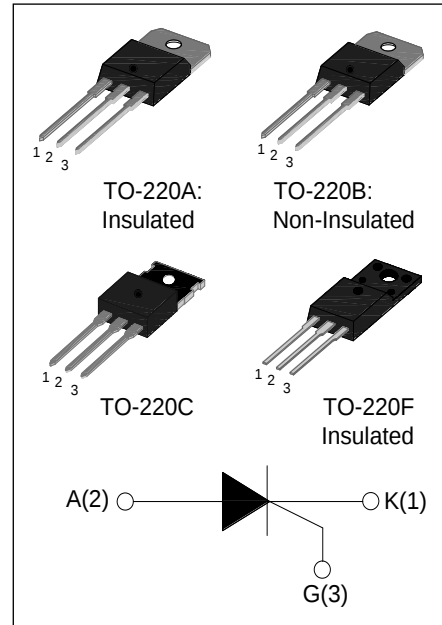




DESCRIPTION:

JCTx40 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.

JCTx40A provides insulation voltage rated at 2500V RMS and JCTx40F provides insulation voltage rated at 2000V RMS from all three terminals to external heatsink complying with UL standards (File ref: E252906).



MAIN FEATURES

Symbol	JCT640	JCT840
V_{DRM}/V_{RRM}	600V	800V
$I_{T(RMS)}$	40A	
I_{GT}	$\leq 35mA$	

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) / TO-220F(Ins)($T_C=85^{\circ}C$)	$I_{T(RMS)}$	40	A
	TO-220B(Non-Ins) / TO-220C ($T_C=93^{\circ}C$)			
Non repetitive surge peak on-state current ($t_p=10ms$)		I_{TSM}	460	A

I^2t value for fusing ($t_p=10ms$)	I^2t	1060	A^2s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$)	di/dt	50	$A/\mu s$
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 ($T_j=25^\circ C$ unless otherwise specified)

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
I_{GT}	$V_D=12V$ $R_L=33\Omega$	-	15	35	mA
V_{GT}		-	-	1.5	V
V_{GD}	$V_D=V_{DRM}$ $T_j=125^\circ C$ $R_L=3.3K\Omega$	0.2	-	-	V
I_L	$I_G=1.2I_{GT}$	-	-	150	mA
I_H	$I_T=500mA$	-	-	75	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=125^\circ C$	1000	-	-	$V/\mu s$

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
V_{TM}	$I_{TM}=80A$ $t_p=380\mu s$	$T_j=25^\circ C$	1.6	V
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^\circ C$	10	μA
I_{RRM}		$T_j=125^\circ C$	4	mA

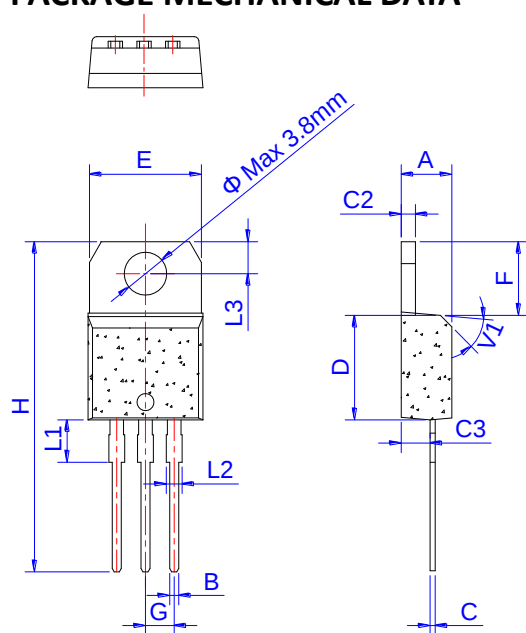
THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TO-220A(Ins)	1.3	$^\circ C/W$
		TO-220B(Non-Ins) / TO-220C	0.8	
		TO-220F(Ins)	1.0	

ORDERING INFORMATION

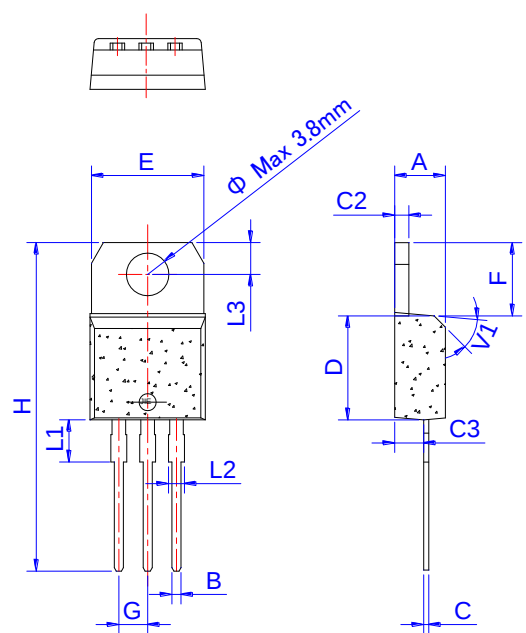
JieJie Microelectronics Co.,Ltd	J	CT	6	40	B
	SCRs				A:TO-220A(Ins) F:TO-220F(Ins) C:TO-220C B:TO-220B(Non-Ins)
	6: $V_{DRM}/V_{RRM} \geq 600V$ 8: $V_{DRM}/V_{RRM} \geq 800V$			$I_{T(RMS)}: 40A$	

PACKAGE MECHANICAL DATA



TO-220A Ins

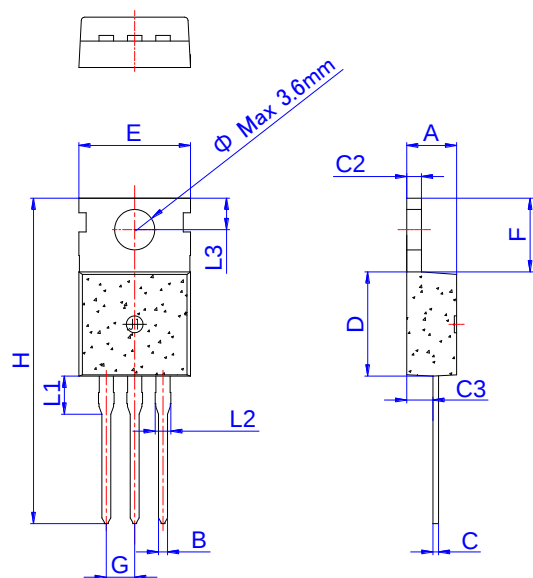
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.80		10.4	0.386		0.409
F	6.55		6.95	0.258		0.274
G		2.54			0.1	
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°	



TO-220B Non-Ins

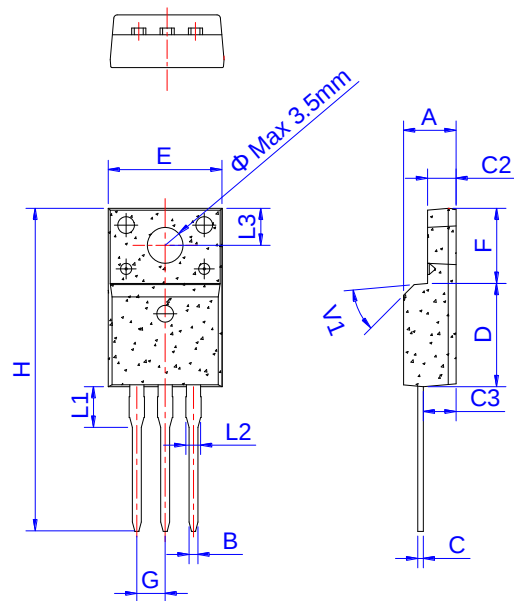
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.60		10.4	0.378		0.409
F	6.20		6.60	0.244		0.260
G		2.54			0.1	
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°	

PACKAGE MECHANICAL DATA



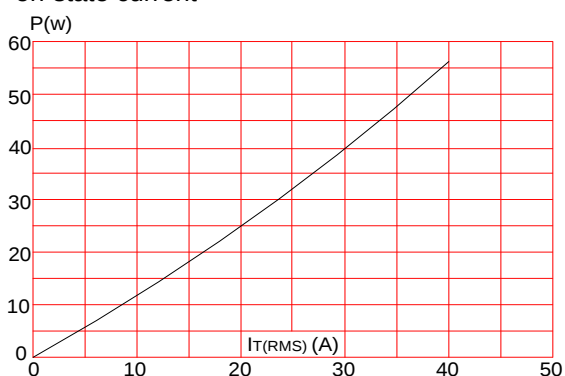
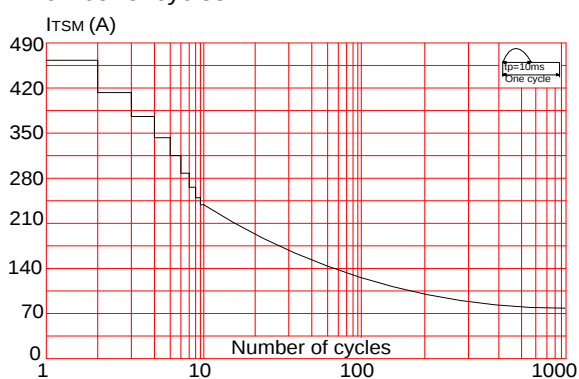
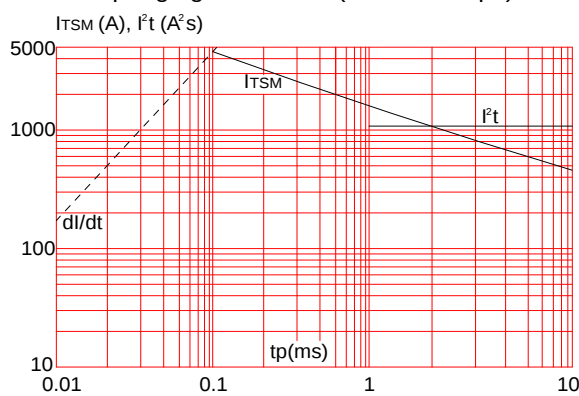
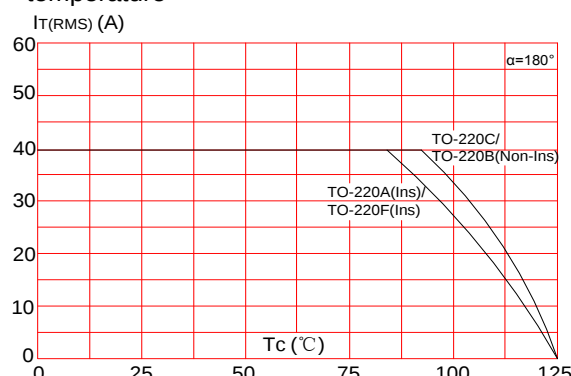
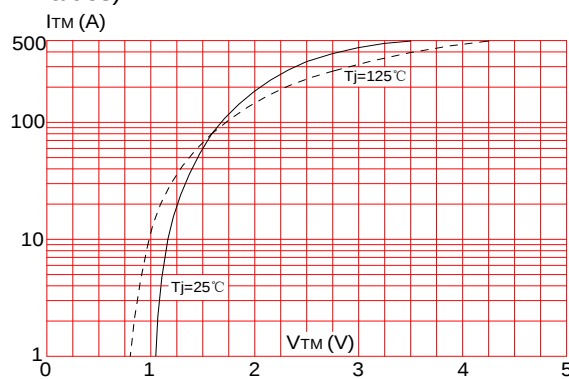
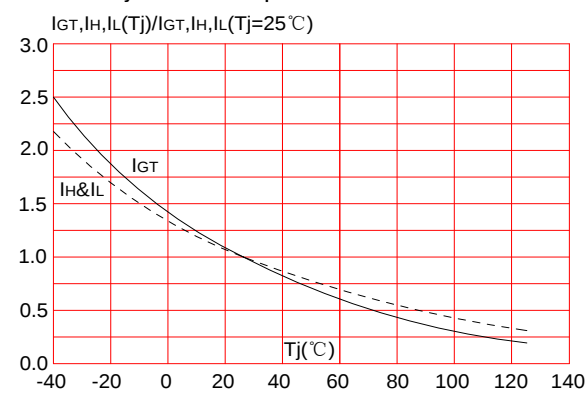
TO-220C

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	1.23		1.32	0.048		0.052
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		2.54			0.1	
H	28.0		29.8	1.102		1.173
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	



TO-220F Ins

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.80	0.173		0.189
B	0.74	0.80	0.83	0.029	0.031	0.033
C	0.48		0.75	0.019		0.030
C2	2.40		2.70	0.094		0.106
C3	2.60		3.00	0.102		0.118
D	8.80		9.30	0.346		0.366
E	9.70		10.3	0.382		0.406
F	6.40		7.00	0.252		0.276
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.63			0.143	
L2	1.14		1.70	0.045		0.067
L3		3.30			0.130	
V1		45°			45°	

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 ($di/dt < 50\text{A}/\mu\text{s}$)**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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