

BRCS3407MCQ

Rev.A Jun.-2022

描述 / Descriptions

SOT23-3 塑封封装 P 道 MOS 场效应管。P- CHANNEL MOSFET in a SOT23-3 Plastic Package.

特征 / Features

$V_{DS} (V) = -30V$

$I_D = -4.1 A$

$R_{DS(ON)} < 60m\Omega (V_{GS} = -10V)$

$R_{DS(ON)} < 85m\Omega (V_{GS} = -4.5V)$

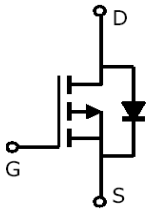
符合 AEC-Q101 标准高可靠性要求，无卤产品。Qualified to AEC-Q101 Standards for High Reliability, HF Product.

用途 / Applications

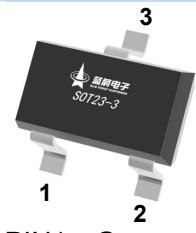
适用于作负载开关或脉宽调制应用，满足汽车应用的严格要求。

This device is suitable for use as a load switch or in PWM 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

A7Q

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 _{DS}	-30	V
Drain Current – Continuous	I _D	-4.1	A
Drain Current- Continuous	I _D (T _a =70°C)	-3.5	A
Pulsed Drain Current	I _{DM}	-20	A
Gate-Source Voltage	V _{GS}	±20	V
Total Power Dissipation	P _D	1.4	W
Operating and Storage Junction Temperature Range	T _J , T _{STG}	-55 to 150	°C
Thermal Resistance-Junction to Case	R _{θJC}	89.3	°C/W
Thermal Resistance-Junction to Ambient	R _{θJA}	79	

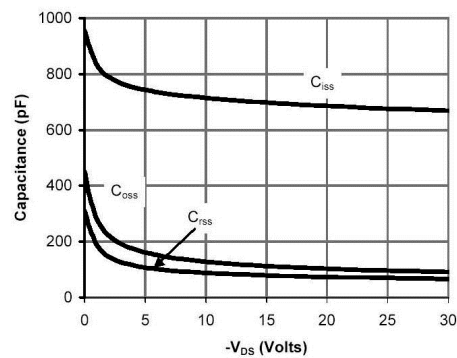
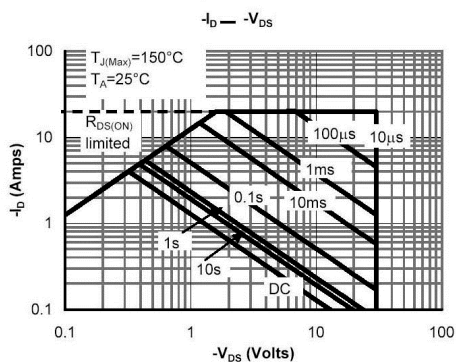
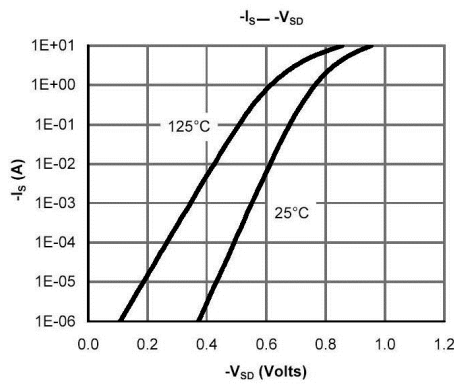
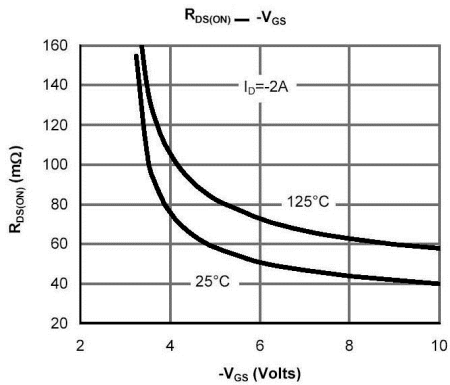
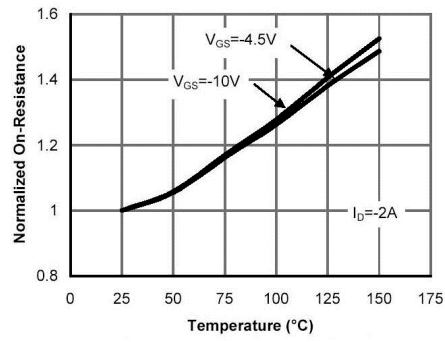
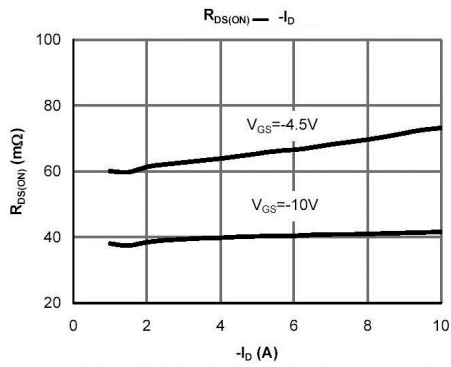
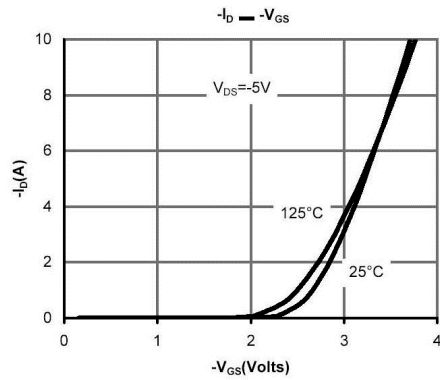
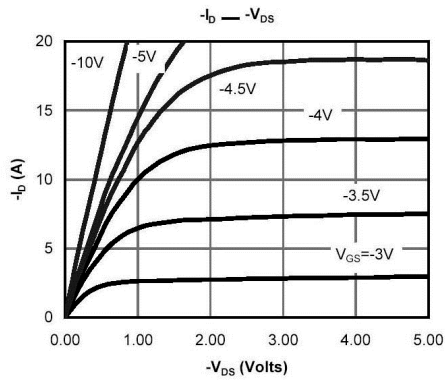
电性能参数 / Electrical Characteristics(Ta=25°C)

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	-30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-24V V _{GS} =0V			-1	μA
		V _{DS} =-24V V _{GS} =0V T _J =55°C			-5	μA
Gate–Body Leakage.	I _{GSS}	V _{GS} =±20V V _{DS} =0V			±0.1	μA
On–State Drain Current	I _{D(on)}	V _{GS} =-4.5V V _{DS} =-5V	-10			A
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} I _D =-250μA	-1	-1.4	-3	V
Static Drain–Source On–Resistance	R _{DS(on)1}	V _{GS} =-10V I _D =-4.1A		54	60	mΩ
	R _{DS(on)2}	V _{GS} =-10V I _D =-4.1A T _J =125°C		57	73	
	R _{DS(on)3}	V _{GS} =-4.5V I _D =-3A		77	85	
Forward Transconductance	g _{FS}	V _{DS} =-5V I _D =-4A	5.5	8.2		S
Drain–Source Diode Forward Voltage	V _{SD}	V _{GS} =0V I _S =-1A		-0.77	-1	V
Input Capacitance	C _{iss}	V _{DS} =-15V V _{GS} =0V f=1MHz		700		pF
Output Capacitance	C _{oss}			120		
Reverse Transfer Capacitance	C _{rss}			75		

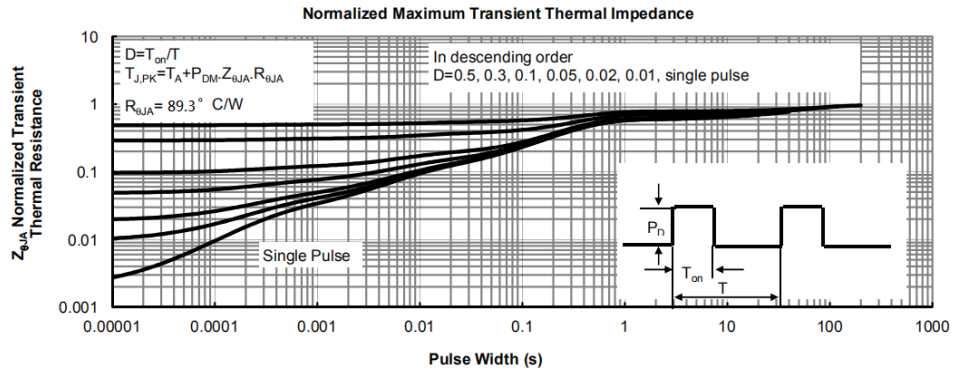
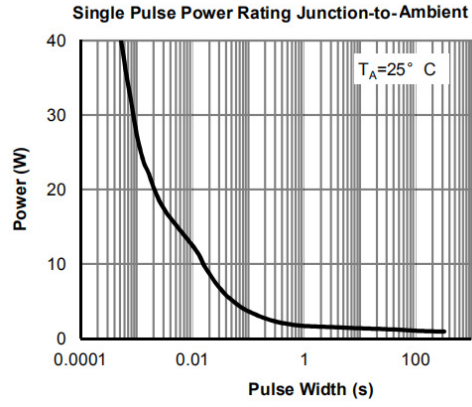
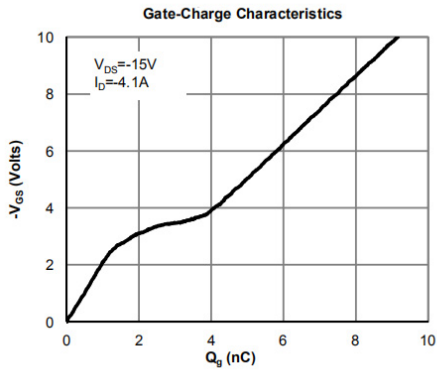
电性能参数 / Electrical Characteristics(Ta=25°C)

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
Total Gate Charge	$Q_g(10V)$	$V_{GS}=-10V, V_{DS}=-15V,$ $I_D=-4.1A$		9		nC
Total Gate Charge	$Q_g(4.5V)$			4.5		
Gate Source Charge	Q_{gs}			1.5		
Gate Drain Charge	Q_{gd}			2.1		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=-10V R_L=3.6\Omega$ $V_{DS}=-15V R_{GEN}=3\Omega$		8.6		ns
Turn-On Rise Time	t_r			5		
Turn-Off Delay Time	$t_{d(off)}$			28.2		
Turn-Off Fall Time	t_f			13.5		
Body Diode Reverse Recovery Time	t_{rr}	$I_F=-4.1A, di/dt=100A/\mu s$		13		ns
Body Diode Reverse Recovery Charge	Q_{rr}	$I_F=-4.1A, di/dt=100A/\mu s$		5.5		nC

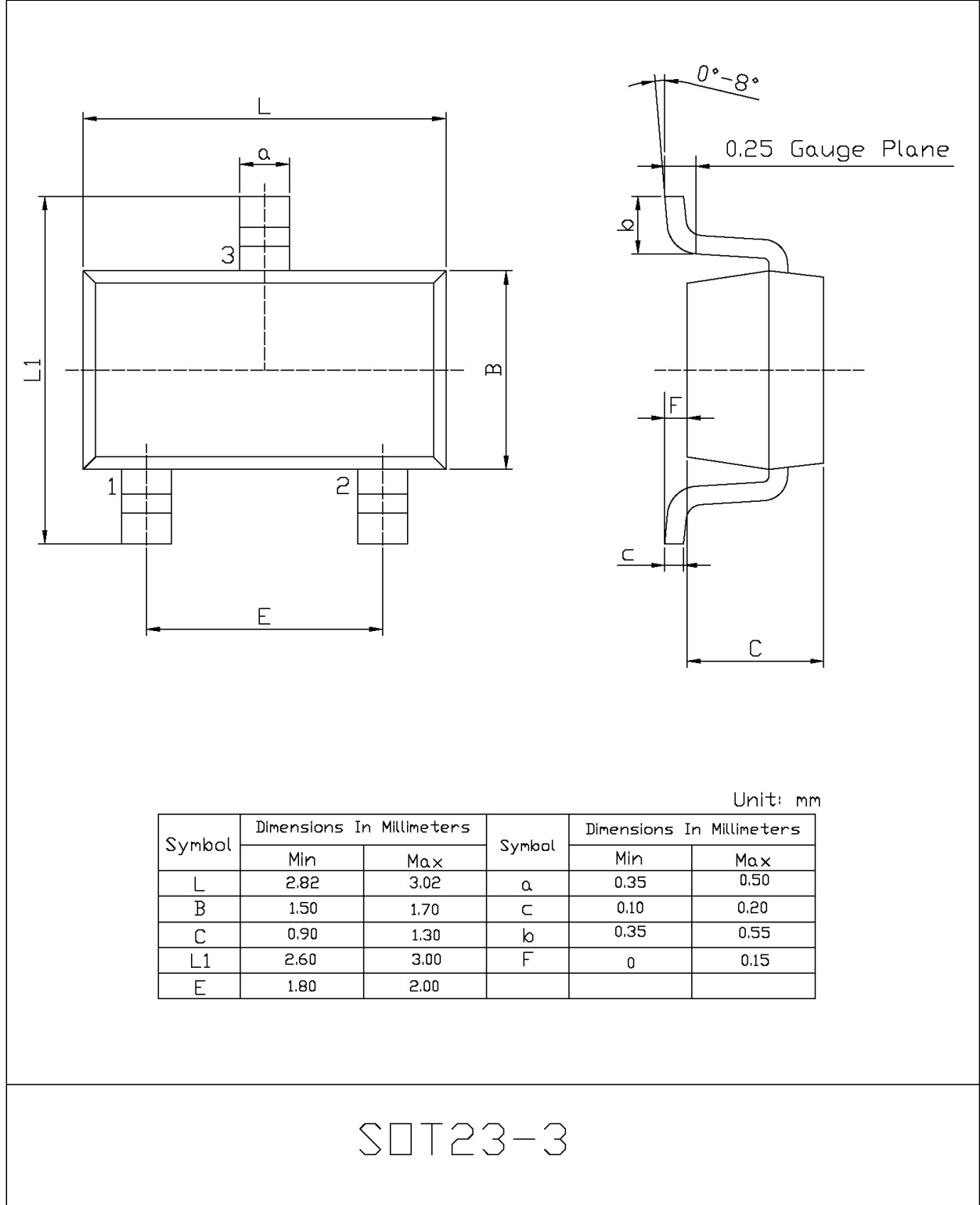
电参数曲线图 / Electrical Characteristic Curve



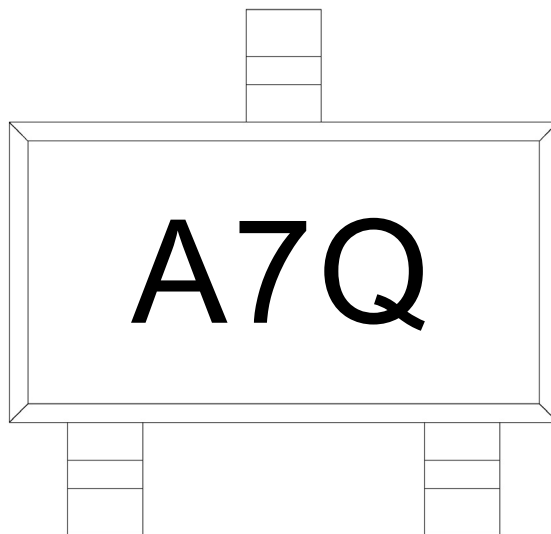
电参数曲线图 / Electrical Characteristic Curve



外形尺寸图 / Package Dimensions



印章说明 / Marking Instructions



说明：

A7： 为型号代码

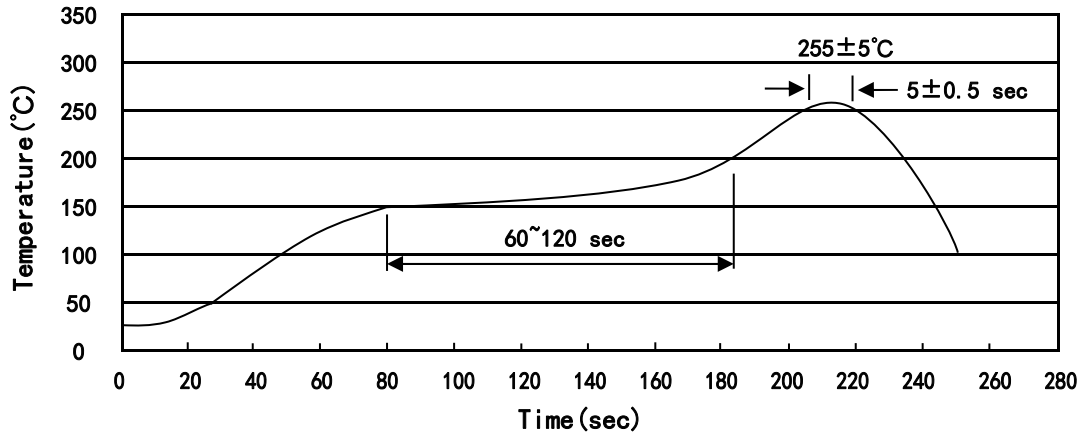
Q： 为汽车无卤产品标识

Note:

A7: 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：

Note:

- | | |
|------------------------------------|--|
| 1、预热温度 150 ~ 200°C，时间 60 ~ 120sec; | 1.Preheating:150~200°C, Time:60~120sec. |
| 2、峰值温度 255±5°C，时间持续为 5±0.5sec; | 2.Peak Temp.:255±5°C, Duration:5±0.5sec. |
| 3、焊接制程冷却速度为 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

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
SOT23-3	3,000	10	30,000	4	120,000	7" ×8	210×205×205	445×230×435

使用说明 / Notices