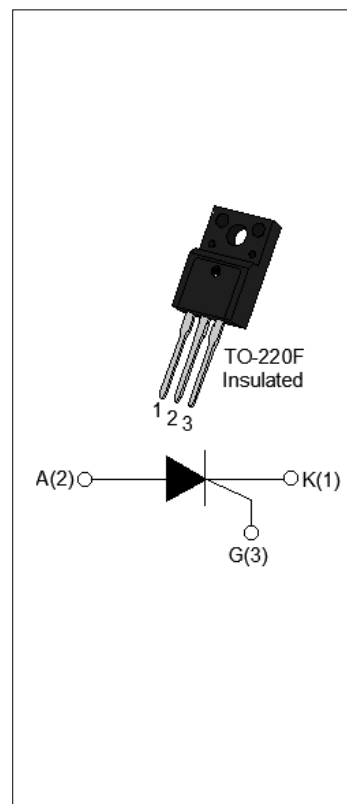




JCT612TF silicon controlled rectifier is specifically designed for medium power switching and phase control applications. High current density due to mesa technology; SIPOS and Glass Passivation technology used has reliable operation up to 125 °C junction temperature. Low I_{GT} parts available. From 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 ($T_j=25\text{ }^\circ\text{C}$)	V_{DRM}	600	V
Repetitive peak reverse voltage ($T_j=25\text{ }^\circ\text{C}$)	V_{RRM}	600	V
Average on-state current ($T_c = 86\text{ }^\circ\text{C}$)	$I_{T(AV)}$	7.6	A
RMS on-state current ($T_c = 86\text{ }^\circ\text{C}$)	$I_{T(RMS)}$	12	A
Non repetitive surge peak on-state current ($t_p=10\text{ms}, T_j=25\text{ }^\circ\text{C}$)	I_{TSM}	140	A
Non repetitive surge peak on-state current ($t_p=8.3\text{ms}, T_j=25\text{ }^\circ\text{C}$)		154	
I^2t value for fusing ($t_p=10\text{ms}, T_j=25\text{ }^\circ\text{C}$)	I^2t	98	A^2s
Critical rate of rise of on-state current ($I_G=2\text{ }I_{GT}, f=100\text{Hz}, T_j=125\text{ }^\circ\text{C}$)	di/dt	100	$A/\mu s$

Peak gate current ($t_p=20\mu s$, $T_j=125$)	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}	$V_D=12V R_L=33$	-	-	5	mA
V_{GT}		-	-	1	V
V_{GD}	$V_D=V_{DRM} T_j=125 R_L=3.3K$	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}	$I_{TM}=24A t_p=380\mu s$	$T_j=25$	1.5	V
V_{TO}	Threshold voltage	$T_j=125$	0.8	V
R_D	Dynamic resistance	$T_j=125$	27	m
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

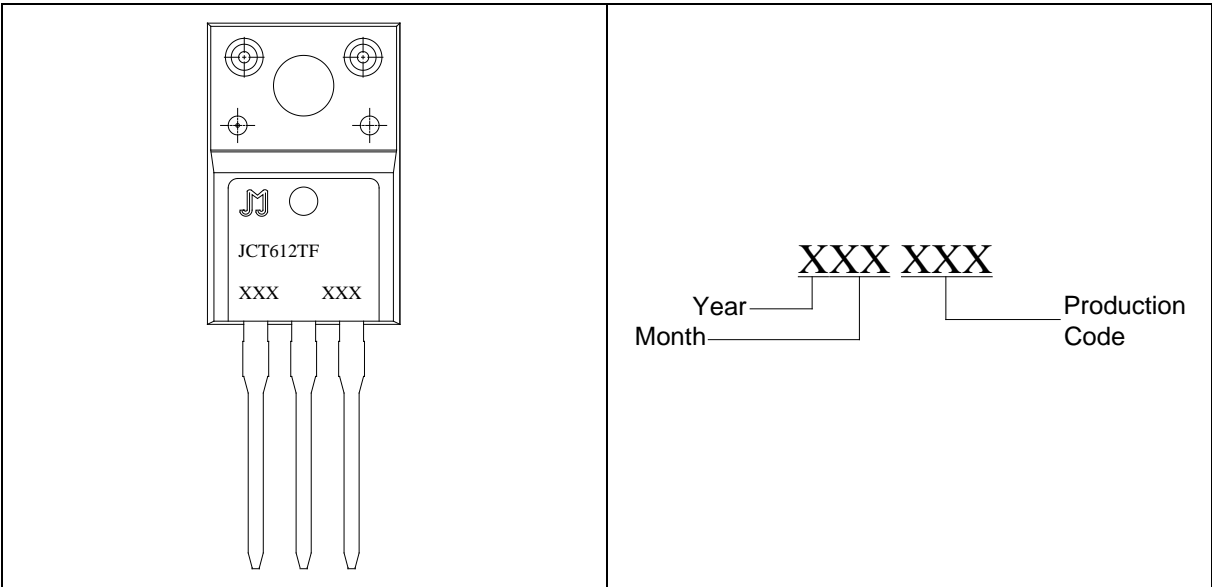
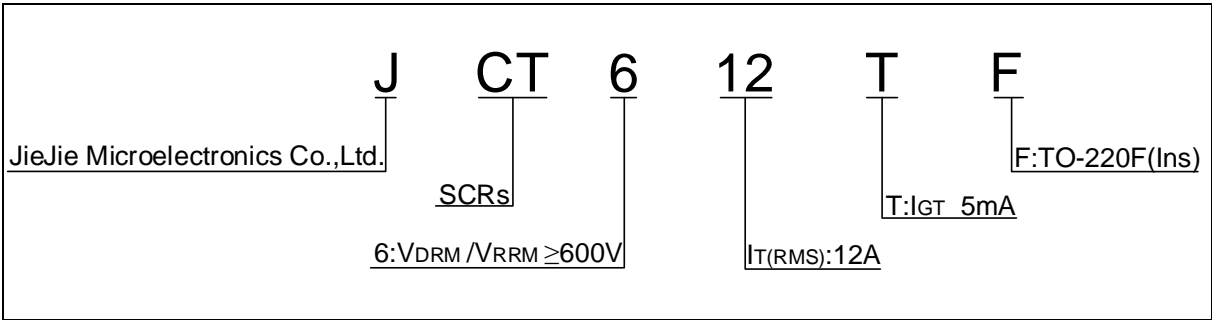


FIG.1 Maximum power dissipation versus RMS on-state current

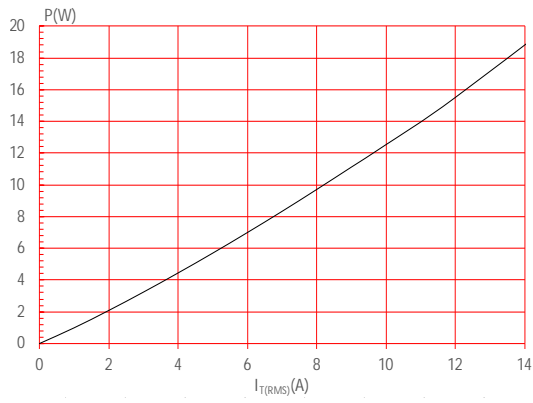


FIG.3: Surge peak on-state current versus number of cycles

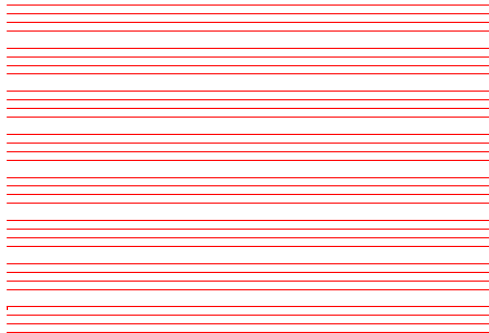


FIG.2: RMS on-state current versus case temperature

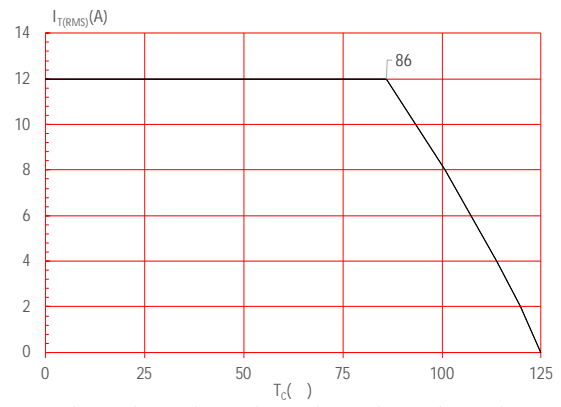
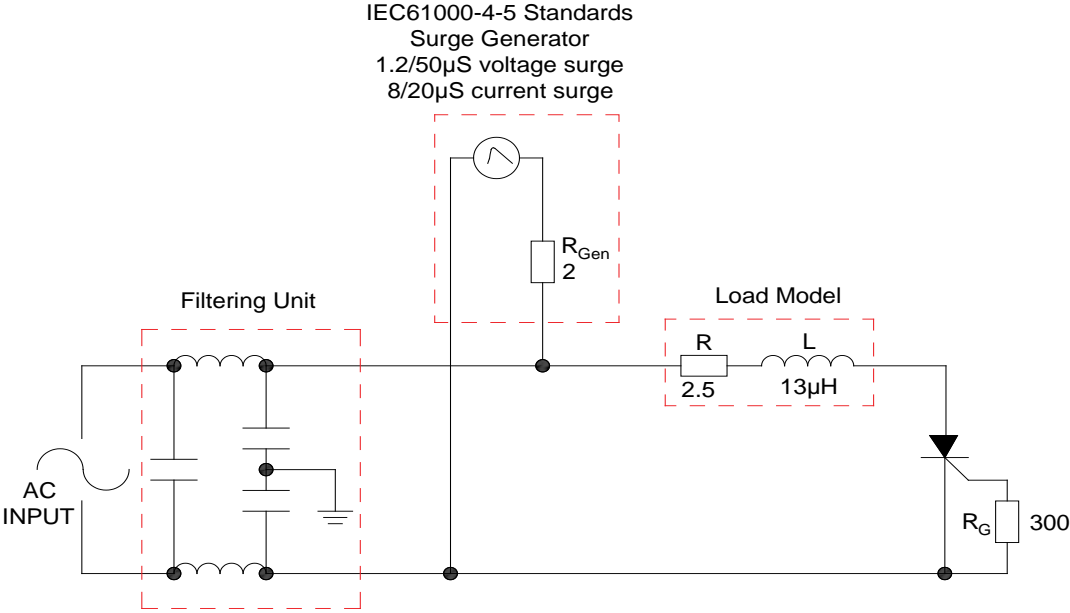


FIG.4: On-state characteristics

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		

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