

JST80IS-1600BW 80A TRIAC

Rev.A.1.0

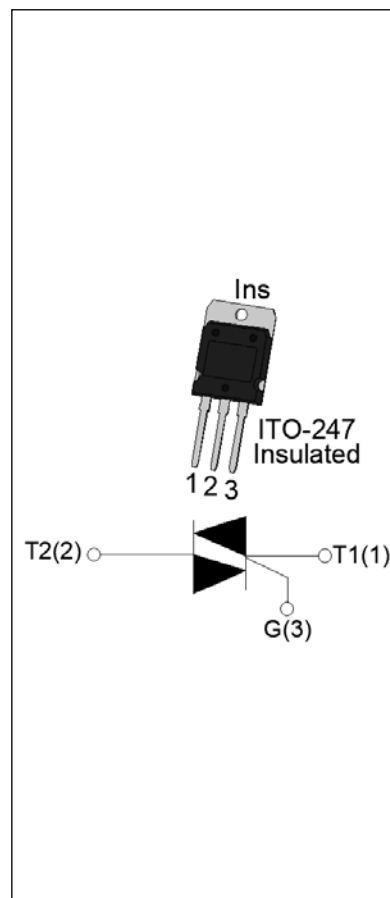
DESCRIPTION:

The JST80IS-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.

JST80IS-1600BW snubberless triac is especially recommended for use on inductive loads. By using an internal ceramic pad, JST80IS-1600BW provides a rated insulation voltage of 2500 VRMS, complying with UL standards (File ref: E252906). Package ITO-247 is RoHS compliant.

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	80	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 ($T_j=25^\circ\text{C}$)	V_{DRM}	1600	V
Repetitive peak reverse voltage ($T_j=25^\circ\text{C}$)	V_{RRM}	1600	V
RMS on-state current ($T_c \leq 90^\circ\text{C}$)	$I_{T(RMS)}$	80	A
Non repetitive surge peak on-state current (full cycle , $t_p=20\text{ms}$, $T_j=25^\circ\text{C}$)	I_{TSM}	800	A
Non repetitive surge peak on-state current (full cycle , $t_p=16.6\text{ms}$, $T_j=25^\circ\text{C}$)		880	
I^2t value for fusing ($t_p=10\text{ms}$, $T_j=25^\circ\text{C}$)	I^2t	3200	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 ($t_p=20\mu s$, $T_j=125^\circ C$)	I_{GM}	10	A
Average gate power dissipation ($T_j=125^\circ C$)	$P_{G(AV)}$	0.5	W
Peak gate power	P_{GM}	25	W
Peak pulse voltage ($T_j=25^\circ C$; non-repetitive, off-state; FIG. 7)	V_{pp}	1	kV

ELECTRICAL CHARACTERISTICS ($T_j=25^\circ C$ unless otherwise specified)

Symbol	Test Condition	Quadrant	Value		Unit
I_{GT}	$V_D=12V$ $R_L=33\Omega$	I - II - III	MAX.	50	mA
V_{GT}		I - II - III	MAX.	1.3	V
V_{GD}	$V_D=V_{DRM}$ $T_j=125^\circ C$ $R_L=3.3K\Omega$	I - II - III	MIN.	0.2	V
I_L	$I_G=1.2I_{GT}$	I - III	MAX.	80	mA
		II		120	
I_H	$I_T=1A$		MAX.	70	mA
dV/dt	$V_D=1070V$ Gate Open $T_j=125^\circ C$		MIN.	1500	V/ μs
$(dI/dt)_c$	$(dV/dt)_c=20V/\mu s$ $T_j=125^\circ C$		MIN.	28	A/ms
t_{on}	$I_G=80mA$ $I_A=400mA$ $I_R=40mA$ $T_j=25^\circ C$		TYP.	12	μs
t_{off}				80	

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$I_{TM}=120A$ $t_p=380\mu s$	$T_j=25^\circ C$	1.9	V
V_{TO}	Threshold voltage	$T_j=125^\circ C$	0.71	V
R_D	Dynamic resistance	$T_j=125^\circ C$	23	m Ω
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^\circ C$	20	μA
I_{RRM}		$T_j=125^\circ C$	12	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (AC)	0.27	$^\circ C/W$
$R_{th(j-a)}$	junction to ambient (AC)	45	$^\circ C/W$

ORDERING INFORMATION

J	ST	80	IS	-1600	BW
JieJie Microelectronics Co., Ltd.	Triacs	$I_{T(RMS)}:80A$			
			IS: ITO-247(Ins)		
					BW: $I_{GT1-3} \leq 50mA$
					$1600: V_{DRM} / V_{RRM} \geq 1600V$

MARKING

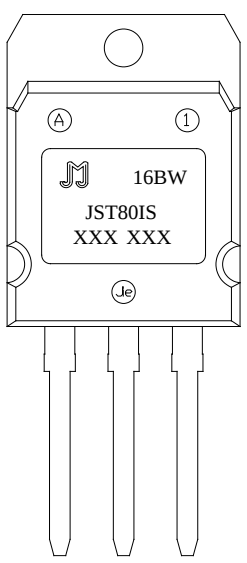
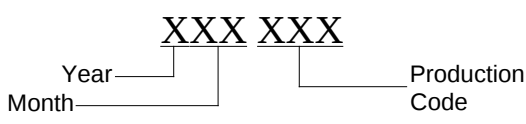
	
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FIG.1: Maximum power dissipation versus RMS on-state current

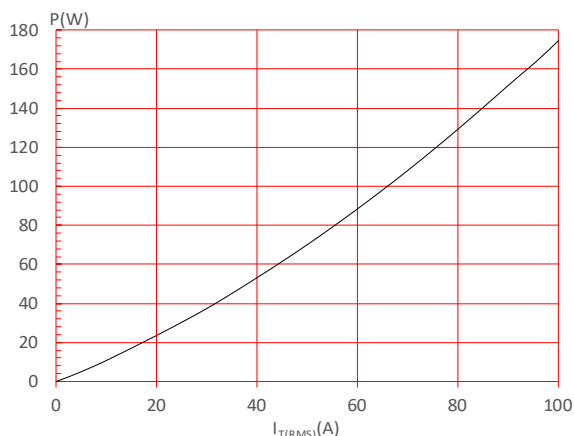


FIG.3: Surge peak on-state current versus number of cycles

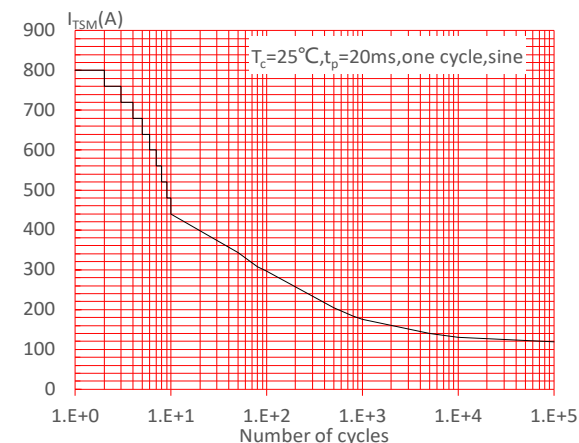


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I^2t ($di/dt < 100\text{A}/\mu\text{s}$)

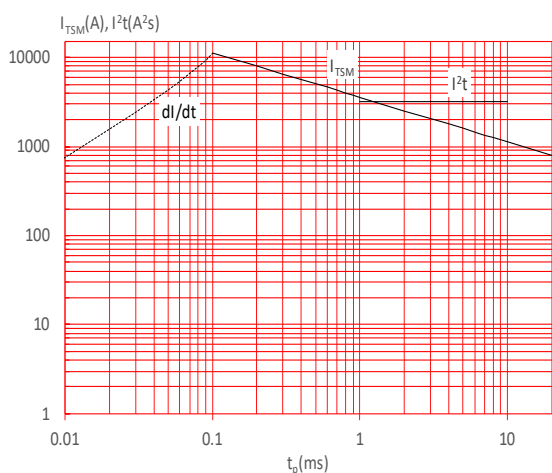


FIG.2: RMS on-state current versus case temperature

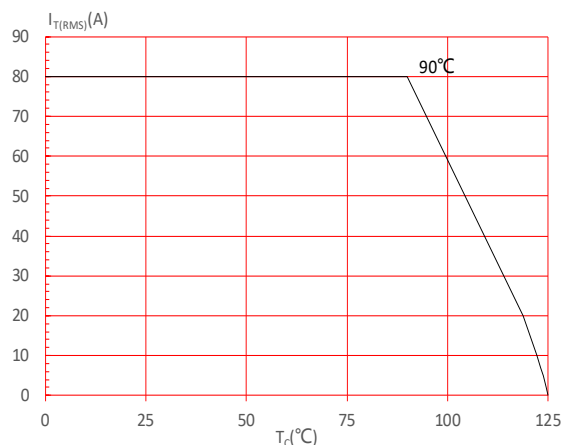


FIG.4: On-state characteristic

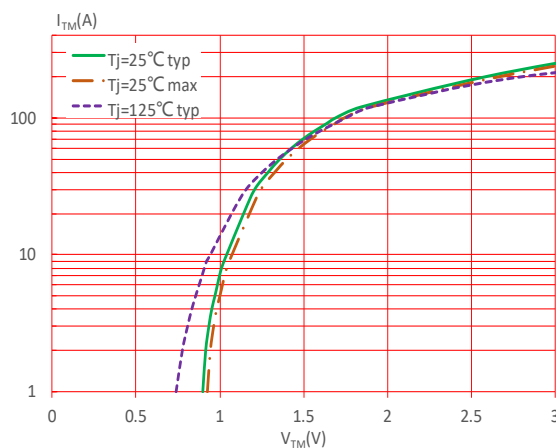


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature

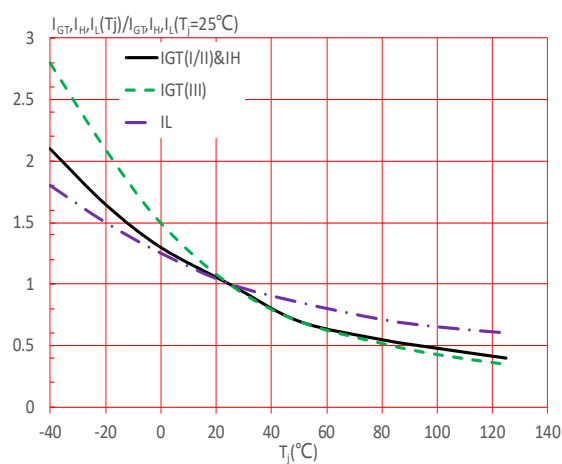
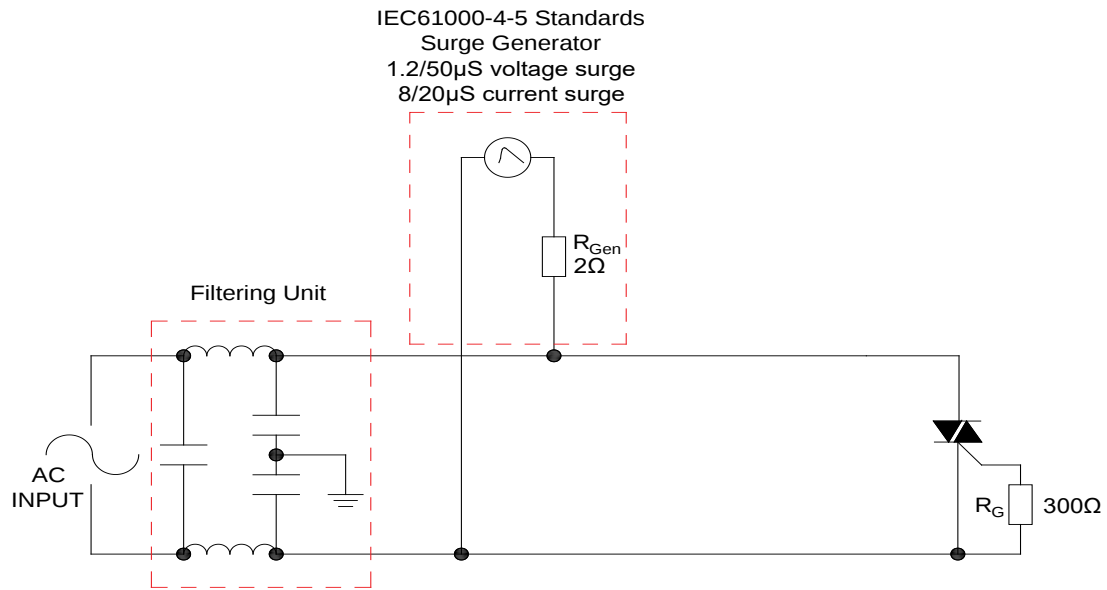


FIG.7: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards

LEAD FORMING AND SOLDERING

Refer to the application note “Assembly Instructions for Thyristors in Through-hole Package” released by JieJie Microelectronics

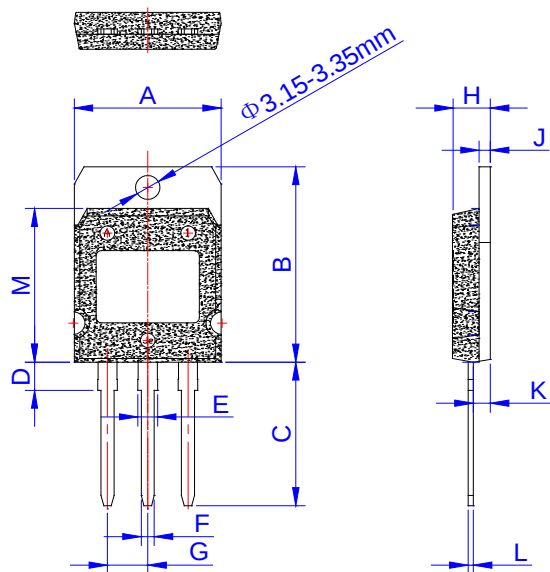
ORDERING INFORMATION

Order code	Voltage $V_{\text{DRM}}/V_{\text{RRM}}$ (V)	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
		I - II - III			
JST80IS-1600BW	1600	50	ITO-247(Ins)	25	Tube

Document Revision History

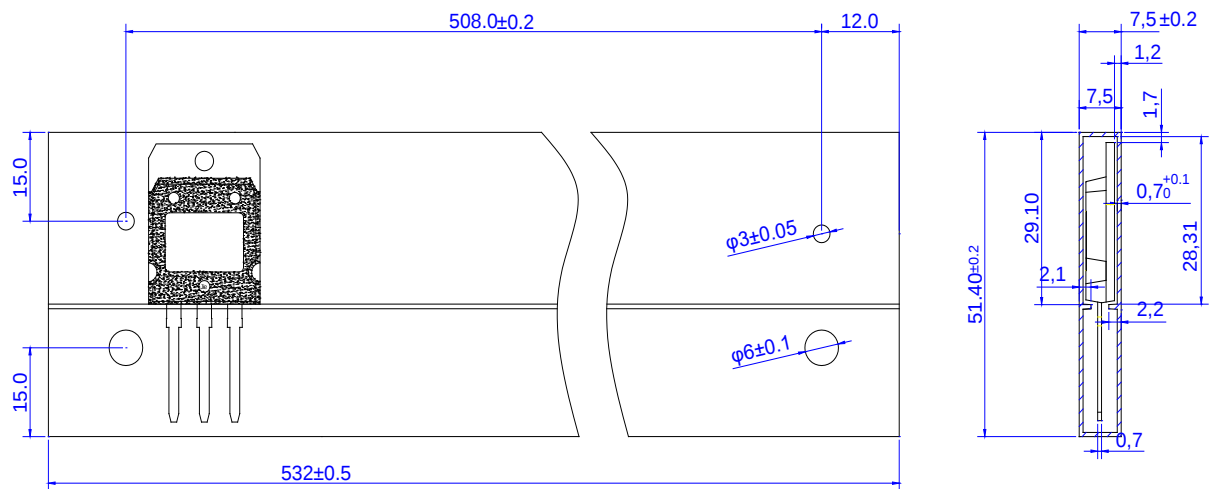
Date	Revision	Changes
Apr.11, 2023	A.1.0	Last updated

PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	19.7	19.9	20.1	0.776	0.783	0.791
B	26.9	27.1	27.3	1.059	1.067	1.075
C	19.4	19.9	20.4	0.764	0.783	0.803
D	3.80	3.90	4.00	0.150	0.154	0.157
E	2.56	2.66	2.76	0.101	0.105	0.109
F	1.66	1.76	1.86	0.065	0.069	0.073
G	5.25		5.65	0.207		0.222
H	5.05	5.10	5.50	0.199	0.201	0.217
J	1.45	1.50	1.55	0.057	0.059	0.061
K	2.20	2.30	2.40	0.087	0.091	0.094
L	0.60	0.70	0.80	0.024	0.028	0.031
M	21.2	21.3	21.4	0.835	0.839	0.843

DELIVERY MODE



PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
ITO-247	TUBE	25	400	1,600

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