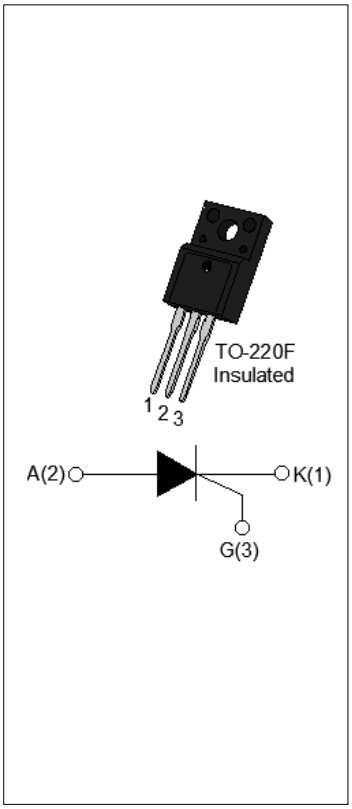
JCT612TF 12A SCR

Rev.A.1.0

JCT612TF silicon controlled rectifier is specifically designed for medium power switching and phase control applications. High current density due to mesa technology; SIPOS and Glass Passivation technology used has reliable operation up to 125 junction temperature. Low I_{GT} parts available. From all three terminals to external heatsink, JCT612TF provides a rated insulation voltage of 2000 V_{RMS}, 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}	≤5	mA

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
Average on-state current (T_C 86)	$I_{T(AV)}$	7.6	A
RMS on-state current (T_C 86)	$I_{T(RMS)}$	12	A
Non repetitive surge peak on-state current (t_p=10ms, T_j=25)	I_{TSM}	140	A
Non repetitive surge peak on-state current (t_p=8.3ms, T_j=25)		154	
I^2t value for fusing (t_p=10ms , T_j=25)	I^2t	98	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

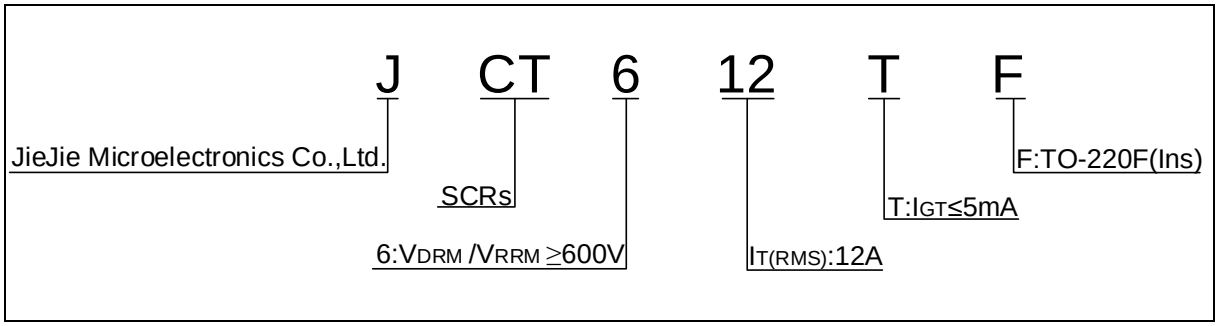
Peak gate current (t_p=20μs , T_j=125)	I_{GM}	4	A
Average gate power dissipation (T_j=125)	$P_{G(AV)}$	1	W
Peak gate power	P_{GM}	10	W
Peak pulse voltage (T_j=25 ; non-repetitive,off-state;FIG.7)	V_{pp}	0.5	kV

(T_j=25 unless otherwise specified)

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
I_{GT}	V_D=12V R_L=33Ω	-	-	5	mA
V_{GT}		-	-	1	V
V_{GD}	V_D=V_{DRM} T_j=125 R_L=3.3KΩ	0.2	-	-	V
I_L	I_G=1.2I_{GT}	-	-	30	mA
I_H	I_T=500mA	-	-	15	mA
dV/dt	V_D=400V Gate Open T_j=125	400	-	-	V/μs
t_{on}	I_G=20mA I_A=200mA I_R=20mA T_j=25	-	5	-	μs
t_{off}		-	80	-	

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	I_{TM}=24A t_p=380μs	T_j=25	1.5	V
V_{TO}	Threshold voltage	T_j=125	0.8	V
R_D	Dynamic resistance	T_j=125	27	mΩ
I_{DRM}	V_D=V_{DRM} V_R=V_{RRM}	T_j=25	5	μA
I_{RRM}		T_j=125	0.2	mA

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case(DC)	2.5	/W
$R_{th(j-a)}$	junction to ambient (DC)	70	/W


J
CT
6
12
T
F
JieJie Microelectronics Co.,Ltd.
SCRs
6:VDRM /VRRM ≥600V
IT(RMS):12A
T:IGT≤5mA
F:TO-220F(Ins)

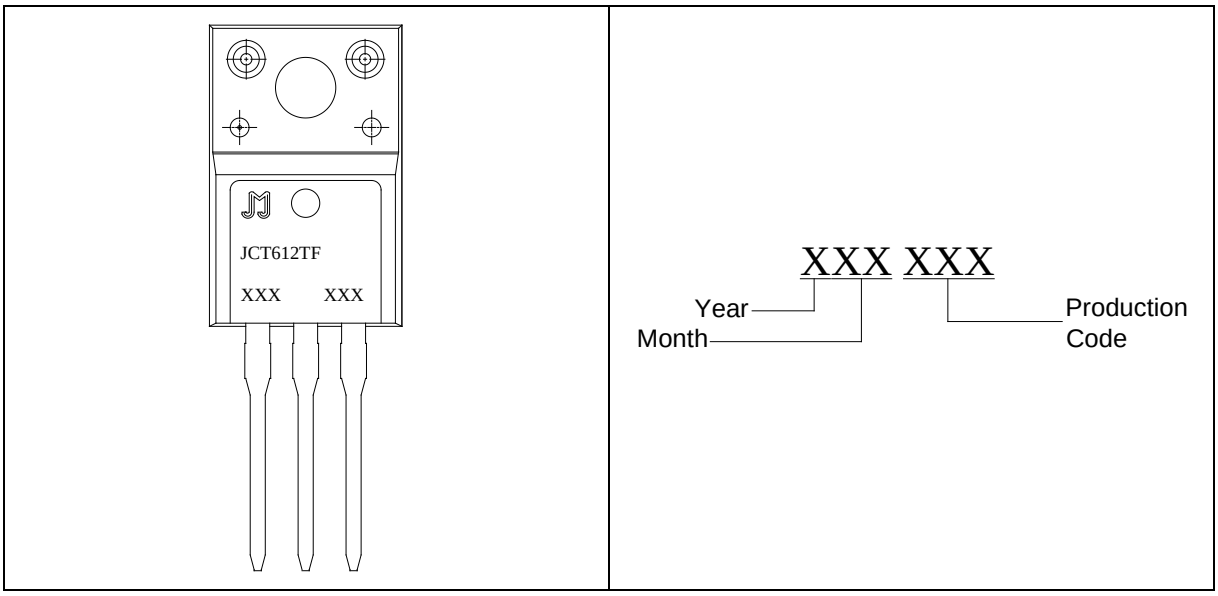

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FIG.1 Maximum power dissipation versus RMS on-state current

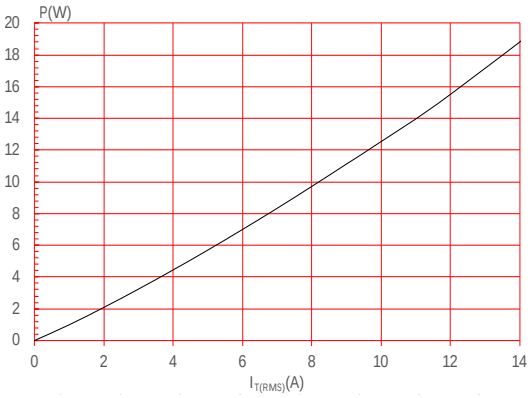


FIG.2: RMS on-state current versus case temperature

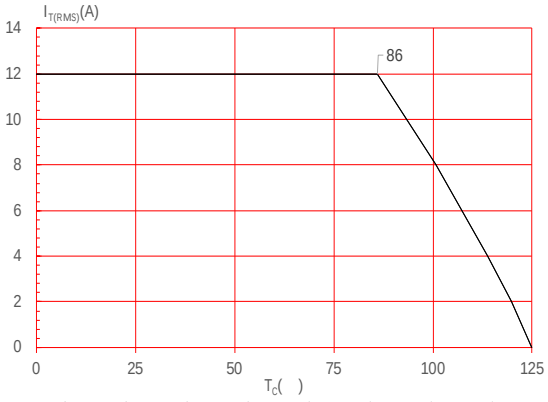


FIG.3: Surge peak on-state current versus number of cycles

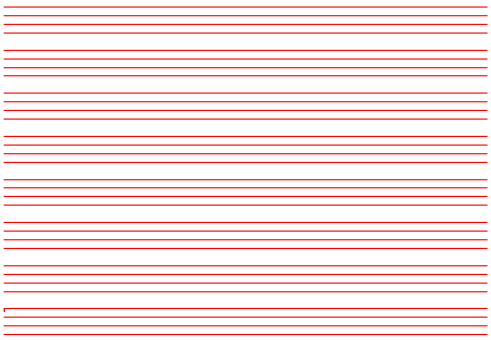
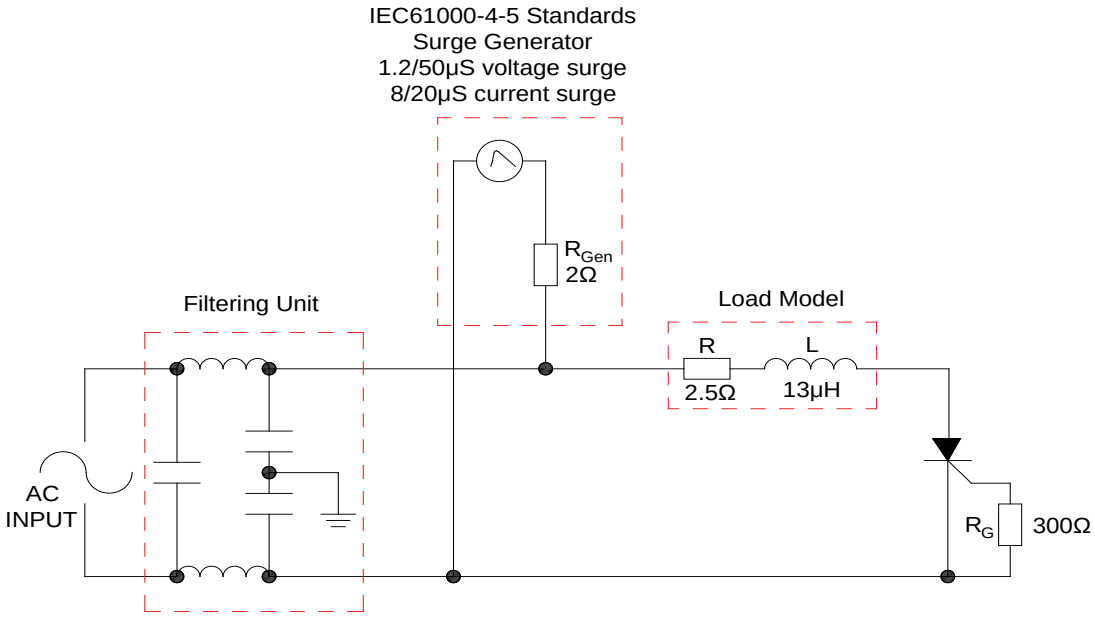


FIG.4: On-state characteristics

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
JCT612TF	600	5	TO-220F(Ins)	50	Tube

Document Revision History

Date	Revision	Changes
Apr.13, 2023