

BRCS200P012MF

Rev.A Dec.-2023

描述 / Descriptions

SOT23-6 塑封封装 P 道 MOS 场效应管。
P- CHANNEL MOSFET in a SOT23-6 Plastic Package.

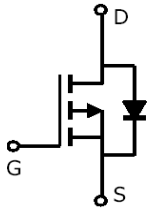
特征 / Features

$V_{DS} (V) = -12V$ $I_D = -8.0A$
 $R_{DS(ON)}@-10V \leq 20m\Omega$ (Type.18m Ω)
 $R_{DS(ON)}@-4.5V \leq 25m\Omega$ (Type.21m Ω)
 $R_{DS(ON)}@-2.5V \leq 30m\Omega$ (Type.27m Ω)
 $R_{DS(ON)}@-1.8V \leq 50m\Omega$ (Type.40m Ω)
 无卤产品。HF Product.

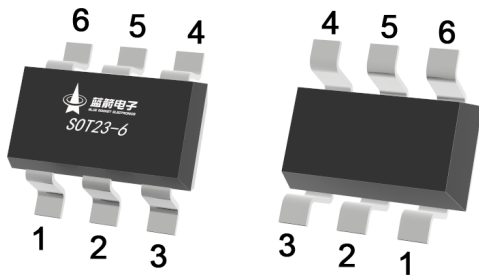
用途 / Applications

脉宽调制应用，负载开关，电源管理。
PWM applications, Load switch, Power management.

内部等效电路 / Equivalent Circuit



引脚排列 / Pinning



PIN1、2、5、6 : D

PIN 3 : G

PIN 4 : S

印章代码 / Marking

见印章说明。
See Marking Instructions.

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 _{DSS} | -12 | V |
| Gate-Source Voltage | V _{GSS} | ±8 | V |
| Continuous Drain Current | I _D (T _C =25°C) | -8.0 | A |
| Pulsed Drain Current | I _{DM} | -25 | A |
| Power Dissipation for Single Operation | P _D (T _C =25°C) | 1.8 | W |
| Maximum Junction Temperature | T _j | 150 | °C |
| Storage Temperature Range | T _{stg} | -55 ~ 150 | °C |
| Thermal Resistance-Junction to Ambient | R _{θJA} | 125 | °C/W |
| Thermal Resistance-Junction to Case | R _{θJC} | 69 | °C/W |

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} | I _D =-250μA V _{GS} =0V | -12 | -17.5 | | V |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} =-12V V _{GS} =0V | | | -1.0 | μA |
| Gate-Body leakage current | I _{GSS} | V _{DS} =0V V _{GS} =±8V | | | ±100 | nA |
| Gate Threshold Voltage | V _{GS(th)} | V _{DS} =V _{GS} I _D =-250μA | -0.5 | -0.6 | -1.0 | V |
| Static Drain-Source On-Resistance | R _{DS(ON)} | V _{GS} =-10V I _D =-3.0A | | 18 | 20 | mΩ |
| | | V _{GS} =-4.5V I _D =-3.0A | | 21 | 25 | |
| | | V _{GS} =-2.5V I _D =-2.0A | | 27 | 30 | |
| | | V _{GS} =-1.8V I _D =-1.0A | | 40 | 50 | |
| Diode Forward Voltage | V _{SD} | I _S =-1A V _{GS} =0V | | | -1.2 | V |
| Gate resistance | R _g | V _{GS} =0V, V _{DS} =0V, f=1MHz | | 14 | | Ω |
| Input Capacitance | C _{iss} | V _{GS} =0V V _{DS} =-6V f=1MHz | | 1700 | | pF |
| Output Capacitance | C _{oss} | | | 580 | | |
| Reverse Transfer Capacitance | C _{rss} | | | 250 | | |

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 | $V_{GS}=-4.5V$ $V_{DS}=-6V$ $I_D=-8A$ | | 13 | | nC |
| Gate-Source Charge | Q_{gs} | | | 1.8 | | |
| Gate-Drain Charge | Q_{gd} | | | 3.5 | | |
| Turn-on Delay Time | $t_{d(ON)}$ | $V_{GS}=-4.5V$ $V_{DS}=-6V$ $R_L=0.75\Omega$ $R_{GEN}=3\Omega$ | | 11.5 | | ns |
| Turn-on Rise Time | t_r | | | 25.3 | | |
| Turn-off Delay Time | $t_{d(OFF)}$ | | | 72 | | |
| Turn-off Fall Time | t_f | | | 42 | | |

电参数曲线图 / Electrical Characteristic Curve

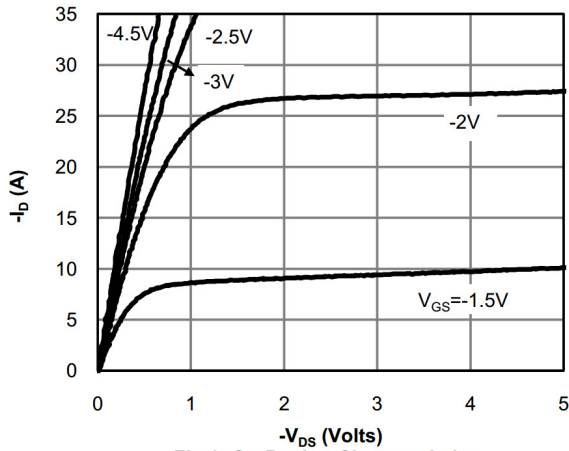


Fig 1: On-Region Characteristics

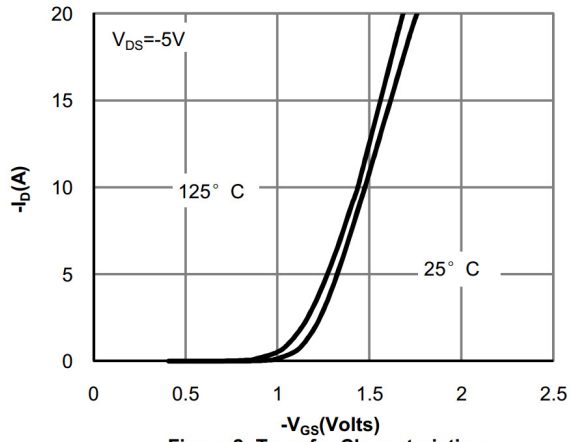


Figure 2: Transfer Characteristics

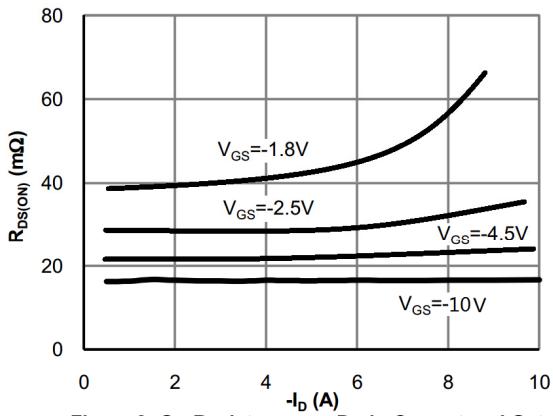


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

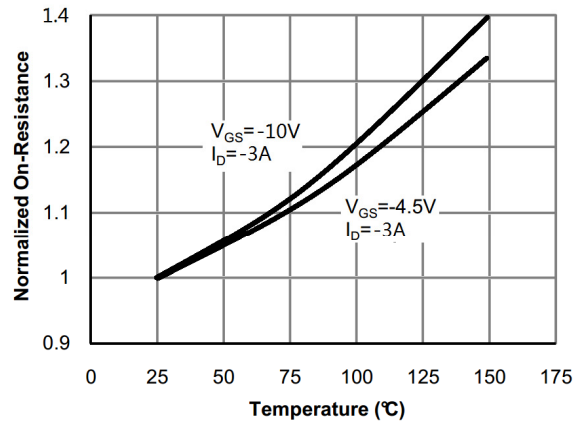


Figure 4: On-Resistance vs. Junction Temperature

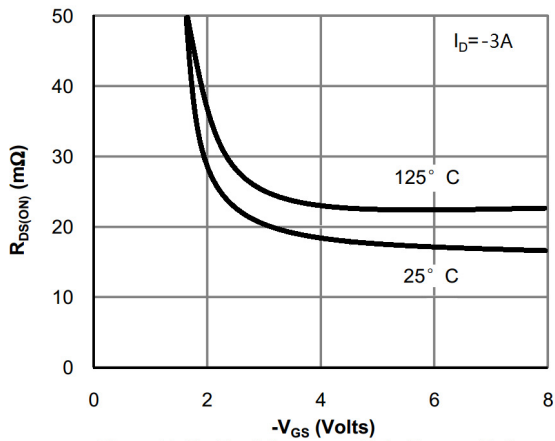


Figure 5: On-Resistance vs. Gate-Source Voltage

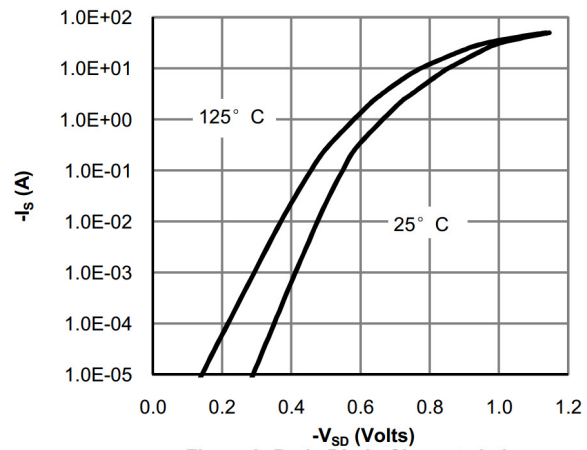
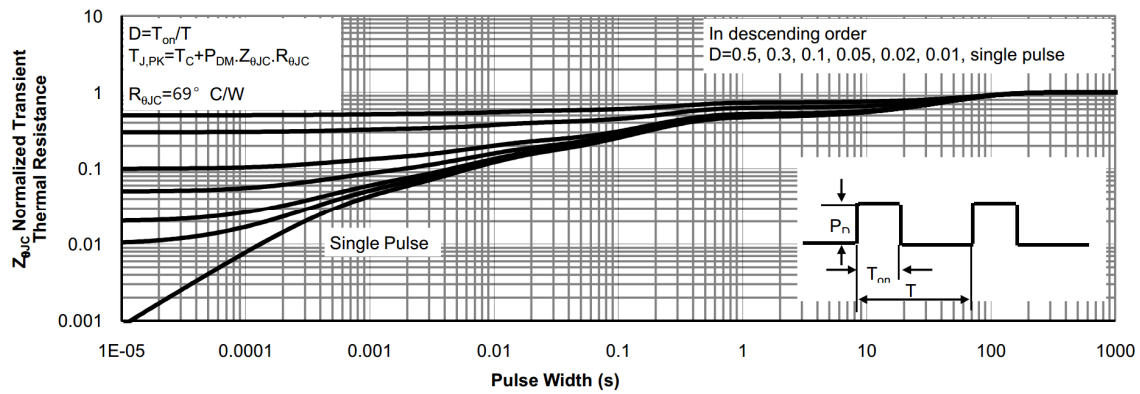
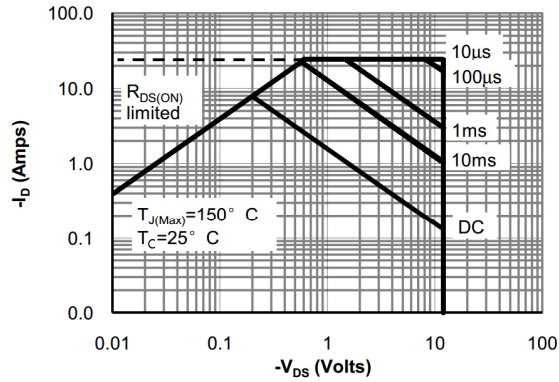
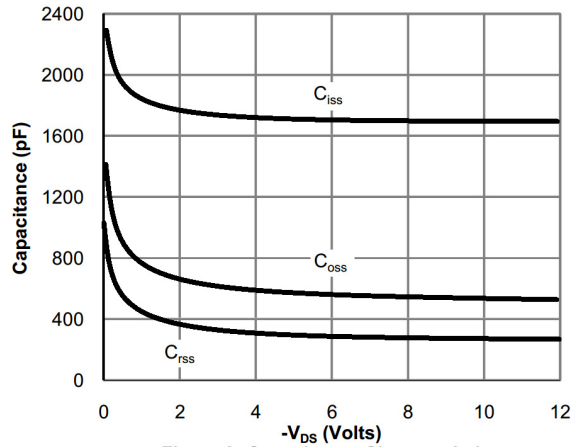
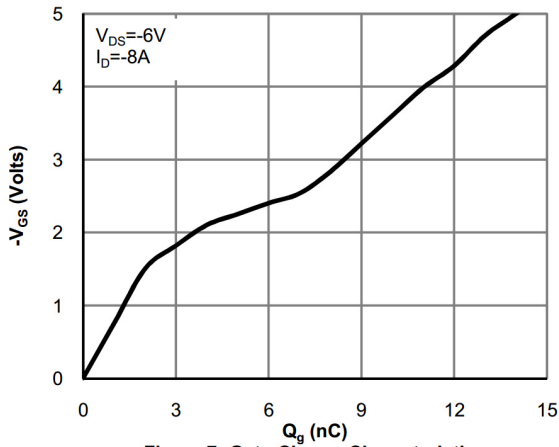
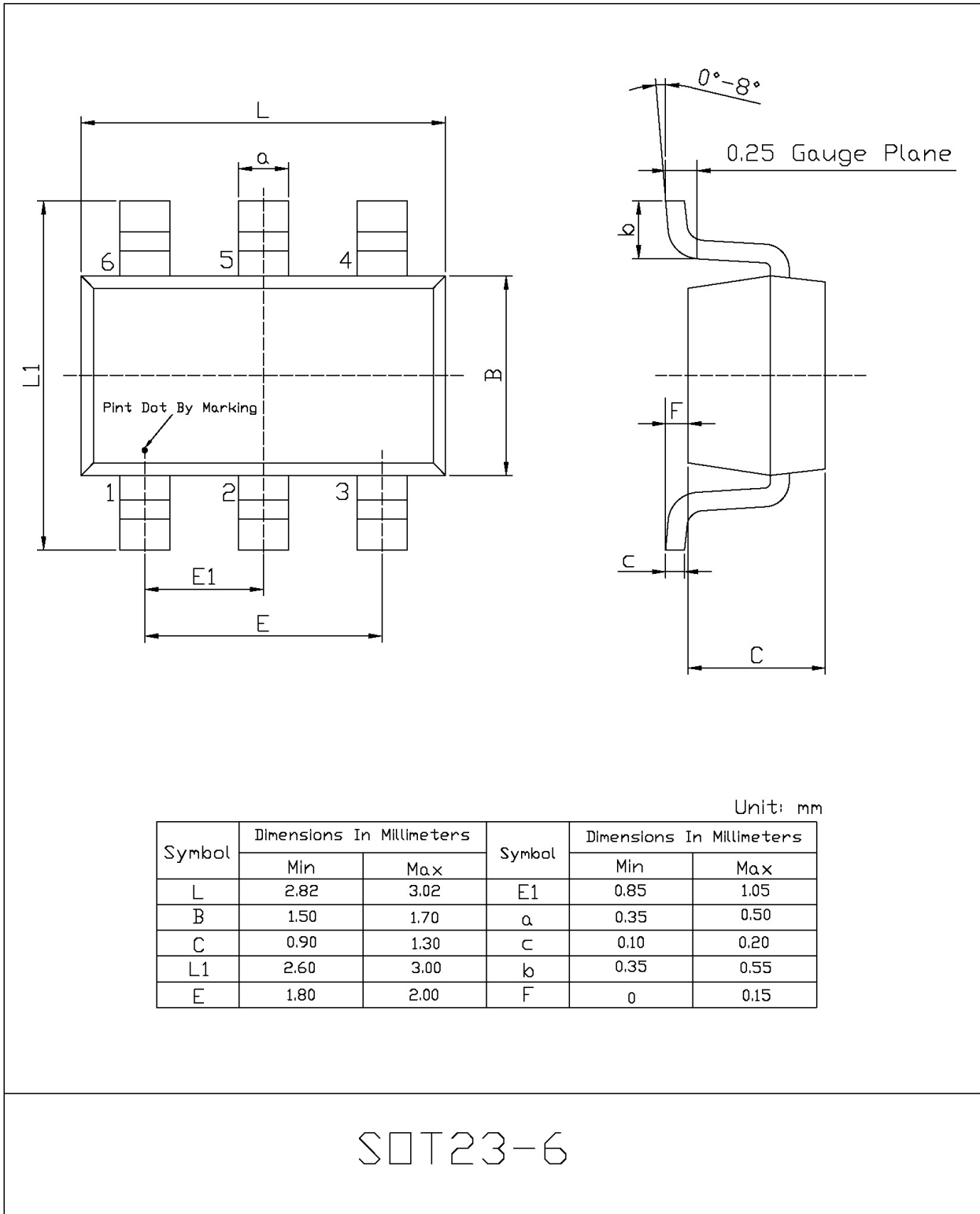


Figure 6: Body-Diode Characteristics

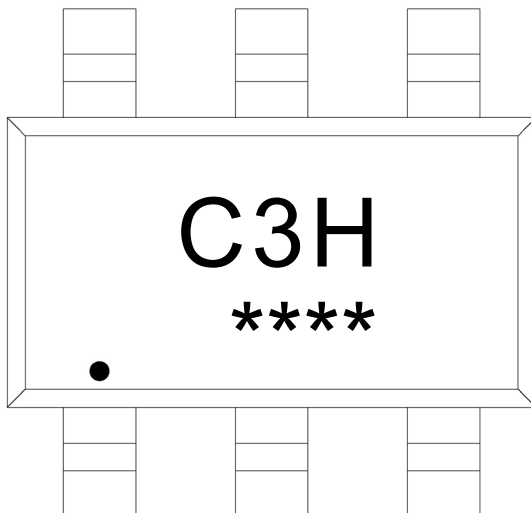
电参数曲线图 / Electrical Characteristic Curve



外形尺寸图 / Package Dimensions



印章说明 / Marking Instructions



说明：

C3： 为型号代码

H： 为公司代码

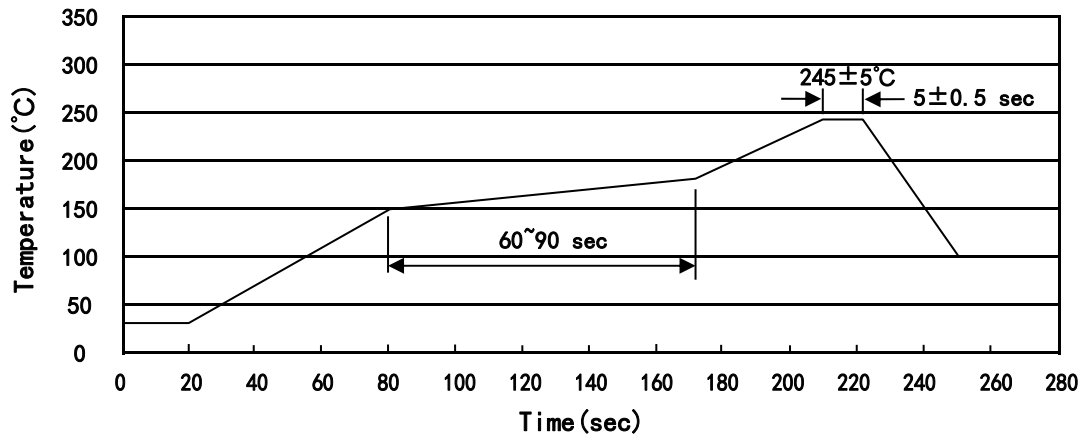
****： 为生产批号代码，随生产批号变化

Note:

C3: Product Type Code

H: Company 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°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 |
| SOT23-5/6 | 3,000 | 10 | 30,000 | 4 | 120,000 | 7" ×8 | 210×205×205 | 445×435×230 |

使用说明 / Notices