

# BRCS2300MC

Rev.A Sep.-2021

## 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.

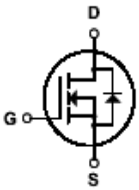
## 特征 / Features

RDS(ON)导通电阻小, SOT23-3 封装, 无卤产品。  
Low RDS(ON),SOT23-3 package,HF Product.

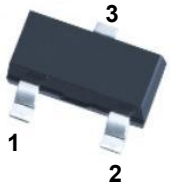
## 用途 / Applications

电池管理, 高速开关, 低功率 DC-DC 转换。  
Battery management,High speed switch,low power DC to DC converter.

## 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

Marking	A8H
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**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	$V_{DSS}$	20	V
Gate-Source Voltage	$V_{GSS}$	$\pm 10$	V
Drain Current – Continuous	$I_D$	4.5	A
Pulsed Drain Current	$I_{DM}$	12	A
Power Dissipation	$P_D$	1.4	W
Storage Temperature Range	$T_{stg}$	-55~150	°C
Maximum Junction-to-Ambient	$R_{\theta JA}$	t ≤ 10s	°C/W
Maximum Junction-to-Ambient		Steady-State	
Maximum Junction-to-Lead	$R_{\theta JL}$	Steady-State	

**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	$V_{(BR)DSS}$	$V_{GS}=0$ $I_D=250\mu A$	20	21.5		V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{GS}=0$ $V_{DS}=20V$			1.0	$\mu A$
Gate–Body Leakage.	$I_{GSS}$	$V_{GS}=\pm 10V$ $V_{DS}=0V$			$\pm 100$	nA
Static Drain–Source On–Resistance	$R_{DS(on)1}$	$V_{GS}=4.5V$ $I_D=4.5A$		19	25	m $\Omega$
	$R_{DS(on)2}$	$V_{GS}=2.5V$ $I_D=4.0A$		24	38	m $\Omega$
Drain–Source Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V$ $I_D=1A$			1.2	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=50\mu A$	0.5	0.77	1.0	V
Input Capacitance	$C_{iss}$	$V_{GS}=0V$ , $V_{DS}=10V$ $f=1MHz$		860		pF
Output Capacitance	$C_{oss}$			800		
Reverse Transfer Capacitance	$C_{rss}$			495		
Gate resistance	$R_g$	$V_{GS}=0V$ , $f=1MHz$ $V_{DS}=0V$		4.9		$\Omega$

## 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	Qg(10V)	$V_{GS}=10V, V_{DS}=10V$ $I_D=4.5A$		12.5		nC
Total Gate Charge	Qg(4.5V)			6		
Gate Source Charge	Qgs			1		
Gate Drain Charge	Qgd			2		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V, V_{DS}=10V$ $R_{GEN}=3\Omega, R_L=1.7\Omega$		3		ns
Turn-On Rise Time	$t_r$			7.5		
Turn-Off Delay Time	$t_{d(off)}$			20		
Turn-Off Fall Time	$t_f$			6		

电参数曲线图 / Electrical Characteristic Curve

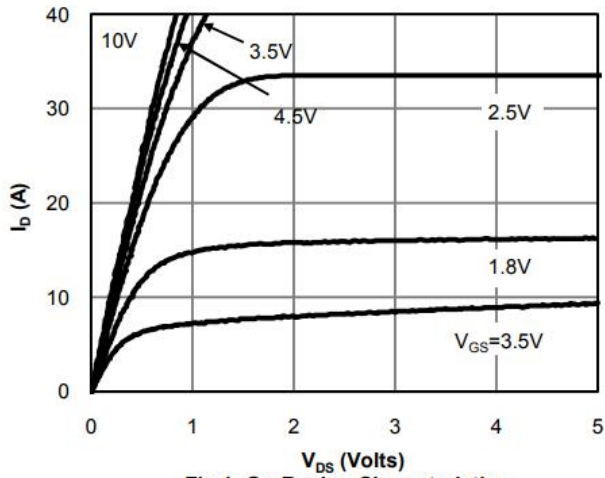


Fig 1: On-Region Characteristics

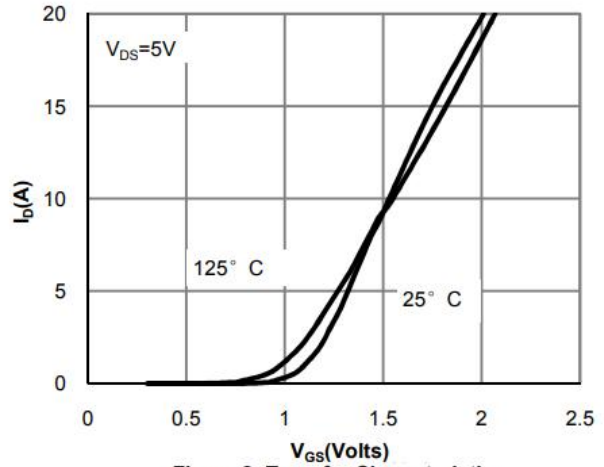


Figure 2: Transfer Characteristics

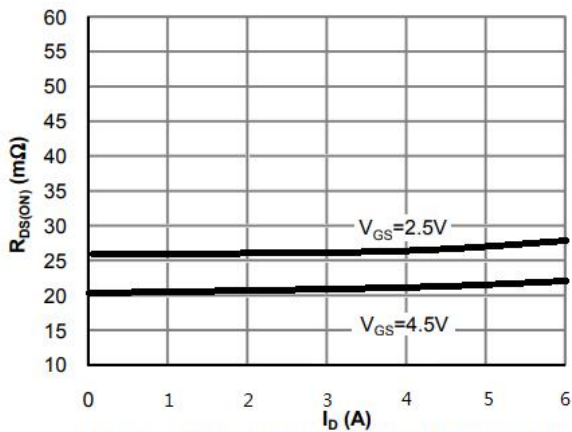


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

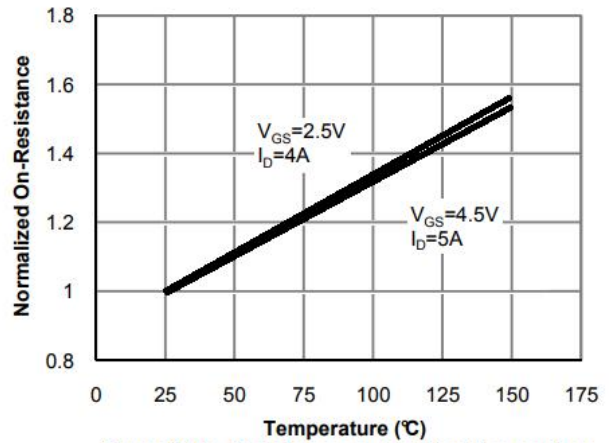


Figure 4: On-Resistance vs. Junction Temperature

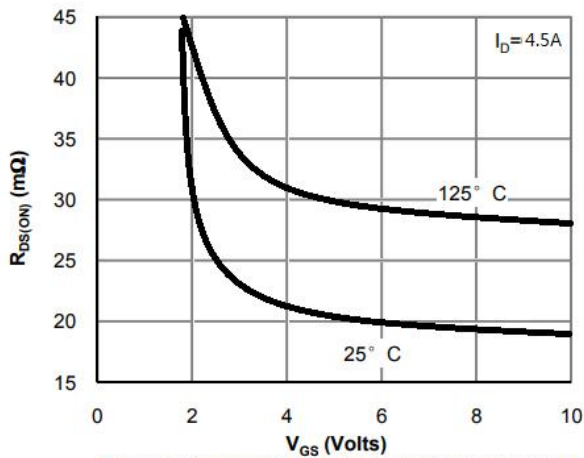


Figure 5: On-Resistance vs. Gate-Source Voltage

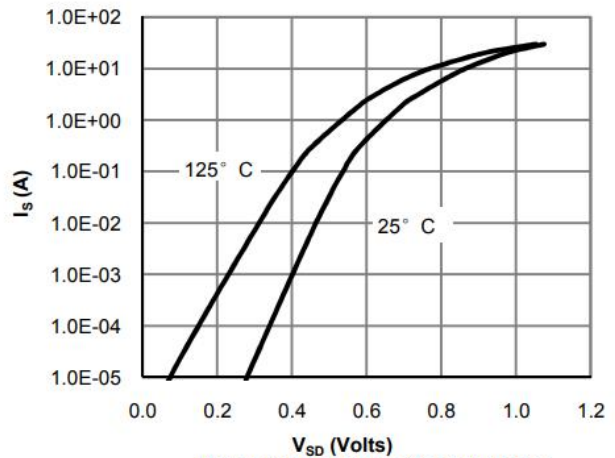


Figure 6: Body-Diode Characteristics

电参数曲线图 / Electrical Characteristic Curve

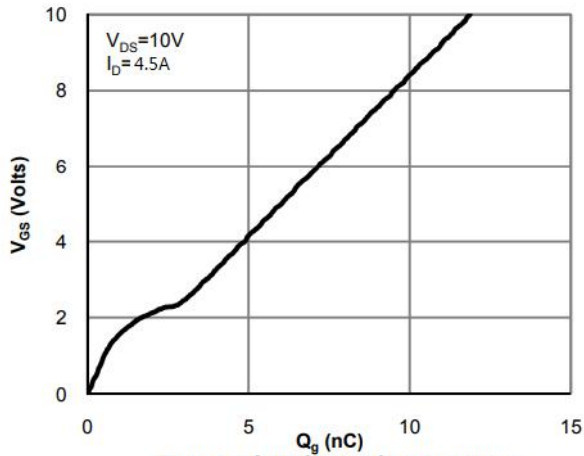


Figure 7: Gate-Charge Characteristics

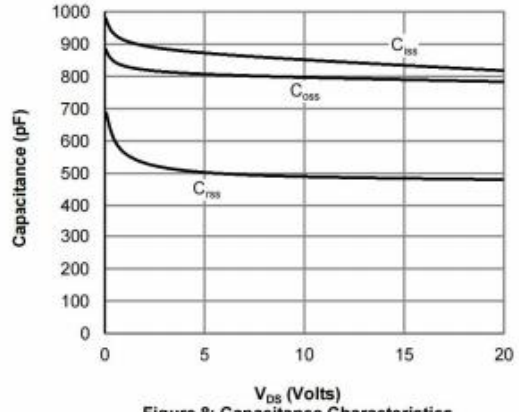


Figure 8: Capacitance Characteristics

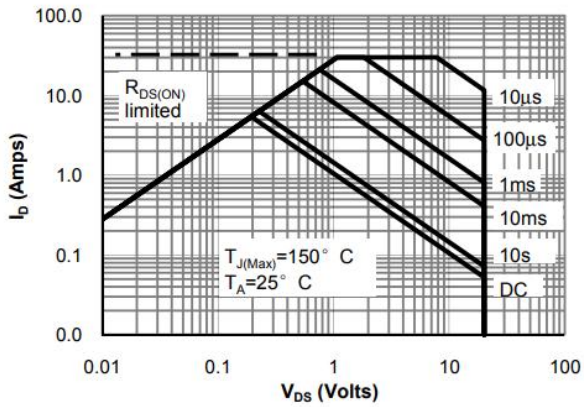


Figure 9: Maximum Forward Biased Safe Operating Area

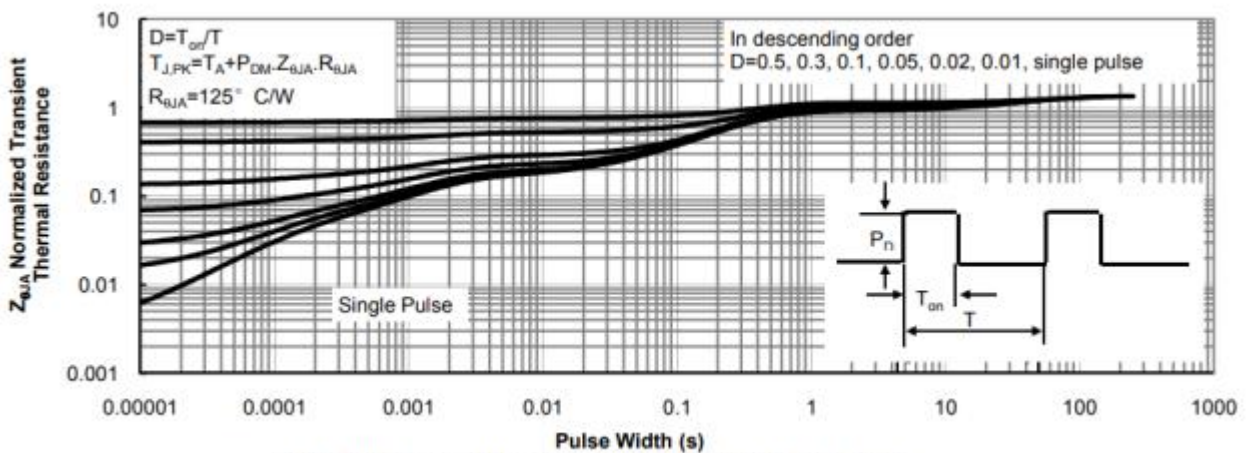
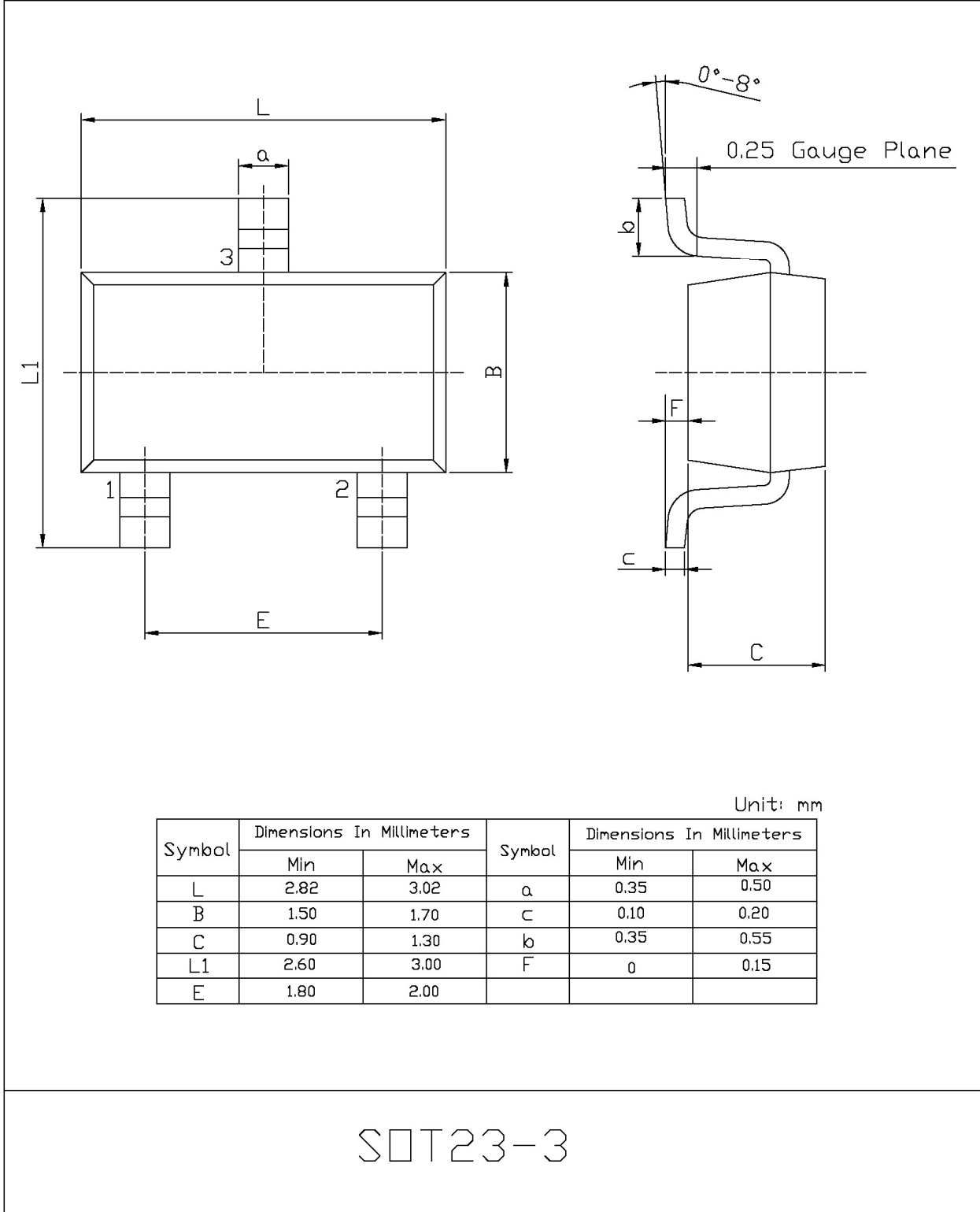
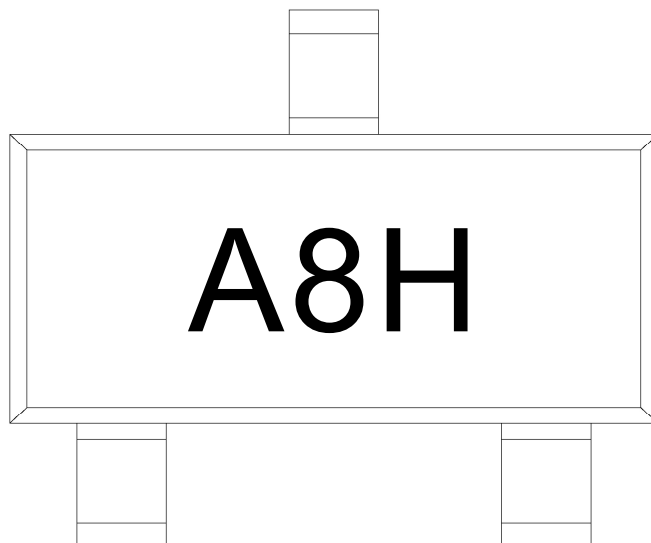


Figure 10: Normalized Maximum Transient Thermal Impedance

**外形尺寸图 / Package Dimensions**



印章说明 / Marking Instructions



说明：

A8: 为型号代码

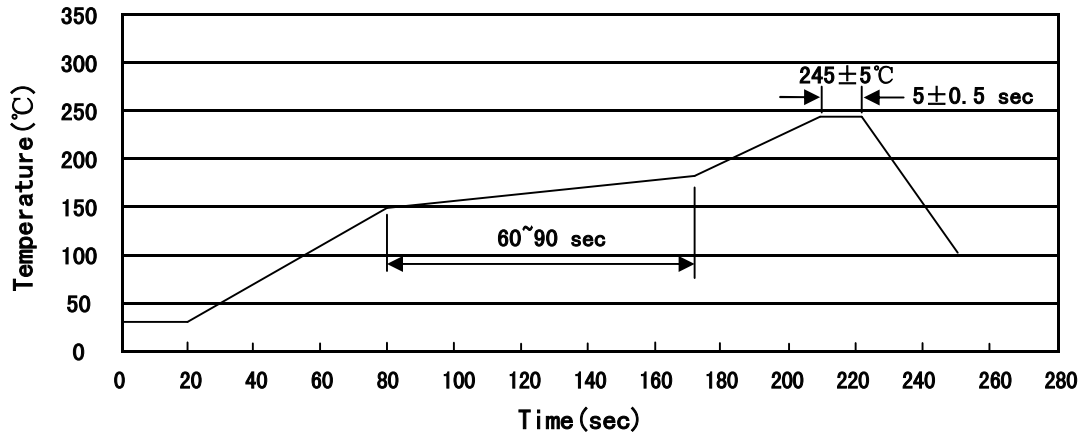
H: 为公司代码

Note:

A8 : 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
SOT-23-3	3,000	10	30,000	4	120,000	7" ×8	210×205×205	445×230×435

**使用说明 / Notices**