

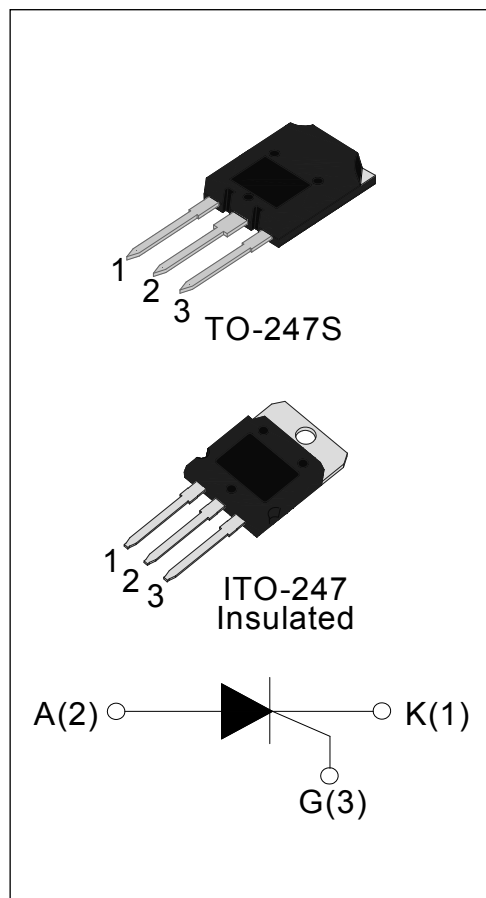


DESCRIPTION:

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). Package ITO-247 & TO-247S are RoHS compliant. (2011/65/EU)

MAIN FEATURES

Symbol	Value	Unit
I _{T(RMS)}	90	A
V _{DRM} / V _{RPM}	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 _{RPM}	1600	V
RMS on-state current	TO-247S/ ITO-247(Ins) (T _C =65°C)	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×I _{GT})		di/dt	150	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 ($T_j=25^{\circ}C$ unless otherwise specified)

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
I_{GT}	$V_D=12V R_L=33\Omega$	-	-	80	mA
V_{GT}		-	-	1.5	V
V_{GD}	$V_D=V_{DRM} T_j=125^{\circ}C R_L=3.3K\Omega$	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 $T_j=125^{\circ}C$	1000	-	-	V/ μs

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
V_{TM}	$I_{TM}=110A t_p=380\mu s$	$T_j=25^{\circ}C$	1.8	V
V_{TO}	Threshold voltage	$T_j=125^{\circ}C$	0.95	V
R_D	Dynamic resistance	$T_j=125^{\circ}C$	7.5	m Ω
I_{DRM}	$V_D=V_{DRM} V_R=V_{RRM}$	$T_j=25^{\circ}C$	50	μA
I_{RRM}		$T_j=125^{\circ}C$	10	mA

THERMAL RESISTANCES

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

ORDERING INFORMATION

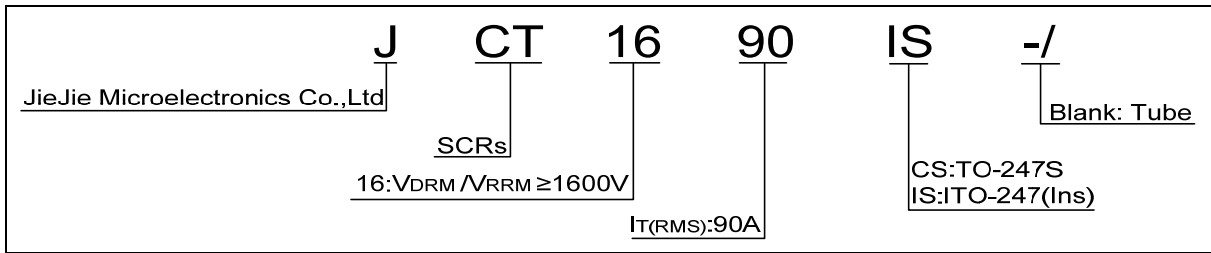


FIG.1: Maximum power dissipation versus RMS on-state current

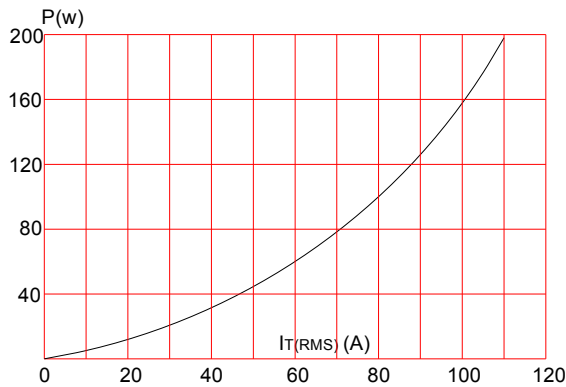


FIG.2: RMS on-state current versus case temperature

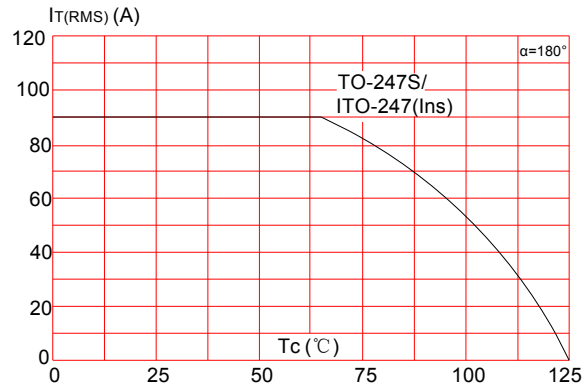


FIG.3: Surge peak on-state current versus number of cycles

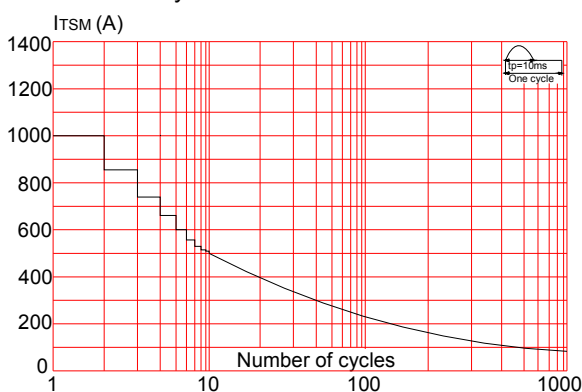


FIG.4: On-state characteristics (maximum values)

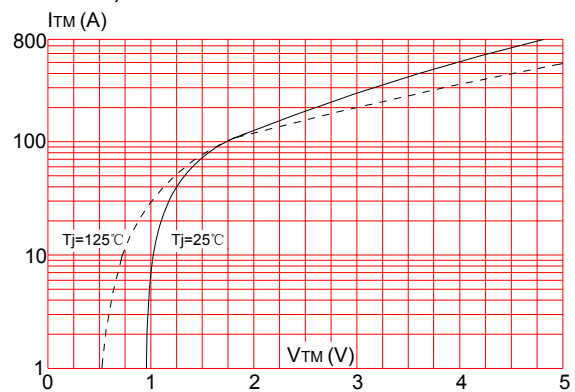


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10ms$, and corresponding value of I^2t ($dI/dt < 150A/\mu s$)

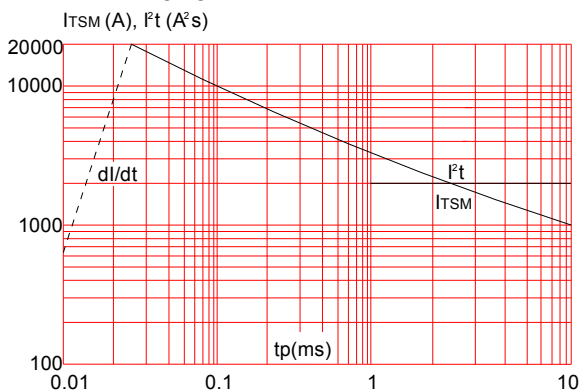
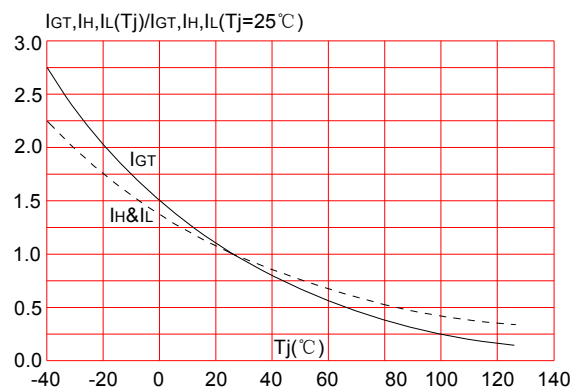


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



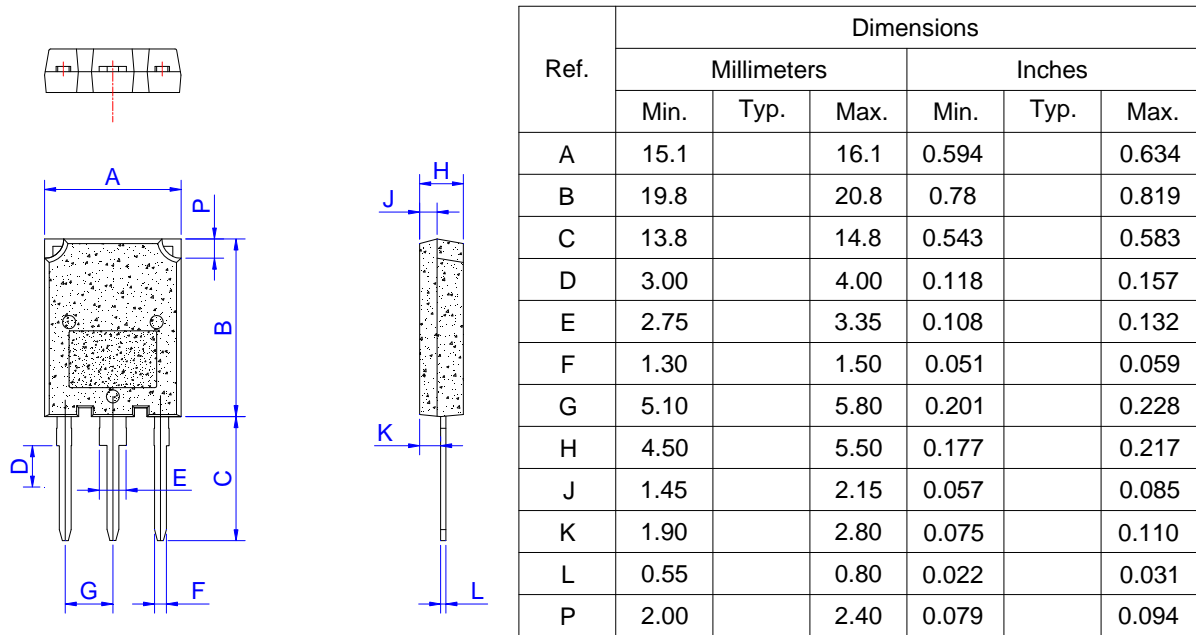
ORDERING INFORMATION

Order code	Voltage V_{DRM}/V_{RRM} (V)	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
JCT1690IS	1600	80	ITO-247	25	Tube
JCT1690CS			TO-247S	30	Tube

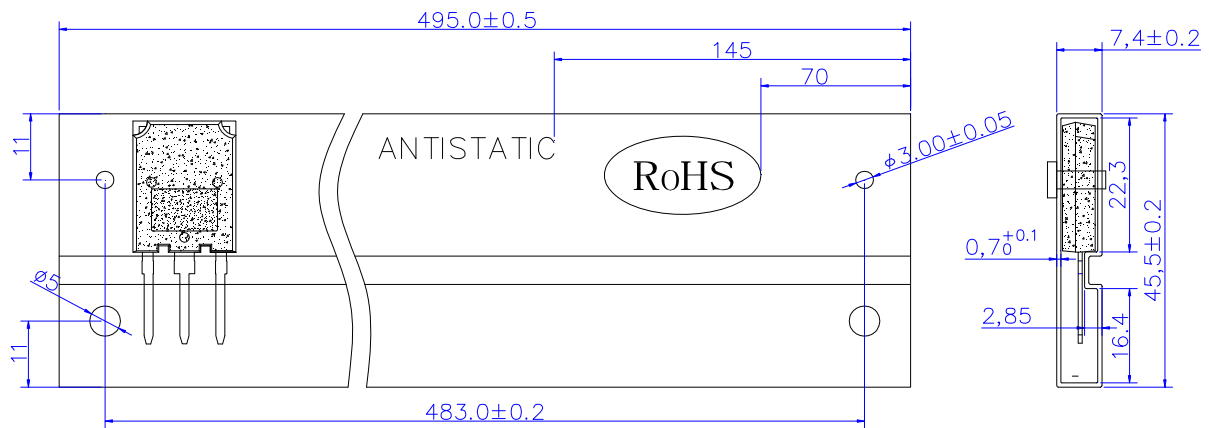
Document Revision History

Date	Revision	Changes
Oct 14, 2021	3	Last update, add V_{TO} & R_d

PACKAGE MECHANICAL DATA

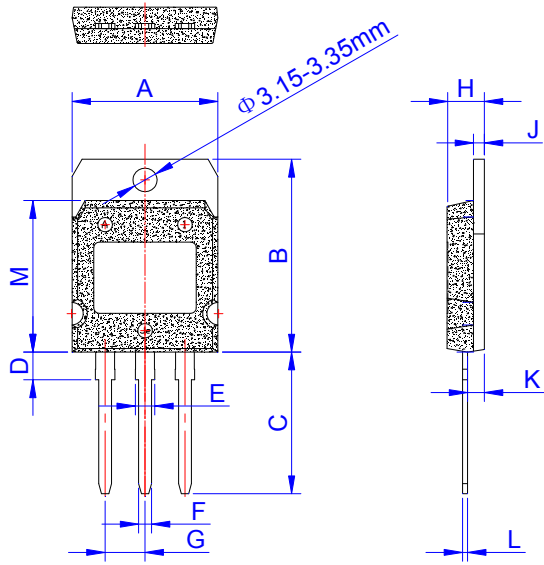


DELIVERY MODE



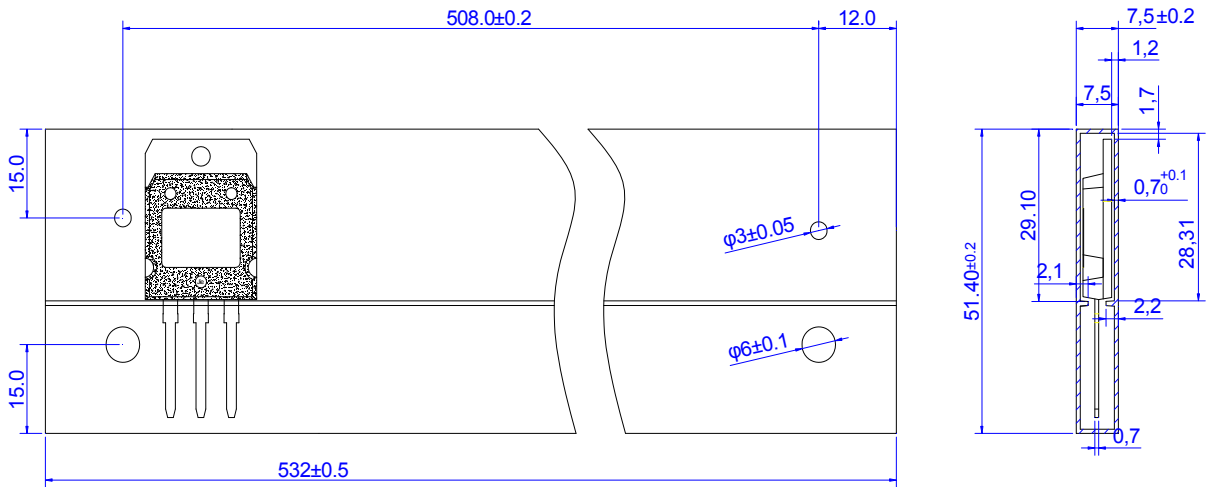
PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-247S	TUBE	30	450	2,250

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	3.80	3.90	4.00	0.150	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	5.50	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


DELIVERY MODE



PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
ITO-247	TUBE	25	400	1,600



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