

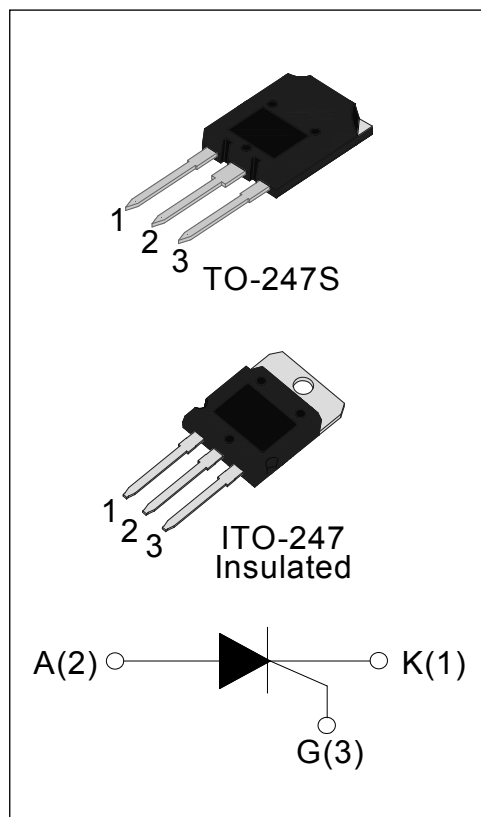


DESCRIPTION:

With high ability to withstand the shock loading of large current, JCT1690 Series provide high dv/dt rate with high frequency noise immunity. Products are especially recommended for use on solid state relay, motorcycle, power charger, T-tools etc. From all three pins to external heatsink, JCT1690IS provides an insulation voltage of 2500 V_{RMS}, complying with UL standards (File ref: E252906).

MAIN FEATURES

Symbol	Value	Unit
I _{T(RMS)}	90	A
V _{DRM} / V _{R_{RRM}}	1600	V
I _{GT}	≤80	mA



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(T _j =25°C)	V _{DRM}	1600	V
Repetitive peak reverse voltage(T _j =25°C)	V _{R_{RRM}}	1600	V
Non repetitive surge peak Off-state voltage	V _{DSM}	V _{DRM} +100	V
Non repetitive peak reverse voltage	V _{RSM}	V _{R_{RRM}} +100	V
RMS on-state current	I _{T(RMS)}	90	A
Non repetitive surge peak on-state current (tp=10ms)	I _{TSM}	1000	A
I ² t value for fusing (tp=10ms)	I ² t	2000	A ² s

Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$)	di/dt	150	A/ μ 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}	$V_D=12\text{V } R_L=33\Omega$	-	-	80	mA
V_{GT}		-	-	1.5	V
V_{GD}	$V_D=V_{DRM} T_j=125^\circ\text{C } R_L=3.3\text{K}\Omega$	0.25	-	-	V
I_L	$I_G=1.2I_{GT}$	-	-	250	mA
I_H	$I_T=1\text{A}$	-	-	150	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=125^\circ\text{C}$	1000	-	-	V/ μ s

STATIC CHARACTERISTICS

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

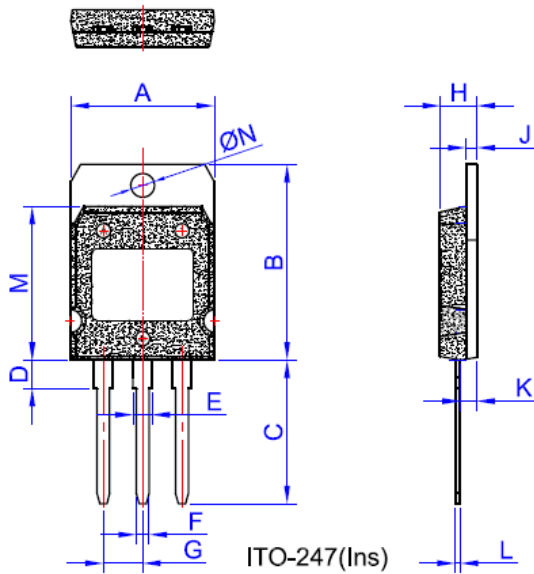
THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TO-247S/ ITO-247(Ins)	0.43	$^\circ\text{C/W}$

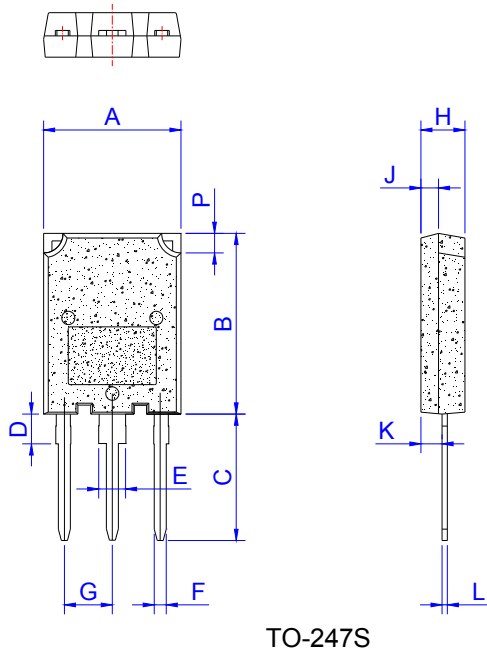
ORDERING INFORMATION

<p>J</p> <p>JieJie Microelectronics Co.,Ltd</p>	<p>CT</p> <p>SCRs</p> <p>16:VDRM/VRRM ≥1600V</p>	<p>16</p>	<p>90</p> <p>IT(RMS):90A</p>	<p>IS</p> <p>CS:TO-247S IS:ITO-247(Ins)</p>
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PACKAGE MECHANICAL DATA



Ref	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	19.7	19.9	20.1	0.776	0.783	0.791
B	26.9	27.1	27.3	1.059	1.067	1.075
C	19.4	19.9	20.4	0.764	0.783	0.803
D	3.8	3.9	4.0	0.15	0.154	0.157
E	2.56	2.66	2.76	0.101	0.105	0.109
F	1.66	1.76	1.86	0.065	0.069	0.073
G		5.45			0.215	
H	5.05	5.10	5.5	0.199	0.201	0.217
J	1.45	1.50	1.55	0.057	0.059	0.061
K	2.20	2.30	2.40	0.087	0.091	0.094
L	0.60	0.70	0.80	0.024	0.028	0.031
M	21.2	21.3	21.4	0.835	0.839	0.843
ØN	3.20	3.30	3.40	0.126	0.130	0.134



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

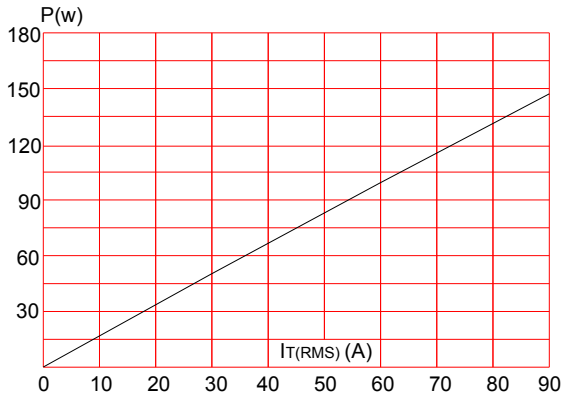


FIG.2: RMS on-state current versus case temperature

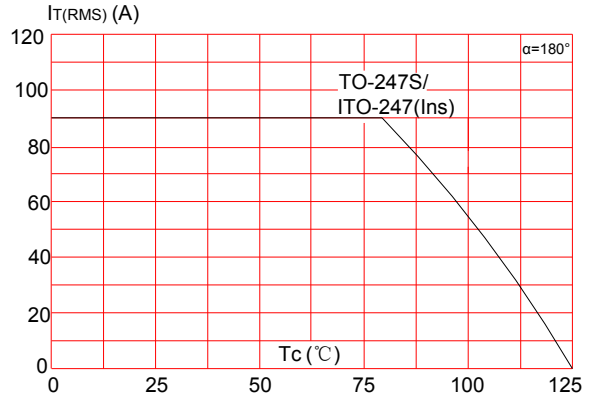


FIG.3: Surge peak on-state current versus number of cycles

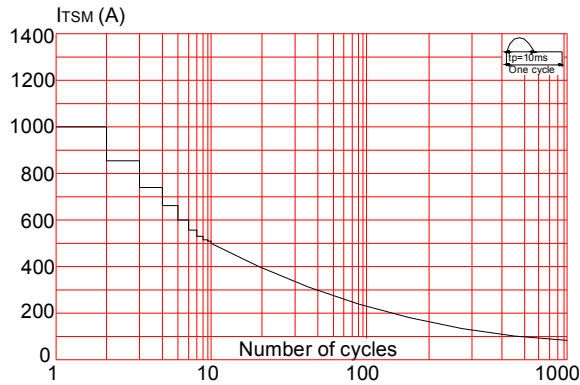


FIG.4: On-state characteristics (maximum values)

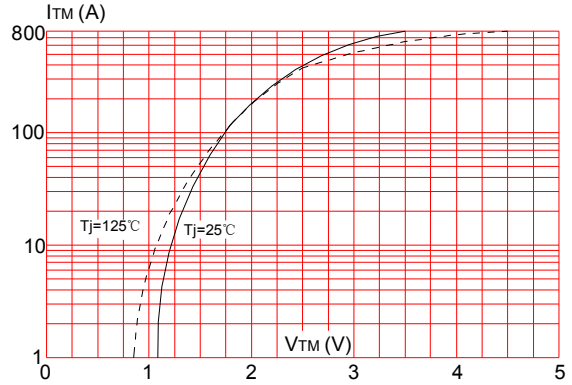


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of $\int i^2 t$ ($di/dt < 150\text{A}/\mu\text{s}$)

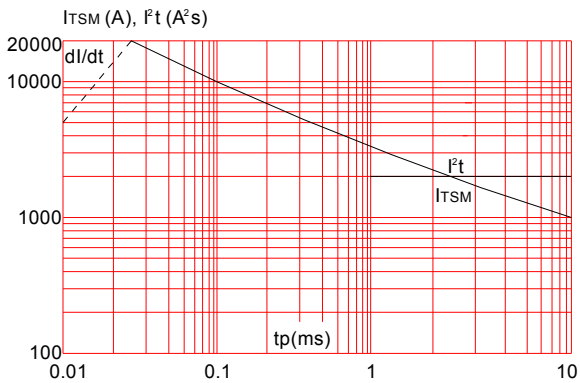
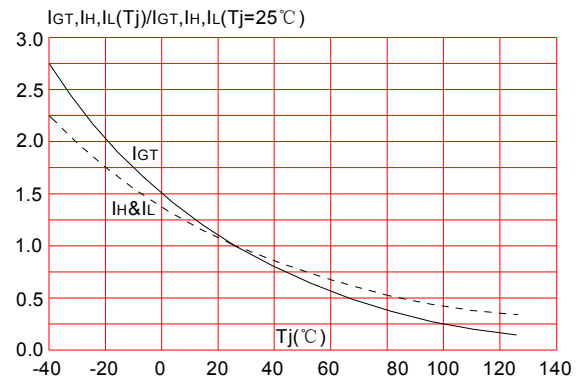



FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



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