



# STL2045

## 主要参数 MAIN CHARACTERISTICS

|              |                               |
|--------------|-------------------------------|
| $I_{F(AV)}$  | 20A                           |
| $V_{RRM}$    | 45 V                          |
| $T_{Jmax}$   | 150 °C                        |
| $V_{F(max)}$ | 0.48V (@ $T_j=125^{\circ}C$ ) |

### 用途

- 低压、高频整流
- 低压续流电路和保护电路

### APPLICATIONS

- Low voltage, high frequency rectifier
- Free wheeling diodes, polarity protection applications

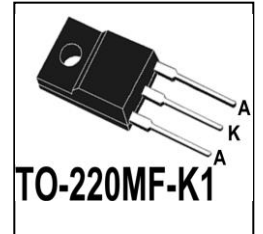
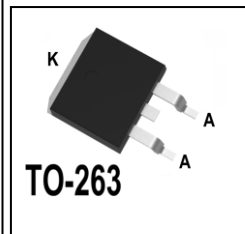
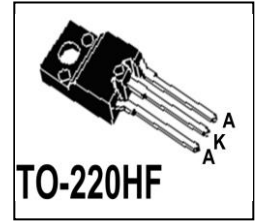
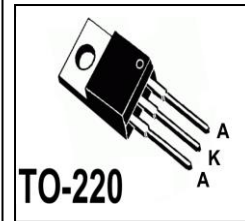
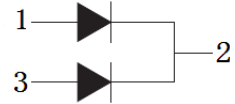
### 产品特性

- 低功耗，高效率
- 良好的高温特性
- 沟槽 MOS 肖特基技术，高可靠性
- 环保（RoHS）产品

### FEATURES

- Low power loss, high efficiency
- High Operating Junction Temperature
- Trench MOS Schottky technology, High reliability
- RoHS product

## 封装 Package



## 订货信息 ORDER MESSAGE

| 订 货 型 号 Order codes   |                            |                       |                            | 印 记<br>Marking | 封 装<br>Package |
|-----------------------|----------------------------|-----------------------|----------------------------|----------------|----------------|
| 有卤-条管<br>Halogen-Tube | 无卤-条管<br>Halogen Free-Tube | 有卤-编带<br>Halogen-Reel | 无卤-编带<br>Halogen Free-Reel |                |                |
| STL2045-CA-B          | STL2045-CA-BR              | N/A                   | N/A                        | STL2045        | TO-220         |
| STL2045-FA-B          | STL2045-FA-BR              | N/A                   | N/A                        | STL2045        | TO-220HF       |
| STL2045-S-B           | STL2045-S-BR               | STL2045-S-A           | STL2045-S-AR               | STL2045        | TO-263         |
| STL2045-F1-B          | STL2045-F1-BR              | N/A                   | N/A                        | STL2045        | TO-220MF-K1    |



绝对最大额定值 ABSOLUTE RATINGS ( $T_c=25^{\circ}\text{C}$ )

| 项 目<br>Parameter                                                                                    |                                                      |                    | 符 号<br>Symbol      | 数 值<br>Value | 单 位<br>Unit        |
|-----------------------------------------------------------------------------------------------------|------------------------------------------------------|--------------------|--------------------|--------------|--------------------|
| 最大反向重复峰值电压<br>Repetitive peak reverse voltage                                                       |                                                      |                    | $V_{RRM}$          | 45           | V                  |
| 最大直流阻断电压<br>Maximum DC blocking voltage                                                             |                                                      |                    | $V_{DC}$           | 45           | V                  |
| 正向平均整流<br>电流Average<br>Rectified<br>Forward<br>Current                                              | $T_c=125^{\circ}\text{C}$<br>(TO-220/263)            | 整个器件<br>per device | $I_{F(AV)}$        | 20           | A                  |
|                                                                                                     | $T_c=100^{\circ}\text{C}$<br>(TO-220HF/220M<br>F-K1) | 单 侧<br>per diode   |                    | 10           |                    |
| 正向峰值浪涌电流<br>Surge non repetitive forward current<br>(额定负载 10ms 半正弦波)<br>10 ms single half-sine-wave |                                                      |                    | $I_{FSM}$          | 200          | A                  |
| 最高结温<br>Maximum junction temperature                                                                |                                                      |                    | $T_j$              | 150          | $^{\circ}\text{C}$ |
| 工作结温和储存温度范围<br>Storage temperature range                                                            |                                                      |                    | $T_{Jmax}/T_{STG}$ | -55~+150     | $^{\circ}\text{C}$ |

电特性 ELECTRICAL CHARACTERISTICS

| 项 目<br>Parameter | 测试条件<br>Tests conditions    |                    | 典型值<br>Value(typ) | 最大值<br>Value(max) | 单 位<br>Unit |
|------------------|-----------------------------|--------------------|-------------------|-------------------|-------------|
| $I_R$            | $T_j = 25^{\circ}\text{C}$  | $V_R = V_{RRM}$    | 0.005             | 0.05              | mA          |
|                  | $T_j = 125^{\circ}\text{C}$ | $V_R = V_{RRM}$    | 2.5               | 5                 |             |
| $V_F$            | $T_j = 25^{\circ}\text{C}$  | $I_F = 5\text{A}$  | 0.46              | ——                | V           |
|                  | $T_j = 25^{\circ}\text{C}$  | $I_F = 10\text{A}$ | 0.50              | 0.52              |             |
|                  | $T_j = 125^{\circ}\text{C}$ | $I_F = 5\text{A}$  | 0.40              | ——                |             |
|                  | $T_j = 125^{\circ}\text{C}$ | $I_F = 10\text{A}$ | 0.46              | 0.48              |             |
| $C_J$            | 5V 1MHz                     |                    | 800               | ——                | pF          |

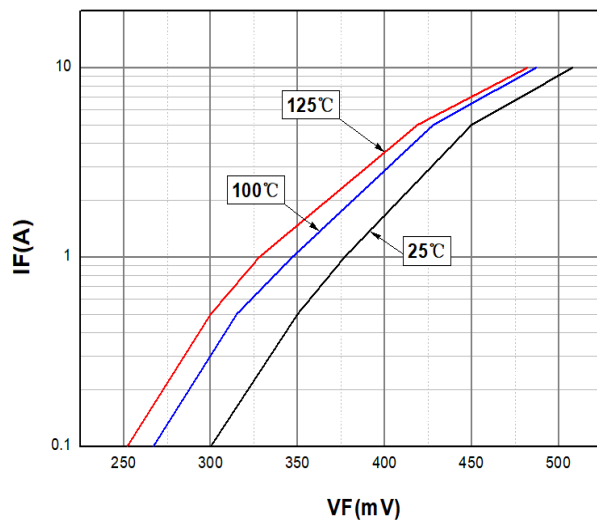
热特性 THERMAL CHARACTERISTICS

| 项 目<br>Parameter                                       |             | 符 号<br>Symbol | 最小值<br>Value(min) | 最大值<br>Value(max) | 单 位<br>Unit                 |
|--------------------------------------------------------|-------------|---------------|-------------------|-------------------|-----------------------------|
| 结到管壳的热阻<br>Thermal resistance from<br>junction to case | TO-220      | $R_{th(j-c)}$ |                   | 1.9               | $^{\circ}\text{C}/\text{W}$ |
|                                                        | TO-263      |               |                   | 2.0               |                             |
|                                                        | TO-220HF    |               |                   | 2.5               |                             |
|                                                        | TO-220MF-K1 |               |                   | 3.5               |                             |

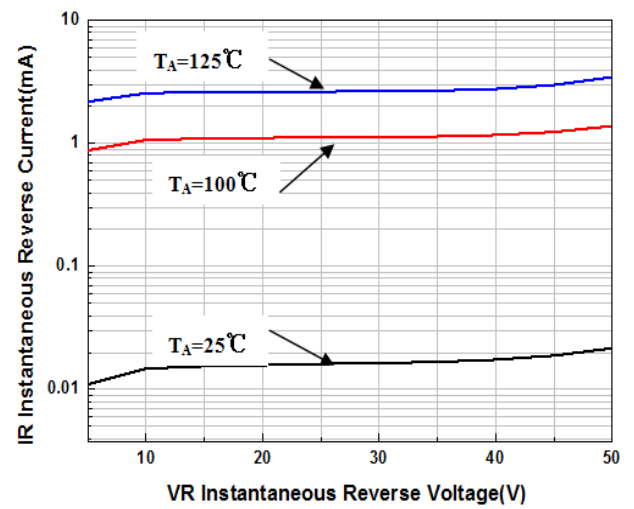


特征曲线 ELECTRICAL CHARACTERISTICS (curve)

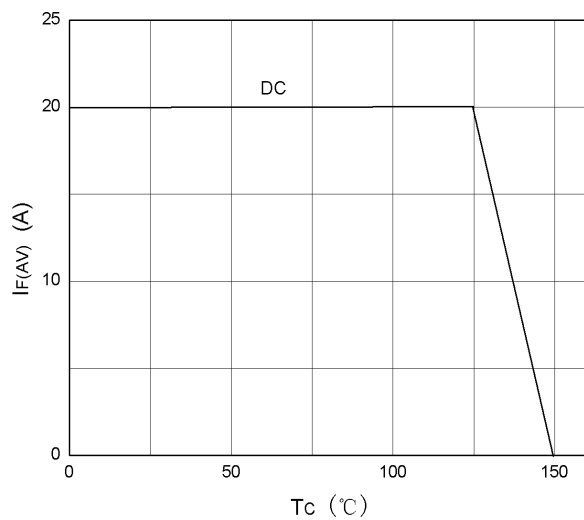
$I_F$  vs  $V_F$



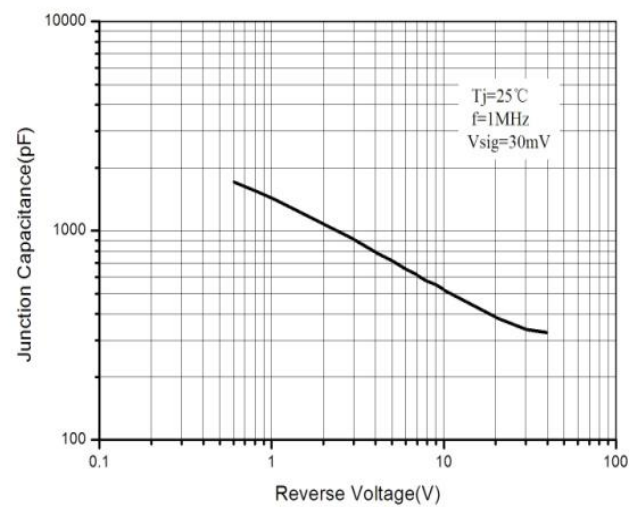
$I_R$  vs  $V_R$



$I_F$  vs  $T_C$



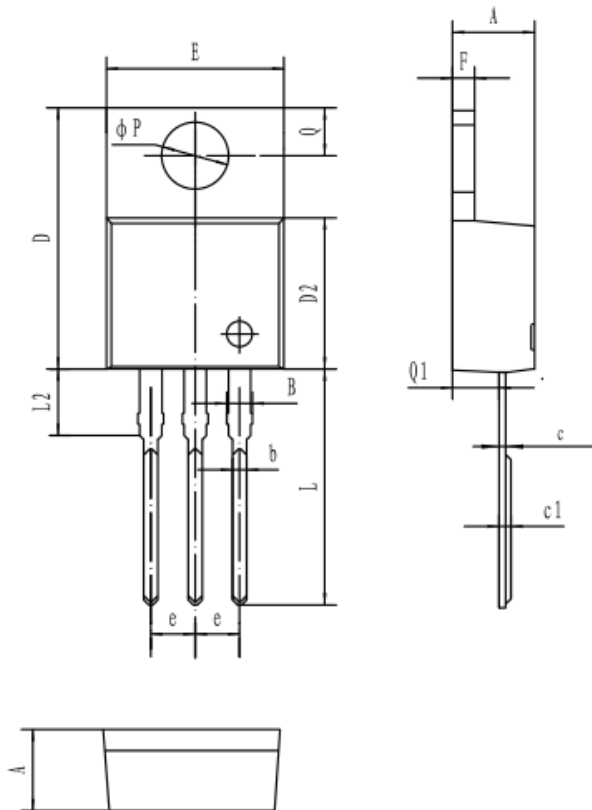
$C_J$  vs  $V_R$





外形尺寸 PACKAGE MECHANICAL DATA  
TO-220

单位 Unit : mm

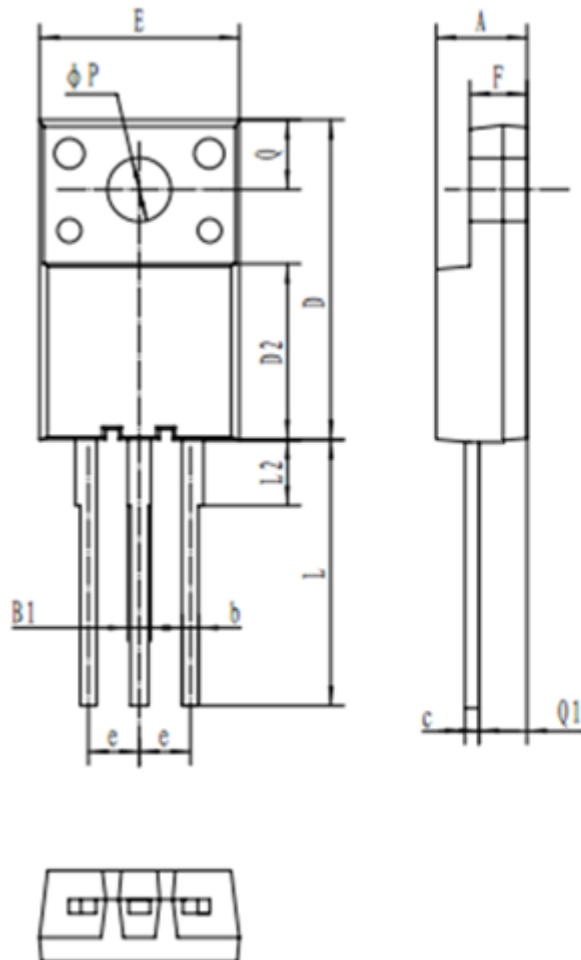


| 符号<br>symbol | MIN   | MAX   |
|--------------|-------|-------|
| A            | 4.40  | 4.80  |
| B            | 1.10  | 1.40  |
| b            | 0.70  | 0.95  |
| c            | 0.28  | 0.48  |
| c1           | 0.32  | 0.52  |
| D            | 14.45 | 16.00 |
| D2           | 8.20  | 9.20  |
| E            | 9.60  | 10.40 |
| e            | 2.39  | 2.69  |
| F            | 1.20  | 1.35  |
| L            | 13.05 | 14.05 |
| L2           | 3.70  | 3.90  |
| Q            | 2.40  | 3.00  |
| Q1           | 2.20  | 2.90  |
| P            | 3.50  | 4.00  |



外形尺寸 PACKAGE MECHANICAL DATA  
TO-220HF

单位 Unit : mm

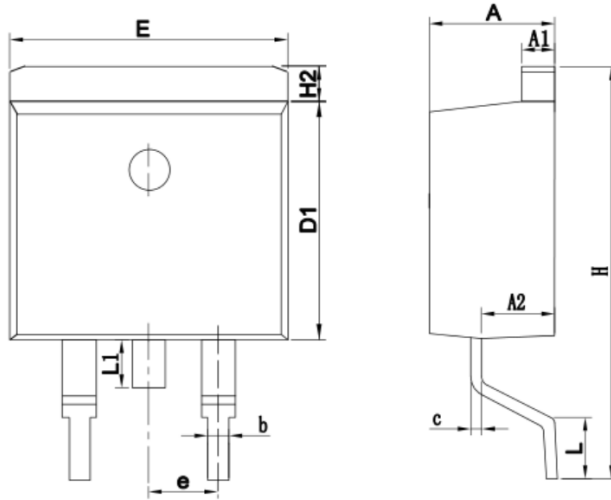


| 符号<br>symbol | MIN      | MAX   |
|--------------|----------|-------|
| A            | 4.0      | 5.0   |
| B1           | 0.87     | 1.27  |
| b            | 0.72     | 0.92  |
| c            | 0.5      | 0.7   |
| D            | 15.0     | 16.5  |
| D2           | 7.8      | 9.4   |
| E            | 9.62     | 10.62 |
| e            | 2.54 TYP |       |
| F            | 2.3      | 3.3   |
| L            | 13.0     | 14.0  |
| L2           | 3.1      | 3.5   |
| $\phi p$     | 3.0      | 3.4   |
| Q            | 3.15     | 3.55  |
| Q1           | 2.2      | 2.5   |



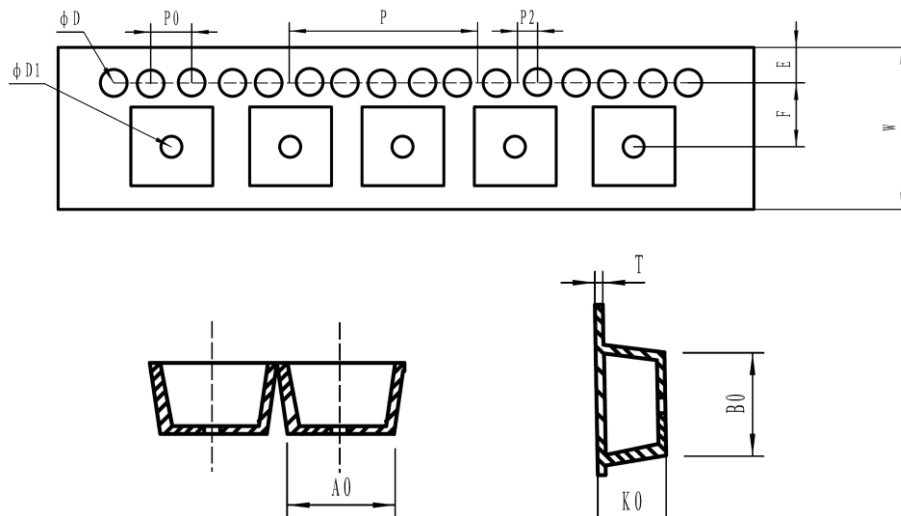
外形尺寸 PACKAGE MECHANICAL DATA  
TO-263

单位 Unit : mm



| SYMBOL | MM      |       |
|--------|---------|-------|
|        | MIN     | MAX   |
| 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  |

编带 REEL

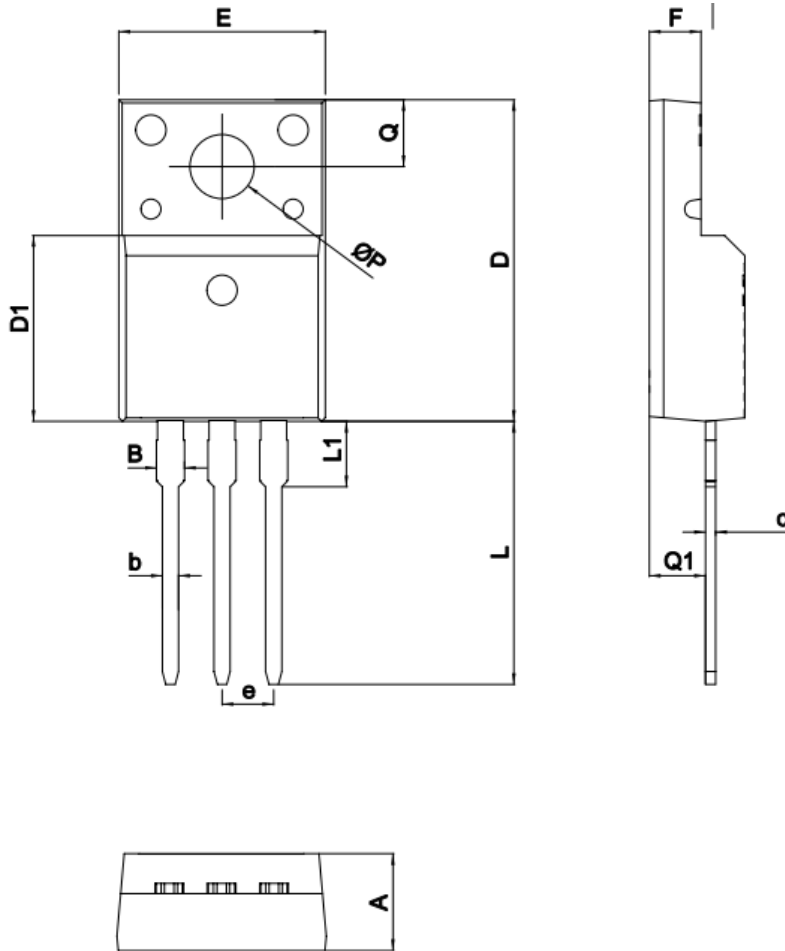


| 产品尺寸规格 (UNIT: mm) |                  |            |            |            |
|-------------------|------------------|------------|------------|------------|
| 规格                | W                | A0         | E          | F          |
| 尺寸                | 24 ± 0.3         | 10.9 ± 0.2 | 1.75 ± 0.2 | 11.5 ± 0.2 |
| 规格                | D1               | P0         | P2         | P          |
| 尺寸                | 1.5 ± 0.2 / -0.1 | 4 ± 0.2    | 2 ± 0.2    | 16 ± 0.2   |
| 规格                | K0               | B0         |            |            |
| 尺寸                | 4.9 ± 0.2        | 16.0 ± 0.2 |            |            |



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。

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