

JST30E-1600BW 30A TRIAC

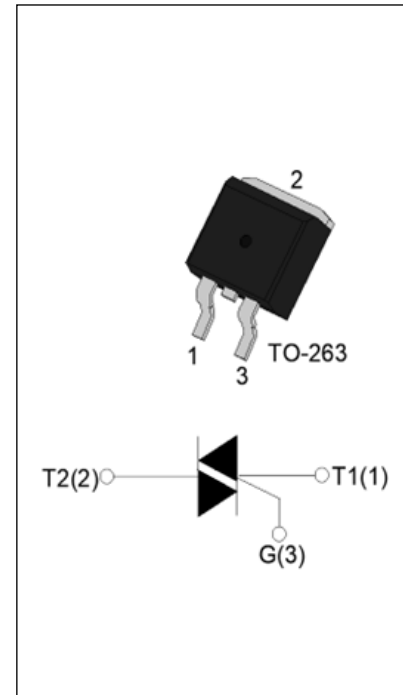
Rev.A.1.1

DESCRIPTION:

The JST30E-1600BW 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. JST30E-1600BW snubberless triac is especially recommended for use on inductive loads. Package TO-263 is RoHS compliant.

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	30	A
V_{DRM}/V_{RRM}	1600	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 ($T_j=25^{\circ}C$)	V_{DRM}	1600	V
Repetitive peak reverse voltage ($T_j=25^{\circ}C$)	V_{RRM}	1600	V
RMS on-state current ($T_c \leq 91^{\circ}C$)	$I_{T(RMS)}$	30	A
Non repetitive surge peak on-state current (full cycle , $t_p=20ms$, $T_j=25^{\circ}C$)	I_{TSM}	300	A
Non repetitive surge peak on-state current (full cycle , $t_p=16.6ms$, $T_j=25^{\circ}C$)		330	
I^2t value for fusing ($t_p=10ms$, $T_j=25^{\circ}C$)	I^2t	450	A^2s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$, $f=100Hz$, $T_j=125^{\circ}C$)	di/dt	100	$A/\mu s$
Peak gate current ($t_p=20\mu s$, $T_j=125^{\circ}C$)	I_{GM}	4	A
Average gate power dissipation ($T_j=125^{\circ}C$)	$P_{G(AV)}$	0.5	W
Peak gate power	P_{GM}	10	W
Peak pulse voltage ($T_j=25^{\circ}C$; non-repetitive, off-state; FIG.8)	V_{pp}	2.5	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.	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.	0.15	V
I_L	$I_G=1.2I_{GT}$	I -III	MAX.	90	mA
		II		100	
I_H	$I_T=500\text{mA}$		MAX.	80	mA
dV/dt	$V_D=1070\text{V}$ Gate Open $T_j=125^{\circ}\text{C}$		MIN.	1200	V/ μs
$(dI/dt)_c$	$(dV/dt)_c=20\text{V}/\mu\text{s}$ $T_j=125^{\circ}\text{C}$		MIN.	28	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}	$I_{TM}=42\text{A}$ $t_p=380\mu\text{s}$	$T_j=25^{\circ}\text{C}$	1.8	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}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^{\circ}\text{C}$	20	μA
I_{RRM}		$T_j=125^{\circ}\text{C}$	8	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (AC)	0.7	$^{\circ}\text{C}/\text{W}$
$R_{th(j-a)}$	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>30</u>	<u>E</u>	<u>-1600</u>	<u>BW</u>	<u>-/</u>
JieJie Microelectronics Co., Ltd.	Triacs	$I_{T(RMS)}: 30A$				Blank: Tube -TR: Tape & Reel
			$E: TO-263$		$BW: I_{GT1-3} \leq 50mA$	
				$1600: V_{DRM} / V_{RRM} \geq 1600V$		

MARKING

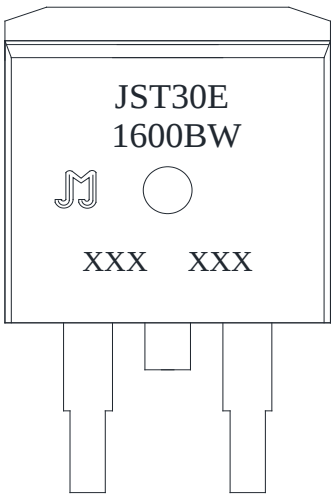
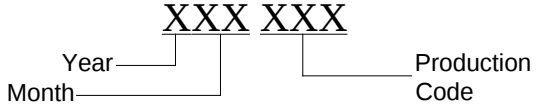
	
---	--

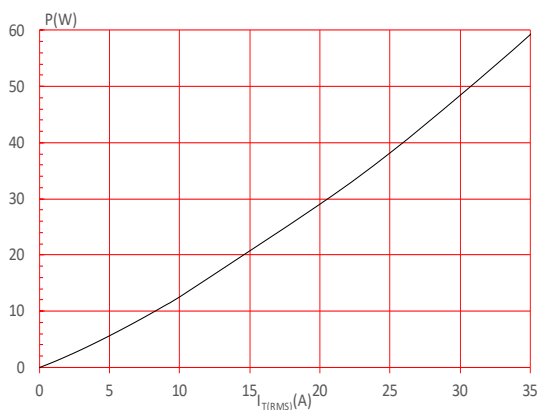
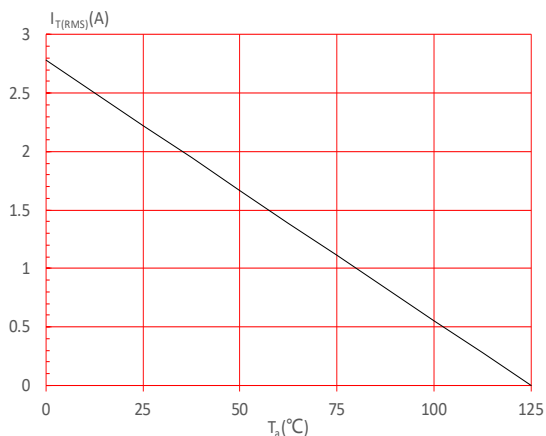
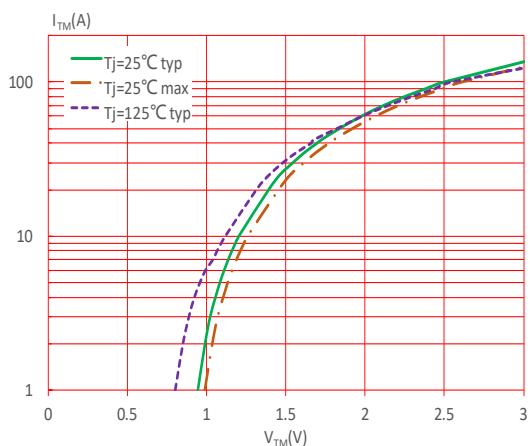
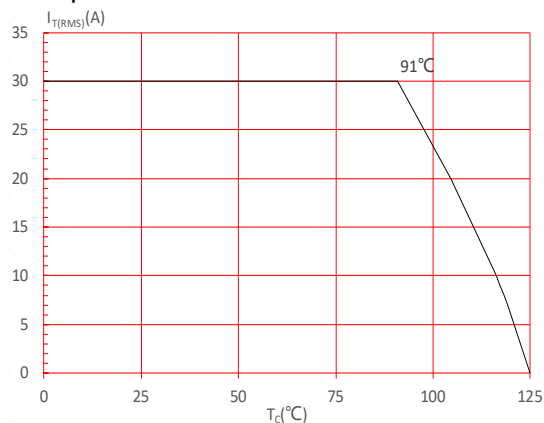
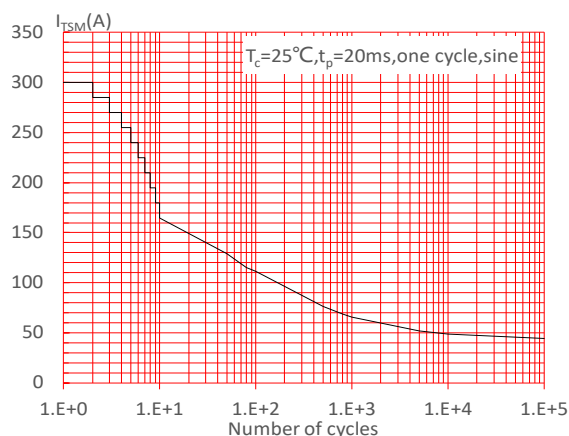
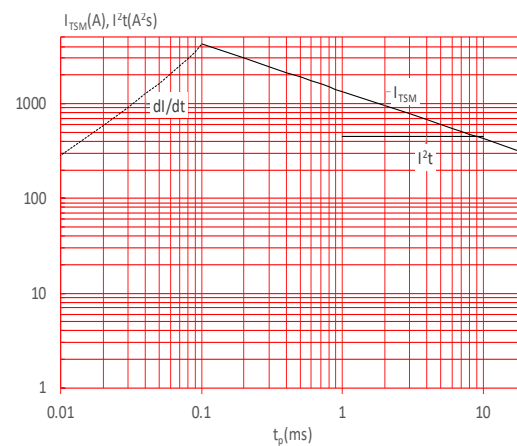
FIG.1: Maximum power dissipation versus RMS on-state current**FIG.3:** RMS on-state current versus ambient temperature (printed circuit board FR4,copper thickness:35 μm)(full cycle)**FIG.5:** On-state characteristics**FIG.2:** RMS on-state current versus case temperature**FIG.4:** Surge peak on-state 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 ($di/dt < 100A/\mu s$)

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

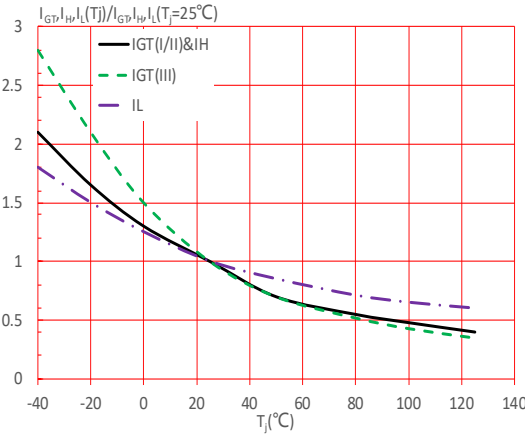
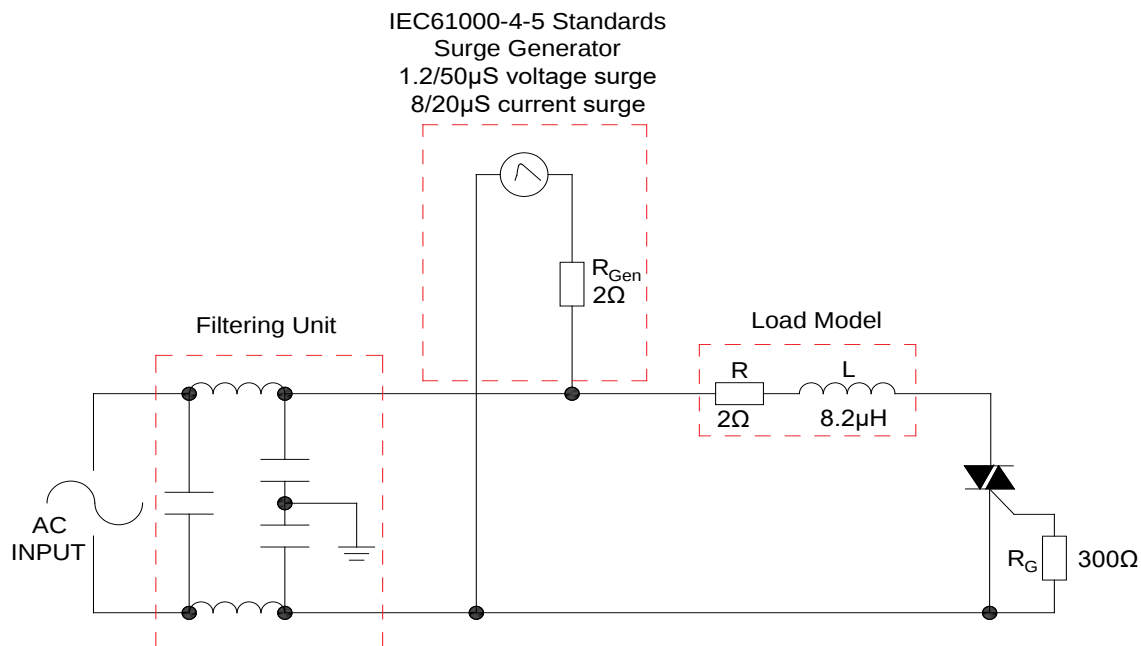
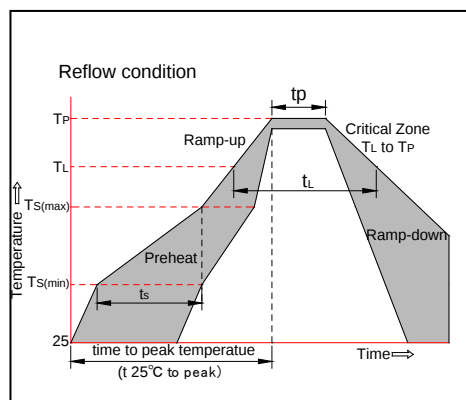


FIG.8: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards



SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see figure at right)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150 $^{\circ}$ 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



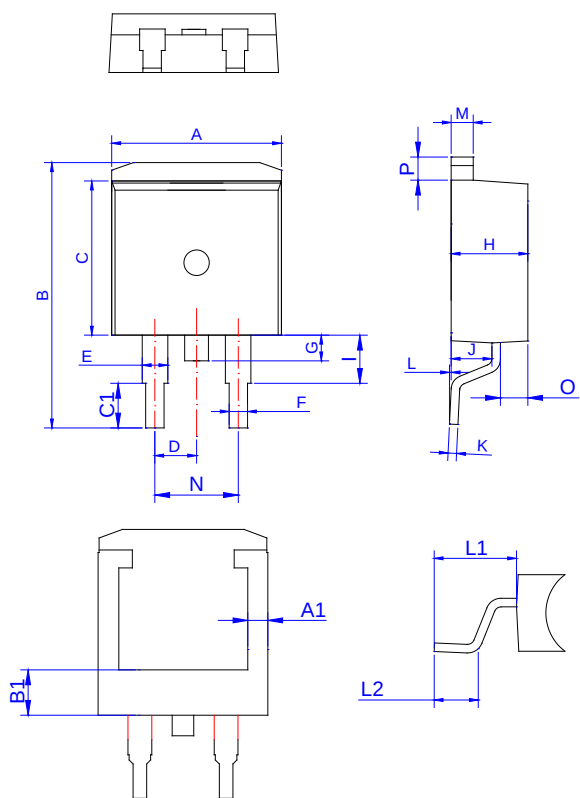
ORDERING INFORMATION

Order code	Voltage $V_{\text{DRM}}/V_{\text{RRM}}$ (V)	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
		I - II - III			
JST30E-1600BW	1600	50	TO-263	50	Tube
JST30E-1600BW-TR				800	Tape & Reel

Document Revision History

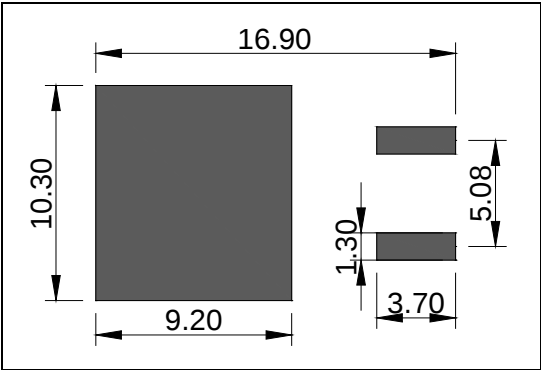
Date	Revision	Changes
Apr.11, 2023	A.1.0	Last updated
Oct.20, 2025	A.1.1	Revise PACKAGE MECHANICAL DATA

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 mechanical part, showing front and side views with dimensions.

Front View Dimensions:

- Overall width: 530 ± 0.5
- Distance from left edge to center of hole: 518
- Hole diameter: $\varnothing 3.0$
- Distance from hole center to right edge: ± 0.05
- Height of the part: 12.9

Side View Dimensions:

- Overall height: 33
- Top flange thickness: 7-0.2
- Distance from top flange to hole center: 1.5
- Hole diameter: $\varnothing 3.0$
- Distance from hole center to bottom flange: 1.5
- Bottom flange thickness: 2.6
- Distance from bottom flange to hole center: 0.6
- Distance from top flange to bottom flange: 17-0.1
- Distance from hole center to bottom flange: 10-0.1

[illegible]

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

Information furnished in this document is believed to be accurate and reliable. However, Jiangsu JieJie Microelectronics Co., Ltd. assumes no responsibility for the consequences of use without consideration for such information nor use beyond it. Information mentioned in this document is subject to change without notice, apart from that when an agreement is signed, Jiangsu JieJie complies with the agreement.

Products and information provided in this document have no infringement of patents. Jiangsu JieJie assumes no responsibility for any infringement of other rights of third parties which may result from the use of such products and information. This document supersedes and replaces all information previously supplied.



is a registered trademark of Jiangsu JieJie Microelectronics Co., Ltd.

Copyright © 2025 Jiangsu JieJie Microelectronics Co., Ltd. All rights reserved.