

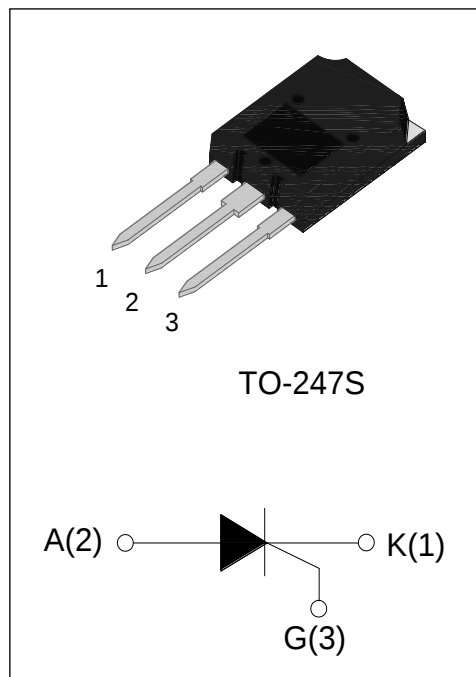


DESCRIPTION:

JCT1690 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.

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	90	A
I_{GT}	10-80	mA
V_{DRM}/V_{RRM}	1600	V



ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Storage junction temperature range	T_{stg}	-40-150	°C
Operating junction temperature range	T_j	-40-125	°C
Repetitive peak off-state voltage	V_{DRM}	1600	V
Repetitive peak reverse voltage	V_{RRM}	1600	V
Average on-state current ($T_C=80^{\circ}C$)	$I_{T(AV)}$	56	A
RMS on-state current($T_C=80^{\circ}C$)	$I_{T(RMS)}$	90	A
Non repetitive surge peak on-state current (tp=10ms)	I_{TSM}	1250	A
I^2t value for fusing (tp=10ms)	I^2t	7800	A^2s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$)	di/dt	150	A/ μs
Peak gate current	I_{GM}	10	A
Peak gate power	P_{GM}	20	W
Average gate power dissipation($T_j=125^{\circ}C$)	$P_{G(AV)}$	2	W

ELECTRICAL CHARACTERISTICS ($T_j=25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
I_{GT}	$V_D=12\text{V}$ $R_L=30\Omega$	10	-	80	mA
V_{GT}		-	-	1.5	V
V_{GD}	$V_D=V_{DRM}$ $T_j=125^{\circ}\text{C}$	0.25	-	-	V
I_L	$I_G=1.2 I_{GT}$	-	-	200	mA
I_H	$I_T=1\text{A}$	-	-	150	mA
dV/dt	$V_D=2/3V_{DRM}$ $T_j=125^{\circ}\text{C}$ Gate Open	1000	-	-	V/ μs

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
V_{TM}	$I_{TM}=110\text{A}$ $t_p=380\mu\text{s}$	$T_C=25^{\circ}\text{C}$	1.8	V
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_C=25^{\circ}\text{C}$	50	μA
I_{RRM}		$T_C=125^{\circ}\text{C}$	10	mA

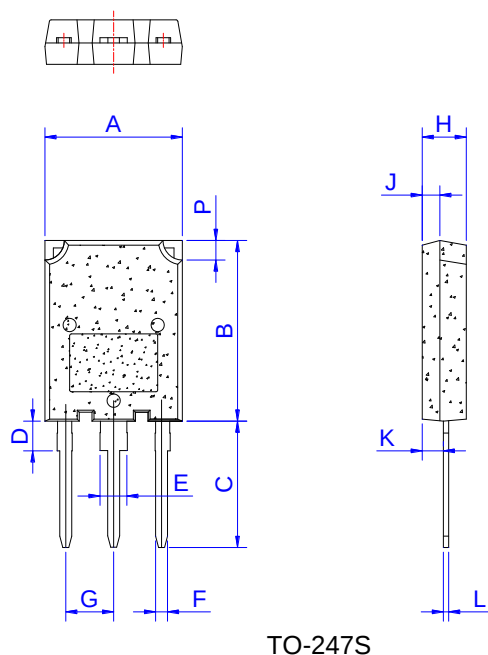
THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case(DC)	0.27	$^{\circ}\text{C/W}$

ORDERING INFORMATION

<u>J</u>	<u>CT</u>	<u>16</u>	<u>90</u>	<u>CS</u>
JieJie Microelectronics Co.,Ltd	SCRs	16: $V_{DRM}/V_{RRM} \geq 1600\text{V}$	$I_{T(RMS)}:90\text{A}$	CS:TO-247S

PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	15.1		16.1	0.594		0.634
B	19.8		20.8	0.78		0.819
C	13.8		14.8	0.543		0.583
D	3.00		4.00	0.118		0.157
E	2.75		3.35	0.108		0.132
F	1.30		1.50	0.051		0.059
G	5.10		5.80	0.201		0.228
H	4.50		5.50	0.177		0.217
J	1.45		2.15	0.057		0.085
K	1.90		2.80	0.075		0.110
L	0.55		0.80	0.022		0.031
P	2.00		2.40	0.079		0.094

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

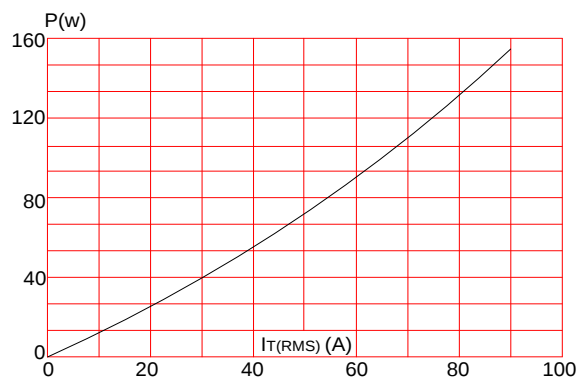


FIG.3: Surge peak on-state current versus number of cycles

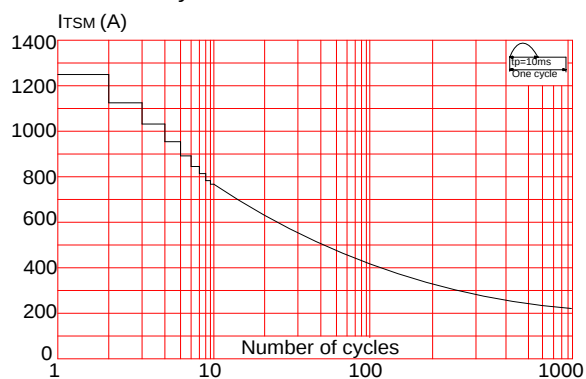


FIG.2: RMS on-state current versus case temperature

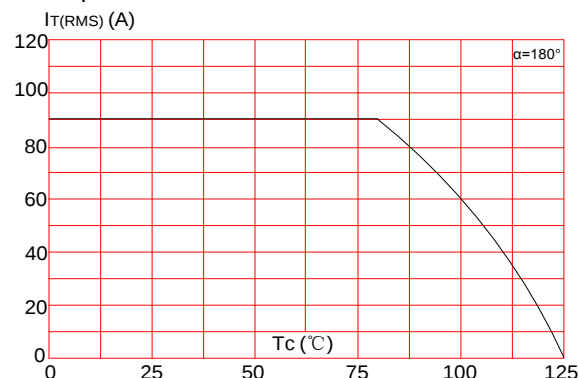


FIG.4: On-state characteristics (maximum values)

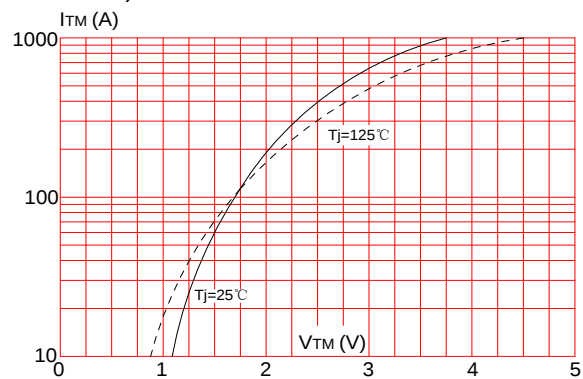


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I^2t

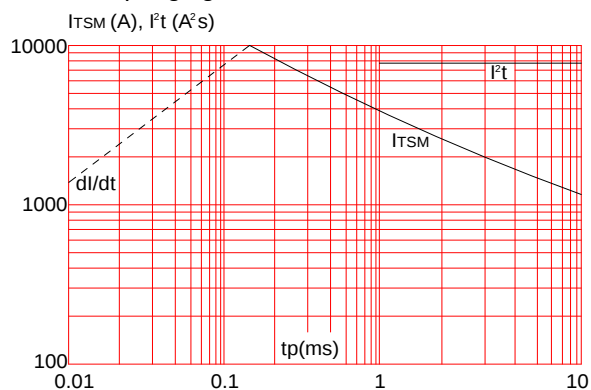
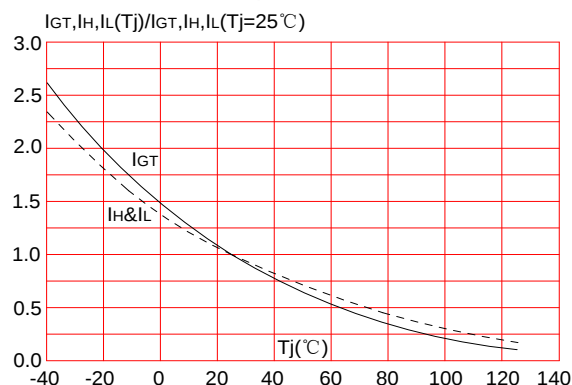


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



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