

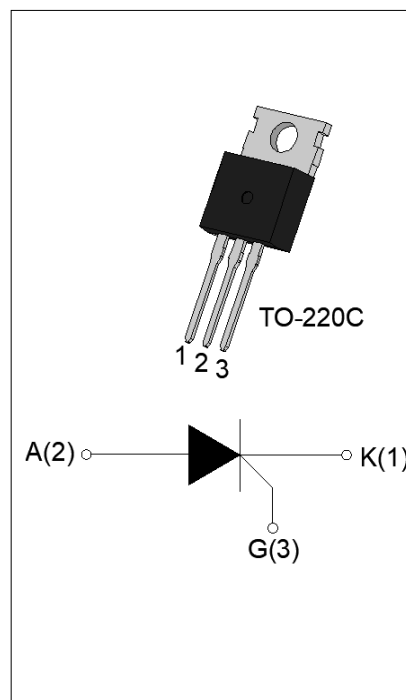


### DESCRIPTION:

With high ability to withstand the shock loading of large current, JCT1612C provides high  $dV/dt$  rate with strong resistance to electromagnetic interference. It is especially recommended for use on hair straightener, motorcycle voltage regulator etc. Package TO-220C is RoHS compliant.

### MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	12	A
$V_{DRM}/V_{RRM}$	1600	V
$I_{GT}$	$\leq 15$	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 ( $T_j=25^{\circ}C$ )	$V_{DRM}$	1600	V
Repetitive peak reverse voltage ( $T_j=25^{\circ}C$ )	$V_{RRM}$	1600	V
Average on-state current ( $T_c \leq 109^{\circ}C$ )	$I_{T(AV)}$	7.5	A
RMS on-state current ( $T_c \leq 109^{\circ}C$ )	$I_{T(RMS)}$	12	A
Non repetitive surge peak on-state current ( $t_p=10ms, T_j=25^{\circ}C$ )	$I_{TSM}$	120	A
Non repetitive surge peak on-state current ( $t_p=8.3ms, T_j=25^{\circ}C$ )		130	
$I^2t$ value for fusing ( $t_p=10ms, T_j=25^{\circ}C$ )	$I^2t$	72	$A^2s$
Critical rate of rise of on-state current ( $I_G=2 \times I_{GT}, f=100Hz, T_j=125^{\circ}C$ )	$di/dt$	100	$A/\mu s$
Peak gate current ( $t_p=20\mu s, T_j=125^{\circ}C$ )	$I_{GM}$	4	A
Average gate power dissipation ( $T_j=125^{\circ}C$ )	$P_{G(AV)}$	1	W

Peak gate power	$P_{GM}$	5	W
Peak pulse voltage ( $T_j=25^{\circ}\text{C}$ ; non-repetitive, off-state; FIG.7)	$V_{pp}$	1.8	kV

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

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
$I_{GT}$	$V_D=12\text{V}$ $R_L=33\Omega$	-	-	15	mA
$V_{GT}$		-	-	1	V
$V_{GD}$	$V_D=V_{DRM}$ $T_j=125^{\circ}\text{C}$ $R_L=3.3\text{K}\Omega$	0.2	-	-	V
$I_L$	$I_G=1.2I_{GT}$	-	-	40	mA
$I_H$	$I_T=500\text{mA}$	-	-	30	mA
dV/dt	$V_D=1070\text{V}$ Gate Open $T_j=125^{\circ}\text{C}$	3000	-	-	V/ $\mu\text{s}$
$t_{on}$	$I_G=20\text{mA}$ $I_A=200\text{mA}$ $I_R=20\text{mA}$	-	3	-	$\mu\text{s}$
$t_{off}$	$T_j=25^{\circ}\text{C}$	-	40	-	$\mu\text{s}$

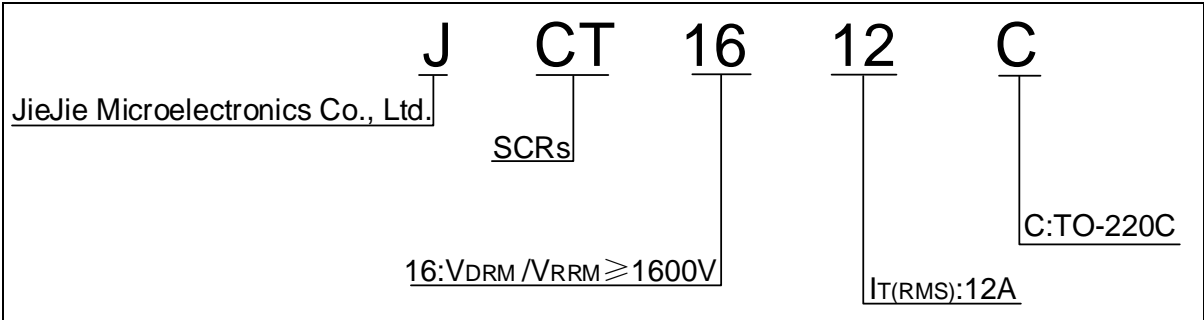
**STATIC CHARACTERISTICS**

Symbol	Parameter		Value(MAX.)	Unit
$V_{TM}$	$I_{TM}=16\text{A}$ $t_p=380\mu\text{s}$	$T_j=25^{\circ}\text{C}$	1.6	V
$V_{TO}$	Threshold voltage	$T_j=125^{\circ}\text{C}$	0.79	V
$R_D$	Dynamic resistance	$T_j=125^{\circ}\text{C}$	48	m $\Omega$
$I_{DRM}$	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^{\circ}\text{C}$	10	$\mu\text{A}$
$I_{RRM}$		$T_j=125^{\circ}\text{C}$	2	mA

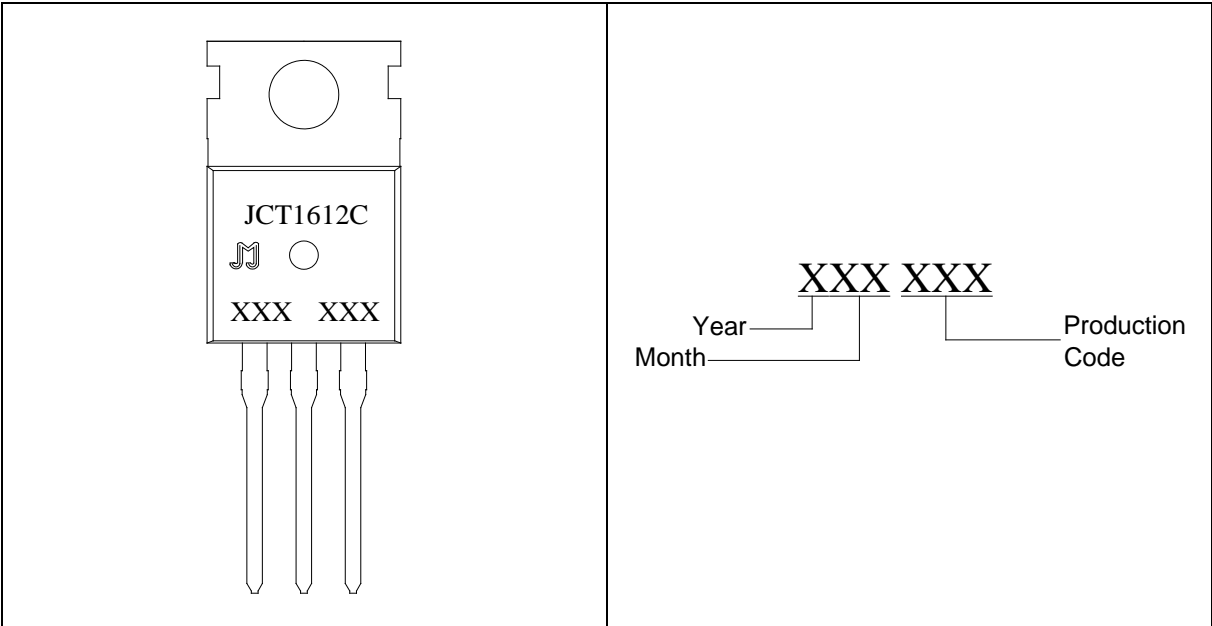
**THERMAL RESISTANCES**

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case(DC)	0.9	$^{\circ}\text{C/W}$
$R_{th(j-a)}$	junction to ambient (DC)	60	$^{\circ}\text{C/W}$

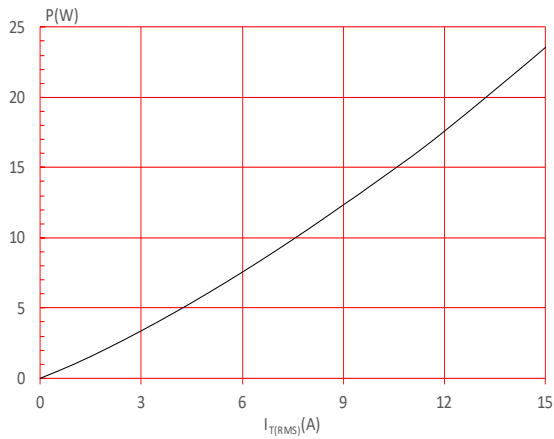
ORDERING INFORMATION



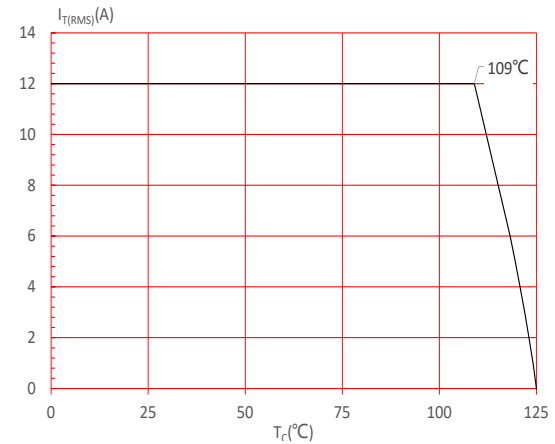
MARKING



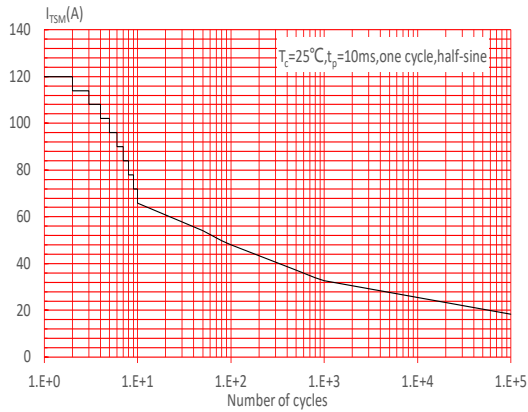
**FIG.1** Maximum power dissipation versus RMS on-state current



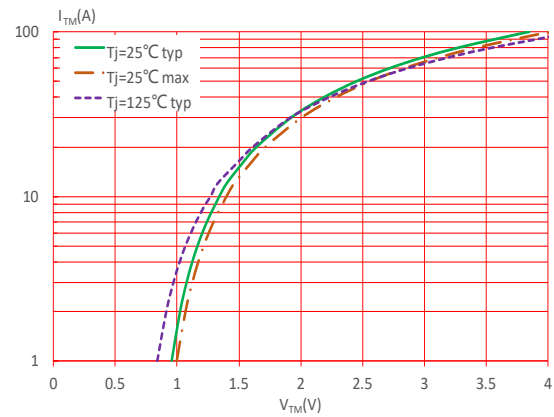
**FIG.2:** RMS on-state current versus case temperature



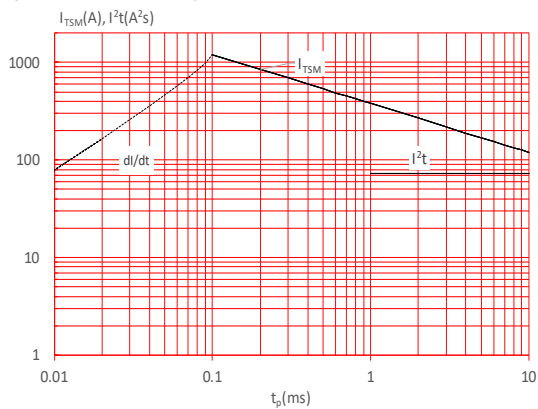
**FIG.3:** Surge peak on-state current versus number of cycles



**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  $I^2t$  ( $di/dt < 100\text{A}/\mu\text{s}$ )



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

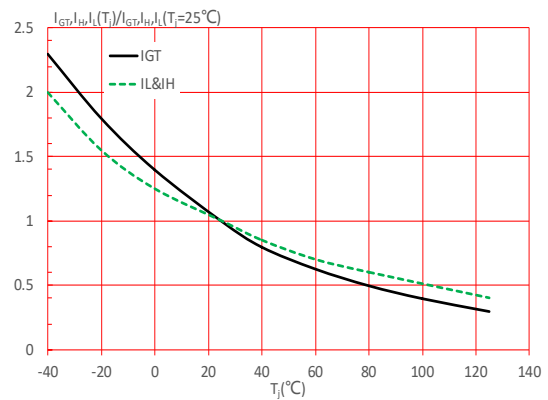
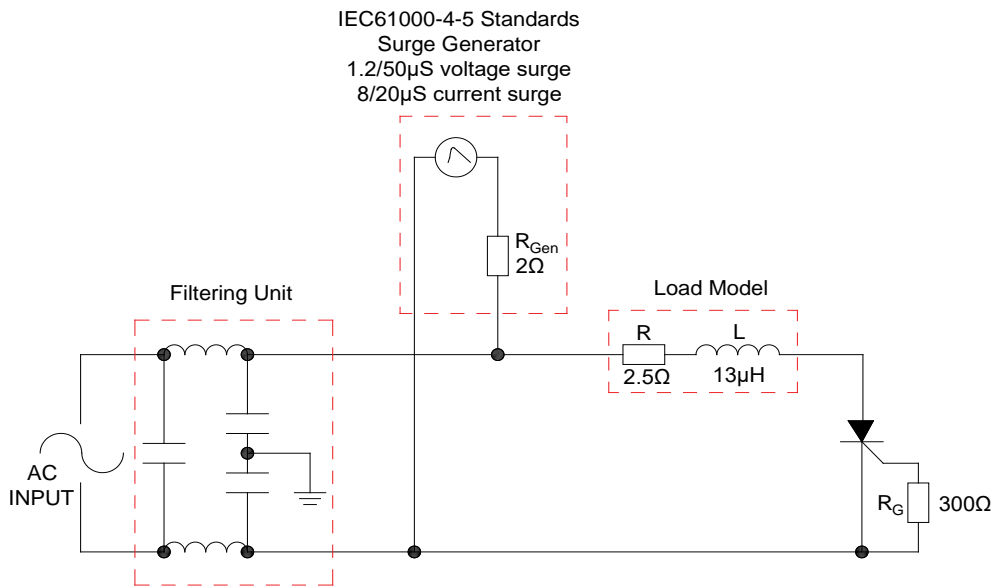


FIG.7: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards.



## SHAPING AND SOLDERING PARAMETERS

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

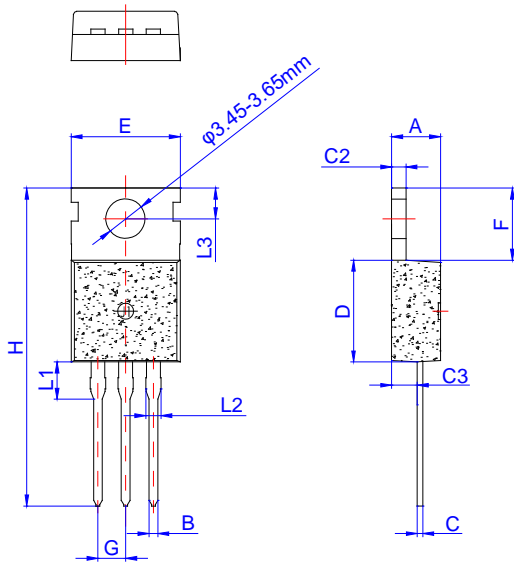
**ORDERING INFORMATION**

Order code	Voltage $V_{DRM}/V_{RRM}$ (V)	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
JCT1612C	1600	15	TO-220C	50	Tube

**Document Revision History**

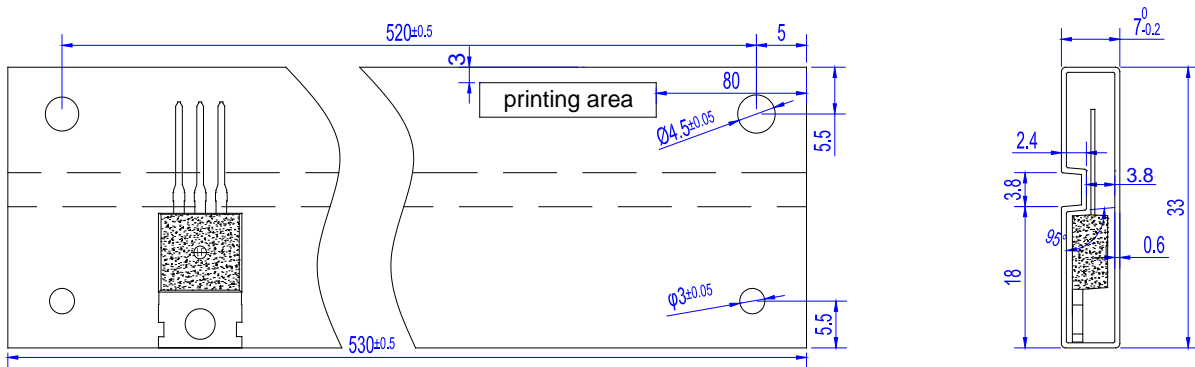
Date	Revision	Changes
Aug.10, 2023	A.1.0	Last update

**PACKAGE MECHANICAL DATA**




Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.70		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		10.3	0.390		0.406
F	6.30		6.90	0.248		0.272
G	2.40		2.70	0.094		0.106
H	28.0		29.8	1.102		1.173
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

**DELIVERY MODE**



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

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