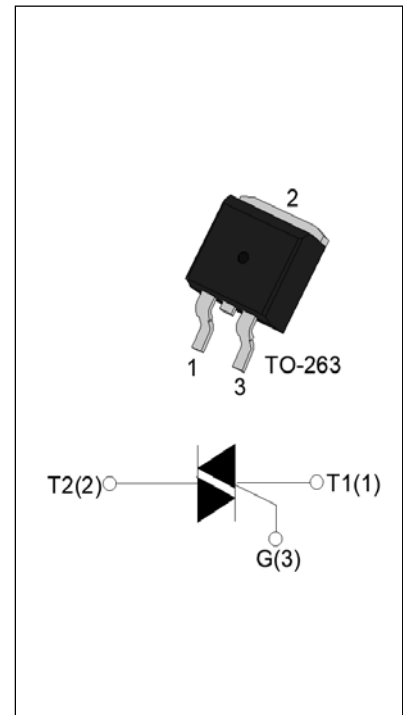


JST16E-800BW 16A TRIAC

Rev.A.1.1

DESCRIPTION:

The JST16E-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. JST16E-800BW snubberless triac is especially recommended for use on inductive loads. Package TO-263 is RoHS compliant.


MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	16	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}	800	V
Repetitive peak reverse voltage ($T_j=25^\circ\text{C}$)	V_{RRM}	800	V
RMS on-state current ($T_c \leq 98^\circ\text{C}$)	$I_{T(RMS)}$	16	A
Non repetitive surge peak on-state current (full cycle , $t_p=20\text{ms}$, $T_j=25^\circ\text{C}$)	I_{TSM}	160	A
Non repetitive surge peak on-state current (full cycle , $t_p=16.6\text{ms}$, $T_j=25^\circ\text{C}$)		176	
I^2t value for fusing ($t_p=10\text{ms}$, $T_j=25^\circ\text{C}$)	I^2t	128	A^2s
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}	4	A
Average gate power dissipation ($T_j=125^\circ\text{C}$)	$P_{G(AV)}$	0.5	W
Peak gate power	P_{GM}	10	W

Peak pulse voltage ($T_j=25^{\circ}\text{C}$; non-repetitive, off-state; FIG.8)	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.	50	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.	70	mA
		II		80	
I_H	$I_T=500\text{mA}$		MAX.	50	mA
dV/dt	$V_D=540\text{V}$ Gate Open $T_j=125^{\circ}\text{C}$		MIN.	1500	V/ μs
$(dI/dt)_c$	$(dV/dt)_c=20\text{V}/\mu\text{s}$ $T_j=125^{\circ}\text{C}$		MIN.	18	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	μs
t_{off}				70	

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$I_{TM}=22.5\text{A}$ $t_p=380\mu\text{s}$	$T_j=25^{\circ}\text{C}$	1.5	V
V_{TO}	Threshold voltage	$T_j=125^{\circ}\text{C}$	0.77	V
R_D	Dynamic resistance	$T_j=125^{\circ}\text{C}$	30	$\text{m}\Omega$
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)	1.2	$^{\circ}\text{C}/\text{W}$
$R_{th(j-a)}$	junction to ambient (AC, in free air, $S=2\text{cm}^2$)	45	$^{\circ}\text{C}/\text{W}$

ORDERING INFORMATION

<u>J</u>	<u>ST</u>	<u>16</u>	<u>E</u>	<u>-800</u>	<u>BW</u>	<u>-/</u>
JieJie Microelectronics Co., Ltd.	Triacs					Blank:Tube -TR:Tape &Reel
	<u>IT(RMS):16A</u>					
		<u>E:TO-263</u>			<u>BW:IGT1-3≤50mA</u>	
				<u>800:VDRM/VRRM≥800V</u>		

MARKING

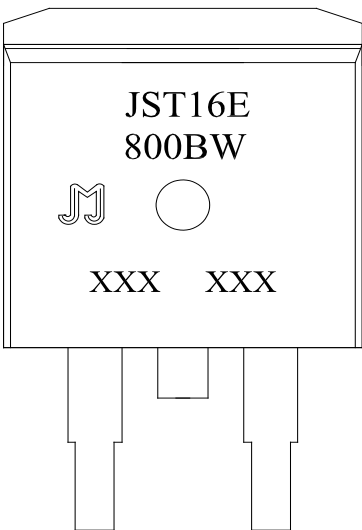
 JST16E 800BW   XXX XXX	XXX XXX Year Month Production Code
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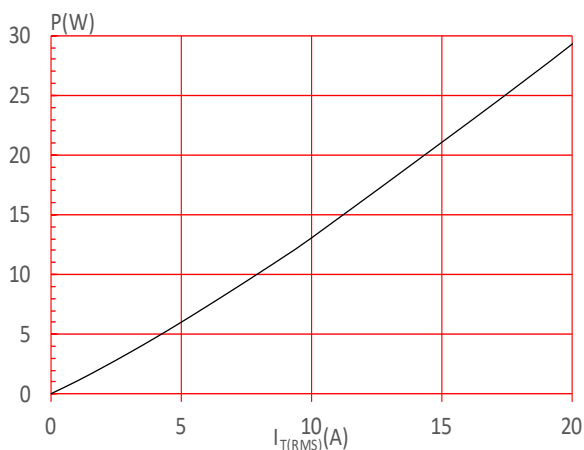
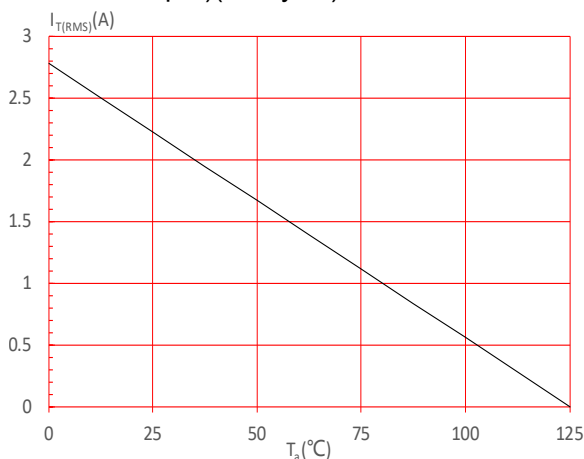
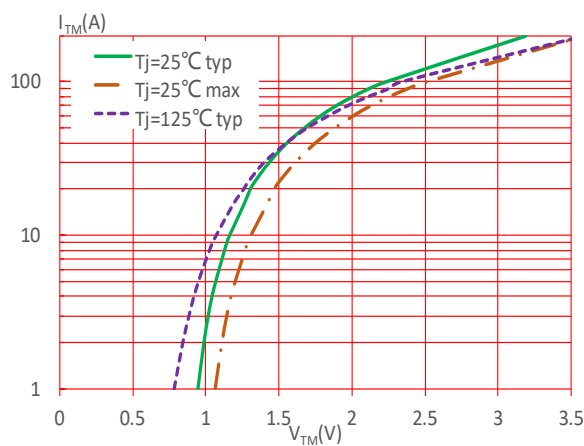
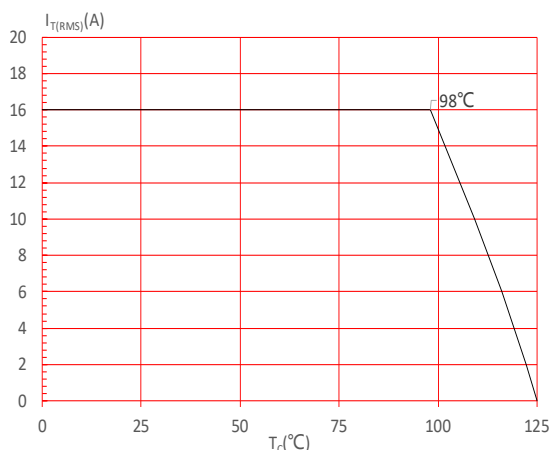
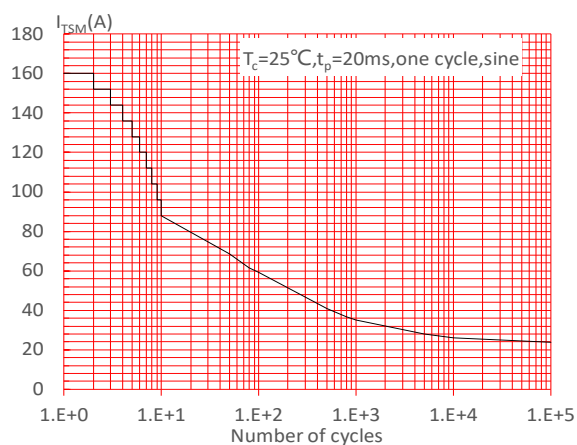
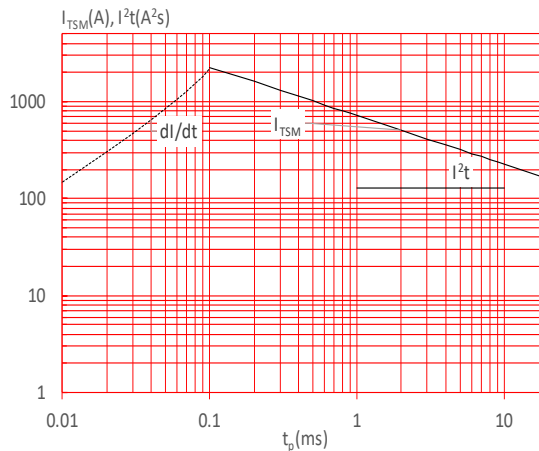
FIG.1: Maximum power dissipation versus RMS on-state current

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 $t_p < 20\text{ms}$, and corresponding value of I^2t ($di/dt < 100\text{A}/\mu\text{s}$)


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

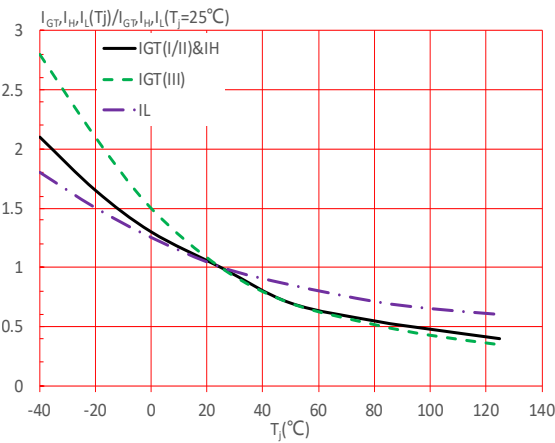
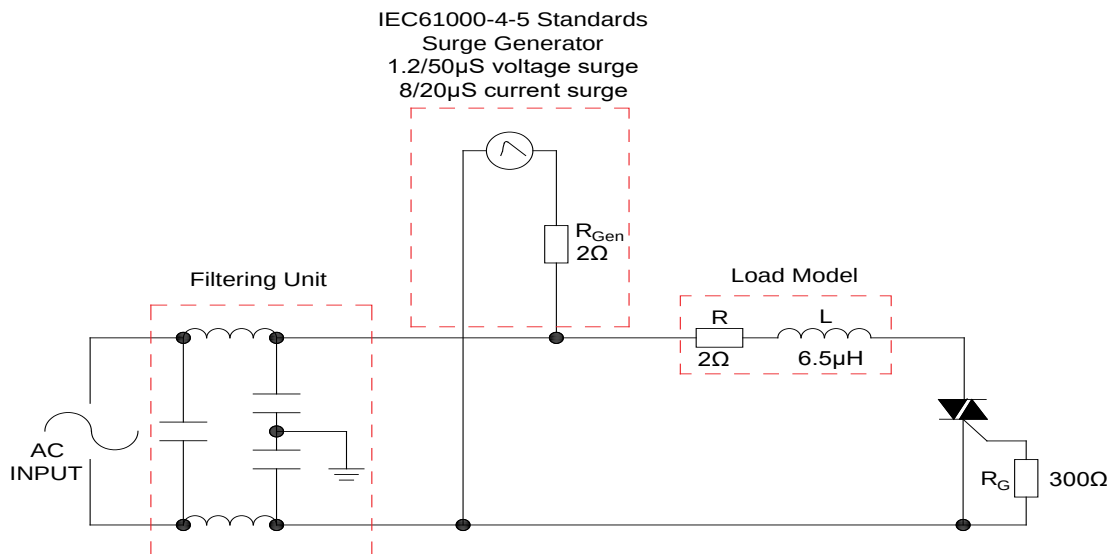
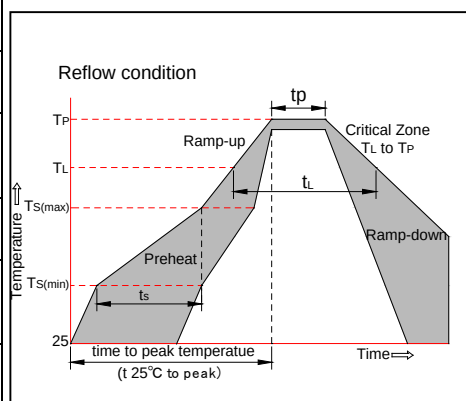


FIG.8: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards



SOLDERING PARAMETERS

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



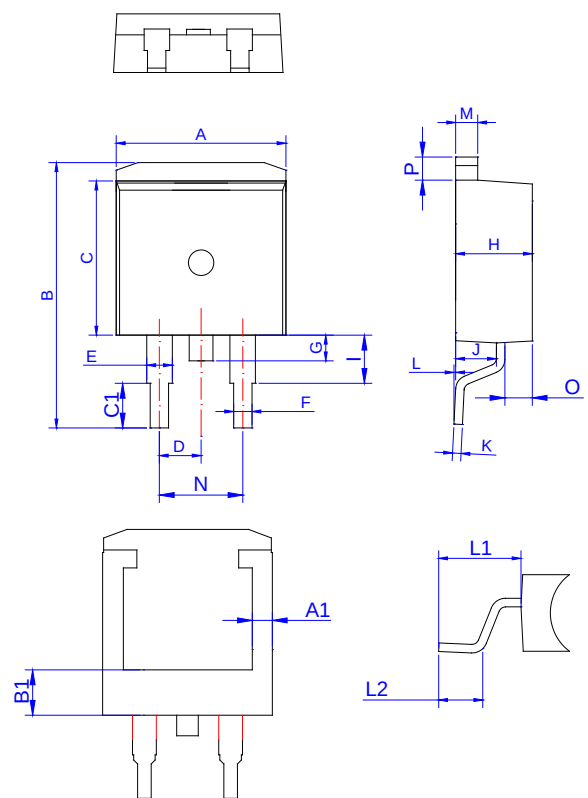
ORDERING INFORMATION

Order code	Voltage $V_{\text{DRM}}/V_{\text{RRM}}$ (V)	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
		I - II - III			
JST16E-800BW	800	50	TO-263	50	Tube
JST16E-800BW-TR				800	Tape & Reel

Document Revision History

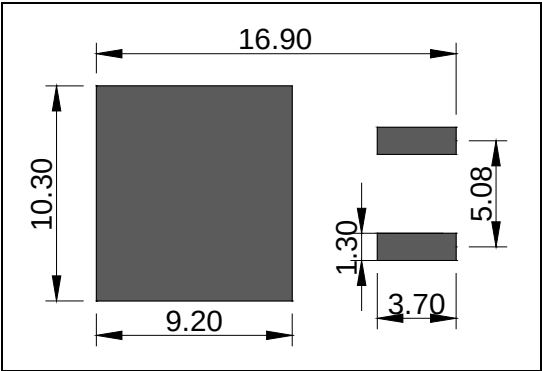
Date	Revision	Changes
Apr.12, 2023	A.1.0	Last updated
Oct.20, 2025	A.1.1	Revise PACKAGE MECHANICAL DATA

PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.90		10.20	0.390		0.402
A1	0.80		1.20	0.031		0.047
B	14.70		15.80	0.579		0.622
B1	2.15		2.55	0.085		0.100
C	9.40		9.60	0.370		0.378
C1	2.40		2.80	0.094		0.110
D	2.40		2.70	0.094		0.106
E	1.20		1.50	0.047		0.059
F	0.75		0.85	0.029		0.033
G	1.00		1.50	0.039		0.059
H	4.40		4.70	0.173		0.185
I	1.80		2.20			
J	2.30		2.70	0.091		0.106
K	0.38		0.55	0.015		0.022
L	0	0.10	0.25	0	0.004	0.010
L1	4.65		5.05	0.183		0.199
L2	1.90			0.075		
M	1.25		1.35	0.049		0.053
N	4.80		5.20			
O	1.30		1.50			
P	1.20		1.50	0.047		0.059

FOOTPRINT-TO-263 (dimensions in mm)



Technical drawing of a 100mm x 100mm x 33mm LED module. The drawing includes a top view and a side view. The top view shows a square module with a width of 100mm (530 ± 0.5 mm total width, 518 mm internal width) and a height of 100mm (17 mm total height, 10 mm internal height). The side view shows a thickness of 33mm. The module has a central square area with a diameter of 3.0 mm and a tolerance of ±0.05 mm. The side view also shows a 1.5 mm gap between the module and the mounting surface.

Technical drawing of a 4-hole circular plate. The drawing includes a front view, a side view (B-B), a cross-section view (A-A), and a top view.

Dimensions and Features:

- Front View:** Shows the overall width W , hole spacing $P0$ and $P1$, hole diameter $\varnothing D0$, and hole center-to-center distance $A0$. The plate thickness is t . The distance from the hole center to the outer edge is 3.6 . The distance from the hole center to the bottom edge is F . The distance from the hole center to the right edge is 4.20 ± 0.1 . The distance from the hole center to the bottom edge is 10.6 . The distance from the hole center to the right edge is $K0$.
- Side View (B-B):** Shows the plate thickness t and the distance from the hole center to the bottom edge F .
- Cross-section View (A-A):** Shows the hole diameter $\varnothing D0$ and the hole center-to-center distance $A0$. The hole is angled at 10° relative to the vertical.
- Top View:** Shows the circular plate with four holes. The hole diameter is $\varnothing 100$. The distance from the hole center to the outer edge is $\varnothing 330$. The distance from the hole center to the outer edge is $\varnothing 276$. The distance from the hole center to the outer edge is $\varnothing 100$. The distance from the hole center to the outer edge is $\varnothing 73$.

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
W	23.70	24.00	24.30	0.933	0.945	0.957
E	1.65	1.75	1.85	0.065	0.069	0.073
F	11.40	11.50	11.60	0.449	0.453	0.457
D0	-	1.50	1.60	-	0.059	0.063
D1	-	1.50	1.60	-	0.059	0.063
P0	3.90	4.00	4.10	0.154	0.157	0.161
P1	15.90	16.00	16.10	0.626	0.630	0.634
P2	1.90	2.00	2.10	0.075	0.079	0.083
A0	10.80	10.90	11.00	0.425	0.429	0.433
B0	16.20	16.30	16.40	0.638	0.642	0.646
K0	4.80	4.90	5.00	0.189	0.193	0.197
t	0.35	0.40	0.45	0.014	0.016	0.018

PACKAGE	OUTLINE	REEL (PCS)	PER CARTON (PCS)	TAPE & REEL
TO-263	TAPING	800	4,000	13 inch

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