

**描述 / Descriptions**

TO-220 塑封封装 N 沟道 MOS 场效应管。N-CHANNEL MOSFET in a TO-220 Plastic Package.

**特征 / Features**

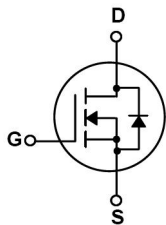
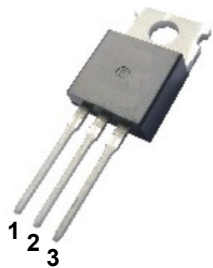
低栅电荷,低反馈电容,开关速度快。

Low gate charge, low crss, fast switching.

**用途 / Applications**

用于高功率 DC/DC 转换和功率开关。

These devices are well suited for high efficiency switching DC/DC converters and switch mode power supplies.

**内部等效电路 / Equivalent Circuit****引脚排列 / Pinning**

PIN1 : G

PIN 2 : D

PIN 3 : S

**放大及印章代码 /  $h_{FE}$  Classifications & Marking**

见印章说明。 See Marking Instructions.

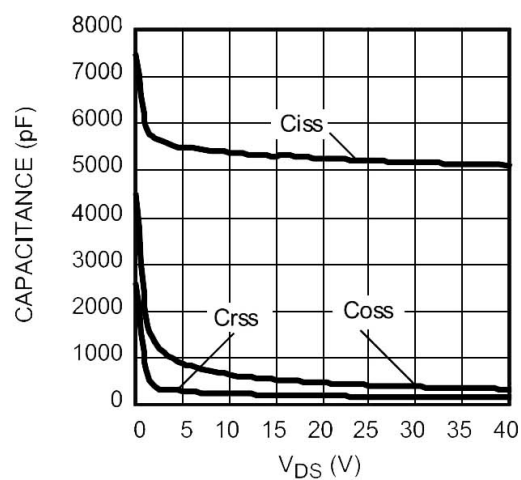
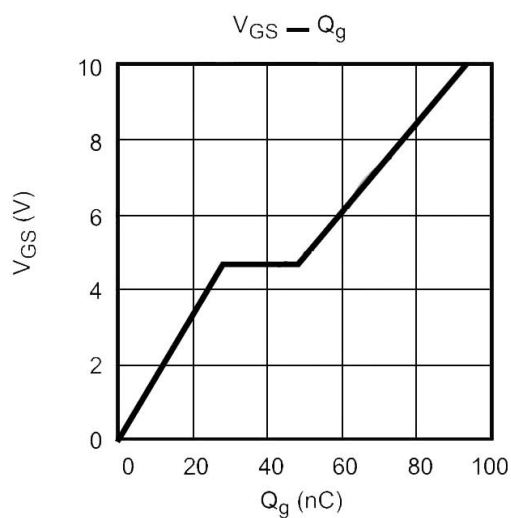
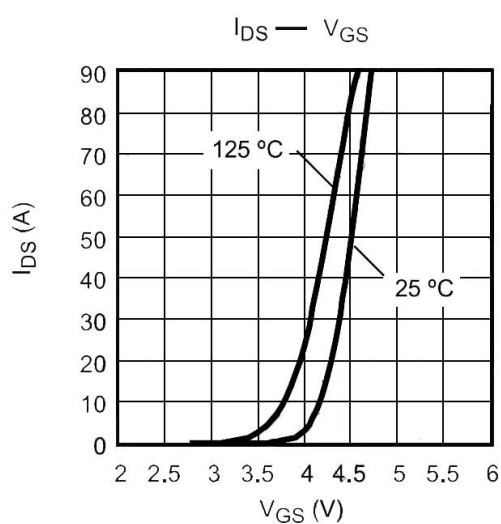
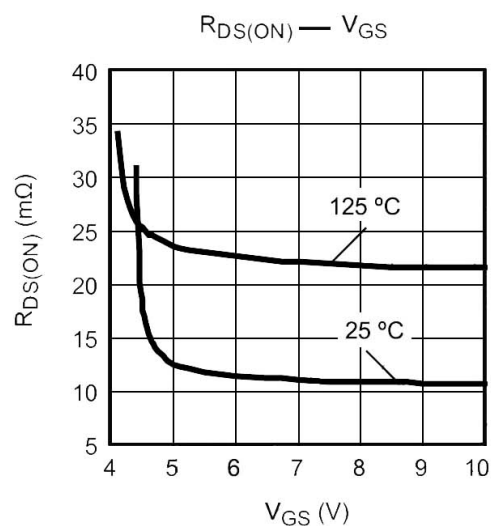
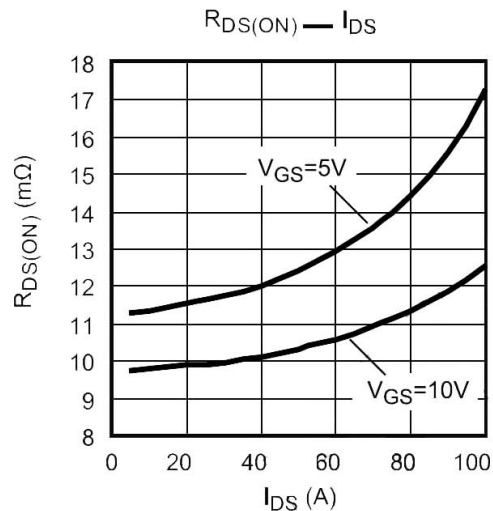
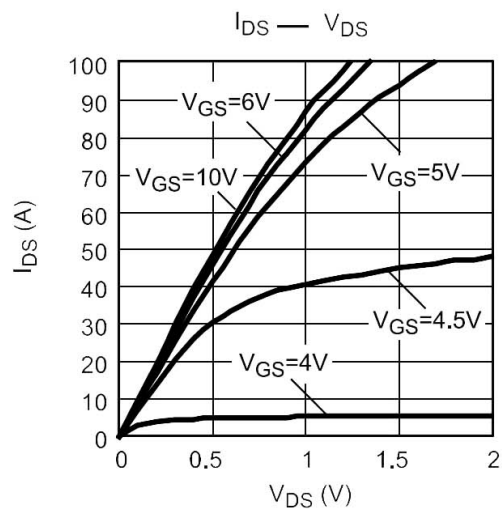
**极限参数 / Absolute Maximum Ratings(Ta=25°C)**

| 参数<br>Parameter                        | 符号<br>Symbol            | 数值<br>Rating | 单位<br>Unit  |
|----------------------------------------|-------------------------|--------------|-------------|
| Drain-Source Voltage                   | $V_{DSS}$               | 100          | V           |
| Drain Current                          | $I_D(T_c=25^{\circ}C)$  | 80           | A           |
| Drain Current                          | $I_D(T_c=100^{\circ}C)$ | 60           | A           |
| Peak Drain Current                     | $I_{DM}$                | 300          | A           |
| Gate-Source Voltage                    | $V_{GSS}$               | $\pm 20$     | V           |
| Repetitive Avalanche Energy            | $E_{AS}$                | 450          | mJ          |
| Avalanche Current                      | $I_{AR}$                | 100          | A           |
| Total Power Dissipation                | $P_D(T_c=25^{\circ}C)$  | 131          | W           |
| Junction and Storage Temperature Range | $T_J, T_{STG}$          | -55 to 150   | $^{\circ}C$ |

**电性能参数 / Electrical Characteristics(Ta=25°C)**

| 参数<br>Parameter                   | 符号<br>Symbol | 测试条件<br>Test Conditions                 | 最小值<br>Min | 典型值<br>Typ | 最大值<br>Max | 单位<br>Unit |
|-----------------------------------|--------------|-----------------------------------------|------------|------------|------------|------------|
| Zero Gate Voltage Drain Current   | $BV_{DSS}$   | $V_{GS}=0V$ $I_D=250\mu A$              | 100        |            |            | V          |
| Zero Gate Voltage Drain Current   | $I_{DSS}$    | $V_{DS}=100V$ $V_{GS}=0V$               |            |            | 1          | $\mu A$    |
|                                   |              | $V_{DS}=80V$ $T_C=125^{\circ}C$         |            |            | 10         | $\mu A$    |
| Gate-Body Leakage Current Forward | $I_{GSS}$    | $V_{GS}=\pm 20V$ $V_{DS}=0V$            |            |            | $\pm 0.1$  | $\mu A$    |
| Gate Threshold Voltage            | $V_{GS(th)}$ | $V_{DS}=V_{GS}$ $I_D=250\mu A$          | 2          |            | 4          | V          |
| Static Drain-Source On-Resistance | $R_{DS(on)}$ | $V_{GS}=10V$ $I_D=40A$                  |            | 12         | 15         | m $\Omega$ |
| Forward Transconductance          | $g_{FS}$     | $V_{DS}=15V$ $I_D=20A$                  |            | 45         |            | S          |
| Forward On Voltage                | $V_{SD}$     | $V_{GS}=0V$ $I_S=80A$                   |            |            | 1.4        | V          |
| Input Capacitance                 | $C_{iss}$    | $V_{DS}=40V$ $V_{GS}=0V$<br>$f=1MHz$    |            | 3660       |            | pF         |
| Output Capacitance                | $C_{oss}$    |                                         |            | 250        |            | pF         |
| Reverse Transfer Capacitance      | $C_{rss}$    |                                         |            | 125        |            | pF         |
| Turn-On Delay Time                | $t_{d(on)}$  | $V_{DD}=50V$ $I_D=60A$<br>$R_G=1\Omega$ |            | 21         |            | ns         |
| Turn-On Rise Time                 | $t_r$        |                                         |            | 10         |            | ns         |
| Turn-Off Delay Time               | $t_{d(off)}$ |                                         |            | 74         |            | ns         |
| Turn-Off Fall Time                | $t_f$        |                                         |            | 16         |            | ns         |

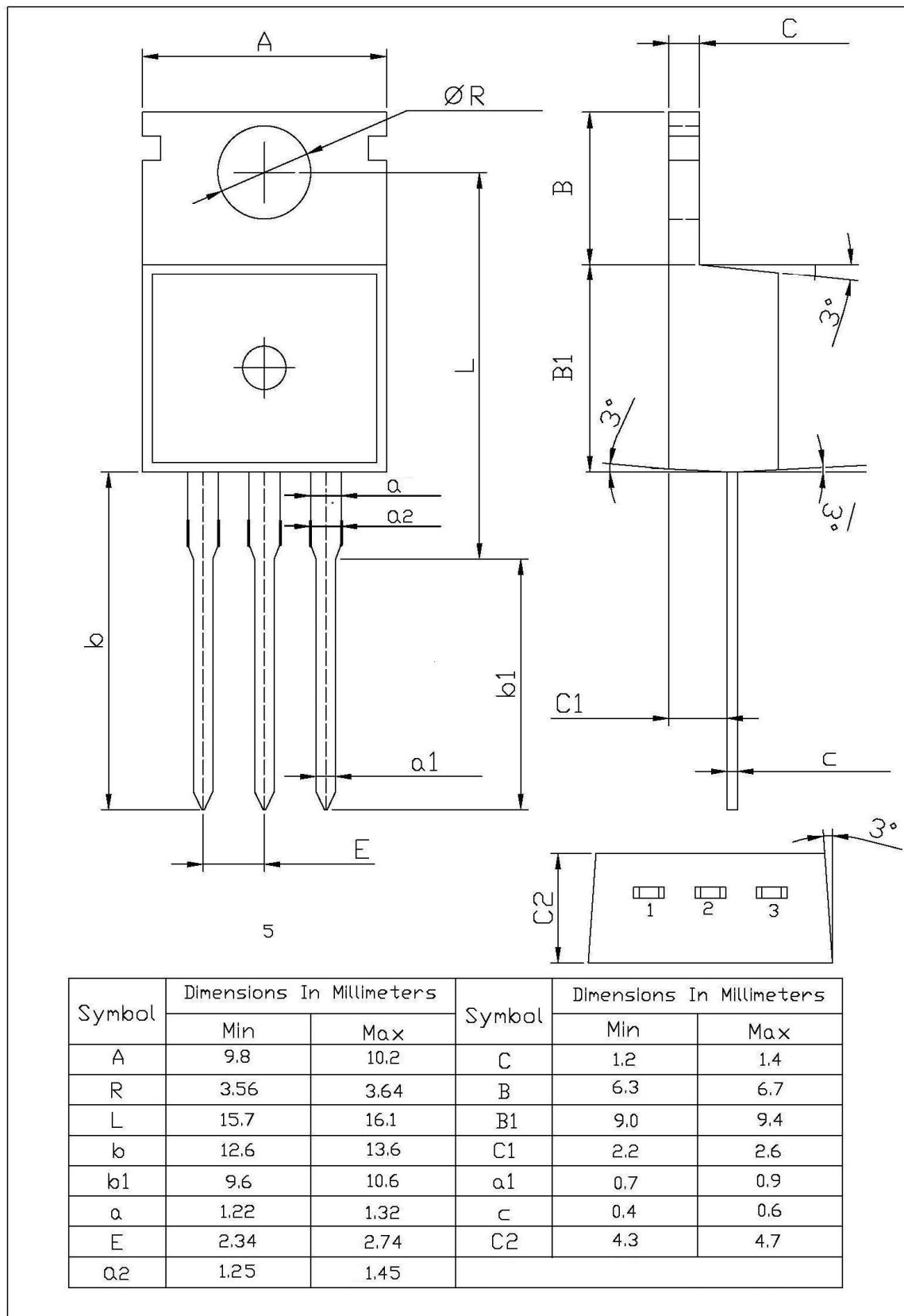
## 电参数曲线图 / Electrical Characteristic Curve



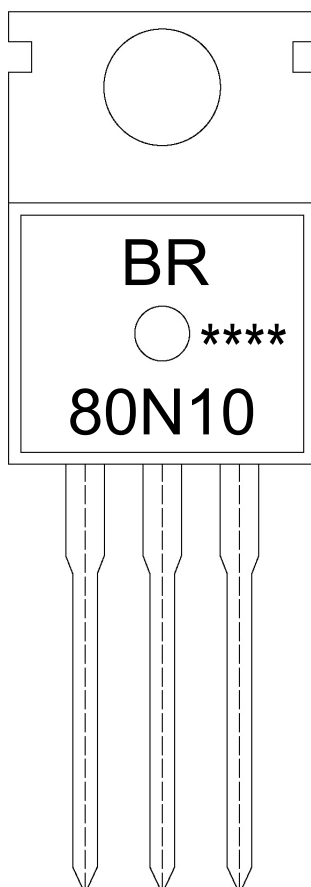
外形尺寸图 / Package Dimensions

T□-220

单位: mm



**印章说明 / Marking Instructions**



说明：

BR： 为公司代码

80N10： 为型号代码

\*\*\*\*： 为生产批号代码，随生产批号变化。

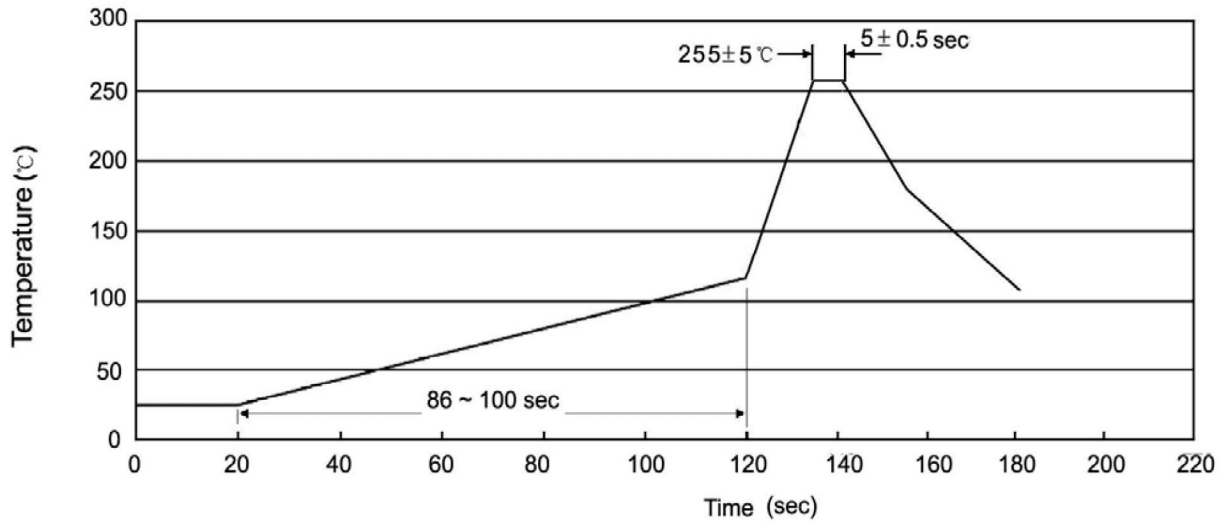
Note:

BR: Company Code

80N10: Product Type.

\*\*\*\*: Lot No. Code, code change with Lot No.

**波峰焊温度曲线图(无铅) / Temperature Profile for Dip Soldering(Pb-Free)**



说明：

- 1、预热温度 25 ~ 150°C，时间 60 ~ 90sec;
- 2、峰值温度 255±5°C，时间持续为 5±0.5sec;
- 3、焊接制程冷却速度为 2 ~ 10°C/sec.

Note:

- 1.Preheating:25~150°C, Time:60~90sec.
- 2.Peak Temp.:255±5°C, Duration:5±0.5sec.
3. Cooling Speed: 2~10°C/sec.

**耐焊接热试验条件 / Resistance to Soldering Heat Test Conditions**

温度：270±5°C

时间：10±1 sec.

Temp.:270±5°C

Time:10±1 sec

**包装规格 / Packaging SPEC.**

散件包装 / BULK

| Package Type<br>封装形式 | Units 包装数量       |                       |                        |                              |                        | Dimension 包装尺寸 (unit: mm <sup>3</sup> ) |             |             |
|----------------------|------------------|-----------------------|------------------------|------------------------------|------------------------|-----------------------------------------|-------------|-------------|
|                      | Units/Bag<br>只/袋 | Bags/Inner Box<br>袋/盒 | Units/Inner Box<br>只/盒 | Inner Boxes/Outer Box<br>盒/箱 | Units/Outer Box<br>只/箱 | Bag 袋                                   | Inner Box 盒 | Outer Box 箱 |
| TO-220/F             | 200              | 10                    | 2,000                  | 5                            | 10,000                 | 135×190                                 | 237×172×102 | 560×245×195 |

套管包装 / TUBE

| Package Type<br>封装形式 | Units 包装数量         |                         |                        |                              |                        | Dimension 包装尺寸 (unit: mm <sup>3</sup> ) |             |             |
|----------------------|--------------------|-------------------------|------------------------|------------------------------|------------------------|-----------------------------------------|-------------|-------------|
|                      | Units/Tube<br>只/套管 | Tubes/Inner Box<br>套管/盒 | Units/Inner Box<br>只/盒 | Inner Boxes/Outer Box<br>盒/箱 | Units/Outer Box<br>只/箱 | Tube 套管                                 | Inner Box 盒 | Outer Box 箱 |
| TO-220/F             | 50                 | 20                      | 1,000                  | 5                            | 5,000                  | 532×31.4×5.5                            | 555×164×50  | 575×290×180 |

**使用说明 / Notices**