

BRCS5P06MAQ

Rev.A May.-2023

描述 / Descriptions

SOT-23 塑封封装 P 道场效应管。

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

特征 / Features

低导通电阻，开关时间快，低导通电压，符合 AEC-Q101 标准高可靠性要求，无卤产品。

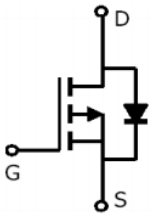
Ultra Low on-resistance. fast switching. Low on voltage, Qualified to AEC-Q101 Standards for High Reliability, HF Product.

用途 / Applications

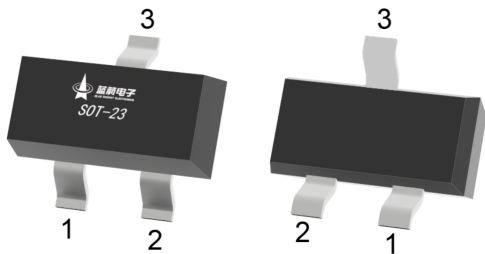
PWM 应用与负载开关，满足汽车应用的严格要求。

PWM application & Load switch, 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	Q5P6
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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}	-60	V	
Gate-Body Leakage Voltage	V _{GSS}	±20	V	
Drain Current - Continuous	I _D	-5	A	
Pulsed Drain Current	I _{DM}	-18	A	
Power Dissipation (Surface Mounted on FR4 Board, t ≤ 10 sec.)	P _D	1.5	W	
Operating and Storage Temperature Range	T _J , T _{STG}	-55~150	°C	
Maximum Junction-to-Ambient	t ≤ 10s	R _{θJA}	118.6	°C/W
Maximum Junction-to-Ambient	Steady-State		161.6	°C/W
Maximum Junction-to-Lead	Steady-State	R _{θJL}	83.3	°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	V _{(BR)DSS}	V _{GS} =0V I _D =-250μA	-60	-63		V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} I _D =-250μA	-1	-1.5	-2.5	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-10V I _D =-2A		84	100	mΩ
		V _{GS} =-4.5V I _D =-1A		103	125	mΩ
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-60V V _{GS} =0V			-1.0	μA
Gate-Body Leakage.	I _{GSS}	V _{GS} =-20V			-100	nA
		V _{GS} =20V			100	nA
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} =0V I _S =-1A T _J =25°C			-1.2	V
Input Capacitance	C _{iss}	V _{DS} =-25V V _{GS} =0V f=1.0MHz		885		pF
Output Capacitance	C _{oss}			90		
Reverse Transfer Capacitance	C _{rss}			64		
Total Gate Charge	Q _{g(-10V)}	V _{DS} =-30V V _{GS} =-10.0V I _D =-5A		25		nC
Total Gate Charge	Q _{g(-4.5V)}			9.6		
Gate-to-Source Charge	Q _{gs}			3		
Gate-to-Drain Charge	Q _{gd}			7		
Turn-On Delay Time	t _{d(on)}	V _{DD} =-30V V _{GS} =-10V R _L =7.5Ω R _G =3Ω		8		ns
Turn-On Rise Time	t _r			4		
Turn-Off Delay Time	t _{d(off)}			32		
Turn-Off Fall Time	t _f			7		

电参数曲线图 / Electrical Characteristic Curve

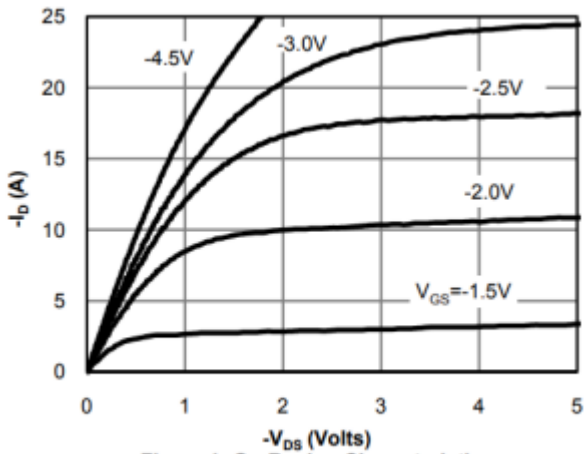


Figure 1: On-Region Characteristics

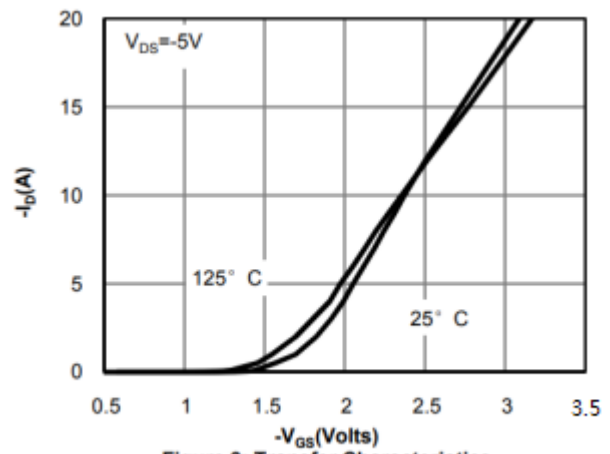


Figure 2: Transfer Characteristics

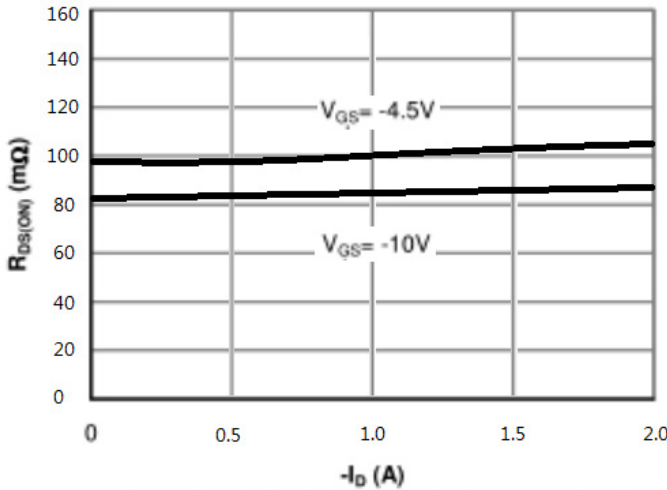


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

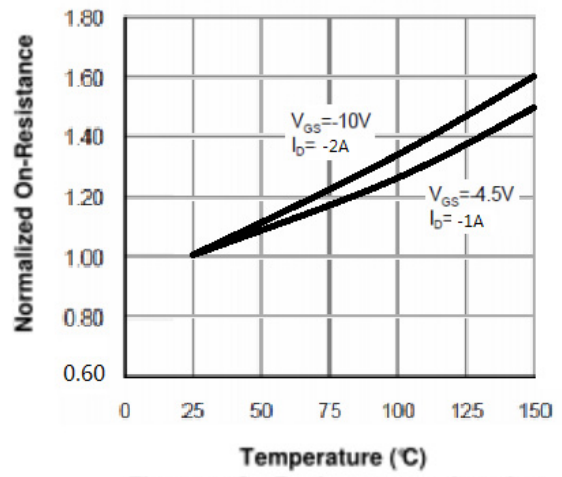


Figure 4: On-Resistance vs. Junction Temperature

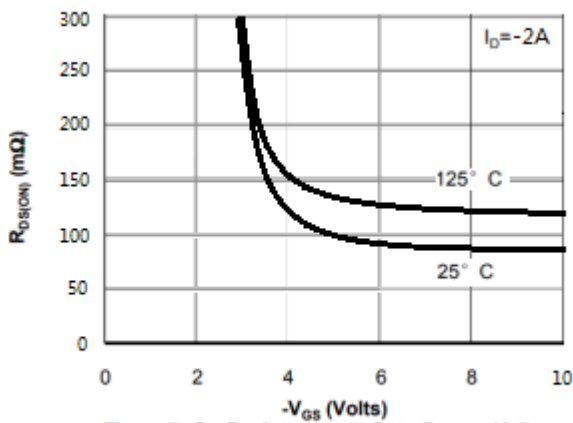


Figure 5: On-Resistance vs. Gate-Source Voltage

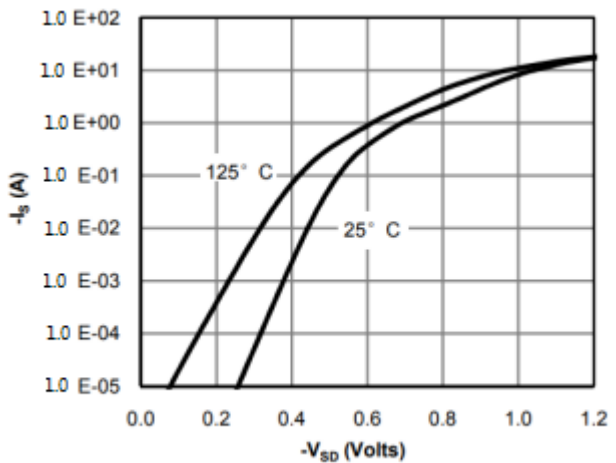


Figure 6: Body-Diode Characteristics

电参数曲线图 / Electrical Characteristic Curve

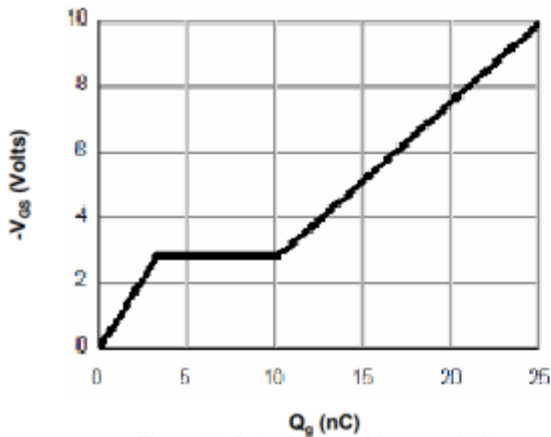


Figure 7: Gate-Charge Characteristics

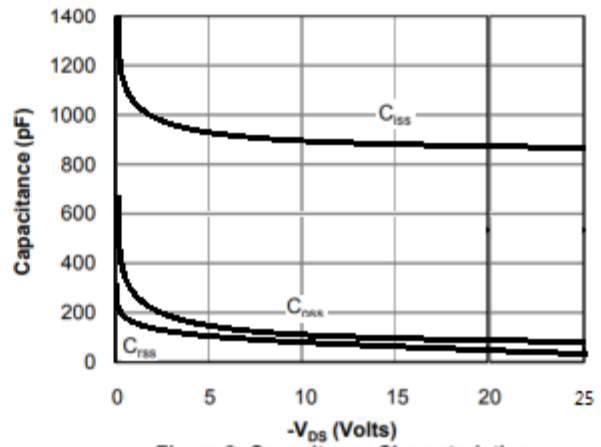


Figure 8: Capacitance Characteristics

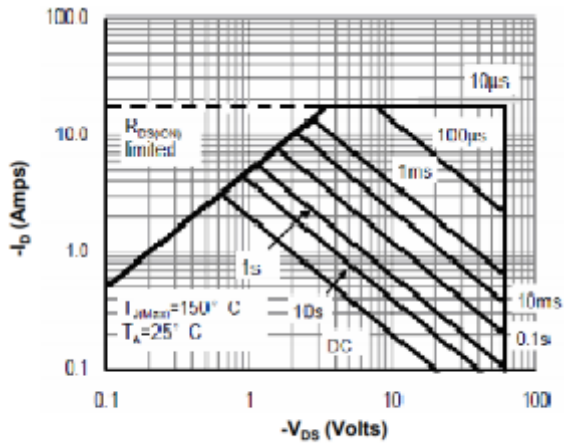


Figure 9: Maximum Forward Biased Safe Operating Area

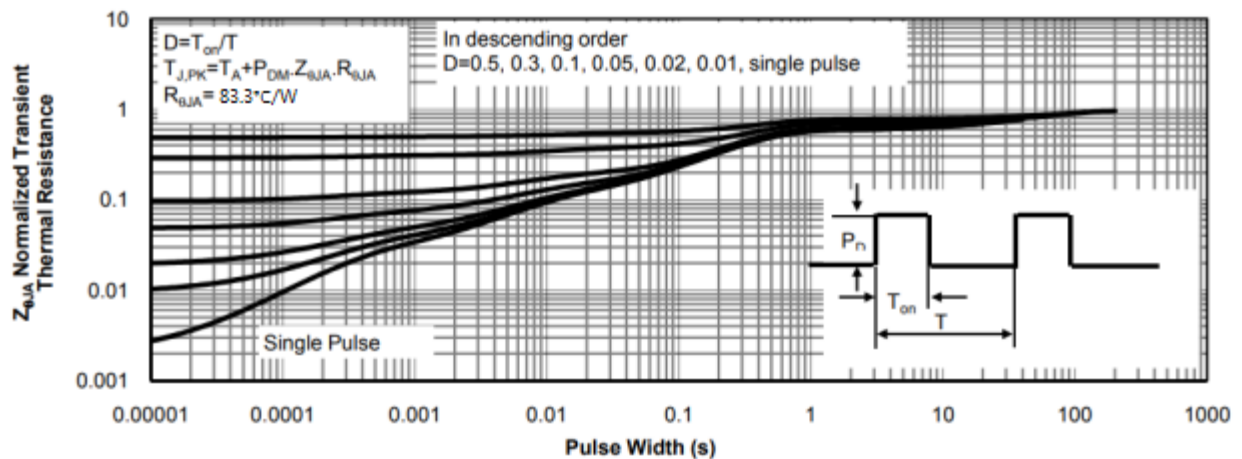
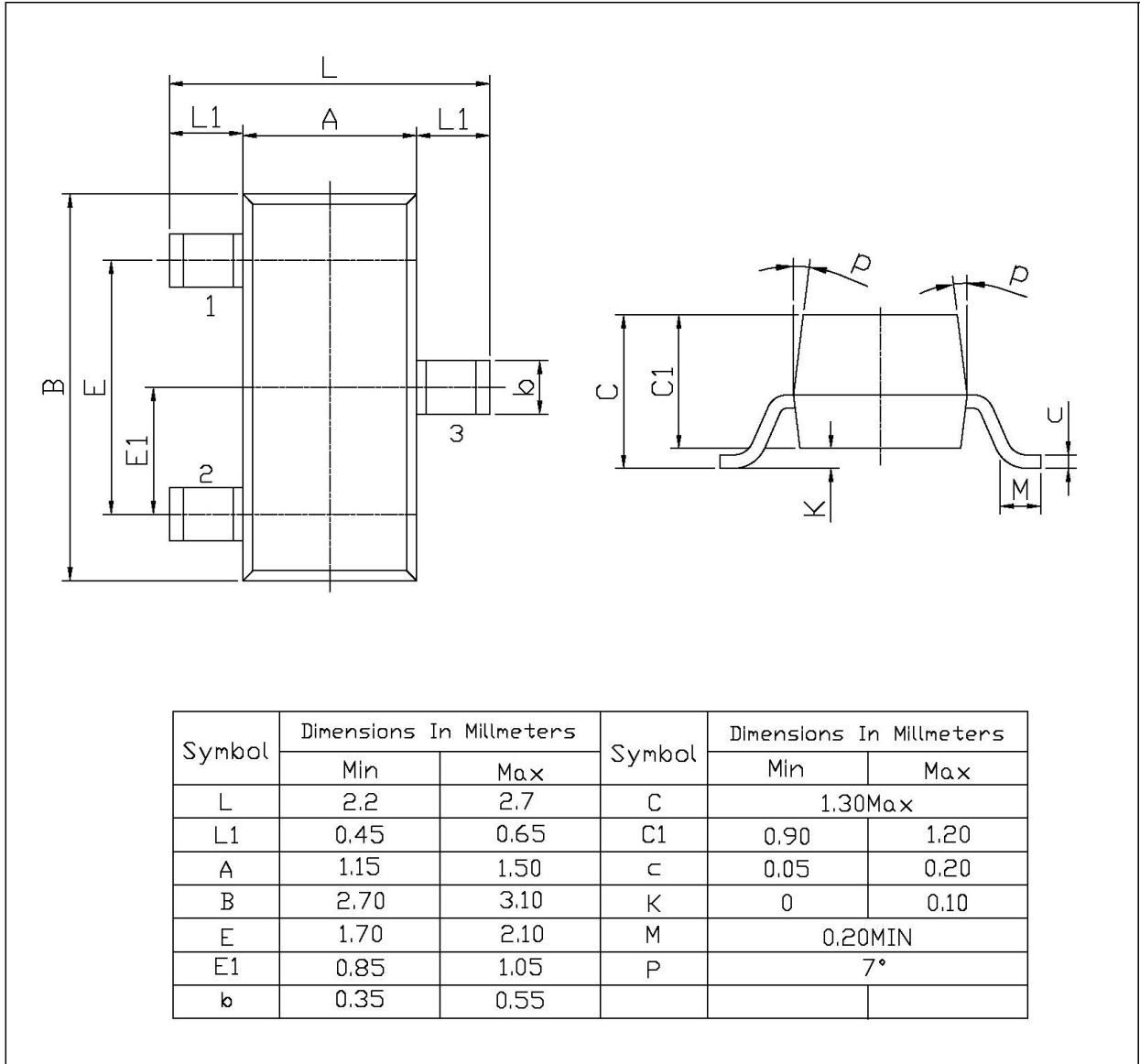


Figure 10: Normalized Maximum Transient Thermal Impedance

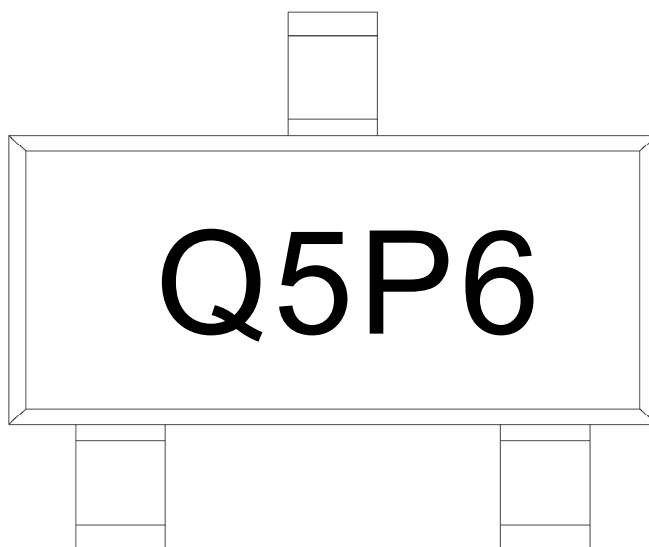
外形尺寸图 / Package Dimensions

SOT-23

单位: mm



印章说明 / Marking Instructions



说明：

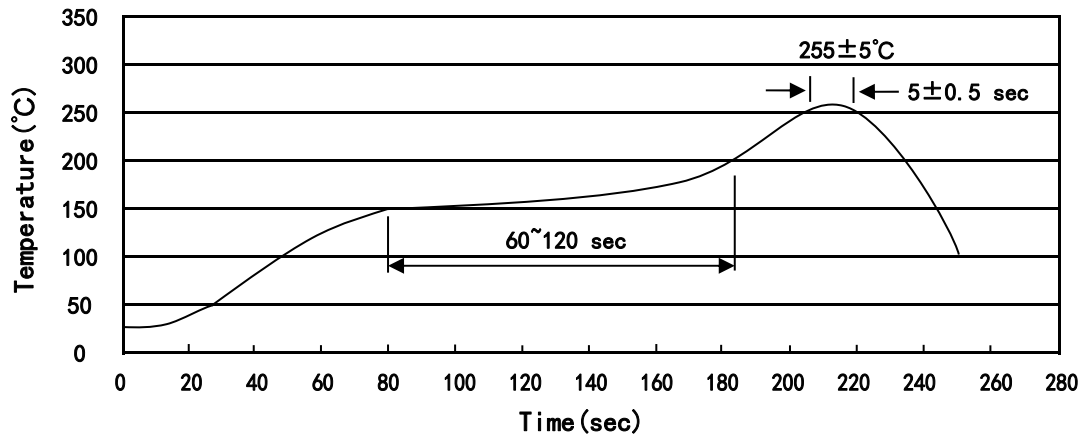
Q： 为汽车无卤产品标识

5P6： 为型号代码

Note:

Q: Automobile halogen-free product Code

5P6: 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 150~200°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