

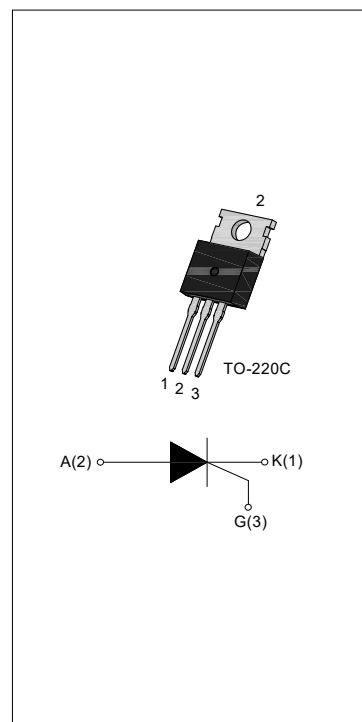


DESCRIPTION:

With high ability to withstand the shock loading of large current, JCT151C-650R of silicon controlled rectifiers 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. complying with UL standards (File ref: E252906). Package TO-220C is RoHS compliant. (2011/65/EU)

MAIN FEATURES

Symbol	Value	Symbol
V_{DRM}/V_{RRM}	650	V
$I_{T(RMS)}$	12	A
I_{GT}	≤ 15	mA



ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Storage junction temperature range	T_{stg}	-40 - 150	$^{\circ}C$
Operating junction temperature range	T_j	-40 - 125	$^{\circ}C$
Repetitive peak off-state voltage ($T_j=25^{\circ}C$)	V_{DRM}	650	V
Repetitive peak reverse voltage ($T_j=25^{\circ}C$)	V_{RRM}	650	V
RMS on-state current	TO-220C(Non-Ins) ($T_C=100^{\circ}C$) $I_{T(RMS)}$	12	A
Non repetitive surge peak on-state current ($F=50Hz$ $t_p=10ms$)	I_{TSM}	120	A
Non repetitive surge peak on-state current ($F=60Hz$ $t_p=8.3ms$)	I_{TSM}	132	A
I^2t value for fusing ($t_p=10ms$)	I^2t	72	A^2s
Repetitive rate of rise of on-state current ($I_G=2 \times I_{GT}$)	di/dt	100	$A/\mu s$
Peak gate current	I_{GM}	2	A
Peak gate power	P_{GM}	5	W

Average gate power dissipation	$P_{G(AV)}$	0.5	W
Peak pulse voltage ($T_j=25^\circ\text{C}$; non-repetitive, off-state; FIG.7)	V_{PP}	0.8	kV

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

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
I_{GT}	$V_D=12\text{V } R_L=33\Omega$	-	4	15	mA
V_{GT}		-	0.75	1.5	V
V_{GD}	$V_D=V_{DRM} T_j=125^\circ\text{C } R_L=3.3\text{K}\Omega$	0.2	-	-	V
I_L	$I_G=1.2I_{GT}$	-	12	40	mA
I_H	$I_T=500\text{mA}$	-	12	30	mA
dV/dt	$V_D=436\text{V}$ Gate Open $T_j=125^\circ\text{C}$	200	-	-	V/ μs

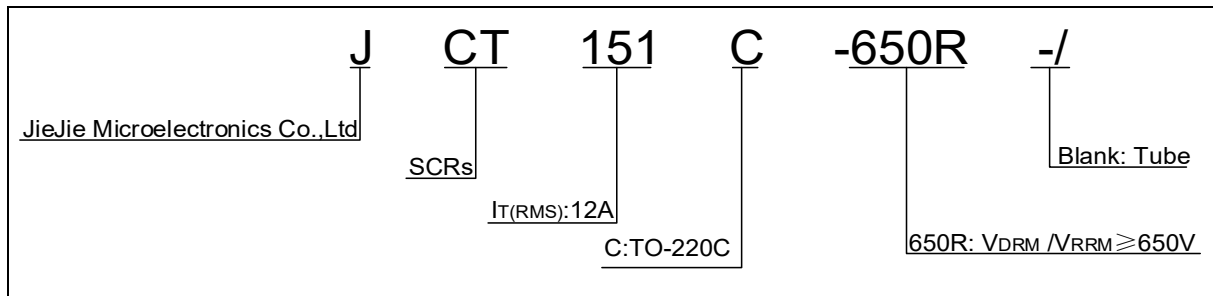
STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
V_{TM}	$I_{TM}=23\text{A } t_p=380\mu\text{s}$	$T_j=25^\circ\text{C}$	1.6	V
V_{TO}	Threshold voltage	$T_j=125^\circ\text{C}$	0.85	V
R_d	Dynamic resistance	$T_j=125^\circ\text{C}$	30	$\text{m}\Omega$
I_{DRM}	$V_D=V_{DRM} V_R=V_{RRM}$	$T_j=25^\circ\text{C}$	10	μA
I_{RRM}		$T_j=125^\circ\text{C}$	1	mA

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	Junction to case	TO-220C(Non-Ins)	2	$^\circ\text{C}/\text{W}$

ORDERING INFORMATION



MARKING

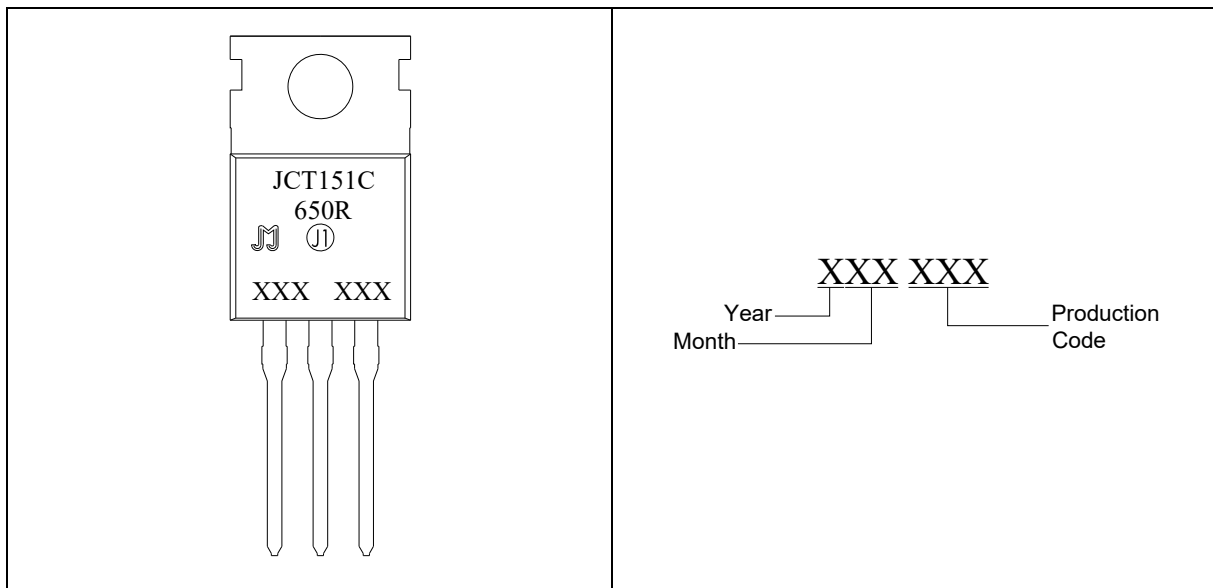


FIG.1: Maximum power dissipation versus RMS on-state current

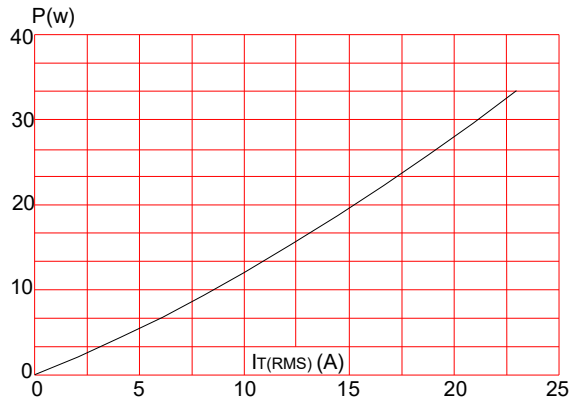


FIG.3: Surge peak on-state current versus number of cycles

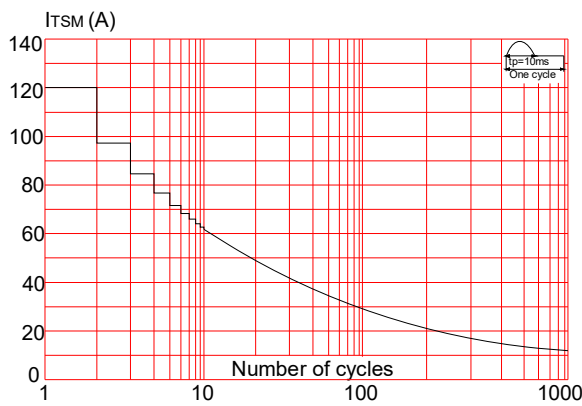


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I^2t ($di/dt < 50\text{A}/\mu\text{s}$)

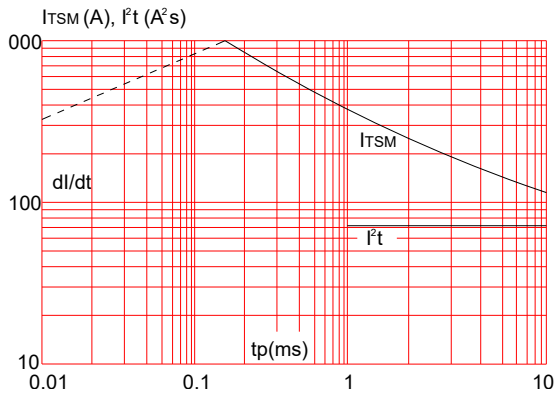


FIG.2: RMS on-state current versus case temperature

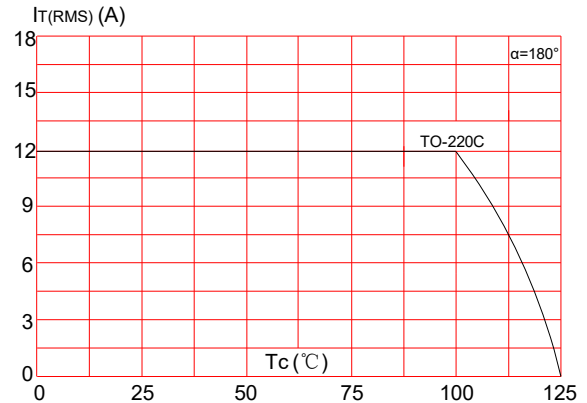


FIG.4: On-state characteristics (maximum values)

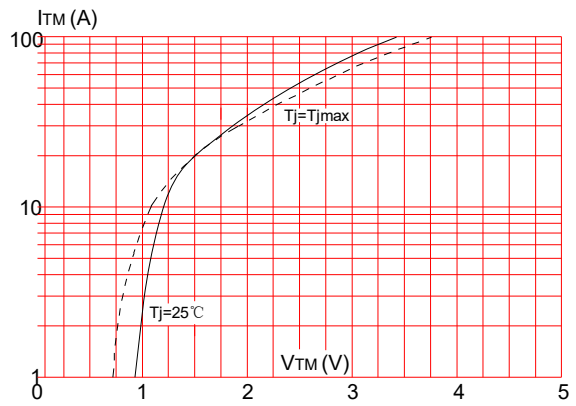


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature

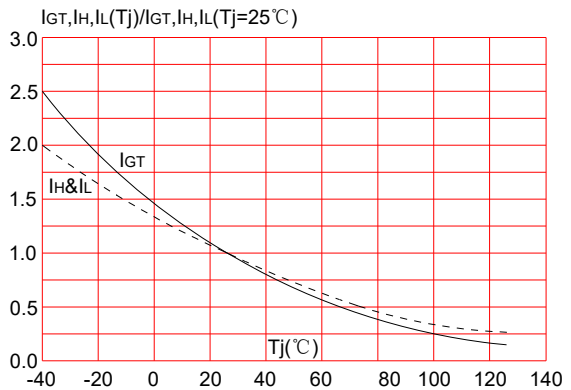
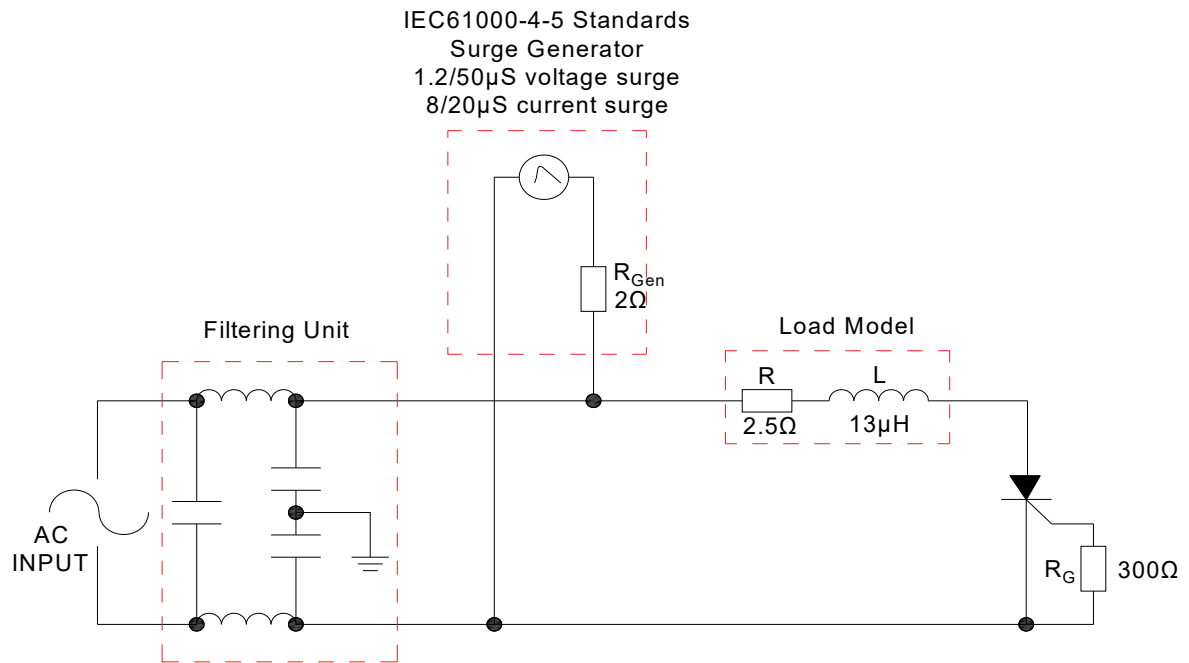


FIG.7: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards.



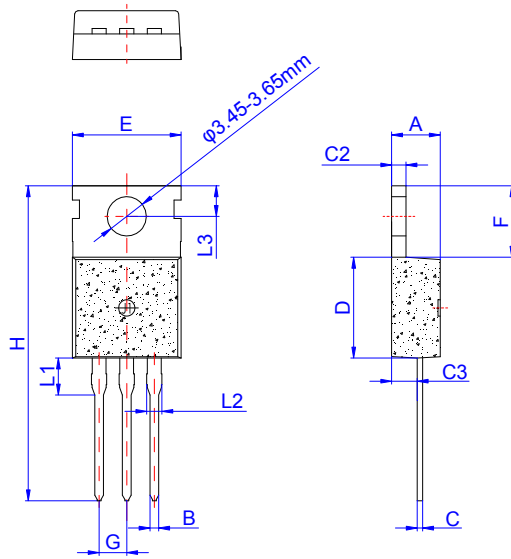
ORDERING INFORMATION

Order code	Voltage V_{DRM}/V_{RRM} (V)	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
JCT151C-650R	650	15	TO-220C	50	Tube

Document Revision History

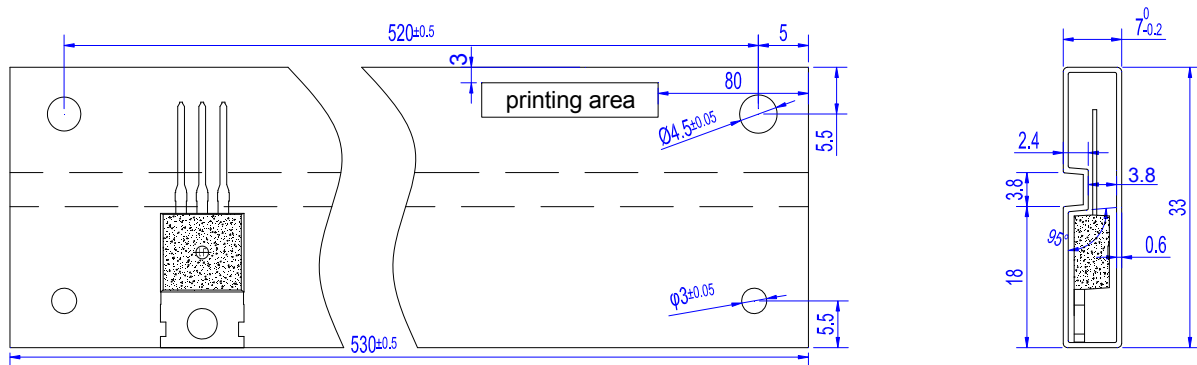
Date	Revision	Changes
Mar 23, 2022	1	Last update

PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.70		0.90	0.028		0.035
C	0.45		0.60	0.018		0.024
C2	1.23		1.32	0.048		0.052
C3	2.20		2.60	0.087		0.102
D	8.90		9.90	0.350		0.390
E	9.90		10.3	0.390		0.406
F	6.30		6.90	0.248		0.272
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.39			0.133	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116


DELIVERY MODE



PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-220C	TUBE	50	1,000	5,000



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