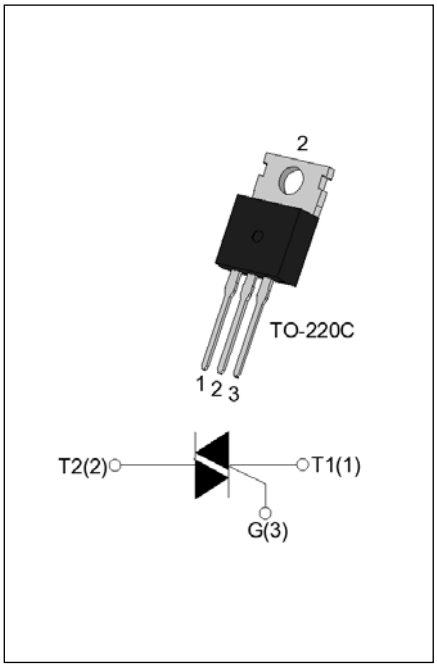
JST137C-600D 8A TRIAC

Rev.A.1.2

DESCRIPTION:

The JST137C-600D 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. From T2 terminals to external heatsink. Package TO-220C is RoHS compliant.



MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	8	A
V_{DRM} /V_{RRM}	600	V
$I_{GT\ I\ /\ II\ /\ III\ /\ IV}$	5/5/5/10	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}	600	V
Repetitive peak reverse voltage (T_j=25℃)		V_{RRM}	600	V
RMS on-state current (T_C≤101℃)		$I_{T(RMS)}$	8	A
Non repetitive surge peak on-state current (full cycle , t_p=20ms , T_j=25℃)		I_{TSM}	65	A
Non repetitive surge peak on-state current (full cycle , t_p=16.6ms , T_j=25℃)			72	
I^2t value for fusing (t_p=10ms , T_j=25℃)		I^2t	21	A^2s
Critical rate of rise of on-state current (I_G=2×I_{GT} , f=100Hz , T_j=125℃)	I - II -III	dI/dt	50	A/μs
	IV		20	
Peak gate current (t_p=20μs , T_j=125℃)		I_{GM}	4	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}	4	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.	5	mA
		Ⅳ		10	
V_{GT}		ALL	MAX.	1	V
V_{GD}	V_D=V_{DRM} T_j=125℃ R_L=3.3kΩ	ALL	MIN.	0.2	V
I_L	I_G=1.2I_{GT}	Ⅰ-Ⅲ-Ⅳ	MAX.	15	mA
		Ⅱ		20	
I_H	I_T=500mA		MAX.	10	mA
dV/dt	V_D=400V Gate Open T_j=125℃		MIN.	80	V/μs
(dV/dt)c	(dI/dt)c=2.7A/ms, T_j=125℃		MIN.	2	V/μs
t_{on}	I_G=20mA I_A=200mA I_R=20mA T_j=25℃		TYP.	1.2	μs
t_{off}				15	

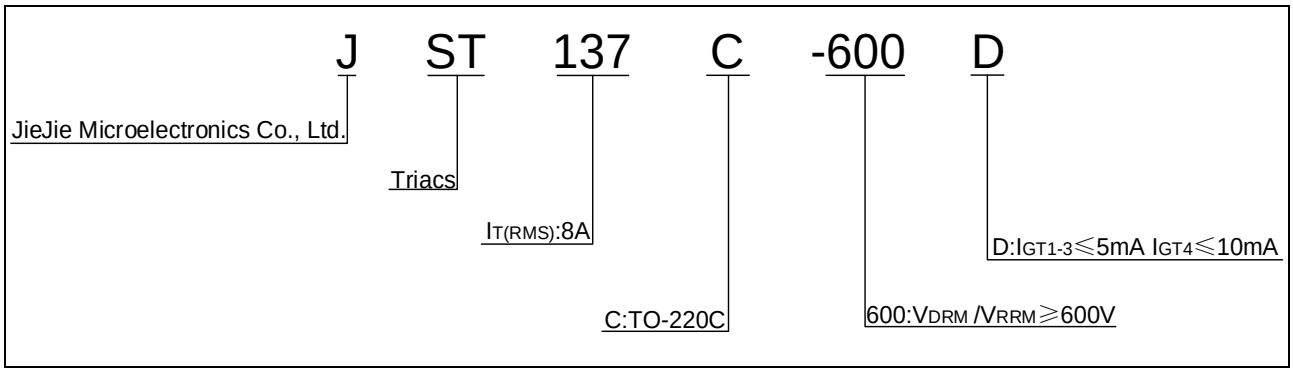
STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	I_{TM}=10A t_p=380μs	T_j=25℃	1.5	V
V_{TO}	Threshold voltage	T_j=125℃	0.8	V
R_D	Dynamic resistance	T_j=125℃	53	mΩ
I_{DRM}	V_D=V_{DRM} V_R=V_{RRM}	T_j=25℃	5	μA
I_{RRM}		T_j=125℃	0.35	mA

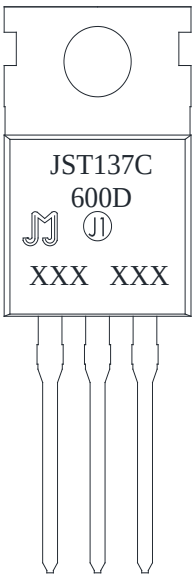
THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (AC)	2.1	℃/W
$R_{th(j-a)}$	junction to ambient (AC)	60	℃/W

ORDERING INFORMATION



MARKING



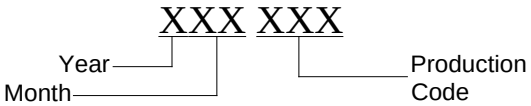


FIG.1: Maximum power dissipation versus RMS on-state current

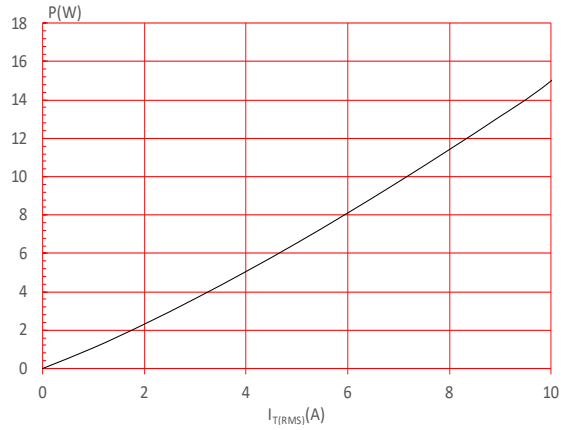


FIG.2: RMS on-state current versus case temperature

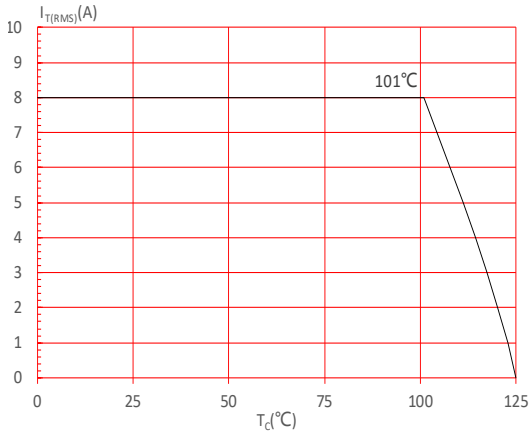


FIG.3: Surge peak on-state current versus number of cycles

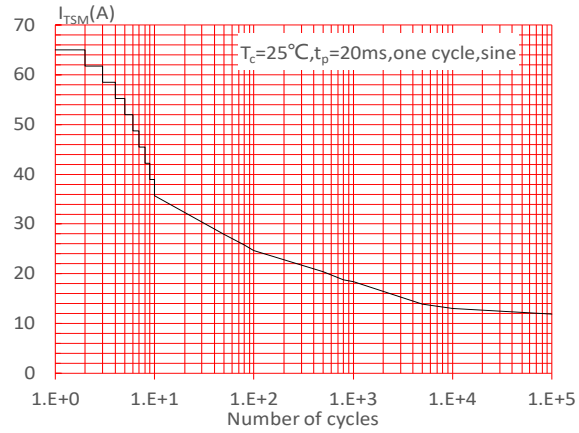


FIG.4: On-state characteristics

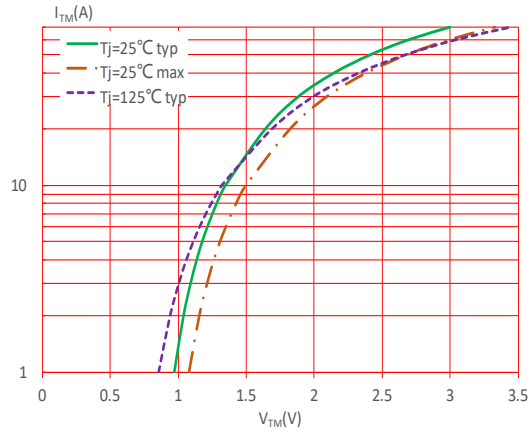


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width t_p<20ms, and corresponding value of I^2t (Ⅰ-Ⅱ-Ⅲ: dI/dt<50A/μs; Ⅳ: dI/dt<20A/μs)

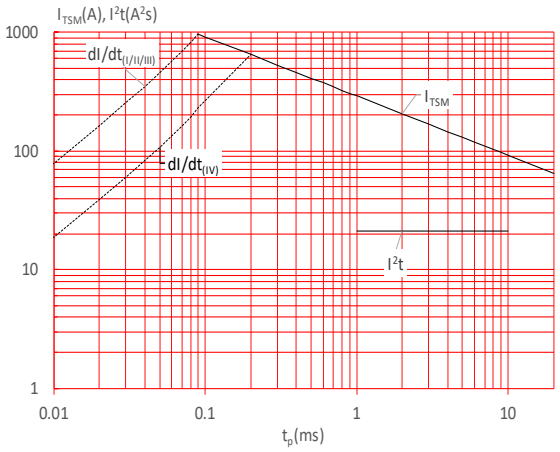


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature

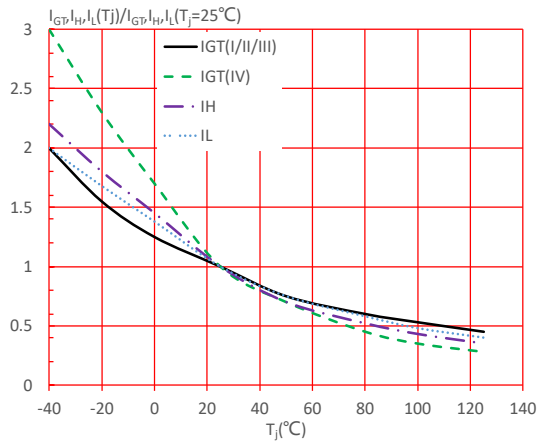
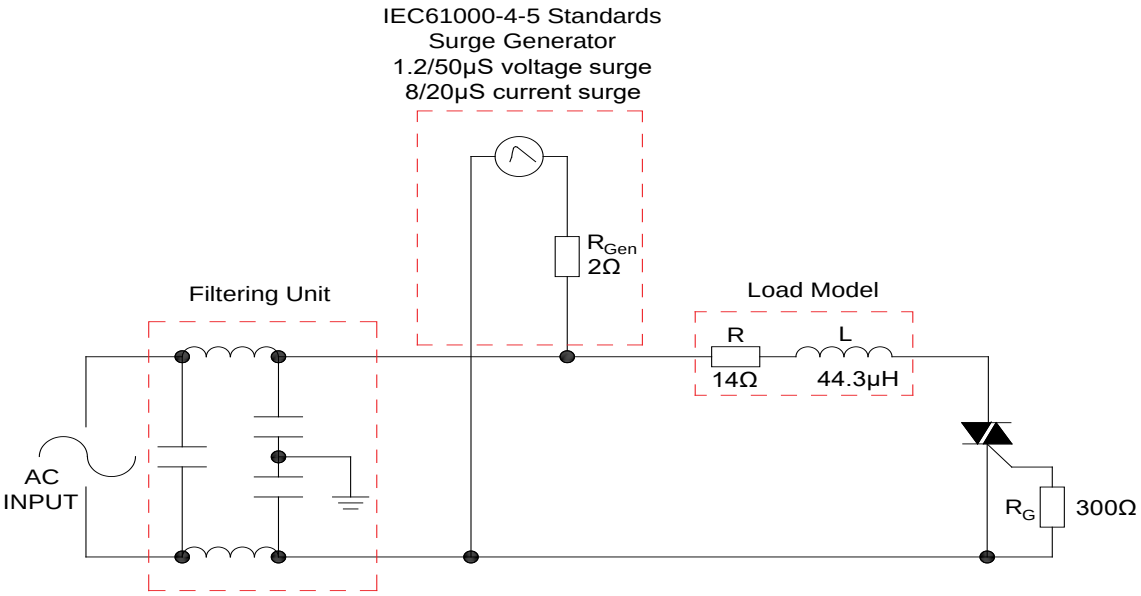


FIG.7：Test circuit for inductive and resistive loads to IEC-61000-4-5 standards



LEAD FORMING AND SOLDERING

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

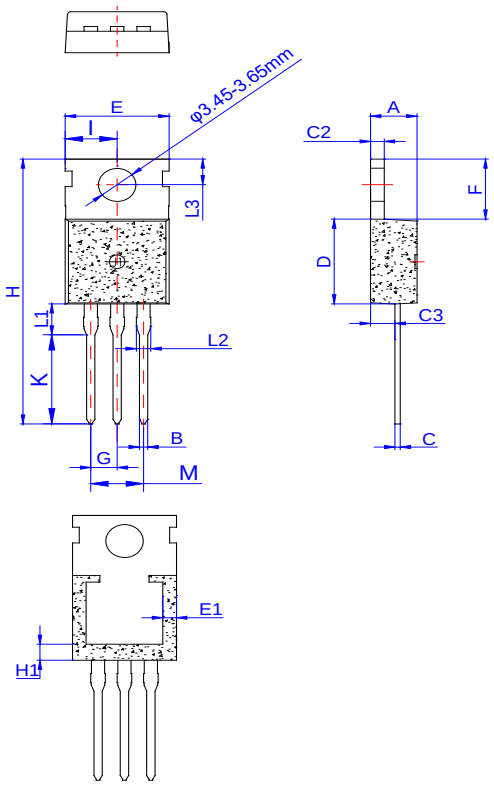
ORDERING INFORMATION

Order code	Voltage V_{DRM}/V_{RRM} (V)	IGT(mA)		Package	Base qty. (pcs)	Delivery mode
		Ⅰ-Ⅱ-Ⅲ	Ⅳ			
JST137C-600D	600	5	10	TO-220C	50	Tube

Document Revision History

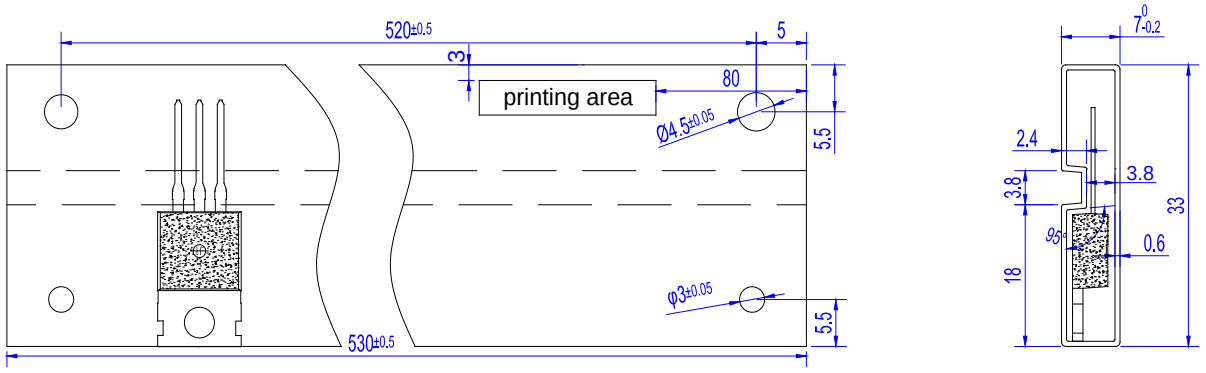
Date	Revision	Changes
Apr.14, 2023	A.1.0	Last updated
Sept.11, 2025	A.1.1	Revise dI/dt
Oct.16, 2025	A.1.2	Revise PACKAGE MECHANICAL DATA

PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.70		0.90	0.028		0.035
C	0.45		0.60	0.018		0.024
C2	1.25		1.35	0.049		0.053
C3	2.20		2.60	0.087		0.102
D	8.90		9.90	0.350		0.390
E	9.90		10.30	0.390		0.406
E1	0.80		1.20	0.031		0.047
F	6.30		6.90	0.248		0.272
G	2.40		2.70	0.094		0.106
H	28.00		29.80	1.102		1.173
H1	2.15		2.55	0.085		0.100
I	4.70		5.10	0.185		0.201
K	9.90		10.30	0.390		0.406
L1	2.70		3.30	0.106		0.130
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
M	4.80		5.20	0.189		0.205

DELIVERY MODE



PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-220C	TUBE	50	1,000	5,000

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