

**NPN MJE 系列晶体管/MJE SERIES TRANSISTORS**

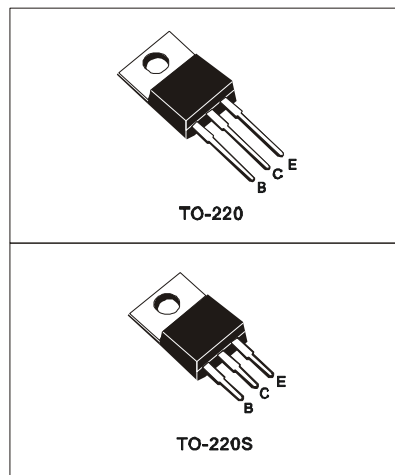
**MJE13009**

- 特点：耐高压 开关速度快 安全工作区宽 符合 RoHS 规范
- FEATURES: ■HIGH VOLTAGE CAPABILITY ■HIGH SPEED SWITCHING ■WIDE SOA ■RoHS COMPLIANT
- 应用：节能灯 电子镇流器 电子变压器 开关电源
- APPLICATION: ■FLUORESCENT LAMP ■ELECTRONIC BALLAST ■ELECTRONIC TRANSFORMER  
■SWITCH MODE POWER SUPPLY

●最大额定值 (Tc=25°C)

●Absolute Maximum Ratings (Tc=25°C) TO-220/220S

| 参数<br>PARAMETER                        | 符号<br>SYMBOL     | 额定值<br>VALUE | 单位<br>UNIT |
|--|------------------|--------------|------------|
| 集电极-基极电压<br>Collector-Base Voltage     | V <sub>CB0</sub> | 700          | V          |
| 集电极-发射极电压<br>Collector-Emitter Voltage | V <sub>CEO</sub> | 400          | V          |
| 发射极-基极电压<br>Emitter- Base Voltage      | V <sub>EBO</sub> | 9            | V          |
| 集电极电流<br>Collector Current             | I <sub>c</sub>   | 12           | A          |
| 集电极耗散功率<br>Total Power Dissipation     | P <sub>tot</sub> | 100          | W          |
| 最高工作温度<br>Junction Temperature         | T <sub>j</sub>   | 150          | °C         |
| 贮存温度<br>Storage Temperature            | T <sub>stg</sub> | -65-150      | °C         |



●电特性 (Tc=25°C)

●Electronic Characteristics (Tc=25°C)

| 参数名称<br>CHARACTERISTICS                             | 符号<br>SYMBOL       | 测试条件<br>TEST CONDITION                                | 最小值<br>MIN | 最大值<br>MAX | 单位<br>UNIT |
|---|--------------------|---|------------|------------|------------|
| 集电极-基极截止电流<br>Collector-Base Cutoff Current         | I <sub>CB0</sub>   | V <sub>CB</sub> =700V                                 |            | 100        | μA         |
| 集电极-发射极截止电流<br>Collector-Emitter Cutoff Current     | I <sub>CEO</sub>   | V <sub>CE</sub> =400V, I <sub>B</sub> =0              |            | 250        | μA         |
| 集电极-基极电压<br>Collector-Base Voltage                  | V <sub>CB0</sub>   | I <sub>C</sub> =1mA, I <sub>E</sub> =0                | 700        |            | V          |
| 集电极-发射极电压<br>Collector-Emitter Voltage              | V <sub>CEO</sub>   | I <sub>C</sub> =10mA, I <sub>B</sub> =0               | 400        |            | V          |
| 发射极-基极电压<br>Emitter- Base Voltage                   | V <sub>EBO</sub>   | I <sub>E</sub> =1mA, I <sub>C</sub> =0                | 9          |            | V          |
| 集电极-发射极饱和电压<br>Collector-Emitter Saturation Voltage | V <sub>cesat</sub> | I <sub>C</sub> =8.0A, I <sub>B</sub> =1.6A            |            | 0.8        | V          |
|   |                    | I <sub>C</sub> =12A, I <sub>B</sub> =3.0A             |            | 1.8        |            |
| 发射极-基极饱和电压<br>Base-Emitter Saturation Voltage       | V <sub>besat</sub> | I <sub>C</sub> =8A, I <sub>B</sub> =1.6A              |            | 1.5        | V          |
| 电流放大倍数<br>DC Current Gain                           | h <sub>FE</sub>    | V <sub>CE</sub> =5V, I <sub>C</sub> =10mA             | 7          |            |            |
|   |                    | V <sub>CE</sub> =5V, I <sub>C</sub> =3A               | 10         | 40         |            |
|   |                    | V <sub>CE</sub> =5V, I <sub>C</sub> =12A              | 5          |            |            |
| 贮存时间/Storage Time                                   | t <sub>s</sub>     | V <sub>CC</sub> =5V, I <sub>C</sub> =0.5A<br>(UI9600) | 5.0        | 9.0        | μs         |
| 下降时间/Falling Time                                   | t <sub>r</sub>     |   |            | 0.18       |            |

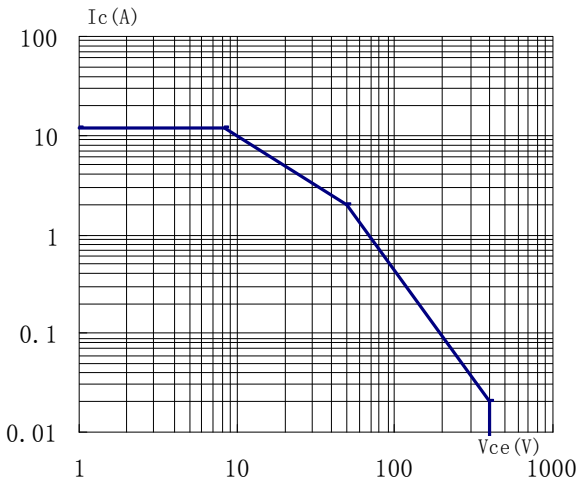
●订单信息/ORDERING INFORMATION:

| 包装形式/PACKING                | 订货编码/ORDERING CODE             |                       |
|-----------------------------|--------------------------------|-----------------------|
|                             | 普通塑封料/ Normal Package Material | 无卤塑封料/Halogen Free    |
| TO-220 普通袋装/NORMAL PACKING  | MJE13009 TO-220                | MJE13009 TO-220-HF    |
| TO-220S 普通袋装/NORMAL PACKING | MJE13009 TO-220S               | MJE13009 TO-220S-HF   |
| TO-220 条管装/TUBE PACKING     | MJE13009 TO-220-TU             | MJE13009 TO-220-TU-HF |

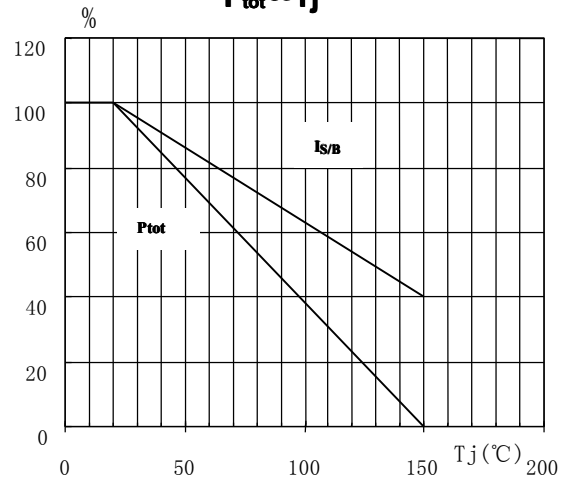
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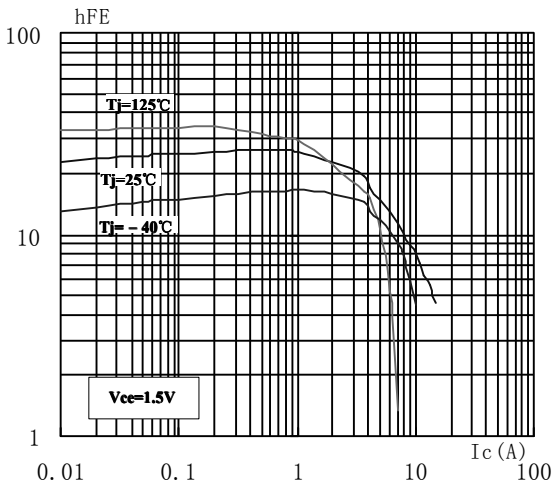
SOA (DC)



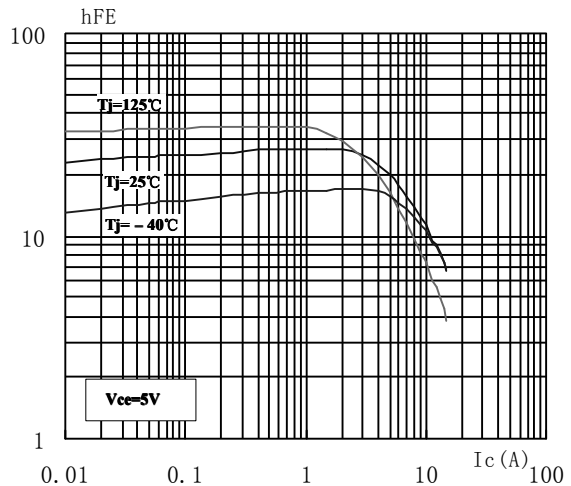
$P_{tot} \propto T_j$



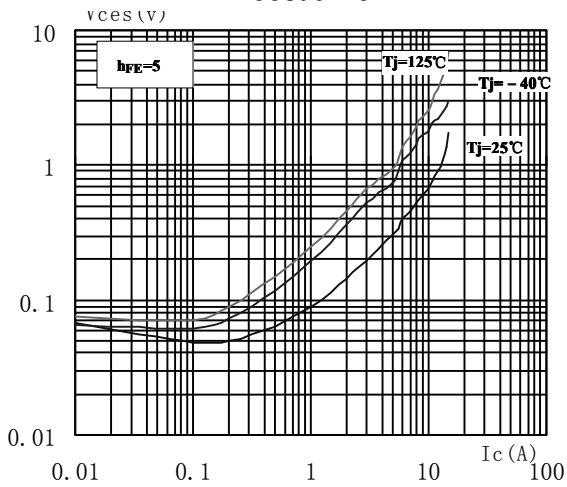
$h_{FE} - I_c$



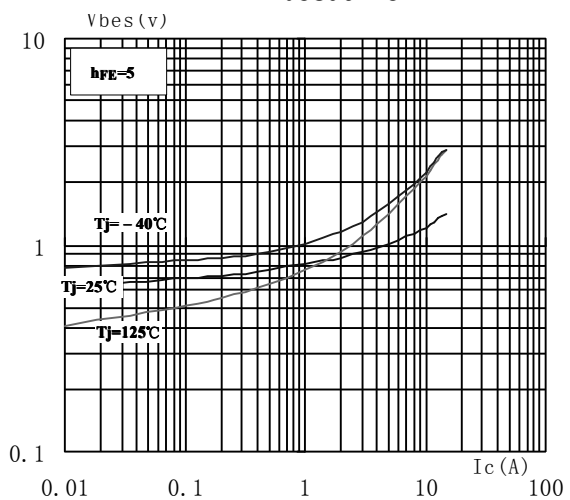
$h_{FE} - I_c$



$V_{cesat} - I_c$



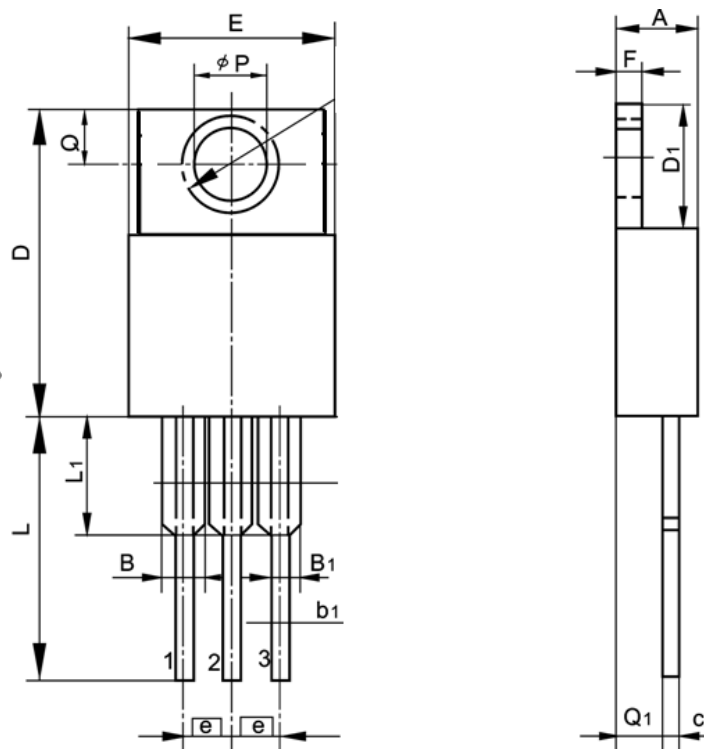
$V_{besat} - I_c$



## TO-220 封装机械尺寸 TO-220 MECHANICAL DATA

单位：毫米/UNIT: mm

| 符号<br>SYMBOL | 最小值<br>min | 典型值<br>nom | 最大值<br>max | 符号<br>SYMBOL | 最小值<br>min | 典型值<br>nom | 最大值<br>max |
|--------------|------------|------------|------------|--------------|------------|------------|------------|
| A            | 4.00       |            | 4.80       | E            | 9.90       |            | 10.70      |
| B            | 1.20       |            | 1.50       | e            |            | 2.54       |            |
| B1           | 1.00       |            | 1.40       | F            | 1.10       |            | 1.45       |
| b1           | 0.65       |            | 1.00       | L            | 12.50      |            | 14.50      |
| c            | 0.35       |            | 0.75       | L1           | 3.00       | 3.50       | 4.00       |
| D            | 15.00      |            | 16.50      | Q            | 2.50       |            | 3.00       |
| D1           | 5.90       |            | 6.90       | Q1           | 2.00       |            | 3.00       |
|              |            |            |            | $\phi P$     | 3.60       |            | 3.90       |



## TO-220S 封装机械尺寸

### TO-220S MECHANICAL DATA

单位：毫米/UNIT: mm

| 符号<br>SYMBOL | 最小值<br>min | 典型值<br>nom | 最大值<br>max | 符号<br>SYMBOL | 最小值<br>min | 典型值<br>nom | 最大值<br>max |
|--------------|------------|------------|------------|--------------|------------|------------|------------|
| A            | 4.00       |            | 4.80       | E            | 9.90       |            | 10.70      |
| B            | 1.27       |            | 1.50       | e            |            | 2.54       |            |
| B1           |            |            | 1.40       | F            | 1.20       |            | 1.45       |
| b1           | 0.75       |            | 1.00       | L            | 3.20       |            | 3.80       |
| c            | 0.38       |            | 0.75       | L1           |            |            | 3.50       |
| D            | 15.00      |            | 16.5       | $\phi P$     | 3.60       |            | 3.90       |
| D1           | 5.90       |            | 6.60       | Q            | 2.50       |            | 3.00       |
|              |            |            |            | Q1           | 2.00       |            | 3.00       |

