

BRBSS123K2Q

Rev.A Dec.-2023

描述 / Descriptions

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

特征 / Features

灵敏的控制级触发电流和很低的维持电流。静电保护达 2KV，符合 AEC-Q101 标准高可靠性要求，无卤产品。

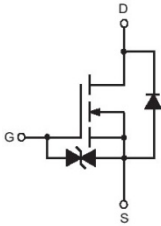
Sensitive gate trigger current and Low Holding current. ESD protected up to 2KV, Qualified to AEC-Q101 Standards for High Reliability, HF Product.

用途 / Applications

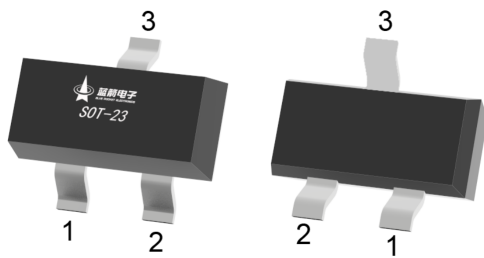
用作一般的开关和相位控制，满足汽车应用的严格要求。

Intended for use in general purpose switching and phase control applications, Meet the stringent requirements of automotive applications.

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	QSA
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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}	100	V
Drain Current – Continuous	I _D	170	mA
Drain Current– Pulsed	I _D (T _c =25°C)	680	mA
Continuous Drain–Source	I _S	170	mA
Gate-Source Voltage	V _{GS}	±20	V
Power Dissipation	P _D	0.36	W
Thermal Resistance, Junction-to-Ambient	R _{θJA}	350	°C/W
Operating and Storage Junction Temperature Range	T _J , T _{STG}	-55 to 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	BV _{DSS}	V _{GS} =0V I _D =250μA	100			V
Zero Gate Voltage Drain Current	I _{DSS(1)}	V _{DS} =100V V _{GS} =0V			1.0	μA
	I _{DSS(2)}	V _{DS} =100V V _{GS} =0V T _J =85°C			30	μA
Gate–Body Leakage.	I _{GSS}	V _{GS} =±20 V _{DS} =0V			±10	uA
On–State Drain Current	I _{D(on)}	V _{DS} =5.0V V _{GS} =10V	0.68			A
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} I _D =250uA	1.5	2.0	2.5	V
Static Drain–Source On–Resistance	R _{DS(on)(1)}	V _{GS} =10V I _D =0.17A		3.3	6.0	Ω
	R _{DS(on)(2)}	V _{GS} =4.5V I _D =0.17A		4.0	10	Ω
Drain–Source Diode Forward Voltage	V _{SD}	V _{GS} =0V I _S =0.34A		0.8	1.3	V
Input Capacitance	C _{iss}	V _{DS} =25V V _{GS} =0V f=1.0MHz		73		pF
Output Capacitance	C _{oss}			7		pF
Reverse Transfer Capacitance	C _{rss}			3.4		pF
Turn–On Delay Time	t _{d(on)}	I _D =0.28A V _{GS} =10V V _{DD} =30V R _G =6.0Ω		1.8		ns
Turn–On Rise Time	t _r			11		ns
Turn–Off Delay Time	t _{d(off)}			19		ns
Turn–Off Fall Time	t _f			2.6		ns

电参数曲线图 / Electrical Characteristic Curve

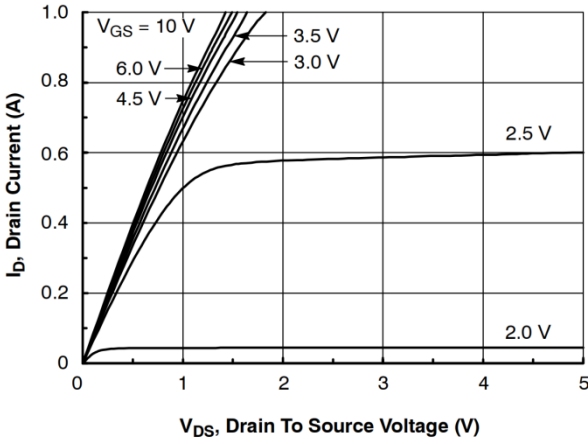


Figure 1. On-Region Characteristics

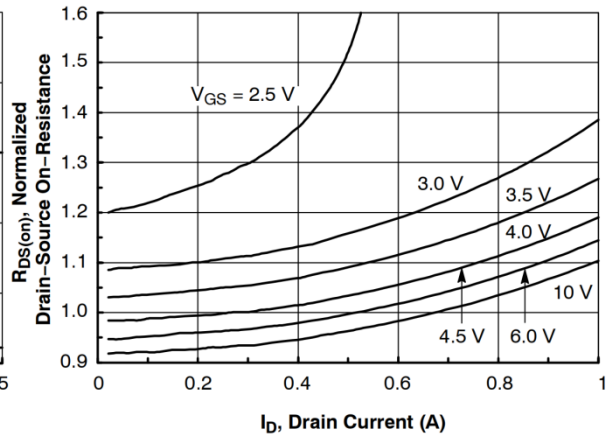


Figure 2. On-Resistance Variation with Drain Current and Gate Voltage

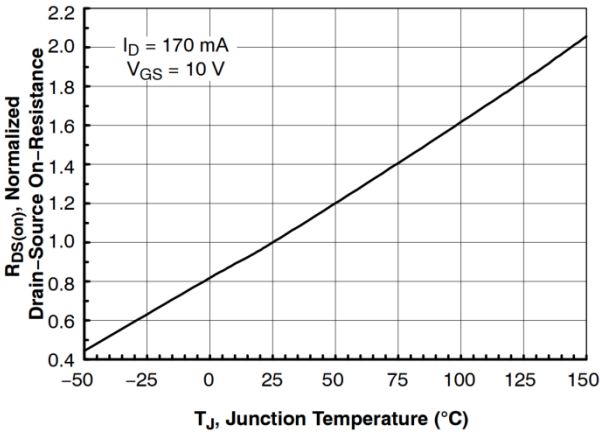


Figure 3. On-Resistance Variation with Temperature

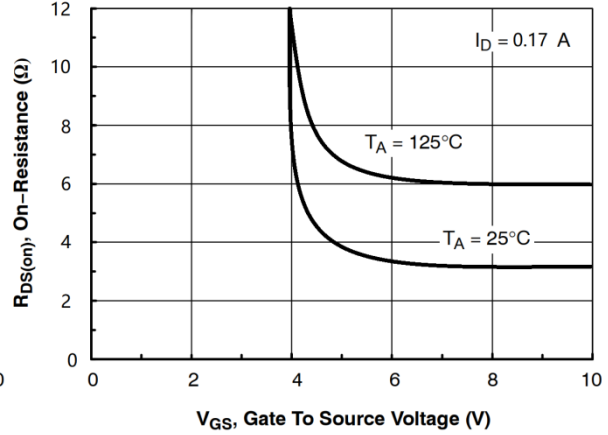


Figure 4. On-Resistance Variation with Gate-to-Source Voltage

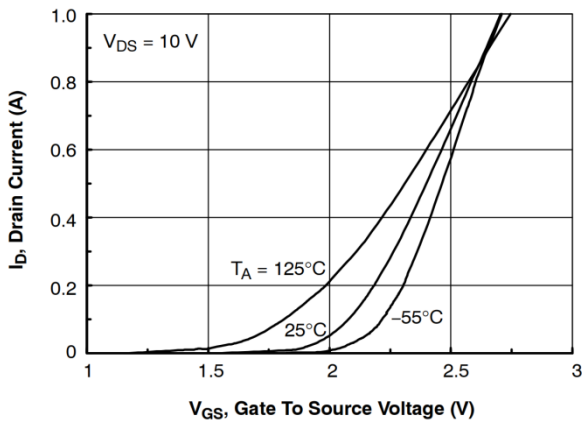


Figure 5. Transfer Characteristics

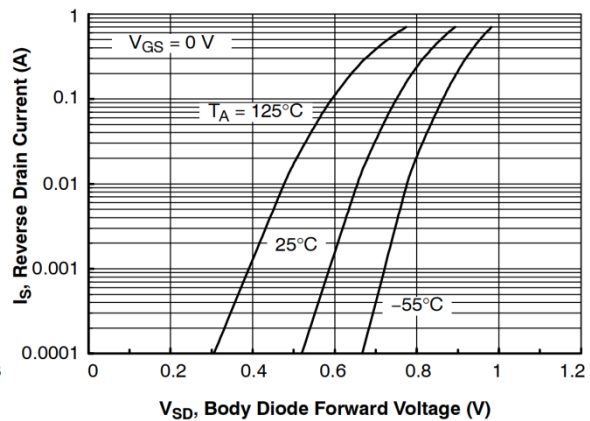


Figure 6. Body Diode Forward Voltage Variation with Source Current and Temperature

电参数曲线图 / Electrical Characteristic Curve

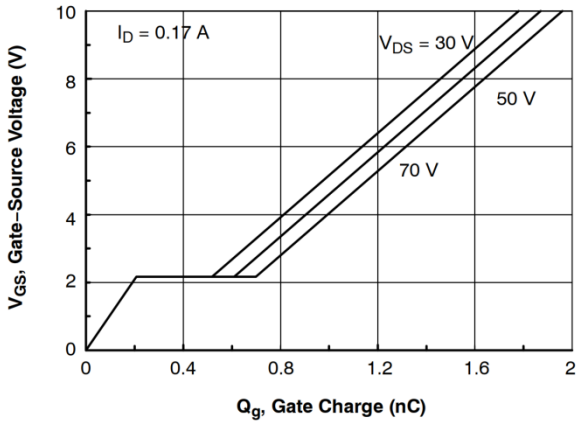


Figure 7. Gate Charge Characteristics

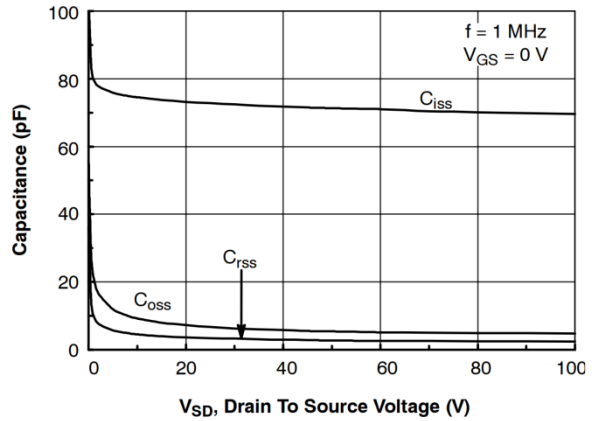


Figure 8. Capacitance Characteristics

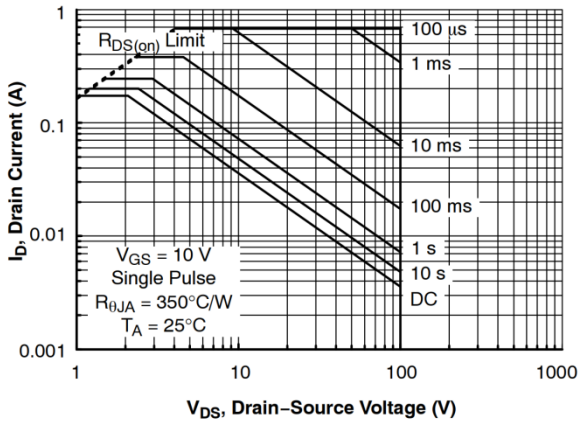


Figure 9. Maximum Safe Operating Area

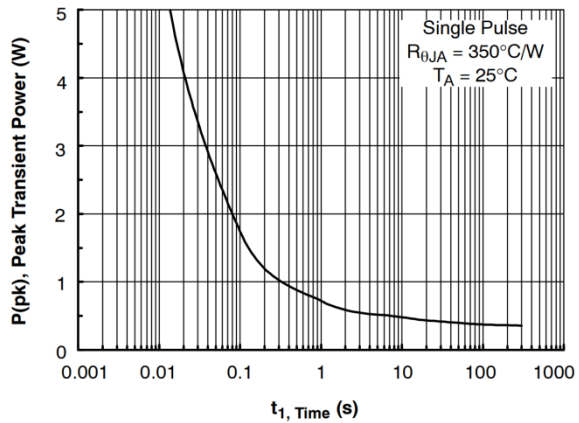


Figure 10. Single Pulse Maximum Power Dissipation

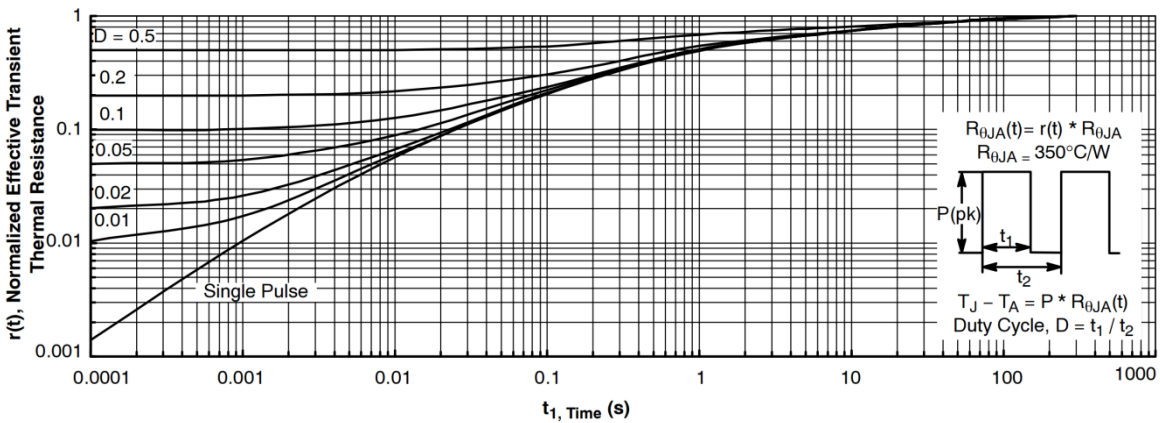
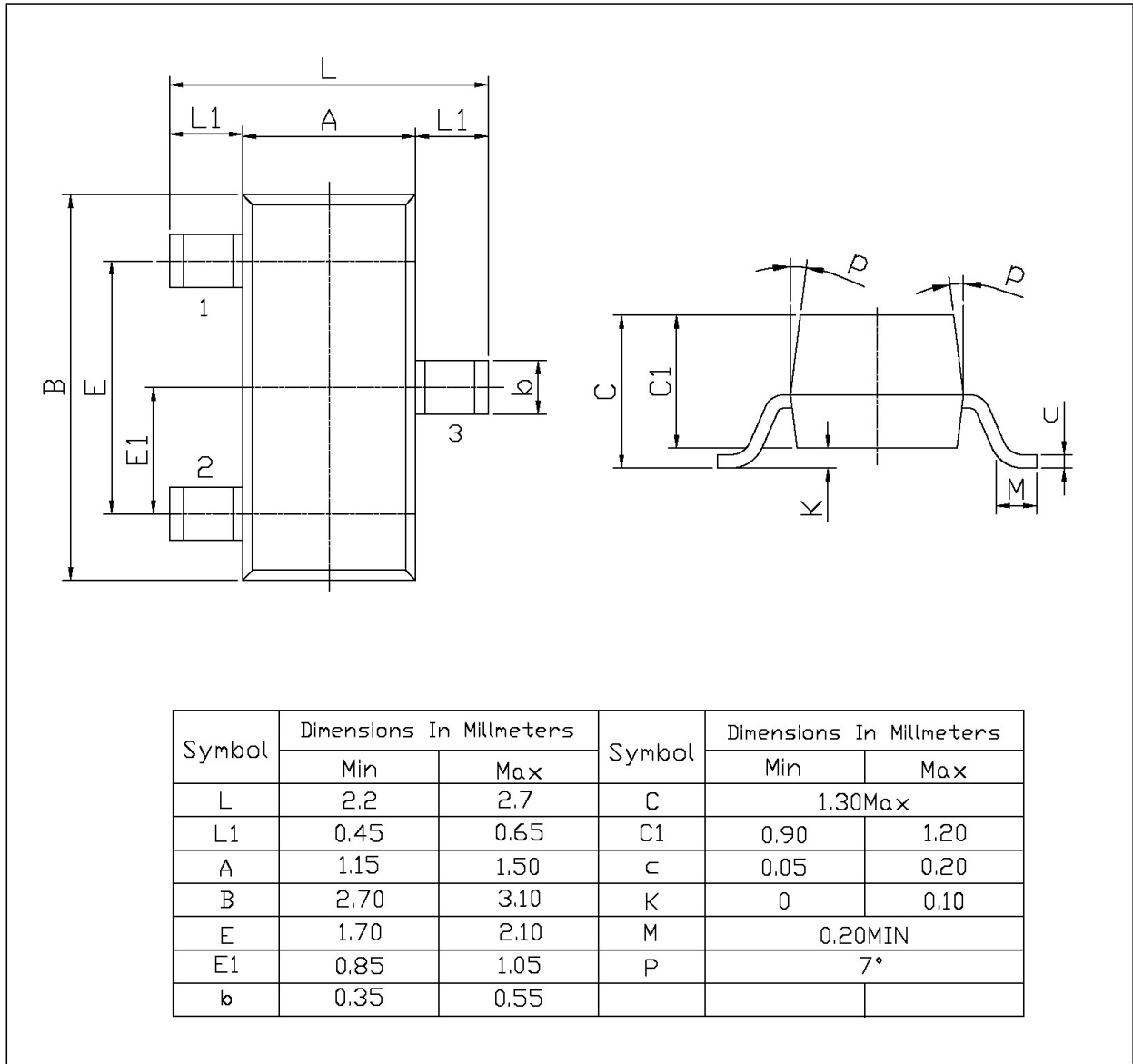


Figure 11. Transient Thermal Response Curve

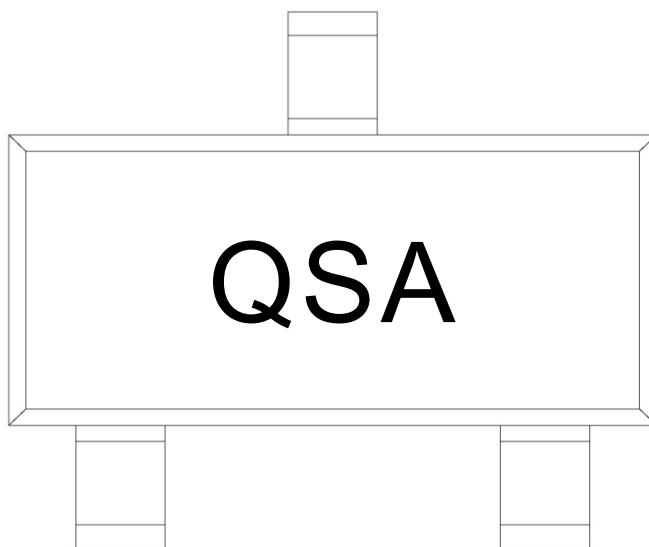
外形尺寸图 / Package Dimensions

SOT-23

单位: mm



印章说明 / Marking Instructions



说明：

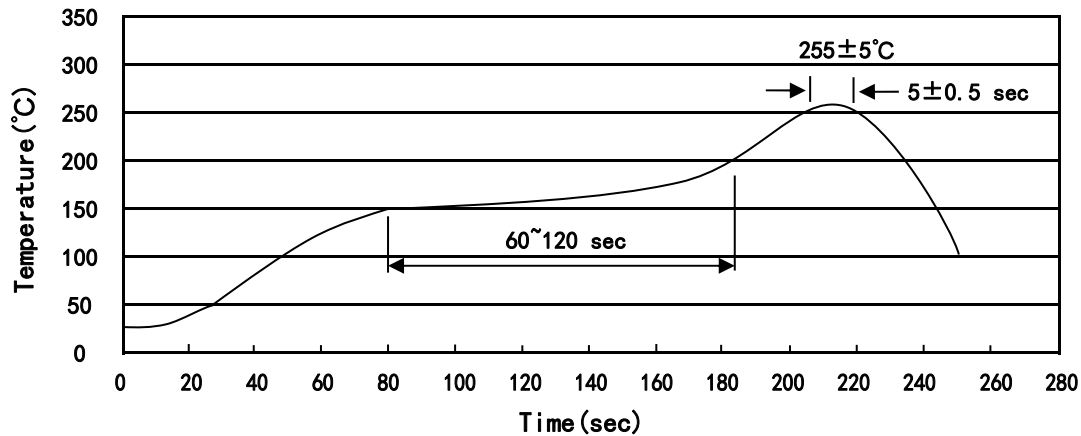
Q： 为汽车无卤产品标识

SA： 为型号代码

Note:

Q: Automobile halogen-free product Code

SA: Product Type 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 150~200°C，时间 60~120sec;
- 2、峰值温度 255±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:150~200°C, Time:60~120sec.
- 2.Peak Temp.:255±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 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