

BRCS5P06MCQ

Rev.A May.-2023

/ Descriptions

SOT23-3 P

P- CHANNEL MOSFET in a SOT23 -3Plastic Package.

/ Features

AEC-Q101

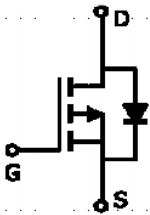
Ultra Low on-resistance, fast switching, Low on voltage, Qualified to AEC-Q101 Standards for High Reliability, HF Product.

/ Applications

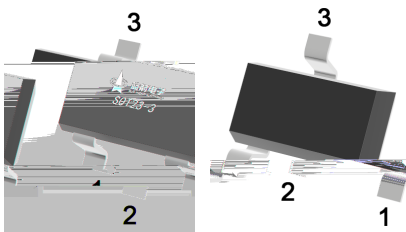
PWM

PWM application & Load switch, Meet the stringent requirements of automotive applications.

/ Equivalent Circuit



/ Pinning



PIN1 G

PIN 2 S

PIN 3 D

/ Marking

Marking	Q5P6
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/ Absolute Maximum Ratings(Ta=25)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	-60	V
Gate-Body Leakage Voltage		V_{GSS}	± 20	V
Drain Current - Continuous		I_D	-5	A
Power Dissipation (Surface Mounted on FR4 Board, $t \leq 10$ sec.)		P_D	1.5	W
Operating and Storage Temperature Range		T_J, T_{STG}	-55 150	
Maximum Junction-to-Ambient	$t \leq 10s$	$R_{\theta JA}$	118.6	/W
Maximum Junction-to-Ambient	Steady-State		161.6	/W
Maximum Junction-to-Lead	Steady-State	$R_{\theta JL}$	83.3	/W

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DS}$	$V_{GS}=0V$ $I_D=-250\mu A$	-60	-63		V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=-250\mu A$	-1	-1.5	-2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-10V$ $I_D=-2A$		84	100	m Ω
		$V_{GS}=-4.5V$ $I_D=-1A$		103	125	m Ω
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}	$V_{GS}=0V$ $I_S=-1A$ $T_J=25$			-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	$V_{DS}=-30V$ $V_{GS}=-10.0V$ $I_D=-5A$		25		nC
Gate-to-Source Charge	Q_{gs}			3		
Gate-to-Drain Charge	Q_{gd}			7		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=-30V$ $V_{GS}=-10V$ $R_L=7.5\Omega$ $R_G=3\Omega$		8		ns
Turn-On Rise Time	t_r			4		
Turn-Off Delay Time	$t_{d(off)}$			32		
Turn-Off Fall Time	t_f			7		

/ Electrical Characteristic Curve

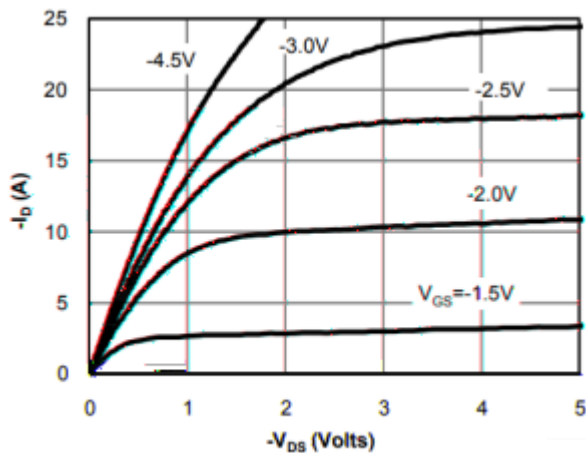


Figure 1: On-Region Characteristics

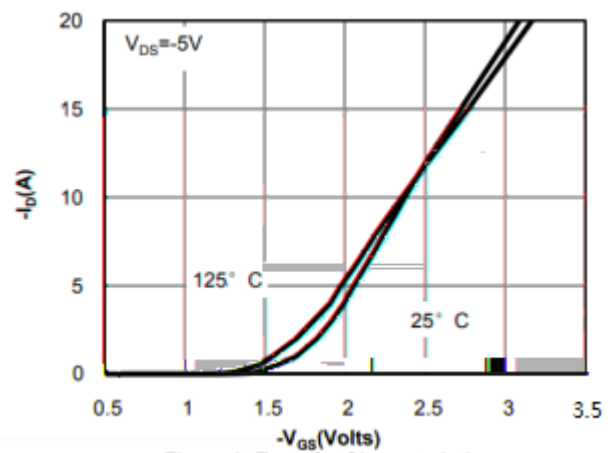


Figure 2: Transfer Characteristics

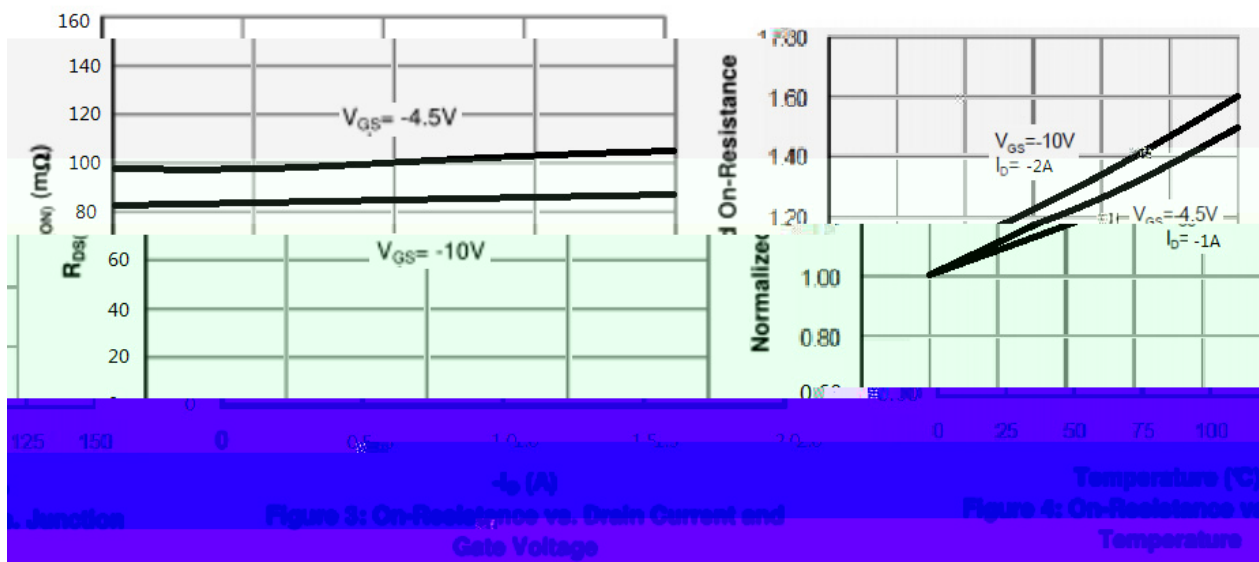


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

Figure 4: On-Resistance vs. Temperature

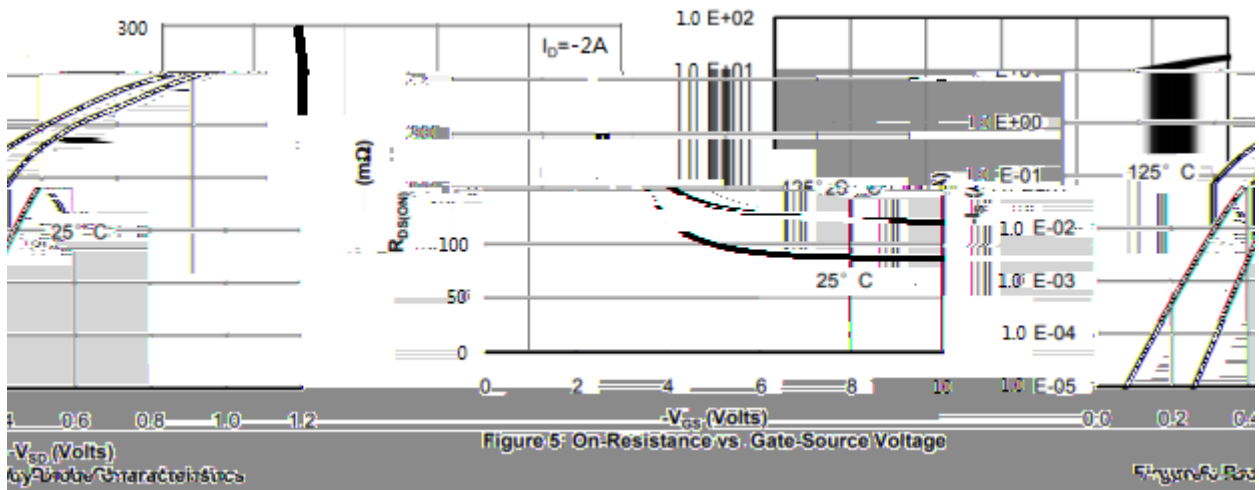
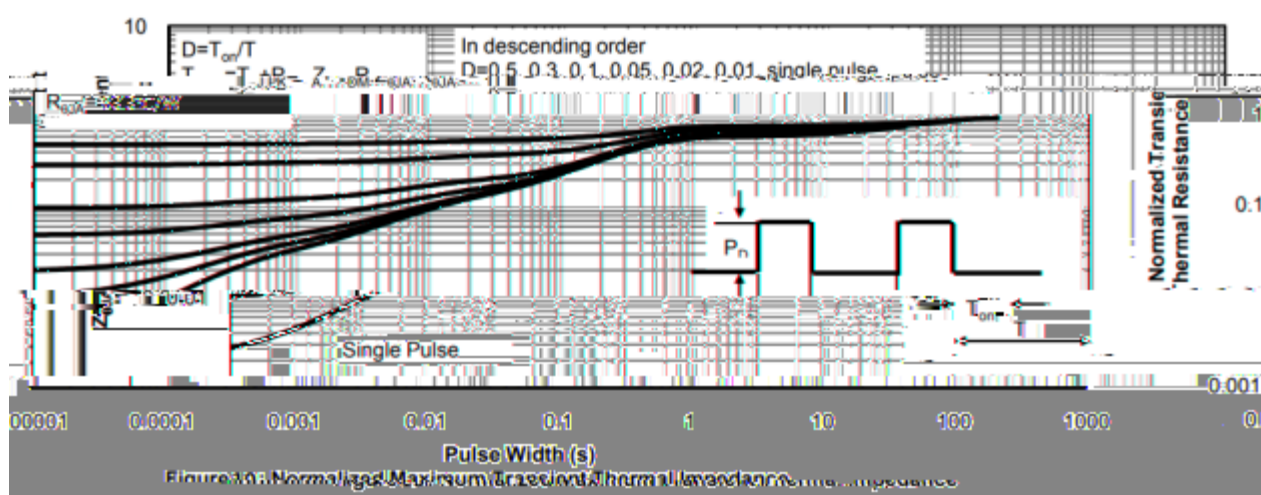
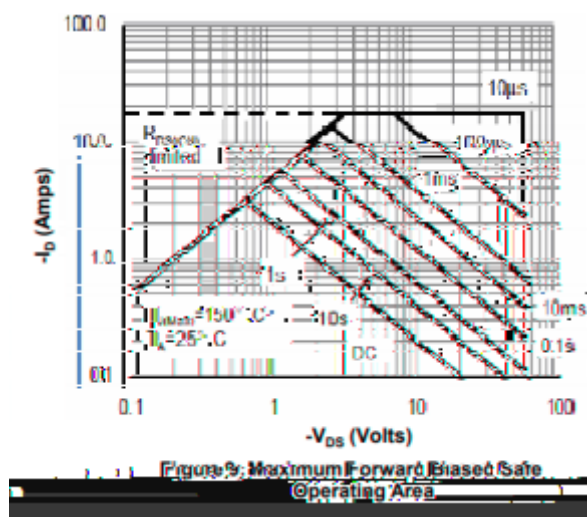
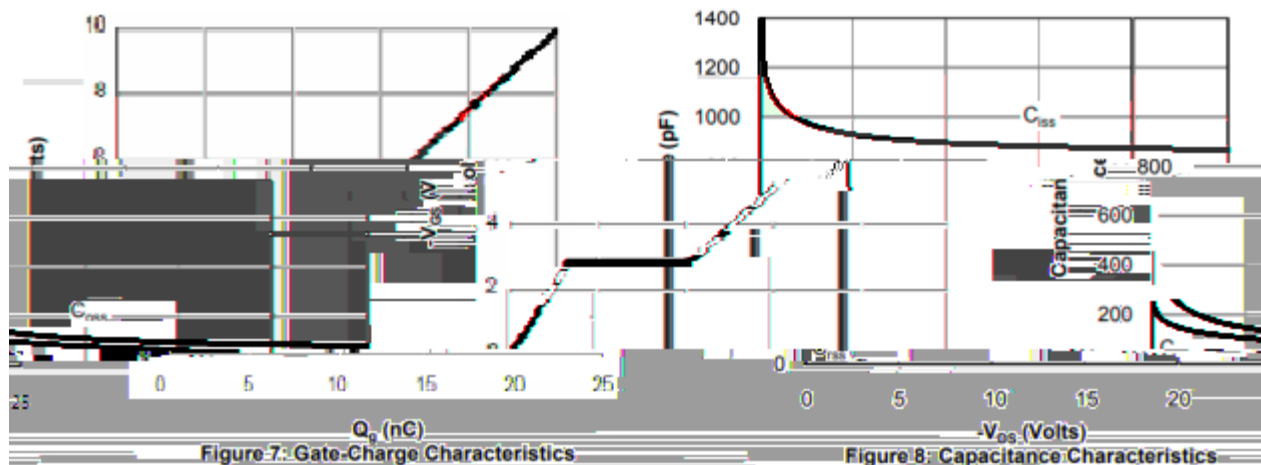


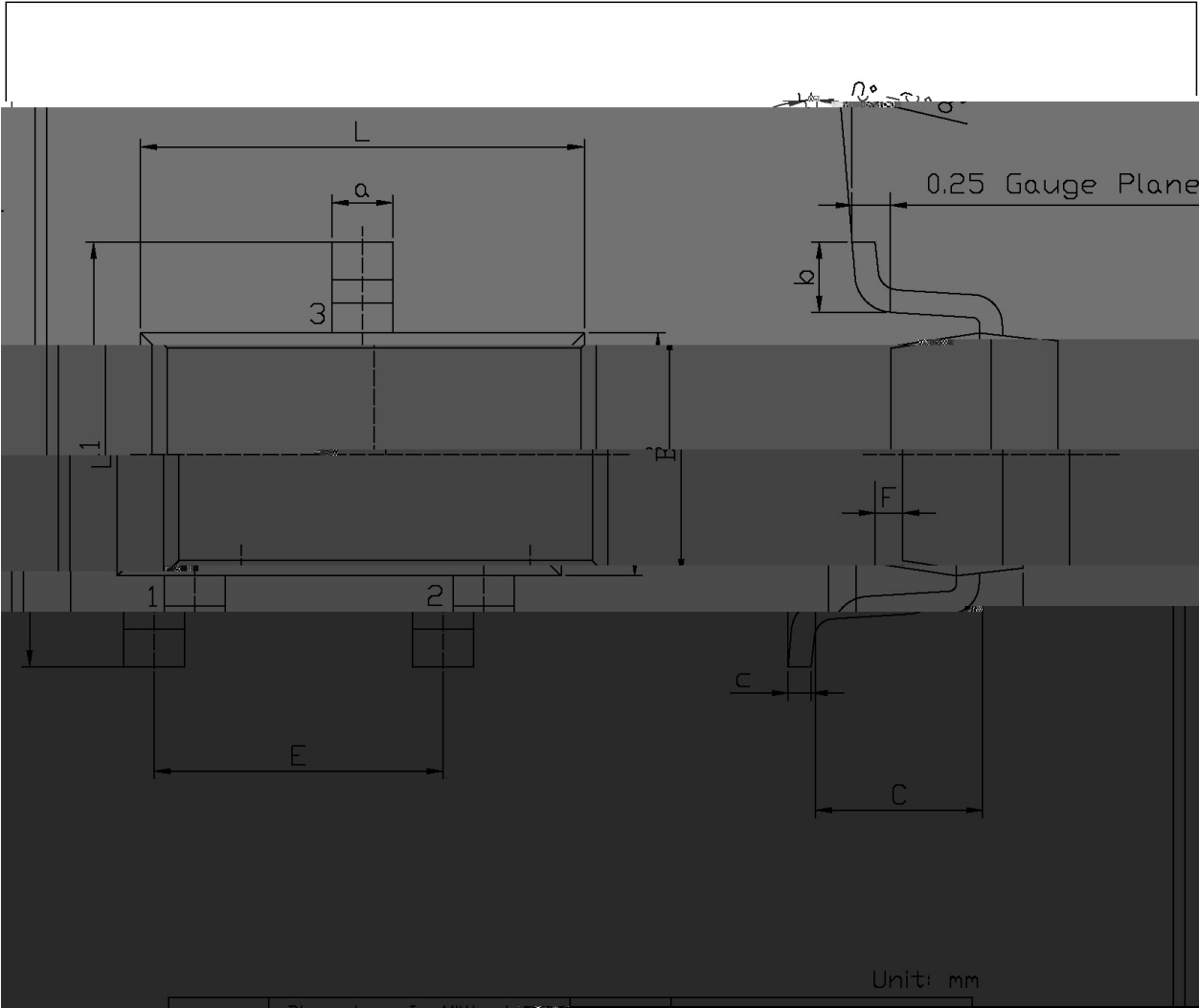
Figure 5: On-Resistance vs. Gate-Source Voltage

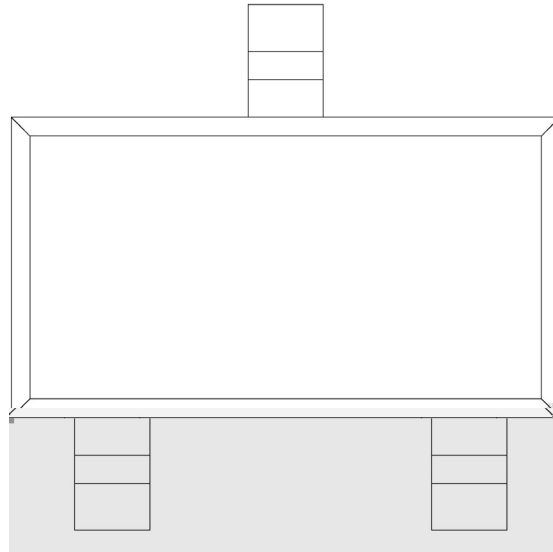
Figure 6: On-Resistance vs. Drain-Source Voltage

/ Electrical Characteristic Curve

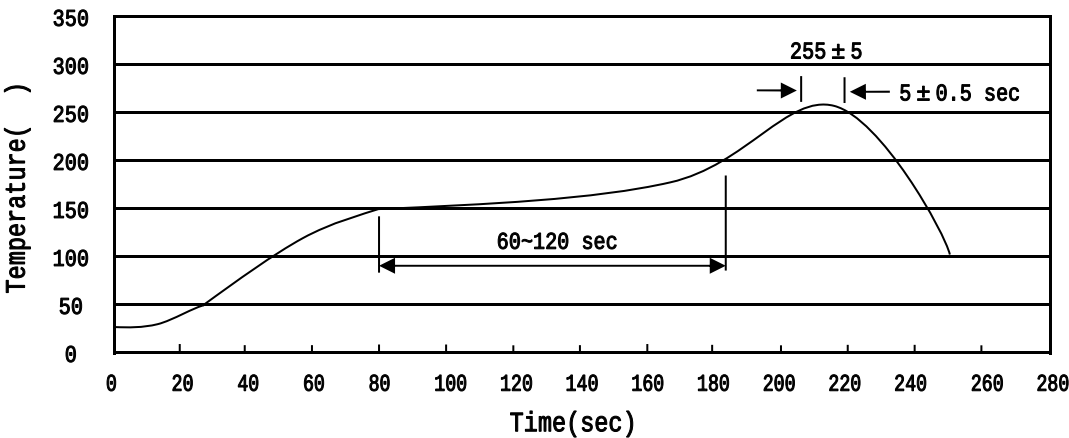


/ Package Dimensions





() / Temperature Profile for IR Reflow Soldering(Pb-Free)



Note:

- 1

150 200

60 120sec;

1.Preheating:150~200 , Time:60~120sec.
- 2

255±5

5±0.5sec;

2.Peak Temp.:255±5 , Duration:5±0.5sec.
- 3

2 10 /sec.

3. Cooling Speed: 2~10 /sec.

/ Resistance to Soldering Heat Test Conditions

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

/ Packaging SPEC.

/ REEL

Package Type	Units					Dimension (unit mm ³)		
	Units/Reel	Reels/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Reel	Inner Box	Outer Box
SOT23-3	3,000	10	30,000	4	120,000	7 ×8	210×205×205	445×230×435

/ Notices