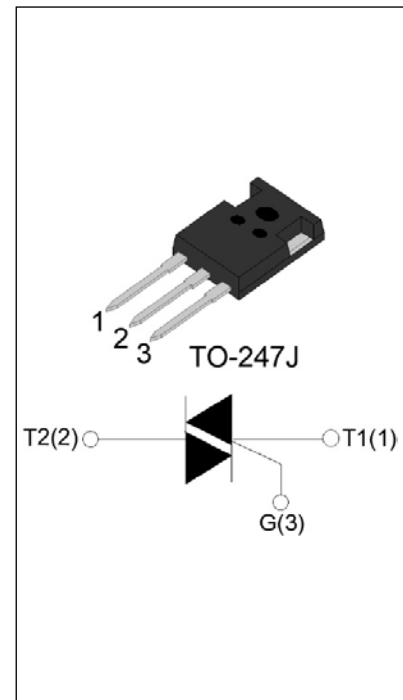


**JST41SJ-800BW 40A TRIAC**

Rev.A.2.0

**DESCRIPTION:**

The JST41SJ-800BW 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. JST41SJ-800BW snubberless triac is especially recommended for use on inductive loads. Package TO-247J is RoHS compliant.


**MAIN FEATURES**

Symbol	Value	Unit
$I_{T(RMS)}$	40	A
$V_{DRM}/V_{RRM}$	800	V
$I_{GT\ I/II/III}$	50/50/50	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 ( $T_c \leq 86^\circ\text{C}$ )	$I_{T(RMS)}$	40	A
Non repetitive surge peak on-state current (full cycle , $t_p=20\text{ms}$ , $T_j=25^\circ\text{C}$ )	$I_{TSM}$	420	A
Non repetitive surge peak on-state current (full cycle , $t_p=16.6\text{ms}$ , $T_j=25^\circ\text{C}$ )		462	
$I^2t$ value for fusing ( $t_p=10\text{ms}$ , $T_j=25^\circ\text{C}$ )	$I^2t$	1000	$\text{A}^2\text{s}$
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 ( $t_p=20\mu\text{s}$ , $T_j=125^\circ\text{C}$ )	$I_{GM}$	8	A
Average gate power dissipation ( $T_j=125^\circ\text{C}$ )	$P_{G(AV)}$	1	W
Peak gate power	$P_{GM}$	40	W

Peak pulse voltage ( $T_j=25^\circ\text{C}$ ; non-repetitive, off-state; FIG.7)	$V_{pp}$	1.5	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.	50	mA
$V_{GT}$		I - II - III	MAX.	1.3	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.	80	mA
		II		200	
$I_H$	$I_T=500\text{mA}$		MAX.	100	mA
$dV/dt$	$V_D=540\text{V}$ Gate Open $T_j=125^\circ\text{C}$		MIN.	2000	V/ $\mu\text{s}$
( $dI/dt$ ) <sub>c</sub>	( $dV/dt$ ) <sub>c</sub> =20V/ $\mu\text{s}$ $T_j=125^\circ\text{C}$		MIN.	25	A/ms
$t_{on}$	$I_G=80\text{mA}$ $I_A=400\text{mA}$ $I_R=40\text{mA}$ $T_j=25^\circ\text{C}$		TYP.	10	$\mu\text{s}$
$t_{off}$				70	

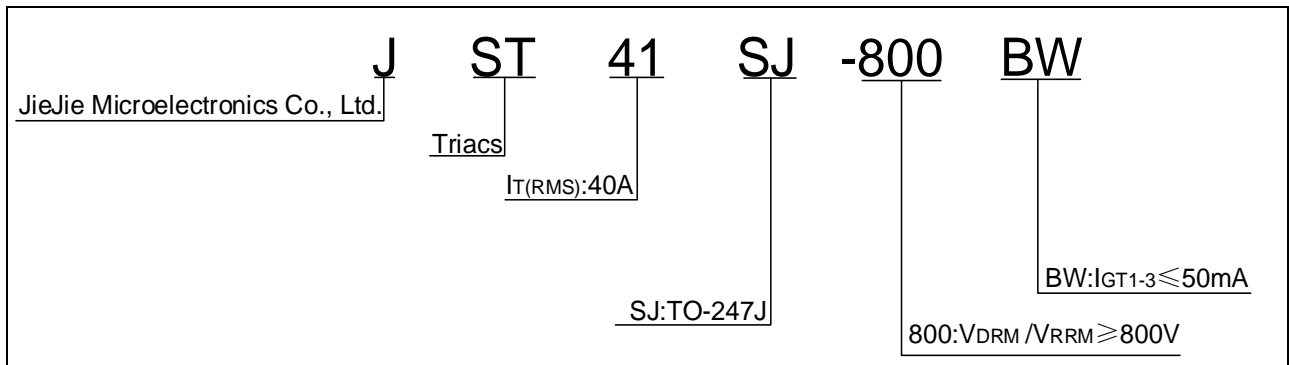
**STATIC CHARACTERISTICS**

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	$\mu\text{A}$
$I_{RRM}$		$T_j=125^\circ\text{C}$	5	mA

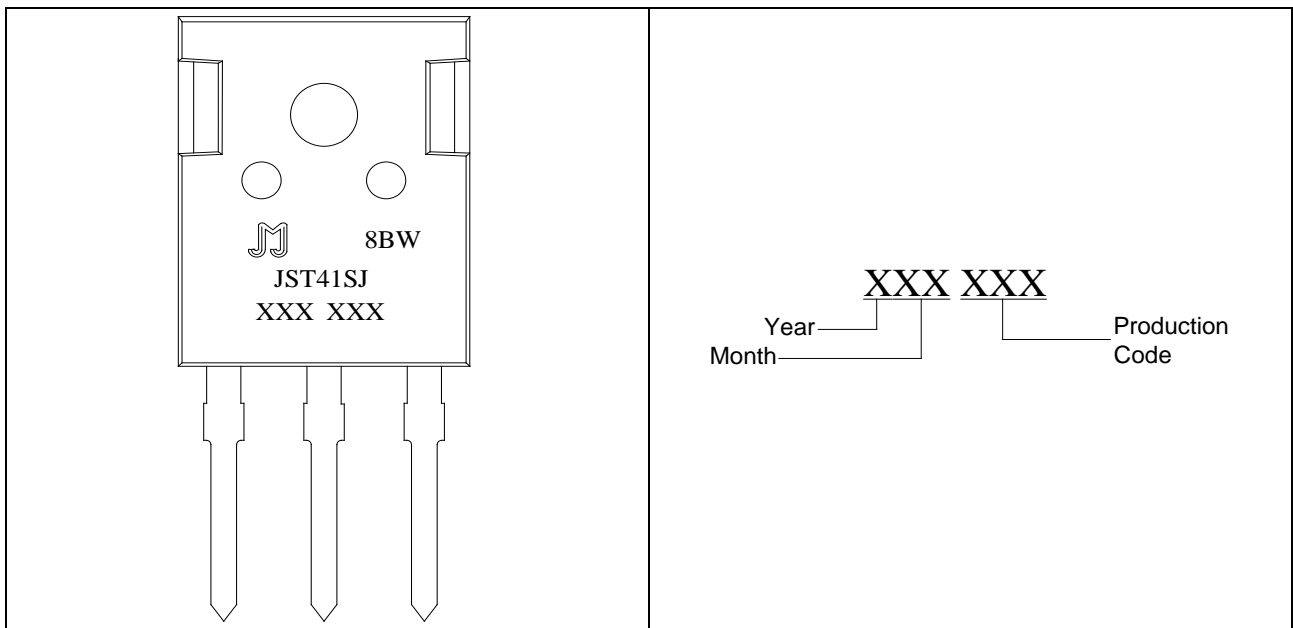
**THERMAL RESISTANCES**

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	$^\circ\text{C}/\text{W}$

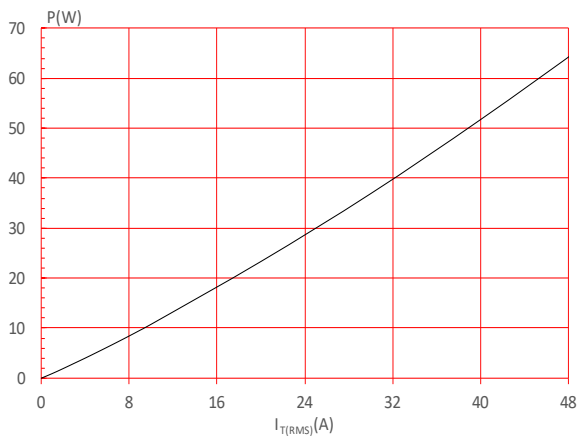
**ORDERING INFORMATION**



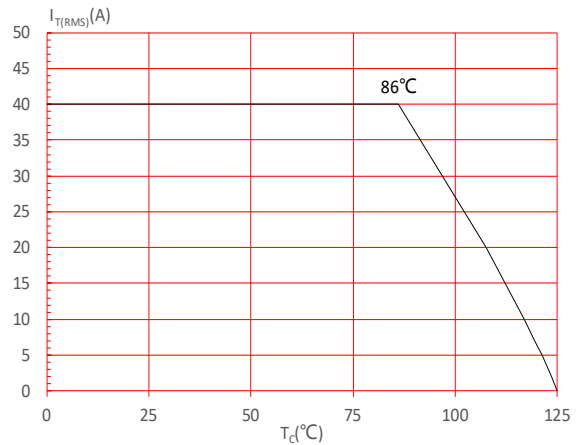
**MARKING**



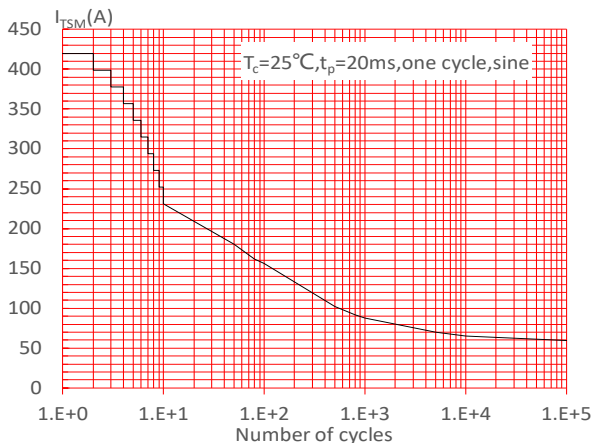
**FIG.1:** Maximum power dissipation versus RMS on-state current



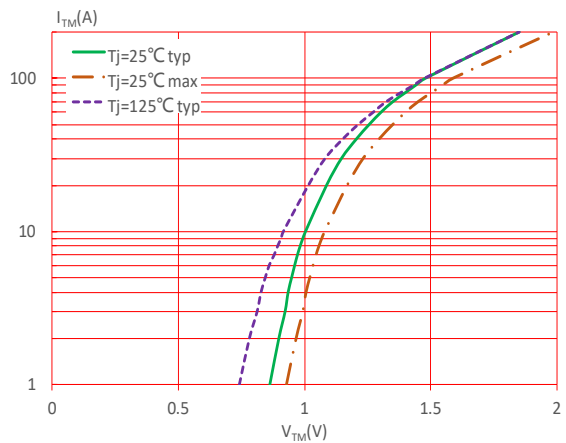
**FIG.2:** RMS on-state current versus case temperature



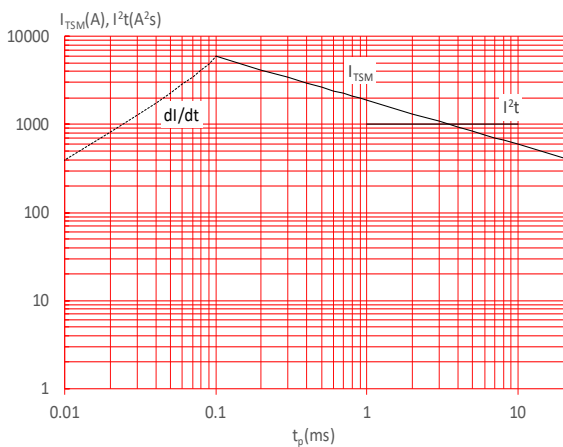
**FIG.3:** Surge peak on-state current versus number of cycles



**FIG.4:** On-state characteristics



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

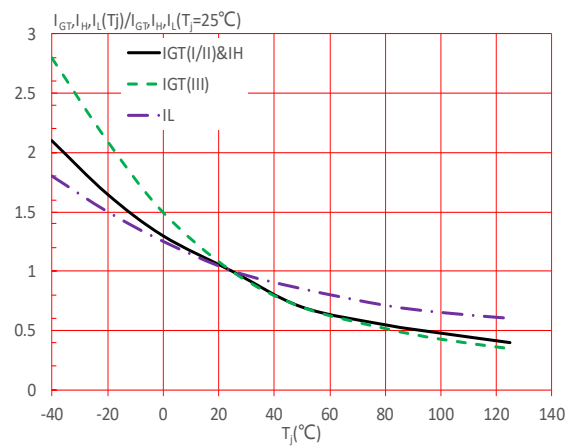
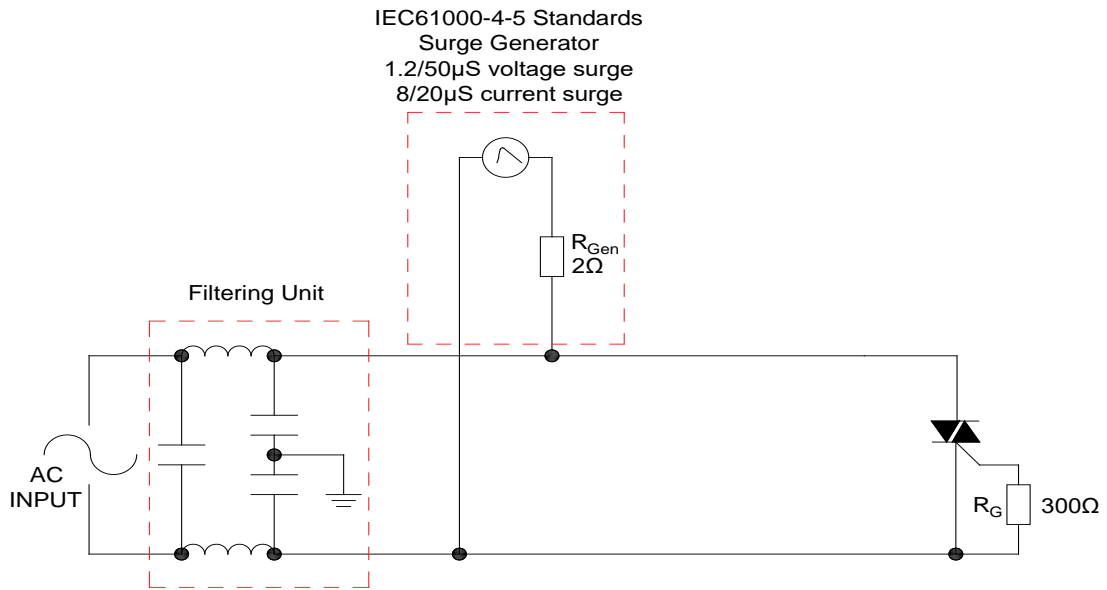


FIG.7: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards



### LEAD FORMING AND SOLDERING

Refer to the application note “Assembly Instructions for Power Discretes in Through-hole Packages” released by JieJie Microelectronics

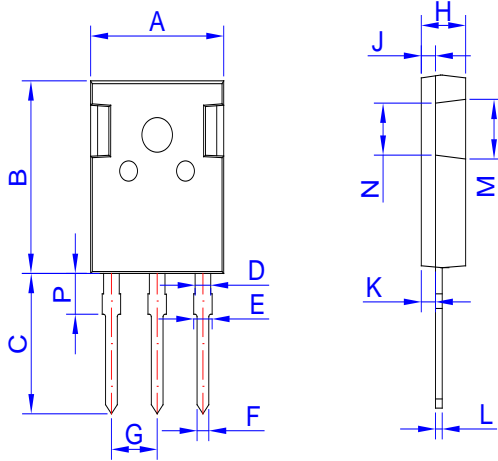
## ORDERING INFORMATION

Order code	Voltage $V_{DRM}/V_{RRM}(V)$	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
		I - II - III			
JST41SJ-800BW	800	50	TO-247J	30	Tube

## Document Revision History

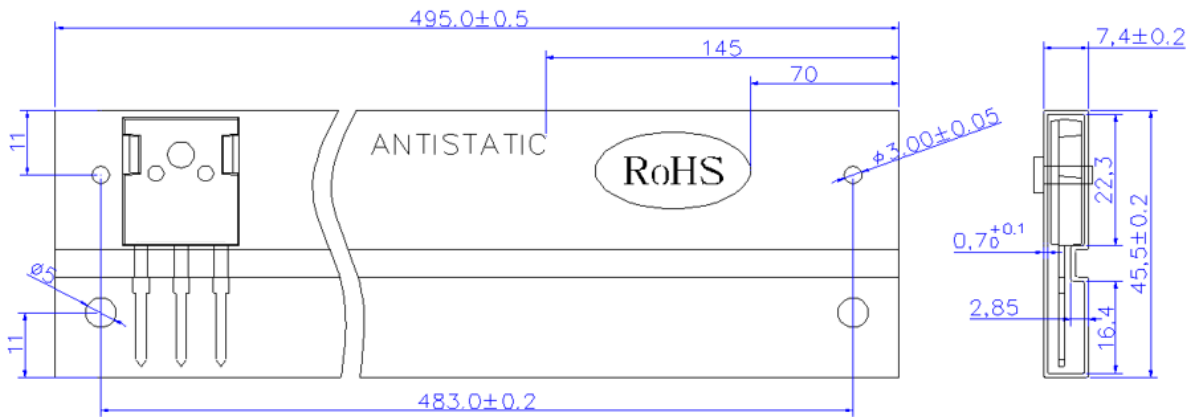
Date	Revision	Changes
Apr.11, 2023	A.1.0	Last updated
Jan.9, 2025	A.2.0	Update Package

PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	15.50	15.80	16.10	0.610	0.622	0.634
B	20.80	21.00	22.20	0.819	0.827	0.835
C	19.70	20.00	20.30	0.776	0.787	0.799
D	1.80	2.00	2.20	0.071	0.079	0.087
E	1.90	2.10	2.30	0.075	0.083	0.091
F	1.00	1.20	1.40	0.039	0.047	0.055
G		5.44			0.214	
H	4.80	5.00	5.20	0.189	0.197	0.205
J	1.90	2.00	2.10	0.075	0.079	0.083
K	2.20	2.35	2.50	0.087	0.093	0.098
L	0.41	0.60	0.79	0.016	0.024	0.031
M	3.70	3.80	3.90	0.146	0.150	0.154
N	3.55	3.60	3.70	0.140	0.142	0.146
P	4.05	4.15	4.25	0.159	0.163	0.167

DELIVERY MODE



PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-247J	TUBE	30	450	2,250

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