

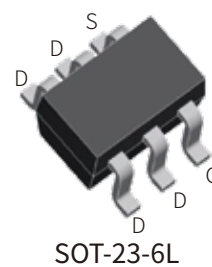
FEATURES

| -30V, -5.5A, $R_{DS(ON)} = 32m\Omega @ V_{GS} = -10V$

| Fast switching

| Green Device Available

| Suit for -4.5V Gate Drive Applications



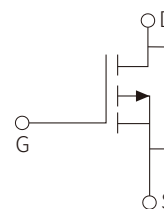
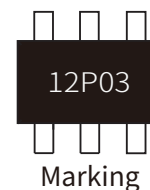
APPLICATION

| Notebook

| Load Switch

| Battery Protection

| Hand-held Instruments



Schematic Symbol

APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003

ABSOLUTE MAXIMUM RATINGS($T_a=25^{\circ}C$)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	-30	V
Continuous Drain Current	I_D	$T_A=25^{\circ}C$ -5.5	A
		$T_A=70^{\circ}C$ -4.4	
Pulsed Drain Current ¹	I_{DM}	-22	A
Gate Source Voltage	V_{GSS}	± 20	V
Power Dissipation $T_A=25^{\circ}C$	P_D	1.56	W
Power Dissipation – Derate above 25°C	P_D	0.012	W/°C
Junction-to-Ambient Thermal Resistance	$R_{\theta JA}$	80	°C/W
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	°C

ELECTRICAL CHARACTERISTICS (T_A=25°C)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _{DS} =-250μA	-30			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-1.1	-1.6	-2.2	V
Drain Cut-Off Current	I _{DSS}	V _{DS} =-30V, V _{GS} =0V			-1	μA
Gate Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V			±100	nA
Drain Source ON Resistance	R _{DS(on)}	V _{GS} =-10V, I _D =-7.5A		19	25	mΩ
		V _{GS} =-4.5V, I _D =-5A		32	40	mΩ
Dynamic Characteristics						
Total Gate Charge ^{2, 3}	Q _g	V _{DS} =-15V, V _{GS} =-10V, I _D =-5A		18	37	nC
Gate-Source Charge ^{2, 3}	Q _{gs}			3.5	7	nC
Gate-Drain Charge ^{2, 3}	Q _{gd}			2.5	6	nC
Input capacitance	C _{iss}	V _{GS} =0V, V _{DS} =-15V, F=1MHz		755	1280	pF
Output capacitance	C _{oss}			120	210	pF
Reverse transfer capacitance	C _{rss}			89	176	pF
Turn-on Delay Time ^{2, 3}	t _{d(on)}	V _{DD} =-15V, V _{GS} =-10V I _D =-1A, R _G =6Ω		4.8	9	ns
Turn-on Rise Time ^{2, 3}	t _r			15	26	ns
Turn-Off Delay Time ^{2, 3}	t _{d(off)}			34	58	ns
Turn-Off Fall Time ^{2, 3}	t _f			18	35	ns
Drain Source Body Diode Characteristics						
Source Drain Diode Forward Voltage	V _{SD}	I _S =-1A, V _{GS} =0V, T _J =25°C			-1	A
Continuous Source Current	I _S	V _G =V _D =0V, Force Current			-5.5	A
Pulsed Source Current	I _{SM}				-11	V

Note :

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed , pulse width ≤ 300μs , duty cycle ≤ 2%.
3. Essentially independent of operating temperature

PARAMETER CHARACTERISTIC CURVE

Figure 1: Typical Output Characteristics

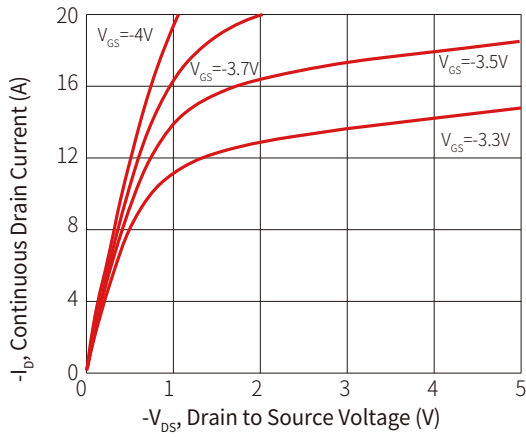


Figure 2: Continuous Drain Current vs. T_C

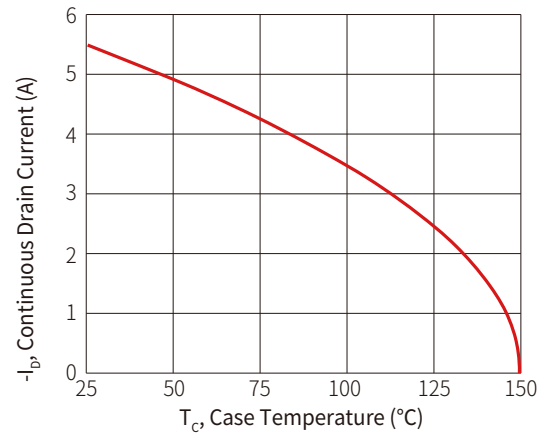


Figure 3: Normalized $R_{DS(on)}$ vs. T_J

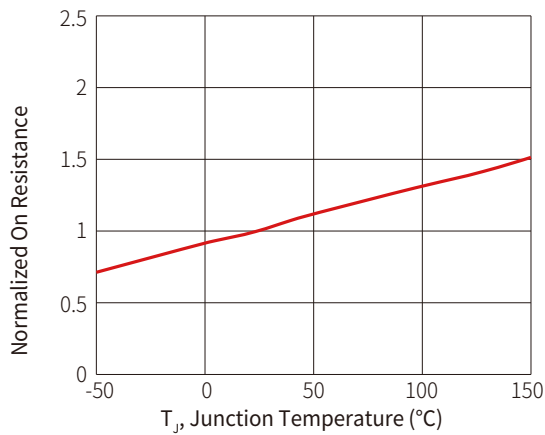


Figure 4: Normalized V_{th} vs. T_J

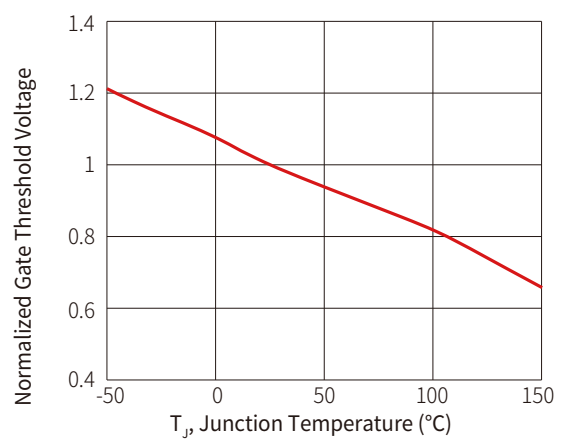


Figure 5: Turn-On Resistance vs. V_{GS}

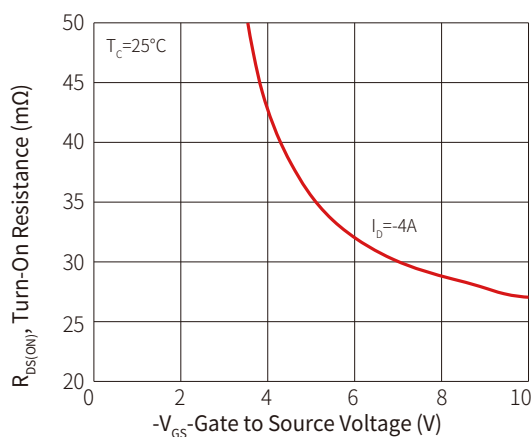


Figure 6: Turn-On Resistance vs. I_D

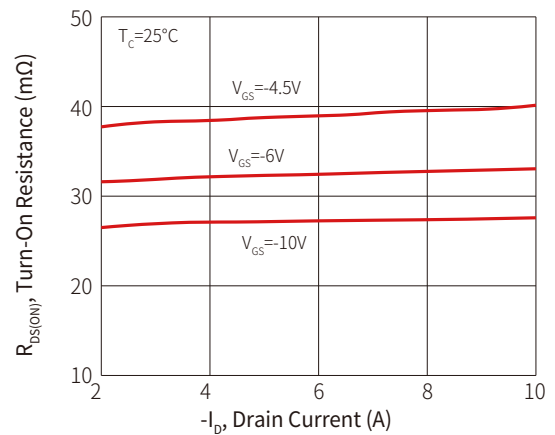
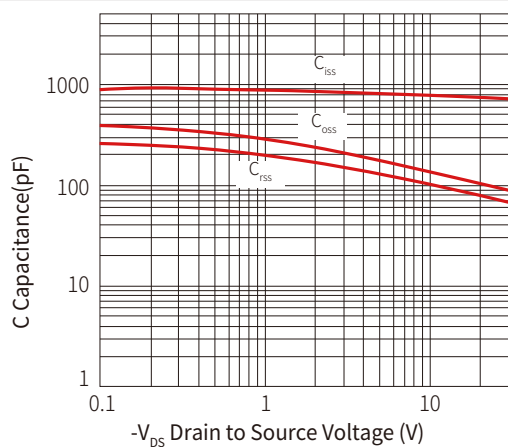
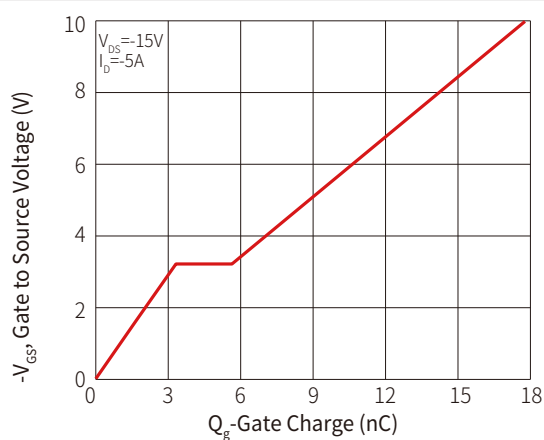
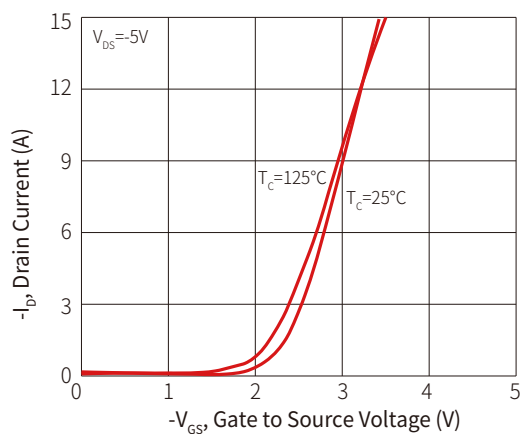
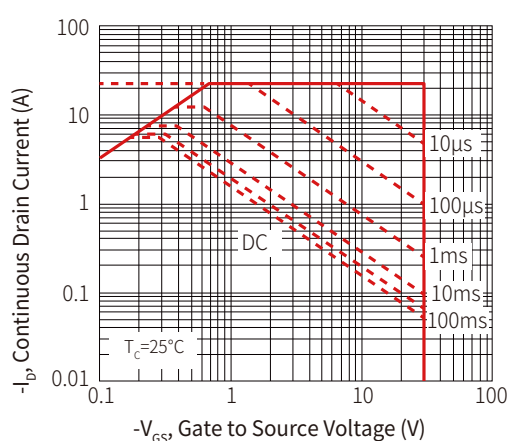
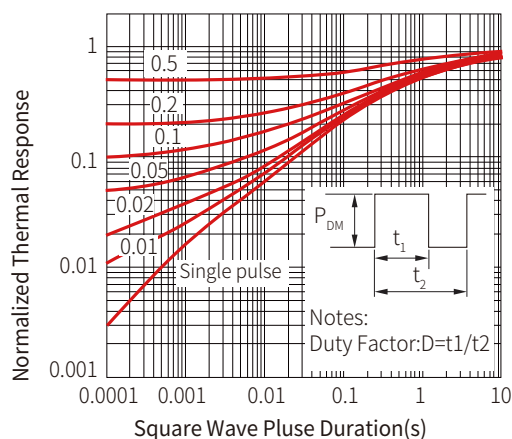
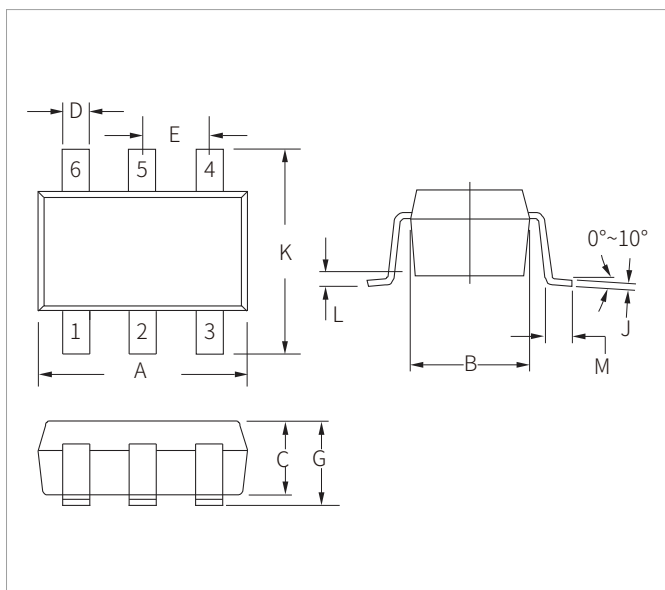


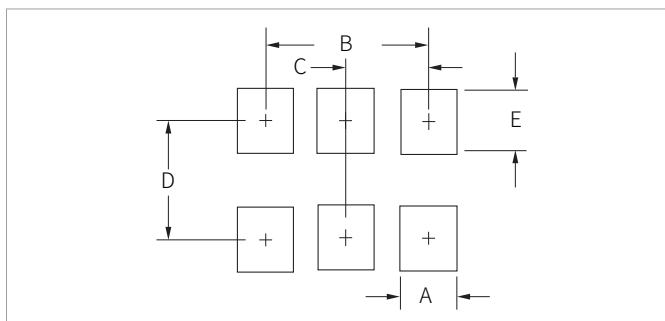
Figure 7: Capacitance Characteristics

Figure 8: Gate Charge Characteristics

Figure 9: Transfer Characteristics

Figure 10: Maximum Safe Operation Area

Figure 11: Normalized Transient Impedance


SOT-23-6L PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.80	3.10	0.110	0.125
B	1.50	1.80	0.059	0.071
C	0.90	1.30	0.036	0.051
D	0.25	0.50	0.010	0.020
E	0.85	1.05	0.033	0.040
G	0.90	1.45	0.036	0.057
J	0.09	0.20	0.003	0.008
K	2.60	3.00	0.102	0.118
L	0.0	0.15	0.0	0.006
M	0.30	0.60	0.012	0.024

RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters	Inches
	Nominal	Nominal
A	0.70	0.028
B	1.90	0.074
C	0.95	0.037
D	2.40	0.094
E	1.00	0.039

ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
SPM12P03CS	SOT-23-6L	3000PCS	7"

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