

**JST138C-1600D 12A TRIAC**

Rev.A.1.1

The JST138C-1600D 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. From T2 terminals to external heatsink. Package TO-220C is RoHS compliant.

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 ($T_j=25^\circ\text{C}$)	V_{DRM}	1600	V
Repetitive peak reverse voltage ($T_j=25^\circ\text{C}$)	V_{RRM}	1600	V
RMS on-state current ($T_c=90^\circ\text{C}$)	$I_{T(RMS)}$	12	A
Non repetitive surge peak on-state current (full cycle, $t_p=20\text{ms}$, $T_j=25^\circ\text{C}$)	I_{TSM}	70	A
Non repetitive surge peak on-state current (full cycle, $t_p=16.6\text{ms}$, $T_j=25^\circ\text{C}$)		77	
I^2t value for fusing ($t_p=10\text{ms}$, $T_j=25^\circ\text{C}$)	I^2t	24.5	A^2s
Critical rate of rise of on-state current ($I_G=2 I_{GT}$, $f=100\text{Hz}$, $T_j=125^\circ\text{C}$)	-	30	$\text{A}/\mu\text{s}$
	-	20	
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

(T_j=25 unless otherwise specified)

Symbol	Test Condition	Quadrant	Value		Unit
I _{GT}	V _D =12V R _L =33	- -	MAX.	5	mA
				10	
V _{GT}		ALL	MAX.	1	V
V _{GD}	V _D =V _{DRM} T _j =125 R _L =3.3k	ALL	MIN.	0.2	V
I _L	I _G =1.2I _{GT}	- -	MAX.	15	mA
				20	
I _H	I _T =500mA		MAX.	10	mA
dV/dt	V _D =1070V Gate Open T _j =125		MIN.	50	V/μs
(dV/dt) _c	(dI/dt) _c =5A/ms, T _j =110		MIN.	5	V/μs
t _{on}	I _G =40mA I _A =200mA I _R =20mA T _j =25		TYP.	3	μs
t _{off}				30	

Symbol	Parameter		Value(MAX.)	Unit
V _{TM}	I _{TM} =15A t _p =380μs	T _j =25	1.8	V
V _{TO}	Threshold voltage	T _j =125	0.84	V
R _D	Dynamic resistance	T _j =125	59	m
I _{DRM}	V _D =V _{DRM} V _R =V _{RDM}	T _j =25	10	μA
I _{RDM}		T _j =125	5	mA

Symbol

Parameter

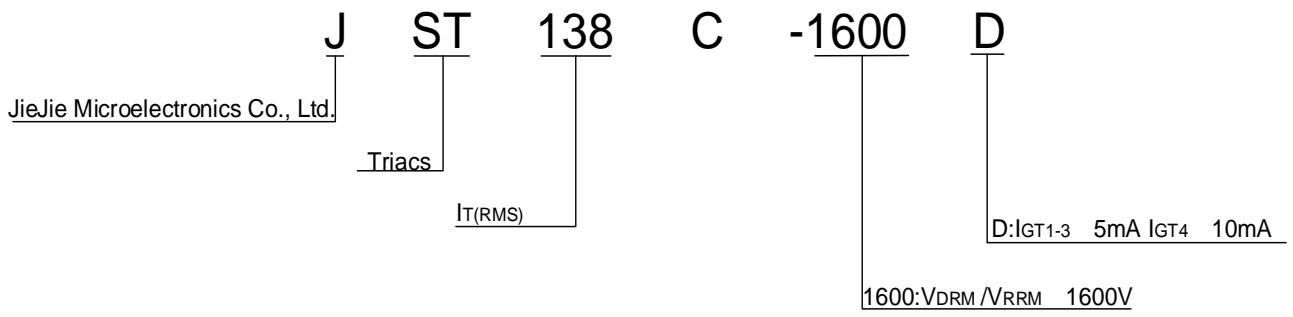


FIG.1: Maximum power dissipation versus RMS on-state current

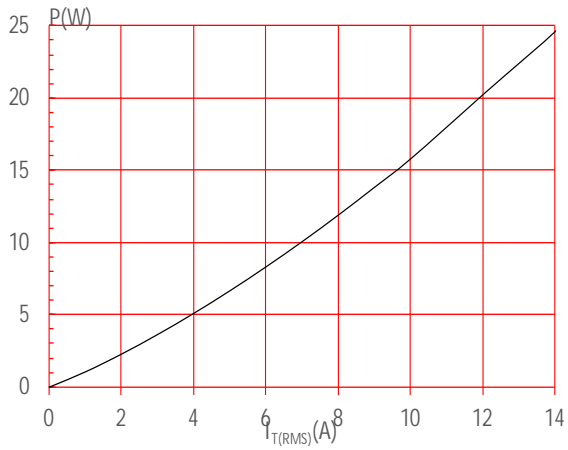


FIG.2: RMS on-state current versus case temperature

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

JST138C-1600D



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