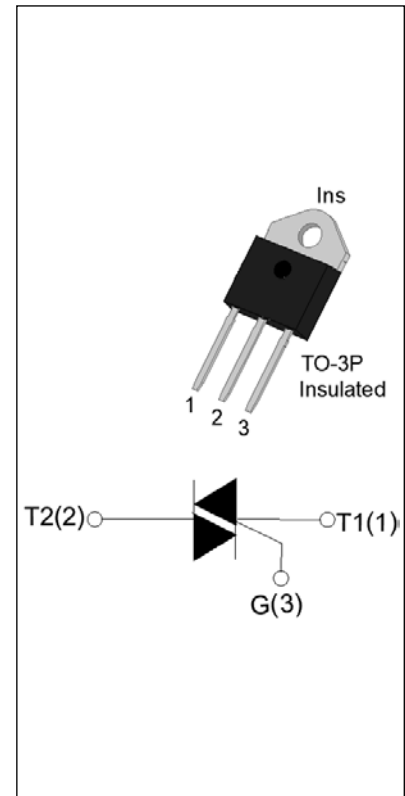


JST60Z-800BW 60A TRIAC

Rev.A.1.0

DESCRIPTION:

The JST60Z-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. JST60Z-800BW snubberless triac is especially recommended for use on inductive loads. By using an internal ceramic pad, JST60Z-800BW provides a rated insulation voltage of 2500 VRMS. Package TO-3P is RoHS compliant.


MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	60	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 ($T_c \leq 88^\circ\text{C}$)	$I_{T(RMS)}$	60	A
Non repetitive surge peak on-state current (full cycle, $t_p=20\text{ms}$, $T_j=25^\circ\text{C}$)	I_{TSM}	600	A
Non repetitive surge peak on-state current (full cycle, $t_p=16.6\text{ms}$, $T_j=25^\circ\text{C}$)		660	
I^2t value for fusing ($t_p=10\text{ms}$, $T_j=25^\circ\text{C}$)	I^2t	1800	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}	8	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 ($T_j=25^{\circ}C$; non-repetitive, off-state; FIG.7)	V_{pp}	2	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.	120	mA
		II		120	
I_H	$I_T=1A$		MAX.	80	mA
dV/dt	$V_D=540V$ Gate Open $T_j=125^{\circ}C$		MIN.	2500	V/ μs
(dI/dt) _c	(dV/dt) _c =20V/ μs $T_j=125^{\circ}C$		MIN.	25	A/ms
t_{on}	$I_G=80mA I_A=400mA I_R=40mA$ $T_j=25^{\circ}C$		TYP.	3	μs
t_{off}				40	

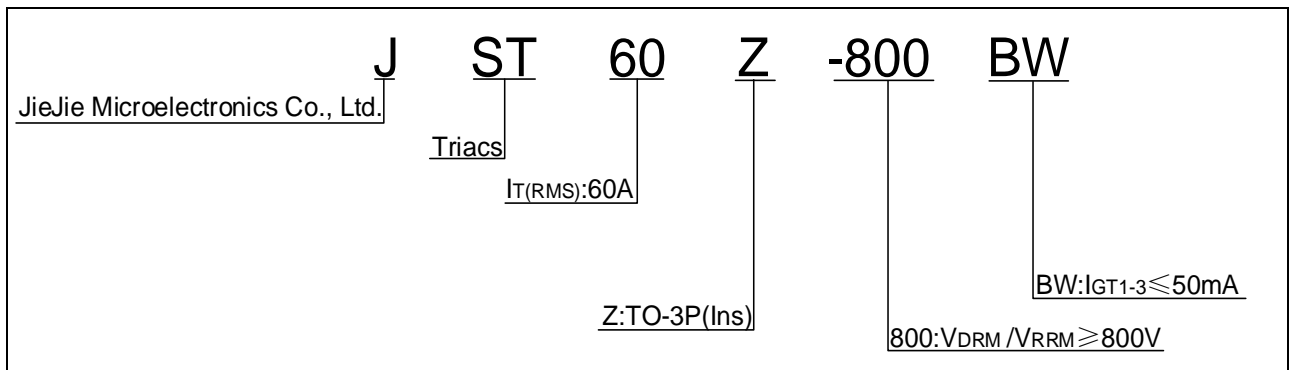
STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$I_{TM}=85A t_p=380\mu s$	$T_j=25^{\circ}C$	1.7	V
V_{TO}	Threshold voltage	$T_j=125^{\circ}C$	0.68	V
R_D	Dynamic resistance	$T_j=125^{\circ}C$	24	m Ω
I_{DRM}	$V_D=V_{DRM} V_R=V_{RRM}$	$T_j=25^{\circ}C$	15	μA
I_{RRM}		$T_j=125^{\circ}C$	10	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (AC)	0.4	$^{\circ}C/W$
$R_{th(j-a)}$	junction to ambient (AC)	45	$^{\circ}C/W$

ORDERING INFORMATION



MARKING

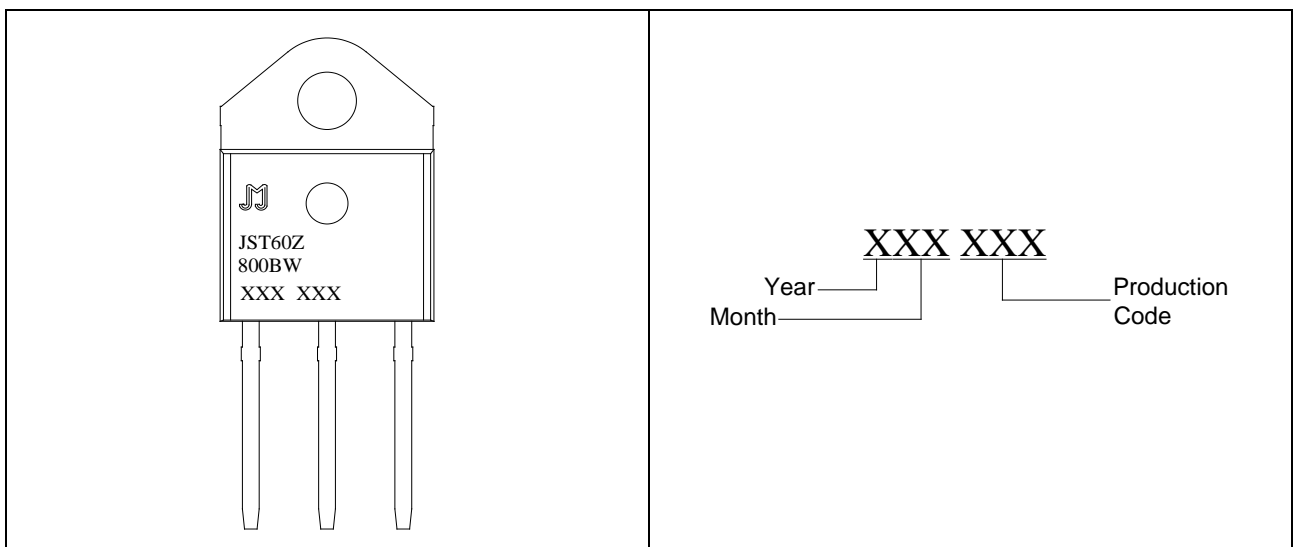


FIG.1 Maximum power dissipation versus RMS on-state current

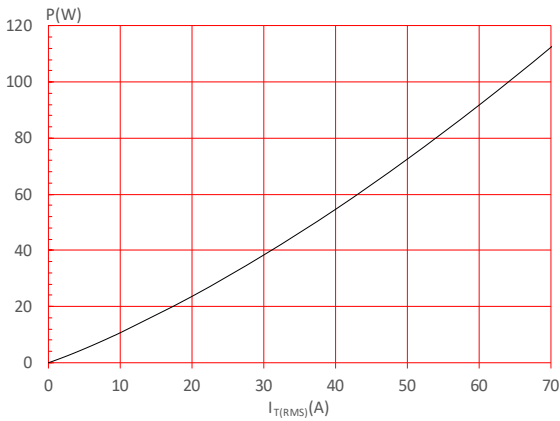


FIG.3: Surge peak on-state current versus number of cycles

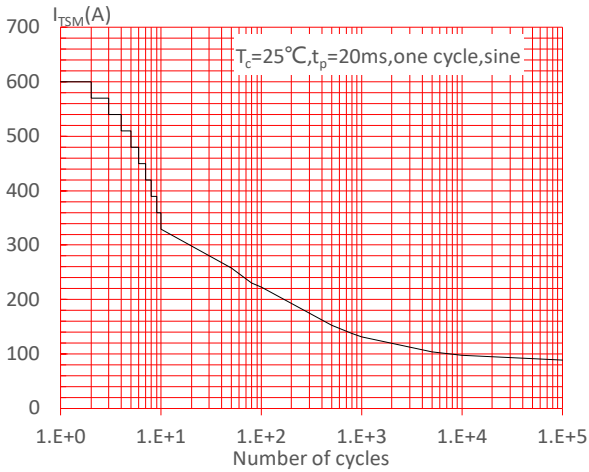


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I^2t ($di/dt < 100\text{A}/\mu\text{s}$)

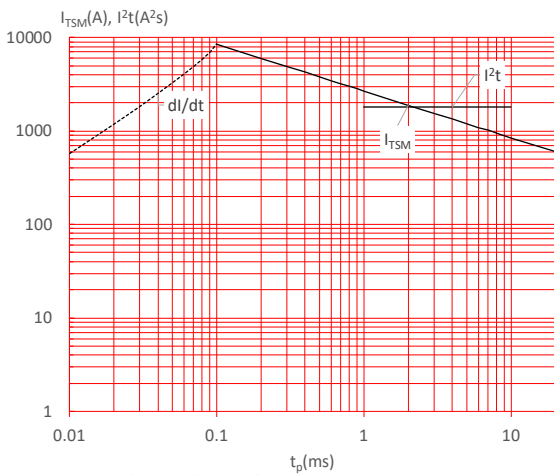


FIG.2: RMS on-state current versus case temperature

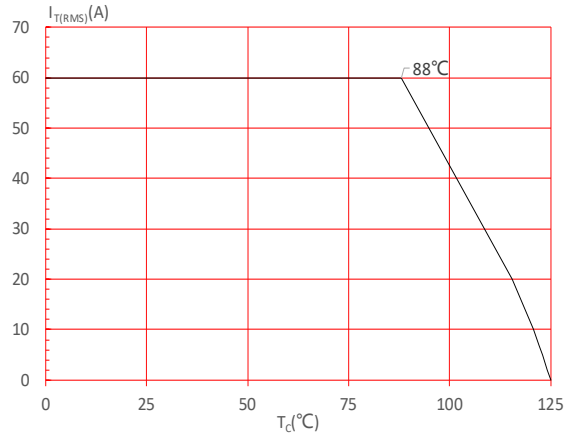


FIG.4: On-state characteristics

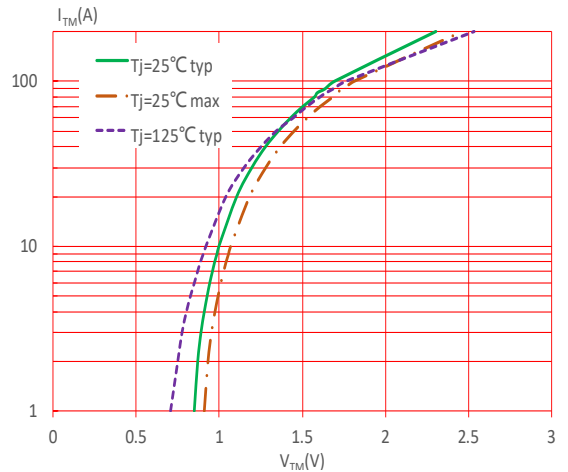


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature

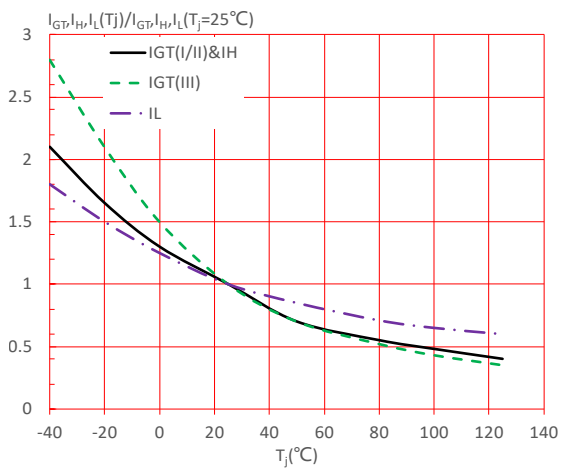
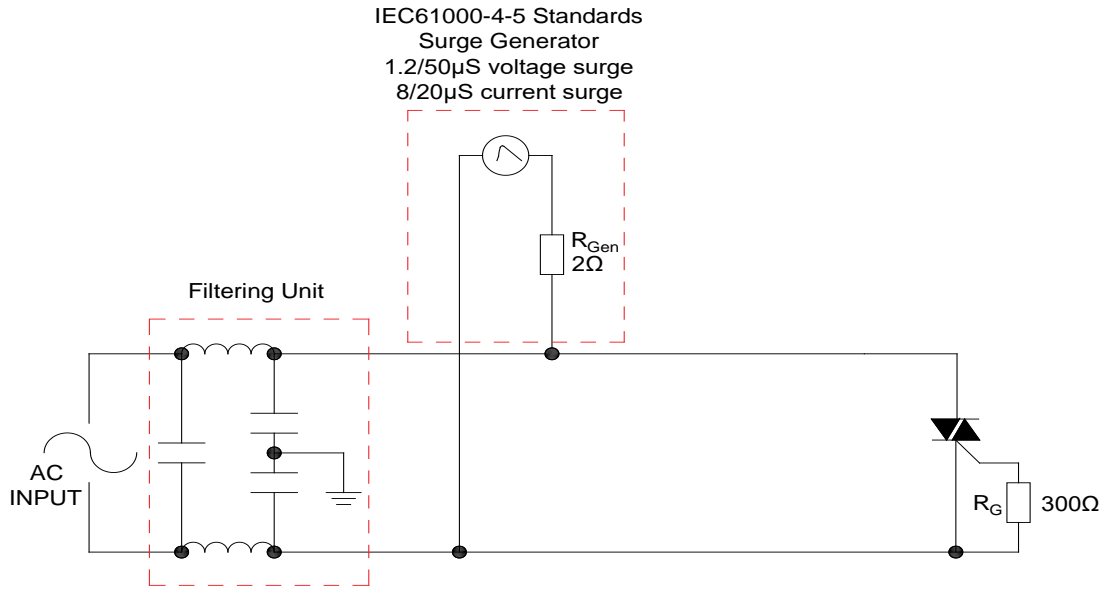


FIG.7: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards



LEAD FORMING AND SOLDERING

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

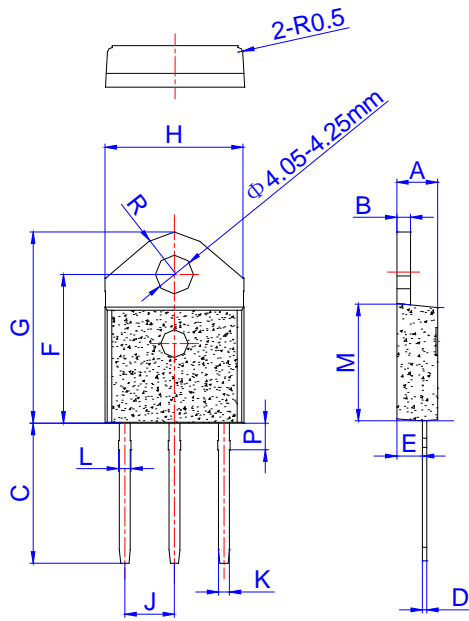
ORDERING INFORMATION

Order code	Voltage $V_{DRM}/V_{RRM}(V)$	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
		I - II - III			
JST60Z-800BW	800	50	TO-3P(Ins)	30	Tube

Document Revision History

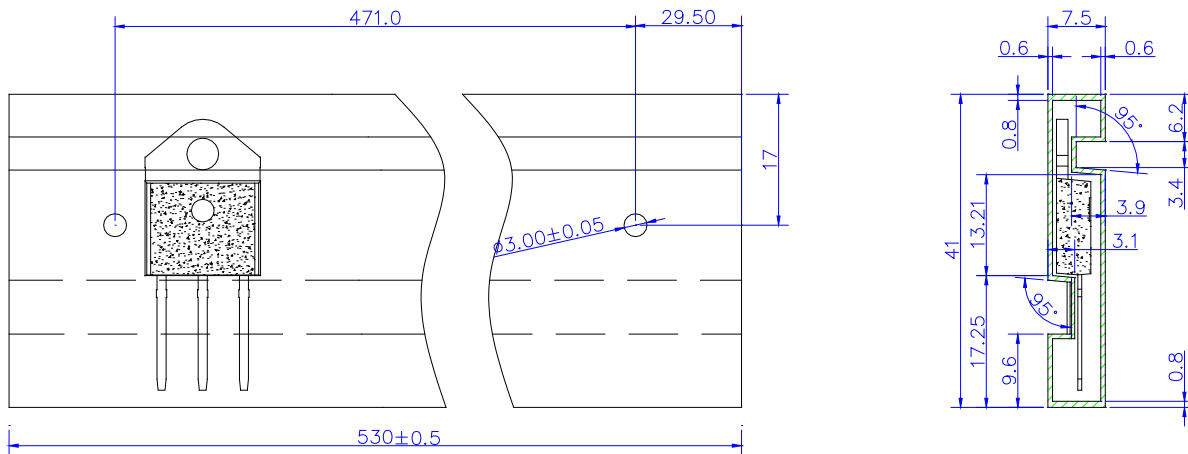
Date	Revision	Changes
Apr.11, 2023	A.1.0	Last updated

PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	1.45		1.55	0.057		0.061
C	14.35		15.60	0.565		0.614
D	0.50		0.70	0.020		0.028
E	2.70		2.90	0.106		0.114
F	15.80		16.50	0.622		0.650
G	20.40		21.10	0.803		0.831
H	15.10		15.50	0.594		0.610
J	5.40		5.65	0.213		0.222
K	1.10		1.40	0.043		0.055
L	1.25		1.45	0.049		0.057
M	12.37		12.77	0.487		0.503
P	2.80		3.00	0.110		0.118
R		4.35			0.171	

DELIVERY MODE



PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-3P	TUBE	30	450	2,250

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