

JST12A-800C 12A TRIAC

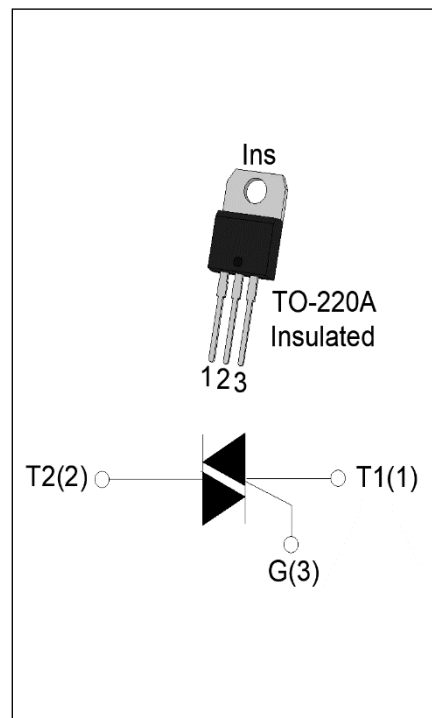
Rev.A.1.1

DESCRIPTION:

The JST12A-800C 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. By using an internal ceramic pad, JST12A-800C 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
$I_{T(RMS)}$	12	A
V_{DRM}/V_{RRM}	800	V
$I_{GT\ I / II / III / IV}$	25/25/25/50	mA


ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage junction temperature range		T _{stg}	-40-150	℃
Operating junction temperature range		T _j	-40-125	℃
Repetitive peak off-state voltage (T _j =25℃)		V _{DRM}	800	V
Repetitive peak reverse voltage (T _j =25℃)		V _{RRM}	800	V
RMS on-state current (T _c ≤87℃)		I _{T(RMS)}	12	A
Non repetitive surge peak on-state current (full cycle , t _p =20ms , T _j =25℃)		I _{TSM}	120	A
Non repetitive surge peak on-state current (full cycle , t _p =16.6ms , T _j =25℃)			132	
I ² t value for fusing (t _p =10ms , T _j =25℃)		I ² t	72	A ² s
Critical rate of rise of on-state current (I _G =2×I _{GT} , f=100Hz , T _j =125℃)	I - II	dI/dt	80	A/μs
	III-IV		40	
Peak gate current (t _p =20μs , T _j =125℃)		I _{GM}	4	A
Average gate power dissipation (T _j =125℃)		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}	1	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.	25	mA
		IV		50	
V_{GT}		ALL	MAX.	1	V
V_{GD}	$V_D=V_{DRM}$ $T_j=125^{\circ}\text{C}$ $R_L=3.3\text{k}\Omega$	ALL	MIN.	0.2	V
I_L	$I_G=1.2I_{GT}$	I - III - IV	MAX.	40	mA
		II		90	
I_H	$I_T=500\text{mA}$		MAX.	30	mA
dV/dt	$V_D=540\text{V}$ Gate Open $T_j=125^{\circ}\text{C}$		MIN.	500	$\text{V}/\mu\text{s}$
$(dV/dt)_c$	$(dI/dt)_c=5.3\text{A/ms}$, $T_j=125^{\circ}\text{C}$		MIN.	6	$\text{V}/\mu\text{s}$
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}	$I_{TM}=17\text{A}$ $t_p=380\mu\text{s}$	$T_j=25^{\circ}\text{C}$	1.5	V
V_{TO}	Threshold voltage	$T_j=125^{\circ}\text{C}$	0.77	V
R_D	Dynamic resistance	$T_j=125^{\circ}\text{C}$	35	$\text{m}\Omega$
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

J	ST	12	A	-800	C
JieJie Microelectronics Co., Ltd.	Triacs	$I_{T(RMS)}:12A$			$C:I_{GT1-3}\leq 25mA\ I_{GT4}\leq 50mA$
		A:TO-220A(Ins)		800: $V_{DRM}/V_{RRM}\geq 800V$	

MARKING

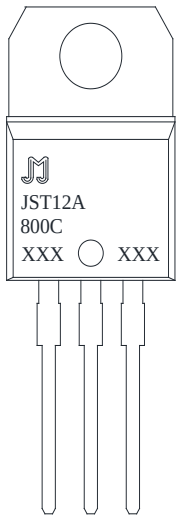
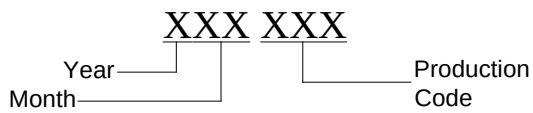
	
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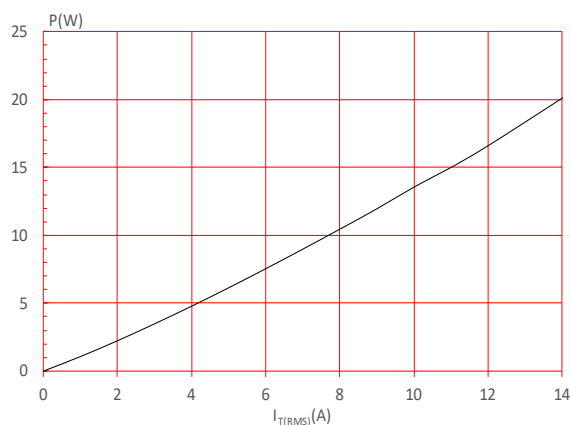
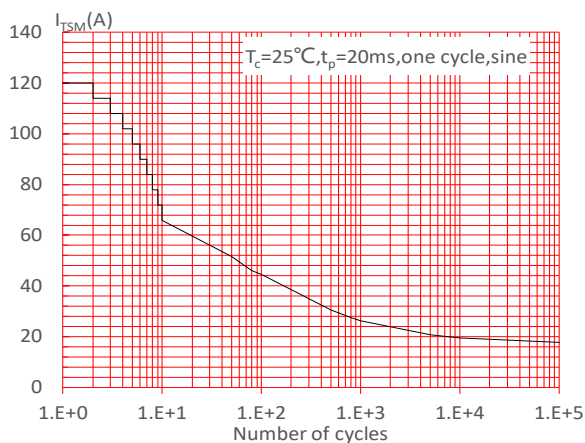
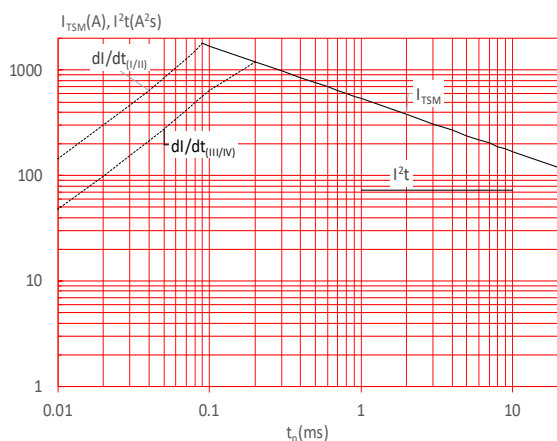
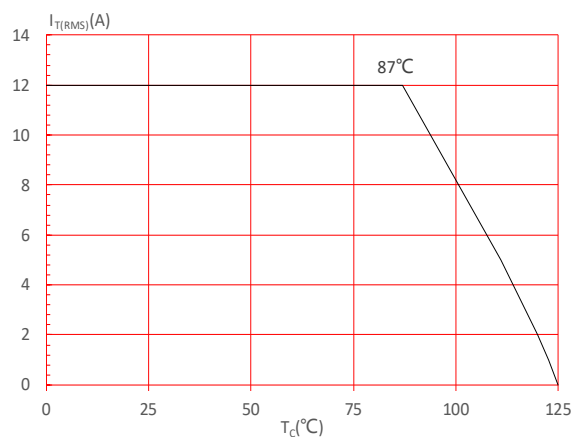
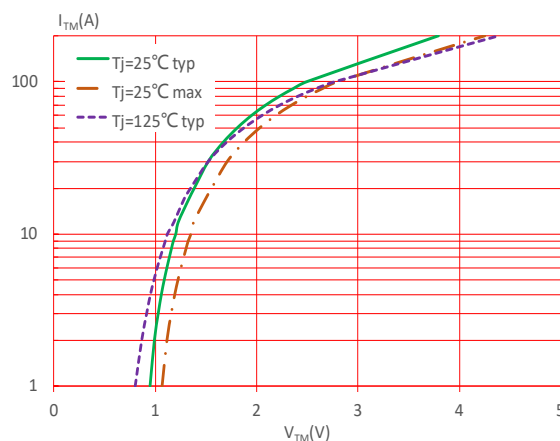
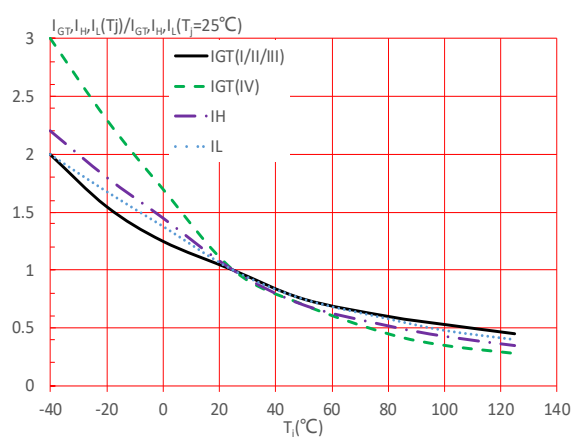
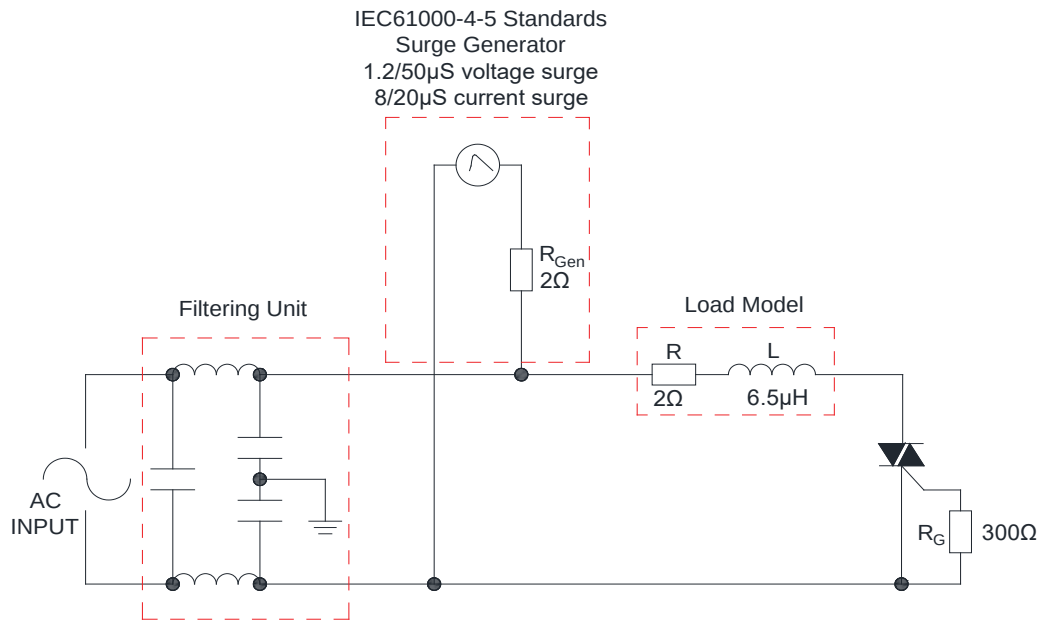
FIG.1: Maximum power dissipation versus RMS on-state current**FIG.3:** Surge peak on-state current versus number of cycles**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20ms$, and corresponding value of I^2t (I - II: $di/dt < 80A/\mu s$; III-IV: $di/dt < 40A/\mu s$)**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	IV			
JST12A-800C	800	25	50	TO-220A(Ins)	50	Tube

Document Revision History

Date	Revision	Changes
Apr.14, 2023	A.1.0	Last updated
Oct.13, 2025	A.1.1	Revise PACKAGE MECHANICAL DATA

Technical drawing of a 3-pin DIN connector. The drawing includes a top view, a side view, and a front view. The top view shows a rectangular connector with three pins. The side view shows the connector's profile with dimensions: A (total height), C2 (height of the top section), E (height of the middle section), D (height of the bottom section), C3 (height of the bottom section), C (height of the bottom section), V1 (fillet radius), and Ø 3.7-3.9mm (hole diameter). The front view shows the connector's front with dimensions: E (total width), L3 (width of the top section), L2 (width of the middle section), B (width of the bottom section), G (width of the bottom section), K (width of the bottom section), H (total height), J (height of the middle section), L1 (height of the top section), and H1 (height of the bottom section). The drawing also includes a detail view of the bottom section showing a hole with diameter E1 and a height of H1.

Technical drawing of a 3D printed part, showing three views: top, front, and side views. The dimensions are as follows:

- Top View:**
 - Overall width: 520 ± 0.5
 - Overall height: 530 ± 0.5
 - Distance from left edge to center of hole: 5
 - Distance from center of hole to right edge: 80
 - Radius of hole: $\phi 4.5$
 - Distance from center of hole to bottom edge: 5.5
 - Distance from left edge to center of hole: 3
 - Label: "printing area"
- Front View:**
 - Overall width: 530 ± 0.5
 - Overall height: 5.5
 - Distance from center of hole to bottom edge: 5.5
 - Radius of hole: $\phi 3.0 \pm 0.05$
- Side View:**
 - Overall width: $7^{+0}_{-0.2}$
 - Overall height: 33
 - Distance from top edge to center of hole: 2.4
 - Distance from center of hole to bottom edge: 3.8
 - Distance from center of hole to right edge: 0.6
 - Distance from top edge to center of hole: 3.8
 - Distance from center of hole to bottom edge: 18.0

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