

JST41SJ-600B 40A TRIAC

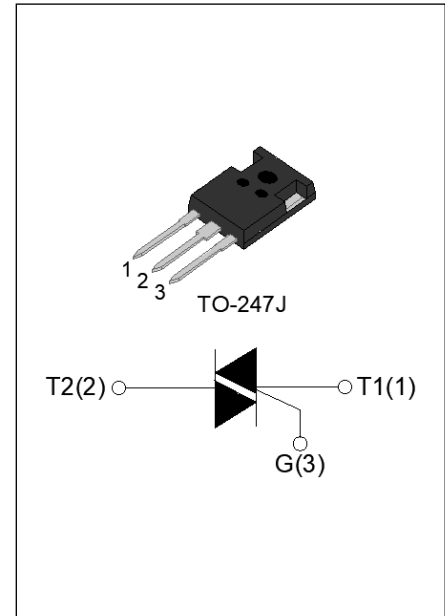
Rev.A.2.1

DESCRIPTION:

The JST41SJ-600B 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. Package TO-247J is RoHS compliant.

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	40	A
V_{DRM}/V_{RRM}	600	V
$I_{GT\ I/II/III/IV}$	50/50/50/70	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}	600	V
Repetitive peak reverse voltage (T _j =25℃)		V _{RRM}	600	V
RMS on-state current (T _c ≤86℃)		I _{T(RMS)}	40	A
Non repetitive surge peak on-state current (full cycle , t _p =20ms , T _j =25℃)		I _{TSM}	420	A
Non repetitive surge peak on-state current (full cycle , t _p =16.6ms , T _j =25℃)			462	
I ² t value for fusing (t _p =10ms , T _j =25℃)		I ² t	1000	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	100	A/μs
	III-IV		50	
Peak gate current (t _p =20μs , T _j =125℃)		I _{GM}	8	A
Average gate power dissipation (T _j =125℃)		P _{G(AV)}	1	W
Peak gate power		P _{GM}	40	W
Peak pulse voltage (T _j =25℃; non-repetitive,off-state;FIG.7)		V _{pp}	0.9	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
		IV		70	
V_{GT}		ALL	MAX.	1.3	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.	80	mA
		II		160	
I_H	$I_T=500\text{mA}$		MAX.	80	mA
dV/dt	$V_D=400\text{V}$ Gate Open $T_j=125^{\circ}\text{C}$		MIN.	1500	$\text{V}/\mu\text{s}$
$(dV/dt)_c$	$(dI/dt)_c=20\text{A/ms}$, $T_j=125^{\circ}\text{C}$		MIN.	20	$\text{V}/\mu\text{s}$
t_{on}	$I_G=80\text{mA}$ $I_A=400\text{mA}$ $I_R=40\text{mA}$ $T_j=25^{\circ}\text{C}$		TYP.	10	μs
t_{off}				70	

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$I_{TM}=60\text{A}$ $t_p=380\mu\text{s}$	$T_j=25^{\circ}\text{C}$	1.4	V
V_{TO}	Threshold voltage	$T_j=125^{\circ}\text{C}$	0.73	V
R_D	Dynamic resistance	$T_j=125^{\circ}\text{C}$	10	$\text{m}\Omega$
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^{\circ}\text{C}$	5	μA
I_{RRM}		$T_j=125^{\circ}\text{C}$	3	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (AC)	0.75	$^{\circ}\text{C}/\text{W}$
$R_{th(j-a)}$	junction to ambient (AC)	50	$^{\circ}\text{C}/\text{W}$

ORDERING INFORMATION

J	ST	41	SJ	-600	B
JieJie Microelectronics Co., Ltd.	Triacs	$I_{T(RMS)}:40A$	$SJ:TO-247J$	$600:V_{DRM}/V_{RRM} \geq 600V$	$B:I_{GT1-3} \leq 50mA \ I_{GT4} \leq 70mA$

MARKING

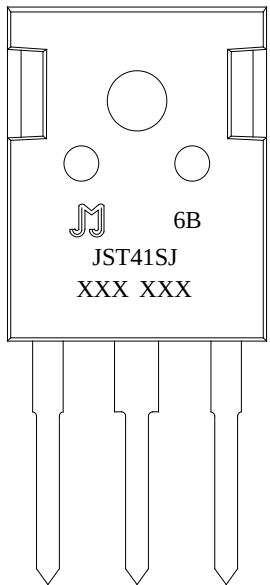
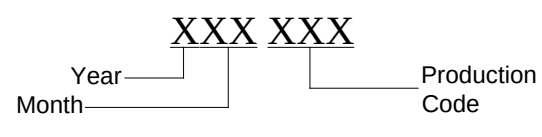
	
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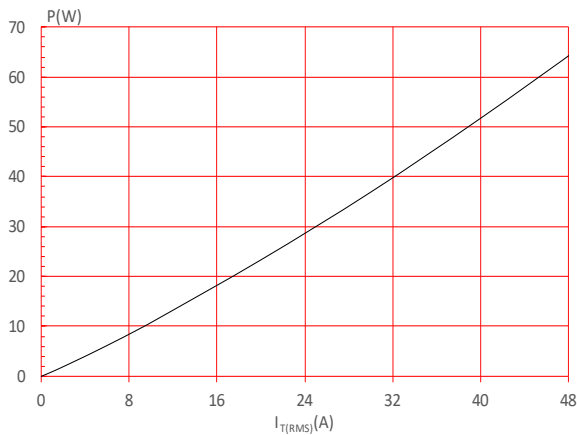
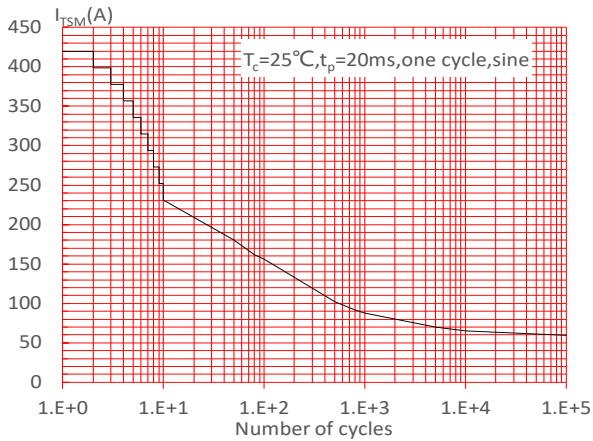
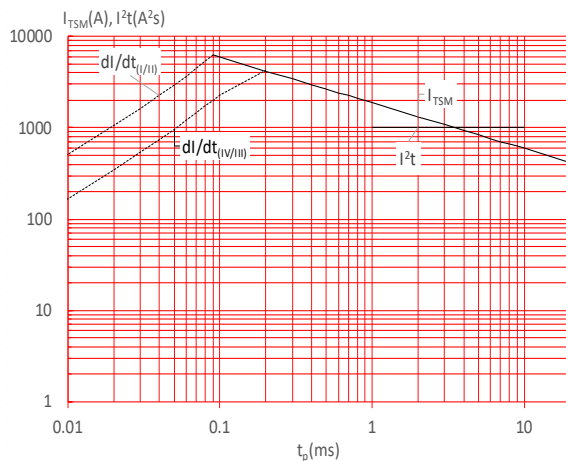
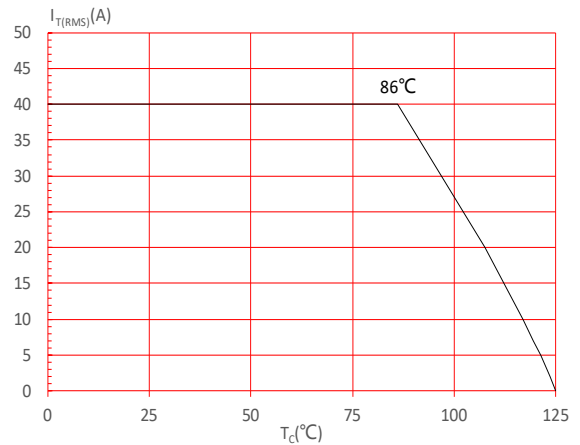
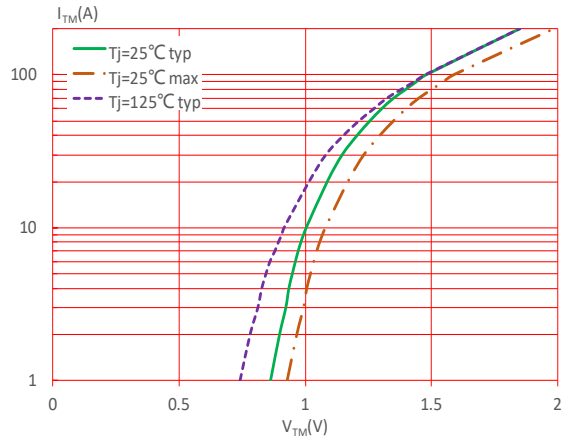
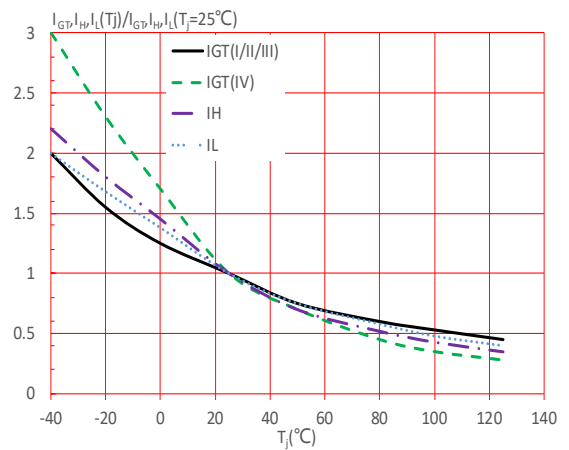
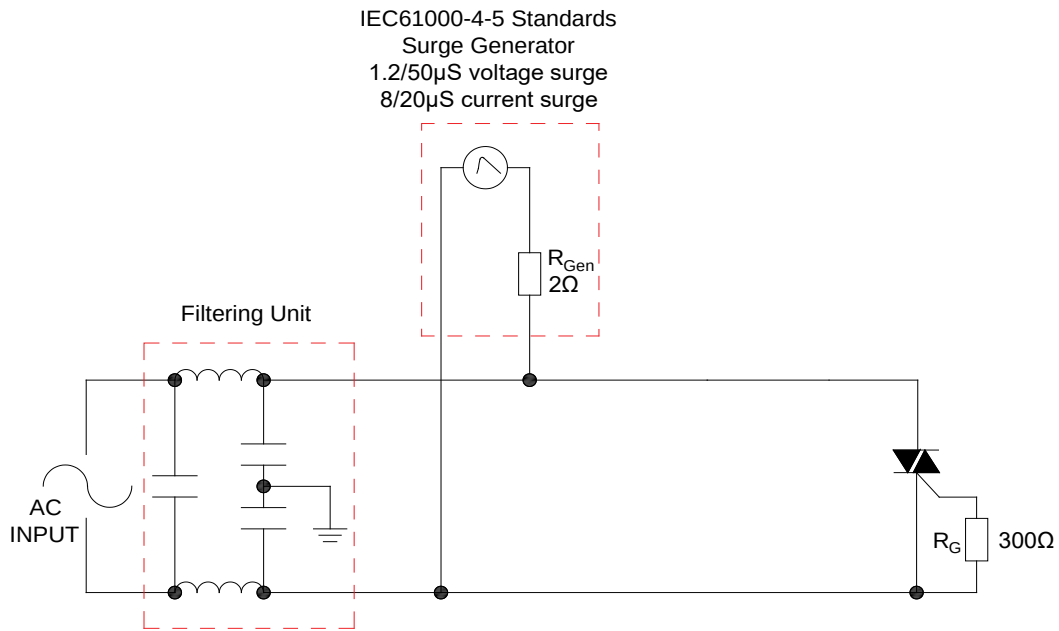
FIG.1: Maximum power dissipation versus RMS on-state current**FIG.3:** Surge peak on-state current versus number of cycles**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I^2t (I - II: $di/dt < 100\text{A}/\mu\text{s}$; III-IV: $di/dt < 50\text{A}/\mu\text{s}$)**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 Power Discretes in Through-hole Packages” 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			
JST41SJ-600B	600	50	70	TO-247J	30	Tube

Document Revision History

Date	Revision	Changes
Apr.14, 2023	A.1.0	Last updated
Jan.9, 2025	A.2.0	Update Package
Oct.16, 2025	A.2.1	Revise PACKAGE MECHANICAL DATA

Technical drawing of a 3-pin DIN connector, showing three views: front, side, and top.

Front View (Top): Shows the connector body with three pins. Dimensions include:

- A:** Overall width.
- B:** Overall height.
- C:** Height from base to the bottom of the pins.
- D:** Pin diameter.
- E:** Pin length.
- F:** Pin length from base.
- G:** Pin length from base to the start of the insulation.
- G1:** Pin length from base to the end of the insulation.
- H:** Pin length from base to the top of the insulation.
- I:** Pin length from base to the top of the insulation (labeled as I in the image).
- J:** Pin length from base to the top of the insulation (labeled as J in the image).
- K:** Pin length from base to the top of the insulation (labeled as K in the image).
- L:** Pin length from base to the top of the insulation (labeled as L in the image).
- M:** Pin length from base to the top of the insulation (labeled as M in the image).
- N:** Pin length from base to the top of the insulation (labeled as N in the image).
- O:** Pin length from base to the top of the insulation (labeled as O in the image).
- P:** Pin length from base to the top of the insulation (labeled as P in the image).
- Q:** Pin length from base to the top of the insulation (labeled as Q in the image).
- R:** Pin length from base to the top of the insulation (labeled as R in the image).
- S:** Pin length from base to the top of the insulation (labeled as S in the image).
- T:** Pin length from base to the top of the insulation (labeled as T in the image).

Side View (Right): Shows the profile of the connector. Dimensions include:

- A1:** Overall width.
- B1:** Overall height.
- C1:** Height from base to the bottom of the pins.
- C2:** Height from base to the top of the insulation.
- D1:** Pin diameter.
- E1:** Pin length.
- F1:** Pin length from base.
- G1:** Pin length from base to the start of the insulation.
- H1:** Pin length from base to the top of the insulation.
- I1:** Pin length from base to the top of the insulation (labeled as I1 in the image).
- J1:** Pin length from base to the top of the insulation (labeled as J1 in the image).
- K1:** Pin length from base to the top of the insulation (labeled as K1 in the image).
- L1:** Pin length from base to the top of the insulation (labeled as L1 in the image).
- M1:** Pin length from base to the top of the insulation (labeled as M1 in the image).
- N1:** Pin length from base to the top of the insulation (labeled as N1 in the image).
- O1:** Pin length from base to the top of the insulation (labeled as O1 in the image).
- P1:** Pin length from base to the top of the insulation (labeled as P1 in the image).
- Q1:** Pin length from base to the top of the insulation (labeled as Q1 in the image).
- R1:** Pin length from base to the top of the insulation (labeled as R1 in the image).
- S1:** Pin length from base to the top of the insulation (labeled as S1 in the image).
- T1:** Pin length from base to the top of the insulation (labeled as T1 in the image).

Top View (Bottom): Shows the top of the connector body. Dimensions include:

- A1:** Overall width.
- B1:** Overall height.
- C1:** Height from base to the bottom of the pins.
- C2:** Height from base to the top of the insulation.
- D1:** Pin diameter.
- E1:** Pin length.
- F1:** Pin length from base.
- G1:** Pin length from base to the start of the insulation.
- H1:** Pin length from base to the top of the insulation.
- I1:** Pin length from base to the top of the insulation (labeled as I1 in the image).
- J1:** Pin length from base to the top of the insulation (labeled as J1 in the image).
- K1:** Pin length from base to the top of the insulation (labeled as K1 in the image).
- L1:** Pin length from base to the top of the insulation (labeled as L1 in the image).
- M1:** Pin length from base to the top of the insulation (labeled as M1 in the image).
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- R1:** Pin length from base to the top of the insulation (labeled as R1 in the image).
- S1:** Pin length from base to the top of the insulation (labeled as S1 in the image).
- T1:** Pin length from base to the top of the insulation (labeled as T1 in the image).

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