## 描述 / Descriptions

TO-263-7L 塑封封装 N 沟道场效应管。

N-CHANNEL MOSFET in a TO-263-7L Plastic Package.

## 特征 / Features

$V_{DS}$=100V $I_D$=300A

$R_{DS(on)}$@10V≤1.3mΩ(Type. 1.1mΩ)

$R_{DS(on)}$@6V≤1.9mΩ(Type. 1.5mΩ)

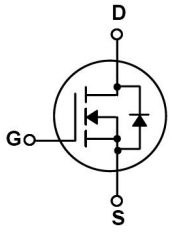
无卤产品。HF Product.

## 用途 / Applications

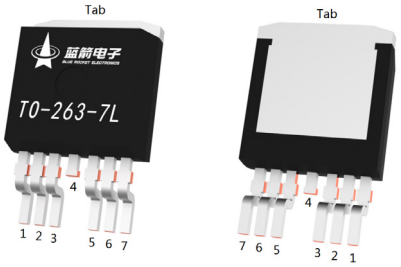
BMS，大功率逆变系统，无人机，轻型电动车。

BMS, High power inverter system, Drones, Light electric vehicles.

## 内部等效电路 / Equivalent Circuit




## 引脚排列 / Pinning




PIN1：G PIN 2、3、5、6、7：S PIN 4、Tab：D

## 印章代码 / Marking

见印章说明。

See Marking Instructions.

## 极限参数 / Absolute Maximum Ratings(Ta=25℃)

| 参数 Parameter | | 符号 Symbol | 数值 Rating | 单位 Unit |
|---|---|---|---|---|
| Drain-Source Voltage | | $V_{DS}$ | 100 | V |
| Drain Current（DC）*** | | $I_D$(Tc=25℃) | 300 | A |
| | | $I_D$(Tc=100℃) | 150 | A |
| Pulsed Drain Current*,**,*** | | $I_{DM}$ | 1200 | A |
| Gate-Source Voltage | | $V_{GS}$ | ±20 | V |
| Continuous-Source Current | | $I_S$(Tc=25℃) | 300 | A |
| Single Pulsed Avalanche Energy L=1.0mH* | | $E_{AS}$ | 1250 | mJ |
| Total Power Dissipation | | $P_D$(Tc=25℃) | 500 | W |
| Junction and Storage Temperature Range | | $T_J$,$T_{STG}$ | -55 to 175 | ℃ |
| Thermal Resistance-Junction to Ambient* | Steady-State | $R_{\theta JA}$ | 30 | ℃/W |
| Thermal Resistance-Junction to Case* | Steady-State | $R_{\theta JC}$ | 0.3 | |

Notes:
* : Surface Mounted on 1 $in^2$ pad area, t ≤ 10 sec
** : Pulse width ≤ 300 μs, duty cycle ≤ 2 %
*** : Limited by bonding wire

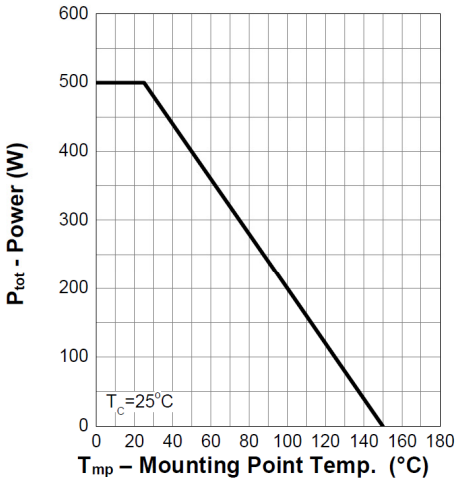
## 电性能参数 / Electrical Characteristics(Ta=25℃)

| 参数 Parameter | 符号 Symbol | 测试条件 Test Conditions | 最小值 Min | 典型值 Typ | 最大值 Max | 单位 Unit |
|---|---|---|---|---|---|---|
| Drain-Source Breakdown Voltage | $BV_{DSS}$ | $V_{GS}$=0V $I_D$=250μA | 100 | | | V |
| Zero Gate Voltage Drain Current | $I_{DSS}$ | $V_{DS}$=80V $V_{GS}$=0V | | | 1 | μA |
| Gate-Body Leakage Current Forward | $I_{GSS}$ | $V_{GS}$=±20V $V_{DS}$=0V | | | ±100 | nA |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}$=$V_{GS}$ $I_D$=250μA | 2 | | 4 | V |
| Static Drain-Source On-Resistance | $R_{DS(on)}$ | $V_{GS}$=10V $I_D$=50A | | 1.1 | 1.3 | mΩ |
| | | $V_{GS}$=6V $I_D$=25A | | 1.5 | 1.9 | |
| Forward On Voltage | $V_{SD}$ | $V_{GS}$=0V $I_S$=50A | | | 1.3 | V |
| Reverse Recovery Time | $t_{rr}$ | $I_{DS}$ = 50 A, $V_{GS}$ = 0 V dI$_{SD}$/dt = 100 A/μs | | 137 | | nS |
| Reverse Recovery Charge | $Q_{rr}$ | | | 347 | | nC |
| Input Capacitance | $C_{iss}$ | $V_{DS}$=50V $V_{GS}$=0V f=1MHz | | 11876 | | pF |
| Output Capacitance | $C_{oss}$ | | | 2041 | | |
| Reverse Transfer Capacitance | $C_{rss}$ | | | 106 | | |

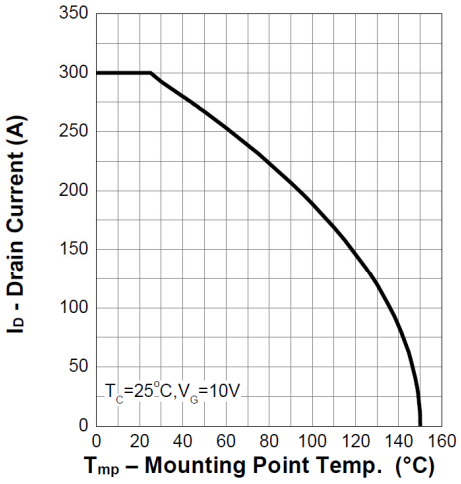
## 电性能参数 / Electrical Characteristics(Ta=25℃)

| 参数 Parameter | 符号 Symbol | 测试条件 Test Conditions | 最小值 Min | 典型值 Typ | 最大值 Max | 单位 Unit |
|---|---|---|---|---|---|---|
| Total Gate Charge | $Q_g$(10V) | $V_{GS}$=10V $V_{DS}$=50V $I_D$=50A | | 244 | | nC |
| Gate Source Charge | $Q_{gs}$ | | | 46 | | |
| Gate Drain Charge | $Q_{gd}$ | | | 67 | | |
| Turn-On Delay Time | $t_{d(on)}$ | $V_{GS}$=10V $V_{DS}$=50V $R_L$=2.5Ω $R_G$=4.5Ω $I_{DS}$=50A | | 29 | | nS |
| Turn-On Rise Time | $t_r$ | | | 121 | | |
| Turn-Off Delay Time | $t_{d(off)}$ | | | 198 | | |
| Turn-Off Fall Time | $t_f$ | | | 175 | | |

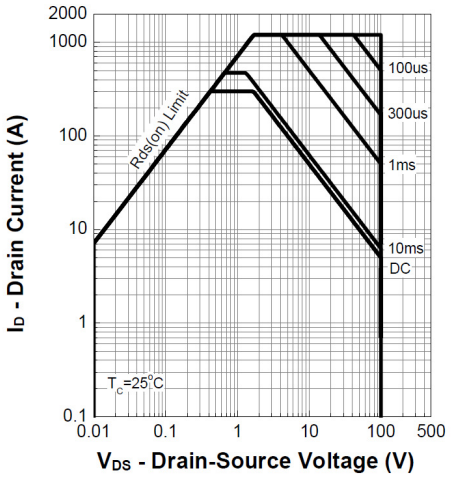
## 电参数曲线图 / Electrical Characteristic Curve



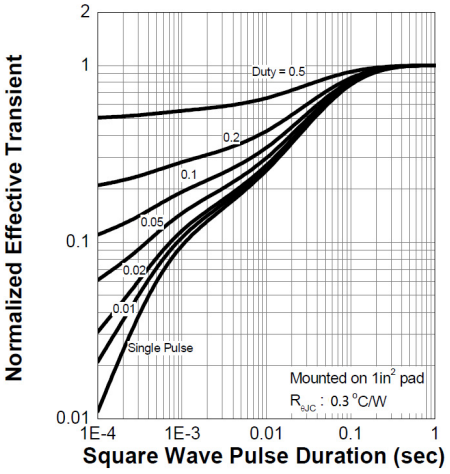

**1. Power Capability**



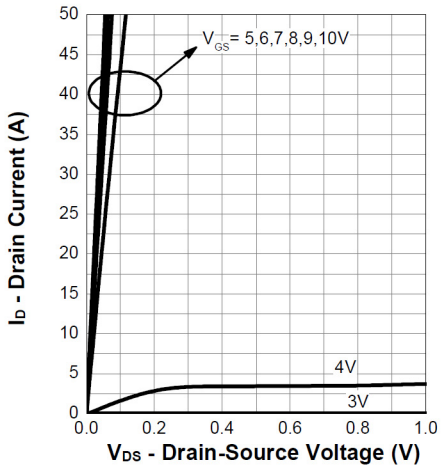

**2. Current Capability**



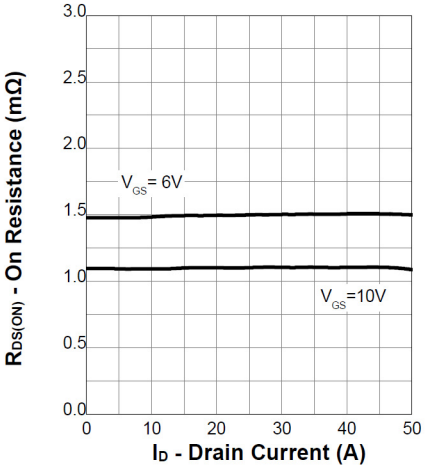

**3. Safe Operating Area**




**4. Transient Thermal Impedance**

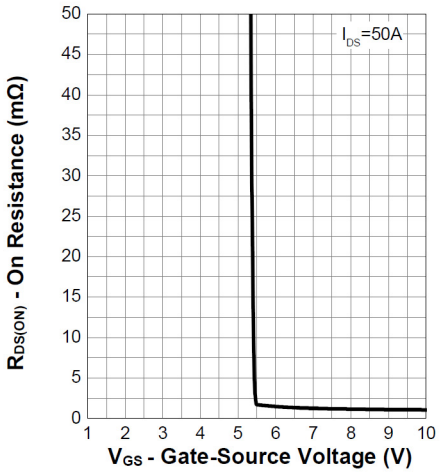



**5. Output Characteristics**

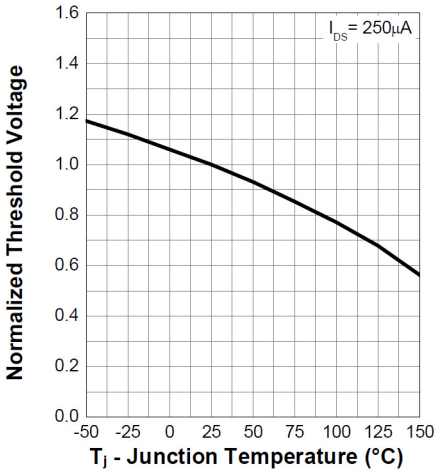



**6. On Resistance**

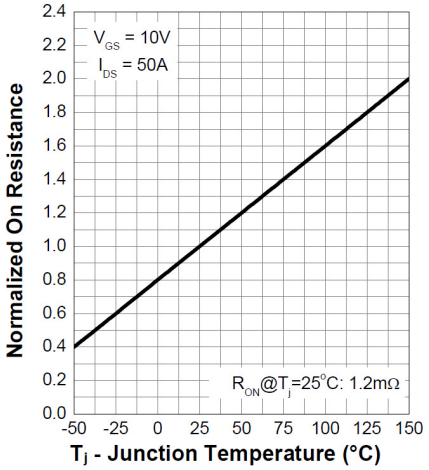
## 电参数曲线图 / Electrical Characteristic Curve



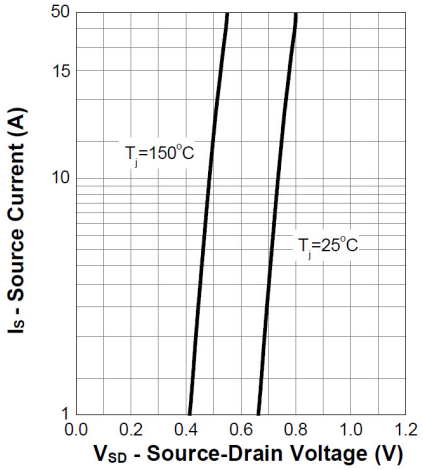

**7. Transfer Characteristics**



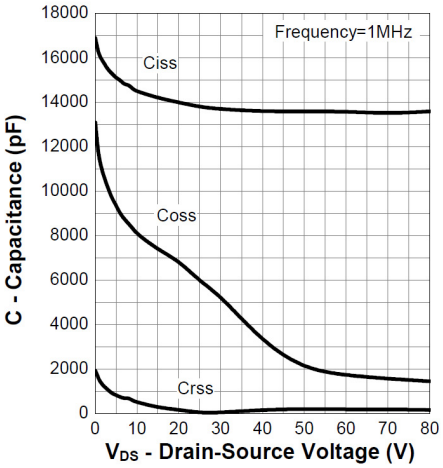

**8. Normalized Threshold Voltage**



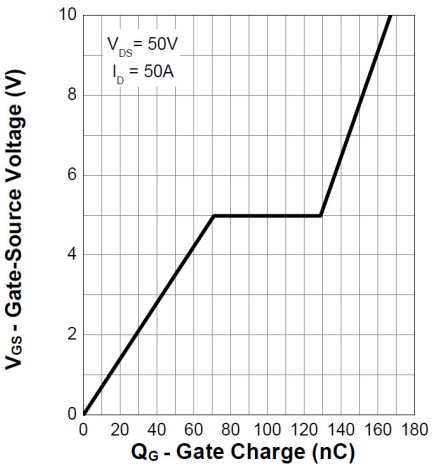

**9. Normalized On Resistance**




**10. Diode Forward Current**

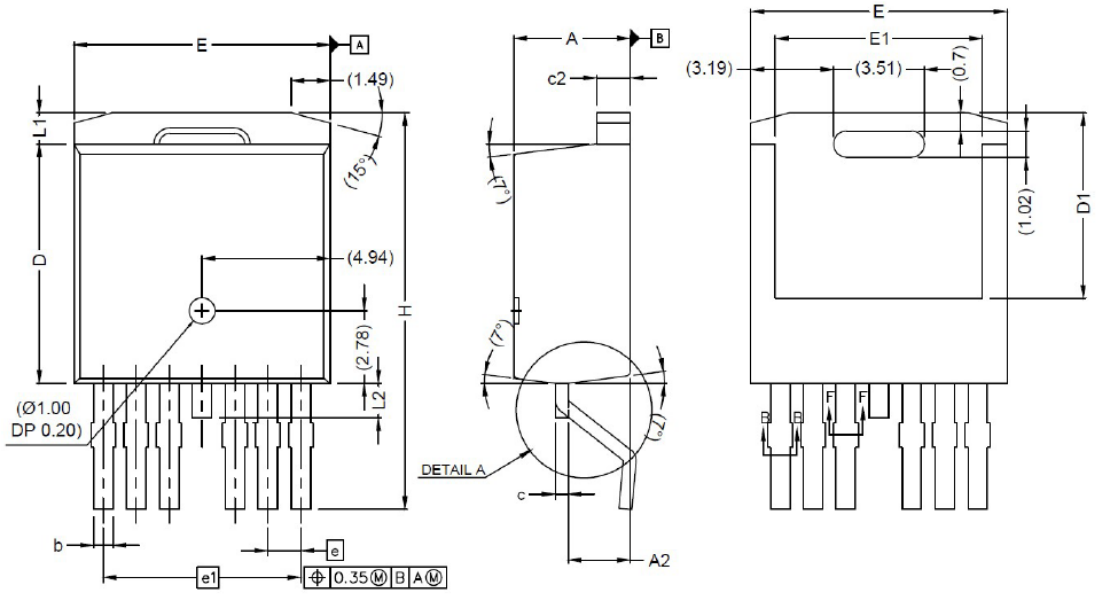


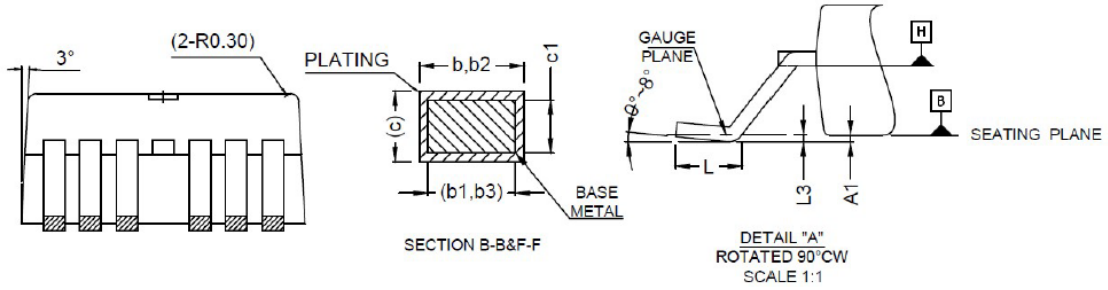

**11. Capacitance**




**12. Gate Charge**

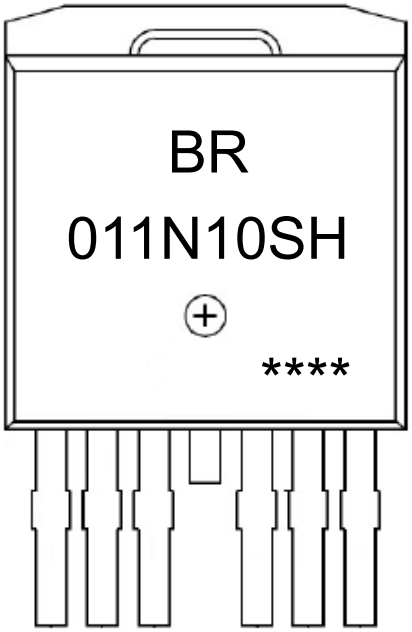
## 外形尺寸图 / Package Dimensions




| Symbol | Dimensions In Millimeters | | Symbol | Dimensions In Millimeters | |
|---|---|---|---|---|---|
| | MIN. | MAX. | | MIN. | MAX. |
| A | 4.30 | 4.70 | D1 | 6.86 | 7.42 |
| A1 | - | 0.25 | E | 9.68 | 10.08 |
| A2 | 2.20 | 2.60 | E1 | 7.70 | 8.30 |
| b | 0.65 | 0.85 | e | 1.27 BSC | |
| b1 | 0.65 | 0.80 | e1 | 7.62 BSC | |
| b2 | 0.80 | 1.00 | L | 1.78 | 2.79 |
| b3 | 0.80 | 0.95 | L1 | - | 1.60 |
| c | 0.45 | 0.60 | L2 | - | 1.78 |
| c1 | 0.45 | 0.55 | L3 | 0.25BSD | |
| c2 | 1.25 | 1.40 | H | 14.61 | 15.88 |
| D | 9.00 | 9.40 | | | |

## 印章说明 / Marking Instructions



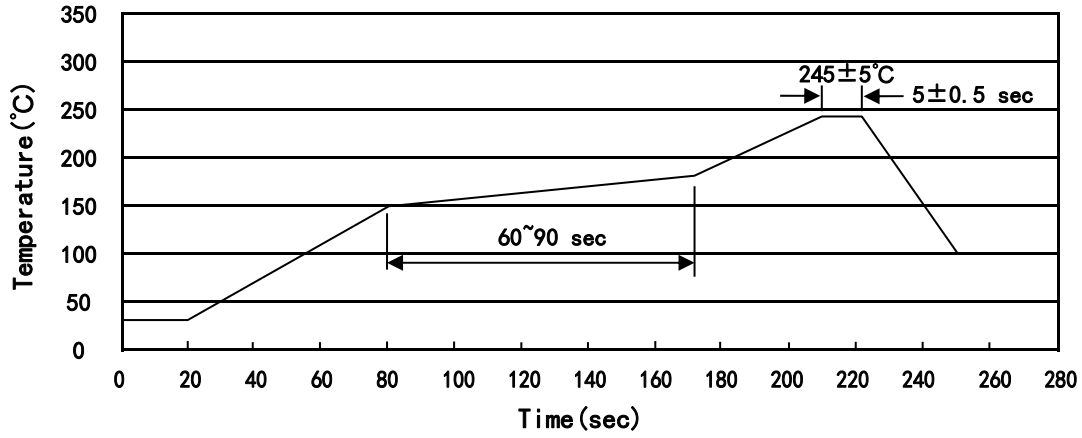

说明：

| | |
|---|---|
| BR： | 为公司代码 |
| 011N10SH： | 为型号代码 |
| ****： | 为生产批号代码，随生产批号变化 |

Note:

| | |
|---|---|
| BR: | Company Code |
| 011N10SH: | Product Type Code |
| ****: | 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 150～180℃，时间 60～90sec;

2、峰值温度 245±5℃，时间持续为 5±0.5sec;

3、焊接制程冷却速度为 2～10℃/sec.

Note:

1.Preheating:150~180℃, Time:60~90sec.

2.Peak Temp.:245±5℃, Duration:5±0.5sec.

3. Cooling Speed: 2~10℃/sec.

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

温度：260±5℃ 时间：10±1 sec. Temp.:260±5℃ Time:10±1 sec

## 包装规格 / Packaging SPEC.

卷盘包装 / REEL

| Package Type 封装形式 | Units 包装数量 | | | | | Dimension 包装尺寸 (unit：mm³) | | |
|---|---|---|---|---|---|---|---|---|
| | Units/Reel 只/卷盘 | Reels/Inner Box 卷盘/盒 | Units/Inner Box 只/盒 | Inner Boxes/Outer Box 盒/箱 | Units/Outer Box 只/箱 | Reel | Inner Box 盒 | Outer Box 箱 |
| TO-263-7L | 800 | 1 | 800 | 6 | 4,800 | 13″ ×24 | 360×360×50 | 380×335×366 |

## 使用说明 / Notices

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