



# 3CT12A

## 主要参数 MAIN CHARACTERISTICS

$I_{T(AV)}$	12A
$V_{DRM}/V_{RRM}$	600V
$I_{GT}$	1-15mA

### 用途

- 半交流开关
- 相位控制

### APPLICATIONS

- Half AC switching
- Phase control

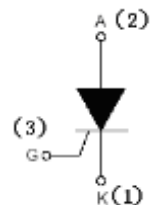
### 产品特性

- 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

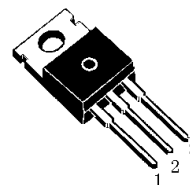
- Glass-passivated mesa chip for reliability and uniform
- Low on-state voltage and High  $I_{TSM}$
- RoHS products

## 封装 Package

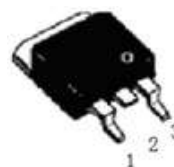


序号 Pin	引线名称 Description
1	阴极 K
2	阳极 A
3	门极 G

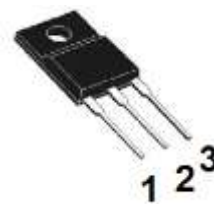
### TO-220C



### TO-263



### TO-220MF-K1



**订货信息 ORDER MESSAGE**

订货型号 Order codes				印记 Marking	封装 Package
有卤-袋装	无卤-袋装	有卤-条管	无卤-条管	3CT12A	TO-220C
Halogen-Bag	Halogen-Free-Bag	Halogen-Tube	Halogen-Free-Tube		
3CT12A-C-C	3CT12A-C-CR	3CT12A-C-B	3CT12A-C-BR		
有卤-袋装	无卤-袋装	有卤-条管	无卤-条管	3CT12A	TO-220MF-K1
Halogen-Bag	Halogen-Free-Bag	Halogen-Tube	Halogen-Free-Tube		
3CT12A-F1-C	3CT12A-F1-CR	3CT12A-F1-B	3CT12A-F1-BR		
有卤-袋装	无卤-袋装	有卤-条管	无卤-条管	3CT12A	TO-263
Halogen-Bag	Halogen-Free-Bag	Halogen-Tube	Halogen-Free-Tube		
3CT4R-S-C	3CT4RS-CR	3CT4R-S-B	3CT4R-S-BR		

**绝对最大额定值 ABSOLUTE RATINGS (Tc=25℃)**

项 目 Parameter	符 号 Symbol	数 值 Value	单 位 Unit
断态重复峰值电压 Repetitive peak off-state voltage	$V_{DRM}$	600	V
反向重复峰值电压 Repetitive peak reverse voltage	$V_{RRM}$	600	V
通态平均电流 Average on-state current (half sine wave)	$I_T(AV)$	12	A
通态方均根电流 On-state RMS current (all conduction angles)	$I_T(RMS)$	18	A
非重复浪涌峰值通态电流 Non-repetitive surge peak on-state current (half sine wave, t=10ms)	$I_{TSM}$	200	A
$I^2t$ for fusing (t=10ms)	$I^2t$	200	A <sup>2</sup> s
门极峰值电流 Peak gate current	$I_{GM}$	5	A
门极峰值电压 Peak gate voltage	$V_{GM}$	5	V
反向门极峰值电压 Peak reverses gate voltage	$V_{RGM}$	5	V
门极峰值功率 Peak gate power	$P_{GM}$	20	W
门极平均功率 Average gate power (over any 20ms period)	$P_{G(AV)}$	0.5	W
存储温度 Storage temperature	$T_{stg}$	-40~150	℃
操作结温 Operation junction temperature	$T_{VJ}$	125	℃





**静态特性 STATIC CHARACTERISTICS ( $T_C=25^\circ\text{C}$  unless otherwise stated)**

项 目 Parameter	符号 Symbol	测试条件 Tests conditions	最小 min	典型 typ	最大 max	单位 Unit
断态峰值重复电流 Peak Repetitive Blocking Current	$I_{DRM}$	$V_{DM}=V_{DRM(MAX)}$ , $T_j=125^\circ\text{C}$	-	-	1.0	mA
反向峰值重复电流 Peak Repetitive Reverse Current	$I_{RRM}$	$V_{RM}=V_{RRM(MAX)}$ , $T_j=125^\circ\text{C}$	-	-	1.0	mA
峰值通态电压 Peak on-state voltage	$V_{TM}$	$I_{TM}=40\text{A}$	-	1.45	1.80	V
门极触发电流 Gate trigger current	$I_{GT}$	$V_{DM}=12\text{V}, I_T=0.1\text{A}$	1	4	15	mA
门极触发电压 Gate trigger voltage	$V_{GT}$	$V_{DM}=12\text{V}, I_T=0.1\text{A}$	-	0.8	1.5	V
维持电流 Holding current	$I_H$	$V_{DM}=12\text{V}, I_{GT}=0.1\text{A}$	-	-	25	mA
擎住电流 Latching current	$I_L$	$V_{DM}=12\text{V}, I_{GT}=0.1\text{A}$	-	-	40	mA

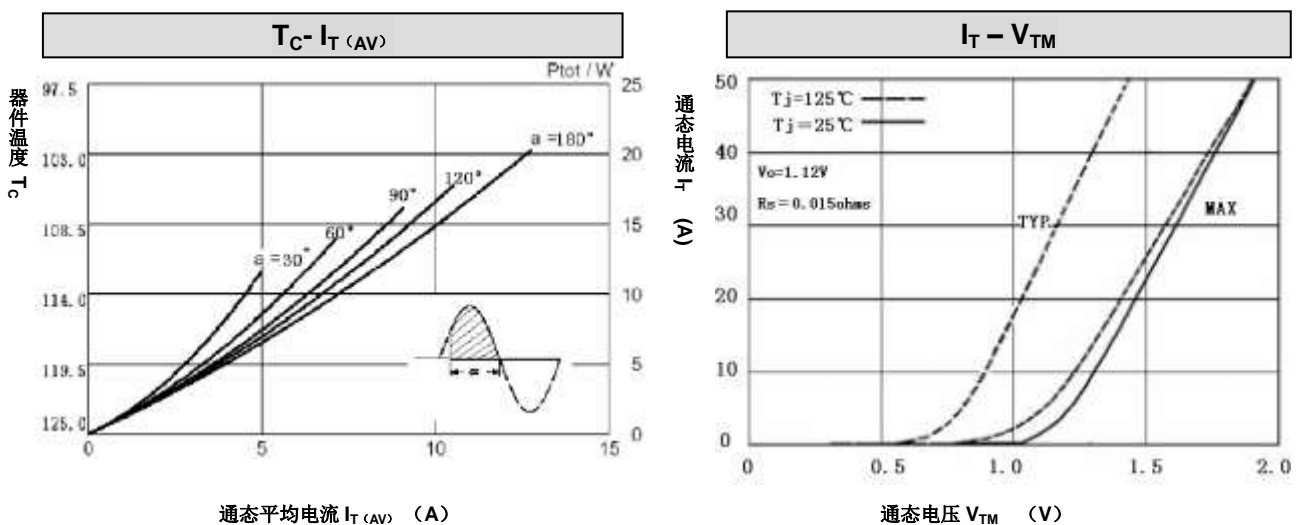
**动态特性 DYNAMIC CHARACTERISTICS ( $T_C=25^\circ\text{C}$  unless otherwise stated)**

项 目 Parameter	符号 Symbol	测试条件 Tests conditions	最小 min	典型 typ	最大 max	单位 Unit
断态临界电压上升率 Critical rate of rise of off- state voltage	dV/dt	$V_{DM}=67\% V_{DRM(MAX)}$ , $T_j=125^\circ\text{C}$	50	200	-	V/ $\mu\text{s}$

**热特性 THERMAL CHARACTERISTIC**

项 目 Parameter	符 号 Symbol	值 value	单位 Unit
结到管壳的热阻 Thermal resistance junction to case (TO-220C/TO-263)	$R_{th(j-c)}$	1.1 max	°C/W
结到管壳的热阻 Thermal resistance junction to case (TO-220MF-K1)	$R_{th(j-c)}$	4.0max	
结到环境的热阻 Thermal resistance junction to ambient	$R_{th(j-a)}$	60 typ	

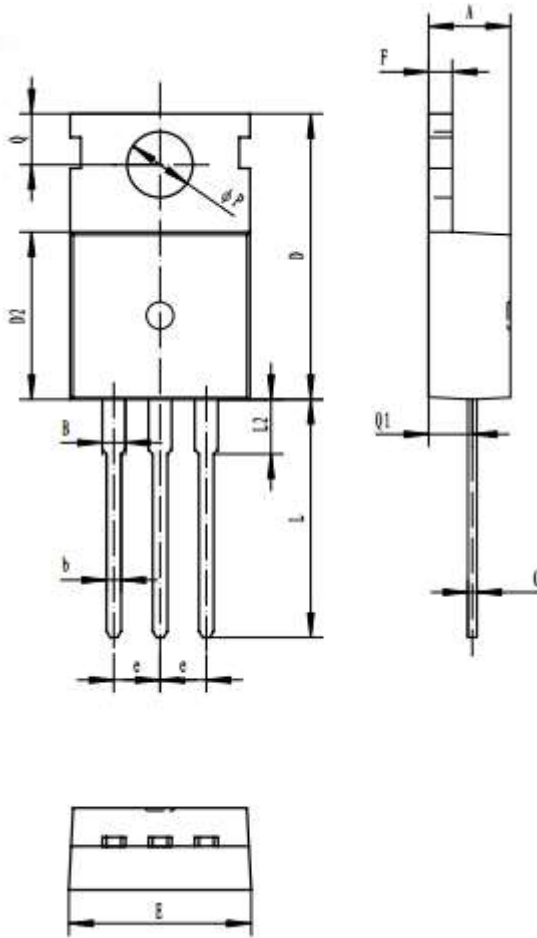
**特征曲线 ELECTRICAL CHARACTERISTICS (curves)**





外形尺寸 PACKAGE MECHANICAL DATA  
**TO-220C**

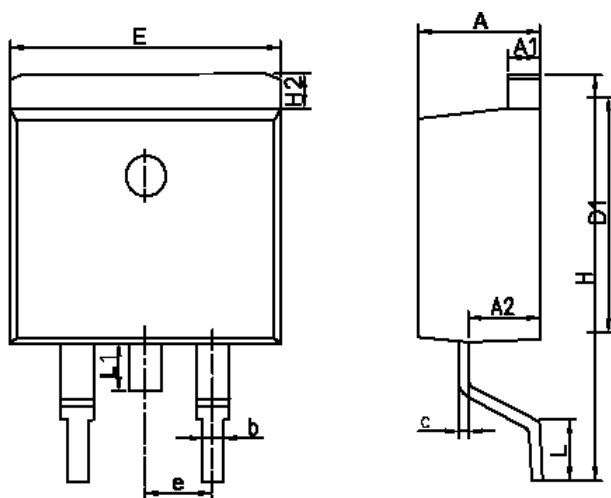
单位 Unit : mm



<b>A</b>	4.30-4.70
<b>B</b>	1.22-1.40
<b>b</b>	0.70-0.95
<b>c</b>	0.40-0.65
<b>D</b>	15.2-16.2
<b>D2</b>	9.00-9.40
<b>E</b>	9.70-10.10
<b>e</b>	2.39-2.69
<b>F</b>	1.25-1.40
<b>L</b>	12.60-13.60
<b>L2</b>	2.80-3.20
<b>Q1</b>	2.60-3.00
<b>Q1</b>	2.20-2.60
<b>P</b>	3.50-3.80

**TO-263**

单位 Unit : mm



<b>A</b>	4.30-4.80
<b>A1</b>	1.12-1.42
<b>A2</b>	2.54-2.84
<b>b</b>	0.67-1.00
<b>c</b>	0.29-0.52
<b>D1</b>	8.40-9.00
<b>E</b>	9.80-10.46
<b>e</b>	2.54BSC
<b>H</b>	14.00-16.00
<b>H2</b>	1.12-1.45
<b>L</b>	1.50-3.10
<b>L1</b>	1.45-1.70



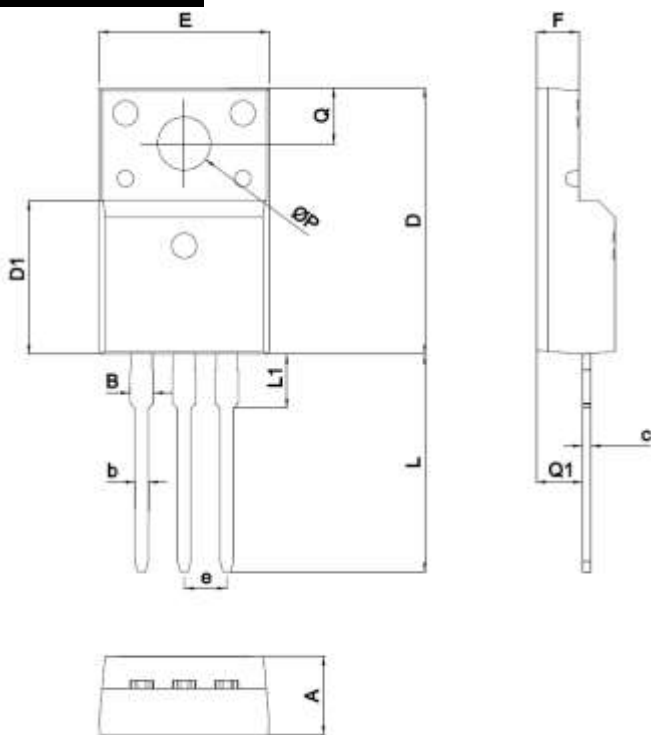


3CT12A

外形尺寸 PACKAGE MECHANICAL DATA

TO-220MF-K1

单位 Unit : mm



SYMBOL	mm	
	MIN	MAX
A	4.5	4.9
B	1.22	1.47
b	0.7	0.9
c	0.45	0.60
D	15.6	16.1
D1	9.0	9.3
e	2.54TYPE	
E	9.9	10.4
F	2.3	2.8
L	12.6	13.3
L1	3.1	3.4
Q	3.2	3.4
Q1	2.6	2.9
ΦP	3.0	3.5



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3. Please do not exceed the absolute maximum ratings of the device when circuit designing.
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