



JCT640CH 40A SCR

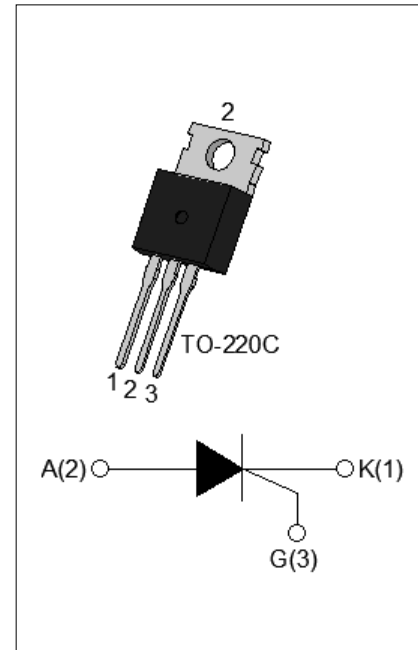
Rev.A.1.1

DESCRIPTION:

With high ability to withstand the shock loading of large current, JCT640CH SCR provides high dV/dt rate with strong resistance to electromagnetic interference. It is especially recommended for use on solid state relay, motorcycle, power charger, T-tools etc. Package TO-220C is RoHS compliant.

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	40	A
V_{DRM}/V_{RRM}	600	V
I_{GT}	≤ 35	mA



ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Storage junction temperature range	T_{stg}	-40-150	$^{\circ}C$
Operating junction temperature range	T_j	-40-150	$^{\circ}C$
Repetitive peak off-state voltage ($T_j=25^{\circ}C$)	V_{DRM}	600	V
Repetitive peak reverse voltage ($T_j=25^{\circ}C$)	V_{RRM}	600	V
Average on-state current ($T_c \leq 134^{\circ}C$)	$I_{T(AV)}$	25	A
RMS on-state current ($T_c \leq 134^{\circ}C$)	$I_{T(RMS)}$	40	A
Non repetitive surge peak on-state current ($t_p=10ms, T_j=25^{\circ}C$)	I_{TSM}	500	A
Non repetitive surge peak on-state current ($t_p=8.3ms, T_j=25^{\circ}C$)		540	
I^2t value for fusing ($t_p=10ms, T_j=25^{\circ}C$)	I^2t	1250	A^2s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}, f=100Hz, T_j=150^{\circ}C$)	di/dt	180	$A/\mu s$
Peak gate current ($t_p=20\mu s, T_j=150^{\circ}C$)	I_{GM}	10	A
Average gate power dissipation ($T_j=150^{\circ}C$)	$P_{G(AV)}$	1	W

Peak gate power	P_{GM}	20	W
Peak pulse voltage ($T_j=25^{\circ}\text{C}$; non-repetitive, off-state; FIG.7)	V_{pp}	0.5	kV

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

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
I_{GT}	$V_D=12\text{V}$ $R_L=33\Omega$	-	-	35	mA
V_{GT}		-	-	1	V
V_{GD}	$V_D=V_{DRM}$ $T_j=150^{\circ}\text{C}$ $R_L=3.3\text{k}\Omega$	0.2	-	-	V
I_L	$I_G=1.2I_{GT}$	-	-	80	mA
I_H	$I_T=500\text{mA}$	-	-	70	mA
dV/dt	$V_D=400\text{V}$ Gate Open $T_j=125^{\circ}\text{C}$	1300	-	-	V/ μs
	$V_D=400\text{V}$ Gate Open $T_j=150^{\circ}\text{C}$	700	-	-	
t_{on}	$I_G=40\text{mA}$ $I_A=400\text{mA}$ $I_R=40\text{mA}$ $T_j=25^{\circ}\text{C}$	-	2	-	μs
t_{off}		-	60	-	

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$I_{TM}=80\text{A}$ $t_p=380\mu\text{s}$	$T_j=25^{\circ}\text{C}$	1.55	V
V_{TO}	Threshold voltage	$T_j=150^{\circ}\text{C}$	0.65	V
R_D	Dynamic resistance	$T_j=150^{\circ}\text{C}$	17	m Ω
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^{\circ}\text{C}$	5	μA
I_{RRM}		$T_j=150^{\circ}\text{C}$	8	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (DC)	0.3	$^{\circ}\text{C/W}$
$R_{th(j-a)}$	junction to ambient (DC)	60	$^{\circ}\text{C/W}$

ORDERING INFORMATION

J	CT	6	40	C	H
JieJie Microelectronics Co., Ltd.	SCRs			C:TO-220C	High junction temperature
		6: $V_{DRM}/V_{RRM} \geq 600V$	IT(RMS):40A		

MARKING

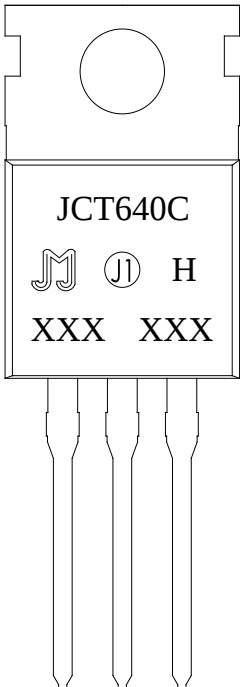
 Diagram showing the marking on the JCT640C package. The marking includes the part number JCT640C, a stylized logo, the letters J1 and H, and two sets of three X's (XXX XXX).	XXX XXX Year _____ Month _____ Production Code
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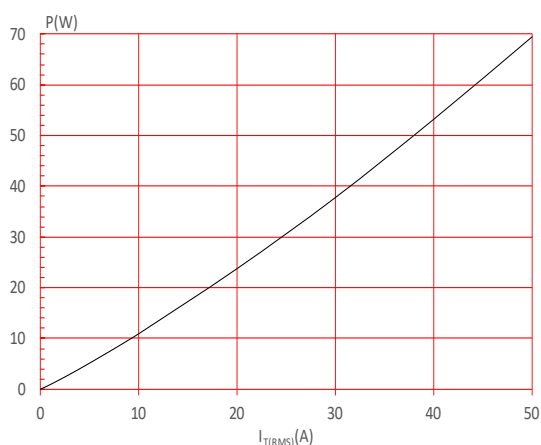
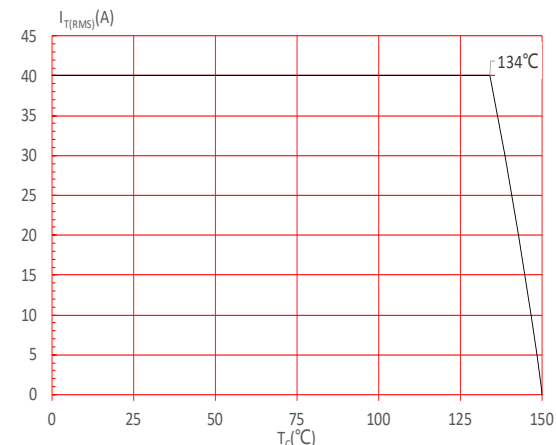
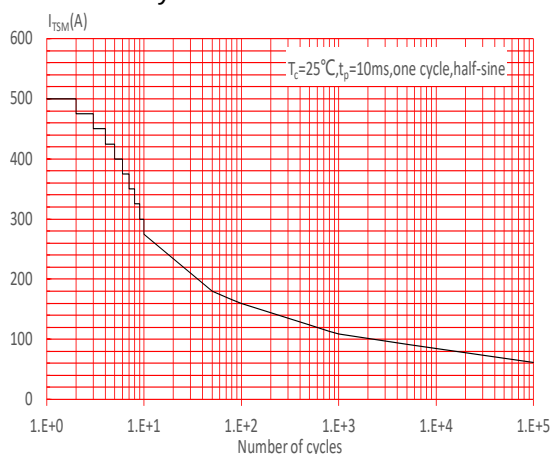
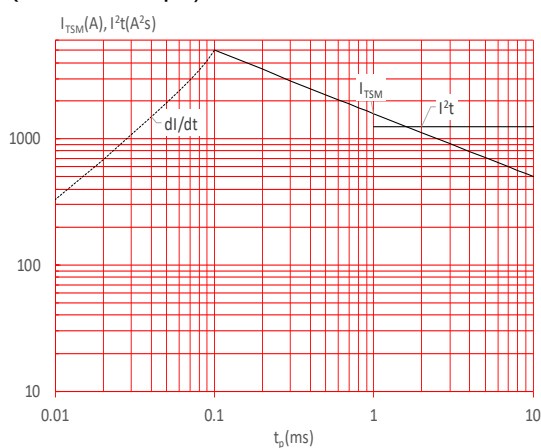
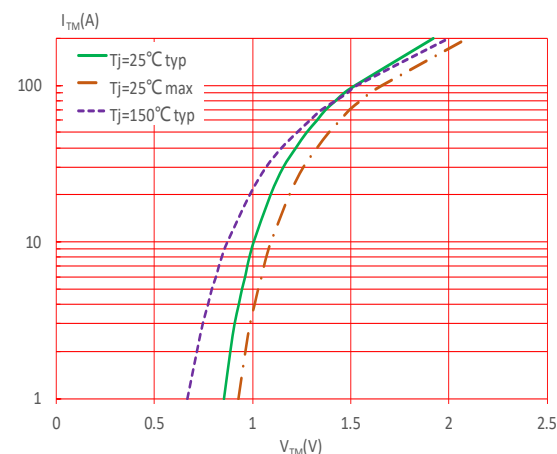
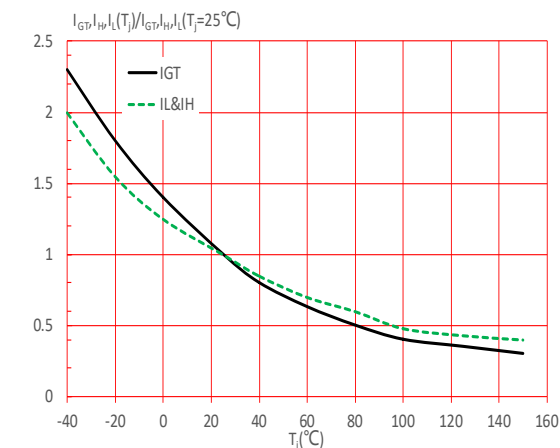
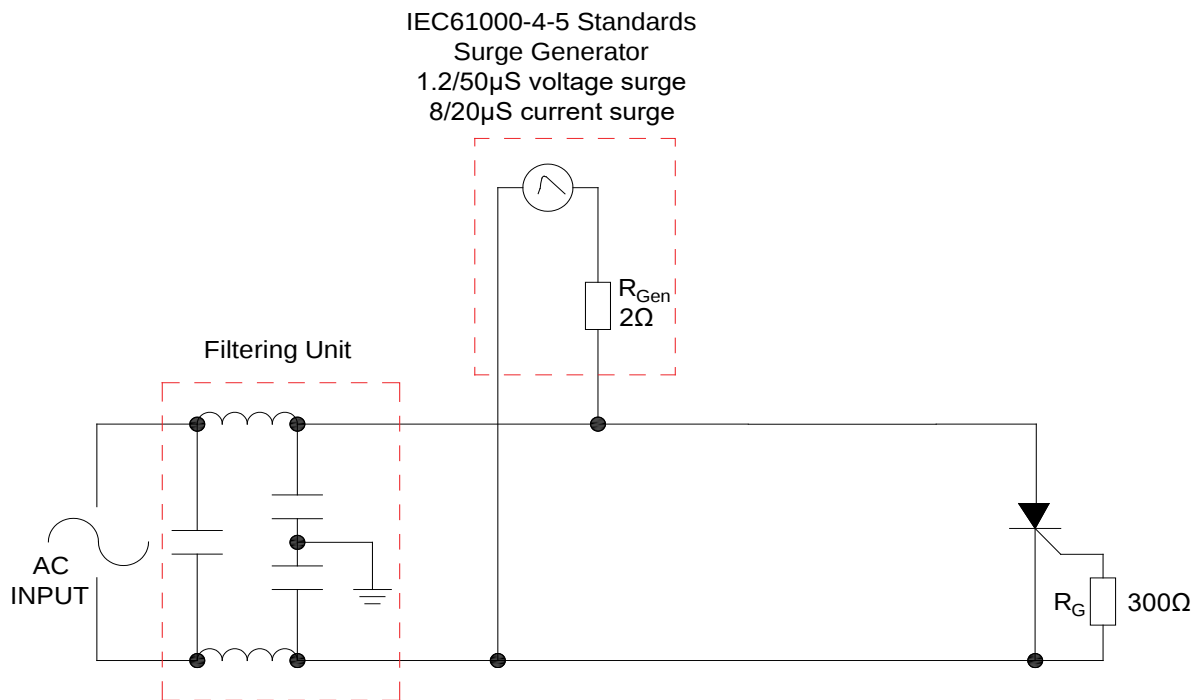
FIG.1: Maximum power dissipation versus RMS on-state current**FIG.2:** RMS on-state current versus case temperature**FIG.3:** Surge peak on-state current versus number of cycles**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10ms$, and corresponding value of I^2t ($di/dt < 150A/\mu s$)**FIG.4:** On-state characteristics**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.



LEAD FORMING AND SOLDERING

Refer to the application note "Assembly Instructions for Thyristors in Through-hole Package" released by JieJie Microelectronics

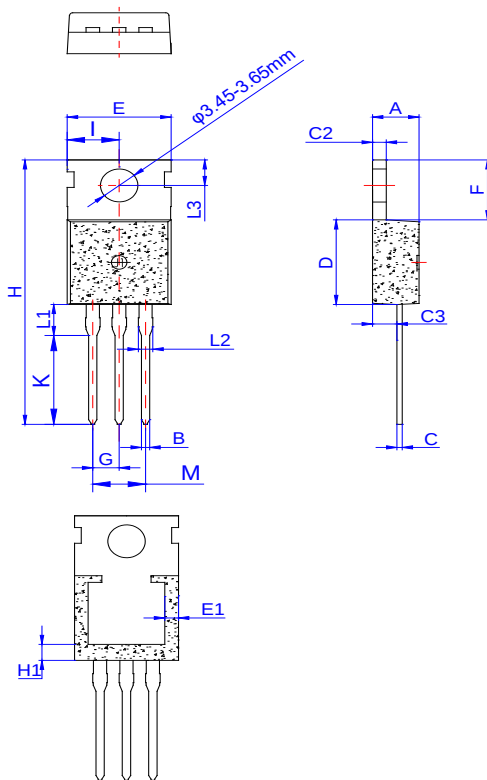
ORDERING INFORMATION

Order code	Voltage $V_{\text{DRM}}/V_{\text{RRM}}$ (V)	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
JCT640CH	600	35	TO-220C	50	Tube

Document Revision History

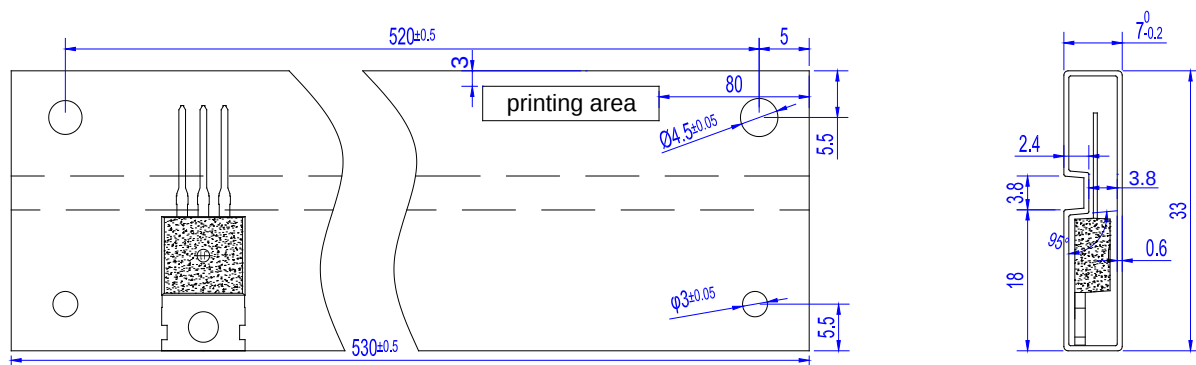
Date	Revision	Changes
Jun.12, 2023	A.1.0	Last update
Oct.14, 2025	A.1.1	Revise PACKAGE MECHANICAL DATA

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	1.25		1.35	0.049		0.053
C3	2.20		2.60	0.087		0.102
D	8.90		9.90	0.350		0.390
E	9.90		10.30	0.390		0.406
E1	0.80		1.20	0.031		0.047
F	6.30		6.90	0.248		0.272
G	2.40		2.70	0.094		0.106
H	28.00		29.80	1.102		1.173
H1	2.15		2.55	0.085		0.100
I	4.70		5.10	0.185		0.201
K	9.90		10.30	0.390		0.406
L1	2.70		3.30	0.106		0.130
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
M	4.80		5.20	0.189		0.205

DELIVERY MODE



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

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