

描述 / Descriptions

PDFN 5×6 封装 N 沟道场效应管。

N-Channel MOSFET in a PDFN 5×6 Plastic Package .

特征 / Features

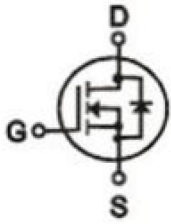
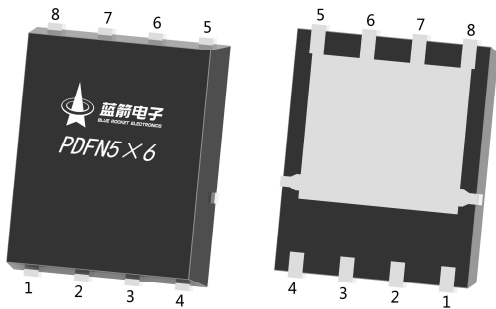
低电阻可最大地降低导电损耗；低栅极电荷，可实现快速切换；低热阻；无卤产品。

Low $R_{DS(ON)}$ to minimize conductive loss; low Gate Charge for fast switching; Low Thermal resistance; HF Product.

用途 / Applications

高频开关和同步整流，DC 电机驱动器

High Frequency Switching and Synchronous Rectification, DC-Motor Driver

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

PIN1、2、3: S PIN4: G PIN5、6、7、8: D

| Pin | 极性 |
|-----|----|
| 1 | S |
| 2 | S |
| 3 | S |
| 4 | G |
| 5 | D |
| 6 | D |
| 7 | D |
| 8 | D |

印章代码 / Marking

见印章说明。See Marking Instructions.

极限参数 / Absolute Maximum Ratings($T_a=25^\circ\text{C}$)

| 参数 Parameter | 符号 Symbol | 数值 Rating | 单位 Unit | |
|---|-----------------------------|-----------------|------------------|--------------------|
| Drain-Source Voltage | V_{DSS} | 40 | V | |
| Drain Current | $I_D(T_c=25^\circ\text{C})$ | 52 | A | |
| Drain Current - Pulsed | I_{DM} | 110 | A | |
| Gate-Source Voltage | V_{GS} | ± 20 | V | |
| Single Pulsed Avalanche Energy | E_{AS} | 67.6 | mJ | |
| Avalanche Current | I_{AS} | 13 | A | |
| Power Dissipation | $P_D(T_c=25^\circ\text{C})$ | 36.5 | W | |
| Operating and Storage Temperature Range | T_J, T_{stg} | -55 to 150 | $^\circ\text{C}$ | |
| Thermal resistance, junction - ambient | $t \leq 10\text{s}$ | $R_{\theta JA}$ | 20 | $^\circ\text{C/W}$ |
| | Steady-State | | 55 | |
| Thermal resistance, junction - case | Steady-State | $R_{\theta JC}$ | 3.4 | |

电性能参数 / Electrical Characteristics($T_a=25^\circ\text{C}$)

| 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} | $V_{GS}=0\text{V}$ $I_D=250\mu\text{A}$ | 40 | 47 | | V |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS}=40\text{V}$ $V_{GS}=0\text{V}$ | | | 1 | μA |
| Gate-Body Leakage Current Forward | I_{GSS} | $V_{GS}=\pm 20\text{V}$ $V_{DS}=0\text{V}$ | | | ± 0.1 | μA |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}=V_{GS}$ $I_D=250\mu\text{A}$ | 1.0 | 1.6 | 2.5 | V |
| Static Drain-Source On-Resistance | $R_{DS(on)}$ | $V_{GS}=10\text{V}$ $I_D=20\text{A}$ | | 6.4 | 8 | $\text{m}\Omega$ |
| | | $V_{GS}=4.5\text{V}$ $I_D=10\text{A}$ | | 10 | 13 | $\text{m}\Omega$ |
| Drain-Source Diode Forward Voltage | V_{SD} | $V_{GS}=0\text{V}$ $I_S=1\text{A}$ | | | 1.2 | V |
| Input Capacitance | C_{iss} | $V_{DS}=25\text{V}$ $V_{GS}=0\text{V}$ $f=1.0\text{MHz}$ | | 850 | | pF |
| Output Capacitance | C_{oss} | | | 115 | | |
| Reverse Transfer Capacitance | C_{rss} | | | 30 | | |
| Gate resistance | R_g | $V_{GS}=0\text{V}$ $f=1\text{MHz}$ $V_{DS}=0\text{V}$ | | 2.4 | | Ω |

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

| 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 | $Q_{g(10V)}$ | $V_{GS}=10V$ $V_{DS}=20V$ $I_D=20A$ | | 21 | | nC |
| Total Gate Charge | $Q_{g(4.5V)}$ | | | 8.8 | | |
| Gate Source Charge | Q_{gs} | | | 5.5 | | |
| Gate Drain Charge | Q_{gd} | | | 3.1 | | |
| Turn-On Delay Time | $t_{d(on)}$ | $V_{GS}=10V$ $V_{DS}=20V$ $R_L=1.0\Omega$ $R_{GEN}=3.0\Omega$ | | 7.5 | | ns |
| Turn-On Rise Time | t_r | | | 2 | | |
| Turn-Off Delay Time | $t_{d(off)}$ | | | 24 | | |
| Turn-Off Fall Time | t_f | | | 3 | | |

电参数曲线图 / Electrical Characteristic Curve

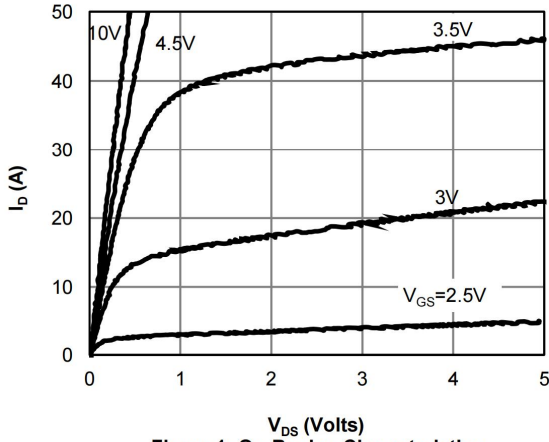


Figure 1: On-Region Characteristics

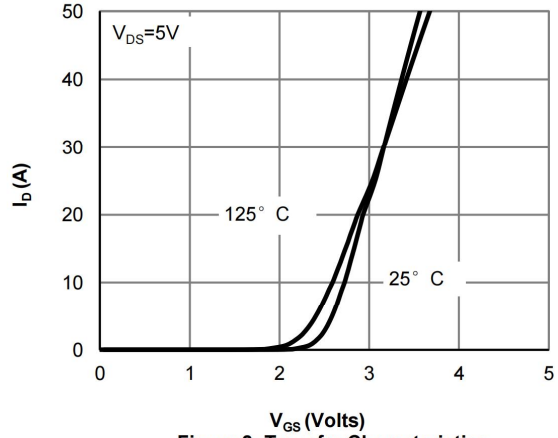


Figure 2: Transfer Characteristics

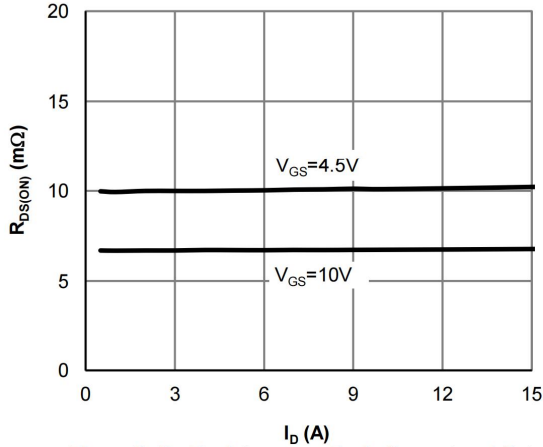


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

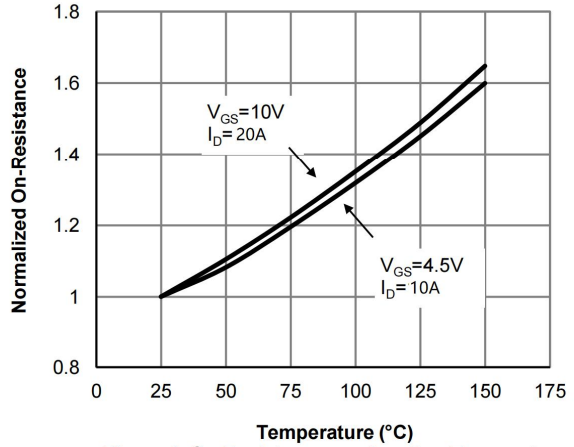


Figure 4: On-Resistance vs. Junction Temperature

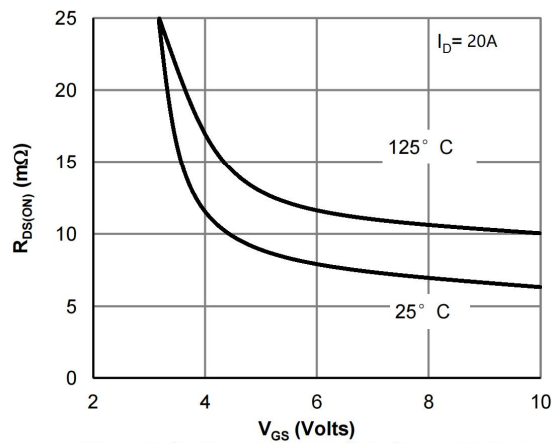


Figure 5: On-Resistance vs. Gate-Source Voltage

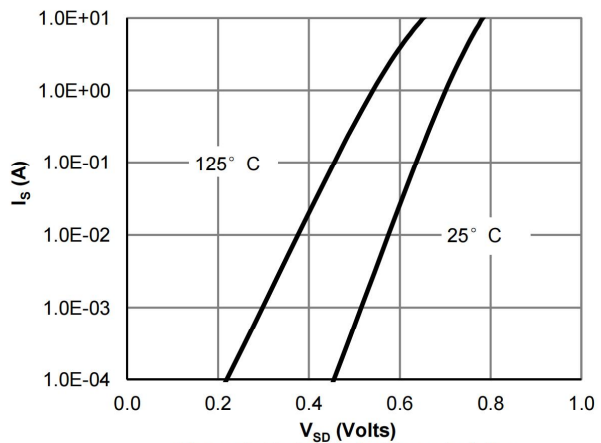


Figure 6: Body-Diode Characteristics

电参数曲线图 / Electrical Characteristic Curve

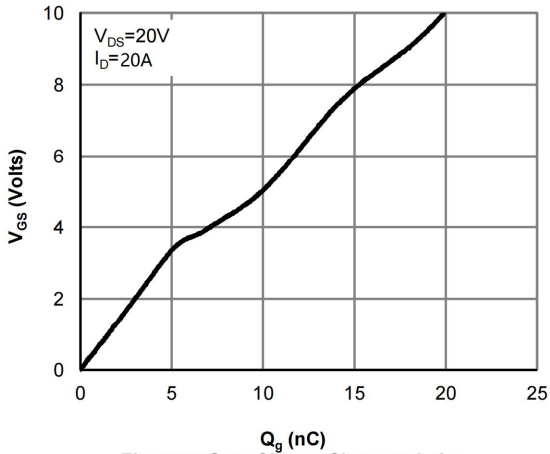


Figure 7: Gate-Charge Characteristics

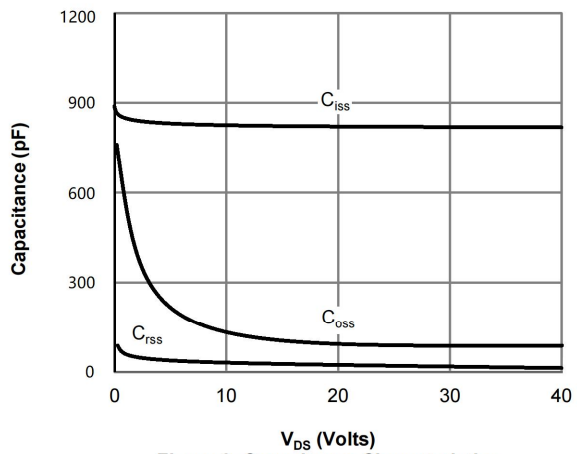


Figure 8: Capacitance Characteristics

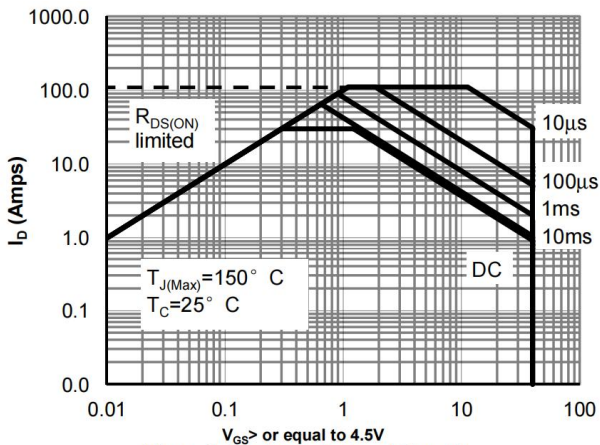


Figure 9: Maximum Forward Biased Safe Operating Area

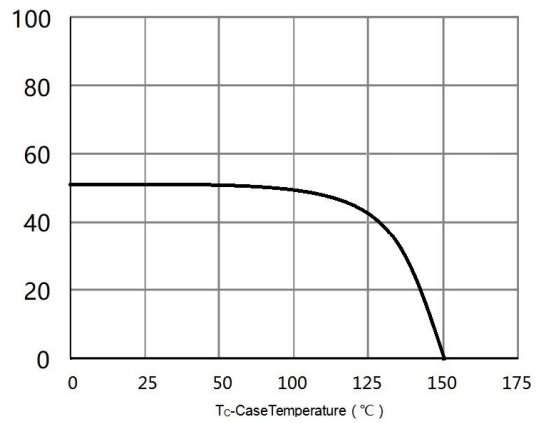


Figure 10: Maximum Continuous Drain Current Vs Case Temperature

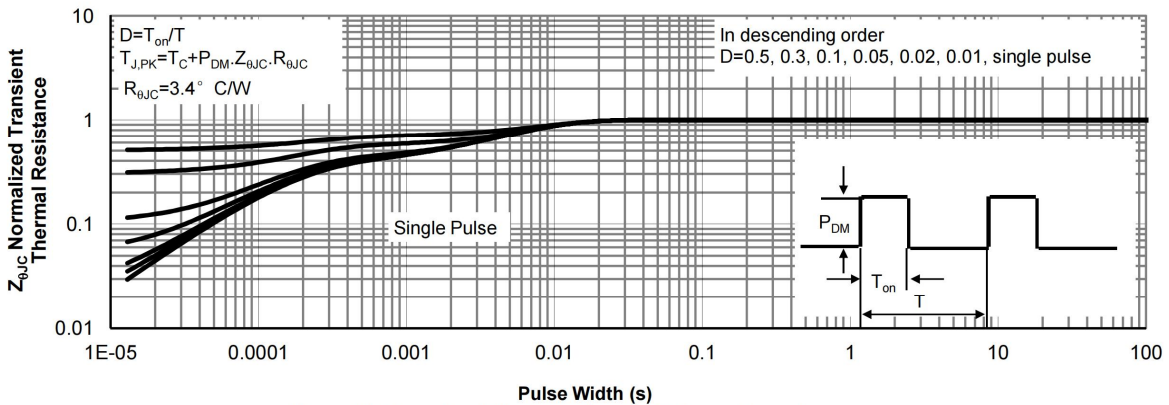
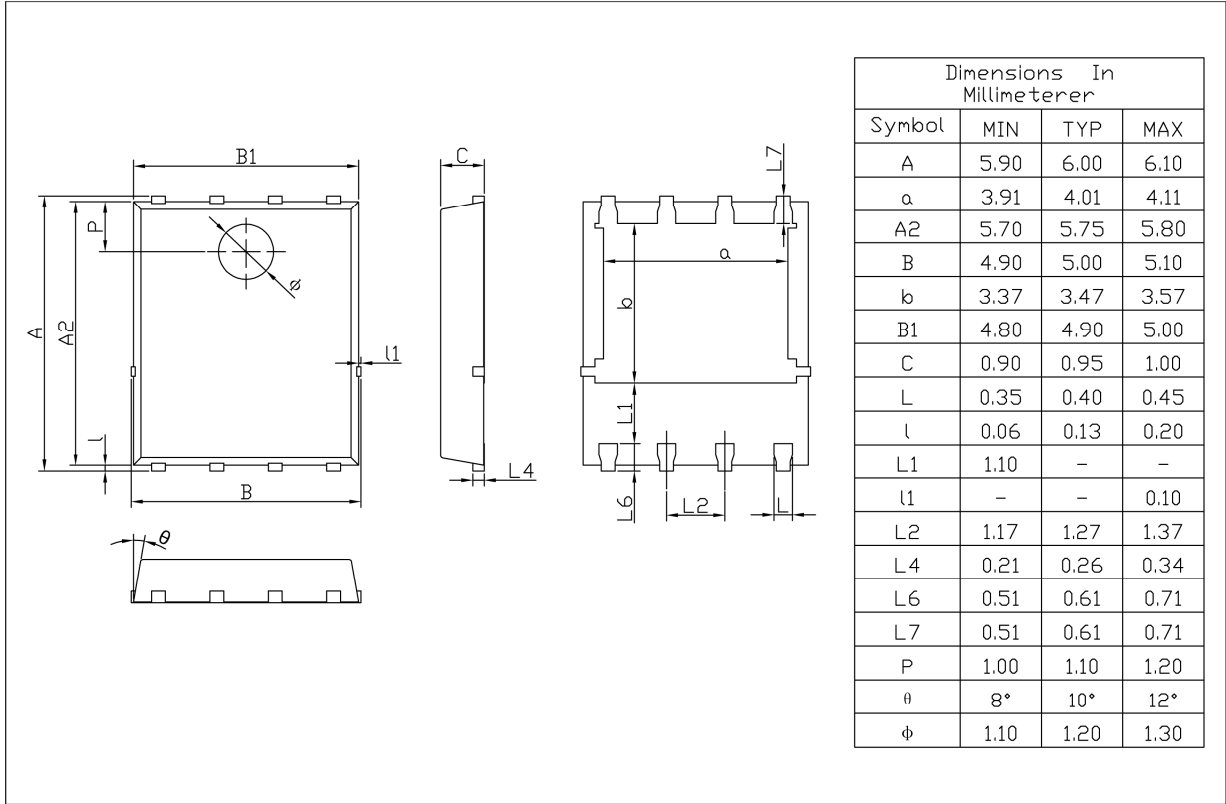


Figure 11: Normalized Maximum Transient Thermal Impedance

外形尺寸图 / Package Dimensions

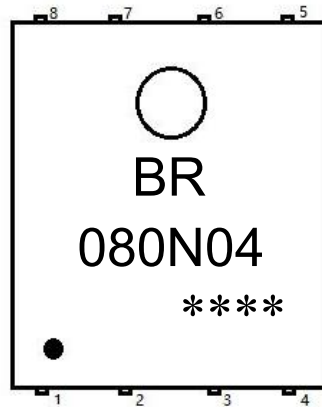
PDFN5 X6

Unit:mm



Rev.00 201812

印章说明 / Marking Instructions



说明：

BR： 为公司代码

080N04： 为产品型号

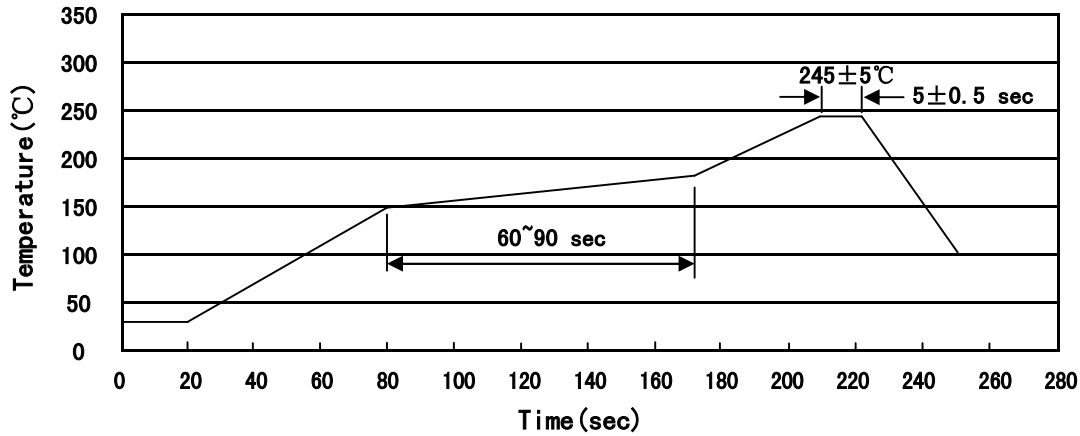
****： 为生产批号代码，随生产批号变化

Note：

BR： Company Code

080N04： 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 150~180°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:150~180°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：260±5°C

时间：10±1 sec.

Temp.:260±5°C

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: mm ³) | | |
|----------------------|--------------------|-------------------------|------------------------|------------------------------|------------------------|---|----------------|-----------------|
| | 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 |
| PDFN5 × 6 | 5000 | 2 | 10000 | 6 | 60000 | 13" × 12 | 360 × 360 × 50 | 380 × 335 × 366 |

使用说明 / Notices

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