

# BRCS2301MAQ

Rev.A Jun.-2022

## 描述 / Descriptions

SOT-23 塑封封装 P 道 MOS 场效应管。

P- CHANNEL MOSFET in a SOT-23 Plastic Package.

## 特征 / Features

芯片采用超高密度元胞设计技术,  $R_{DS(ON)}$ 导通电阻小, SOT-23 封装, 符合 AEC-Q101 标准高可靠性要求, 无卤产品。

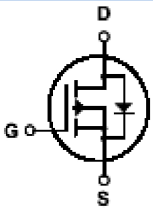
Super high dense cell design for low  $R_{DS(ON)}$ , SOT-23 package, Qualified to AEC-Q101 Standards for High Reliability, HF Product.

## 用途 / Applications

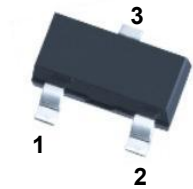
主要用于显示屏驱动, 满足汽车应用的严格要求。

Primarily the display screen drive applications, Meet the stringent requirements of automotive 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	A1Q
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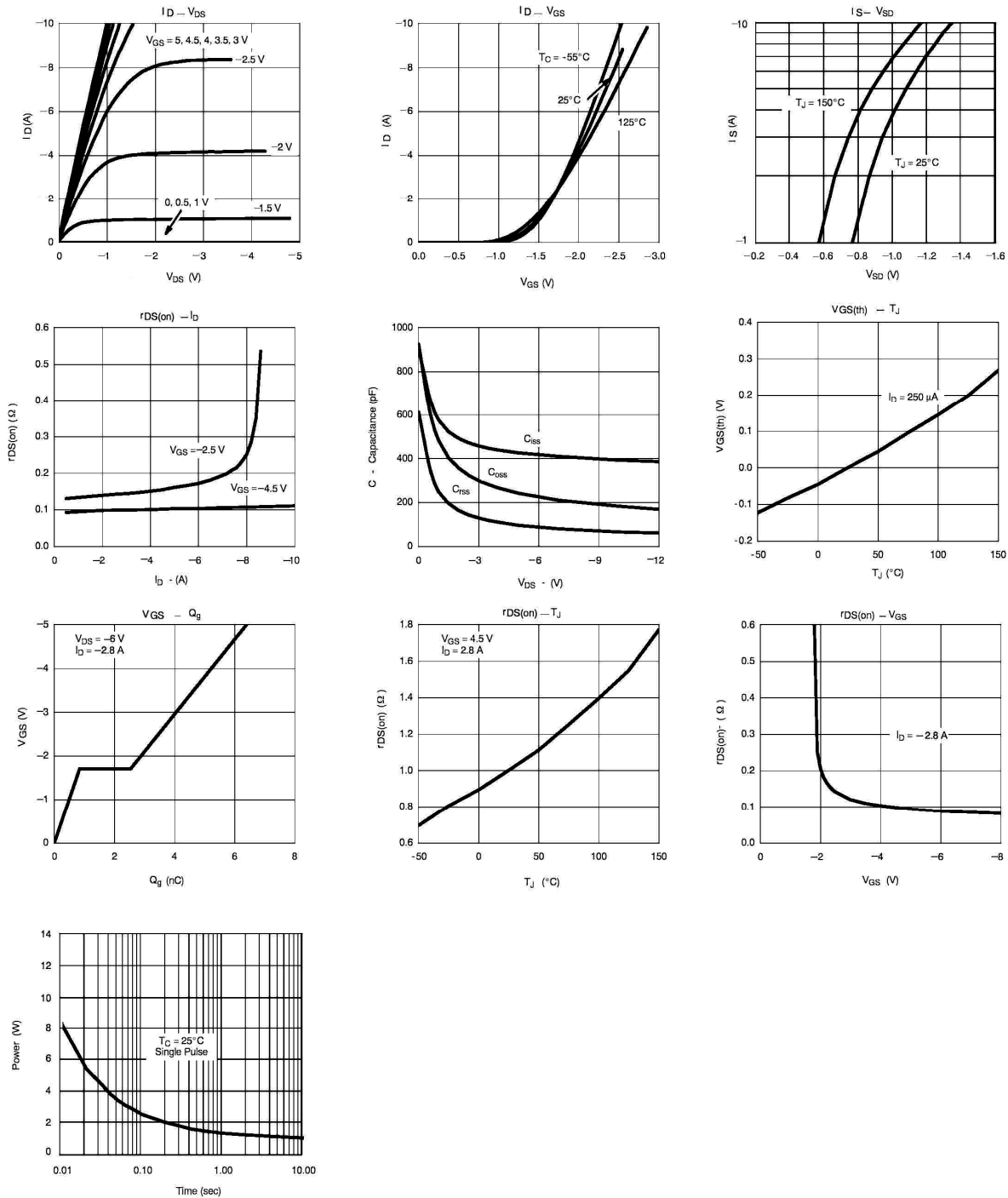
**极限参数 / Absolute Maximum Ratings(Ta=25°C)**

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Drain-Source Voltage	$V_{DSS}$	-20	V
Gate-Source Voltage	$V_{GSS}$	±8	V
Drain Current – Continuous	$I_D$	-2.8	A
Drain Current – Continuous	$I_D(T_A=70^\circ\text{C})$	-1.5	A
Pulsed Drain Current	$I_{DM}$	-10	A
Continuous Source Current (Diode Conduction)	$I_S$	-1.6	A
Power Dissipation	$P_D$	1.25	W
Power Dissipation	$P_D(T_A=70^\circ\text{C})$	0.8	W
Storage Temperature Range	$T_{stg}$	-55~+150	°C
Operating Junction Temperature Range	$T_j$	-55~+150	°C

**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	$V_{(BR)DSS}$	$V_{GS}=0V$ $I_D=-250\mu A$	-20	-23		V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=-250\mu A$	-0.45		-0.95	V
Static Drain–Source On–Resistance	$R_{DS(on)1}$	$V_{GS}=-4.5V$ $I_D=-2.8A$		0.068	0.13	$\Omega$
	$R_{DS(on)2}$	$V_{GS}=-2.5V$ $I_D=-2.0A$		0.096	0.19	$\Omega$
Zero Gate Voltage Drain Current	$I_{DSS(1)}$	$V_{DS}=-20V$ $V_{GS}=0V$			-1	$\mu A$
	$I_{DSS(2)}$	$V_{DS}=-20V$ $V_{GS}=0V$ $T_j=55^\circ\text{C}$			-10	$\mu A$
Gate–Body Leakage	$I_{GSS}$	$V_{GS}=\pm 8V$ $V_{DS}=0V$			±0.1	$\mu A$
Drain–Source Diode Forward Voltage	$V_{SD}$	$I_S=-1.6A$ $V_{GS}=0V$		-0.8	-1.2	V
Forward Transconductance	$g_{FS}$	$V_{DS}=-5V$ $I_D=-2.8A$		6.5		S
Input Capacitance	$C_{iss}$	$V_{DS}=-6V$ , $f=1\text{MHz}$ $V_{GS}=0V$		620		pF
Output Capacitance	$C_{oss}$			390		
Reverse Transfer Capacitance	$C_{rss}$			230		
Turn–On Delay Time	$t_{d(on)}$	$V_{DD}=-6V$ $R_L=6\Omega$ $I_D\approx-1A$ $R_G=6\Omega$ $V_{GEN}=-4.5V$		13	25	ns
Turn–On Rise Time	$t_r$			36	60	
Turn–Off Delay Time	$t_{d(off)}$			42	70	
Turn–Off Fall Time	$t_f$			34	60	

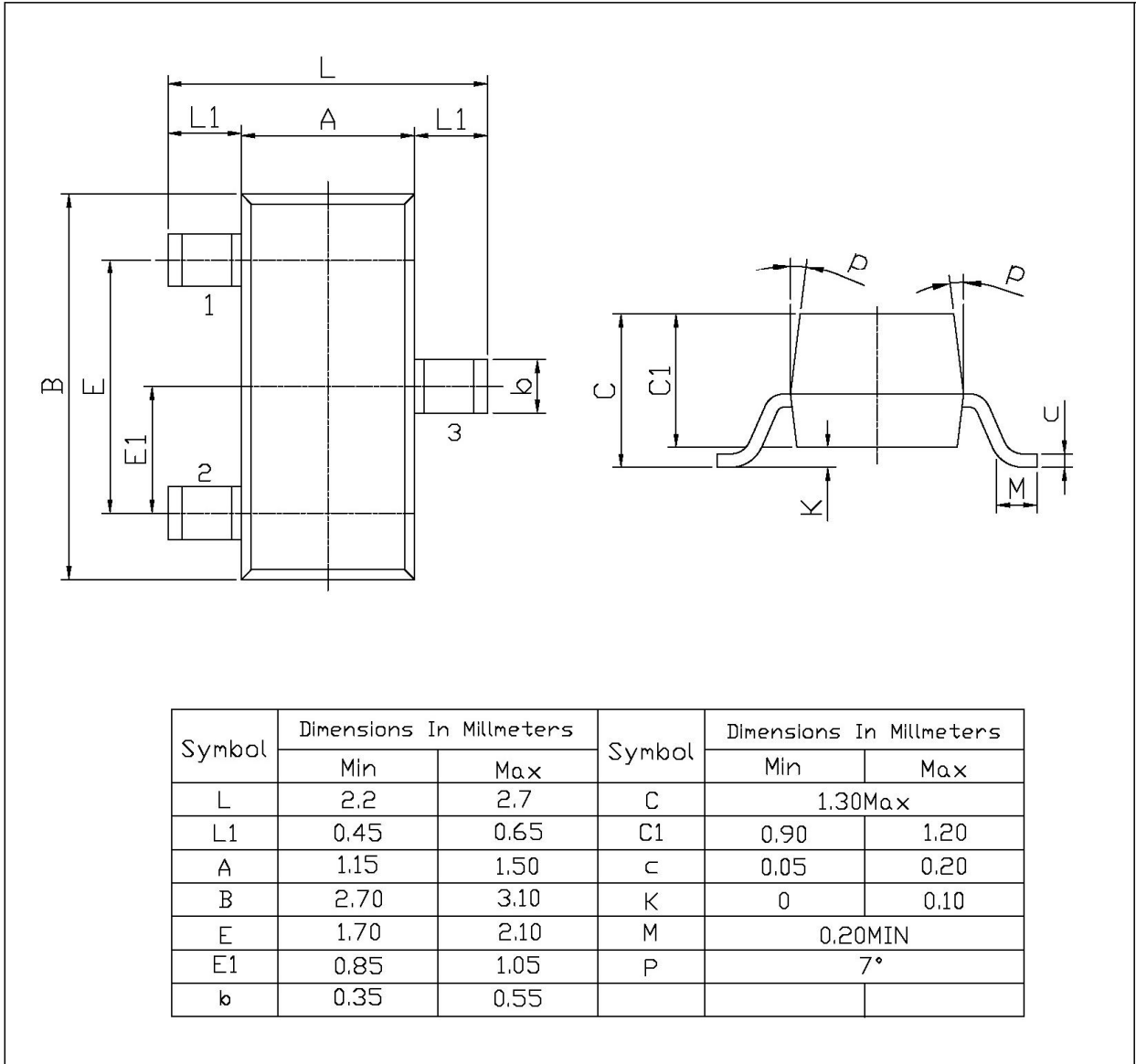
**电参数曲线图 / Electrical Characteristic Curve**



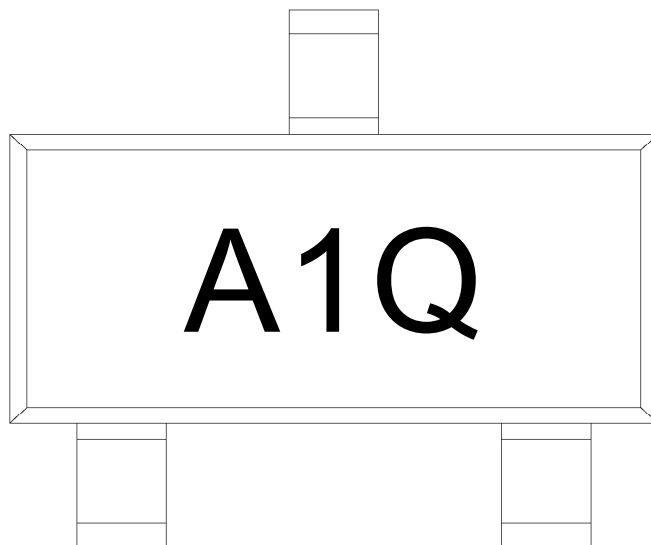
外形尺寸图 / Package Dimensions

SOT-23

单位: mm



印章说明 / Marking Instructions



说明：

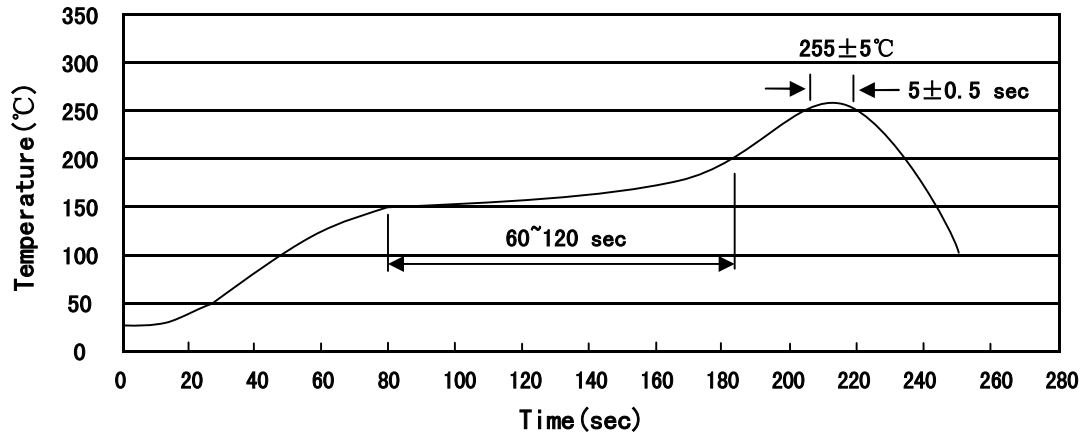
A1: 为型号代码

Q: 为汽车无卤产品标识

Note:

A1 : Product Type

Q: Automobile halogen-free product 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  $150 \sim 200^\circ\text{C}$ ，时间  $60 \sim 120\text{sec}$ ;
- 2、峰值温度  $255 \pm 5^\circ\text{C}$ ，时间持续为  $5 \pm 0.5\text{sec}$ ;
- 3、焊接制程冷却速度为  $2 \sim 10^\circ\text{C}/\text{sec}$ .

Note:

- 1.Preheating:  $150 \sim 200^\circ\text{C}$ , Time:  $60 \sim 120\text{sec}$ .
- 2.Peak Temp.:  $255 \pm 5^\circ\text{C}$ , Duration:  $5 \pm 0.5\text{sec}$ .
3. Cooling Speed:  $2 \sim 10^\circ\text{C}/\text{sec}$ .

**耐焊接热试验条件 / Resistance to Soldering Heat Test Conditions**
温度： $260 \pm 5^\circ\text{C}$ 时间： $10 \pm 1$  sec.Temp.:  $260 \pm 5^\circ\text{C}$ Time:  $10 \pm 1$  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: $\text{mm}^3$ )		
	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	3,000	10	30,000	6	180,000	7" × 8	180×120×180	390×385×205

**使用说明 / Notices**