

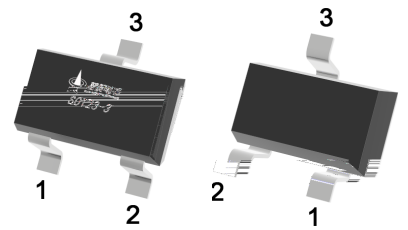
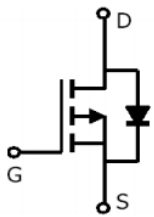
Rev.A May.-2023

SOT23-3 P

- CHANNEL MOSFET in a SOT23 -3Plastic Package.

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

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



PIN1 G

PIN 2 S

PIN 3 D

Marking	Q5P6
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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
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	
Maximum Junction-to-Ambient	$t = 10$ s	$R_{JA}$	118.6	/W
Maximum Junction-to-Ambient	Steady-State		161.6	/W
Maximum Junction-to-Lead	Steady-State	$R_{JL}$	83.3	/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 $\Omega$
		$V_{GS}=-4.5V$ $I_D=-1A$		103	125	m $\Omega$
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	$Q_g$	$V_{DS}=-30V$ $V_{GS}=-10.0V$ $I_D=-5A$		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		

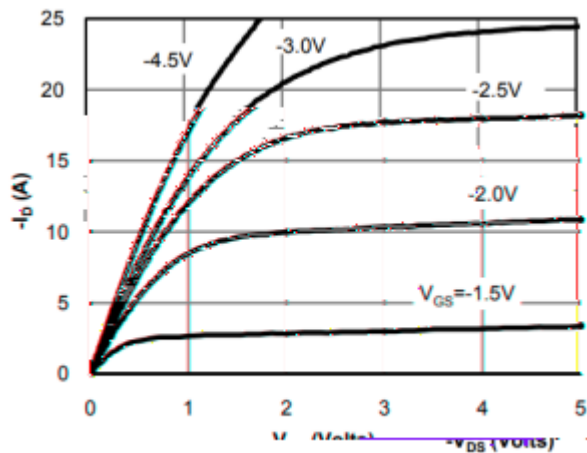


Figure 1: On-Region Characteristics

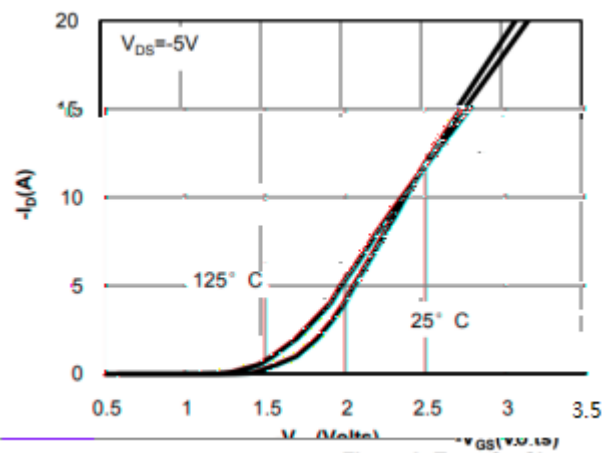


Figure 2: Transfer Characteristics

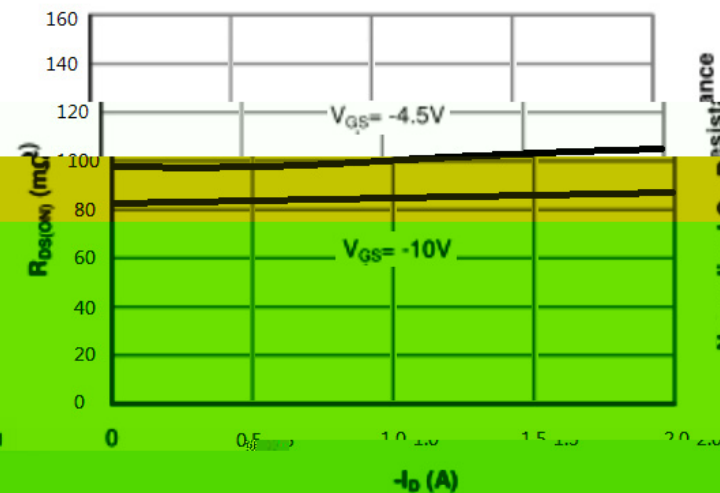


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

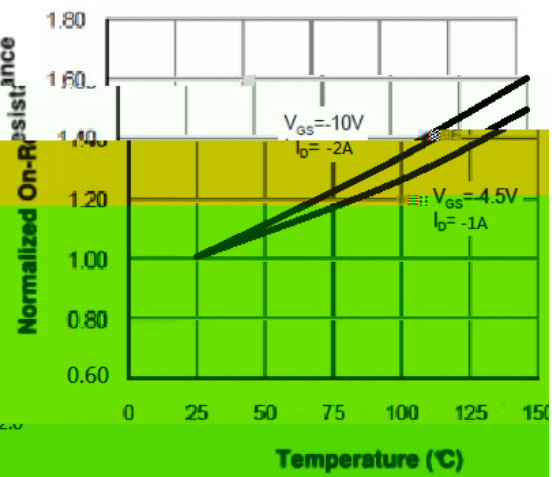


Figure 4: On-Resistance vs. Junction Temperature

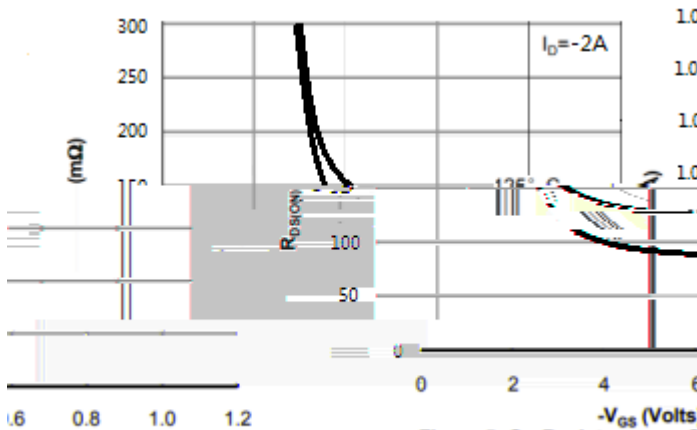


Figure 5: On-Resistance vs. Gate-Source Voltage

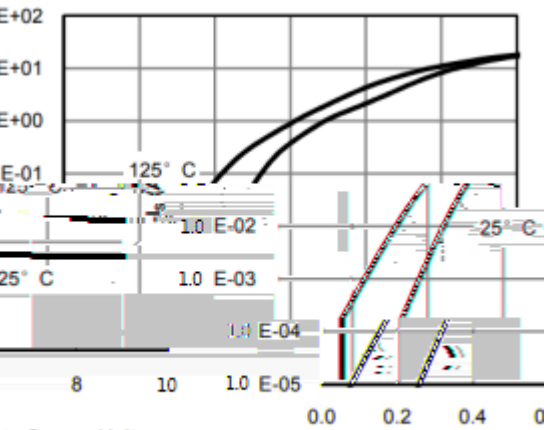
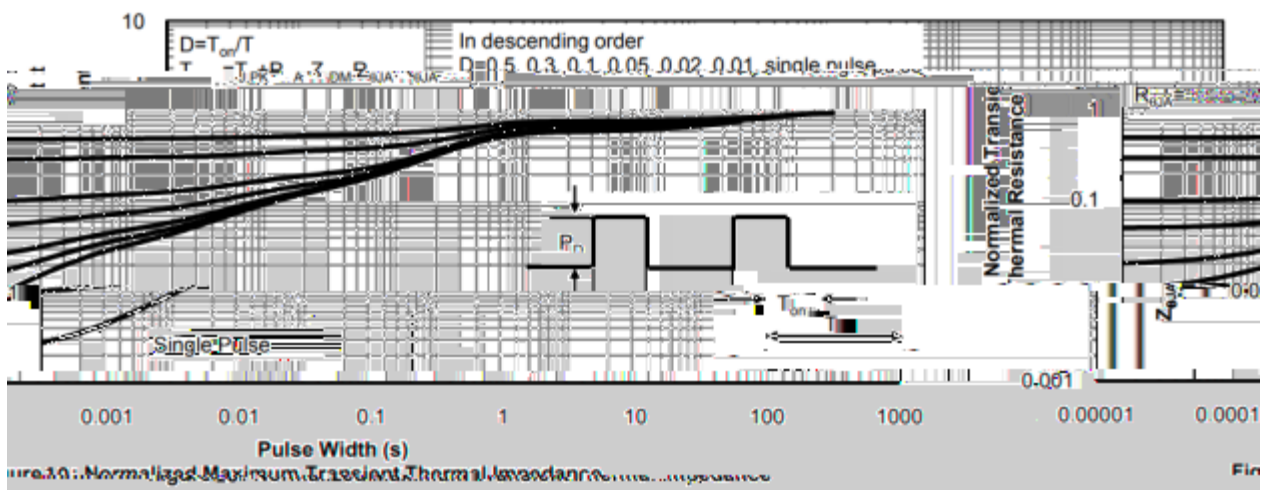
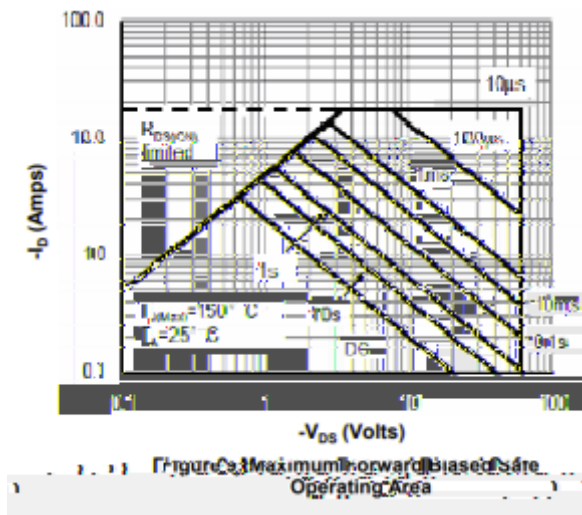
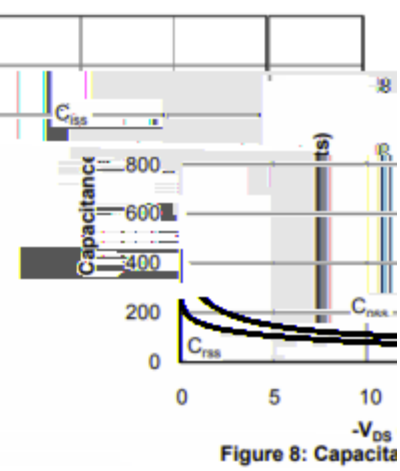
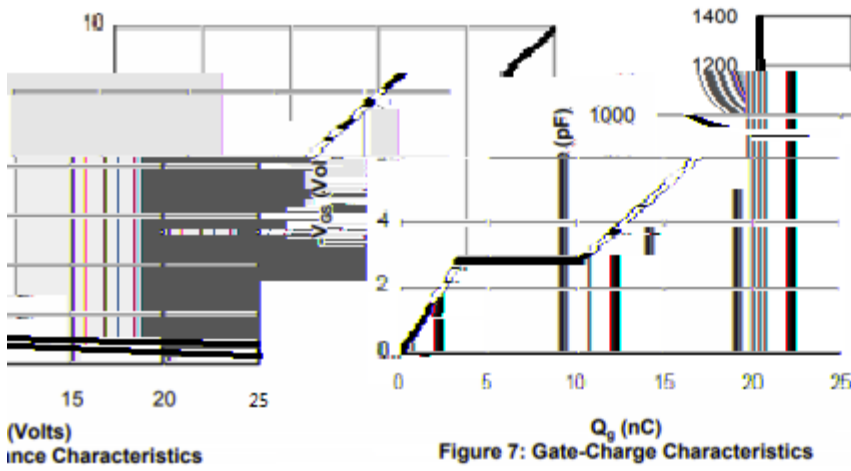
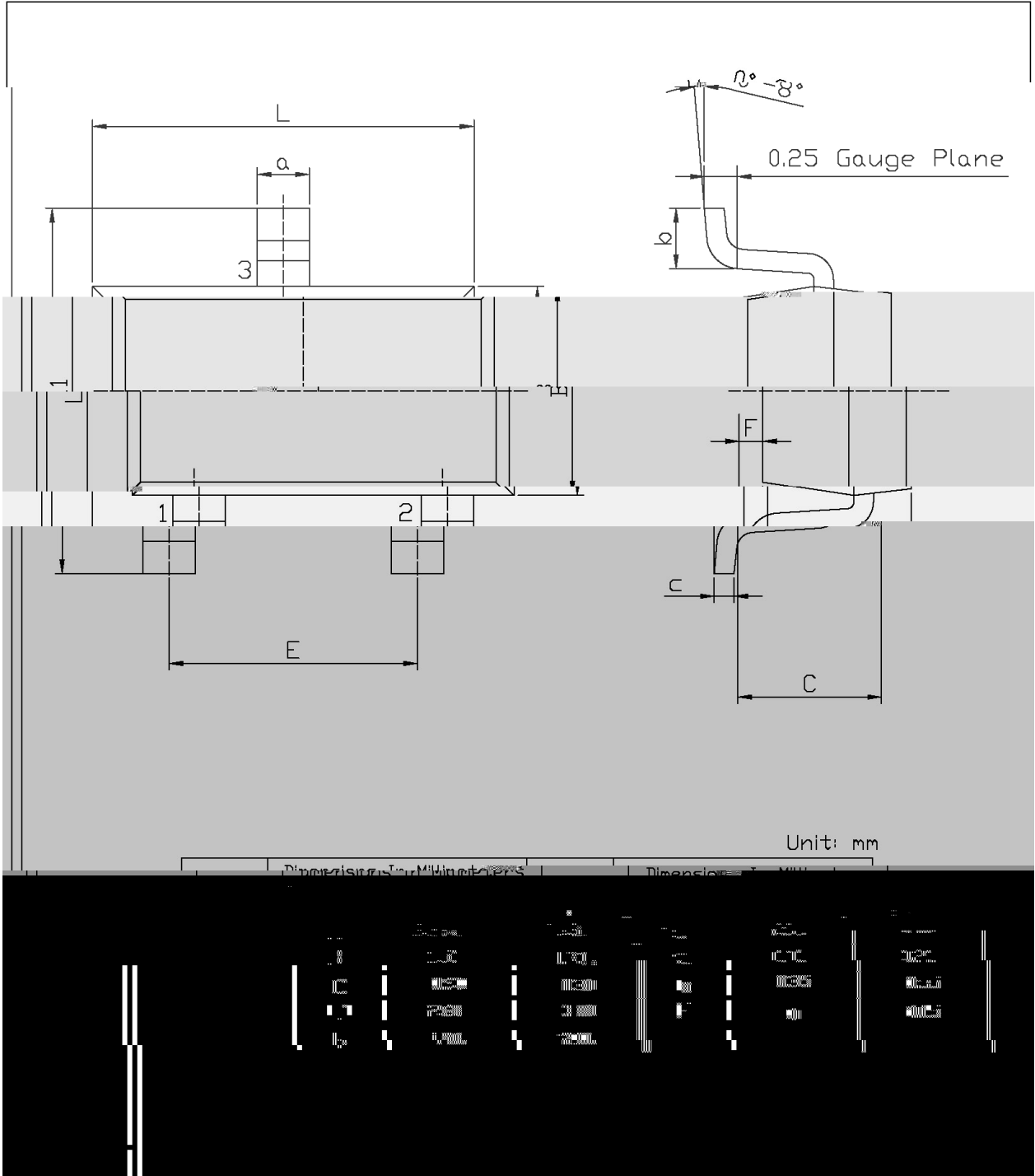
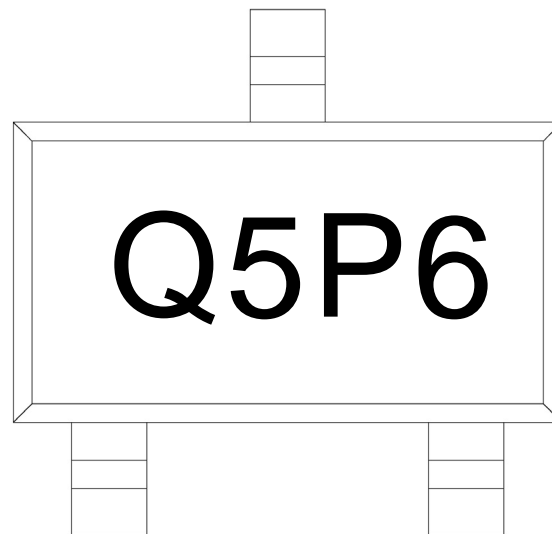


Figure 6: Body-Diode Characteristics







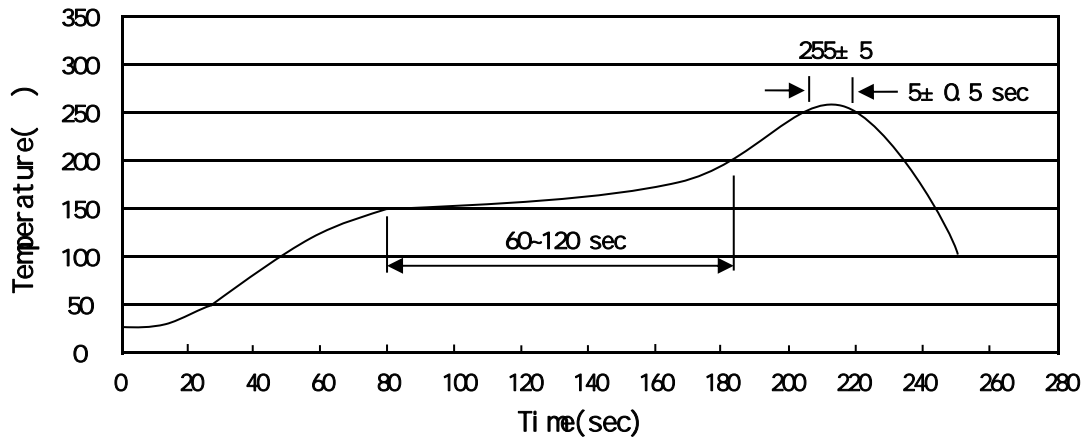
5P6

Note:

Q: Automobile halogen-free product Code

5P6: Product Type

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.

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

/ REEL

Package Type	Units					Dimension (unit mm <sup>3</sup> )		
SOT23-3	3,000	10	30,000	4	120,000	7 x8	210x205x205	445x230x435