

**JCT412B 12A SCR**

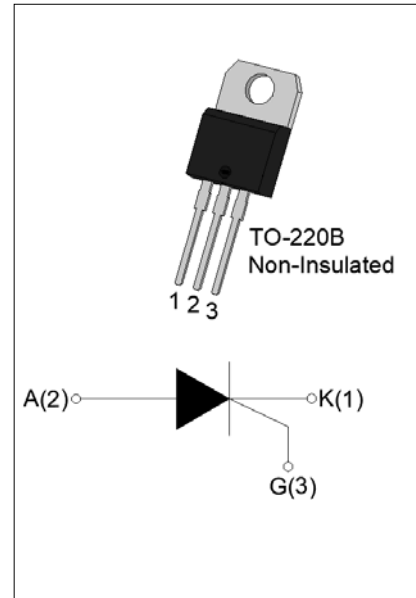
Rev.A.1.0

DESCRIPTION:

JCT412B with high ability to withstand the shock loading of large current, it is especially recommended for use on Battery Reverse Connect Protect. Package TO-220B is RoHS compliant.

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	8	A
V_{DRM}/V_{RRM}	400	V
I_{GT}	≤ 15	mA

**ABSOLUTE MAXIMUM RATINGS**

Parameter	Symbol	Value	Unit
Storage junction temperature range	T_{stg}	-40-150	$^{\circ}\text{C}$
Operating junction temperature range	T_j	-40-125	$^{\circ}\text{C}$
Repetitive peak off-state voltage ($T_j=25^{\circ}\text{C}$)	V_{DRM}	400	V
Repetitive peak reverse voltage ($T_j=25^{\circ}\text{C}$)	V_{RRM}	400	V
Average on-state current ($T_c \leq 103^{\circ}\text{C}$)	$I_{T(AV)}$	7.5	A
RMS on-state current ($T_c \leq 103^{\circ}\text{C}$)	$I_{T(RMS)}$	12	A
Non repetitive surge peak on-state current ($t_p=10\text{ms}$, $T_j=25^{\circ}\text{C}$)	I_{TSM}	90	A
Non repetitive surge peak on-state current ($t_p=8.3\text{ms}$, $T_j=25^{\circ}\text{C}$)		95	
I^2t value for fusing ($t_p=10\text{ms}$, $T_j=25^{\circ}\text{C}$)	I^2t	41	A^2s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$, $f=100\text{Hz}$, $T_j=125^{\circ}\text{C}$)	di/dt	200	$\text{A}/\mu\text{s}$
Peak gate current ($t_p=20\mu\text{s}$, $T_j=125^{\circ}\text{C}$)	I_{GM}	2	A
Average gate power dissipation ($T_j=125^{\circ}\text{C}$)	$P_{G(AV)}$	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}	0.4	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	$I_G=1.2I_{GT}$	-	-	30	mA
I_H	$I_T=100\text{mA}$	-	-	20	mA
dV/dt	$V_D=270\text{V}$ Gate Open $T_j=125^{\circ}\text{C}$	400	-	-	V/ μs
t_{on}	$I_G=20\text{mA}$ $I_A=200\text{mA}$ $I_R=20\text{mA}$ $T_j=25^{\circ}\text{C}$	-	3	-	μs
t_{off}		-	50	-	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	$T_j=125^{\circ}\text{C}$	0.9	V
R_D	Dynamic resistance	$T_j=125^{\circ}\text{C}$	25.4	$\text{m}\Omega$
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^{\circ}\text{C}$	5	μA
I_{RRM}		$T_j=125^{\circ}\text{C}$	0.2	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case(DC)	1.35	$^{\circ}\text{C}/\text{W}$
$R_{th(j-a)}$	junction to ambient (DC)	40	$^{\circ}\text{C}/\text{W}$

ORDERING INFORMATION

J	CT	4	12	B
JieJie Microelectronics Co.,Ltd.	SCRs			B:TO-220B
		4:V _{DRM} /V _{RRM} ≥400V		I _{T(RMS)} :12A

MARKING

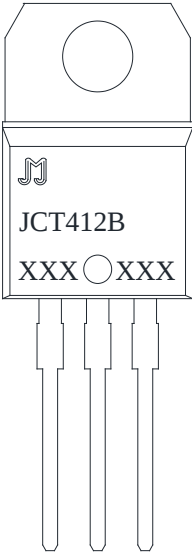
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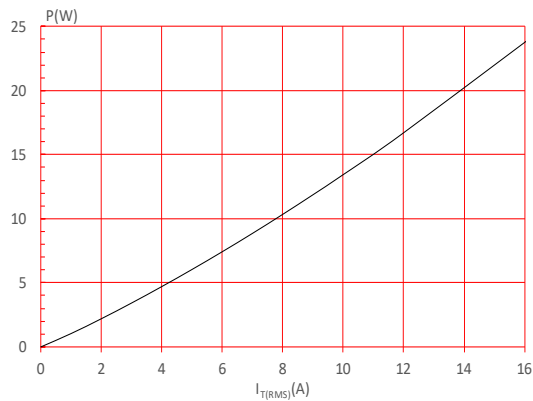
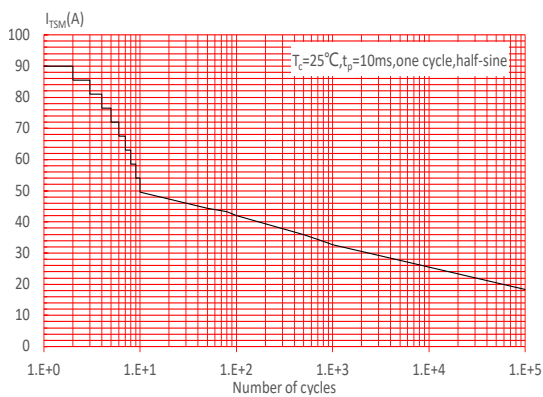
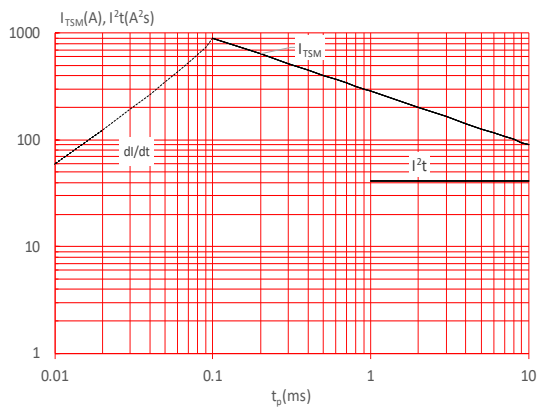
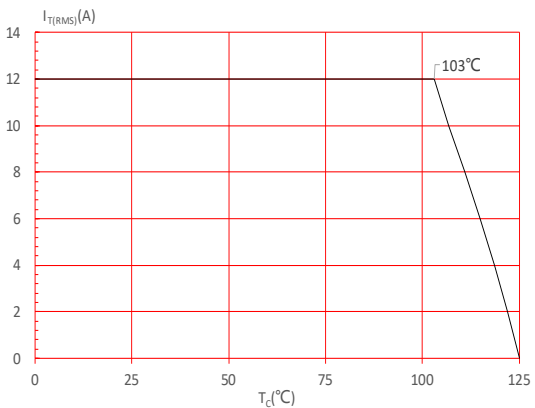
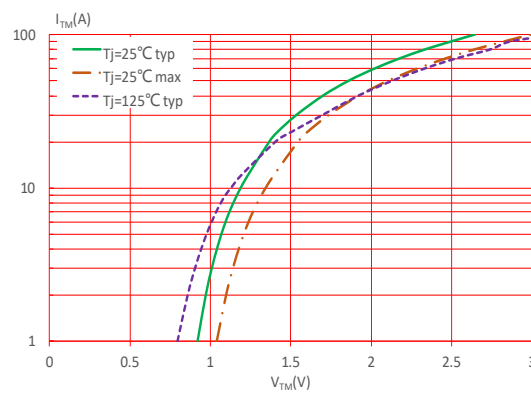
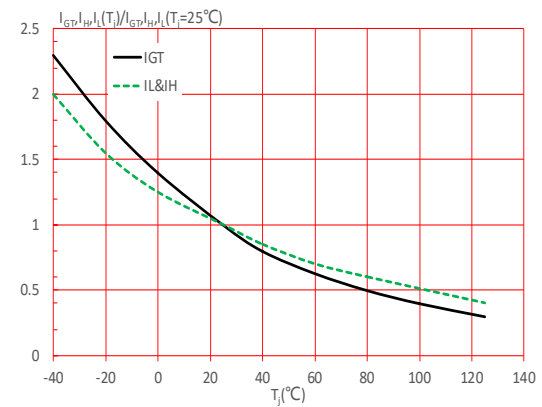
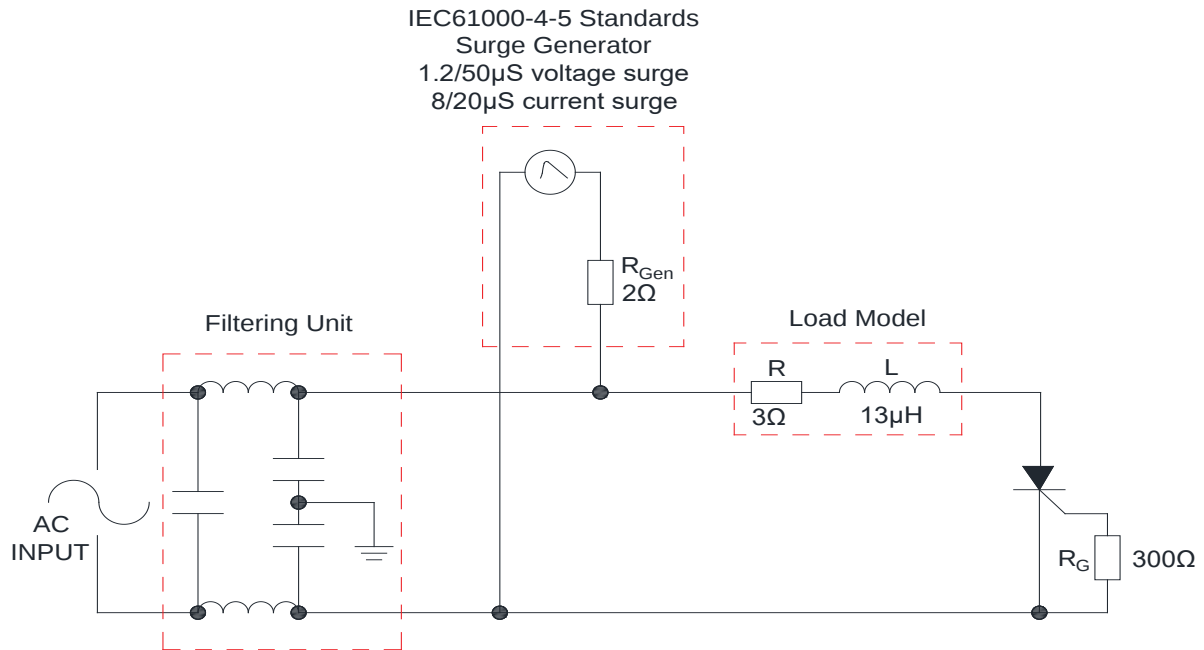
FIG.1 Maximum power dissipation versus RMS on-state current**FIG.3:** Surge peak on-state current versus number of cycles**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10ms$, and corresponding value of I^2t ($di/dt < 200A/\mu s$)**FIG.2:** RMS on-state current versus case temperature**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.



SHAPING AND SOLDERING PARAMETERS

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

ORDERING INFORMATION

Order code	Voltage $V_{\text{DRM}}/V_{\text{RRM}}$ (V)	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
JCT412B	400	15	TO-220B	50	Tube

Document Revision History

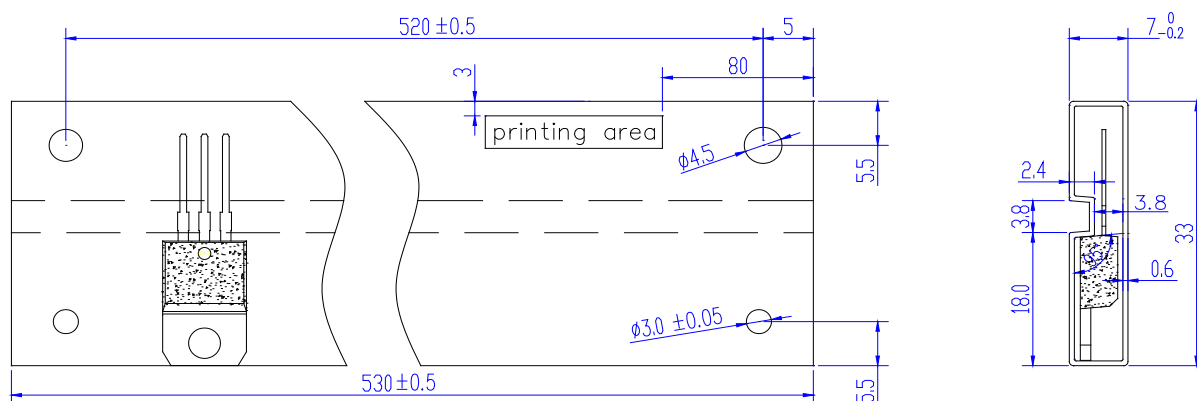
Date	Revision	Changes
Apr.12, 2023	A.1.0	Last update

Technical drawing of a 3-pin plug with dimensions in mm. The drawing includes a top view, a front view, and a side view. Dimensions are labeled with letters and numbers. A note indicates a diameter of 3.65-3.85mm for the top hole.

Dimensions:

- Top View:**
 - E : Width of the top flange.
 - $\Phi\ 3.65-3.85\text{mm}$: Diameter of the top hole.
- Front View:**
 - H : Total height of the plug.
 - $L1$: Height of the top flange.
 - $L2$: Height of the middle section.
 - $L3$: Height of the bottom section.
 - B : Width of the bottom section.
 - G : Distance between the two outer pins.
- Side View:**
 - A : Width of the top flange.
 - $C2$: Distance from the top edge to the start of the middle section.
 - D : Height of the middle section.
 - F : Height of the bottom section.
 - $C3$: Distance from the bottom edge to the start of the middle section.
 - C : Width of the bottom section.
 - $V1$: Fillet radius at the bottom edge.

DELIVERY MODE



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

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