

# BRCS2C5N08EMA

Rev.B Jul.-2023

DATA SHEET

## 描述 / Descriptions

SOT-23 塑封封装 N 道场效应管。  
N-CHANNEL MOSFET in a SOT-23 Plastic Package.

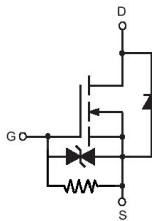
## 特征 / Features

高功率和电流处理能力，集成栅源电阻，ESD-HBM>4KV，无卤产品。  
High Power and Current Handling Capability, Integrated Gate-Source Resistance, ESD Rating HBM>4KV, HF Product.

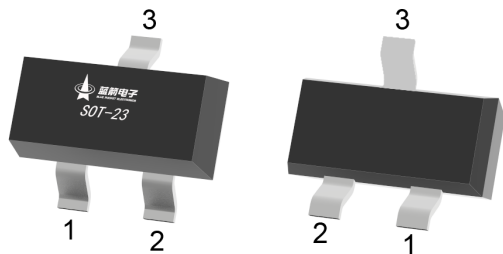
## 用途 / Applications

PWM 应用，负载开关，电源管理。  
PWM application, Load switch, Power Management

## 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

见印章说明。

See Marking Instructions.

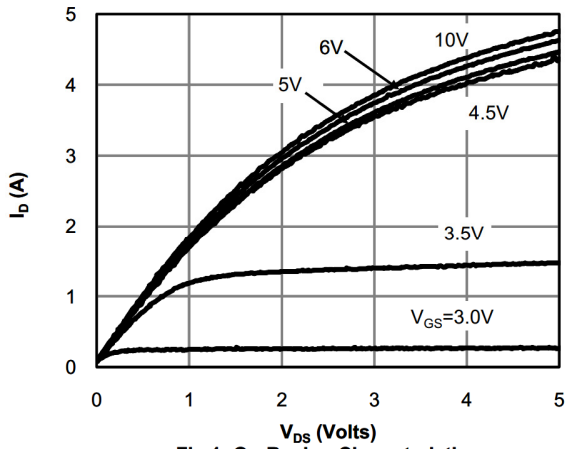
**极限参数 / Absolute Maximum Ratings(Ta=25°C)**

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit	
Drain-Source Voltage	V <sub>DS</sub>	80	V	
Drain Current	I <sub>D</sub>	2.2	A	
Drain Current - Pulsed	I <sub>DM</sub>	9	A	
Gate-Source Voltage	V <sub>GS</sub>	±20	V	
Power Dissipation	P <sub>D</sub>	2	W	
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55~150	°C	
Maximum Junction-to-Ambient	t ≤ 10s	R <sub>θJA</sub>	62.5	°C/W
Maximum Junction-to-Ambient	Steady-State		102	°C/W
Maximum Junction-to-Lead	Steady-State	R <sub>θJL</sub>	55	°C/W

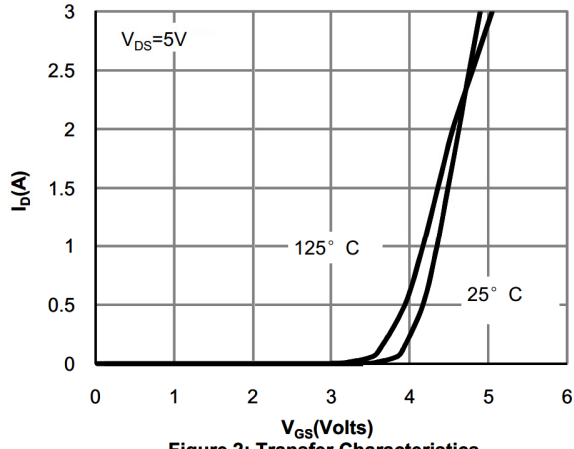
**电性能参数 / Electrical Characteristics(Ta=25°C)**

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>	V <sub>GS</sub> =0V I <sub>D</sub> =250μA	80	90		V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> I <sub>D</sub> =250μA	2	3	4	V
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V I <sub>D</sub> =1A		188	250	mΩ
		V <sub>GS</sub> =6V I <sub>D</sub> =1A		280	350	mΩ
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =60V V <sub>GS</sub> =0V			-1.0	μA
Gate-Body leakage current	I <sub>GSS</sub>	V <sub>GS</sub> =±20V V <sub>DS</sub> =0V			±500	μA
Drain-Source Diode Forward Voltage	V <sub>SD</sub>	V <sub>GS</sub> =0V I <sub>S</sub> =1A			1.2	V
Gate resistance	R <sub>g</sub>	f=1MHz		3.7		Ω
Gate- Source Resistance	R <sub>GS</sub>			50		KΩ
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =25V V <sub>GS</sub> =0V f=1.0MHz		72		pF
Output Capacitance	C <sub>oss</sub>			34		
Reverse Transfer Capacitance	C <sub>rss</sub>			12		
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =40V V <sub>GS</sub> =10V I <sub>D</sub> =1.5A		2.2		nC
Gate-to-Source Charge	Q <sub>gs</sub>			0.56		
Gate-to-Drain Charge	Q <sub>gd</sub>			0.42		
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>DS</sub> =40V V <sub>GS</sub> =10V I <sub>D</sub> =1.5A R <sub>GEN</sub> =2Ω		7.8		ns
Turn-On Rise Time	t <sub>r</sub>			1.5		
Turn-Off Delay Time	t <sub>d(off)</sub>			11		
Turn-Off Fall Time	t <sub>f</sub>			6.7		

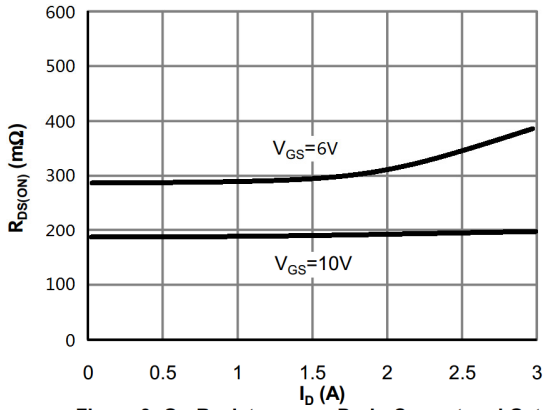
**电参数曲线图 / Electrical Characteristic Curve**



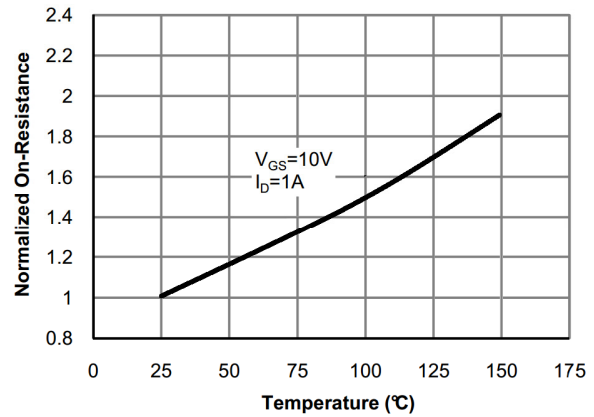
**Fig 1: On-Region Characteristics**



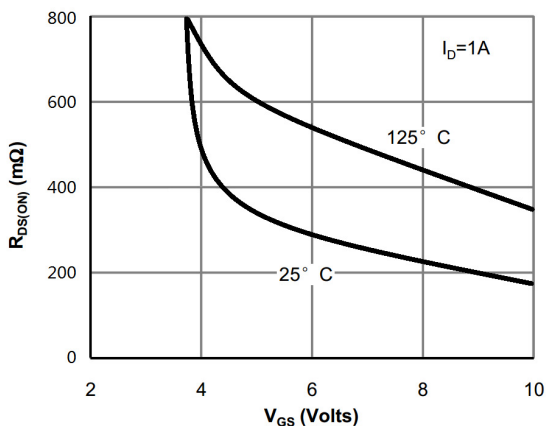
**Figure 2: Transfer Characteristics**



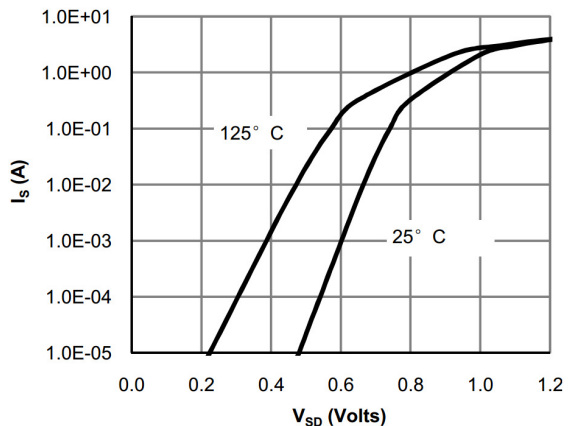
**Figure 3: On-Resistance vs. Drain Current and Gate Voltage**



**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

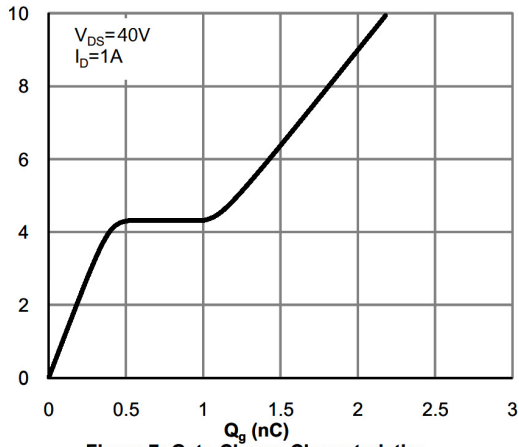


Figure 7: Gate-Charge Characteristics

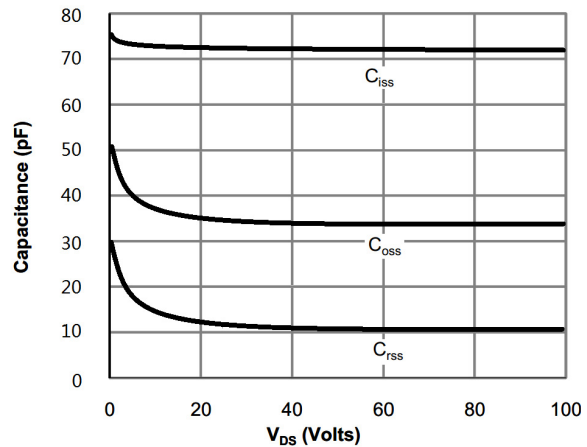


Figure 8: Capacitance Characteristics

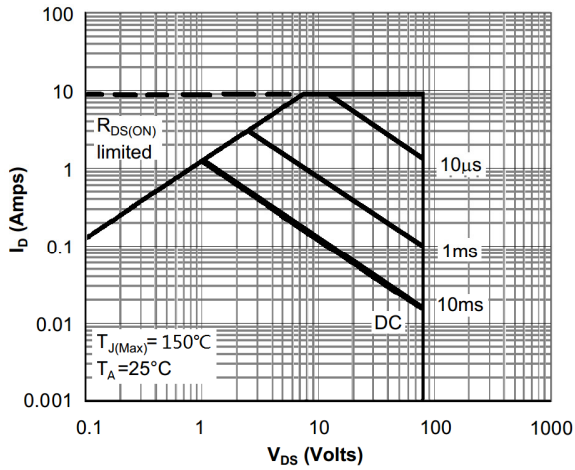


Figure 9: Maximum Forward Biased Safe Operating Area

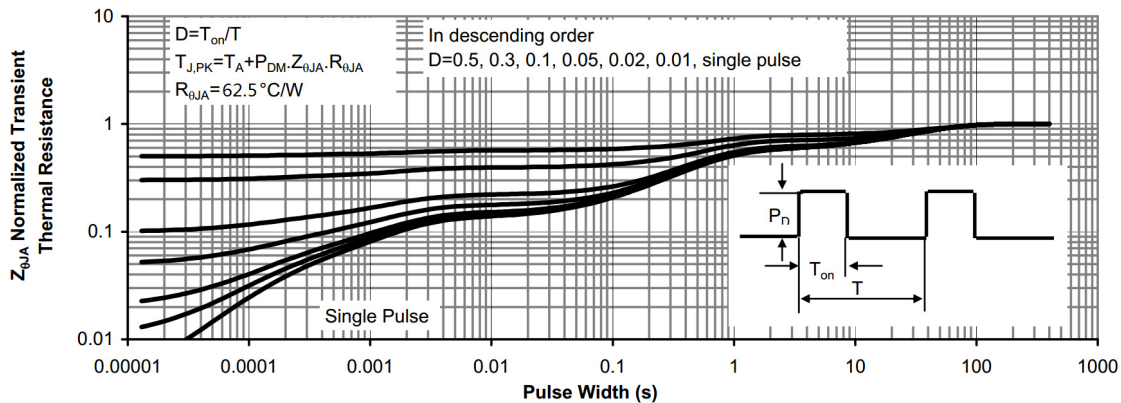
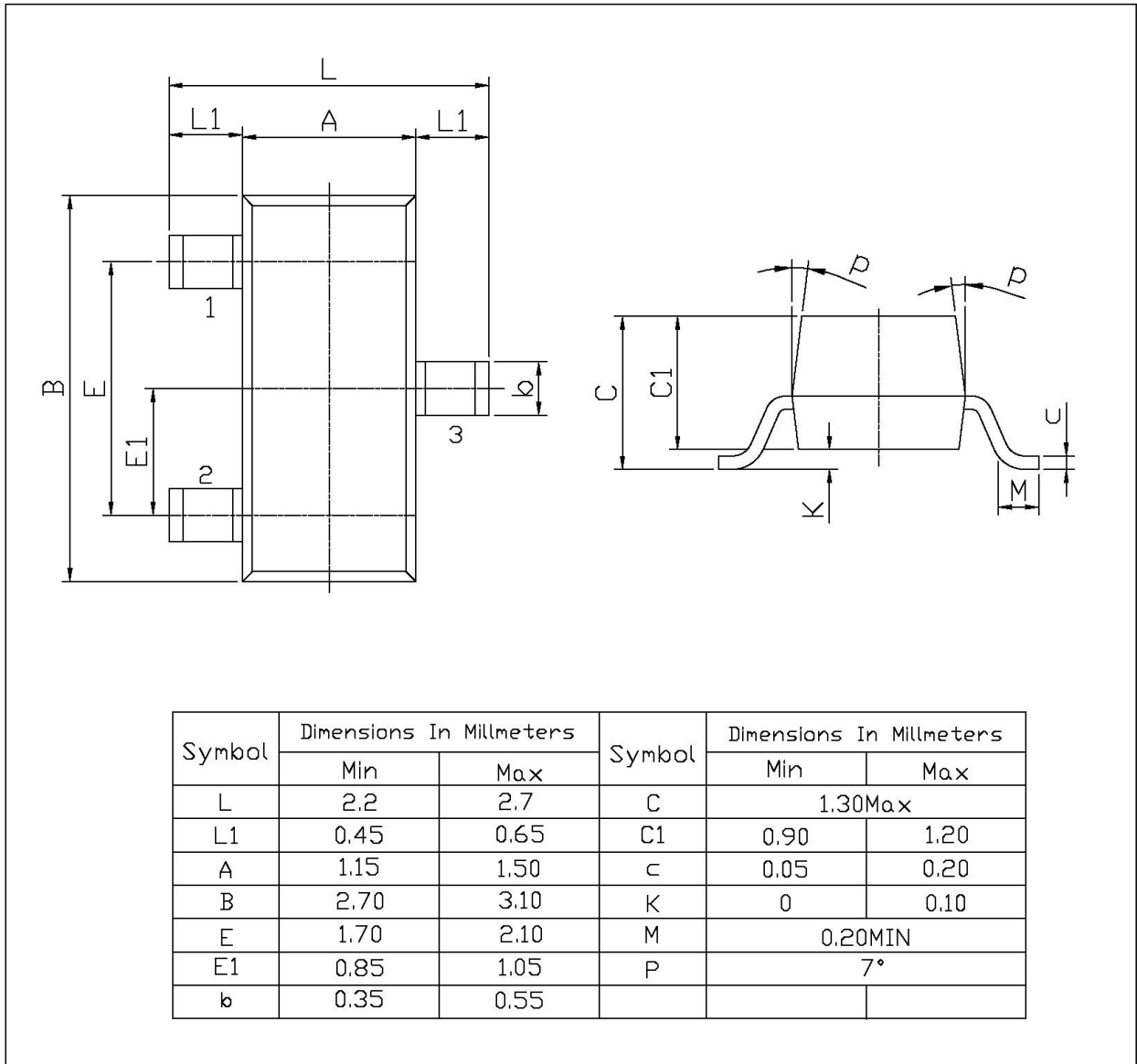


Figure 10: Normalized Maximum Transient Thermal Impedance

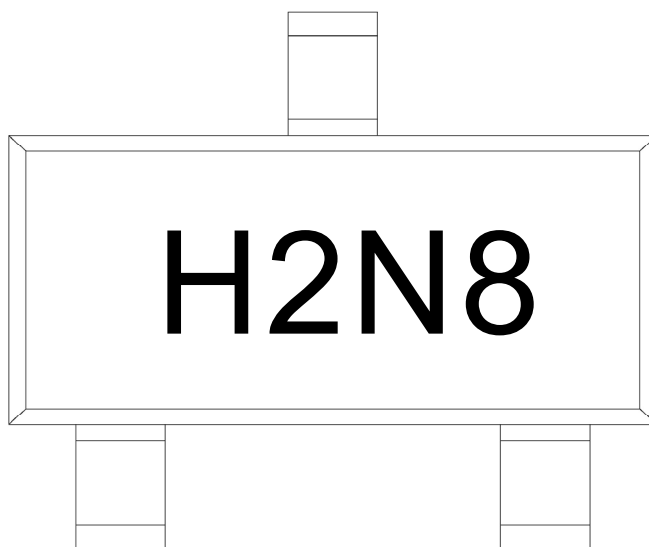
**外形尺寸图 / Package Dimensions**

SOT-23

单位: mm



**印章说明 / Marking Instructions**



说明：

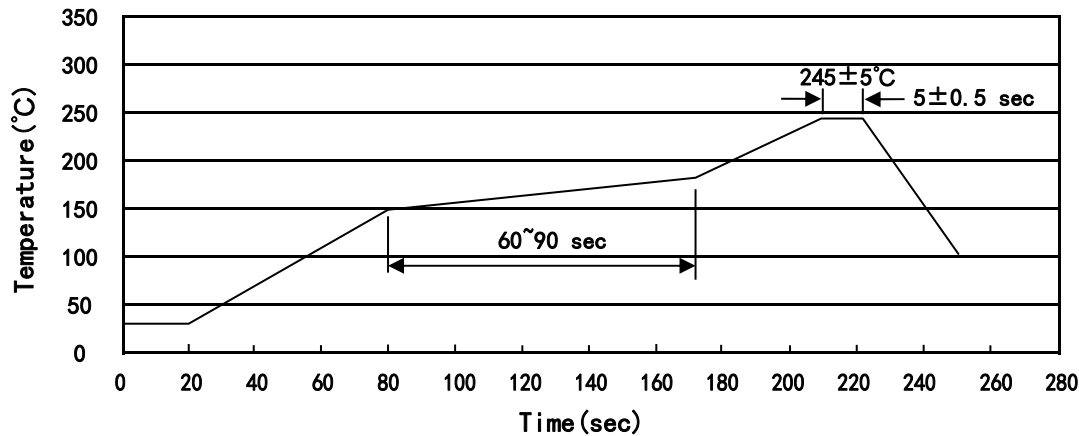
H: 为公司代码

2N8： 为型号代码

Note:

H : Company Code

2N8: Product Type

**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	3,000	10	30,000	6	180,000	7" ×8	180×120×180	390×385×205

**使用说明 / Notices**