

**描述 / Descriptions**

TO-263 塑封封装 N 沟道 MOS 场效应管。N-CHANNEL MOSFET in a TO-263 Plastic Package.

**特征 / Features**

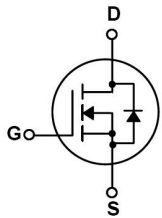
低栅电荷,低反馈电容,开关速度快。

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、 4 : D      PIN 3 : S

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

见印章说明。 See Marking Instructions

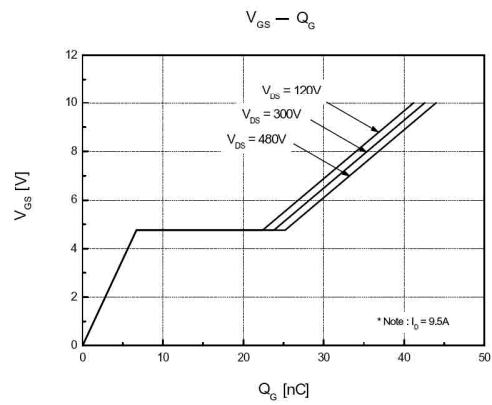
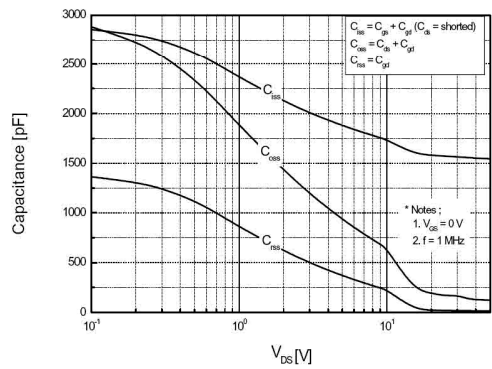
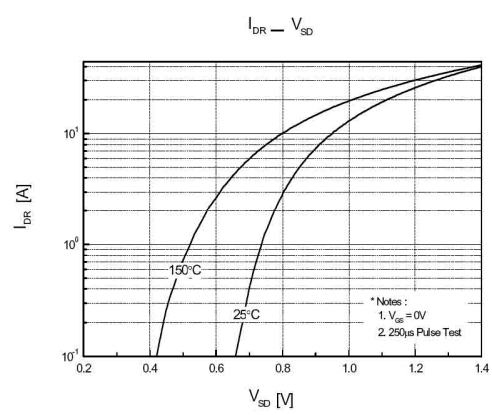
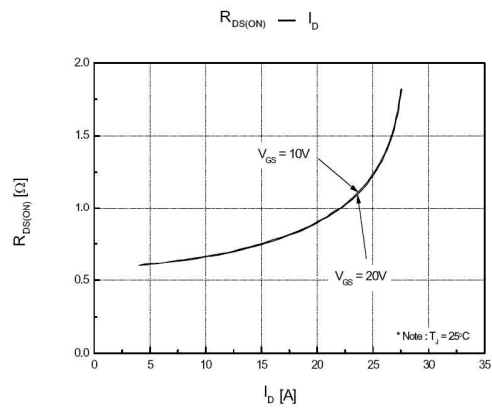
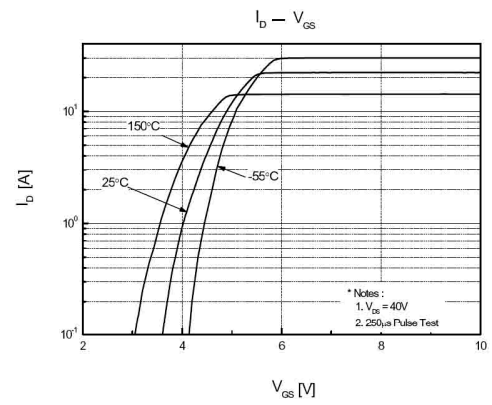
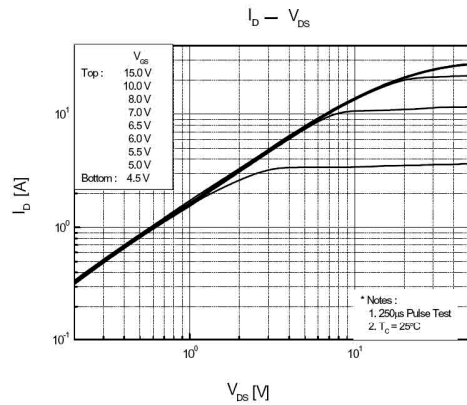

**极限参数 / Absolute Maximum Ratings(Ta=25°C)**

| 参数<br>Parameter                         | 符号<br>Symbol                   | 数值<br>Rating | 单位<br>Unit                  |
|-----------------------------------------|--------------------------------|--------------|-----------------------------|
| Drain-Source Voltage                    | $V_{DSS}$                      | 650          | V                           |
| Drain Current                           | $I_D(T_c=25^{\circ}\text{C})$  | 9.5          | A                           |
| Drain Current                           | $I_D(T_c=100^{\circ}\text{C})$ | 5.7          | A                           |
| Drain Current - Pulsed                  | $I_{DM}$                       | 38           | A                           |
| Gate-Source Voltage                     | $V_{GSS}$                      | $\pm 20$     | V                           |
| Single Pulsed Avalanche Energy          | $E_{AS}$                       | 700          | mJ                          |
| Repetitive Avalanche Energy             | $E_{AR}$                       | 15.6         | mJ                          |
| Avalanche Current                       | $I_{AR}$                       | 9.5          | A                           |
| Thermal Resistance, Junction-to-Case    | $R_{\theta JC}$                | 2.5          | $^{\circ}\text{C}/\text{W}$ |
| Thermal Resistance, Junction-to-Ambient | $R_{\theta JA}$                | 62.5         | $^{\circ}\text{C}/\text{W}$ |
| Power Dissipation                       | $P_D(T_c=25^{\circ}\text{C})$  | 156          | W                           |
| Operating and Storage Temperature Range | $T_J, T_{STG}$                 | -55 to 150   | $^{\circ}\text{C}$          |

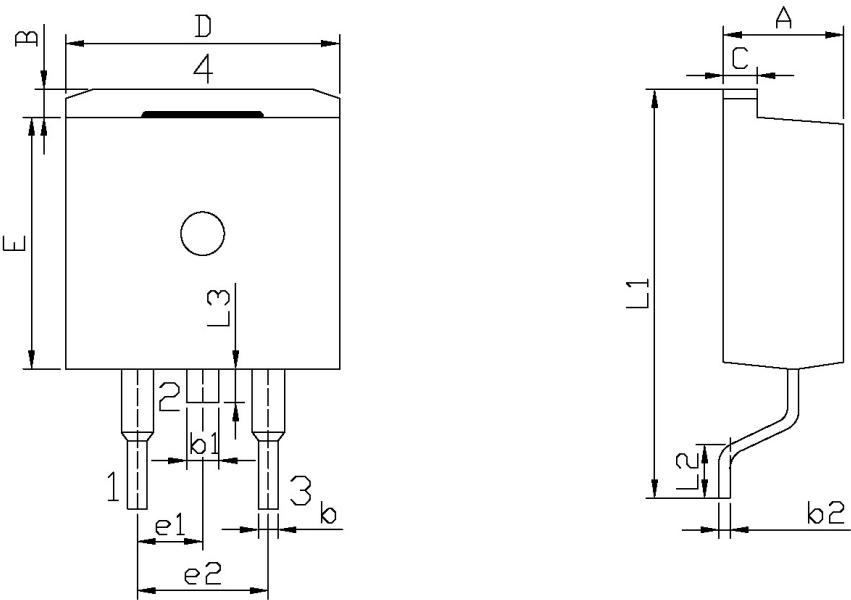
**电性能参数 / Electrical Characteristics(Ta=25°C)**

| 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     | $BV_{DSS}$   | $V_{GS}=0V$ $I_D=250\mu A$                    | 650        |            |            | V          |
| Zero Gate Voltage Drain Current    | $I_{DSS}$    | $V_{DS}=600V$ $V_{GS}=0V$                     |            |            | 1.0        | $\mu A$    |
|                                    |              | $V_{DS}=480V$ $T_c=125^{\circ}\text{C}$       |            |            | 10         | $\mu A$    |
| Gate-Body Leakage Current Forward  | $I_{GSS}$    | $V_{GS}=\pm 20V$ $V_{DS}=0V$                  |            |            | $\pm 10$   | $\mu A$    |
| 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  | $R_{DS(on)}$ | $V_{GS}=10V$ $I_D=4.75A$                      |            | 0.75       | 0.85       | $\Omega$   |
| Forward Transconductance           | $g_{FS}$     | $V_{DS}=40V$ $I_D=4.75A$                      |            | 8.0        |            | 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>$f=1.0\text{MHz}$ |            | 1570       | 2040       | pF         |
| Output Capacitance                 | $C_{oss}$    |                                               |            | 166        | 215        | pF         |
| Reverse Transfer Capacitance       | $C_{rss}$    |                                               |            | 18         | 24         | pF         |
| Turn-On Delay Time                 | $t_{d(on)}$  | $V_{DD}=300V$ $I_D=9.5A$<br>$R_G=25\Omega$    |            | 23         | 55         | ns         |
| Turn-On Rise Time                  | $t_r$        |                                               |            | 69         | 150        | ns         |
| Turn-Off Delay Time                | $t_{d(off)}$ |                                               |            | 144        | 300        | ns         |
| Turn-Off Fall Time                 | $t_f$        |                                               |            | 77         | 165        | ns         |

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



外形尺寸图 / Package Dimensions

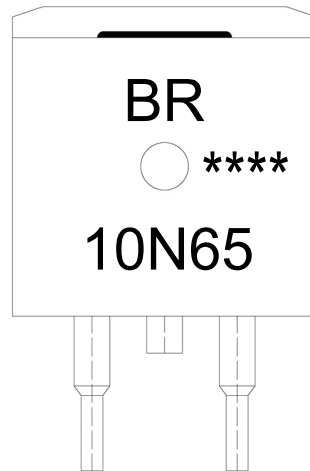


单位: mm

| Symbol | Dimensions In Millimeters |       | Symbol | Dimensions In Millimeters |       |
|--------|---------------------------|-------|--------|---------------------------|-------|
|        | Min                       | Max   |        | Min                       | Max   |
| A      | 4.30                      | 4.70  | E      | 9.00                      | 9.40  |
| B      | 1.00                      | 1.40  | e1     | 2.34                      | 2.74  |
| b      | 0.70                      | 0.90  | e2     | 4.88                      | 5.28  |
| b1     | 1.15                      | 1.35  | L1     | 15.00                     | 16.00 |
| b2     | 0.40                      | 0.60  | L2     | 2.24                      | 2.84  |
| C      | 1.20                      | 1.40  | L3     | 1.20                      | 1.60  |
| D      | 9.80                      | 10.20 |        |                           |       |

T□-263

**印章说明 / Marking Instructions**



说明：

BR： 为公司代码

10N65： 为型号代码

\*\*\*\*： 为生产批号代码，随生产批号变化。

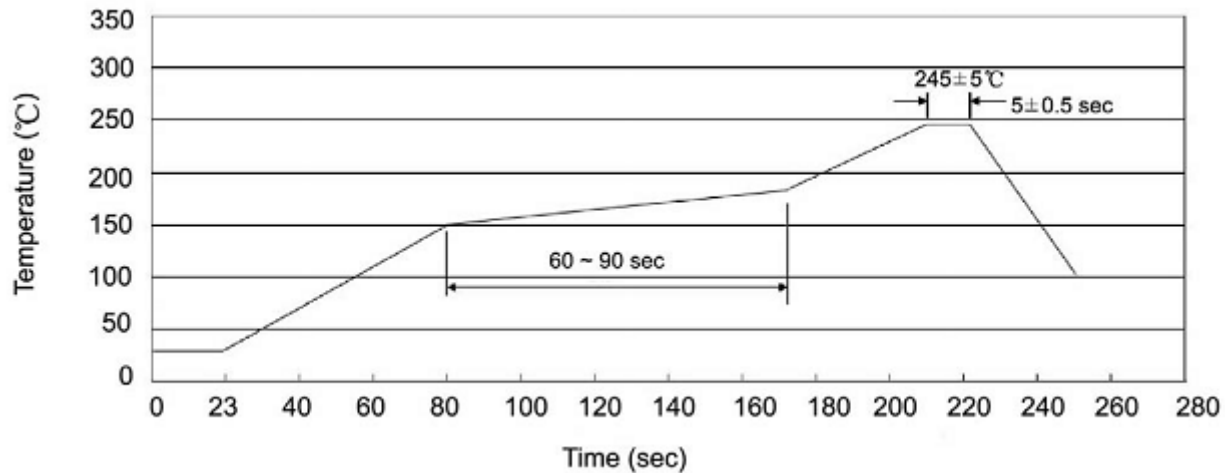
Note:

BR: Company Code

10N65: Product Type.

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

## 回流焊温度曲线图(无铅) / Temperature Profile for IR Reflow Soldering(Pb-Free)



说明：

- 1、预热温度 25~150°C，时间 60~90sec;
- 2、峰值温度 245±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.:245±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.

卷盘包装 / REEL

| Package Type<br>封装形式 | Units 包装数量         |                         |                        |                              |                        | Dimension 包装尺寸 (unit: mm <sup>3</sup> ) |             |             |
|----------------------|--------------------|-------------------------|------------------------|------------------------------|------------------------|-----------------------------------------|-------------|-------------|
|                      | Units/Reel<br>只/卷盘 | Reels/Inner Box<br>卷盘/盒 | Units/Inner Box<br>只/盒 | Inner Boxes/Outer Box<br>盒/箱 | Units/Outer Box<br>只/箱 | Reel                                    | Inner Box 盒 | Outer Box 箱 |
| TO-263               | 800                | 1                       | 800                    | 5                            | 4,000                  | 13" ×24                                 | 360×360×50  | 385×257×392 |

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-263               | 50                 | 20                      | 1,000                  | 5                            | 5,000                  | 532×33×7.0                              | 555×164×50  | 575×290×180 |

## 使用说明 / Notices