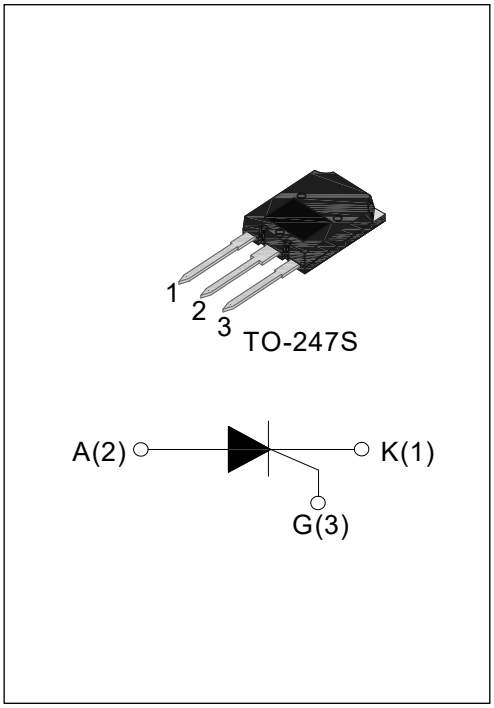
JCT1690CS 90A SCRs

Rev.3.1

DESCRIPTION:

With high ability to withstand the shock loading of large current, JCT1690CS provide high dv/dt rate with high frequency noise immunity. Products are especially recommended for use on solid state relay, motorcycle, powercharger, T-tools etc,UPS.Package TO-247S is RoHS compliant. (2011/65/EU)



MAIN FEATURES

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

ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage junction temperature range		T_{stg}	-40~150	℃
Operating junction temperature range		T_j	-40~150	℃
Operating temperature range		T_{op}	-40~125	℃
Repetitive peak off-state voltage(T_j=25℃)		V_{DRM}	1600	V
Repetitive peak reverse voltage(T_j=25℃)		V_{RRM}	1600	V
Average on-state current		$I_{T(AV)}$	60	A
RMS on-state current	TO-247S (T_C=90℃)	$I_{T(RMS)}$	90	A
Non repetitive surge peak on-state current (tp=10ms)		I_{TSM}	1150	A
I^2t value for fusing (tp=10ms)		I^2t	6610	A^2s
Critical rate of rise of on-state current (I_G=2×I_{GT})		dI/dt	200	A/μs
Peak gate current		I_{GM}	10	A
Average gate power dissipation		$P_{G(AV)}$	2	W

Peak gate power	P_{GM}	20	W
Peak pulse voltage (Tj=25℃; non-repetitive,off-state;FIG.7)	Vpp	1.5	kV

ELECTRICAL CHARACTERISTICS (T_j=25℃ unless otherwise specified)

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
I_{GT}	V_D=12V R_L=33Ω	10	-	80	mA
V_{GT}		-	-	1.5	V
V_{GD}	V_D=V_{DRM} T_j=150℃ R_L=3.3KΩ	0.25	-	-	V
I_L	I_G=1.2I_{GT}	-	-	250	mA
I_H	I_T=1A	-	-	150	mA
dv/dt	V_D=2/3V_{DRM} Gate Open T_j=150℃	1500	-	-	V/μs
t_{on}	I_G=80mA I_A=400mA I_R=40mA T_j=25℃	-	7	-	μs
t_{off}		-	200	-	μs

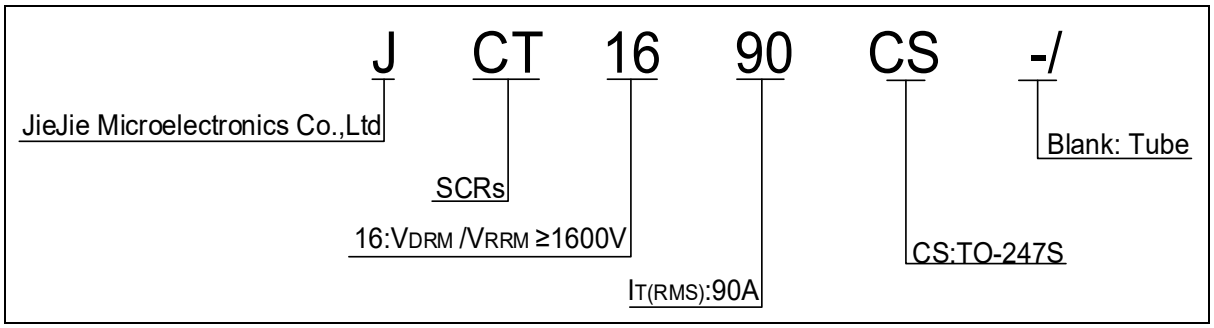
STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
V_{TM}	I_{TM}=130A tp=380μs	T_j=25℃	1.6	V
V_{TO}	Threshold voltage	T_j=150℃	0.98	V
R_D	Dynamic resistance	T_j=150℃	4.37	mΩ
I_{DRM}	V_D=V_{DRM} V_R=V_{RRM}	T_j=25℃	10	μA
I_{RRM}		T_j=150℃	10	mA

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TO-247S	0.5	℃/W

ORDERING INFORMATION



MARKING

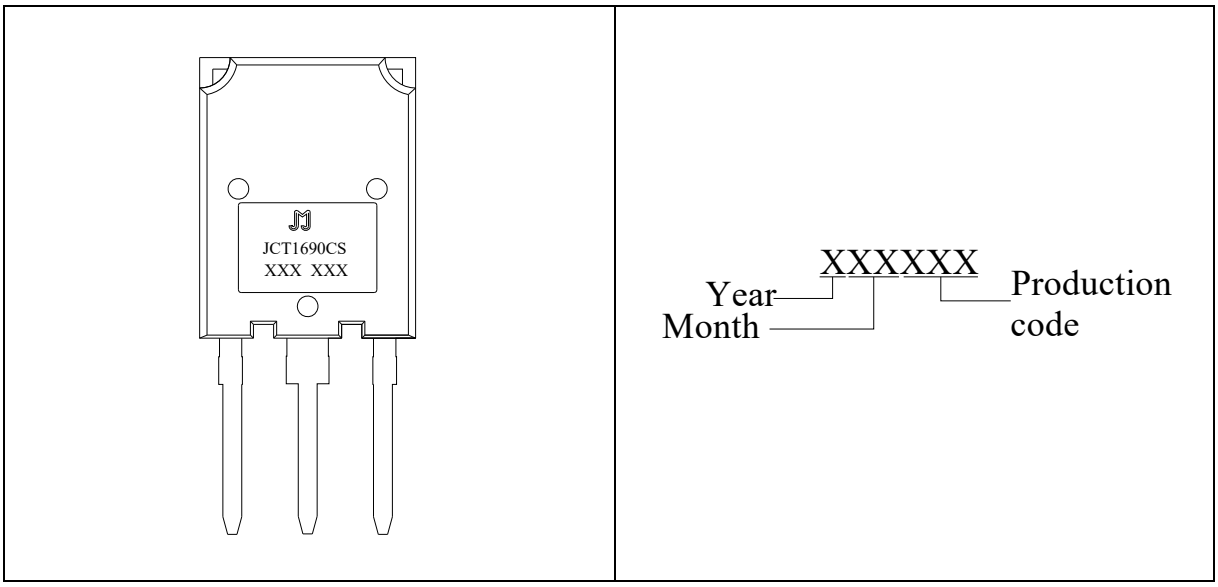


FIG.1: Maximum power dissipation versus RMS on-state current

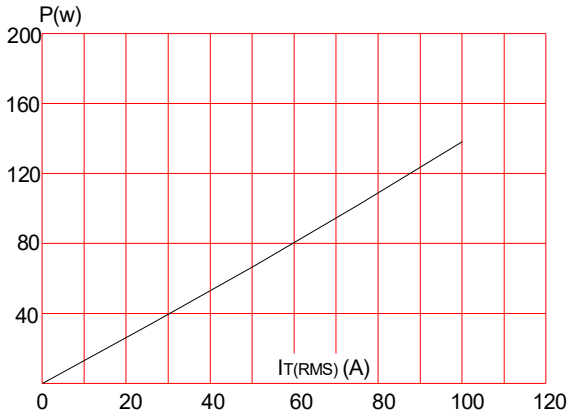


FIG.2: RMS on-state current versus case temperature

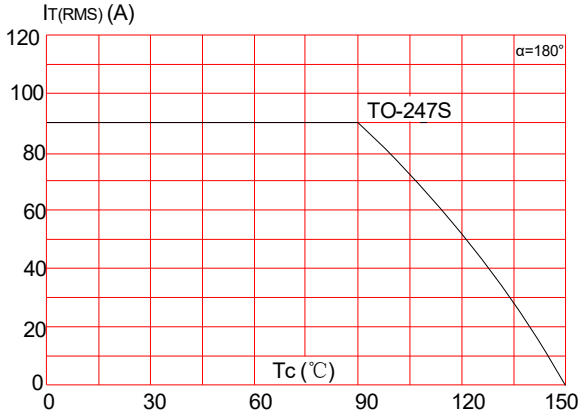


FIG.3: Surge peak on-state current versus number of cycles

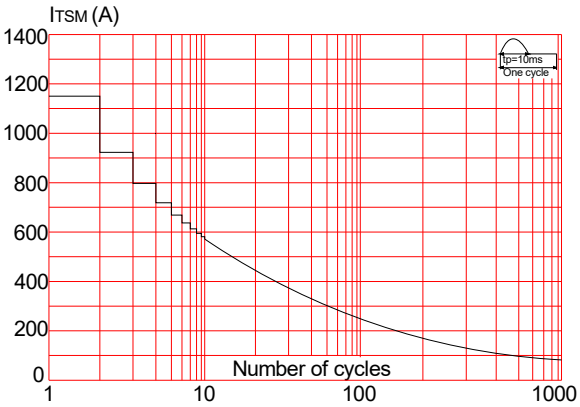


FIG.4: On-state characteristics (maximum values)

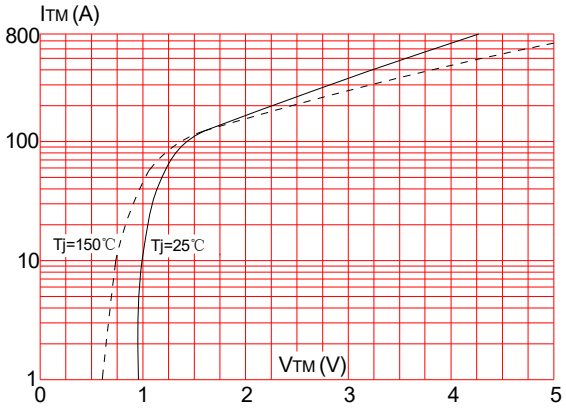


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp<10ms, and corresponging value of I²t (dI/dt < 200A/μs)

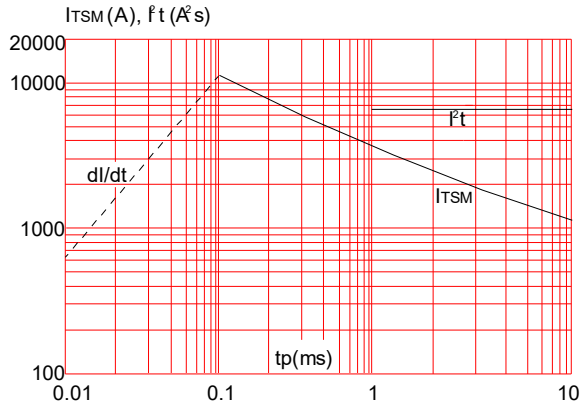


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature

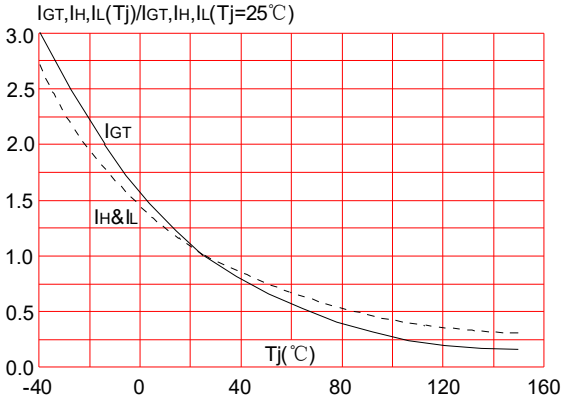
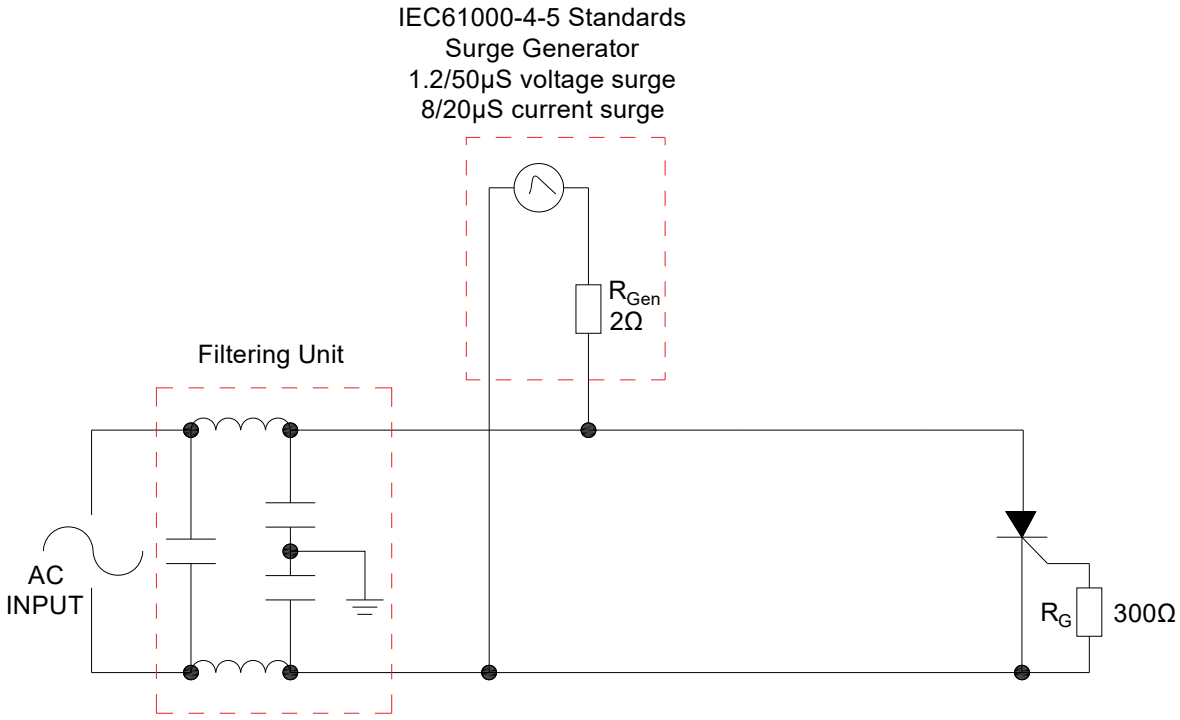


FIG.7：Test circuit for inductive and resistive loads to IEC-61000-4-5 standards



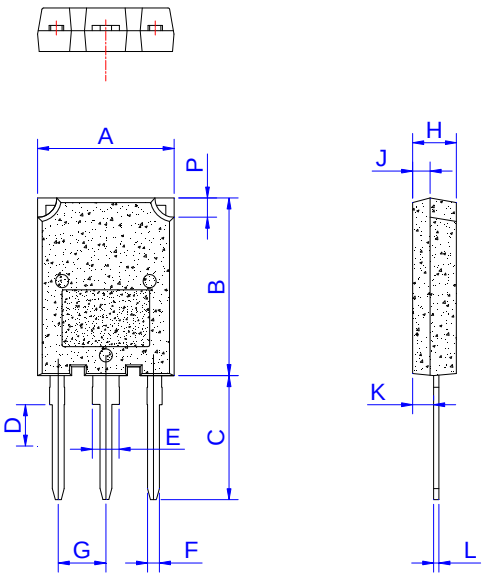
ORDERING INFORMATION

Order code	Voltage V_{DRM}/V_{RRM} (V)	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
JCT1690CS	**1600**	**10~80**	**TO-247S**	**30**	**Tube**

Document Revision History

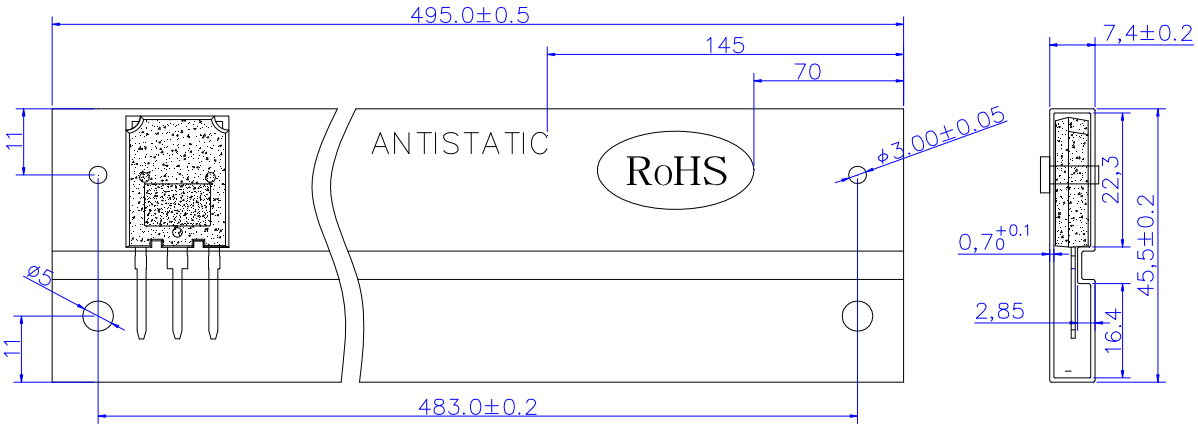
Date	Revision	Changes
Mar 23, 2022	1	Last update
Apr 26, 2022	2	Add Vpp & Renew $R_{th(j-c)}$ & FIG.2
May 26,2022	3.1	Add t_{on} & t_{off}

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

DELIVERY MODE



PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-247S	TUBE	30	450	2,250

Information furnished in this document is believed to be accurate and reliable. However, Jiangsu JieJie Microelectronics Co.,Ltd assumes no responsibility for the consequences of use without consideration for such information nor use beyond it. Information mentioned in this document is subject to change without notice, apart from that when an agreement is signed, Jiangsu JieJie complies with the agreement. Products and information provided in this document have no infringement of patents. Jiangsu JieJie assumes no responsibility for any infringement of other rights of third parties which may result from the use of such products and information. This document supersedes and replaces all information previously supplied.

is a registered trademark of Jiangsu JieJie Microelectronics Co.,Ltd.