

JST137C-600D 8A TRIAC

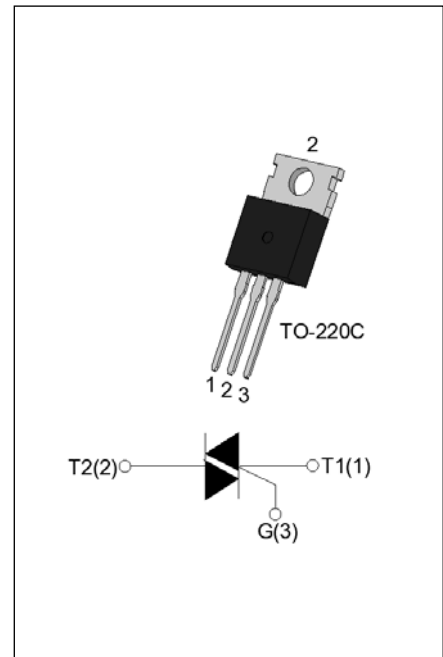
Rev.A.1.0

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	°C
Operating junction temperature range	T_j	-40-125	°C
Repetitive peak off-state voltage ($T_j=25^\circ\text{C}$)	V_{DRM}	600	V
Repetitive peak reverse voltage ($T_j=25^\circ\text{C}$)	V_{RRM}	600	V
RMS on-state current ($T_c \leq 101^\circ\text{C}$)	$I_{T(RMS)}$	8	A
Non repetitive surge peak on-state current (full cycle , $t_p=20\text{ms}$, $T_j=25^\circ\text{C}$)	I_{TSM}	65	A
Non repetitive surge peak on-state current (full cycle , $t_p=16.6\text{ms}$, $T_j=25^\circ\text{C}$)		72	
I^2t value for fusing ($t_p=10\text{ms}$, $T_j=25^\circ\text{C}$)	I^2t	21	A^2s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$, $f=100\text{Hz}$, $T_j=125^\circ\text{C}$)	I - II - III	50	$\text{A}/\mu\text{s}$
	IV	40	
Peak gate current ($t_p=20\mu\text{s}$, $T_j=125^\circ\text{C}$)	I_{GM}	4	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 ($T_j=25^{\circ}\text{C}$; non-repetitive, off-state; FIG.7)	V_{pp}	4	kV
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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.	5	mA
		IV		10	
V_{GT}		ALL	MAX.	1	V
V_{GD}	$V_D=V_{DRM}$ $T_j=125^{\circ}\text{C}$ $R_L=3.3\text{K}\Omega$	ALL	MIN.	0.2	V
I_L	$I_G=1.2I_{GT}$	I - III - IV	MAX.	15	mA
		II		20	
I_H	$I_T=500\text{mA}$		MAX.	10	mA
dV/dt	$V_D=400\text{V}$ Gate Open $T_j=125^{\circ}\text{C}$		MIN.	80	V/ μs
$(dV/dt)_c$	$(dI/dt)_c=2.7\text{A/ms}$, $T_j=125^{\circ}\text{C}$		MIN.	2	V/ μs
t_{on}	$I_G=20\text{mA}$ $I_A=200\text{mA}$ $I_R=20\text{mA}$ $T_j=25^{\circ}\text{C}$		TYP.	1.2	μs
t_{off}				15	

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$I_{TM}=10\text{A}$ $t_p=380\mu\text{s}$	$T_j=25^{\circ}\text{C}$	1.5	V
V_{TO}	Threshold voltage	$T_j=125^{\circ}\text{C}$	0.8	V
R_D	Dynamic resistance	$T_j=125^{\circ}\text{C}$	53	$\text{m}\Omega$
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^{\circ}\text{C}$	5	μA
I_{RRM}		$T_j=125^{\circ}\text{C}$	0.35	mA

THERMAL RESISTANCES

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

ORDERING INFORMATION

J	ST	137	C	-600	D
JieJie Microelectronics Co., Ltd.	Triacs	$I_{T(RMS)}:8A$	C:TO-220C	$600:V_{DRM}/V_{RRM} \geq 600V$	D: $I_{GT1-3} \leq 5mA$ $I_{GT4} \leq 10mA$

MARKING

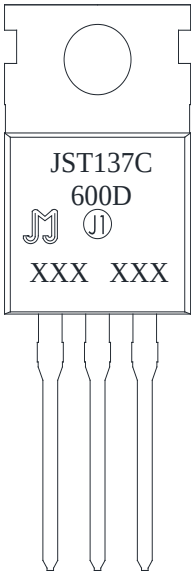
 Diagram showing the marking on the JST137C-600D triac package. The marking includes the part number JST137C 600D, the JieJie logo, and two XXX XXX codes.	XXX XXX Year _____ Month _____ Production Code
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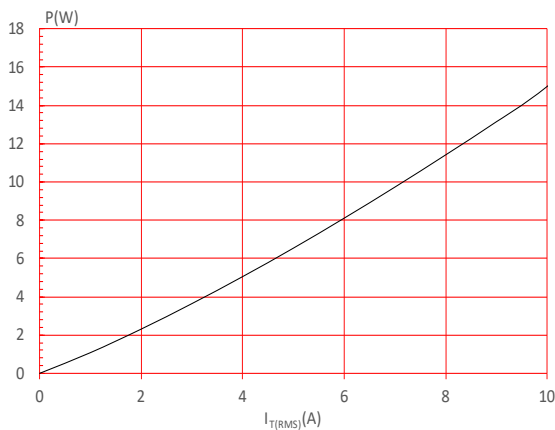
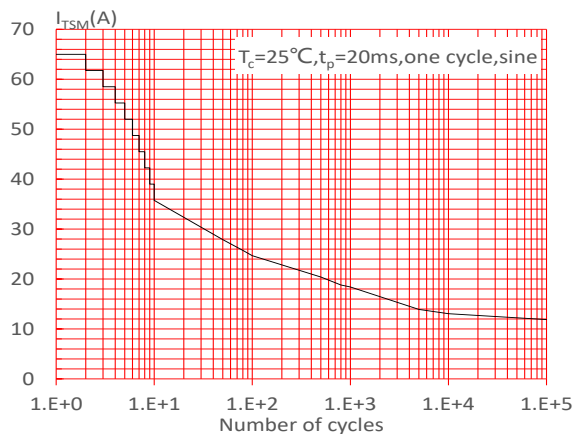
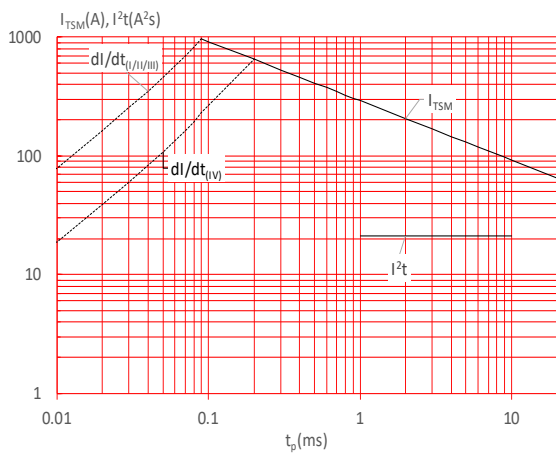
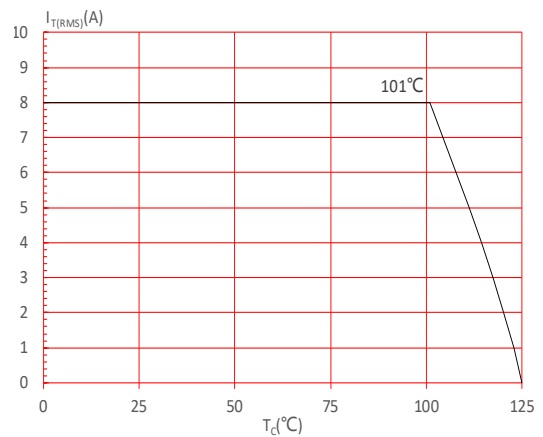
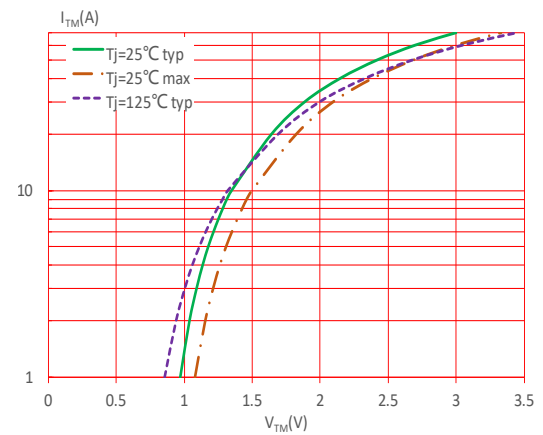
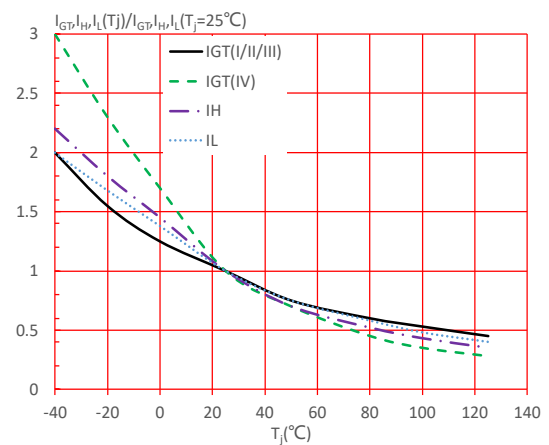
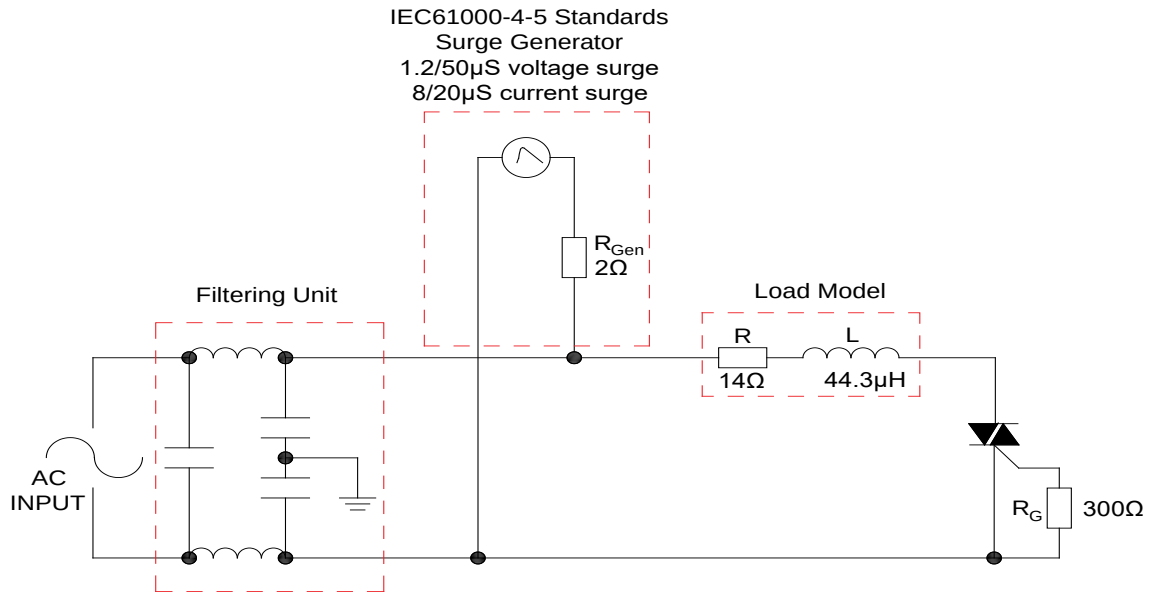
FIG.1 Maximum power dissipation versus RMS on-state current**FIG.3:** Surge peak on-state current versus number of cycles**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I^2t (I - II - III: $di/dt < 50\text{A}/\mu\text{s}$; IV: $di/dt < 40\text{A}/\mu\text{s}$)**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



SHAPING AND SOLDERING PARAMETERS

Refer to 《Instructions for installation of plastic-sealed in-line power devices》 released by JieJie.

ORDERING INFORMATION

Order code	Voltage $V_{\text{DRM}}/V_{\text{RRM}}$ (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

Technical drawing of a three-core cable with dimensions and labels:

- Top View:** Shows a cross-section of the cable with three cores and a central red line indicating the center.
- Front View (Left):** Shows the cable with dimensions:
 - E:** Width of the top section.
 - L3:** Height of the top section.
 - H:** Total height of the cable.
 - L1:** Height of the middle section.
 - L2:** Height of the bottom section.
 - B:** Width of the bottom section.
 - G:** Width of the bottom section.
- Front View (Right):** Shows the cable with dimensions:
 - A:** Width of the top section.
 - C2:** Width of the top section.
 - F:** Height of the top section.
 - D:** Height of the middle section.
 - C3:** Width of the bottom section.
 - C:** Width of the bottom section.
- Annotation:** A blue arrow points to the central red line with the text $\varnothing 3.45 \pm 0.65 \text{ mm}$.

Technical drawing of a 3D printed part, showing three views: top, front, and side views. The dimensions are specified in millimeters (mm).

Top View:

- Overall width: 520 ± 0.5
- Overall height: 530 ± 0.5
- Printing area: 80×5.3
- Distance from left edge to printing area: $520 \pm 0.5 - 80 = 440 \pm 0.5$
- Distance from top edge to printing area: $530 \pm 0.5 - 5.3 = 524.7 \pm 0.5$
- Distance from right edge to printing area: 5
- Distance from bottom edge to printing area: 5.3
- Distance from left edge to bottom hole: $530 \pm 0.5 - 530 = 0$
- Distance from left edge to top hole: $530 \pm 0.5 - 530 = 0$
- Distance from left edge to bottom hole: $530 \pm 0.5 - 530 = 0$
- Distance from left edge to top hole: $530 \pm 0.5 - 530 = 0$

Front View:

- Overall width: 520 ± 0.5
- Overall height: 530 ± 0.5
- Printing area: 80×5.3
- Distance from left edge to printing area: $520 \pm 0.5 - 80 = 440 \pm 0.5$
- Distance from top edge to printing area: $530 \pm 0.5 - 5.3 = 524.7 \pm 0.5$
- Distance from right edge to printing area: 5
- Distance from bottom edge to printing area: 5.3
- Distance from left edge to bottom hole: $530 \pm 0.5 - 530 = 0$
- Distance from left edge to top hole: $530 \pm 0.5 - 530 = 0$
- Distance from left edge to bottom hole: $530 \pm 0.5 - 530 = 0$
- Distance from left edge to top hole: $530 \pm 0.5 - 530 = 0$

Side View:

- Overall width: 7 ± 0.2
- Overall height: 33
- Distance from top edge to printing area: 3.8
- Distance from printing area to bottom edge: 18
- Distance from left edge to printing area: 2.4
- Distance from printing area to right edge: 3.8
- Distance from left edge to bottom hole: 0.6
- Distance from bottom hole to right edge: 0.6
- Distance from left edge to top hole: 0.6
- Distance from top hole to right edge: 0.6

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

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