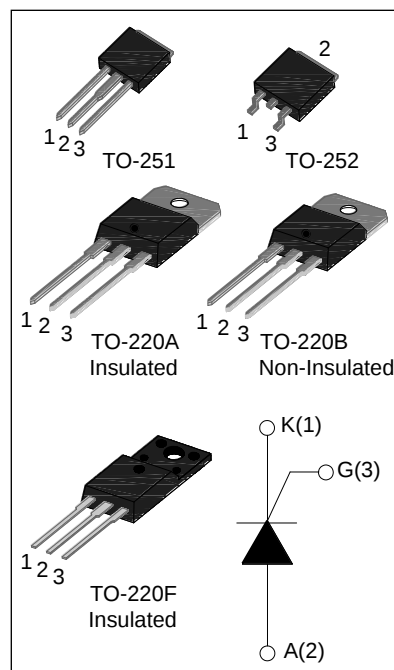




DESCRIPTION:

JCT612/812 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.

JCTx12A provides insulation voltage rated at 2500V RMS and JCTx12F provides insulation voltage rated at 2000V RMS from all three terminals to external heatsink. JCTx12A/JCTx12F series comply with UL standards (File ref: E252906).



MAIN FEATURES

Symbol	JCT612	JCT812
V_{DRM}/V_{RRM}	600V	800V
$I_{T(RMS)}$	12A	
I_{GT}	$\leq 15mA$	

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-251/ TO-252 ($T_c=105^{\circ}C$)	$I_{T(RMS)}$	12	A
	TO-220A(Ins) ($T_c=90^{\circ}C$)			

RMS on-state current	TO-220B(Non-Ins) ($T_C=110^{\circ}\text{C}$)	$I_{T(RMS)}$	12	A
	TO-220F(Ins) ($T_C=85^{\circ}\text{C}$)			
Non repetitive surge peak on-state current ($t_p=10\text{ms}$)		I_{TSM}	140	A
I^2t value for fusing ($t_p=10\text{ms}$)		I^2t	98	A^2s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$)		di/dt	50	$\text{A}/\mu\text{s}$
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}	$V_D=12\text{V } R_L=33\Omega$	-	-	15	mA
V_{GT}		-	-	1.5	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	$I_G=1.2I_{GT}$	-	-	60	mA
I_H	$I_T=500\text{mA}$	-	-	30	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_J=125^{\circ}\text{C}$	200	-	-	$\text{V}/\mu\text{s}$

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
V_{TM}	$I_{TM}=24\text{A } t_p=380\mu\text{s}$	$T_J=25^{\circ}\text{C}$	1.55	V
I_{DRM}	$V_D=V_{DRM} V_R=V_{RRM}$	$T_J=25^{\circ}\text{C}$	5	μA
I_{RRM}		$T_J=125^{\circ}\text{C}$	2	mA

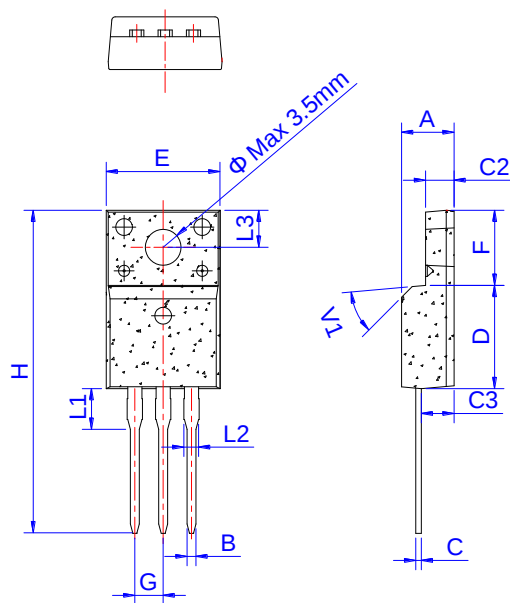
THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TO-220A(Ins)	3.5	$^{\circ}\text{C/W}$
		TO-220B(Non-Ins)	1.3	
		TO-220F(Ins)	4.0	
		TO-251/TO-252	1.8	

ORDERING INFORMATION

JieJie Microelectronics Co.,Ltd					
J	CT	6	12	B	
SCRs					
6: $V_{DRM}/V_{RRM} \geq 600V$					
8: $V_{DRM}/V_{RRM} \geq 800V$					
A:TO-220A(Ins) F:TO-220F(Ins) B:TO-220B(Non-Ins) H:TO-251 K:TO-252					
$I_T(RMS):12A$					

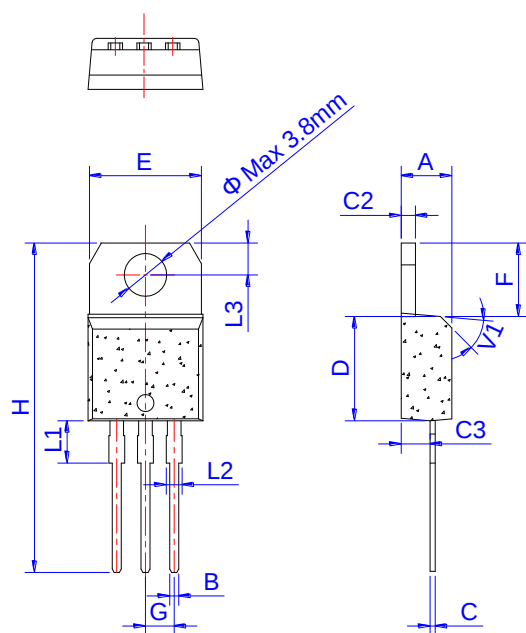
PACKAGE MECHANICAL DATA



TO-220F Ins

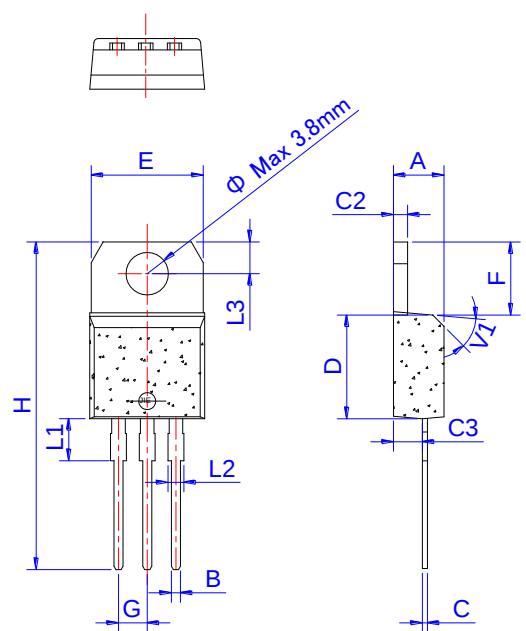
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.80	0.173		0.189
B	0.74	0.80	0.83	0.029	0.031	0.033
C	0.48		0.75	0.019		0.030
C2	2.40		2.70	0.094		0.106
C3	2.60		3.00	0.102		0.118
D	8.80		9.30	0.346		0.366
E	9.70		10.3	0.382		0.406
F	6.40		7.00	0.252		0.276
G		2.54			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°	

PACKAGE MECHANICAL DATA



TO-220A Ins

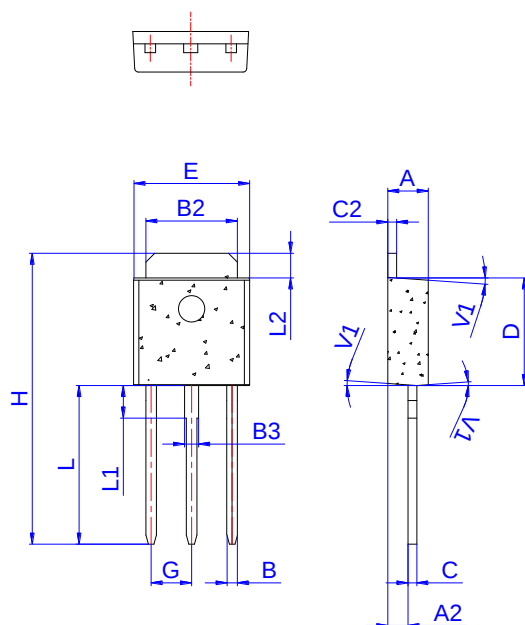
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.80		10.4	0.386		0.409
F	6.55		6.95	0.258		0.274
G		2.54			0.1	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

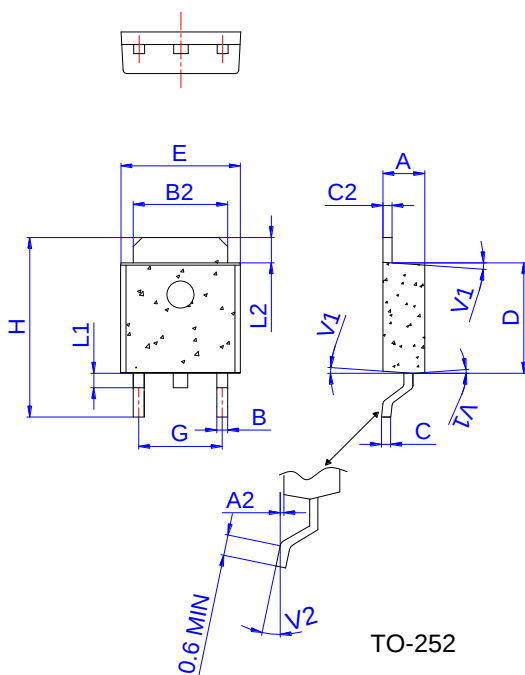
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.60		10.4	0.378		0.409
F	6.20		6.60	0.244		0.260
G		2.54			0.1	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



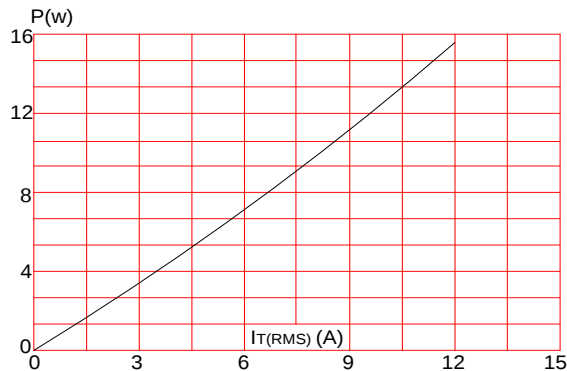
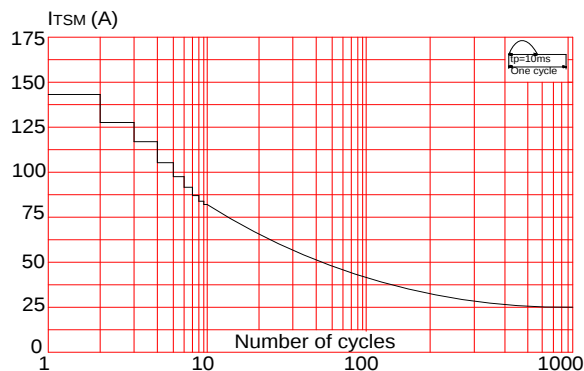
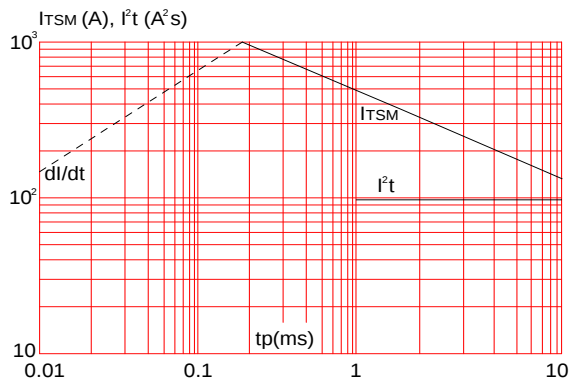
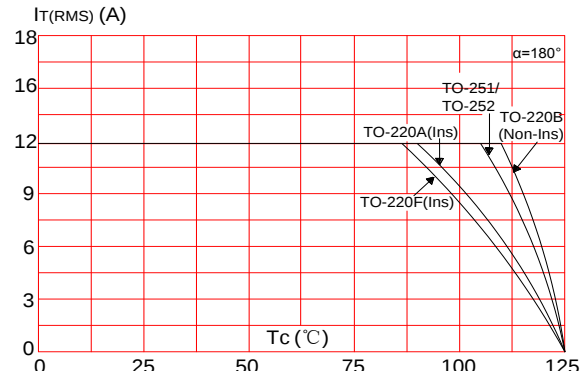
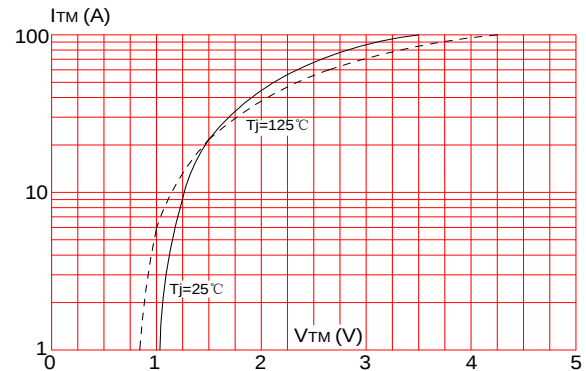
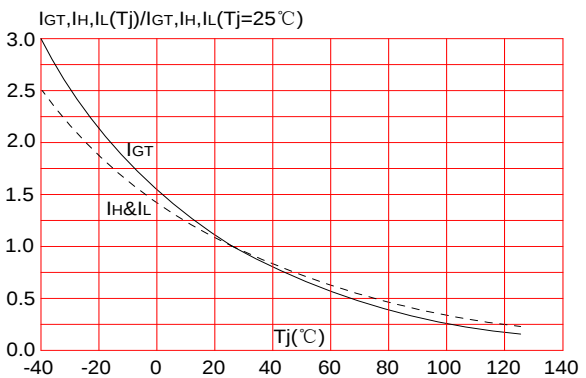
TO-251

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.20		2.40	0.086		0.095
A2	0.90		1.20	0.035		0.047
B	0.55		0.65	0.022		0.026
B2	5.10		5.40	0.200		0.213
B3	0.76		0.85	0.030		0.033
C	0.45		0.62	0.018		0.024
C2	0.48		0.62	0.019		0.024
D	6.00		6.20	0.236		0.244
E	6.40		6.70	0.252		0.264
G		2.30			0.091	
H	16.0		17.0	0.630		0.669
L	8.90		9.40	0.350		0.370
L1	1.80		1.90	0.071		0.075
L2	1.37		1.50	0.054		0.059
V1		4°			4°	



TO-252

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.20		2.40	0.086		0.095
A2	0.03		0.23	0.001		0.009
B	0.55		0.65	0.022		0.026
B2	5.10		5.40	0.200		0.213
C	0.45		0.62	0.018		0.024
C2	0.48		0.62	0.019		0.024
D	6.00		6.20	0.236		0.244
E	6.40		6.70	0.252		0.264
G	4.40		4.70	0.173		0.185
H	9.35		10.6	0.368		0.417
L1	1.30		1.70	0.051		0.067
L2	1.37		1.50	0.054		0.059
V1		4°			4°	
V2	0°		8°	0°		8°

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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