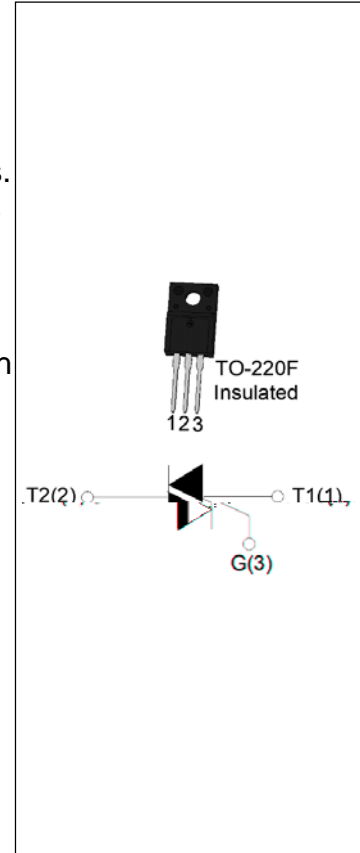


The JST12F-600TW triac is suitable for general purpose AC switching. It can be used as an ON/OFF function in applications such as heating regulation, induction motor starting circuits, for phase control operation in light dimmers, motor speed controllers. JST12F-600TW snubberless triac is especially recommended for use on inductive loads. It can be driven directly through the MCU I/O port. By using an external plastic package, JST12F-600TW provides a rated insulation voltage of 2000 VRMS, complying with UL standards (File ref: E252906). Package TO-220F is RoHS compliant.



Symbol	Value	Unit
$I_{T(RMS)}$	12	A
$V_{DRM}/V_{RRM}$	600	V
$I_{GT\ I/II/III}$	5/5/5	mA

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 ( $T_c \leq 85^\circ\text{C}$ )	$I_{T(RMS)}$	12	A
Non repetitive surge peak on-state current (full cycle , $t_p=20\text{ms}$ , $T_j=25^\circ\text{C}$ )	$I_{TSM}$	120	A
Non repetitive surge peak on-state current (full cycle , $t_p=16.6\text{ms}$ , $T_j=25^\circ\text{C}$ )		132	
$I^2t$ value for fusing ( $t_p=10\text{ms}$ , $T_j=25^\circ\text{C}$ )	$I^2t$	72	$\text{A}^2\text{s}$
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

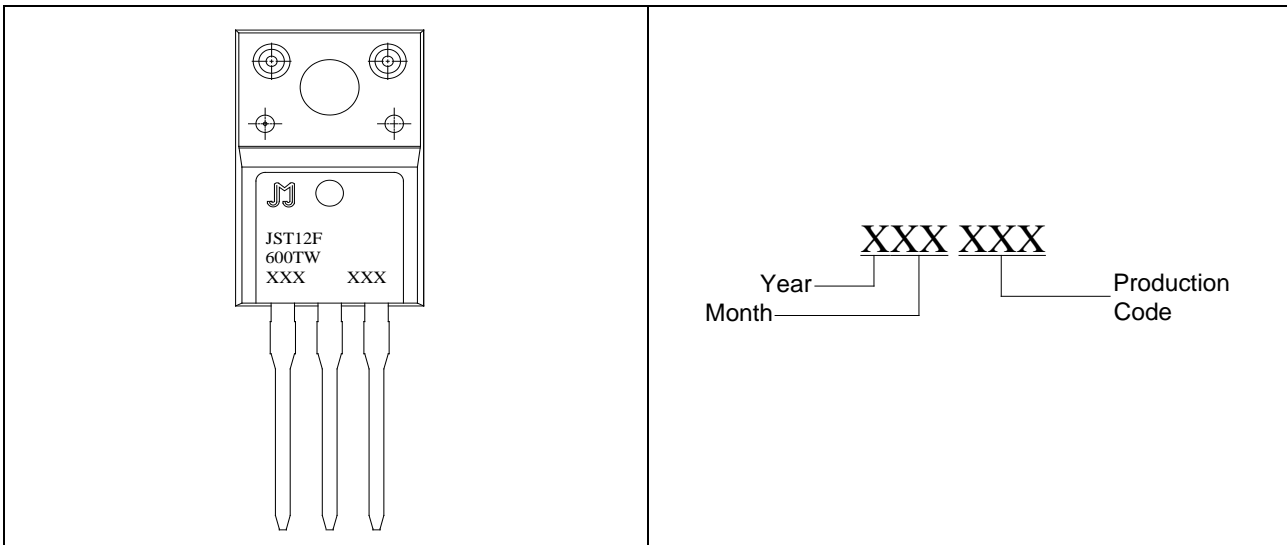
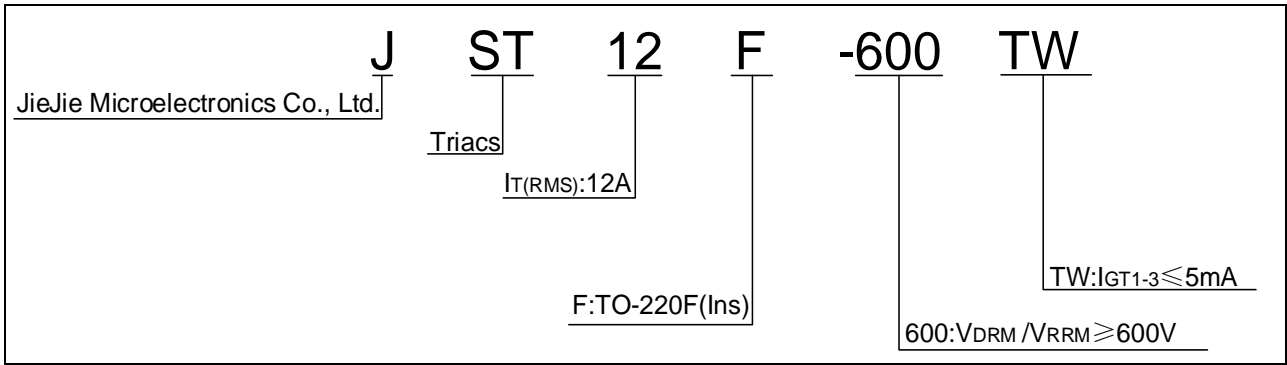
Average gate power dissipation ( $T_j=125^\circ\text{C}$ )	$P_{G(AV)}$	0.5	W
Peak gate power	$P_{GM}$	10	W
Peak pulse voltage ( $T_j=25^\circ\text{C}$ ; non-repetitive, off-state; FIG.7)	$V_{pp}$	3.5	kV

( $T_j=25^\circ\text{C}$  unless otherwise specified)

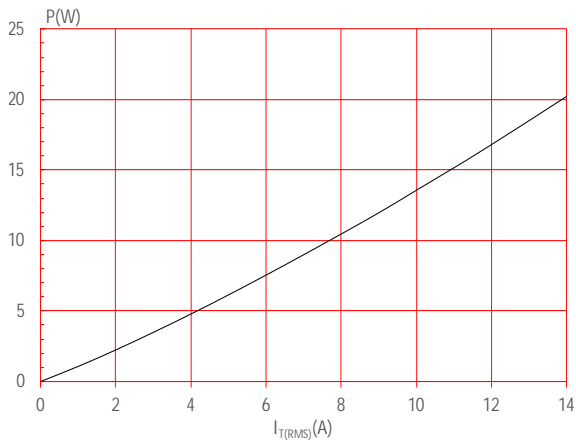
Symbol	Test Condition	Quadrant	Value		Unit
$I_{GT}$	$V_D=12V R_L=33$	I - II - III	MAX.	5	mA
$V_{GT}$		I - II - III	MAX.	1	V
$V_{GD}$	$V_D=V_{DRM} T_j=125^\circ\text{C}$ $R_L=3.3K$	I - II - III	MIN.	0.2	V
$I_L$	$I_G=1.2I_{GT}$	I - III	MAX.	10	mA
		II		15	
$I_H$	$I_T=500mA$		MAX.	10	mA
$dV/dt$	$V_D=400V$ Gate Open $T_j=125^\circ\text{C}$		MIN.	100	V/ $\mu\text{s}$
$(dI/dt)_c$	$(dV/dt)_c=10V/\mu\text{s} T_j=125^\circ\text{C}$		MIN.	1	A/ms
$t_{on}$	$I_G=10mA I_A=200mA I_R=20mA$ $T_j=25^\circ\text{C}$		TYP.	2	$\mu\text{s}$
$t_{off}$				20	

Symbol	Parameter		Value(MAX.)	Unit
$V_{TM}$	$I_{TM}=17A t_p=380\mu\text{s}$	$T_j=25^\circ\text{C}$	1.5	V
$V_{TO}$	Threshold voltage	$T_j=125^\circ\text{C}$	0.77	V
$R_D$	Dynamic resistance	$T_j=125^\circ\text{C}$	35	m
$I_{DRM}$	$V_D=V_{DRM} V_R=V_{RRM}$	$T_j=25^\circ\text{C}$	5	$\mu\text{A}$
$I_{RRM}$		$T_j=125^\circ\text{C}$	0.4	mA

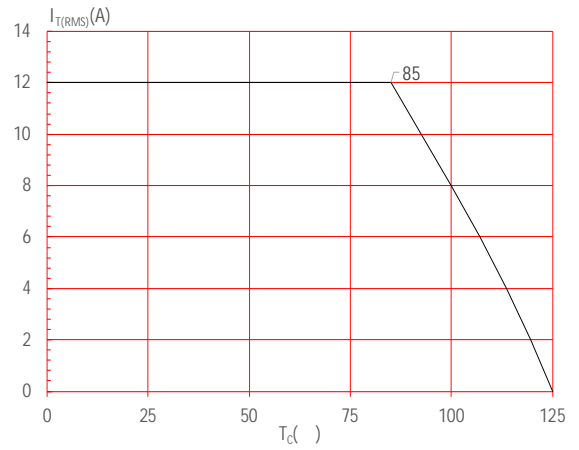
Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (AC)	2.4	$^\circ\text{C/W}$
$R_{th(j-a)}$	junction to ambient (AC)	60	$^\circ\text{C/W}$



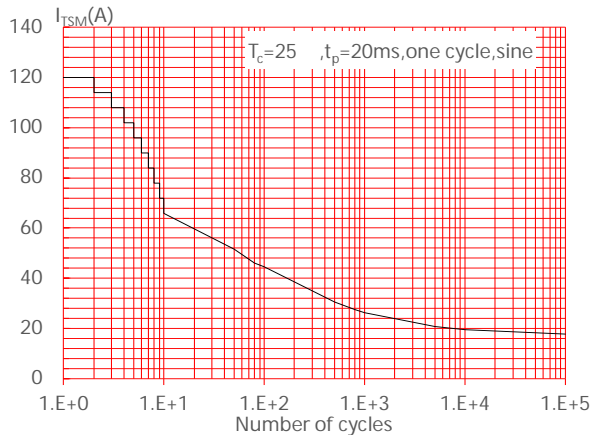
**FIG.1** Maximum power dissipation versus RMS on-state current



**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

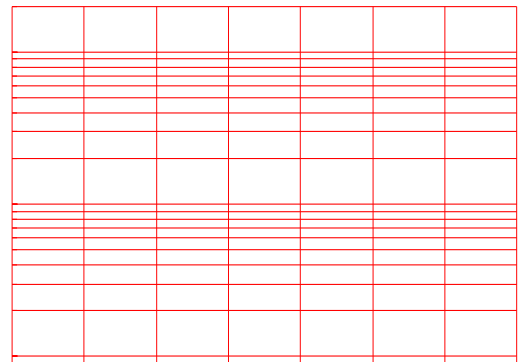
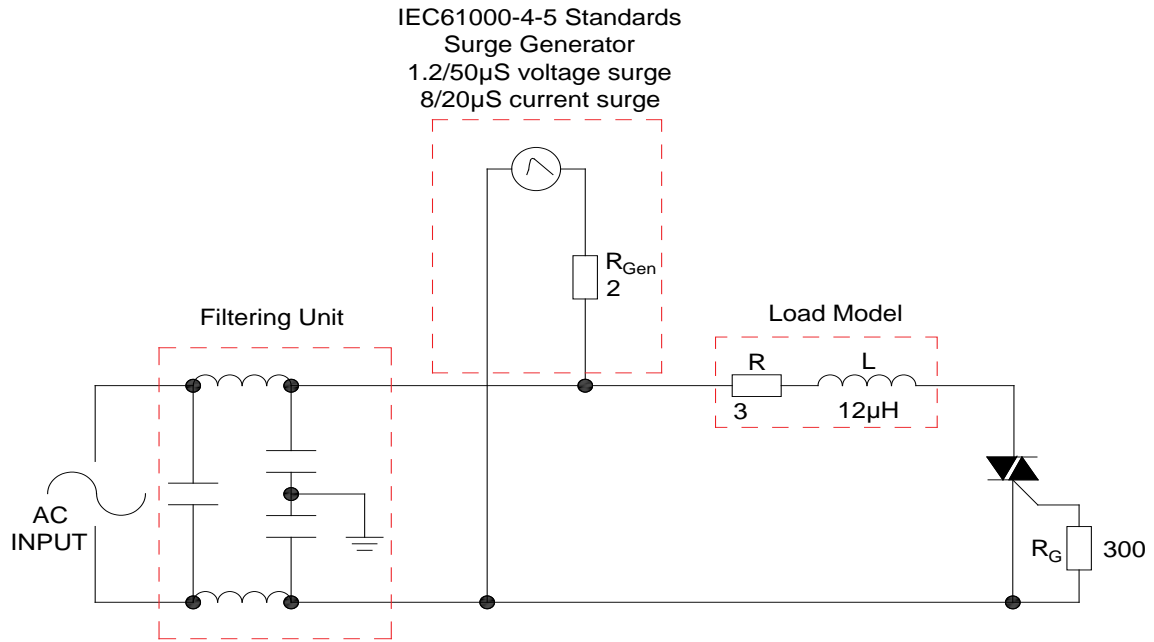


FIG.7: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards

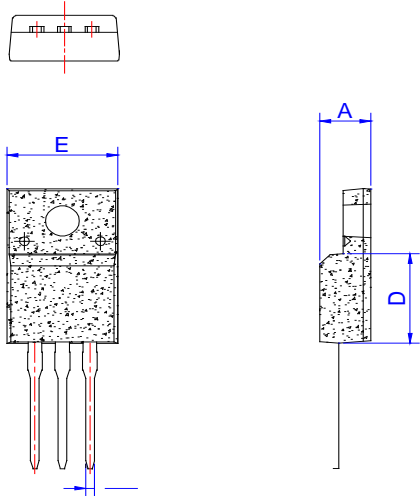


Refer to 《Instructions for installation of plastic-sealed in-line power devices》 released by JieJie

Order code	Voltage $V_{DRM}/V_{RRM}$ (V)	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
		- -			
<b>JST12F-600TW</b>	<b>600</b>	<b>5</b>	<b>TO-220F(Ins)</b>	<b>50</b>	<b>Tube</b>

**Document Revision History**

Date	Revision	Changes
Apr.11, 2023	A.1.0	Last updated



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