

# BRF10N80

Rev.D Nov.-2015

## 描述 / Descriptions

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

## 特征 / Features

低栅电荷,低反馈电容,开关速度快。

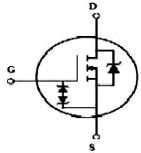
Low gate charge, low crss, fast switching.

## 用途 / Applications

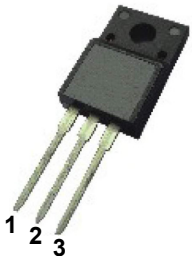
用于高功率 DC/DC 转换和功率开关。

These devices are well suited for high efficiency switching DC/DC converters .

## 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.

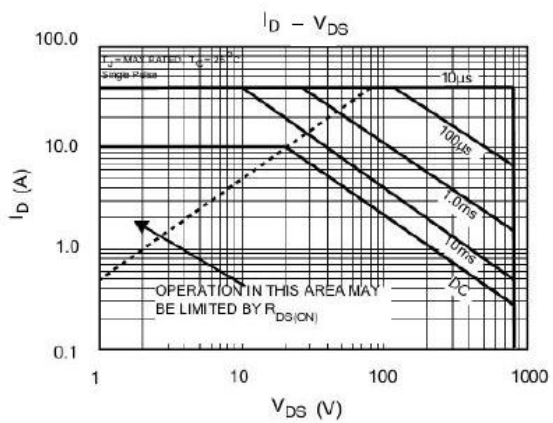
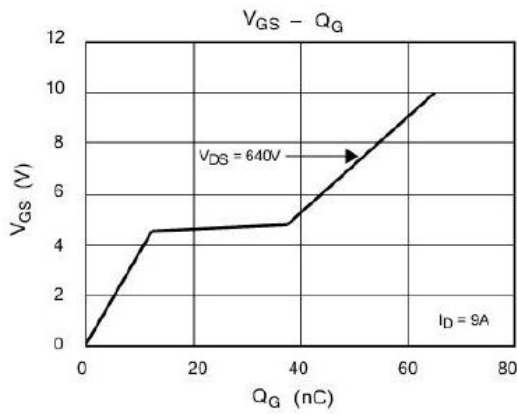
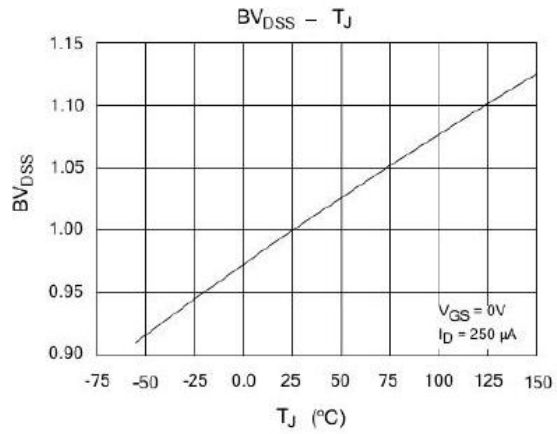
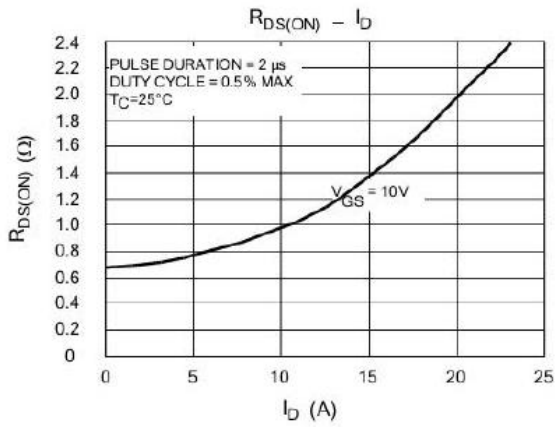
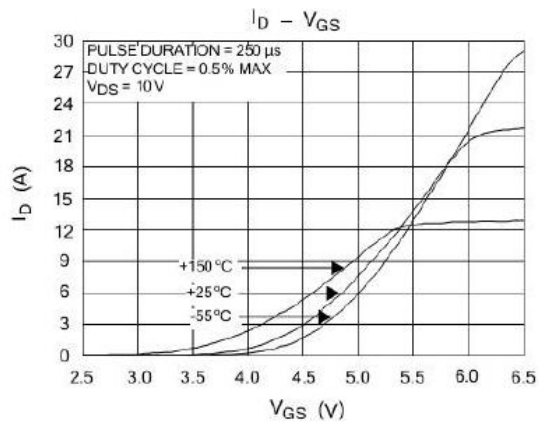
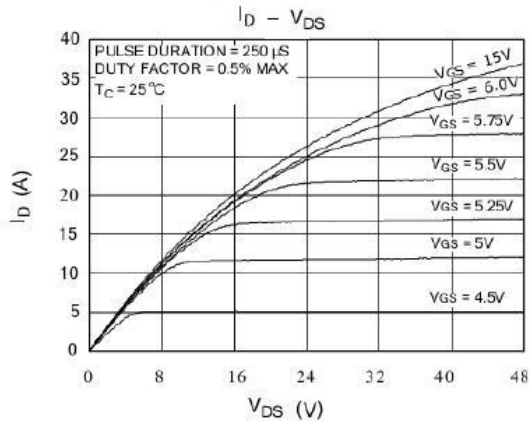
**极限参数 / Absolute Maximum Ratings(Ta=25°C)**

| 参数<br>Parameter                         | 符号<br>Symbol           | 数值<br>Rating | 单位<br>Unit |
|---|------------------------|--------------|------------|
| Drain-Source Voltage                    | $V_{DSS}$              | 800          | V          |
| Drain Current                           | $I_D(T_c=25^\circ C)$  | 10           | A          |
| Drain Current                           | $I_D(T_c=100^\circ C)$ | 6.5          | A          |
| Drain Current - Pulsed                  | $I_{DM}$               | 40           | A          |
| Gate-Source Voltage                     | $V_{GSS}$              | ±30          | V          |
| Single Pulsed Avalanche Energy          | $E_{AS}$               | 440          | mJ         |
| Repetitive Avalanche Energy             | $E_{AR}$               | 40           | mJ         |
| Avalanche Current                       | $I_{AR}$               | 2.8          | A          |
| Thermal Resistance, Junction to Case    | $R_{\theta JC}$        | 2.08         | °C/W       |
| Thermal Resistance, Junction to Ambient | $R_{\theta JA}$        | 100          | °C/W       |
| Power Dissipation                       | $P_D(T_c=25^\circ C)$  | 60           | W          |
| Operating and Storage Temperature Range | $T_J, T_{STG}$         | -55 to 150   | °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 |
|------------------------------------|--------------|---|------------|------------|------------|------------|
| Drain-Source Breakdown Voltage     | $BV_{DSS}$   | $V_{GS}=0V$ $I_D=250\mu A$                              | 800        |            |            | V          |
| Zero Gate Voltage Drain Current    | $I_{DSS}$    | $V_{DS}=800V$ $V_{GS}=0V$                               |            |            | 25         | μA         |
|                                    |              | $V_{DS}=720V$ $V_{GS}=0V$<br>$T_a=125^\circ C$          |            |            | 250        | μA         |
| Gate-Body Leakage Current Forward  | $I_{GSS}$    | $V_{GS}=\pm 20V$  |            |            | ±10        | μA         |
| Gate Threshold Voltage             | $V_{GS(th)}$ | $V_{DS}=V_{GS}$ $I_D=250\mu A$                          | 2.0        |            | 4.0        | V          |
| Static Drain-Source On-Resistance  | $R_{DS(on)}$ | $V_{GS}=10V$ $I_D=5A$                                   |            | 0.72       | 0.9        | Ω          |
| Forward Transconductance           | $g_{FS}$     | $V_{DS}=15V$ $I_D=10A$                                  |            | 20         |            | S          |
| Drain-Source Diode Forward Voltage | $V_{SD}$     | $V_{GS}=0V$ $I_S=9.5A$                                  |            |            | 1.4        | V          |
| Input Capacitance                  | $C_{iss}$    | $V_{DS}=25V$ $V_{GS}=0V$<br>$f=1.0MHz$                  |            | 2900       |            | pF         |
| Output Capacitance                 | $C_{oss}$    |   |            | 200        |            | pF         |
| Reverse Transfer Capacitance       | $C_{rss}$    |   |            | 25         |            | pF         |
| Turn-On Delay Time                 | $t_{d(on)}$  |   |            |            | 19         |            |
| Turn-On Rise Time                  | $t_r$        | $V_{DD}=400V$ $I_D=10A$<br>$R_G=4.7\Omega$ $V_{GS}=10V$ |            | 10         |            | ns         |
| Turn-Off Delay Time                | $t_{d(off)}$ |   |            | 68         |            | ns         |
| Turn-Off Fall Time                 | $t_f$        |   |            | 23         |            | ns         |

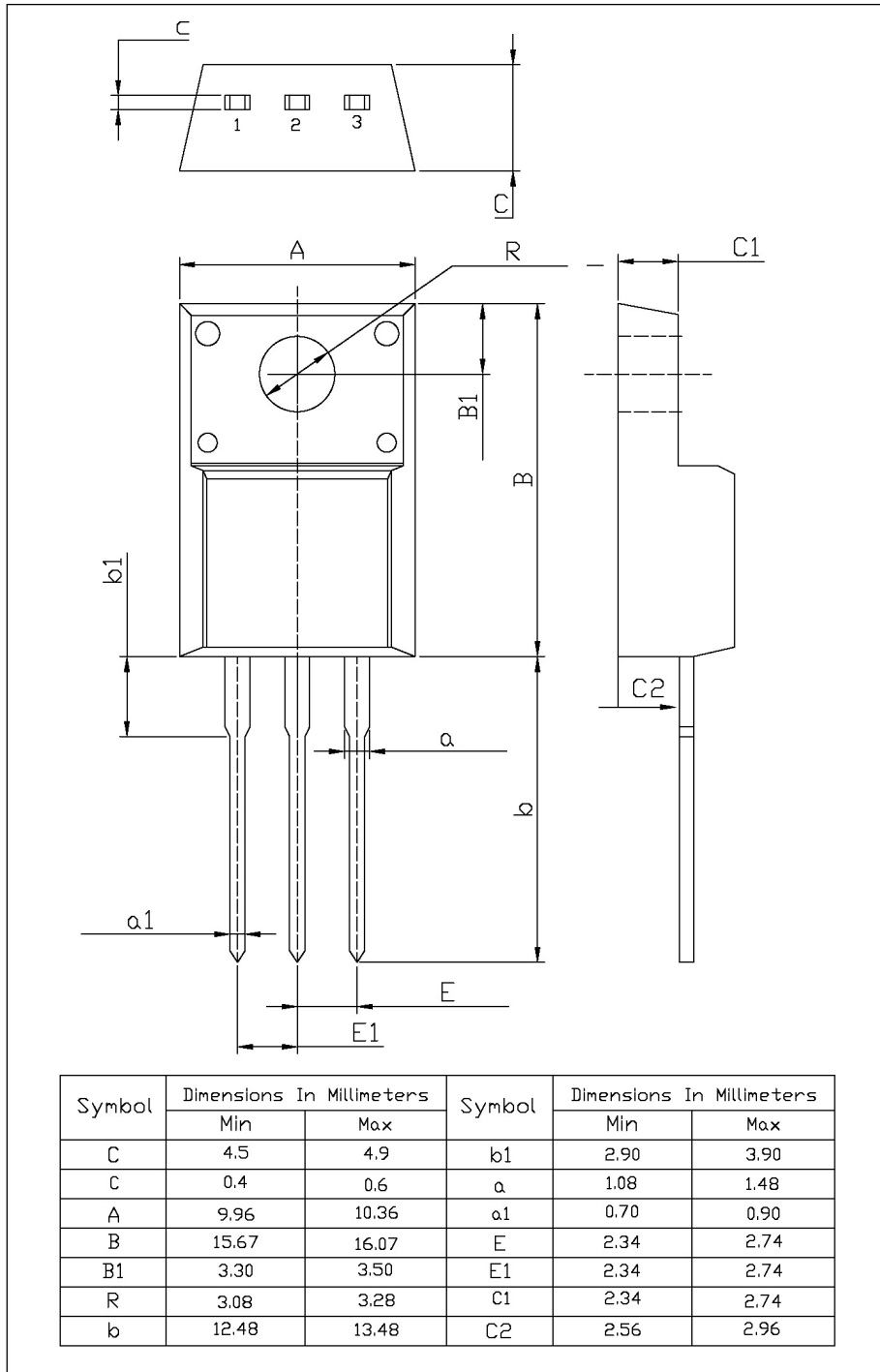
**电参数曲线图 / Electrical Characteristic Curve**



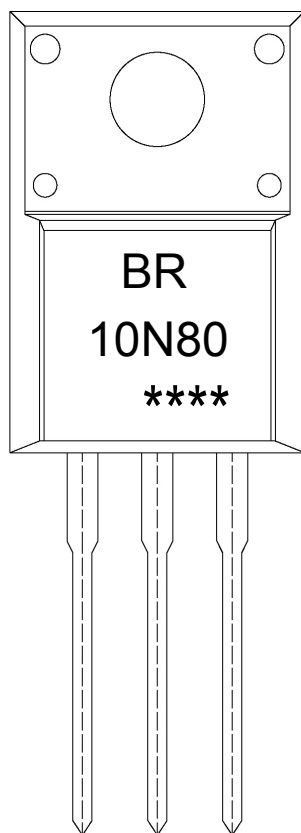
外形尺寸图 / Package Dimensions

TO-220FL

单位: mm



印章说明 / Marking Instructions



说明：

BR： 为公司代码

10N80： 为型号代码

\*\*\*\*： 为生产批号代码，随生产批号变化。

Note:

BR: Company Code

10N80: 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.**

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-220FL             | 50                 | 20                      | 1,000                  | 5                            | 5,000                  | 532×33×7.0                              | 555×164×50  | 575×290×180 |

**使用说明 / Notices**