JST138F-800F 12A TRIAC

Rev.A.1.1

DESCRIPTION:

The JST138F-800F 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-800F provides a rated insulation voltage of 2000 VRMS, complying with UL standards (File ref: E252906). Package TO-220F is RoHS compliant.

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	12	A
V_{DRM} /V_{RRM}		

ABSOLUTE MAXIMUM RATINGS

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}	800	V
Repetitive peak reverse voltage (T_j=25)		V_{RRM}	800	V
RMS on-state current ($T_C \leq$ 74)		$I_{T(RMS)}$	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^2t value for fusing (t_p=10ms , T_j=25)		I^2t	45	A^2s
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 ; non-repetitive,off-state;FIG.7)	V_{pp}	1	kV

ELECTRICAL CHARACTERISTICS (T_j=25 unless otherwise specified)

Symbol	Test Condition	Quadrant	Value		Unit
I_{GT}	V_D=12V R_L=33Ω	- -	MAX.	25	mA
				70	
V_{GT}		ALL	MAX.	1	V
V_{GD}	V_D=V_{DRM} T_j=125 R_L=3.3kΩ	ALL	MIN.	0.2	V
I_L	I_G=1.2I_{GT}	- -	MAX.	40	mA
				90	
I_H	I_T=500mA		MAX.	40	mA
dV/dt	V_D=540V Gate Open T_j=125		MIN.	200	V/μs
(dV/dt)c	(dI/dt)c=5A/ms, T_j=110		MIN.	8	V/μs
t_{on}	I_G=80mA I_A=400mA I_R=40mA T_j=25		TYP.	5	μs
t_{off}				30	

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	I_{TM}=15A t_p=380μs	T_j=25	1.6	V
V_{TO}	Threshold voltage	T_j=125 ņD F€ Đ	0.8	V

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

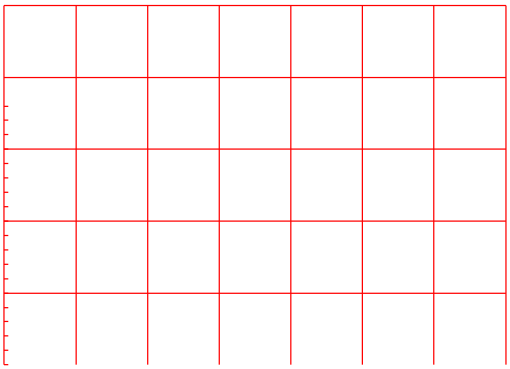
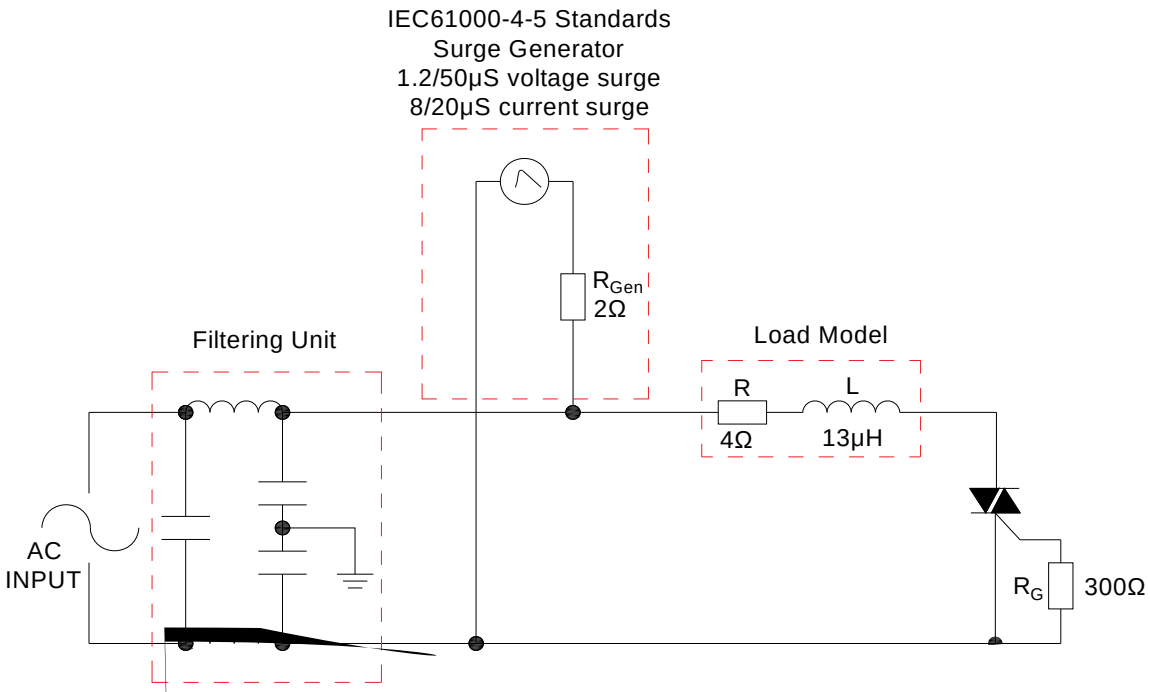


FIG.2: RMS on-state current versus case temperature

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



ORDERING INFORMATION

Order code	Voltage V_{DRM}/V_{RRM} (V)	IGT(mA)		Package	Base qty. (pcs)	Delivery mode
		∫ - ł - t	ʁ			
JST138F-800F	800	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

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