



JCT1640A 40A SCR

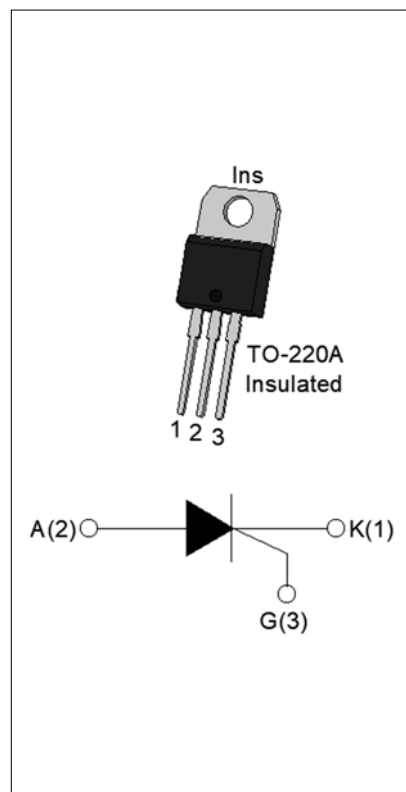
Rev.A.1.0

DESCRIPTION:

With high ability to withstand the shock loading of large current, JCT1640A 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. From all three terminals to external heatsink, JCT1640A provides a rated insulation voltage of 2500 V_{RMS}, complying with UL standards (File ref: E252906). Package TO-220A is RoHS compliant.

MAIN FEATURES

Symbol	Value	Unit
I _{T(RMS)}	40	A
V _{DRM} /V _{RRM}	1600	V
I _{GT}	≤45	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 _{RRM}	1600	V
Average on-state current (T _c ≤54°C)	I _{T(AV)}	25	A
RMS on-state current (T _c ≤54°C)	I _{T(RMS)}	40	A
Non repetitive surge peak on-state current (t _p =10ms, T _j =25°C)	I _{TSM}	400	A
Non repetitive surge peak on-state current (t _p =8.3ms, T _j =25°C)		430	
I ² t value for fusing (t _p =10ms, T _j =25°C)	I ² t	800	A ² s
Critical rate of rise of on-state current (I _G =2×I _{GT} , f=100Hz, T _j =125°C)	di/dt	200	A/μs

Peak gate current ($t_p=20\mu s$, $T_j=125^\circ C$)	I_{GM}	10	A
Average gate power dissipation ($T_j=125^\circ C$)	$P_{G(AV)}$	1	W
Peak gate power	P_{GM}	20	W
Peak pulse voltage ($T_j=25^\circ C$; non-repetitive,off-state;FIG.7)	V_{pp}	1.2	kV

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

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
I_{GT}	$V_D=12V R_L=33\Omega$	-	-	45	mA
V_{GT}		-	-	1	V
V_{GD}	$V_D=V_{DRM} T_j=125^\circ C R_L=3.3K\Omega$	0.2	-	-	V
I_L	$I_G=1.2I_{GT}$	-	-	150	mA
I_H	$I_T=500mA$	-	-	130	mA
dV/dt	$V_D=1070V$ Gate Open $T_j=125^\circ C$	1500	-	-	V/ μs
t_{on}	$I_G=100mA I_A=1A I_R=100mA$ $T_j=25^\circ C$	-	7	-	μs
t_{off}		-	120	-	

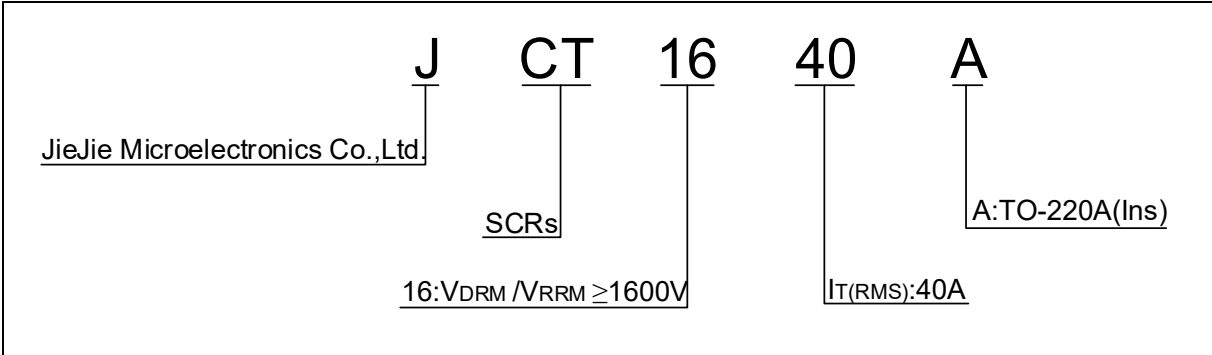
STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$I_{TM}=80A t_p=380\mu s$	$T_j=25^\circ C$	1.8	V
V_{TO}	Threshold voltage	$T_j=125^\circ C$	0.78	V
R_D	Dynamic resistance	$T_j=125^\circ C$	13	m Ω
I_{DRM}	$V_D=V_{DRM} V_R=V_{RRM}$	$T_j=25^\circ C$	10	μA
I_{RRM}		$T_j=125^\circ C$	5	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case(DC)	1.25	$^\circ C/W$
$R_{th(j-a)}$	junction to ambient (DC)	60	$^\circ C/W$

ORDERING INFORMATION



MARKING

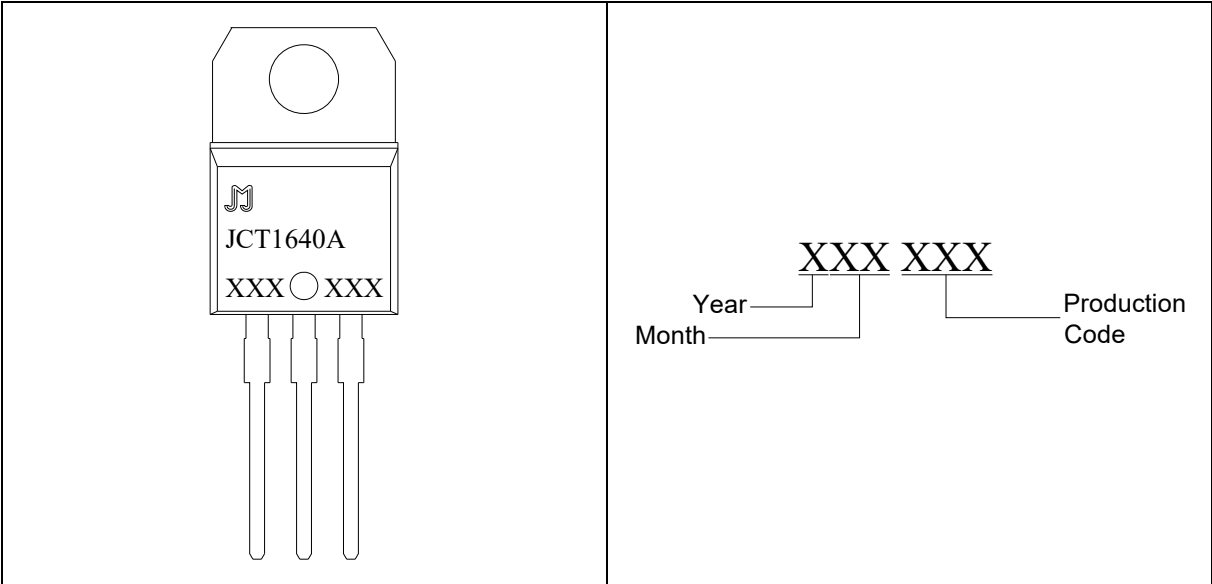


FIG.1 Maximum power dissipation versus RMS on-state current

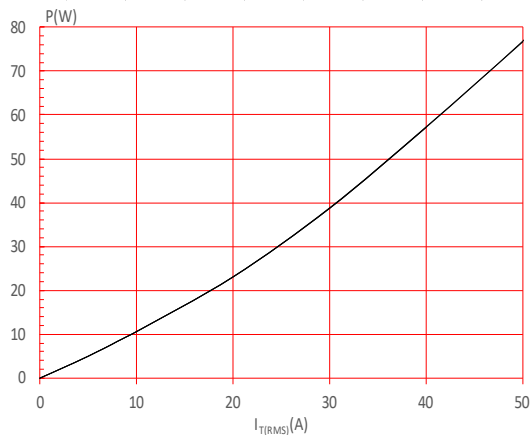


FIG.2: RMS on-state current versus case temperature

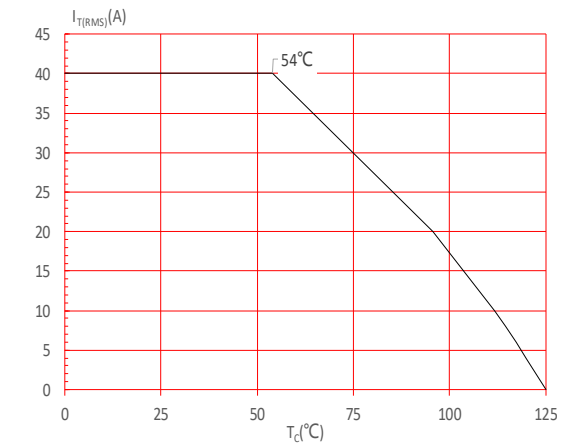


FIG.3: Surge peak on-state current versus number of cycles

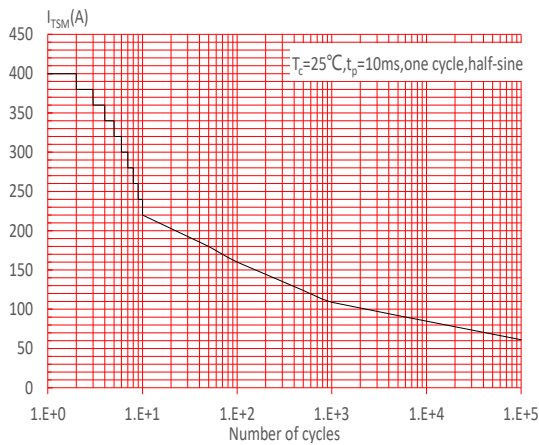


FIG.4: On-state characteristics

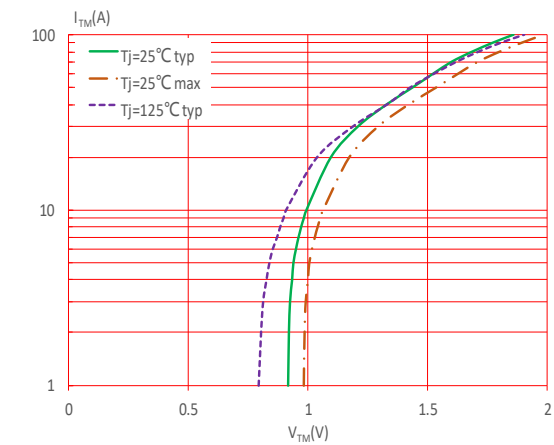


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I^2t ($dI/dt < 200\text{A}/\mu\text{s}$)

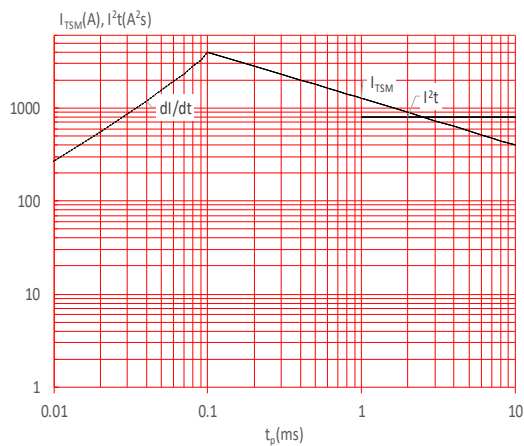


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature

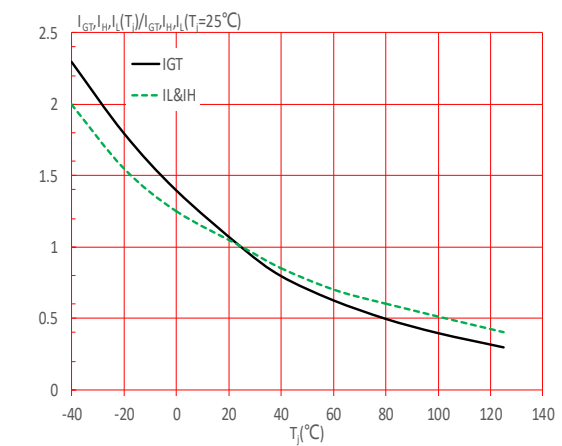
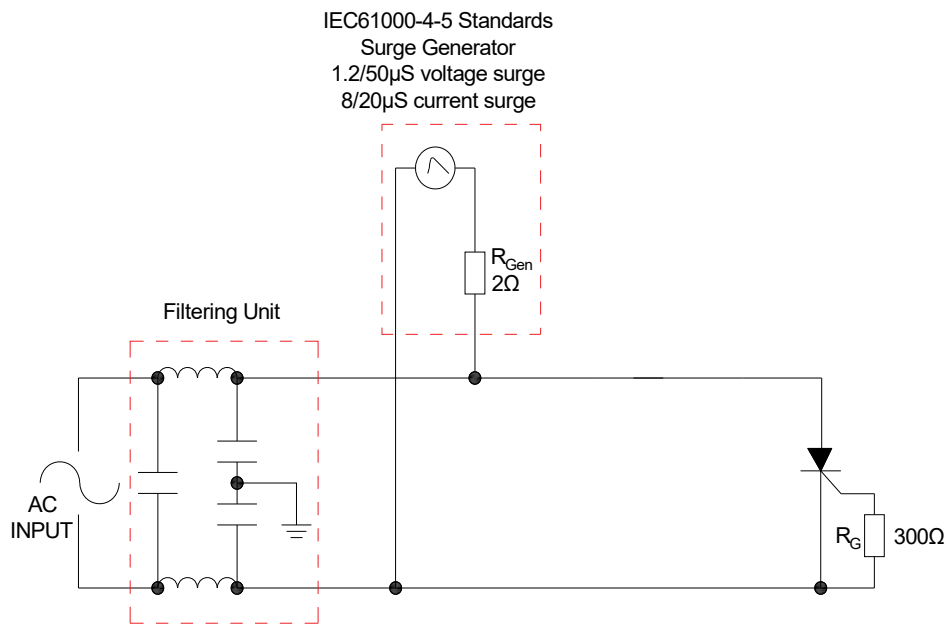


FIG.7: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards.



SHAPING AND SOLDERING PARAMETERS

Refer to 《Instructions for installation of plastic-sealed in-line power devices》 released by JieJie

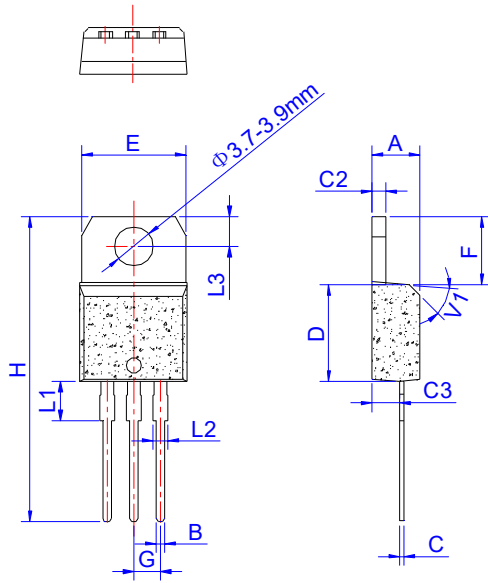
ORDERING INFORMATION

Order code	Voltage V_{DRM}/V_{RRM} (V)	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
JCT1640A	1600	45	TO-220A(Ins)	50	Tube

Document Revision History

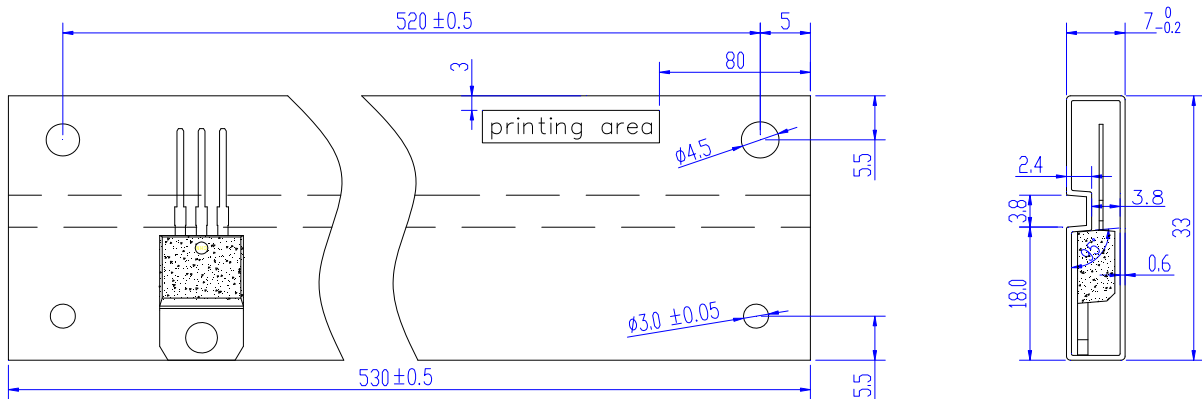
Date	Revision	Changes
Apr.13, 2023	A.1.0	Last update

PACKAGE MECHANICAL DATA




Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.80		10.4	0.386		0.409
F	6.25		6.85	0.246		0.270
G	2.40		2.70	0.094		0.106
H	28.0		29.8	1.102		1.173
L1	3.45		4.05	0.136		0.159
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
V1		45°			45°	

DELIVERY MODE



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

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