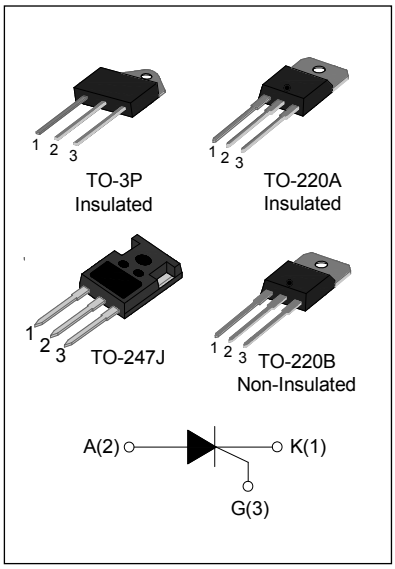
JCT1240 Series 40A SCRs

Rev.5.0

DESCRIPTION:

With high ability to withstand the shock loading of large current, JCT1240 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, JCT1240Z and JCT1240A provide a rated insulation voltage of 2500 V_{RMS}, complying with UL standards (File ref: E252906).



MAIN FEATURES

Symbol	JCT1240
V_{DRM}/ V_{RRM}	1200V
$I_{T(RMS)}$	40A
I_{GT}	≤ 35mA

ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage junction temperature range		T_{stg}	-40-150	℃
Operating junction temperature range		T_j	-40-125	℃
Repetitive peak off-state voltage(T_j=25℃)		V_{DRM}	1200	V
Repetitive peak reverse voltage(T_j=25℃)		V_{RRM}	1200	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-3P(Ins) (T_C=90℃)	$I_{T(RMS)}$	40	A
	TO-220A(Ins) (T_C=80℃)			
	TO-247J (T_C=100℃)			
	TO-220B(Non-Ins) (T_C= 85 ℃)			

Non repetitive surge peak on-state current (tp=10ms)	I_{TSM}	460	A
I^2t value for fusing (tp=10ms)	I^2t	1060	A^2s
Critical rate of rise of on-state current (I_G=2×I_{GT})	dI/dt	100	A/μs
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℃ unless otherwise specified)

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
I_{GT}	V_D=12V R_L=33Ω	-	15	35	mA
V_{GT}		-	-	1.5	V
V_{GD}	V_D=V_{DRM} T_j=125℃ R_L=3.3KΩ	0.2	-	-	V
I_L	I_G=1.2I_{GT}	-	-	150	mA
I_H	I_T=500mA	-	-	100	mA
dV/dt	V_D=2/3V_{DRM} Gate Open T_j=125℃	1000	-	-	V/μs

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
V_{TM}	I_{TM}=80A tp=380μs	T_j=25℃	1.6	V
I_{DRM}	V_D=V_{DRM} V_R=V_{RRM}	T_j=25℃	10	μA
I_{RRM}		T_j=125℃	4	mA

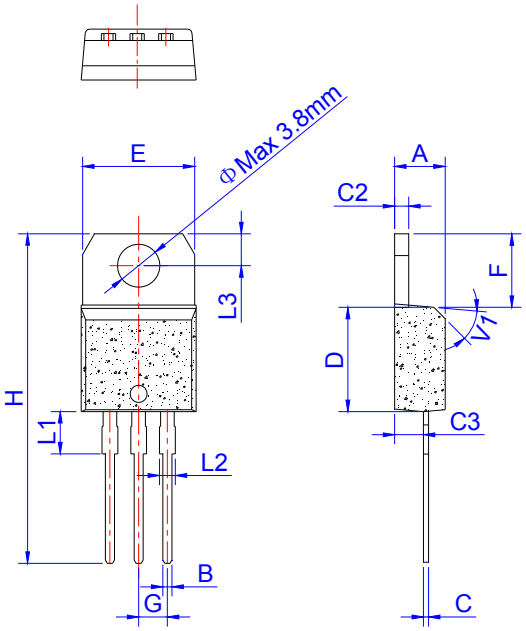
THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TO-3P(Ins)	1.1	℃/W
		TO-220A(Ins)	1.3	
		TO-247J	0.95	
		TO-220B(Non-Ins)	1.2	

ORDERING INFORMATION

J	CT	12	40	A
JieJie Microelectronics Co.,Ltd	SCRs	12:V_{DRM} /V_{RRM} ≥1200V	$I_{T(RMS)}$:40A	A:TO-220A(Ins) B:TO-220B(Non-Ins) Z:TO-3P(Ins) SJ:TO-247J

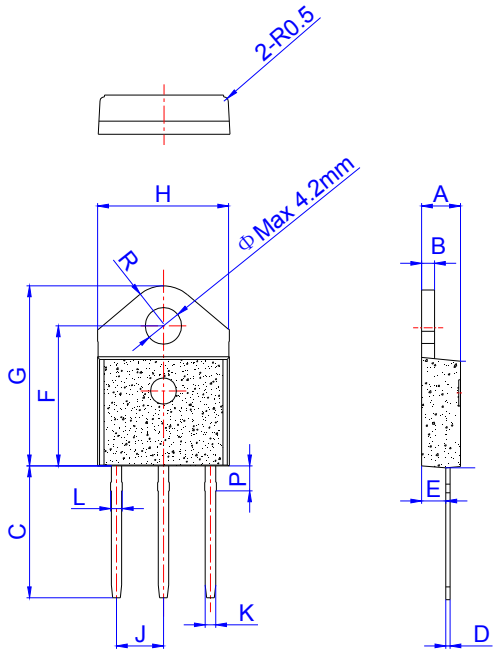
PACKAGE MECHANICAL DATA



TO-220A Ins

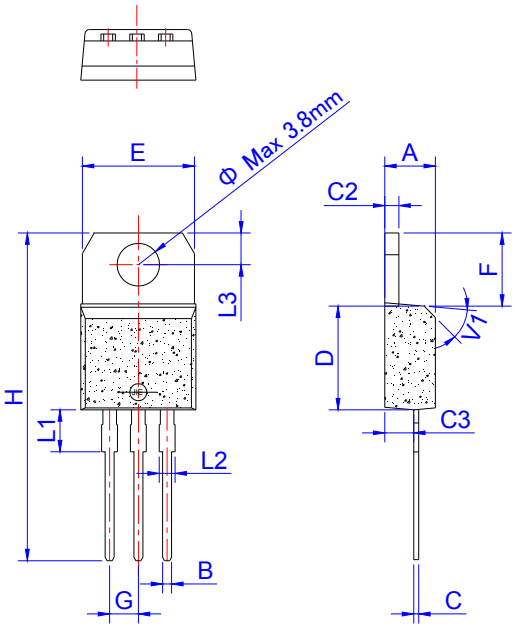
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.80		10.4	0.386		0.409
F	6.55		6.95	0.258		0.274
G		2.54			0.1	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

PACKAGE MECHANICAL DATA



TO-3P Ins

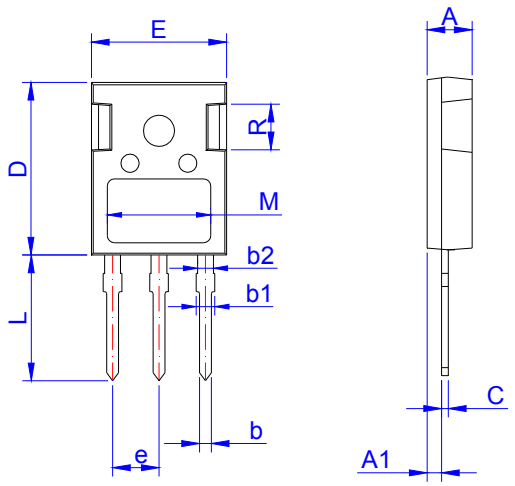
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	1.45		1.55	0.057		0.061
C	14.35		15.60	0.565		0.614
D	0.50		0.70	0.020		0.028
E	2.70		2.90	0.106		0.114
F	15.80		16.50	0.622		0.650
G	20.40		21.10	0.803		0.831
H	15.10		15.50	0.594		0.610
J	5.40		5.65	0.213		0.222
K	1.10		1.40	0.043		0.055
L	1.35		1.50	0.053		0.059
P	2.80		3.00	0.110		0.118
R		4.35			0.171	



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-247J

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.70	5.00	5.30	0.185	0.197	0.209
A1	2.21	2.35	2.59	0.087	0.093	0.102
b	1.02	1.20	1.40	0.040	0.047	0.055
b1	1.90	2.10	2.23	0.075	0.083	0.088
b2	1.85	2.00	2.10	0.073	0.079	0.083
C	0.41	0.60	0.79	0.016	0.024	0.031
D	20.80	21.00	21.46	0.819	0.828	0.845
E	15.50	15.80	16.10	0.610	0.622	0.634
e		5.44			0.214	
L	19.90	20.00	20.10	0.783	0.787	0.791
M	12.55	12.70	12.90	0.494	0.5	0.508
R	4.85			0.191		

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

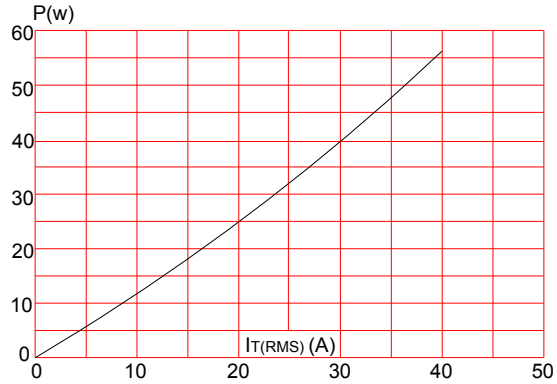


FIG.2: RMS on-state current versus case temperature

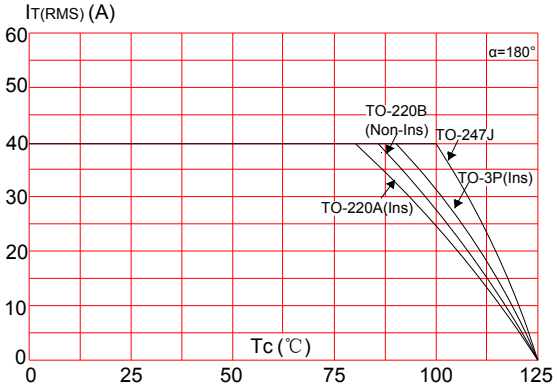


FIG.3: Surge peak on-state current versus number of cycles

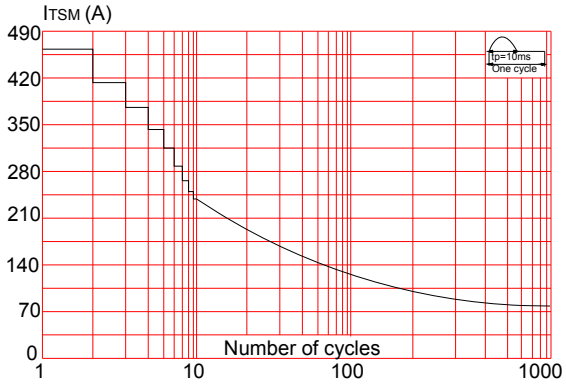


FIG.4: On-state characteristics (maximum values)

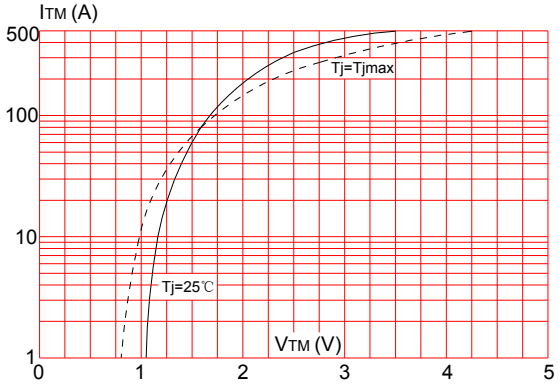


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp<10ms, and corresponging value of I^2t (dI/dt < 100A/μs)

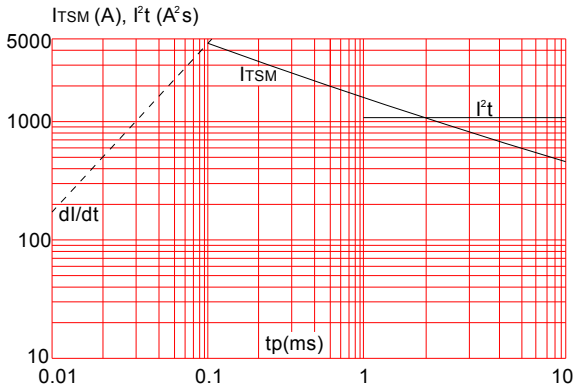
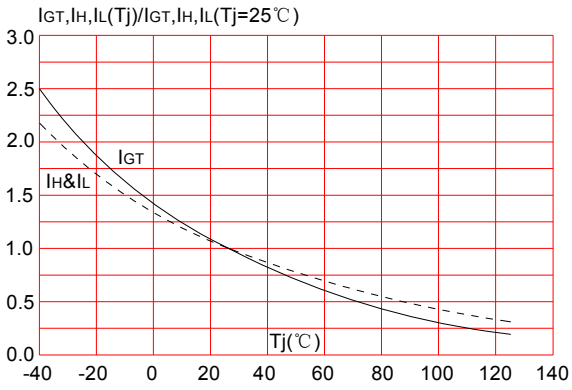


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



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