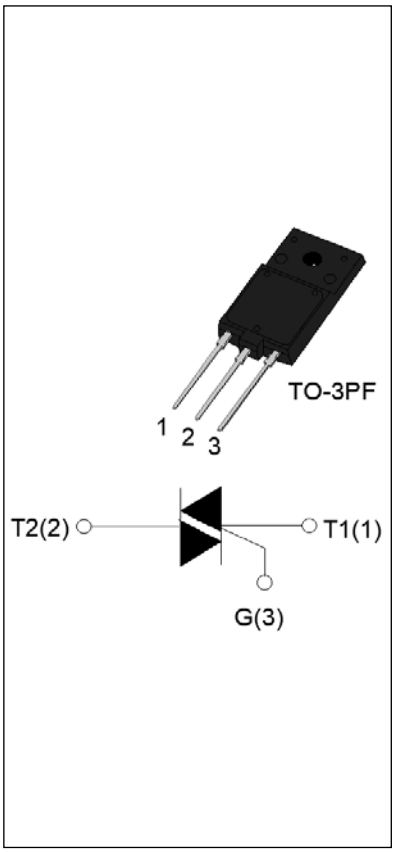
JST60UF-1600BW 60A TRIAC

Rev.A.1.0

DESCRIPTION:

The JST60UF-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. JST60UF-1600BW snubberless triac is especially recommended for use on inductive loads. By using an internal ceramic pad, JST60UF-1600BW provides a rated insulation voltage of 2500 VRMS, complying with UL standards (File ref: E252906). Package TO-3PF is RoHS compliant.



MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	60	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	℃
Operating junction temperature range	T_j	-40-125	℃
Repetitive peak off-state voltage (T_j=25℃)	V_{DRM}	1600	V
Repetitive peak reverse voltage (T_j=25℃)	V_{RRM}	1600	V
RMS on-state current (T_C≤19℃)	$I_{T(RMS)}$	60	A
Non repetitive surge peak on-state current (full cycle , t_p=20ms , T_j=25℃)	I_{TSM}	550	A
Non repetitive surge peak on-state current (full cycle , t_p=16.6ms , T_j=25℃)		605	
I^2t value for fusing (t_p=10ms , T_j=25℃)	I^2t	1512	A^2s
Critical rate of rise of on-state current (I_G=2×I_{GT} , f=100Hz , T_j=125℃)	dI/dt	100	A/μs
Peak gate current (t_p=20μs , T_j=125℃)	I_{GM}	8	A

Average gate power dissipation (T_j=125℃)	$P_{G(AV)}$	0.5	W
Peak gate power	P_{GM}	10	W
Peak pulse voltage (T_j=25℃; non-repetitive,off-state;FIG.7)	V_{pp}	2	kV

ELECTRICAL CHARACTERISTICS(T_j=25℃ unless otherwise specified)

Symbol	Test Condition	Quadrant	Value		Unit
I_{GT}	V_D =12V R_L =33Ω	Ⅰ-Ⅱ-Ⅲ	MAX.	50	mA
V_{GT}		Ⅰ-Ⅱ-Ⅲ	MAX.	1.3	V
V_{GD}	V_D =V_{DRM} T_j=125℃ R_L =3.3kΩ	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=1070V Gate Open T_j=125℃		MIN.	1500	V/μs
(dI/dt)c	(dV/dt)c=20V/μs T_j=125℃		MIN.	28	A/ms
t_{on}	I_G=80mA I_A=400mA I_R=40mA T_j=25℃		TYP.	7	μs
t_{off}				100	

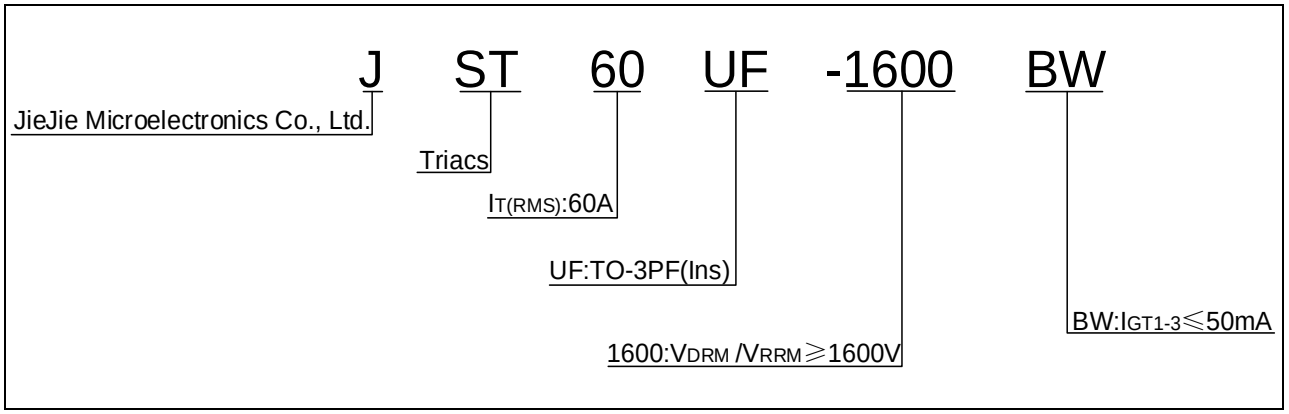
STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	I_{TM} =85A t_p=380μs	T_j=25℃	1.7	V
V_{TO}	Threshold voltage	T_j=125℃	0.68	V
R_D	Dynamic resistance	T_j=125℃	27	mΩ
I_{DRM}	V_D=$V_{DRM}$$V_R$ =V_{RRM}	T_j=25℃	15	μA
I_{RRM}		T_j=125℃	10	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (AC)	1.21	℃/W
$R_{th(j-a)}$	junction to ambient (AC)	40	℃/W

ORDERING INFORMATION



MARKING

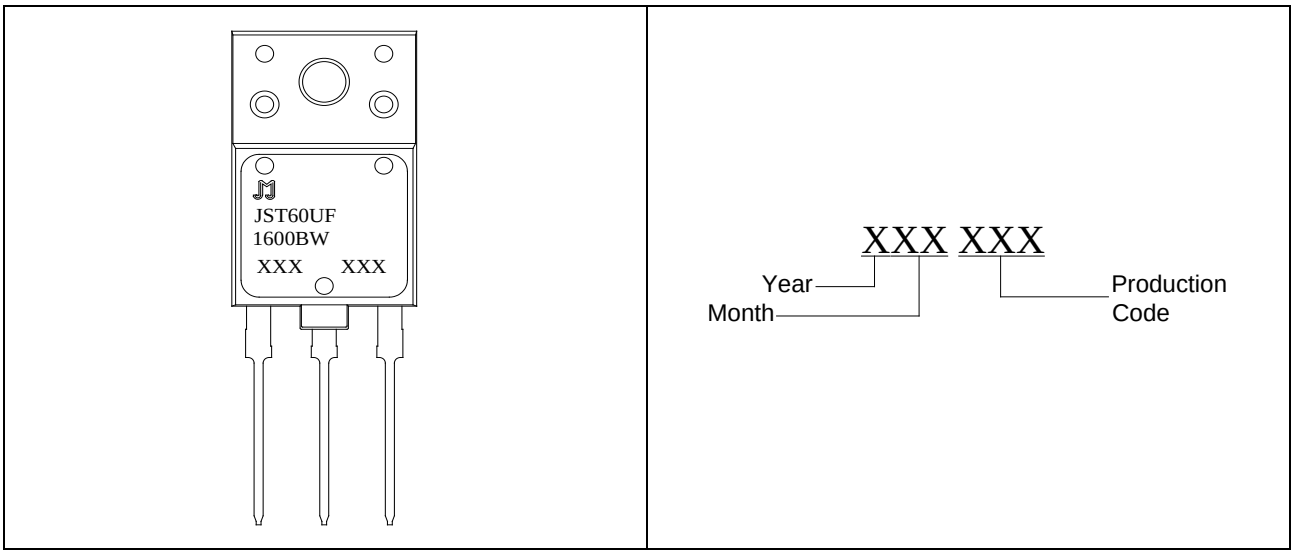


FIG.1: Maximum power dissipation versus RMS on-state current

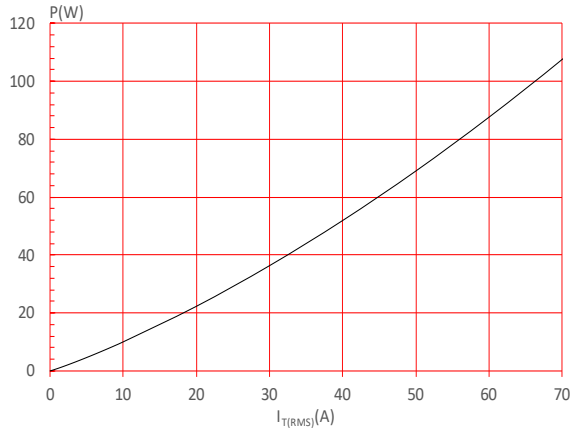


FIG.2: RMS on-state current versus case temperature

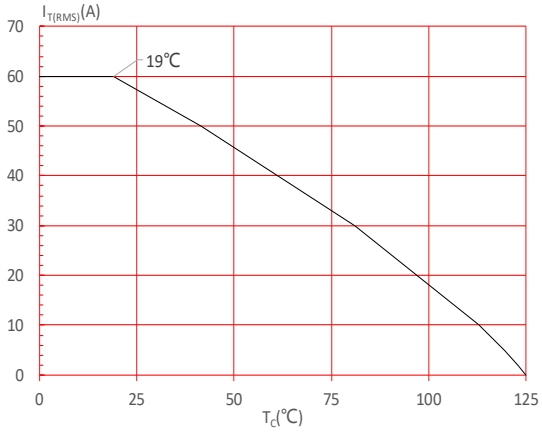


FIG.3: Surge peak on-state current versus number of cycles

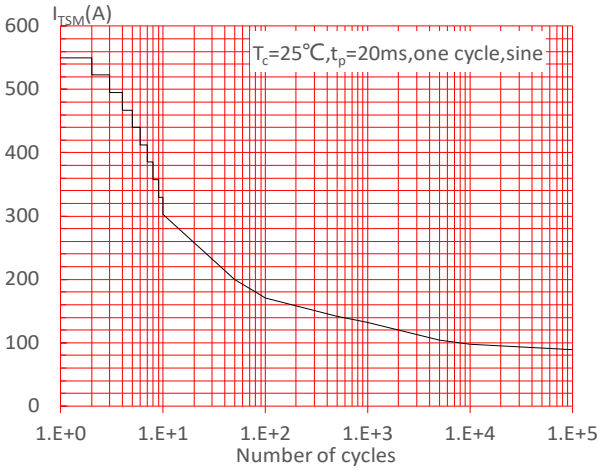


FIG.4: On-state characteristics

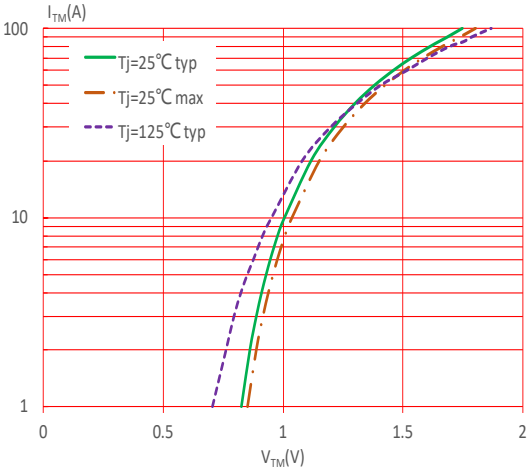


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width t_p<20ms, and corresponding value of I^2t (dI/dt<100A/μs)

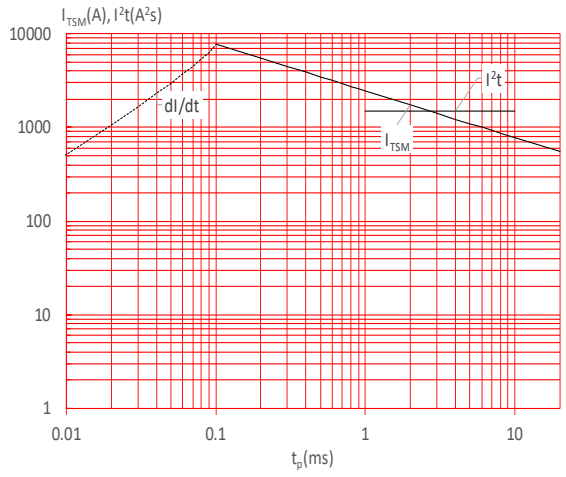


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature

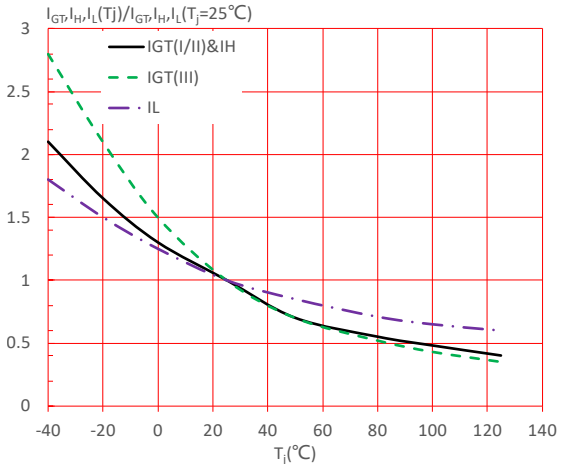
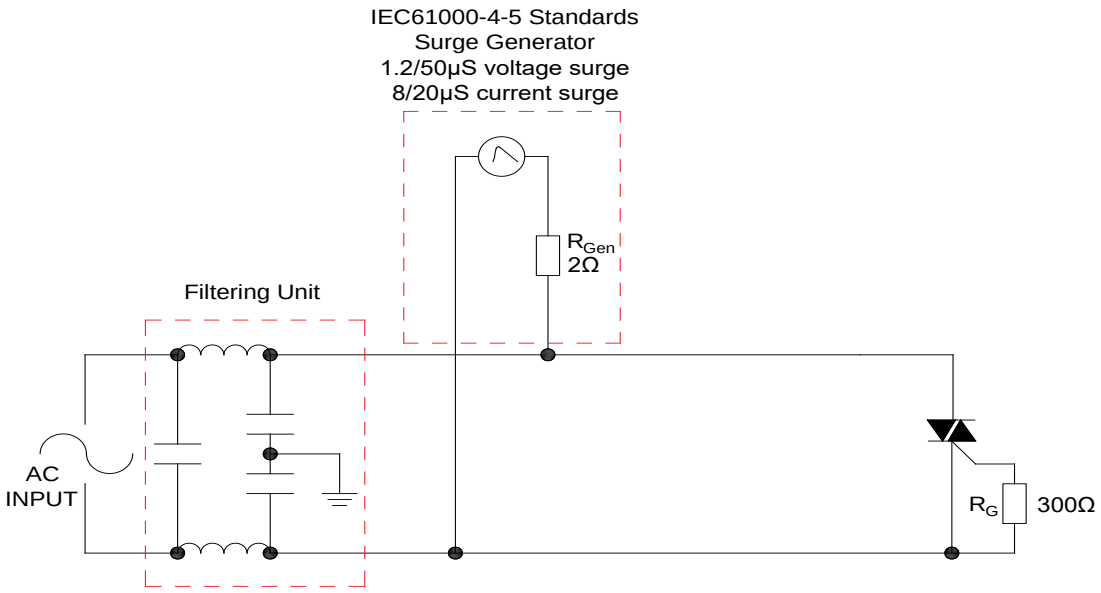


FIG.7：Test circuit for inductive and resistive loads to IEC-61000-4-5 standards



LEAD FORMING AND SOLDERING

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

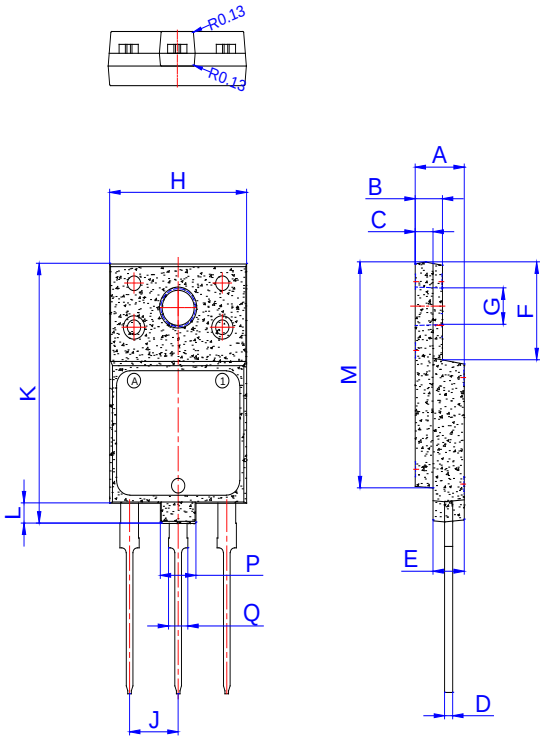
ORDERING INFORMATION

Order code	Voltage V_{DRM}/V_{RRM}(V)	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
		Ⅰ-Ⅱ-Ⅲ			
JST60UF-1600BW	1600	50	TO-3PF(Ins)	30	Tube

Document Revision History

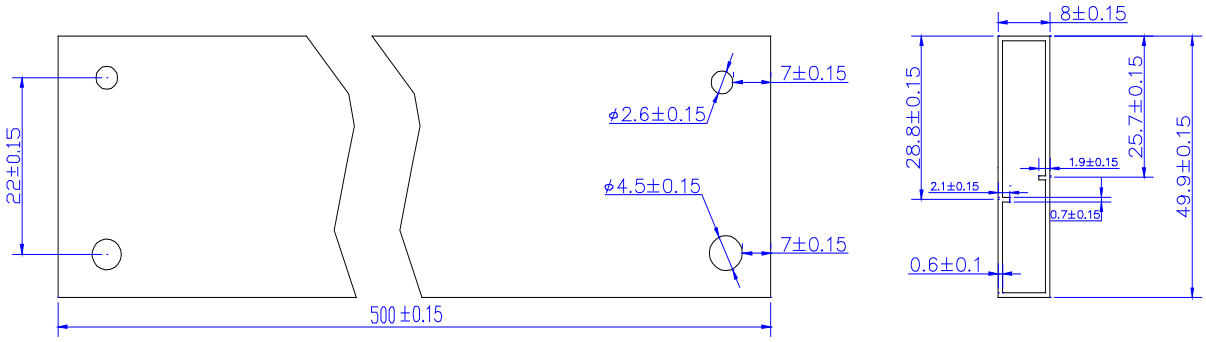
Date	Revision	Changes
Jul.9, 2025	A.1.0	Last updated

PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	5.40		5.60	0.213		0.220
B	2.95		3.15	0.116		0.124
C	1.90		2.10	0.075		0.083
D		0.90			0.035	
E		3.50			0.138	
F		9.96			0.392	
G	3.60		3.80	0.142		0.150
H	15.25		15.45	0.600		0.608
J		5.45			0.215	
K	26.30		26.60	1.035		1.047
L	1.90		2.20	0.075		0.087
M	22.85		23.15	0.900		0.911
P		4.00			0.157	
Q		2.16			0.085	

DELIVERY MODE



PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-3PF	TUBE	30	450	2250

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