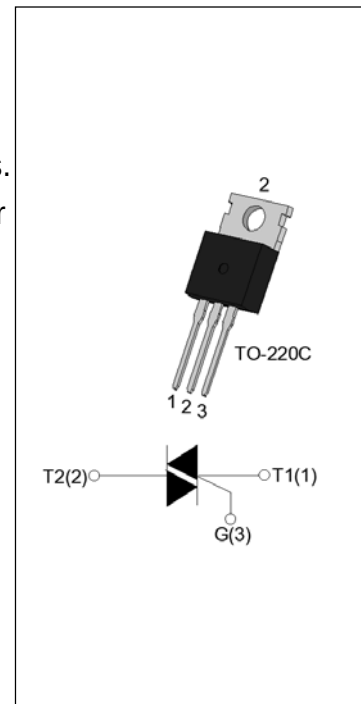


JST16C-600BW 16A TRIAC

Rev.A.1.1

DESCRIPTION:

The JST16C-600BW 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. JST16C-600BW snubberless triac is especially recommended for use on inductive loads. From T2 terminals to external heatsink. Package TO-220C is RoHS compliant.


MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	16	A
V_{DRM}/V_{RRM}	600	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}	600	V
Repetitive peak reverse voltage ($T_j=25^\circ\text{C}$)	V_{RRM}	600	V
RMS on-state current ($T_c \leq 100^\circ\text{C}$)	$I_{T(RMS)}$	16	A
Non repetitive surge peak on-state current (full cycle , $t_p=20\text{ms}$, $T_j=25^\circ\text{C}$)	I_{TSM}	160	A
Non repetitive surge peak on-state current (full cycle , $t_p=16.6\text{ms}$, $T_j=25^\circ\text{C}$)		176	
I^2t value for fusing ($t_p=10\text{ms}$, $T_j=25^\circ\text{C}$)	I^2t	128	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}	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.	50	mA
V_{GT}		I - II -III	MAX.	1	V
V_{GD}	$V_D=V_{DRM}$ $T_j=125^{\circ}\text{C}$ $R_L=3.3\text{k}\Omega$	I - II -III	MIN.	0.2	V
I_L	$I_G=1.2I_{GT}$	I -III	MAX.	70	mA
		II		80	
I_H	$I_T=500\text{mA}$		MAX.	50	mA
dV/dt	$V_D=400\text{V}$ Gate Open $T_j=125^{\circ}\text{C}$		MIN.	2000	V/ μs
$(dI/dt)_c$	$(dV/dt)_c=20\text{V}/\mu\text{s}$ $T_j=125^{\circ}\text{C}$		MIN.	18	A/ms
t_{on}	$I_G=80\text{mA}$ $I_A=200\text{mA}$ $I_R=20\text{mA}$ $T_j=25^{\circ}\text{C}$		TYP.	10	μs
t_{off}				70	

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$I_{TM}=22.5\text{A}$ $t_p=380\mu\text{s}$	$T_j=25^{\circ}\text{C}$	1.5	V
V_{TO}	Threshold voltage	$T_j=125^{\circ}\text{C}$	0.77	V
R_D	Dynamic resistance	$T_j=125^{\circ}\text{C}$	30	$\text{m}\Omega$
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^{\circ}\text{C}$	5	μA
I_{RRM}		$T_j=125^{\circ}\text{C}$	0.4	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (AC)	1.1	$^{\circ}\text{C}/\text{W}$
$R_{th(j-a)}$	junction to ambient (AC)	60	$^{\circ}\text{C}/\text{W}$

ORDERING INFORMATION

<u>J</u>	<u>ST</u>	<u>16</u>	<u>C</u>	<u>-600</u>	<u>BW</u>
JieJie Microelectronics Co., Ltd.	Triacs				
	<u>IT(RMS):16A</u>				
		<u>C:TO-220C</u>			
					<u>BW:IGT1-3≤50mA</u>
				<u>600:VDRM /VRRM≥600V</u>	

MARKING

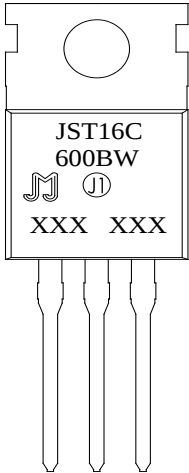
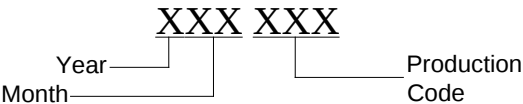
	
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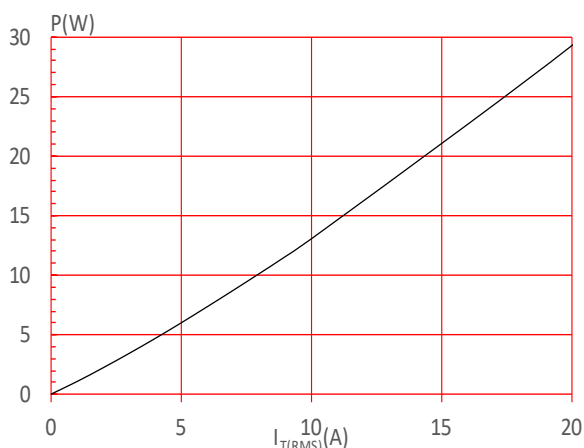
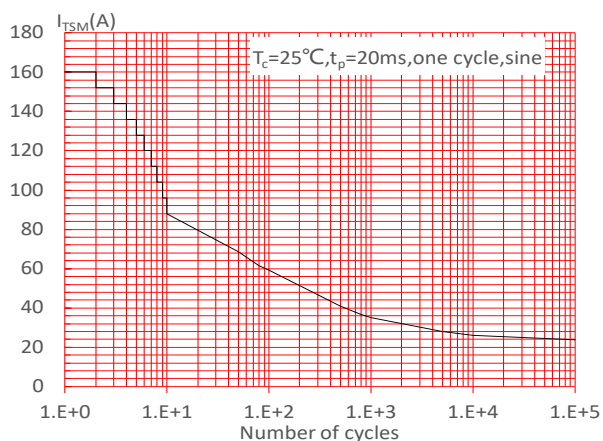
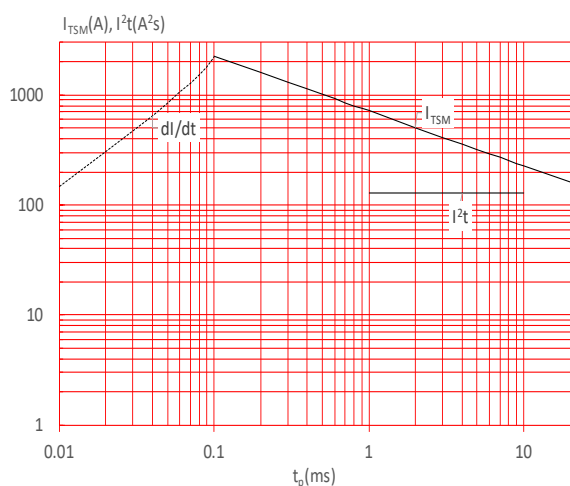
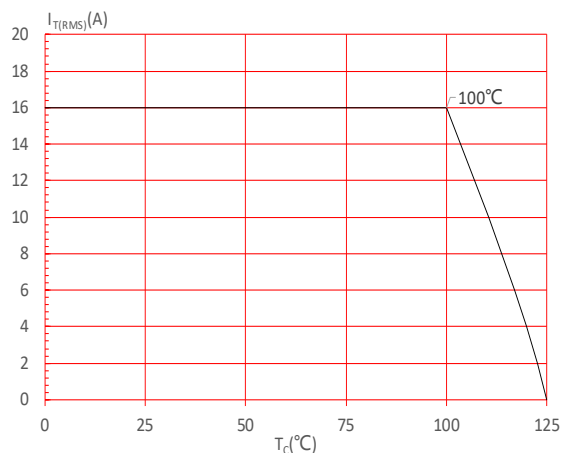
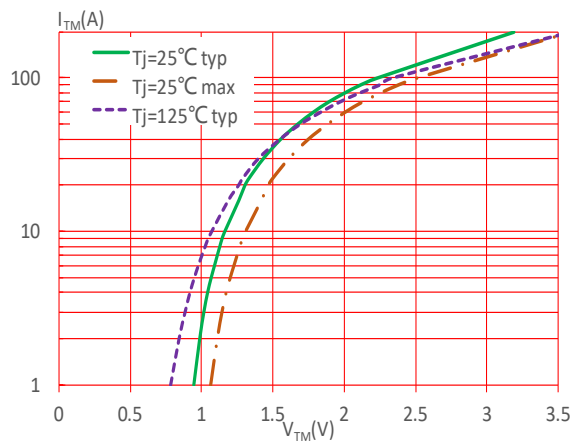
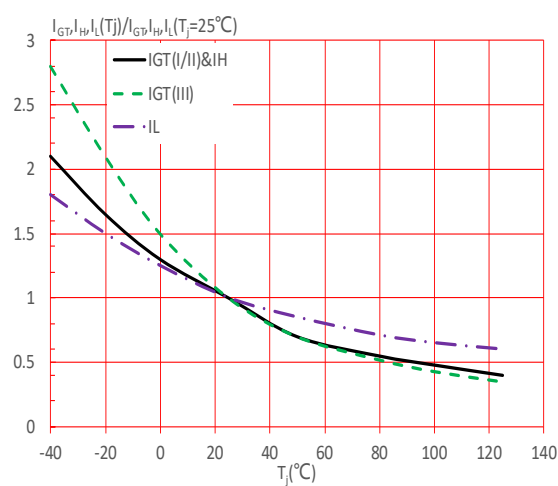
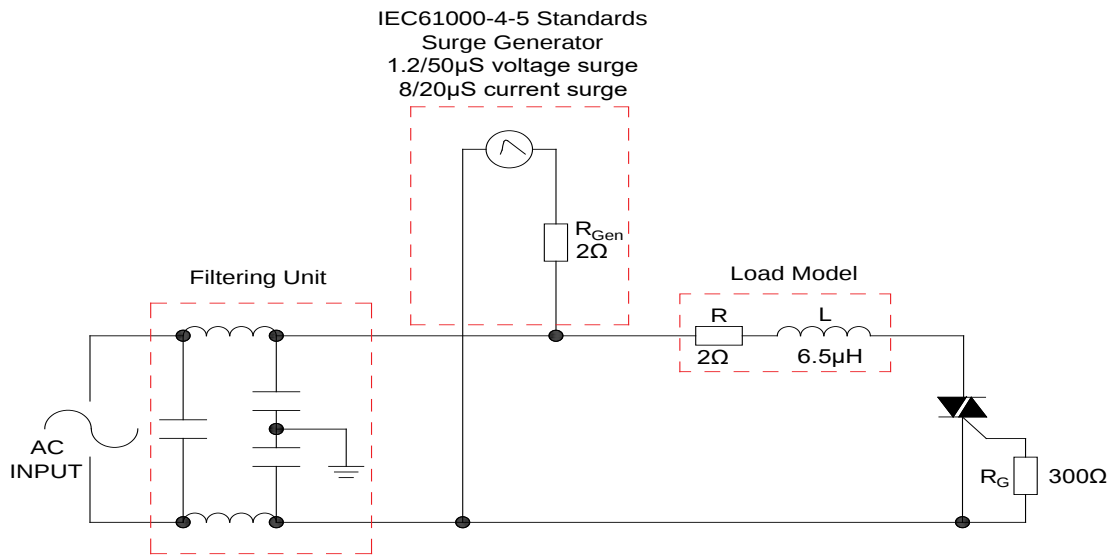
FIG.1: Maximum power dissipation versus RMS on-state current

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 $t_p < 20ms$, and corresponding value of I^2t ($di/dt < 100A/\mu s$)

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 $V_{\text{DRM}}/V_{\text{RRM}}$ (V)	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
		I - II - III			
JST16C-600BW	600	50	TO-220C	50	Tube

Document Revision History

Date	Revision	Changes
Apr.12, 2023	A.1.0	Last update
Oct.15, 2025	A.1.1	Revise PACKAGE MECHANICAL DATA

Technical drawing of a 3-pin industrial plug, showing three views: front, side, and top.

Front View (Left): Shows the main body of the plug. Dimensions include:

- E:** Total width of the main body.
- L:** Distance from the left edge to the center of the top hole.
- Ø3.45-3.65mm:** Diameter of the top hole.
- L3:** Height of the top section.
- H:** Total height of the main body.
- L1:** Height of the top section.
- K:** Height of the middle section.
- L2:** Height of the bottom section.
- B:** Width of the bottom section.
- G:** Distance from the left edge to the center of the bottom hole.
- M:** Total width of the bottom section.

Side View (Right): Shows the profile of the plug. Dimensions include:

- A:** Width of the top section.
- C2:** Distance from the left edge to the center of the top hole.
- D:** Height of the middle section.
- C3:** Distance from the left edge to the center of the bottom hole.
- C:** Width of the bottom section.

Top View (Bottom): Shows the top of the plug. Dimensions include:

- E1:** Width of the top section.
- H1:** Height of the top section.

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

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

Top View Dimensions:

- Overall width: 520 ± 0.5
- Overall height: 530 ± 0.5
- Printing area: 80×5.5
- Distance from left edge to printing area: $520 \pm 0.5 - 80 = 440 \pm 0.5$
- Distance from top edge to printing area: $530 \pm 0.5 - 5.5 = 524.5 \pm 0.5$
- Distance from right edge to printing area: 5
- Distance from bottom edge to printing area: 5.5
- Distance from left edge to bottom hole: $530 \pm 0.5 - 5.5 = 524.5 \pm 0.5$
- Distance from right edge to bottom hole: 5
- Distance from bottom edge to bottom hole: 5.5
- Distance from left edge to top hole: $520 \pm 0.5 - 80 = 440 \pm 0.5$
- Distance from top edge to top hole: $530 \pm 0.5 - 5.5 = 524.5 \pm 0.5$
- Distance from right edge to top hole: 5
- Distance from bottom edge to top hole: 5.5

Front View Dimensions:

- Overall width: 520 ± 0.5
- Overall height: 530 ± 0.5
- Printing area: 80×5.5
- Distance from left edge to printing area: $520 \pm 0.5 - 80 = 440 \pm 0.5$
- Distance from top edge to printing area: $530 \pm 0.5 - 5.5 = 524.5 \pm 0.5$
- Distance from right edge to printing area: 5
- Distance from bottom edge to printing area: 5.5
- Distance from left edge to bottom hole: $530 \pm 0.5 - 5.5 = 524.5 \pm 0.5$
- Distance from right edge to bottom hole: 5
- Distance from bottom edge to bottom hole: 5.5
- Distance from left edge to top hole: $520 \pm 0.5 - 80 = 440 \pm 0.5$
- Distance from top edge to top hole: $530 \pm 0.5 - 5.5 = 524.5 \pm 0.5$
- Distance from right edge to top hole: 5
- Distance from bottom edge to top hole: 5.5

Side View Dimensions:

- Overall width: 7 ± 0.2
- Overall height: 33
- Distance from top edge to top hole: 3.8
- Distance from top hole to printing area: 2.4
- Distance from printing area to bottom hole: 3.8
- Distance from bottom hole to bottom edge: 0.6
- Distance from left edge to top hole: 95
- Distance from left edge to printing area: 95
- Distance from left edge to bottom hole: 95
- Distance from right edge to top hole: 95
- Distance from right edge to printing area: 95
- Distance from right edge to bottom hole: 95

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

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