



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

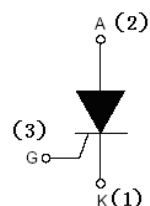
产品特性

- 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

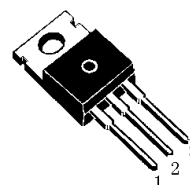
- Glass-passivated mesa chip for reliability and uniform
- Low on-state voltage and High I_{TSM}
- RoHS products

封装 Package

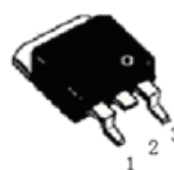


| 序号 Pin | 引线名称 Description |
|-----------|---------------------|
| 1 | 阴极 K |
| 2 | 阳极 A |
| 3 | 门极 G |

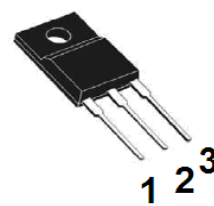
TO-220C



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°C)

| 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 ² t for fusing (t=10ms) | I ² t | 200 | A ² 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 | °C |
| 操作结温 Operation junction temperature | T _{VJ} | 125 | °C |



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

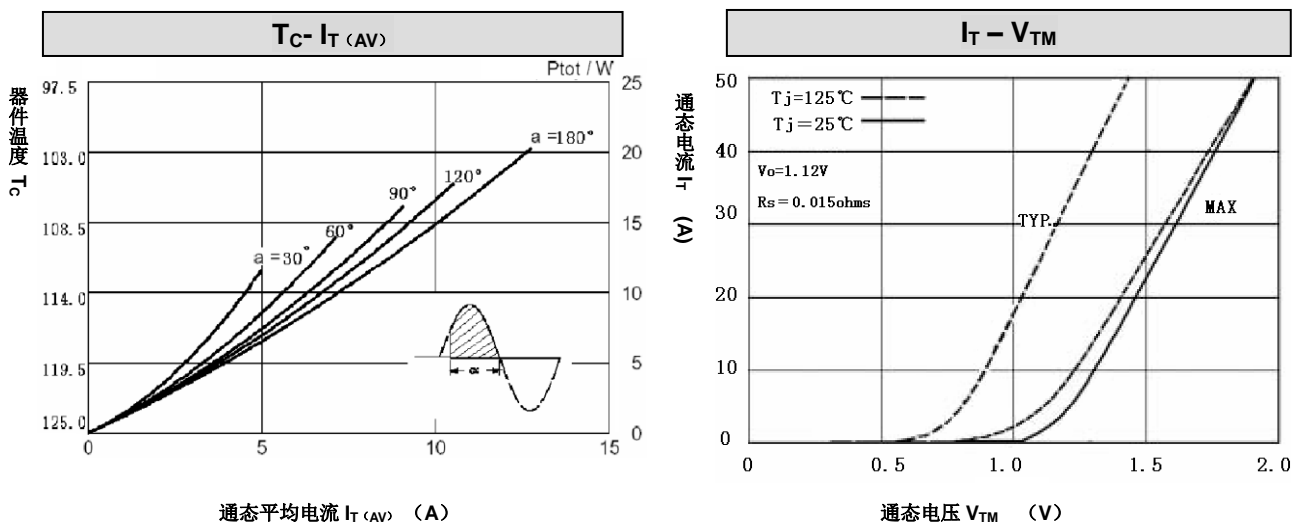
| 项 目 Parameter | 符号 Symbol | 测试条件 Tests conditions | 最小 min | 典型 typ | 最大 max | 单位 Unit |
|---|--------------|--|-----------|-----------|-----------|------------|
| 断态峰值重复电流 Peak Repetitive Blocking Current | I_{DRM} | $V_{DM}=V_{DRM(MAX)}$, $T_j=125^\circ\text{C}$ | - | - | 1.0 | mA |
| 反向峰值重复电流 Peak 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/ μs |

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 | $^\circ\text{C}/\text{W}$ |
| 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 | |

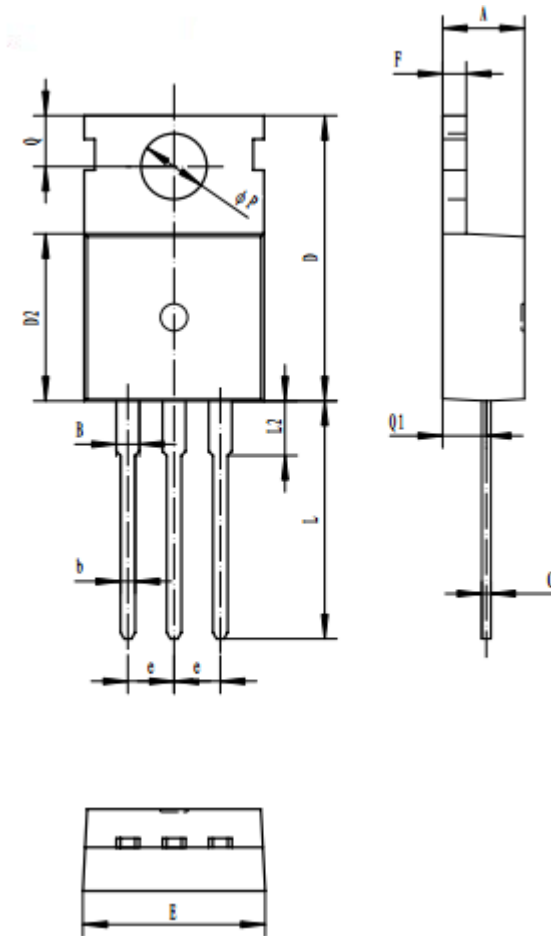
特征曲线 ELECTRICAL CHARACTERISTICS (curves)



外形尺寸 PACKAGE MECHANICAL DATA

TO-220C

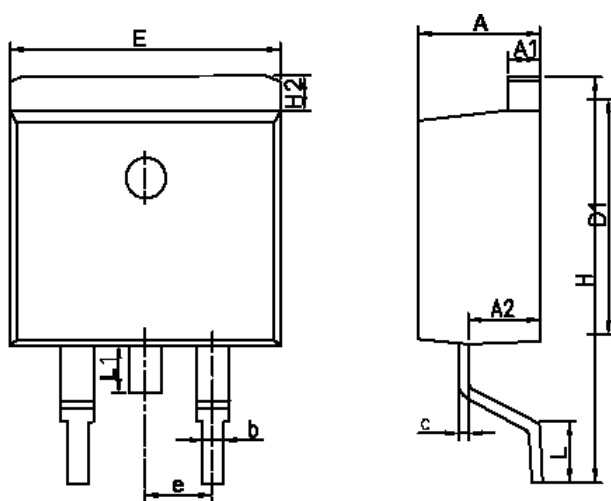
单位 Unit : mm



| | |
|----|-------------|
| A | 4.30-4.70 |
| B | 1.22-1.40 |
| b | 0.70-0.95 |
| c | 0.40-0.65 |
| D | 15.2-16.2 |
| 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 |

TO-263

单位 Unit : mm



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

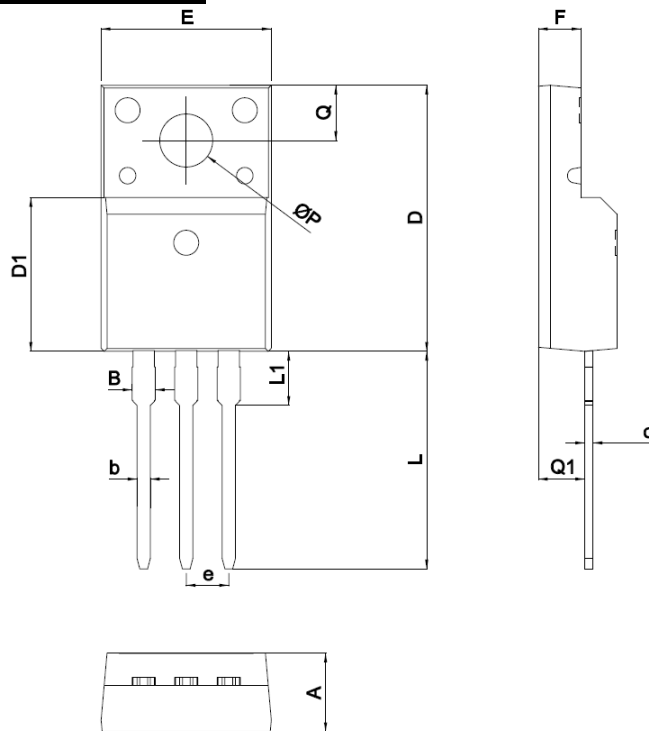




外形尺寸 PACKAGE MECHANICAL DATA

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.在电路设计时请不要超过器件的绝对最大额定值，否则会影响整机的可靠性。
- 4.本说明书如有版本变更不另外告知

NOTE

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2. We strongly recommend customers check carefully on the trademark when buying our product, if there is any question, please don't be hesitate to contact us.
3. Please do not exceed the absolute maximum ratings of the device when circuit designing.
4. Jilin Sino-microelectronics co., Ltd reserves the right to make changes in this specification sheet and is subject to change without prior notice.

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