

# BRCS200P012MC

Rev.A Jun.-2023

## 描述 / Descriptions

SOT23-3 塑封封装 P 道 MOS 场效应管。  
P- CHANNEL MOSFET in a SOT23-3 Plastic Package.

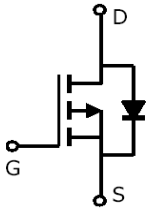
## 特征 / Features

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

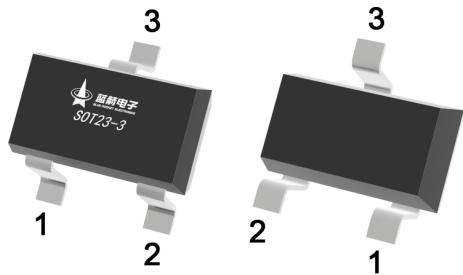
## 用途 / Applications

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



PIN 1 : G

PIN 2 : S

PIN 3 : D

## 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 <sub>DSS</sub>	-12	V
Gate-Source Voltage	V <sub>GSS</sub>	±8	V
Continuous Drain Current	I <sub>D</sub> (T <sub>C</sub> =25°C)	-8.0	A
Pulsed Drain Current	I <sub>DM</sub>	-25	A
Power Dissipation for Single Operation	P <sub>D</sub> (T <sub>C</sub> =25°C)	1.8	W
Maximum Junction Temperature	T <sub>j</sub>	150	°C
Storage Temperature Range	T <sub>stg</sub>	-55 ~ 150	°C
Thermal Resistance-Junction to Ambient	R <sub>θJA</sub>	125	°C/W
Thermal Resistance-Junction to Case	R <sub>θJC</sub>	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 <sub>DSS</sub>	I <sub>D</sub> =-250μA V <sub>GS</sub> =0V	-12	-17.5		V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-12V V <sub>GS</sub> =0V			-1.0	μA
Gate-Body leakage current	I <sub>GSS</sub>	V <sub>DS</sub> =0V V <sub>GS</sub> =±8V			±100	nA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> I <sub>D</sub> =-250μA	-0.5	-0.6	-1.0	V
Static Drain-Source On-Resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> =-10V I <sub>D</sub> =-3.0A		18	20	mΩ
		V <sub>GS</sub> =-4.5V I <sub>D</sub> =-3.0A		21	25	
		V <sub>GS</sub> =-2.5V I <sub>D</sub> =-2.0A		27	30	
		V <sub>GS</sub> =-1.8V I <sub>D</sub> =-1.0A		40	50	
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =-1A V <sub>GS</sub> =0V			-1.2	V
Gate resistance	R <sub>g</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =0V, f=1MHz		14		Ω
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> =0V V <sub>DS</sub> =-6V f=1MHz		1700		pF
Output Capacitance	C <sub>oss</sub>			580		
Reverse Transfer Capacitance	C <sub>rss</sub>			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

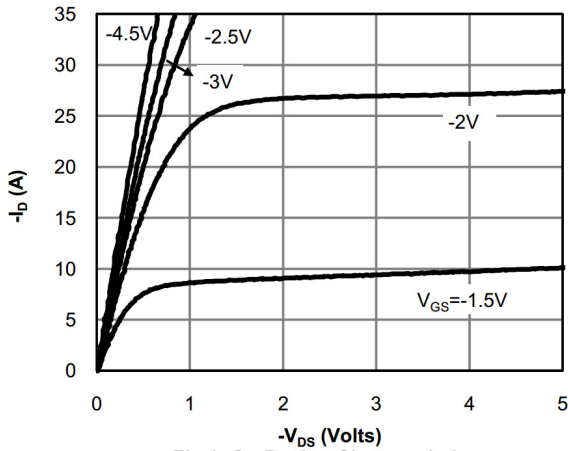


Fig 1: On-Region Characteristics

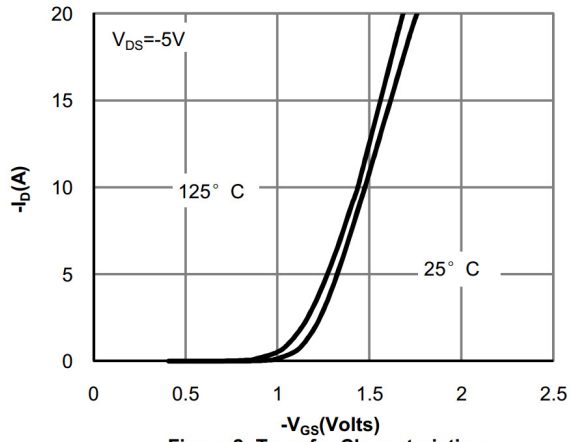


Figure 2: Transfer Characteristics

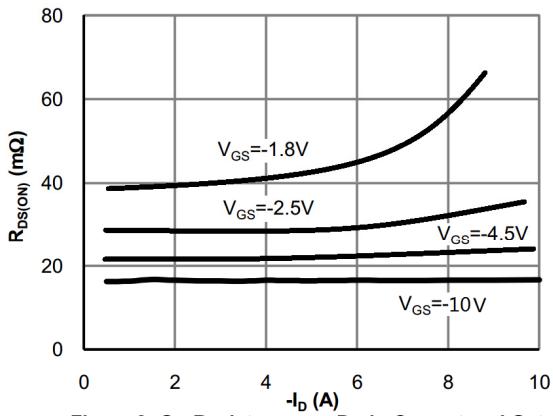


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

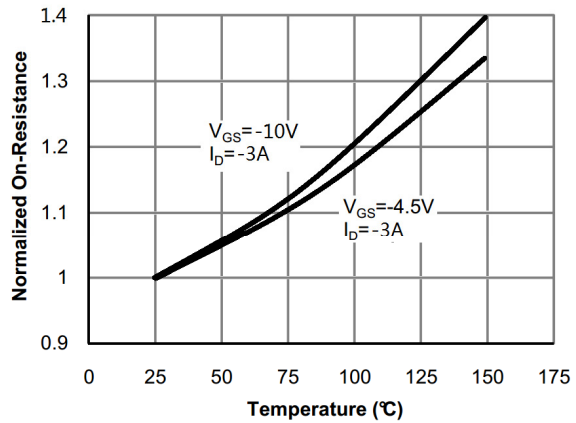


Figure 4: On-Resistance vs. Junction Temperature

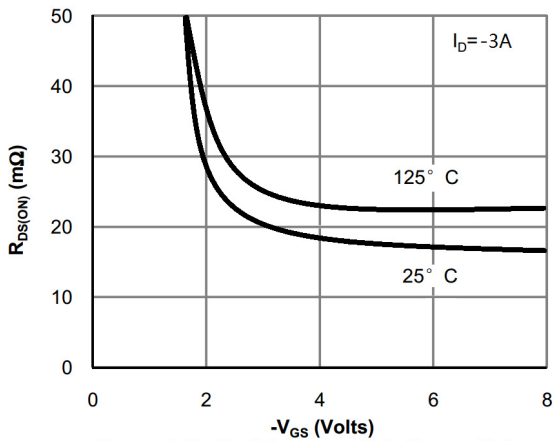


Figure 5: On-Resistance vs. Gate-Source Voltage

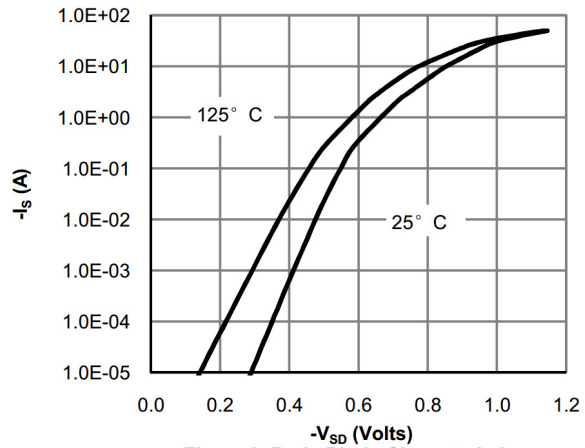
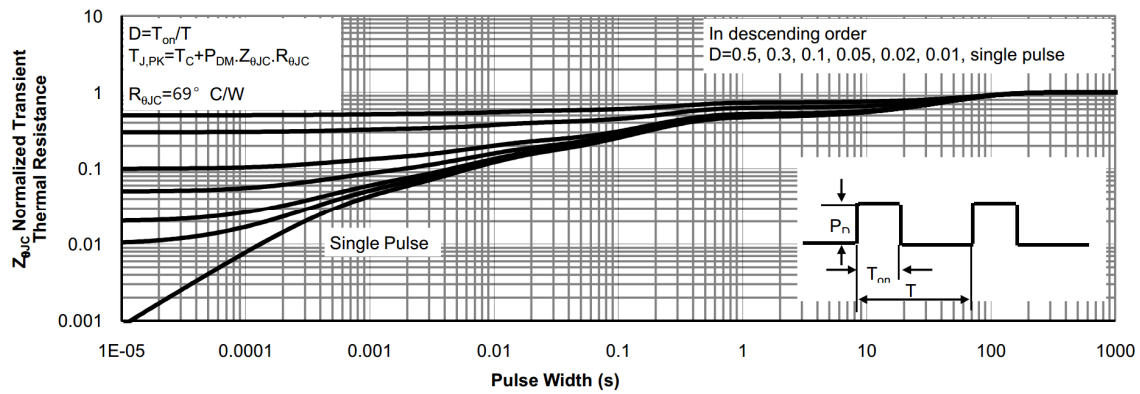
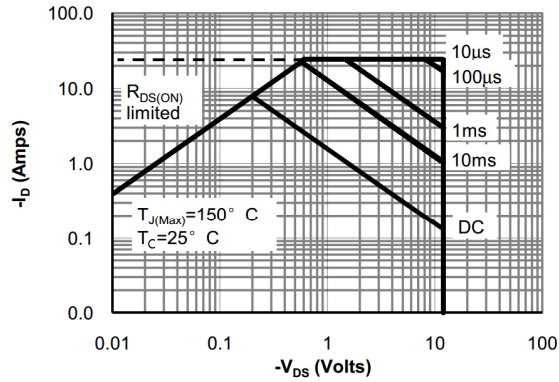
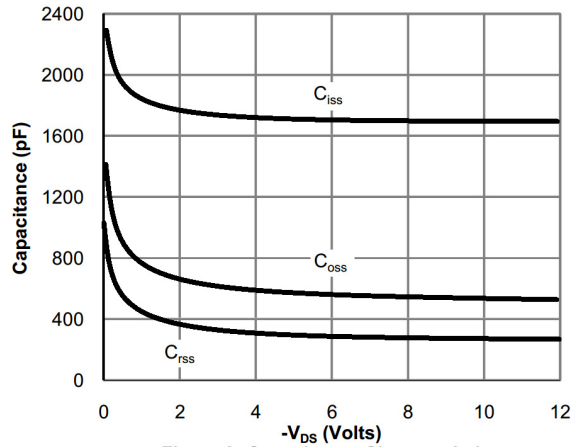
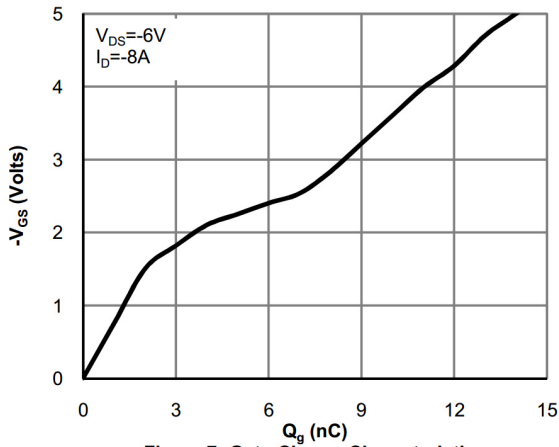
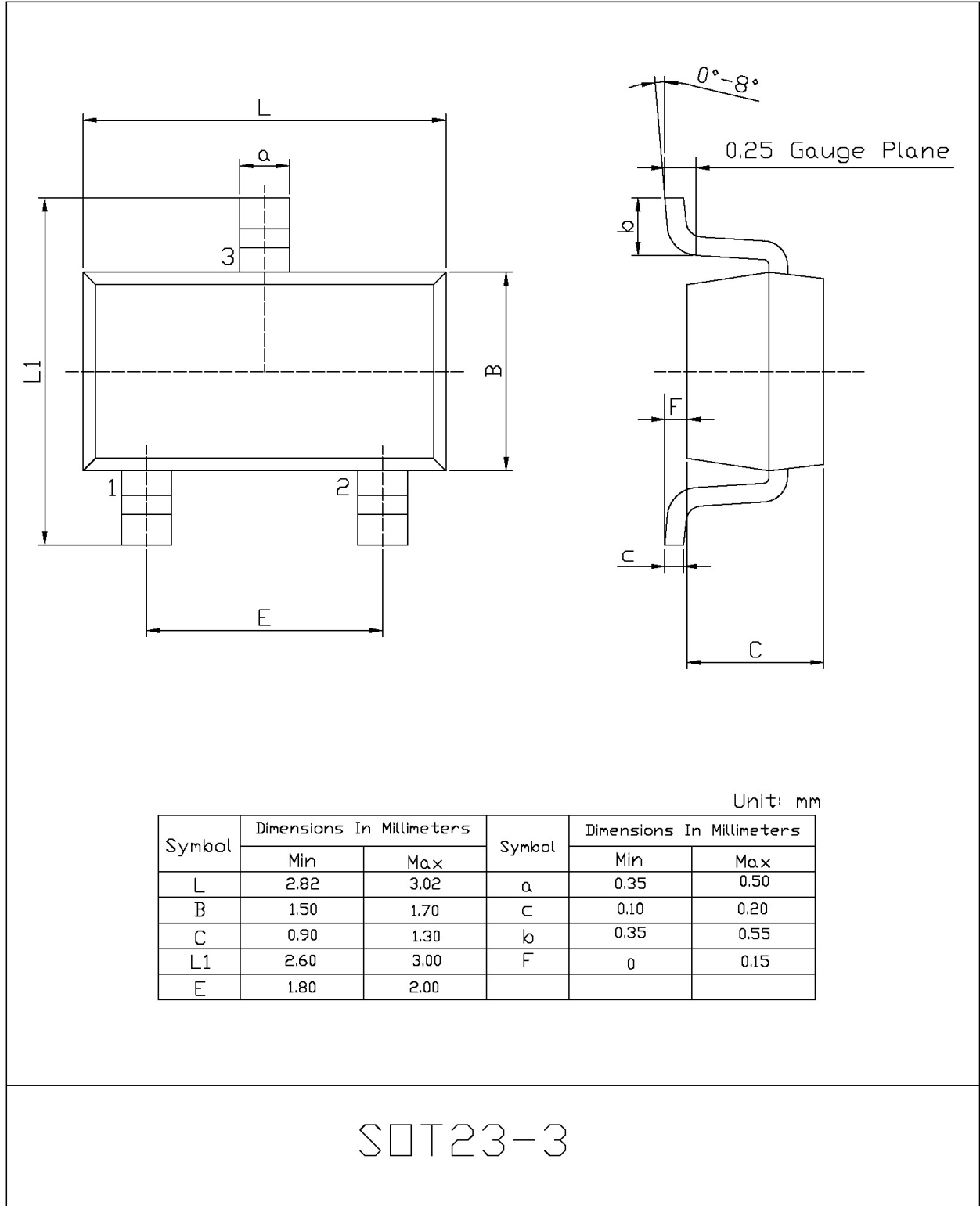


Figure 6: Body-Diode Characteristics

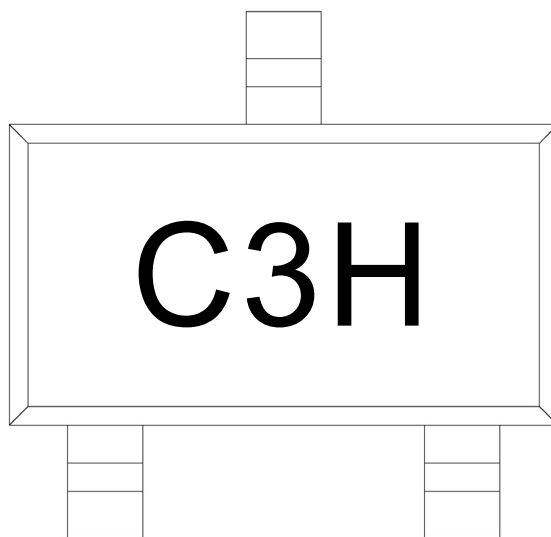
## 电参数曲线图 / Electrical Characteristic Curve



**外形尺寸图 / Package Dimensions**



**印章说明 / Marking Instructions**



说明：

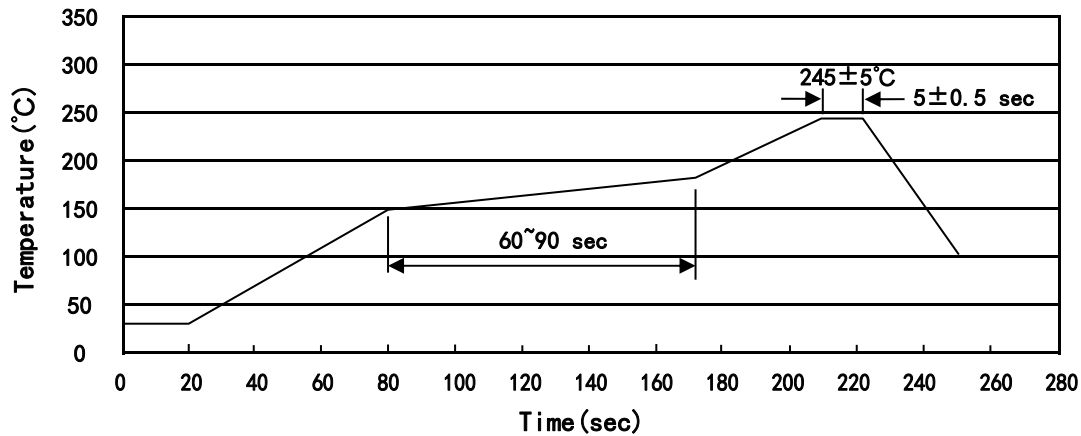
C3： 为型号代码

H： 为公司代码

Note:

C3: 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 <sup>3</sup> )		
	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
SOT23-3	3,000	10	30,000	4	120,000	7" ×8	210×205×205	445×435×230

**使用说明 / Notices**