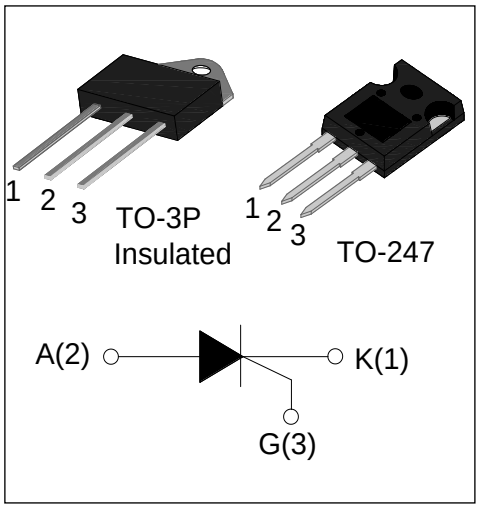
JCT1655 Series 55A SCRs

Rev.4.0

DESCRIPTION:

JCT1655 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. JCT1655Z provides insulation voltage rated at 2500V RMS from all three terminals to external heatsink complying with UL standards (File ref: E252906).



MAIN FEATURES

Symbol	JCT1655
V_{DRM}/ V_{RRM}	1600V
$I_{T(RMS)}$	55A
I_{GT}	20 - 70 mA

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		V_{DRM}	1600	V
Repetitive peak reverse voltage		V_{RRM}	1600	V
Average on-state current	TO-3P Ins (T_C=80℃)	$I_{T(AV)}$	35	A
	TO-247(T_C=85℃)			
RMS on-state current	TO-3P Ins (T_C=80℃)	$I_{T(RMS)}$	55	A
	TO-247(T_C=85℃)			
Non repetitive surge peak on-state current (tp=10ms)		I_{TSM}	550	A
I^2t value for fusing (tp=10ms)		I^2t	1500	A^2s

Critical rate of rise of on-state current (I_G=2×I_{GT})	dI/dt	150	A/μs
Peak gate current	I_{GM}	5	A
Peak gate power	P_{GM}	10	W
Average gate power dissipation (T_j=125℃)	$P_{G(AV)}$	1	W

ELECTRICAL CHARACTERISTICS (T_j=25℃ unless otherwise specified)

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
I_{GT}	V_D=12V R_L=30Ω	20	-	70	mA
V_{GT}		-	-	1.5	V
V_{GD}	V_D=V_{DRM} T_j=125℃	0.25	-	-	V
I_L	I_G=1.2 I_{GT}	-	-	250	mA
I_H	I_T=1A	-	-	200	mA
dV/dt	V_D=2/3V_{DRM} T_j=125℃ Gate Open	1000	-	-	V/μs

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
V_{TM}	I_{TM}=80A tp=380μs	T_C=25℃	1.8	V
I_{DRM}	V_D=V_{DRM} V_R=V_{RRM}	T_C=25℃	10	μA
I_{RRM}		T_C=125℃	8	mA

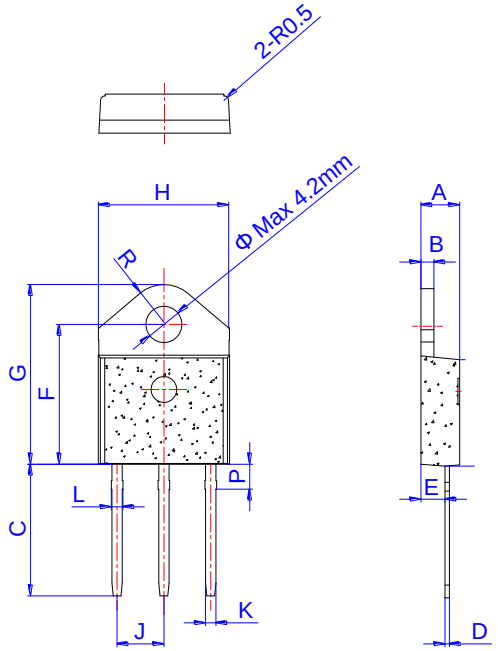
THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case(DC)	TO-3P Ins	0.62	℃/W
		TO-247	0.60	

ORDERING INFORMATION

J	CT	16	55	Z
JieJie Microelectronics Co.,Ltd	SCRs	16:$V_{DRM}/V_{RRM}\geqslant$1600V	$I_{T(RMS)}$:55A	S:TO-247 Z:TO-3P Ins

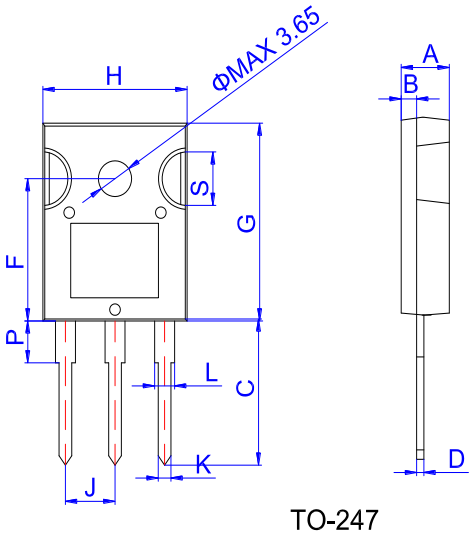
PACKAGE MECHANICAL DATA



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	

PACKAGE MECHANICAL DATA



TO-247

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.9		5.4	0.193		0.213
B	1.6		2.0	0.063		0.079
C	14.35		15.4	0.565		0.606
D	0.5		0.8	0.020		0.031
F	14.4		15.1	0.567		0.594
G	19.7		20.6	0.775		0.811
H	15.4		16.2	0.606		0.638
J	5.3		5.6	0.209		0.220
K	1.3		1.5	0.051		0.059
L	2.8		3.3	0.110		0.130
P	3.7		4.2	0.146		0.165
S	5.35		5.65	0.211		0.222

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

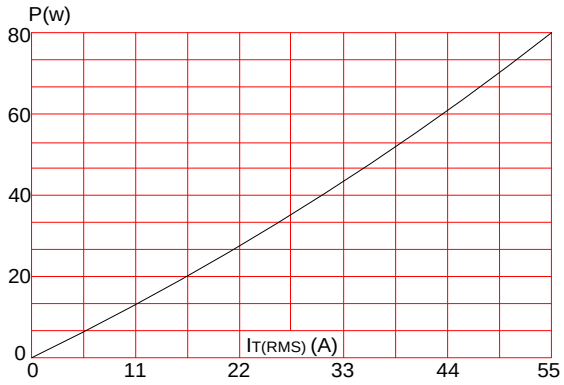


FIG.2: RMS on-state current versus case temperature

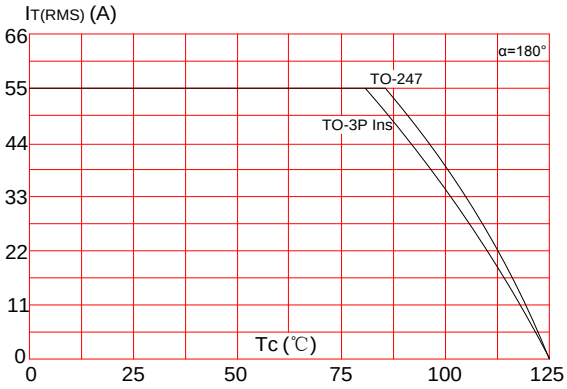


FIG.3: Surge peak on-state current versus number of cycles

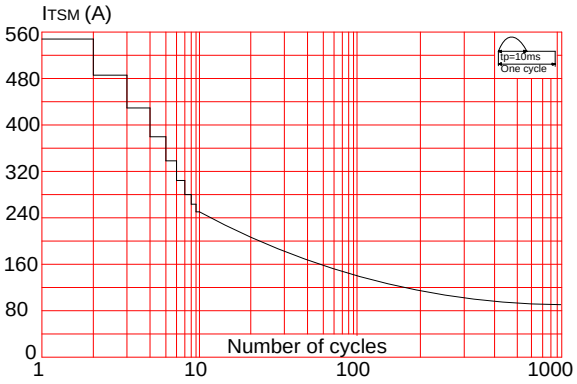


FIG.4: On-state characteristics (maximum values)

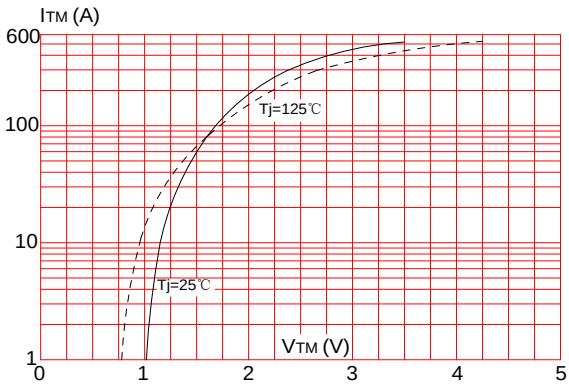


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp<10ms, and corresponging value of I^2t (dI/dt < 150A/μs)

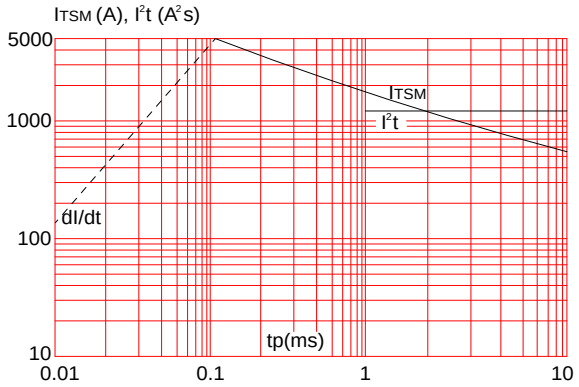


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature