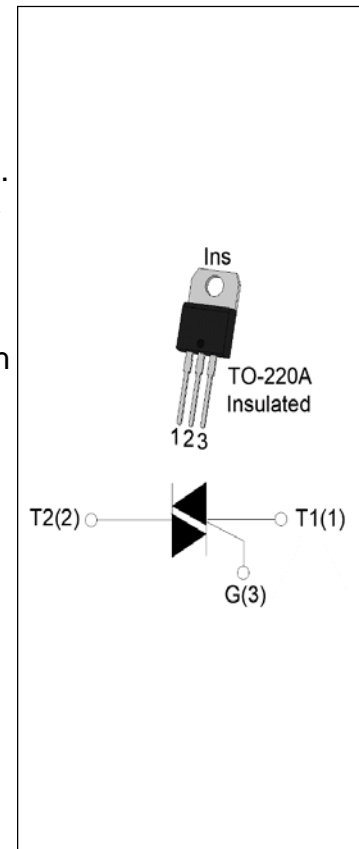


**JST16A-600TW 16A TRIAC**

Rev.A.1.0

**DESCRIPTION:**

The JST16A-600TW 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. JST16A-600TW snubberless triac is especially recommended for use on inductive loads. It can be driven directly through the MCU I/O port. By using an internal ceramic pad, JST16A-600TW provides a rated insulation voltage of 2500 VRMS, complying with UL standards (File ref: E252906). Package TO-220A is RoHS compliant.


**MAIN FEATURES**

Symbol	Value	Unit
$I_{T(RMS)}$	16	A
$V_{DRM}/V_{RRM}$	600	V
$I_{GT\ I/II/III}$	5/5/5	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 ( $T_c \leq 80^\circ\text{C}$ )	$I_{T(RMS)}$	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	$\text{A}^2\text{s}$
Critical rate of rise of on-state current ( $I_G=2 \times I_{GT}$ , $f=100\text{Hz}$ , $T_j=125^\circ\text{C}$ )	$di/dt$	50	$\text{A}/\mu\text{s}$
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)	$V_{pp}$	3	kV

**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
$V_{GT}$		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.	15	mA
		II		20	
$I_H$	$I_T=500\text{mA}$		MAX.	15	mA
$dV/dt$	$V_D=400\text{V}$ Gate Open $T_j=125^\circ\text{C}$		MIN.	100	V/ $\mu\text{s}$
$(dI/dt)_c$	$(dV/dt)_c=10\text{V}/\mu\text{s } T_j=125^\circ\text{C}$		MIN.	1.5	A/ms
$t_{on}$	$I_G=10\text{mA } I_A=200\text{mA } I_R=20\text{mA}$ $T_j=25^\circ\text{C}$		TYP.	3	$\mu\text{s}$
$t_{off}$				25	

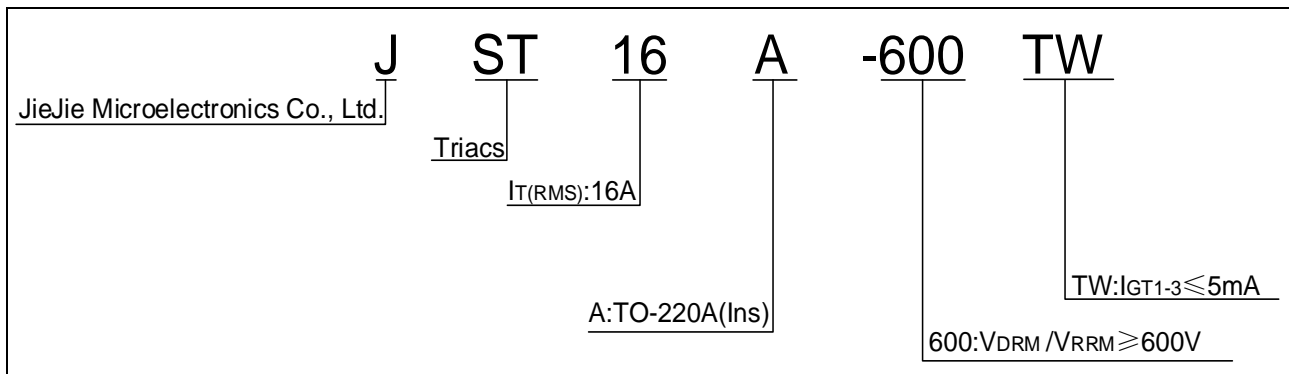
**STATIC CHARACTERISTICS**

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	$\mu\text{A}$
$I_{RRM}$		$T_j=125^\circ\text{C}$	0.4	mA

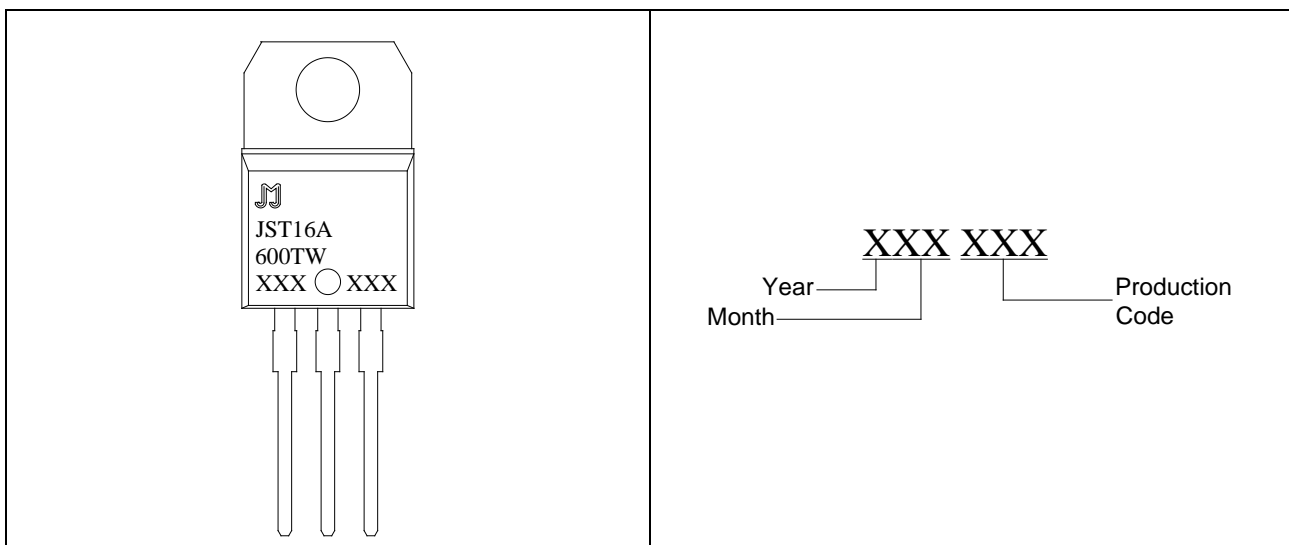
**THERMAL RESISTANCES**

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (AC)	2.0	$^\circ\text{C}/\text{W}$
$R_{th(j-a)}$	junction to ambient (AC)	60	$^\circ\text{C}/\text{W}$

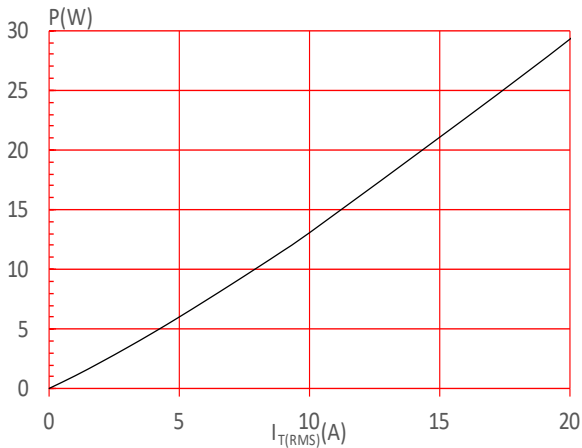
**ORDERING INFORMATION**



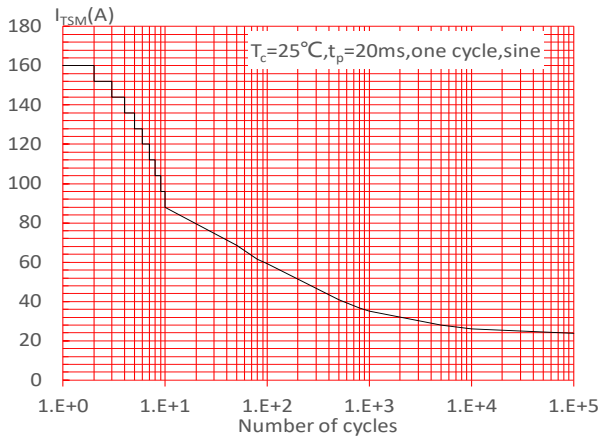
**MARKING**



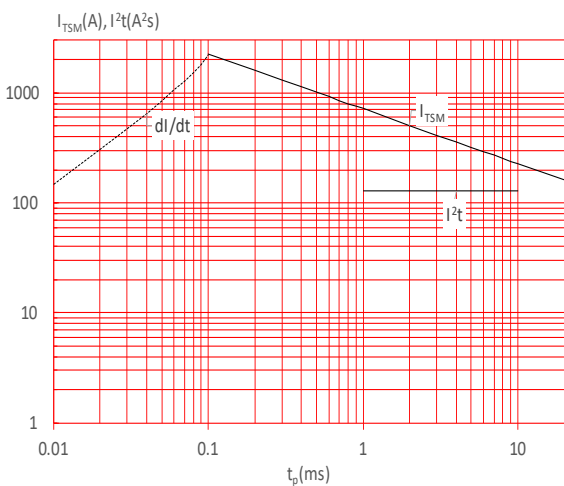
**FIG.1** Maximum power dissipation versus RMS on-state current



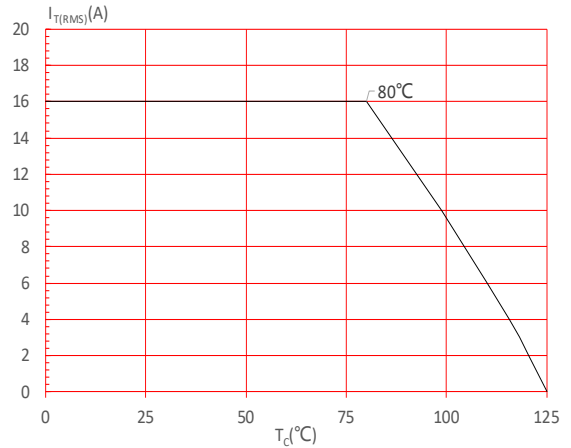
**FIG.3:** Surge peak on-state current versus number of cycles



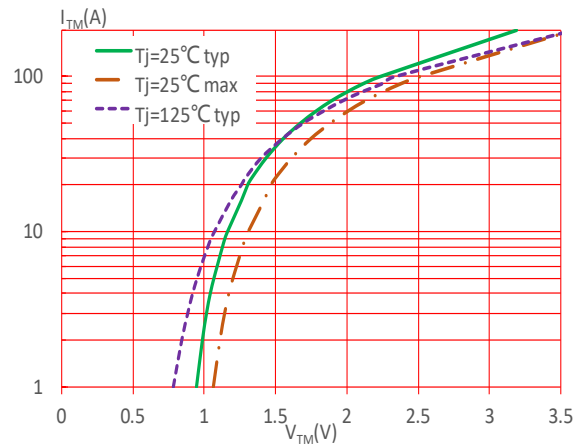
**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 20ms$ , and corresponding value of  $I^2t$  ( $di/dt < 50A/\mu s$ )



**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

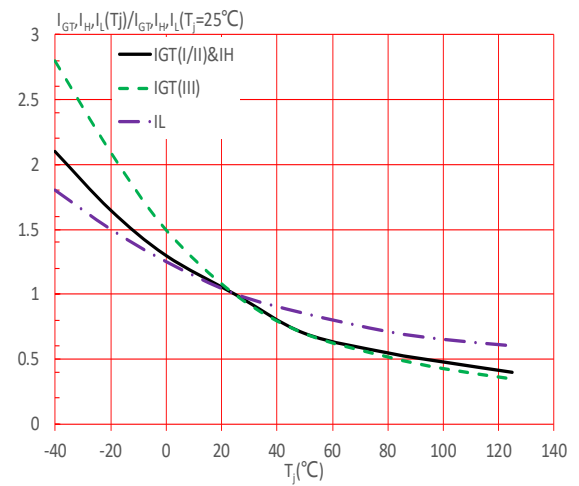
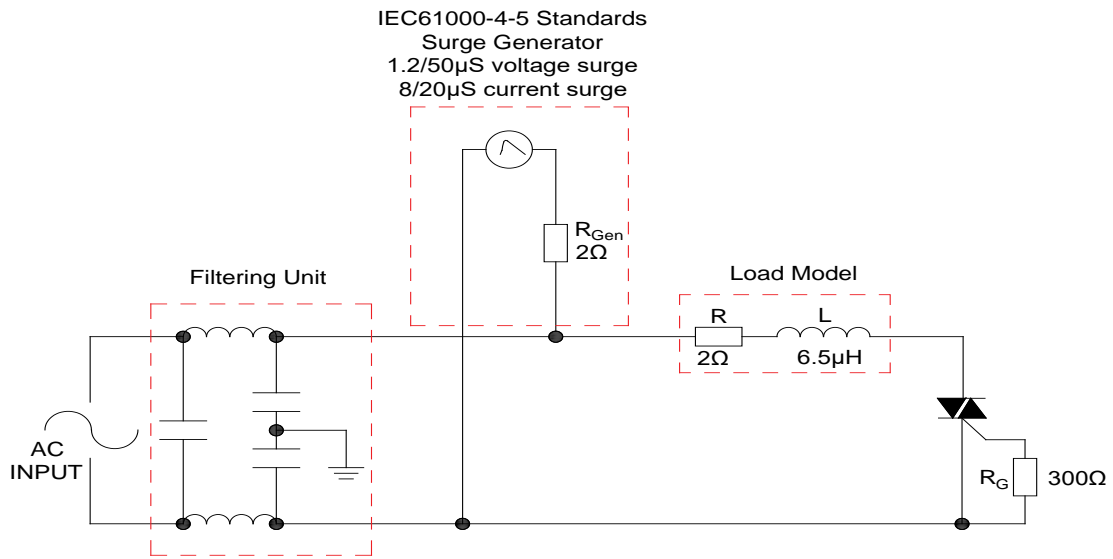


FIG.7: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards



### SHAPING AND SOLDERING PARAMETERS

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

## ORDERING INFORMATION

Order code	Voltage $V_{DRM}/V_{RRM}$ (V)	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
		I - II - III			
JST16A-600TW	600	5	TO-220A(Ins)	50	Tube

## Document Revision History

Date	Revision	Changes
Apr.12, 2023	A.1.0	Last updated



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