

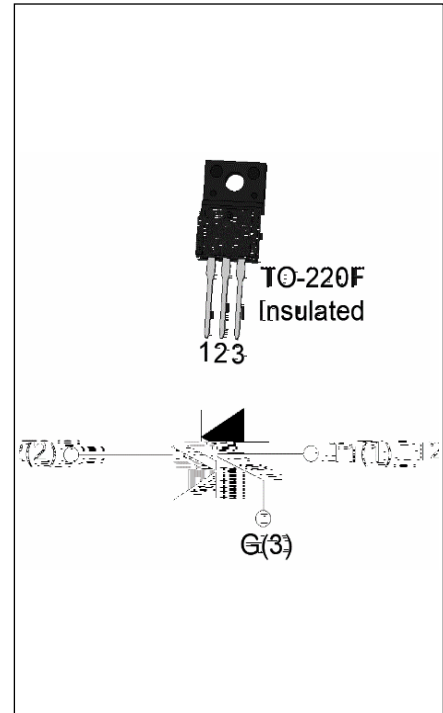


JST138F-600F 12A TRIAC

Rev.A.1.1

^ Z / W d / K E W

The JST138F-600F 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. By using an external plastic package, JST138F-600F provides a rated insulation voltage of 2000 VRMS, complying with UL standards (File ref: E252906). Package TO-220F is RoHS compliant.



D / E & d h Z ^

Symbol	Value	Unit
$I_{T(RMS)}$	12	A
V_{DRM}/V_{RRM}	600	V
$I_{GT} / / /$	25/25/25/70	mA

^ K > h d D y / D h D Z d / E ' ^

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 074)		I _{T(RMS)}	12	A
Non repetitive surge peak on-state current (full cycle , t _p =20ms , T _j =25)		I _{TSM}	95	A
Non repetitive surge peak on-state current (full cycle , t _p =16.6ms , T _j =25)			105	
I ² t value for fusing (t _p =10ms , T _j =25)		I ² t	45	A ² s
Critical rate of rise of on-state current (I _G =2 I _{GT} , f=100Hz , T _j =125)	-	di/dt	100	A/μs
	-		70	
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

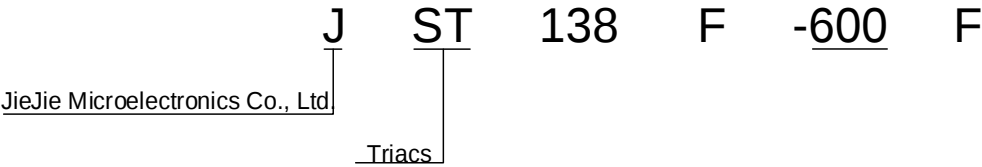
Peak pulse voltage ($T_j=25^\circ\text{C}$; non-repetitive, off-state; FIG.7)	V_{pp}	1	kV
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$\frac{dZ}{dt} > 0$, $Z = 0$ ($T_j=25^\circ\text{C}$ / unless otherwise specified)

Symbol	Test Condition	Quadrant	Value		Unit
I_{GT}	$V_D=12\text{V}$ $R_L=33\Omega$	- -	MAX.	25	mA
				70	
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

K Z Z / E ' / E & K Z D d / K E



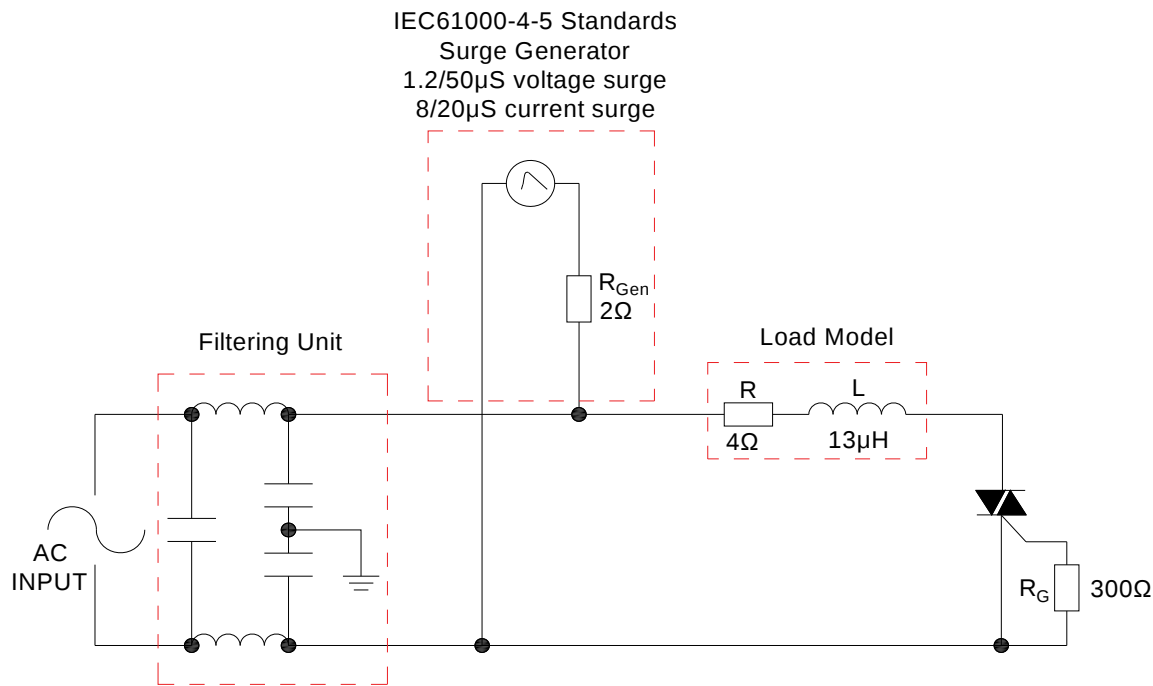
600:V

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



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

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



> &KZD/E' E ^K> Z/E'

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

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Order code	Voltage V _{DRM} /V _{RRM} (V)	IGT(mA)		Package	Base qty. (pcs)	Delivery mode
		- -				
JST138F-600F	600	25	70	TO-220F(Ins)	50	Tube

Document Revision History

Date	Revision	Changes
Apr.14, 2023	A.1.0	Last updated
Oct.15, 2025	A.1.1	Revise PACKAGE MECHANICAL DATA

