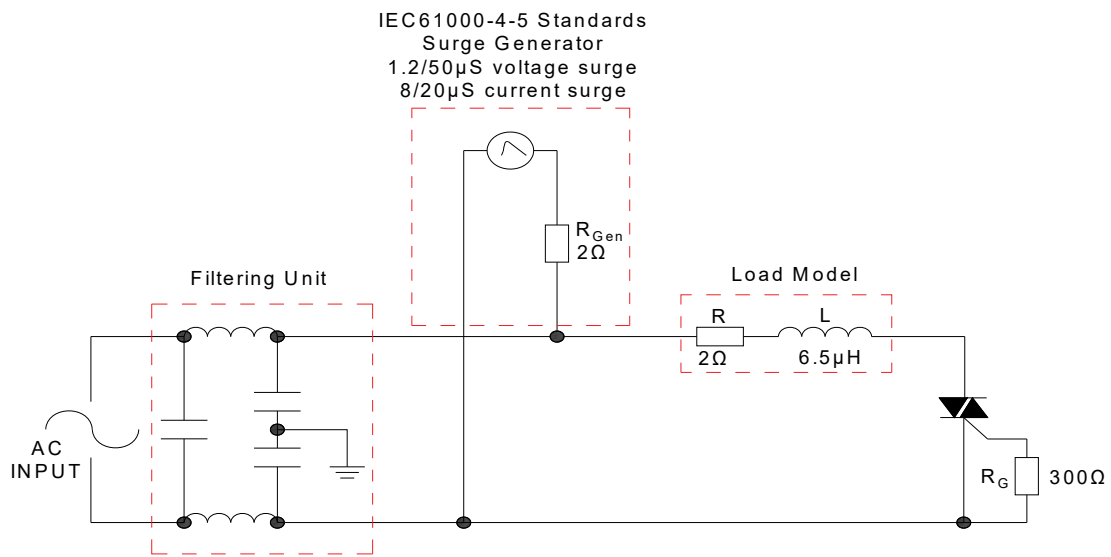


FIG.7: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards

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 $V_{\text{DRM}}/V_{\text{RRM}}$ (V)	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
		I - II - III			
JST16X-800CW	800	35	TO-220F(Ins)	50	Tube

Document Revision History

Date	Revision	Changes
Apr.10, 2023	A.1.0	Last updated
Oct.15, 2025	A.1.1	Revise PACKAGE MECHANICAL DATA

Technical drawing of a 3-pronged plug (Fig. 10). The drawing includes a top view and two side views. The top view shows a rectangular body with a central circular hole and two side holes. Dimensions include: E (total width), I (distance from side edge to side hole), $L3$ (height of the top section), $\phi 3.05-3.25mm$ (hole diameter), $L1$ (height of the bottom section), $L2$ (width of the bottom section), J (total height), K (height of the bottom section), G (width of the bottom section), M (width of the bottom section), and B (width of the bottom section). The side view shows dimensions: A (total height), $C2$ (height of the top section), F (height of the middle section), D (height of the bottom section), $C3$ (width of the bottom section), and C (width of the bottom section). The bottom view shows dimensions: H (total height), $L1$ (height of the bottom section), K (height of the bottom section), G (width of the bottom section), M (width of the bottom section), and B (width of the bottom section).

Technical drawing of a 3D-printed part showing three views: front, top, and side. The front view shows a rectangular part with a central slot and a 'printing area' label. The top view shows a rectangular part with a central slot and a 'printing area' label. The side view shows a rectangular part with a central slot and a 'printing area' label. Dimensions are provided for all views.

Front View Dimensions:

- Overall width: 520 ± 0.5
- Overall height: 5.5
- Slot width: 80
- Slot depth: 3
- Slot radius: $R4.5$
- Slot position: 5 from the right edge

Top View Dimensions:

- Overall width: 530 ± 0.5
- Overall height: 5.5
- Slot width: 80
- Slot depth: 3
- Slot radius: $R4.5$
- Slot position: 5 from the right edge

Side View Dimensions:

- Overall width: $7.0_{-0.2}^0$
- Overall height: 33
- Slot width: 2.4
- Slot depth: 3.8
- Slot radius: $R0.6$
- Slot position: 0.6 from the right edge

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