

# 3CT12B

## 主要参数 MAIN CHARACTERISTICS

$I_{T(AV)}$	16A
$V_{DRM}/V_{RRM}$	800V
$I_{GT}$	1-25mA

### 用途

- 半交流开关
- 相位控制

### APPLICATIONS

- Half AC switching
- Phase control

### 产品特性

- 玻璃钝化芯片，高可靠性和一致性
- 低通态电流和高浪涌电流能力
- 环保 RoHS 产品

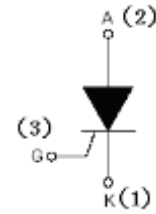
### FEATURES

- Glass-passivated mesa chip for reliability and uniform
- Low on-state voltage and High  $I_{TSM}$
- RoHS products

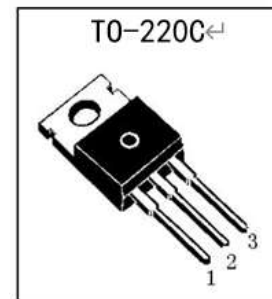
## 订货信息 ORDER MESSAGE

订货型号 Order codes	印记 Marking	封装 Package	包装 Packaging
3CT12B-O-C-N-C	3CT12B	TO-220C	袋装 Tube
3CT12B-O-C-N-B	3CT12B	TO-220C	条管 Tube
3CT12B-O-C-B-B	3CT12B	TO-263	条管 Tube
Device summary			
Parameter	3CT12B		unit
VDRM/VRRM	800		V

## 封装 Package



序号 Pin	引线名称 Description
1	阴极 K
2	阳极 A
3	门极 G





## 绝对最大额定值 ABSOLUTE RATINGS (Tc=25°C)

符号 Symbol	项 目 Parameter		数 值 Value	单 位 Unit
$I_{T(RMS)}$	通态方均根电流 RMS on-state current(180Conduction angle)	$T_c = 110^\circ\text{C}$	16	A
$I_{T(AV)}$	通态平均电流Average on-state current(180Conduction angle)	$T_c = 110^\circ\text{C}$	10	A
$I_{TSM}$	非重复浪涌峰值通态电流 Non-repetitive surge peak on-state current ( half sine wave ,t=10ms)	$T_p=8.3\text{ms}$ $T_c = 25^\circ\text{C}$	200	A
			190	
$I^2t$	$I^2t$ 使用数值 $I^2t$ Value for using	$T_p=10\text{ms}$ $T_c = 25^\circ\text{C}$	200	$\text{A}^2\text{s}$
$di/dt$	Critical rate of rise of on-state current $I_G=2 \times I_{GT}, t_r \leq 100\text{ns}$	$F=60\text{Hz}$ $T_c = 125^\circ\text{C}$	50	A/us
$I_{GM}$	峰 值 门 极 电 流 Peak gate current	$T_p=20\mu\text{s}$ $T_c = 125^\circ\text{C}$	5	A
$P_{G(AV)}$	平均门极功率 Average gate power	$T_c = 125^\circ\text{C}$	1	W
$T_{stg}$ $T_j$	存储温度 Storage junction temperature range 操作结温 Operation junction temperature range		-40 to +150 -40to +125	$^\circ\text{C}$
$V_{RGM}$	Maximum peak reverse gate voltage		5	V



电特性 ELECTRICAL CHARACTERISTIC ( $T_c=25^\circ\text{C}$ )

Symbol	Test Conductions		Value	Unit	
$I_{GT}$	$V_D=12V, R_L=33\ \Omega$		MIN	1	mA
			MAX	25	mA
$V_{GT}$	$V_D=V_{DRM}, R_L=3.3K\ \Omega$	$T_j=125^\circ\text{C}$	MIN	0.2	V
$I_H$	维持电流 Holding current		MAX	40	mA
$I_L$	擎住电流 Holding current		MAX	60	mA
dV/dt	VDM=67% VDRM gate open	$T_j=125^\circ\text{C}$	MAX	1000	V/ $\mu\text{s}$
			MIN	500	V/ $\mu\text{s}$
$V_{TM}$	$I_{TM}=32A\ T_p=380\mu\text{s}$	$T_j=25^\circ\text{C}$	MAX	1.6	V
$V_{tO}$	Threshold voltage	$T_j=125^\circ\text{C}$	MAX	0.77	V
$R_d$	Dynamic resistance	$T_j=125^\circ\text{C}$	MAX	23	$m\ \Omega$
$I_{DRM}$ $I_{RRM}$	$V_{DRM}=V_{RRM}$	$T_j=25^\circ\text{C}$	MAX	5	$\mu\text{A}$
		$T_j=125^\circ\text{C}$	MAX	2	mA
<b>Symbol</b>	<b>Parameter</b>			<b>value</b>	<b>Unit</b>
$R_{th(j-c)}$	junction to case (DC)			1.1	$^\circ\text{C}/\text{W}$
$R_{th(j-a)}$	junction to ambient (DC)			60	$^\circ\text{C}/\text{W}$



Figure 1. Maximum average power dissipation versus average on-state current

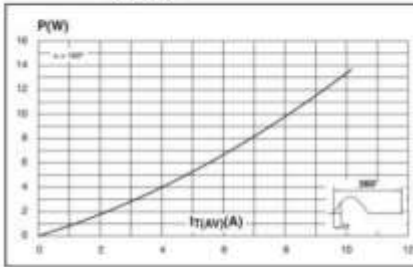


Figure 2. Average and D.C. on-state current versus case temperature

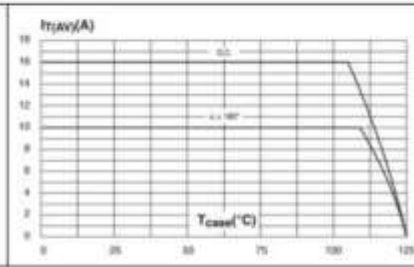


Figure 3. Average and D.C. on-state current versus ambient temperature (copper surface under tab: S=1cm<sup>2</sup>) (D<sup>2</sup>PAK)

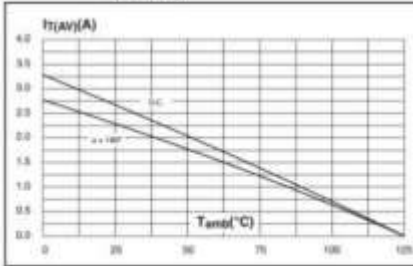


Figure 4. Relative variation of thermal impedance versus pulse duration

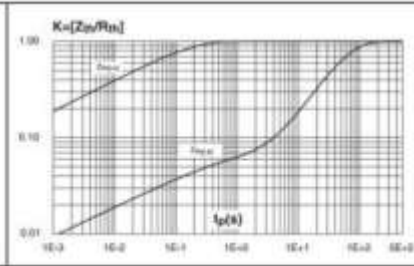


Figure 5. Relative variation of gate trigger current, holding current and latching current versus junction temperature

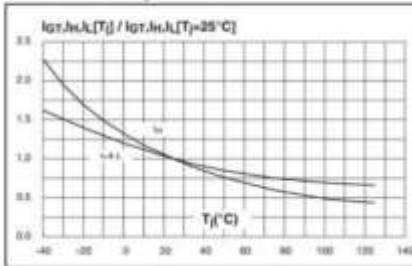


Figure 6. Surge peak on-state current versus number of cycles

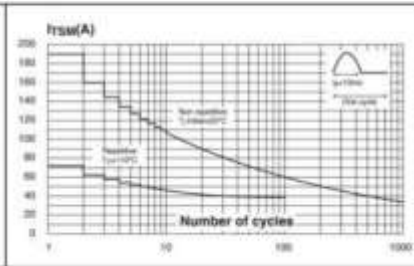


Figure 7. Non-repetitive surge peak on-state current for a sinusoidal pulse with width t<sub>p</sub> < 10 ms, and corresponding values of I<sup>2</sup>t

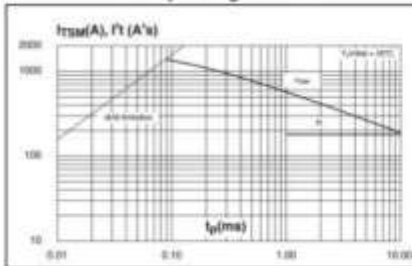


Figure 8. On-state characteristics (maximum values)

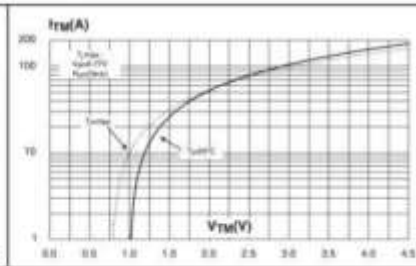
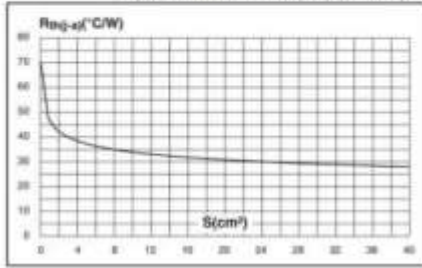


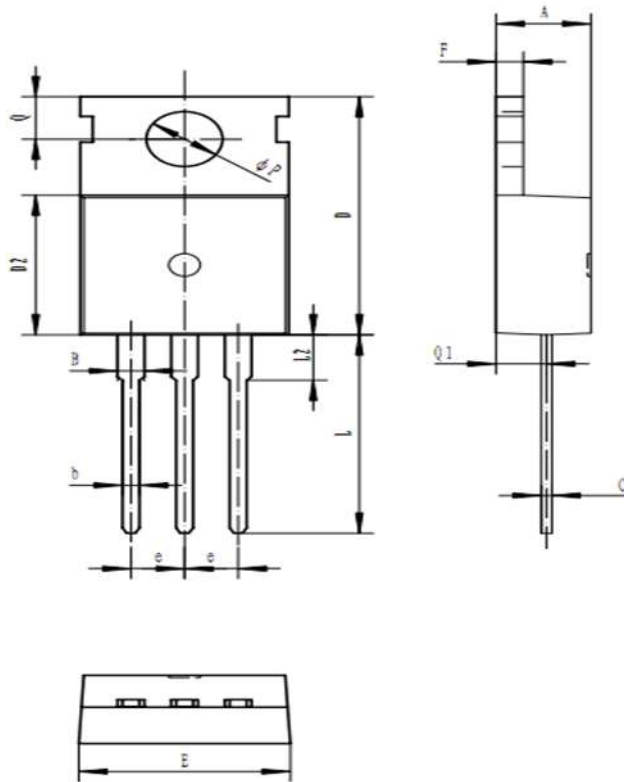
Figure 9. Thermal resistance junction to ambient versus copper surface under tab (epoxy printed circuit board FR4, copper thickness: 35  $\mu\text{m}$ ) (D<sup>2</sup>PAK)



外形尺寸 PACKAGE MECHANICAL DATA

TO-220C

单位 Unit : mm



符号 symbol	MIN	MAX
A	4.30	4.70
B	1.22	1.40
b	0.70	0.95
c	0.40	0.65
D	15.20	16.20
D2	9.00	9.40
E	9.70	10.10
e	2.39	2.69
F	1.25	1.40
L	12.60	13.60
L2	2.80	3.20
Q	2.60	3.00
Q1	2.20	2.60
P	3.50	3.80



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### 联系方式

#### 吉林华微电子股份有限公司

公司地址：吉林省吉林市深圳街 99 号

邮编：132013

总机：86-432-64678411

传真：86-432-64665812

网址：[www.hwdz.com.cn](http://www.hwdz.com.cn)

### CONTACT

#### JILIN SINO-MICROELECTRONICS CO., LTD.

ADD: No.99 Shenzhen Street, Jilin City, Jilin Province, China.

Post Code: 132013

Tel: 86-432-64678411

Fax: 86-432-64665812

Web Site: [www.hwdz.com.cn](http://www.hwdz.com.cn)

