

JST236W-800D 4A TRIAC

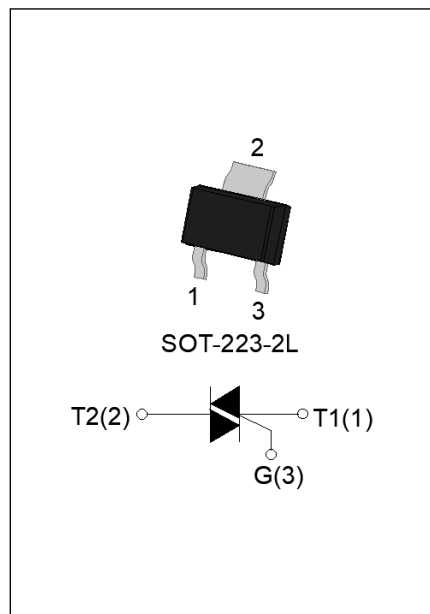
Rev.A.1.0

DESCRIPTION:

The JST236W-800D 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 SOT-223-2L is RoHS compliant.

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	4	A
V_{DRM}/V_{RRM}	800	V
$I_{GT\ I/II/III/IV}$	5/5/5/10	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 ≤35℃)		I _{T(RMS)}	4	A
Non repetitive surge peak on-state current (full cycle , t _p =20ms , T _j =25℃)		I _{TSM}	40	A
Non repetitive surge peak on-state current (full cycle , t _p =16.6ms , T _j =25℃)			45	
I ² t value for fusing (t _p =10ms , T _j =25℃)		I ² t	8	A ² s
Critical rate of rise of on-state current (I _G =2×I _{GT} , f=100Hz , T _j =125℃)	I - II -III	dI/dt	50	A/μs
	IV		40	
Peak gate current (t _p =20μs , T _j =125℃)		I _{GM}	2	A
Average gate power dissipation (T _j =125℃)		P _{G(AV)}	0.5	W
Peak gate power		P _{GM}	5	W
Peak pulse voltage (T _j =25℃ ; non-repetitive,off-state;FIG.8)		V _{pp}	3.5	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.	5	mA
		IV		10	
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	MAX.	15	mA
		II - IV		25	
I_H	$I_T=100\text{mA}$		MAX.	15	mA
dV/dt	$V_D=540\text{V}$ Gate Open $T_j=125^{\circ}\text{C}$		MIN.	100	$\text{V}/\mu\text{s}$
$(dV/dt)_c$	$(dI/dt)_c=1.8\text{A/ms}$, $T_j=110^{\circ}\text{C}$		MIN.	2.5	$\text{V}/\mu\text{s}$
t_{on}	$I_G=20\text{mA}$ $I_A=200\text{mA}$ $I_R=20\text{mA}$ $T_j=25^{\circ}\text{C}$		TYP.	1	μs
t_{off}				12	

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$I_{TM}=5\text{A}$ $t_p=380\mu\text{s}$	$T_j=25^{\circ}\text{C}$	1.55	V
V_{TO}	Threshold voltage	$T_j=125^{\circ}\text{C}$	0.74	V
R_D	Dynamic resistance	$T_j=125^{\circ}\text{C}$	265	$\text{m}\Omega$
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^{\circ}\text{C}$	5	μA
I_{RRM}		$T_j=125^{\circ}\text{C}$	0.4	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (AC)	17	$^{\circ}\text{C}/\text{W}$
$R_{th(j-a)}$	junction to ambient (AC)	60	$^{\circ}\text{C}/\text{W}$

ORDERING INFORMATION

J	ST	236	W	-800	D
JieJie Microelectronics Co., Ltd.	Triacs	$I_{T(RMS)}:4A$			$D:I_{GT1-3}\leq 5mA\ I_{GT4}\leq 10mA$
		W:SOT-223-2L		800: $V_{DRM}/V_{RRM}\geq 800V$	

MARKING

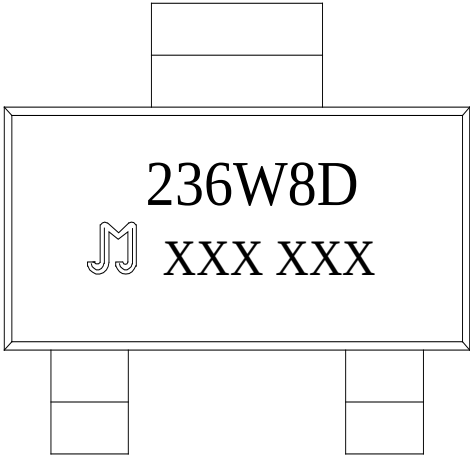
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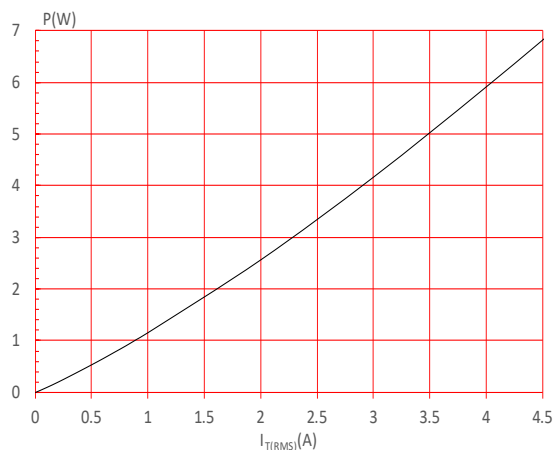
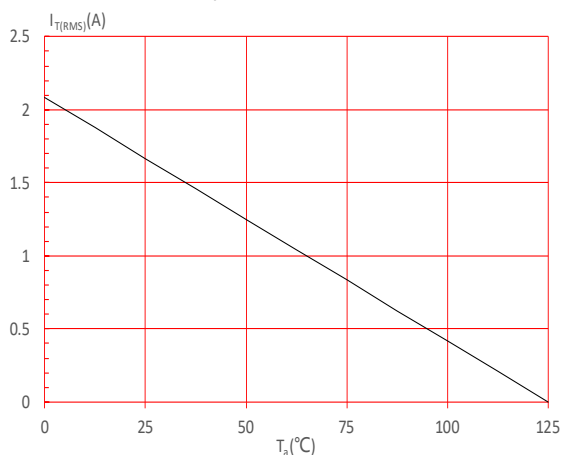
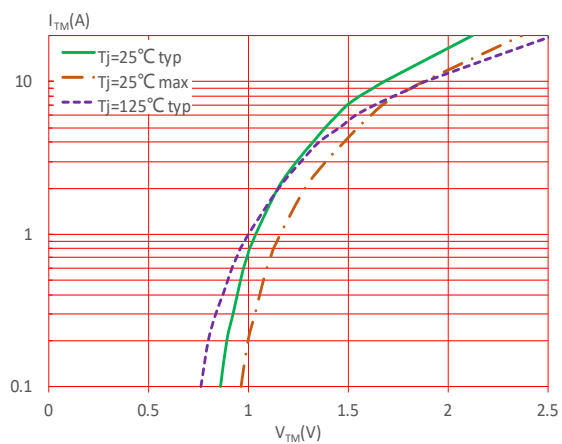
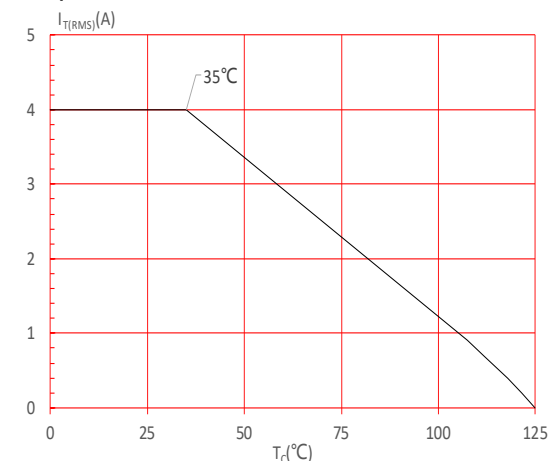
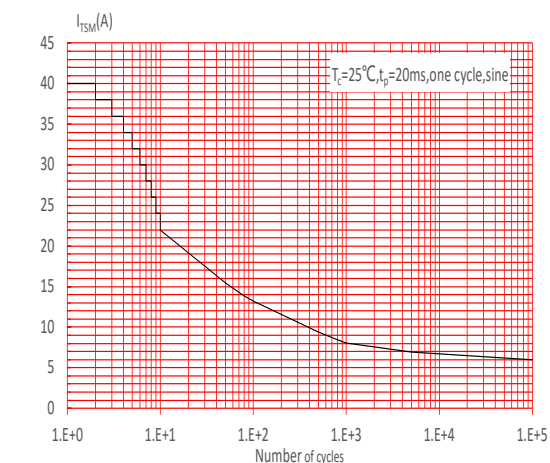
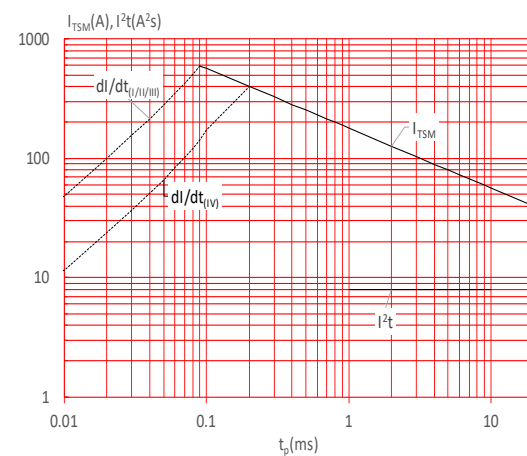
FIG.1: Maximum power dissipation versus RMS on-state current

FIG.3: RMS on-state current versus ambient temperature (printed circuit board FR4, copper thickness: 35 μ m) (full cycle)

FIG.5: On-state characteristics

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

FIG.4: Surge peak on-state current versus number of cycles

FIG.6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20ms$, and corresponding value of I^2t (I - II - III: $dI/dt < 50A/\mu s$; IV: $dI/dt < 40A/\mu s$)


FIG.7: Relative variations of gate trigger current, holding current and latching current versus junction temperature

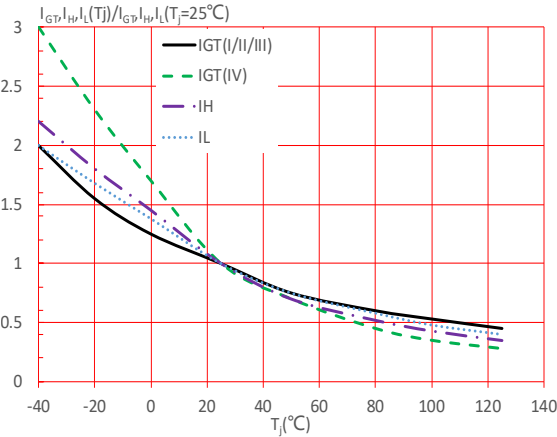
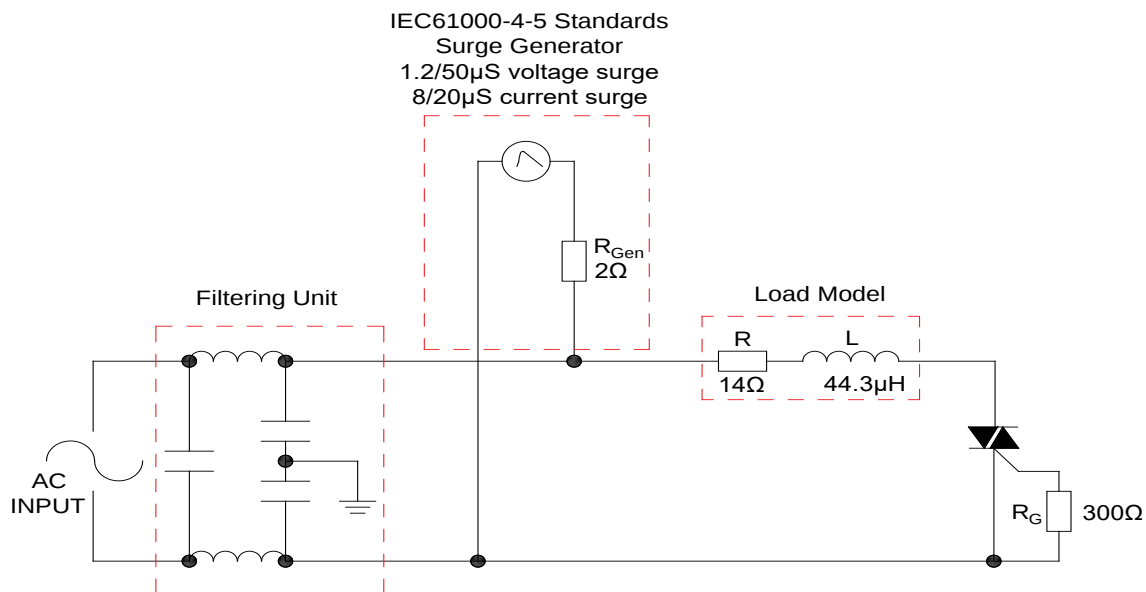
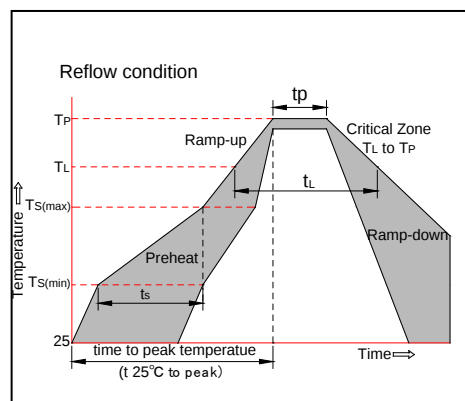


FIG.8: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards



SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see figure at right)
Pre Heat	-Temperature Min (T _{s(min)})	+150°C
	-Temperature Max(T _{s(max)})	+200°C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquidus Temp (T _L) to peak)		3°C/sec. Max
T _{s(max)} to T _L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T _L) (Liquidus)	+217°C
	-Temperature(t _L)	60-150 secs.
Peak Temp (T _p)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t _p)		20-40secs.
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T _p)		8 min. Max
Do not exceed		+260°C



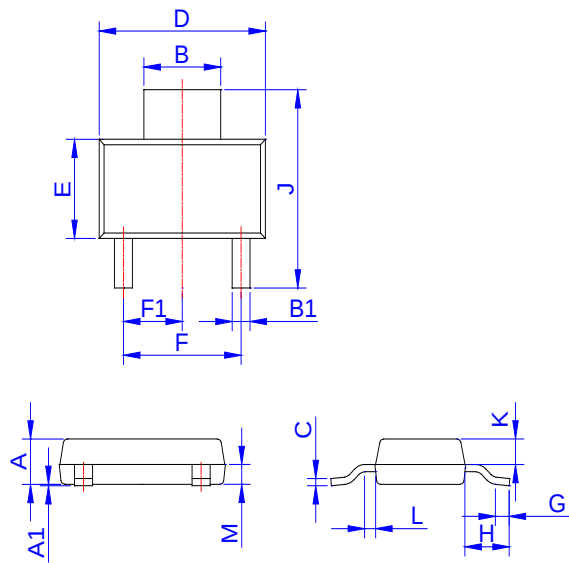
ORDERING INFORMATION

Order code	Voltage $V_{\text{DRM}}/V_{\text{RRM}}$ (V)	IGT(mA)		Package	Base qty. (pcs)	Delivery mode
		I - II - III	IV			
JST236W-800D	800	5	10	SOT-223-2L	4,000	Tape & Reel

Document Revision History

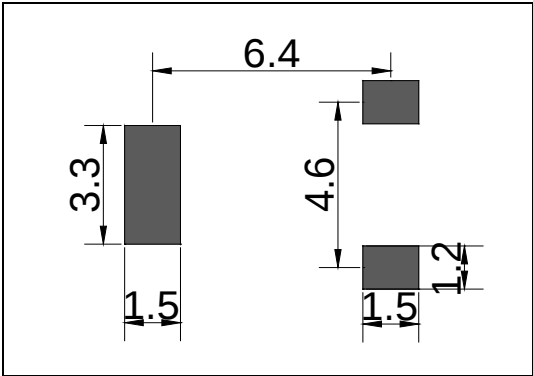
Date	Revision	Changes
May 14, 2025	A.1.0	Last updated

PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.50	1.60	1.80	0.059	0.063	0.071
A1	0.01	0.06	0.10	0.001	0.002	0.004
B	2.90	3.00	3.10	0.114	0.118	0.122
B1	0.60	0.70	0.80	0.024	0.028	0.031
C	0.22	0.254	0.32	0.009	0.010	0.013
D	6.30	6.50	6.70	0.248	0.256	0.264
E	3.30	3.50	3.70	0.130	0.138	0.146
F	4.40		4.80	0.173		0.189
F1	2.20		2.40	0.087		0.094
G	0.50		1.00	0.020		0.039
H	1.50	1.75	2.00	0.059	0.069	0.079
J	6.70	7.00	7.30	0.264	0.276	0.287
K	0.80		1.00	0.031		0.039
L	0.40		0.80	0.016		0.031
M	0.75		0.95	0.030		0.037

FOOTPRINT-SOT-223-2L (dimensions in mm)



Technical drawing of a 6-hole circular plate. The drawing includes a top view, a side view (B-B), and a section view (A-A).

Top View Dimensions:

- Overall diameter: $\phi 330 \pm 2.0$
- Inner diameter of the central hole: $\phi 30 \pm 0.2$
- Radius of the central hole: $R 12.8$
- Distance from the center to the edge of the central hole: 2.3 ± 0.2

Side View (B-B) Dimensions:

- Overall thickness: 1.96 ± 0.2
- Distance from the top surface to the center of the central hole: 12.8 ± 0.5
- Distance from the bottom surface to the center of the central hole: 100 ± 0.5
- Distance from the bottom surface to the edge of the central hole: 16.72 ± 0.3

Section View (A-A) Dimensions:

- Overall width: W
- Distance from the top surface to the center of the central hole: E
- Distance from the bottom surface to the center of the central hole: F
- Distance from the center of the central hole to the edge of the central hole: A
- Distance from the center of the central hole to the edge of the central hole: A_0
- Angle of the central hole: 8°

PACKAGE	OUTLINE	REEL (PCS)	PER CARTON (PCS)	TAPE & REEL
SOT-223-2L	TAPING	4,000	40,000	13 inch

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