

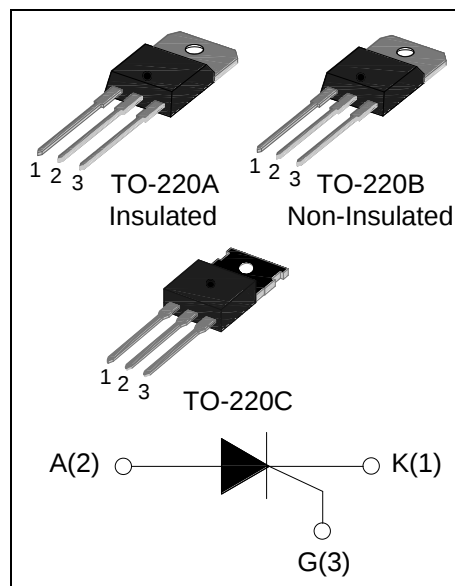
**JCT631/831 Series 31A SCRs**

Rev.2.0

DESCRIPTION:

JCT631/831 series of silicon controlled rectifiers, with high ability to withstand the shock loading of large current, 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.

JCTx31A provides insulation voltage rated at 2500V RMS from all three terminals to external heatsink complying with UL standards (File ref: E252906).

**MAIN FEATURES**

Symbol	JCT631	JCT831
V_{DRM}/V_{RRM}	600V	800V
$I_{T(RMS)}$	31A	
I_{GT}	$\leq 40mA$	

ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage junction temperature range		T_{stg}	-40-150	$^{\circ}C$
Operating junction temperature range		T_j	-40-125	$^{\circ}C$
Repetitive peak off-state voltage($T_j=25^{\circ}C$)		V_{DRM}	600/800	V
Repetitive peak reverse voltage($T_j=25^{\circ}C$)		V_{RRM}	600/800	V
Non repetitive surge peak Off-state voltage		V_{DSM}	$V_{DRM} + 100$	V
Non repetitive peak reverse voltage		V_{RSM}	$V_{RRM} + 100$	V
RMS on-state current	TO-220A(Ins) ($T_C=80^{\circ}C$)	$I_{T(RMS)}$	31	A
	TO-220B(Non-Ins)/ TO-220C ($T_C=95^{\circ}C$)			
Non repetitive surge peak on-state current ($t_p=10ms$)		I_{TSM}	200	A
I^2t value for fusing ($t_p=10ms$)		I^2t	200	A^2s

Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$)	di/dt	150	A/ μ s
Peak gate current	I_{GM}	1.5	A
Average gate power dissipation	$P_{G(AV)}$	2.0	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}	$V_D=12\text{V } R_L=33\Omega$	-	-	40	mA
V_{GT}		-	-	1.3	V
V_{GD}	$V_D=V_{DRM} T_j=125^\circ\text{C } R_L=3.3\text{K}\Omega$	0.2	-	-	V
I_L	$I_G=1.2I_{GT}$	-	-	90	mA
I_H	$I_T=500\text{mA}$	-	-	50	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=125^\circ\text{C}$	500	-	-	V/ μ s

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
V_{TM}	$I_{TM}=60\text{A } tp=380\mu\text{s}$	$T_j=25^\circ\text{C}$	1.8	V
I_{DRM}	$V_D=V_{DRM} V_R=V_{RRM}$	$T_j=25^\circ\text{C}$	0.5	mA
I_{RRM}		$T_j=125^\circ\text{C}$	10	mA

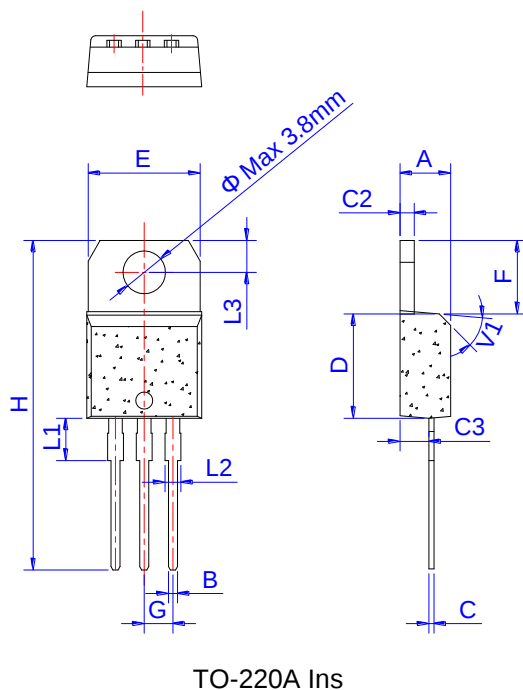
THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TO-220A(Ins)	2.1	$^\circ\text{C/W}$
		TO-220B(Non-Ins)/ TO-220C	1.3	

ORDERING INFORMATION

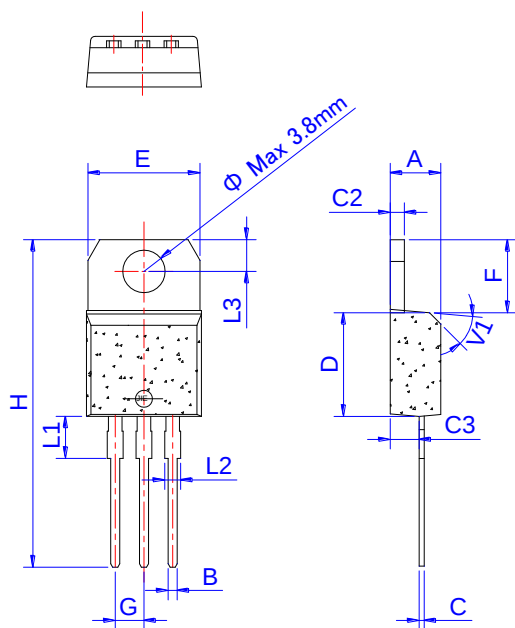
JieJie Microelectronics Co.,Ltd	J	CT	6	31	B
	SCRs			$I_{T(RMS)}:31A$	C:TO-220C A:TO-220A(Ins) B:TO-220B(Non-Ins)
6: $V_{DRM}/V_{RRM} \geq 600V$ 8: $V_{DRM}/V_{RRM} \geq 800V$					

PACKAGE MECHANICAL DATA



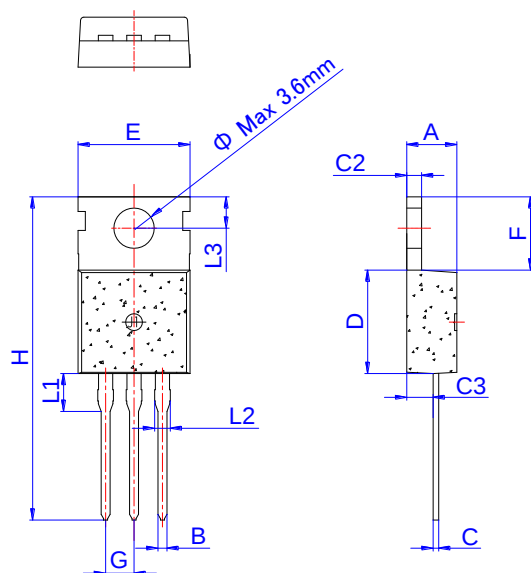
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.80		10.4	0.386		0.409
F	6.55		6.95	0.258		0.274
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.75			0.148	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
V1		45°			45°	

PACKAGE MECHANICAL DATA



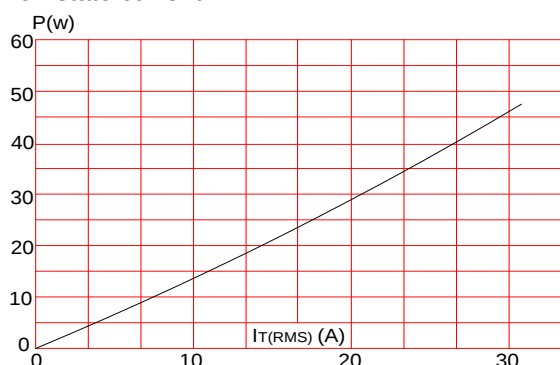
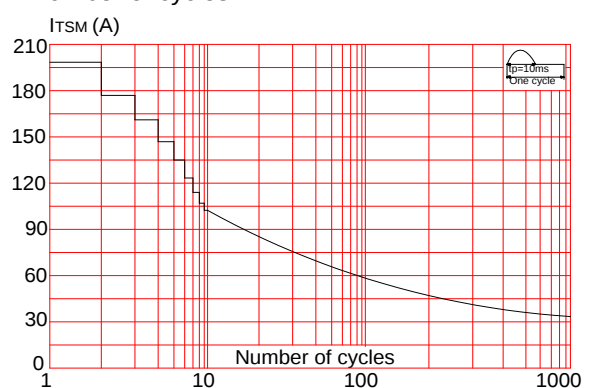
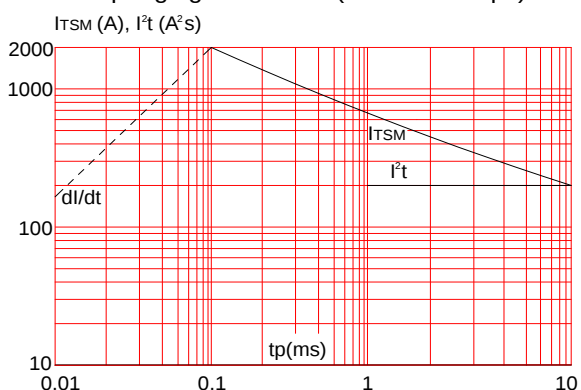
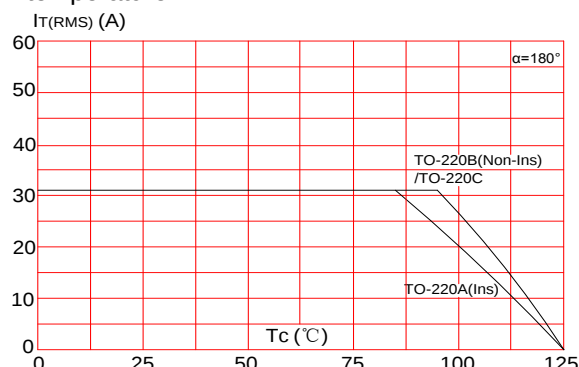
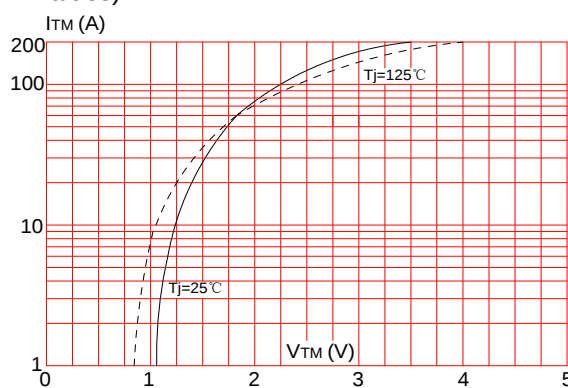
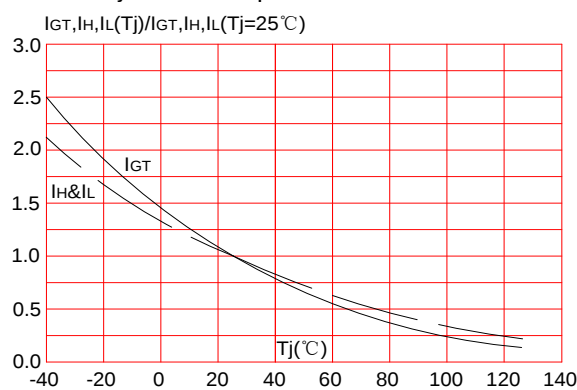
TO-220B Non-Ins

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	9.60		10.4	0.378		0.409
F	6.20		6.60	0.244		0.260
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.75			0.148	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
V1		45°			45°	



TO-220C

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		1.181
B	0.70		0.90	0.027		0.035
C	0.45		0.60	0.018		0.024
C2	1.23		1.32	0.048		0.052
C3	2.20		2.60	0.086		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		2.54			0.1	
H	28.0		29.8	11.0		11.7
L1		3.39			0.133	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
Φ		3.6			0.142	

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^2t ($di/dt < 150\text{A}/\mu\text{s}$)**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

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