

描述 / Descriptions

SOT23-3 塑封封装 N 道 MOS 场效应管。

N- CHANNEL MOSFET in a SOT23-3 Plastic Package.

特征 / Features

$V_{DS} (V) = 30V$

$I_D = 5.5 A (V_{GS} = 20V)$

$R_{DS(ON)} < 31m\Omega (V_{GS} = 10V)$

$R_{DS(ON)} < 43m\Omega (V_{GS} = 4.5V)$

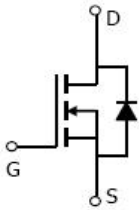
无卤产品，HF Product.

用途 / Applications

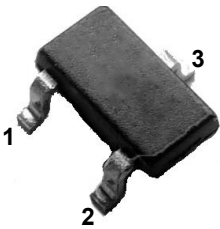
适用于作负载开关或脉宽调制应用。

This device is suitable for use as a load switch or in PWM applications.

内部等效电路 / Equivalent Circuit



引脚排列 / Pinning



PIN1 : G

PIN 2 : S

PIN 3 : D

印章代码 / Marking

Marking

B4H

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

| 参数 Parameter | 符号 Symbol | 数值 Rating | 单位 Unit |
|--|-----------------|--------------|------------|
| Drain-Source Voltage | V_{DS} | 30 | V |
| Drain Current – Continuous | I_D | 5.5 | A |
| Pulsed Drain Current | I_{DM} | 19 | A |
| Gate-Source Voltage | V_{GS} | ±20 | V |
| Total Power Dissipation | P_D | 1.4 | W |
| Operating and Storage Junction Temperature Range | T_J, T_{STG} | -55 to 150 | °C |
| Maximum Junction-to-Ambient | $t \leq 10s$ | 90 | °C/W |
| Maximum Junction-to-Ambient | Steady-State | | |
| Maximum Junction-to-Lead | $R_{\theta JL}$ | 80 | |

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 |
|------------------------------------|-----------------|--|------------|------------|------------|------------|
| Drain–Source Breakdown Voltage | BV_{DSS} | $V_{GS}=0V$ $I_D=250\mu A$ | 30 | | | V |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS}=24V$ $V_{GS}=0V$ | | | 1 | μA |
| | | $V_{DS}=24V$ $V_{GS}=0V$ $T_J=55^\circ C$ | | | 5 | μA |
| Gate–Body Leakage. | I_{GSS} | $V_{GS}=\pm 20V$ $V_{DS}=0V$ | | | ±0.1 | μA |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}=V_{GS}$ $I_D=250\mu A$ | 1.0 | 1.5 | 2.5 | V |
| Static Drain–Source On–Resistance | $R_{DS(on)(1)}$ | $V_{GS}=10V$ $I_D=5.5A$ | | 20 | 31 | $m\Omega$ |
| | $R_{DS(on)(2)}$ | $V_{GS}=4.5V$ $I_D=4A$ | | 26 | 43 | |
| Drain–Source Diode Forward Voltage | V_{SD} | $V_{GS}=0V$ $I_S=1A$ | | 0.77 | 1 | V |
| Input Capacitance | C_{iss} | $V_{DS}=25V$ $V_{GS}=0V$ $f=1MHz$ | | 380 | | pF |
| Output Capacitance | C_{oss} | | | 165 | | |
| Reverse Transfer Capacitance | C_{rss} | | | 15 | | |
| Total Gate Charge | $Q_{g(10V)}$ | $V_{GS}=10V,$ $V_{DS}=15V,$ $I_D=5.5A$ | | 5.2 | | nC |
| Total Gate Charge | $Q_{g(4.5V)}$ | | | 2.5 | | |
| Gate Source Charge | Q_{gs} | | | 0.8 | | |
| Gate Drain Charge | Q_{gd} | | | 1.3 | | |
| Turn–On Delay Time | $t_{d(on)}$ | $V_{GS}=10V$ $R_L=3\Omega$ $V_{DS}=15V$ $R_{GEN}=3\Omega$ | | 4.5 | | ns |
| Turn–On Rise Time | t_r | | | 2.5 | | |
| Turn–Off Delay Time | $t_{d(off)}$ | | | 14.5 | | |
| Turn–Off Fall Time | t_f | | | 3.5 | | |

电参数曲线图 / Electrical Characteristic Curve

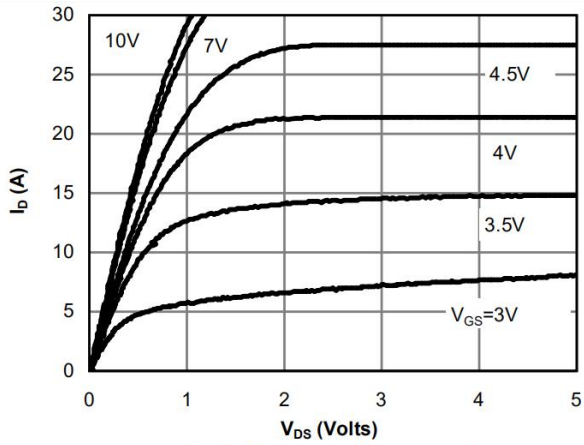


Fig 1: On-Region Characteristics

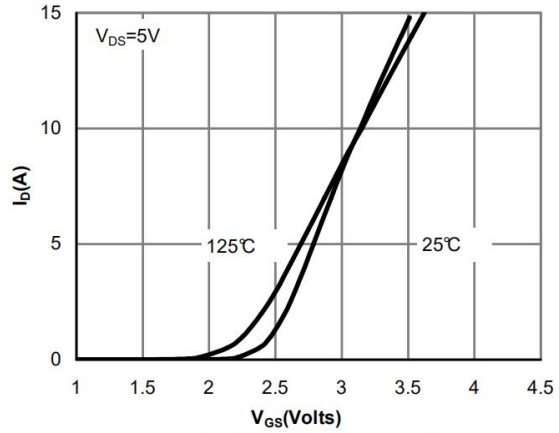


Figure 2: Transfer Characteristics

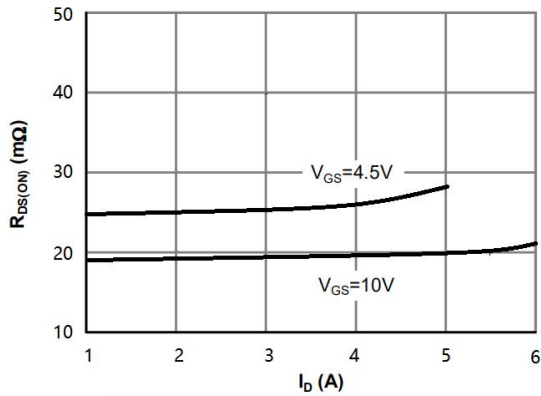


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

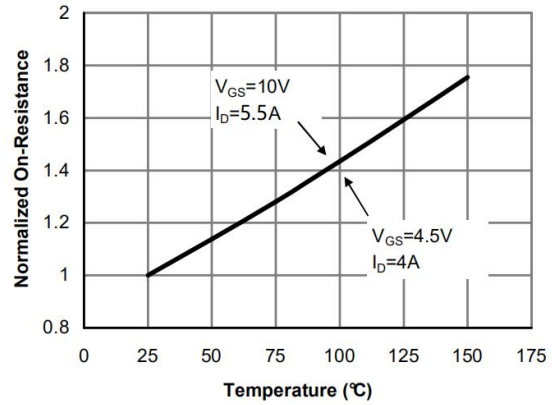


Figure 4: On-Resistance vs. Junction Temperature

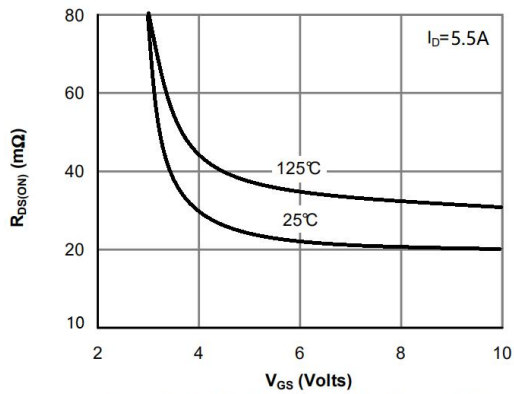


Figure 5: On-Resistance vs. Gate-Source Voltage

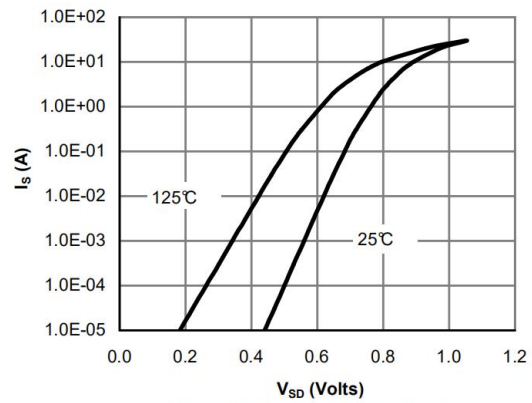


Figure 6: Body-Diode Characteristics

电参数曲线图 / Electrical Characteristic Curve

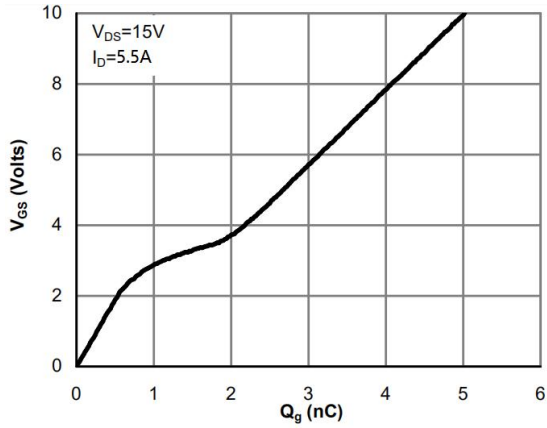


Figure 7: Gate-Charge Characteristics

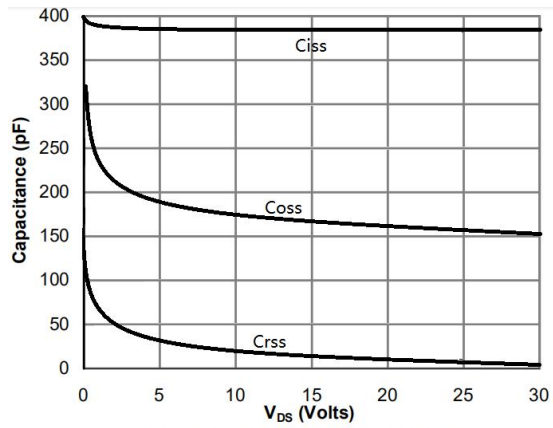


Figure 8: Capacitance Characteristics

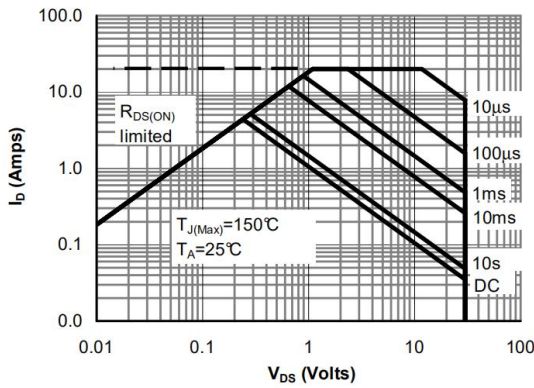


Figure 09: Maximum Forward Biased Safe Operating Area

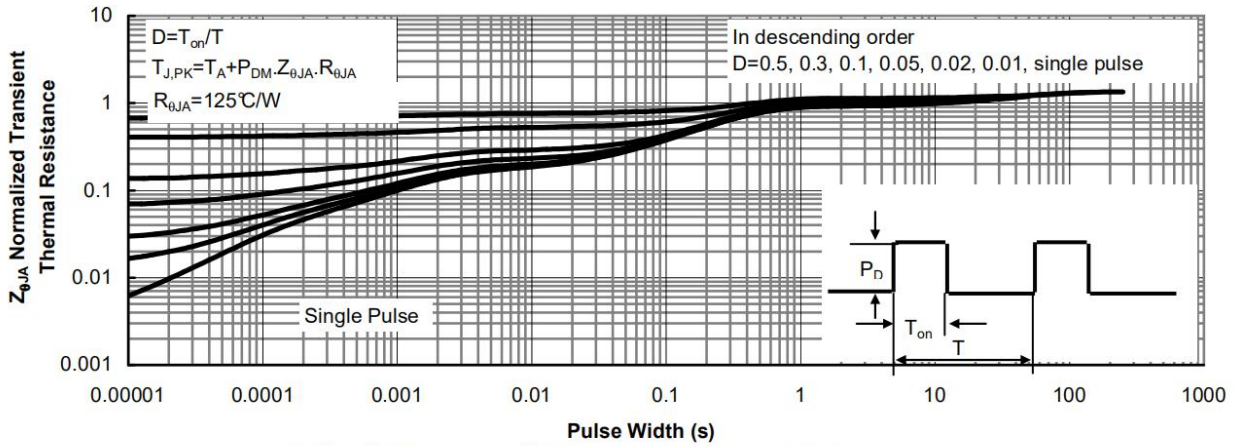
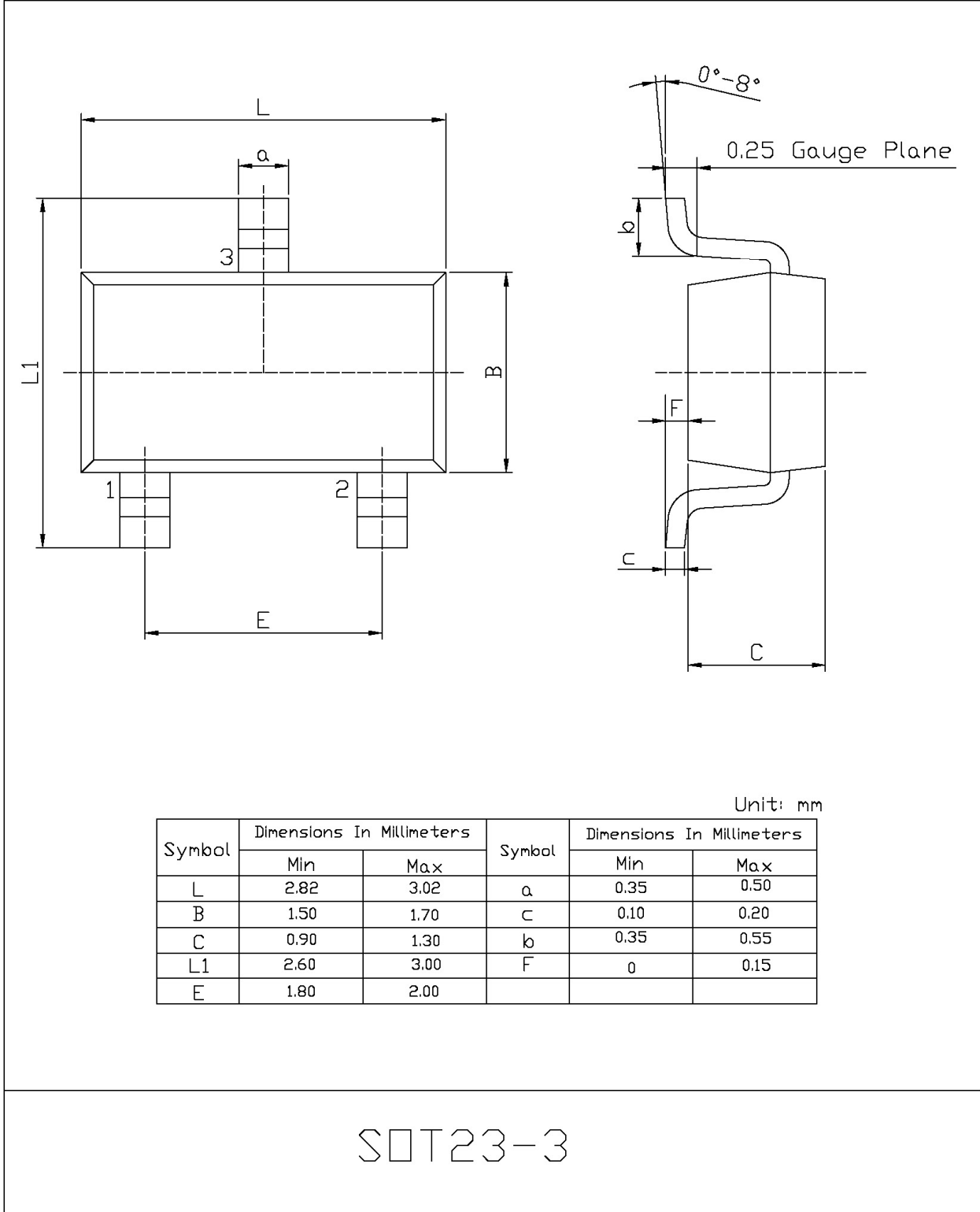
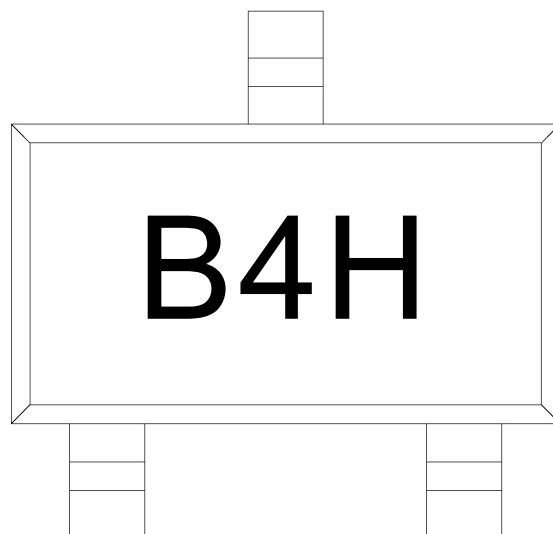


Figure 10: Normalized Maximum Transient Thermal Impedance

外形尺寸图 / Package Dimensions



印章说明 / Marking Instructions



说明：

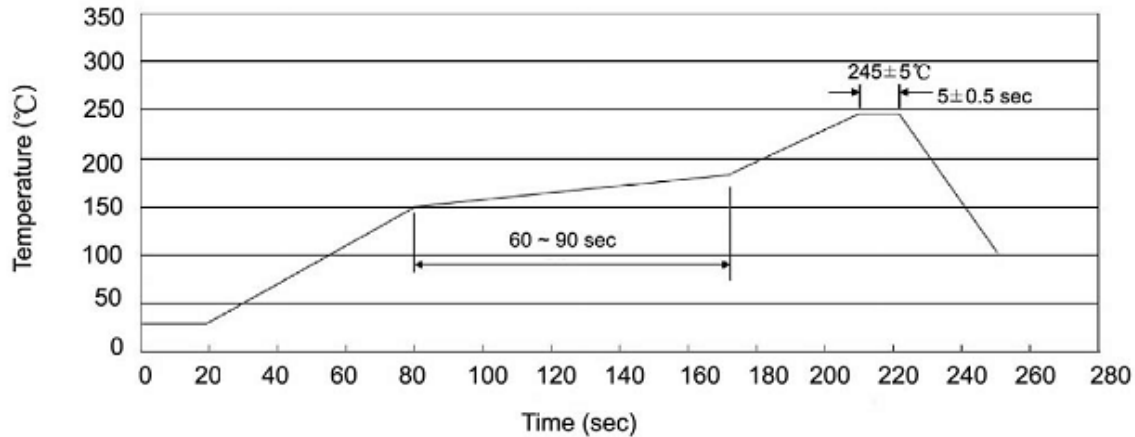
B4： 为型号代码

H： 为公司代码

Note:

B4: Product Type Code.

H: Company Code.

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 |
| SOT-23-3 | 3,000 | 10 | 30,000 | 4 | 120,000 | 7" ×8 | 210×205×205 | 445×230×435 |

使用说明 / Notices