

Rev.A May.-2023

SOT-23 P

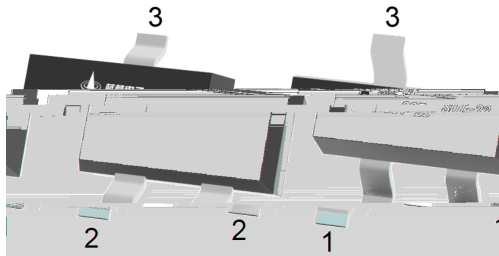
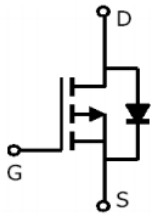
P- CHANNEL MOSFET in a SOT-23 Plastic Package.

AEC-Q101

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

PWM

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

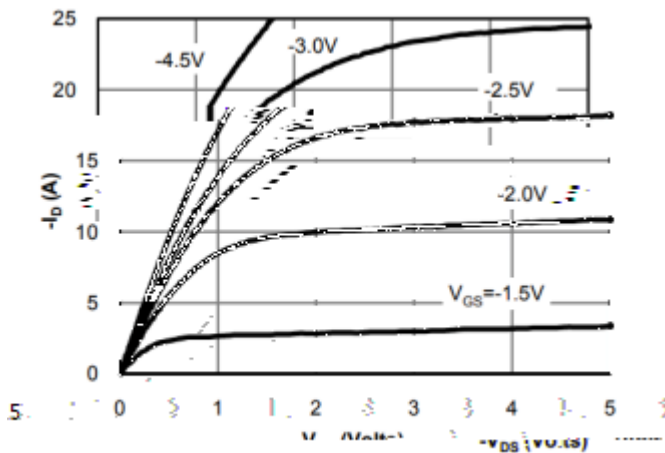
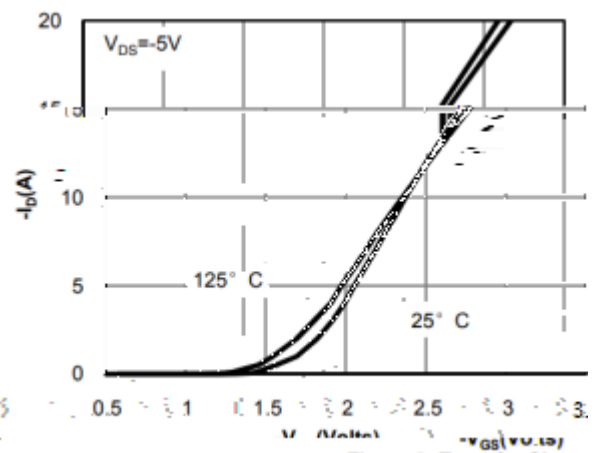
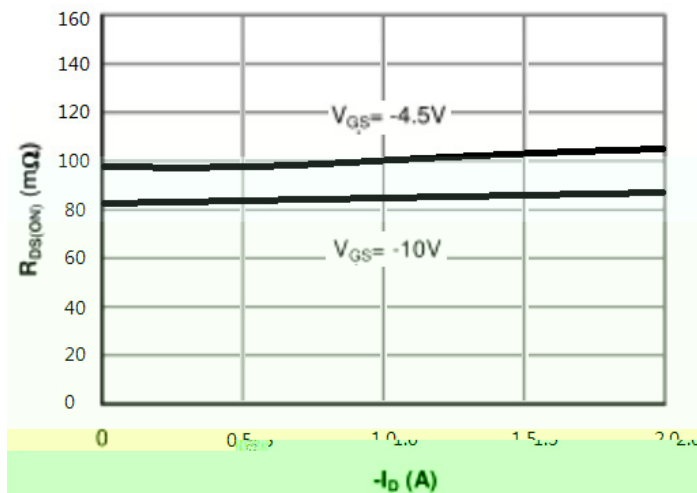
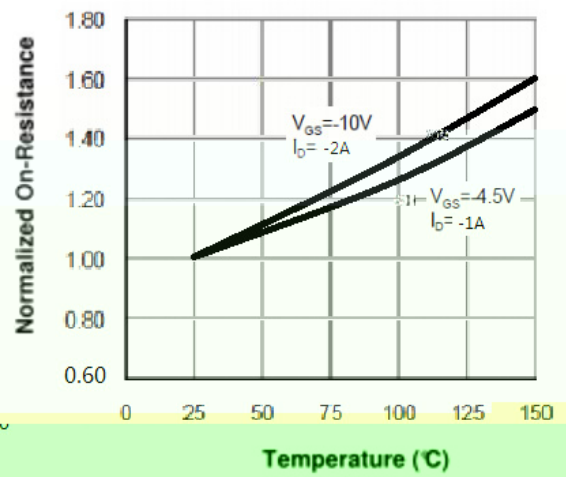
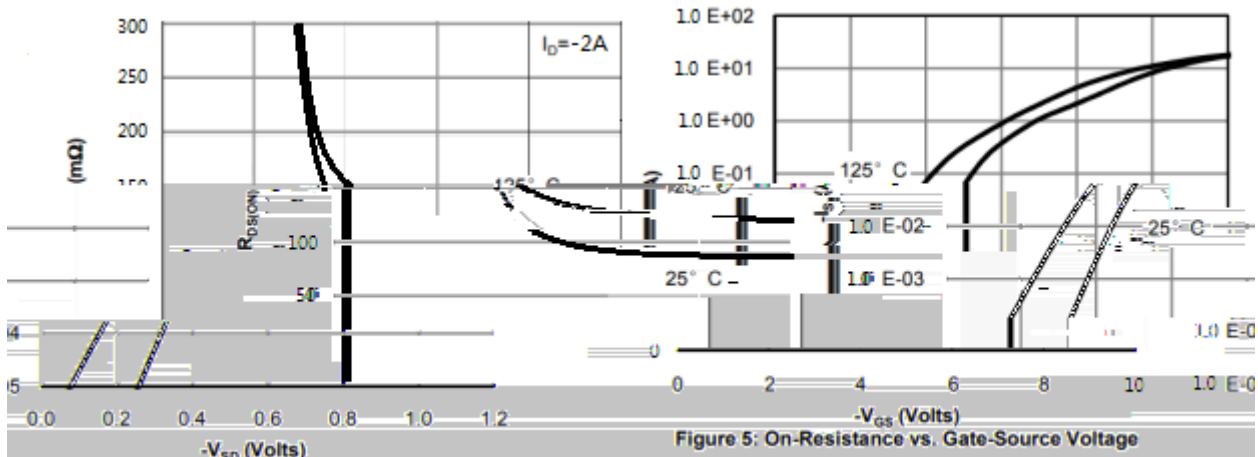
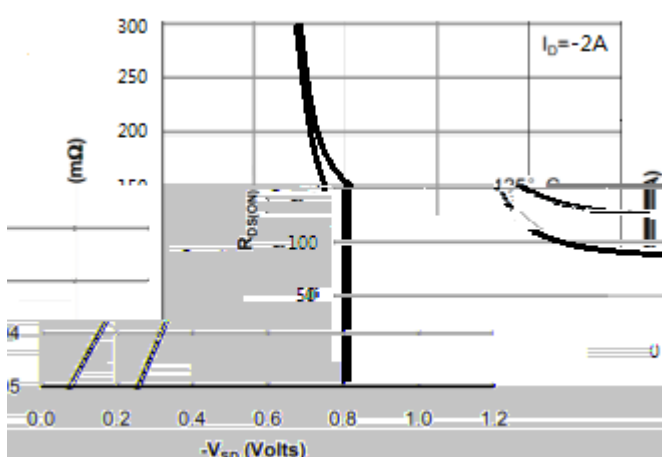


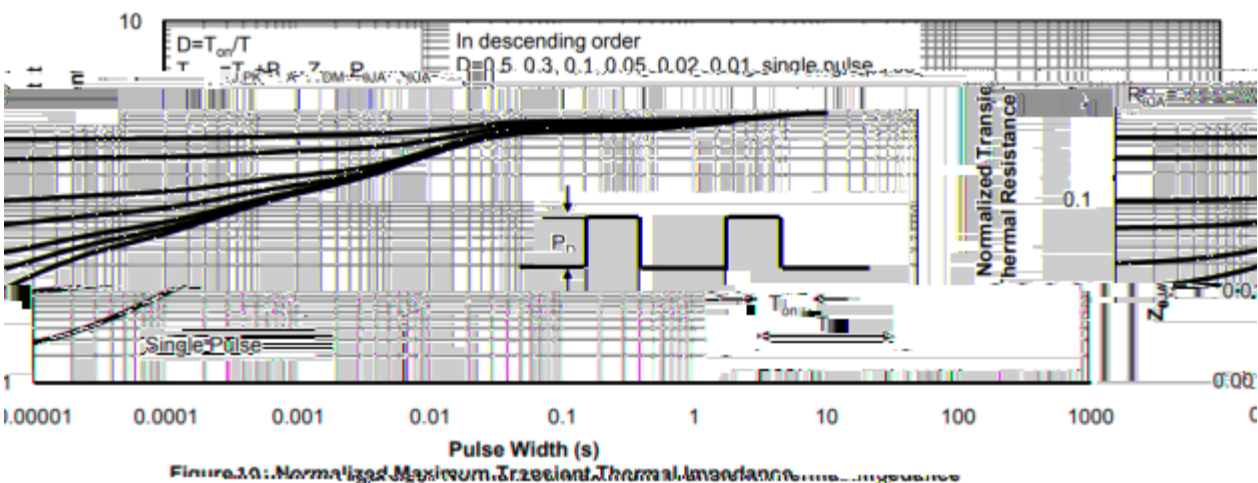
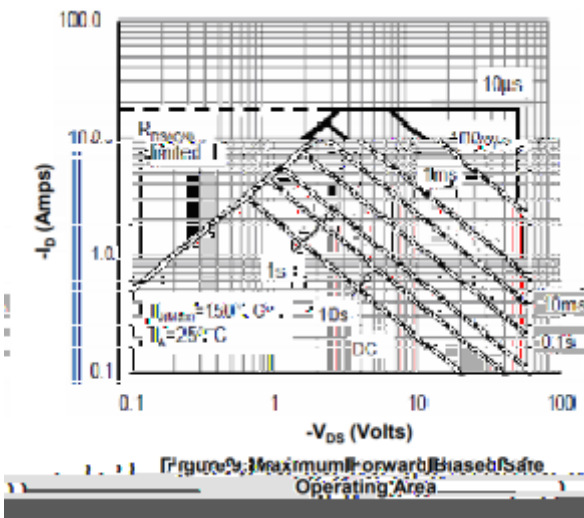
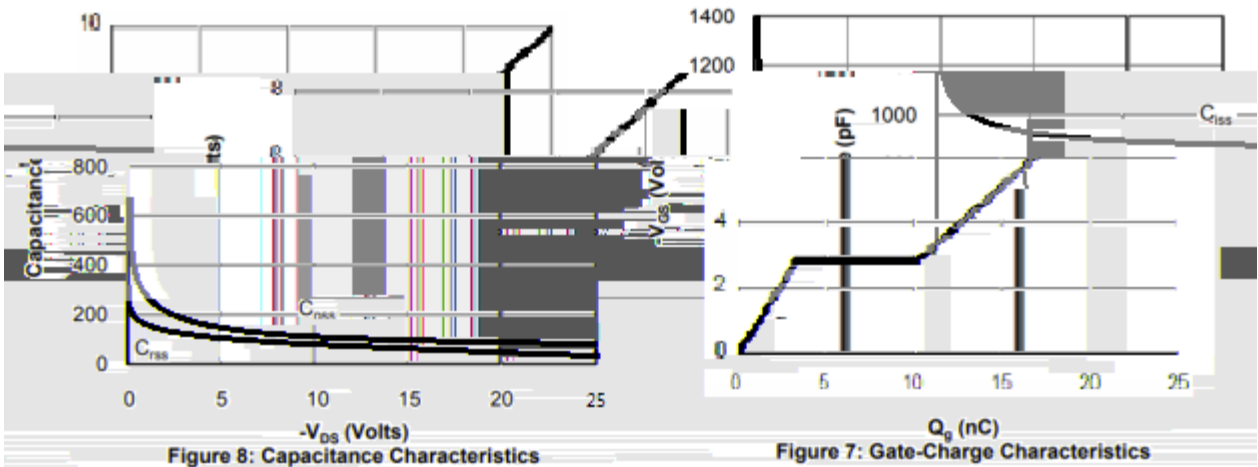
PIN 1 G      PIN 2 S      PIN 3 D

Marking	Q5P6
---------	------

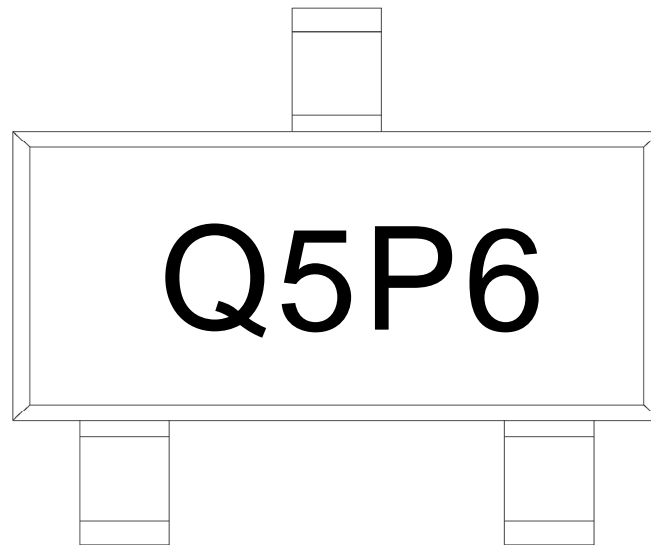
Parameter		Symbol	Rating	Unit
Drain–Source Voltage		$V_{DSS}$	-60	V
Gate–Body Leakage Voltage		$V_{GSS}$	$\pm 20$	V
Drain Current - Continuous		$I_D$	-5	A
Pulsed Drain Current		$I_{DM}$	-18	A
Power Dissipation (Surface Mounted on FR4 Board, $t \leq 10$ sec.)		$P_D$	1.5	W
Operating and Storage Temperature Range		$T_J, T_{STG}$	-55~150	
Maximum Junction-to-Ambient	$t \leq 10s$	$R_{\theta JA}$	118.6	$^{\circ}C/W$
Maximum Junction-to-Ambient	Steady-State		161.6	$^{\circ}C/W$
Maximum Junction-to-Lead	Steady-State	$R_{\theta JL}$	83.3	$^{\circ}C/W$

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain–Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V$ $I_D=-250\mu A$	-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
		$V_{GS}=-4.5V$ $I_D=-1A$		103	125	m
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-60V$ $V_{GS}=0V$			-1.0	$\mu A$
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	$Q_g(-10V)$	$V_{DS}=-30V$ $V_{GS}=-10.0V$ $I_D=-5A$		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	$t_{d(on)}$	$V_{DD}=-30V$ $V_{GS}=-10V$ $R_L=7.5$ $R_G=3$		8		ns
Turn–On Rise Time	$t_r$			4		
Turn–Off Delay Time	$t_{d(off)}$			32		
Turn–Off Fall Time	$t_f$			7		


**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**







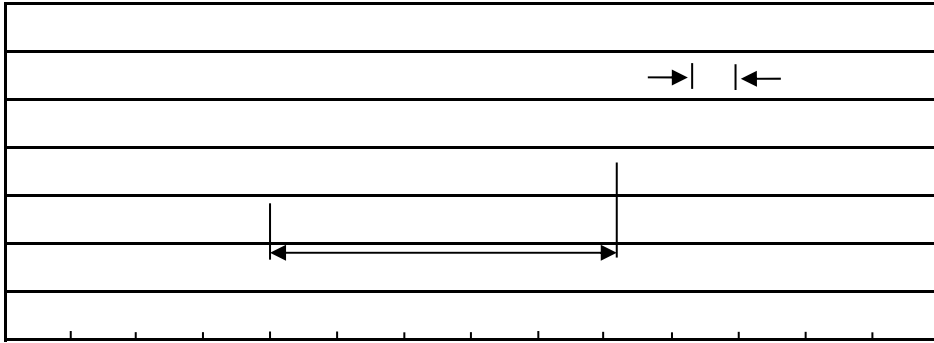
Q

5P6

Note:

Q: Automobile halogen-free product Code

5P6: Product Type



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.

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

/ REEL

Package Type	Units					Dimension (unit mm <sup>3</sup> )		
SOT-23	3,000	10	30,000	6	180,000	7" x8	180x120x180	390x385x205