



JCT612A-FO 12A SCRs

Rev.1.2

DESCRIPTION:

With high ability to withstand the shock loading of large current, JCT612A-FO of silicon controlled rectifiers provide high dV/dt rate with strong resistance to electromagnetic interference. They are especially recommended for use on solid state relay, motorcycle, power charger, T-tools etc. From all three terminals to external heatsink, JCT612A-FO provides a rated insulation voltage of 2500 V_{RMS}, complying with UL standards (File ref: E252906). Package TO-220A is RoHS compliant. (2011/65/EU)

MAIN FEATURES

Symbol	JCT612A-FO
V _{DRM} / V _{RRM}	600V
I _{T(RMS)}	12A
I _{GT}	3~6mA

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Storage junction temperature range	T _{stg}	-40-150	
Operating junction temperature range	T _j	-40-150	
Repetitive peak off-state voltage(T _j =150)	V _{DRM}	600	V
Repetitive peak reverse voltage(T _j =150)	V _{RRM}	600	V

RMS on-state current TO-220A(Ins)
(T_c=110

Average gate power dissipation	$P_{G(AV)}$	1	W
Peak gate power	P_{GM}	5	W
Peak pulse voltage ($T_j=25$; non-repetitive, off-state; FIG.7)	V_{pp}	0.6	kV

ELECTRICAL CHARACTERISTICS ($T_j=25$ unless otherwise specified)

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
I_{GT}	$V_D=12V$ $R_L=33$	3	-	6	mA
V_{GT}		-	-	1.5	V
V_{GD}	$V_D=V_{DRM}$ $T_j=150$ $R_L=3.3k$	0.2	-	-	V
I_L	$I_G=1.2I_{GT}$	-	-	60	mA
I_H	$I_T=500mA$	-	-	50	mA
dv/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=150$	300	-	-	V/s
t_{on}	$I_G=20mA$ $I_A=200mA$ $I_R=20mA$ $T_j=25$	-	-	4	s
t_{off}		-	-	12	s

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
V_{TM}	$I_{TM}=23A$ $t_p=380$ s	$T_j=25$	1.4	V
V_{TO}	Threshold voltage	$T_j=150$	0.9	V
R_d	Dynamic resistance	$T_j=150$	22.4	m
I_{DRM}/I_{RRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25$	5	A
		$T_j=150$	1	mA

JCT612A-FO

 **JieJie Microelectronics Co., Ltd.**

ORDERING INFORMATION

TEL

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

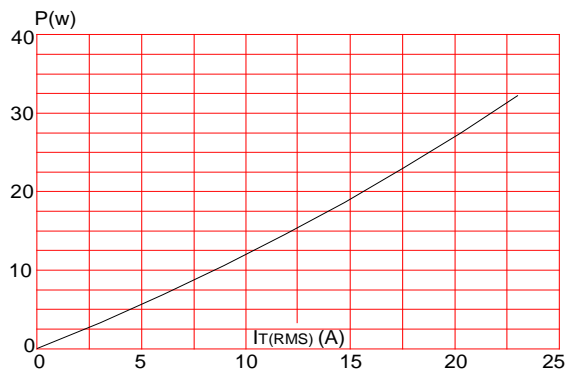


FIG.3: Surge peak on-state current versus number of cycles

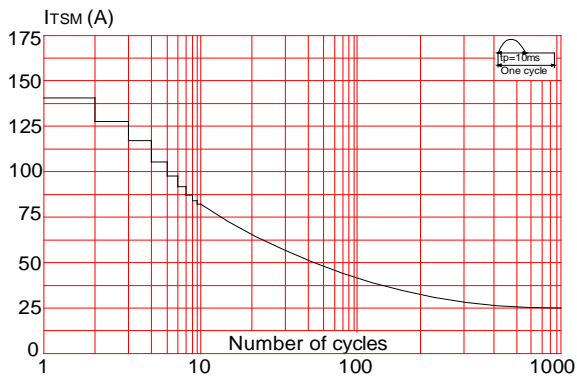


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of $I t$ ($dt/dt < 100\text{A/s}$)

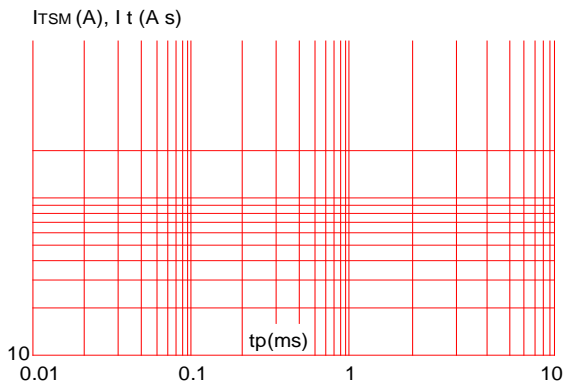


FIG.2: RMS on-state current versus case temperature

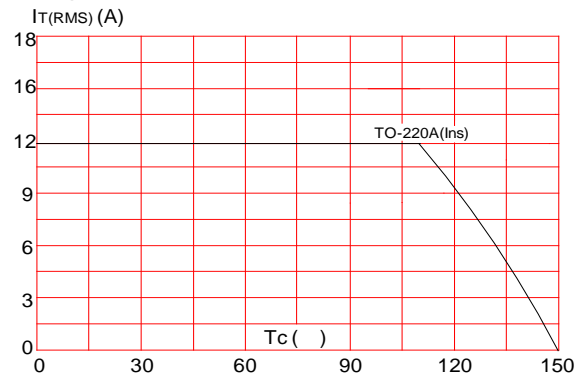


FIG.4: On-state characteristics (maximum values)

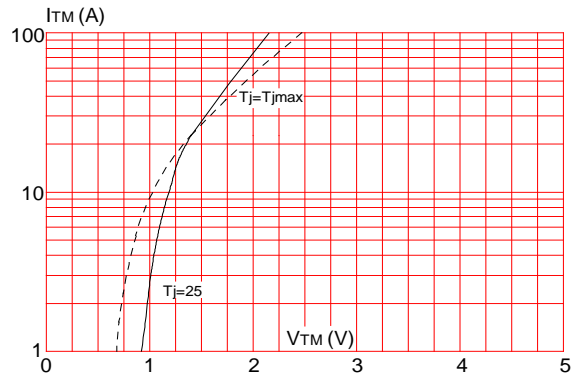


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature

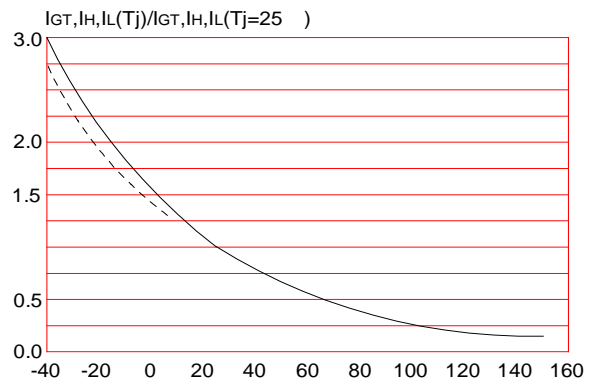
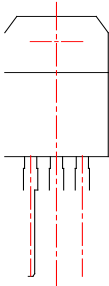



FIG.7 Test circuit for inductive and resistive loads to IEC-61000-4-5 standards



PACKAGE MECHANICAL DATA



Information furnished in this document is believed to be accurate and reliable. However, Jiangsu JieJie Microelectronics Co., Ltd. assumes no responsibility for the consequences of use without consideration for such information nor use beyond it. Information mentioned in this document is subject to change without notice, apart from that when an agreement is signed, Jiangsu JieJie complies with the agreement. Products and information provided in this document have no infringement of patents. Jiangsu JieJie assumes no responsibility for any infringement of other rights of third parties which may result from the use of such products and information. This document supersedes and replaces all information previously supplied.

 is a registered trademark of Jiangsu JieJie Microelectronics Co., Ltd. Copyright © 2025 Jiangsu JieJie Microelectronics Co., Ltd. All rights reserved.