



JCT620X-FO Series 20A SCRs

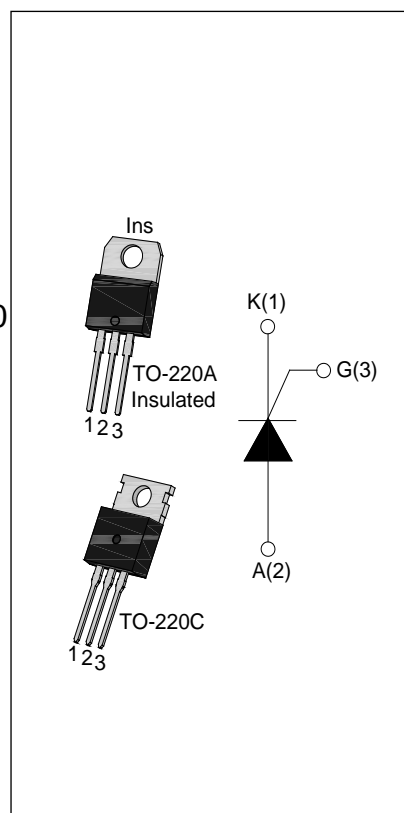
Rev.1.1

DESCRIPTION:

With high ability to withstand the shock loading of large current, JCT620X-FO SCRs 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, JCT620A-FO provides a rated insulation voltage of 2500 V_{RMS}, complying with UL standards (File ref: E252906). All the packages mentioned are RoHS compliant. (2011/65/EU)

MAIN FEATURES

Symbol	JCT620
V _{DRM} /V _{R_{RRM}}	600V
I _{T(RMS)}	20A
I _{GT}	3~8mA



ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage junction temperature range		T _{stg}	-40-150	°C
Operating junction temperature range		T _j	-40-150	°C
Repetitive peak off-state voltage(T _j =150°C)		V _{DRM}	600	V
Repetitive peak reverse voltage(T _j =150°C)		V _{R_{RRM}}	600	V
RMS on-state current	TO-220A(Ins) (T _c =100°C)	I _{T(RMS)}	20	A
	TO-220C (T _c =125°C)			
Average on-state current	TO-220A(Ins) (T _c =100°C)	I _{T(AV)}	13	A
	TO-220C (T _c =125°C)			
Non repetitive surge peak on-state current (tp=10ms)		I _{TSM}	250	A
I ² t value for fusing (tp=10ms)		I ² t	312.5	A ² s

Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$)	di/dt	125	A/ μ s
Peak gate current	I_{GM}	4	A
Average gate power dissipation	$P_{G(AV)}$	1	W
Peak gate power	P_{GM}	5	W

ELECTRICAL CHARACTERISTICS ($T_j=25^\circ\text{C}$ unless otherwise specified)

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
I_{GT}	$V_D=12\text{V } R_L=33\Omega$	3	-	8	mA
V_{GT}		-	-	1.3	V
V_{GD}	$V_D=V_{DRM} T_j=150^\circ\text{C } R_L=3.3\text{K}\Omega$	0.2	-	-	V
I_L	$I_G=1.2I_{GT}$	-	-	70	mA
I_H	$I_T=500\text{mA}$	-	-	60	mA
dv/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=150^\circ\text{C}$	300	-	-	V/ μ s
t_{on}	$I_G=20\text{mA } I_A=200\text{mA } I_R=20\text{mA}$ $T_j=25^\circ\text{C}$	-	-	4	μ s
t_{off}		-	-	12	μ s

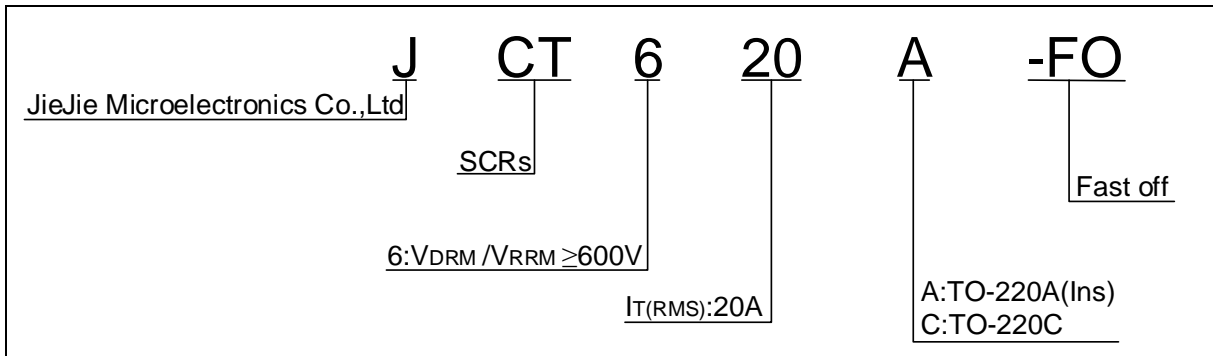
STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
V_{TM}	$I_{TM}=40\text{A } t_p=380\mu\text{s}$	$T_j=25^\circ\text{C}$	1.5	V
V_{TO}	Threshold voltage	$T_j=150^\circ\text{C}$	0.89	V
R_d	Dynamic resistance	$T_j=150^\circ\text{C}$	13.79	$\text{m}\Omega$
I_{DRM}/I_{RRM}	$V_D=V_{DRM} V_R=V_{RRM}$	$T_j=25^\circ\text{C}$	5	μA
		$T_j=150^\circ\text{C}$	1	mA

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TO-220A(Ins)	2	$^\circ\text{C}/\text{W}$
		TO-220C	1	

ORDERING INFORMATION



MARKING

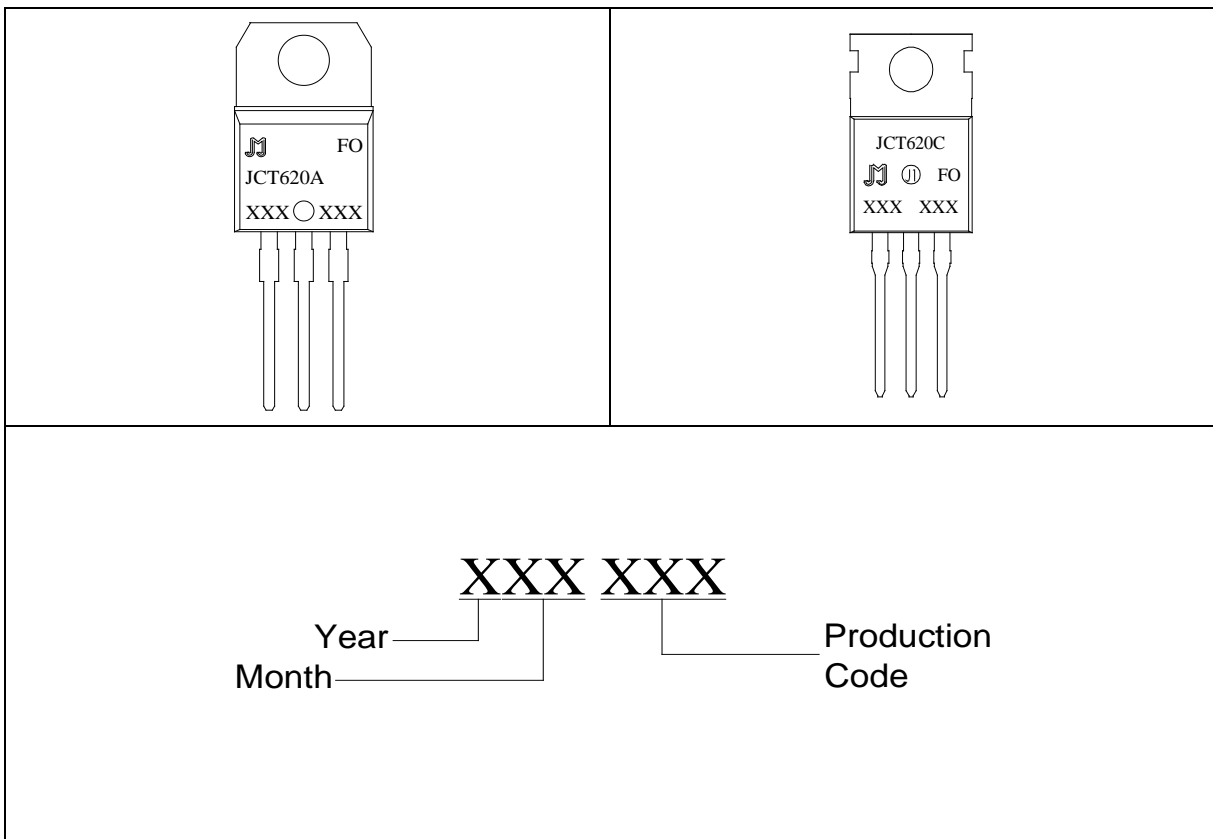


FIG.1: Maximum power dissipation versus RMS on-state current

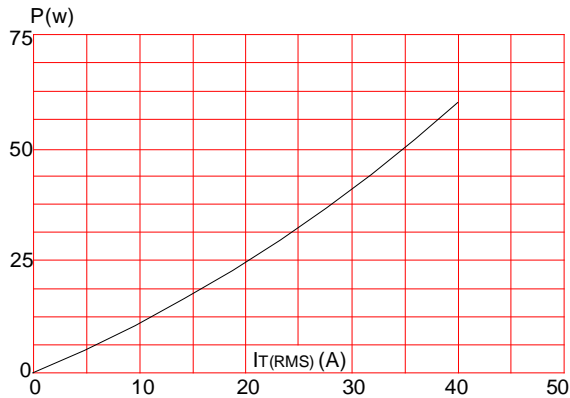


FIG.3: Surge peak on-state current versus number of cycles

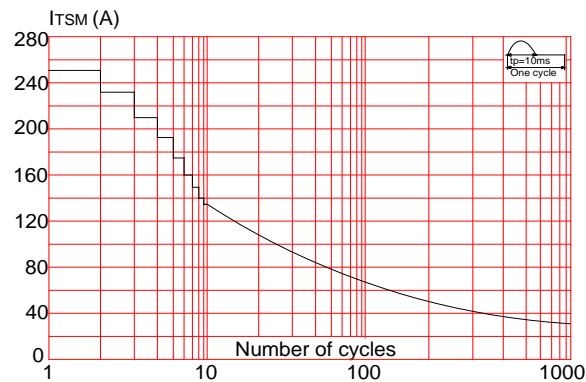


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of $\int t$ ($di/dt < 125\text{A}/\mu\text{s}$)

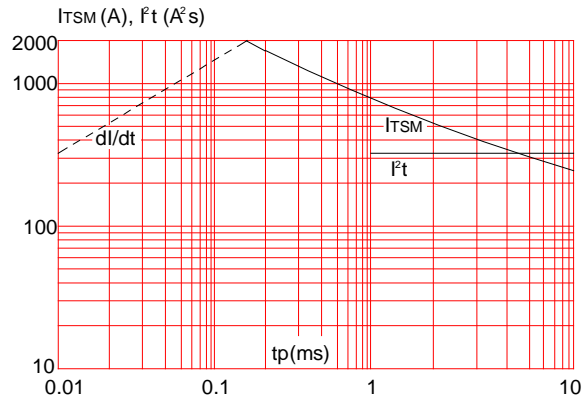


FIG.2: RMS on-state current versus case temperature

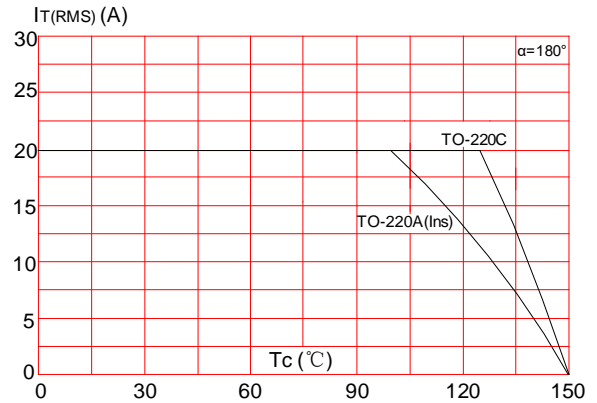


FIG.4: On-state characteristics (maximum values)

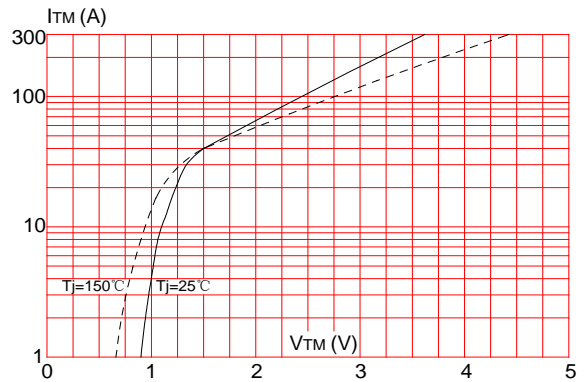
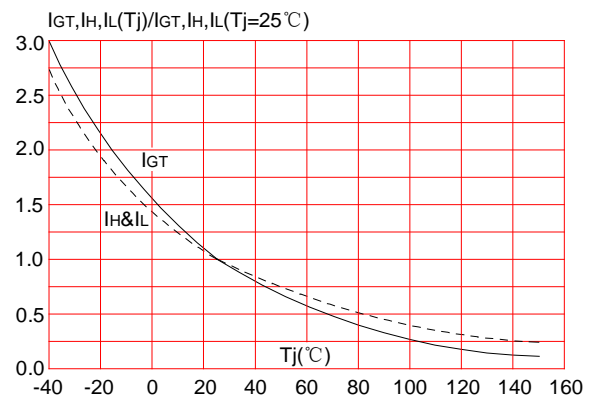


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



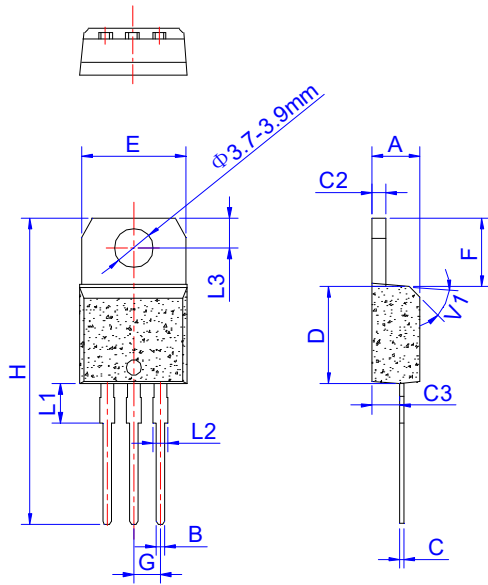
ORDERING INFORMATION

Order code	Voltage V_{DRM}/V_{RRM} (V)	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
JCT620A-FO	600	3~8	TO-220A(Ins)	50	Tube
JCT620C-FO			TO-220C		

Document Revision History

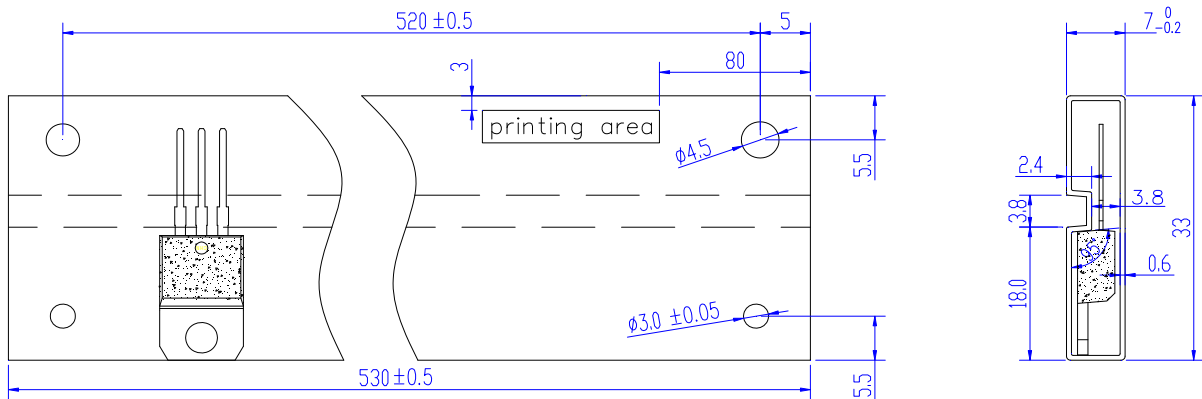
Date	Revision	Changes
Jun 21, 2022	1	Last update
Sept 5, 2022	1.1	Add $I_{T(AV)}$

PACKAGE MECHANICAL DATA



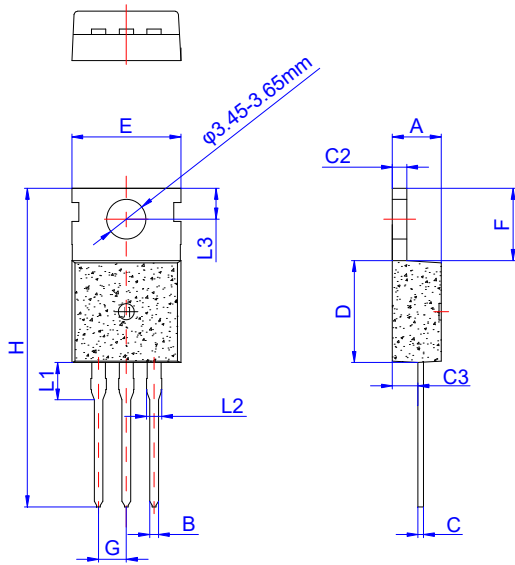
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.80		10.4	0.386		0.409
F	6.25		6.85	0.246		0.270
G	2.40		2.70	0.094		0.106
H	28.0		29.8	1.102		1.173
L1	3.45		4.05	0.136		0.159
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
V1		45°			45°	

DELIVERY MODE



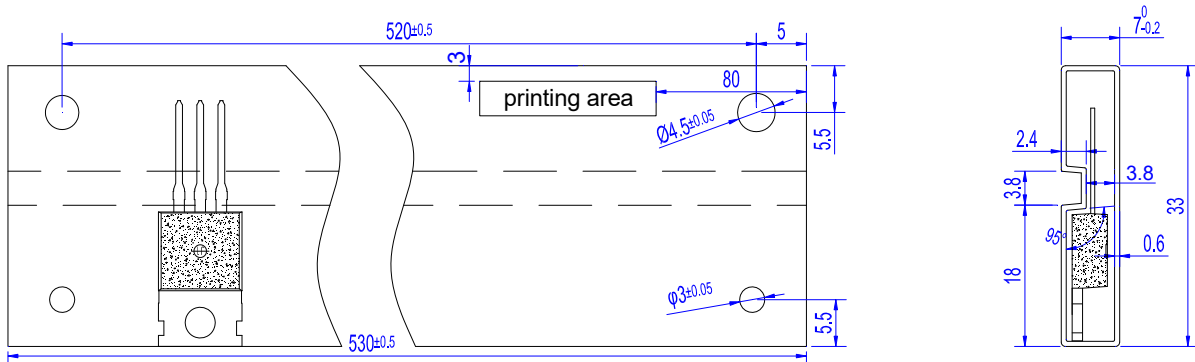
PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-220A	TUBE	50	1,000	5,000

PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.70		0.90	0.028		0.035
C	0.45		0.60	0.018		0.024
C2	1.25		1.35	0.049		0.053
C3	2.20		2.60	0.087		0.102
D	8.90		9.90	0.350		0.390
E	9.90		10.3	0.390		0.406
F	6.30		6.90	0.248		0.272
G	2.40		2.70	0.094		0.106
H	28.0		29.8	1.102		1.173
L1	2.70		3.30	0.106		0.130
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116

DELIVERY MODE



PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-220C	TUBE	50	1,000	5,000



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