



**修订记录 / Revised record**

|   |            |     |   |  |  |
|---|------------|-----|---|--|--|
|   |            |     |   |  |  |
| F | 2017-4     |     |   |  |  |
| G | 2019-4-18  | ALL | BRCS2302MAG   |  |  |
| H | 2020-1-2   | 1 5 | G   |  |  |
| I | 2020.03.11 | 1 2 | 1. " "<br>A<br>2.   |  |  |
| J | 2020-5-15  | 1   |   |  |  |
| A | 2022-6-20  | all | Q<br>AEC-Q101<br>, H Q<br>245±5 5±<br>0.5sec 255±<br>5 5±0.5sec |  |  |
|   |            |     |   |  |  |
|   |            |     |   |  |  |
|   |            |     |   |  |  |
|   |            |     |   |  |  |

# BRCS2302MAQ

Rev.A Jun.-2022



DATA SHEET

## 描述 / Descriptions

SOT-23 N MOS  
N- CHANNEL MOSFET in a SOT-23 Plastic Package.

## 特征 / Features

$R_{DS(ON)}$

SOT-23

AEC-Q101

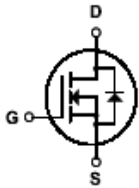
Super high dense cell design for low  $R_{DS(ON)}$ , SOT-23 package, Qualified to AEC-Q101 Standards for High Reliability, HF Product.

## 用途 / Applications

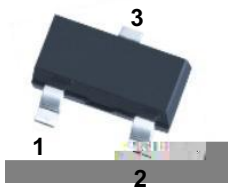
DC-DC

Battery management, High speed switch, low power DC to DC converter, 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

A2Q


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

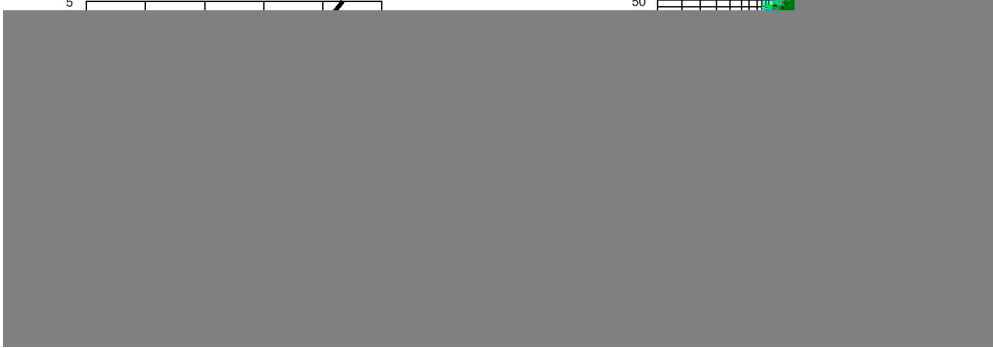
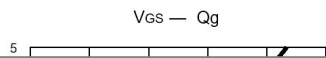
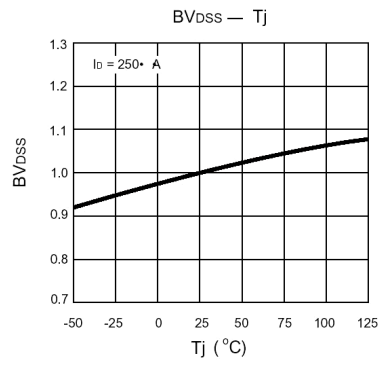
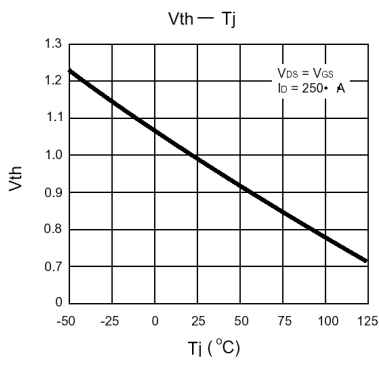
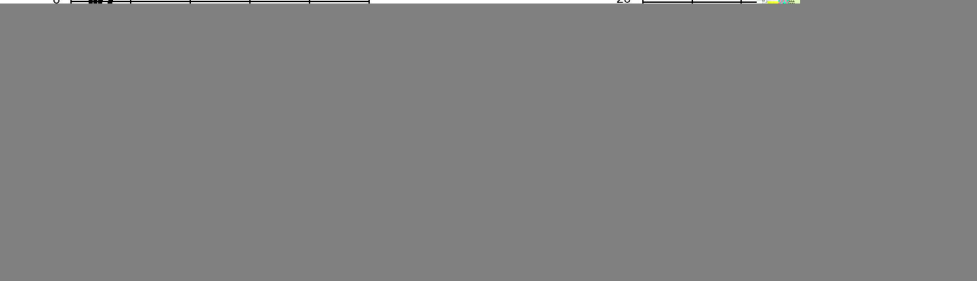
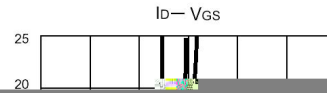
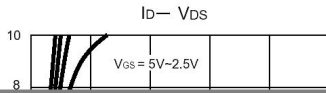
| Parameter                  | Symbol    | Rating  | Unit |
|----------------------------|-----------|---------|------|
| Drain-Source Voltage       | $V_{DSS}$ | 20      | V    |
| Gate-Source Voltage        | $V_{GSS}$ | ±8      | V    |
| Drain Current – Continuous | $I_D$     | 3.0     | A    |
| Pulsed Drain Current       | $I_{DM}$  | 10      | A    |
| Continuous Source Current  | $I_S$     | 0.95    | A    |
| Power Dissipation          | $P_D$     | 0.9     | W    |
| Storage Temperature Range  | $T_{stg}$ | -55~150 | °C   |

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

| Parameter                          | Symbol        | Test Conditions  | Min  | Typ | Max  | Unit    |
|------------------------------------|---------------|--|------|-----|------|---------|
| Drain–Source Breakdown Voltage     | $V_{(BR)DSS}$ | $V_{GS}=0$ $I_D=10\mu A$   | 20   | 21  |      | V       |
| Zero Gate Voltage Drain Current    | $I_{DSS}$     | $V_{GS}=0$ $V_{DS}=20V$  |      |     | 1.0  | $\mu A$ |
| Gate–Body Leakage.                 | $I_{GSS}$     | $V_{GS}=\pm 8V$ $V_{DS}=0V$  |      |     | ±100 | nA      |
| Static Drain–Source On–Resistance  | $R_{DS(on)1}$ | $V_{GS}=4.5V$ $I_D=3.6A$   |      | 34  | 60   | m       |
|                                    | $R_{DS(on)2}$ | $V_{GS}=2.5V$ $I_D=3.1A$   |      | 41  | 115  | m       |
| Forward Transconductance           | $g_{FS}$      | $V_{DS}=5V$ $I_D=3.6A$   |      | 8   |      | S       |
| Drain–Source Diode Forward Voltage | $V_{SD}$      | $V_{GS}=0V$ $I_D=1.25A$  |      |     | 1.2  | V       |
| Gate Threshold Voltage             | $V_{GS(th)}$  | $V_{DS}=V_{GS}$ $I_D=50\mu A$                                      | 0.50 |     | 1.0  | V       |
| State Drain Current                | $I_{D(on)}$   | $V_{DS}=5V$ $V_{GS}=2.5V$  | 4    |     |      | A       |
| Turn–On Delay Time                 | $t_{d(on)}$   | $V_{DD}=10V$ $I_D=3.6A$<br>$V_{GEN}=4.5V$<br>$R_{GEN}=6$ $R_L=2.8$ |      | 7   |      | ns      |
| Turn–On Rise Time                  | $t_r$         |  |      | 55  |      |         |
| Turn–Off Delay Time                | $t_{d(off)}$  |  |      | 15  |      |         |
| Turn–Off Fall Time                 | $t_f$         |  |      | 10  |      |         |



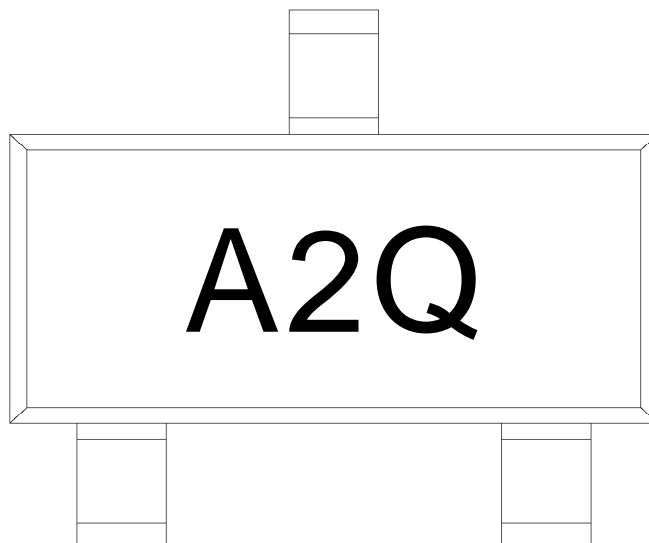
**电参数曲线图 / Electrical Characteristic Curve**







**印章说明 / Marking Instructions**



A2:

Q

Note:

A2      Product Type Code

Q:      Automobile halogen-free product Code



**回流焊温度曲线图(无铅) / Temperature Profile for IR Reflow Soldering(Pb-Free)**

|  |
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|  |
|  |

**Note:**

- 1            150 200            60 120sec;    1.Preheating:150~200°C, Time:60~120sec.
- 2            255±5                    5±0.5sec;    2.Peak Temp.:255±5°C, Duration:5±0.5sec.
- 3                    2 10°C/sec.            3. Cooling Speed: 2~10°C/sec.

**耐焊接热试验条件 / Resistance to Soldering Heat Test Conditions**

260±5°C                    10±1 sec.                    Temp.:260±5°C                    Time:10±1 sec

**包装规格 / Packaging SPEC.**

; 1 1 Tf TJ 9F76 8

/ REEL

| Package Type | Units              |                         |                        |                              |                        | Dimension (unit mm <sup>3</sup> ) |           |           |
|--------------|--------------------|-------------------------|------------------------|------------------------------|------------------------|-----------------------------------|-----------|-----------|
|              | Units/Reel<br>只/卷盘 | Reels/Inner Box<br>卷盘/盒 | Units/Inner Box<br>只/盒 | Inner Boxes/Outer Box<br>盒/箱 | Units/Outer Box<br>只/箱 | Reel                              | Inner Box | Outer Box |