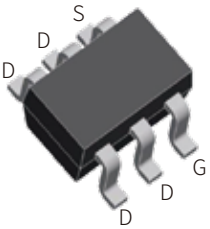
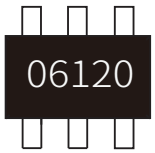
FEATURES

- V_{DS} =-60V,I_D =-4A
  $R_{DS(ON)}$ <104mΩ @ V_{GS}=-10V
  $R_{DS(ON)}$ <135mΩ @ V_{GS}=-4.5V
- High density cell design for ultra low Rdson
- Fully characterized avalanche voltage and current
- Excellent package for good heat dissipation



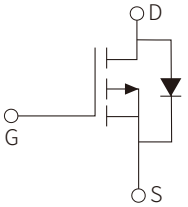
SOT-23-6L



Marking

APPLICATION

- Load switch
- PWM application



Schematic Symbol

APPROVALS

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

ABSOLUTE MAXIMUM RATINGS(T_a=25°C)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-60	V
Continuous Drain Current	I_D	-4	A
Pulsed Drain Current	I_{DM}	-12	A
Gate Source Voltage	V_{GSS}	±20	V
Total Power Dissipation	P_D	1.5	W
Junction-to-Ambient Thermal Resistance (Note 2)	$R_{\theta JA}$	83.3	°C/W
Thermal Resistance, Junction-to-Lead(Note 2)	$R_{\theta JL}$	75	°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
Off Characteristics						
Drain-source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_{DS}=-250μA	-60			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=-250μA	-1.1	-1.6	-2.4	V
Drain Cut-Off Current	I_{DSS}	V_{DS}=-60V,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=-3A		80	104	mΩ
		V_{GS}=-4.5V,I_D=-2A		104	135	mΩ
Dynamic Characteristics (Note4)						
Input capacitance	C_{iss}	V_{GS}=0V,V_{DS}=-30V, f=1.0MHz		980		pF
Output capacitance	C_{oss}			88		pF
Reverse transfer capacitance	C_{rss}			38		pF
Switching Characteristics (Note4)						
Total Gate Charge	Q_g	V_{DS}=-30V,V_{GS}=-10V,I_D=-4A		26		nC
Gate-Source Charge	Q_{gs}			3		nC
Gate-Drain Charge	Q_{gd}			8		nC
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=-30V,V_{GS}=-10V R_L=7.5Ω,R_G=3Ω		8		ns
Turn-on Rise Time	t_r			4		ns
Turn-Off Delay Time	$t_{d(off)}$			33		ns
Turn-Off Fall Time	t_f			7		ns
Drain-Source Diode Characteristics						
Diode Forward Voltage (Note 3)	V_{SD}	I_S=-4A,V_{GS}=0V			-1.2	V
Diode Forward Current (Note 2)	I_S				-4	A
Reverse Recovery Time	t_{rr}	T_J = 25°C, I_F =- 4A di/dt = -100A/μs (Note3)		25		nS
Reverse Recovery Charge	Q_{rr}			31		nC

Notes:
1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. The value of RθJA is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with TA =25° C. The value in any given application depends on the user's specific board design. The RθJA is the sum of the thermal impedence from junction to lead RθJL and lead to ambient.
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production

PARAMETER CHARACTERISTIC CURVE

Figure 1: Output Characteristics

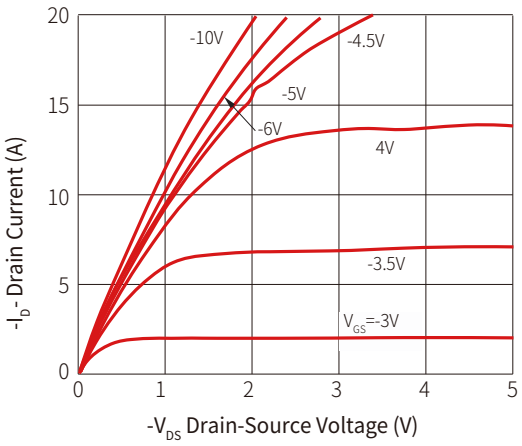


Figure 2: $R_{DS(ON)}$-Junction Temperature

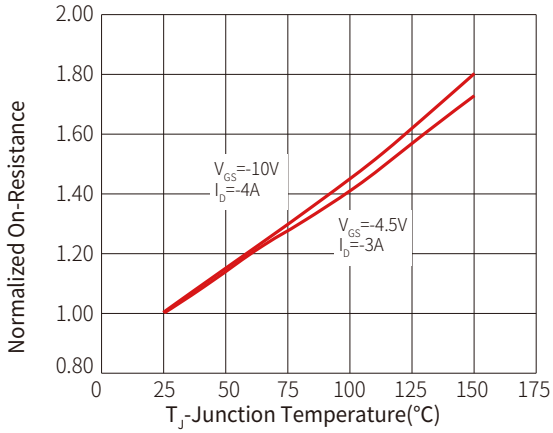


Figure 3:Transfer Characteristics

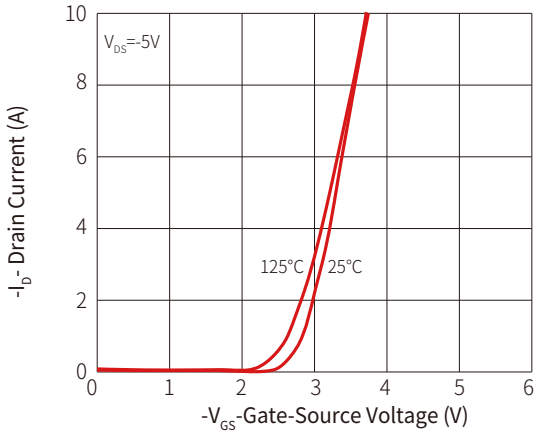


Figure 4:$R_{DS(ON)}$- Drain Current

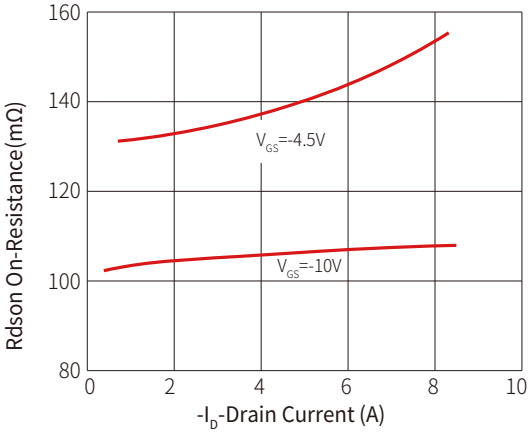


Figure 5:Gate Charge

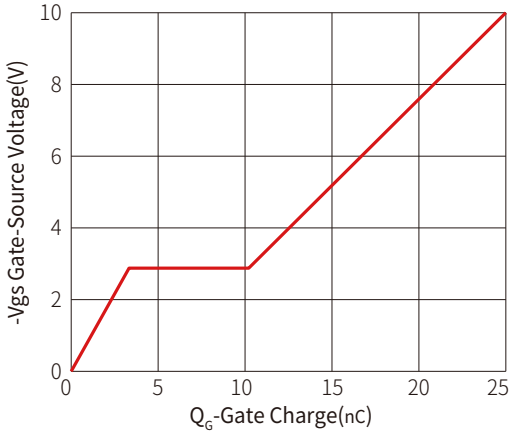


Figure 6:Source-Drain Diode Forward

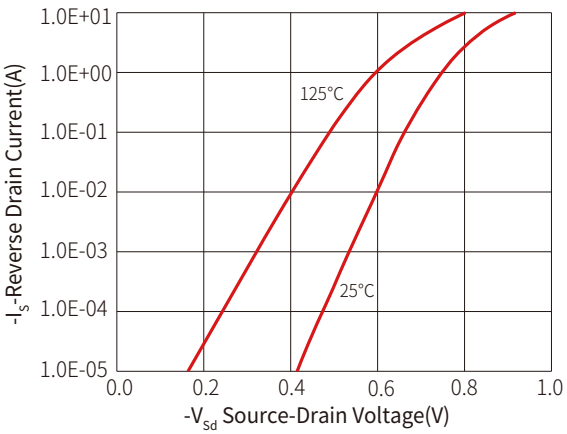


Figure 7: Capacitance vs Vds

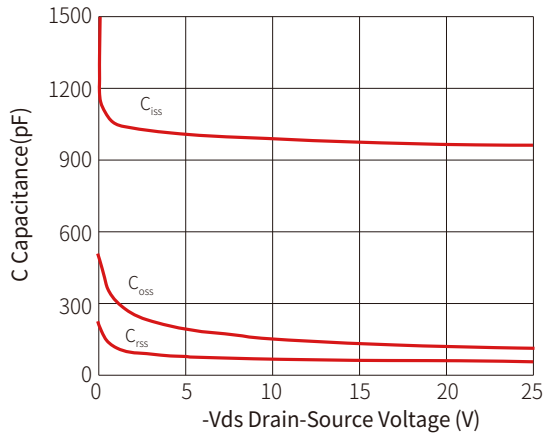


Figure 8: Safe Operation Area

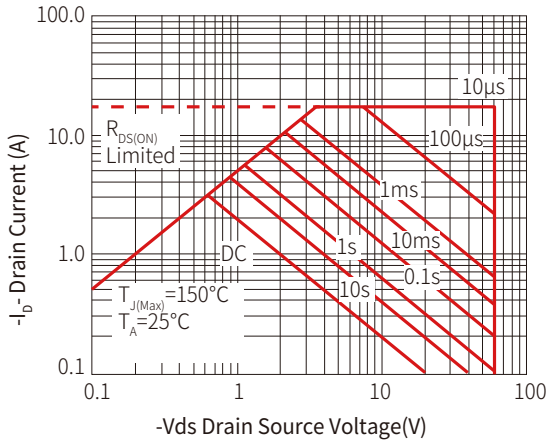


Figure 9: BV_{DSS} vs Junction Temperature

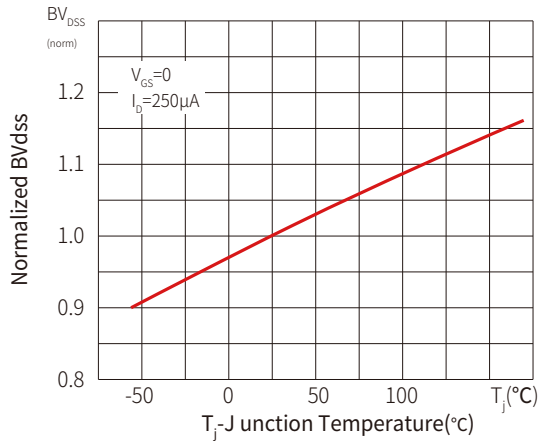


Figure 10: I_D Current De-rating

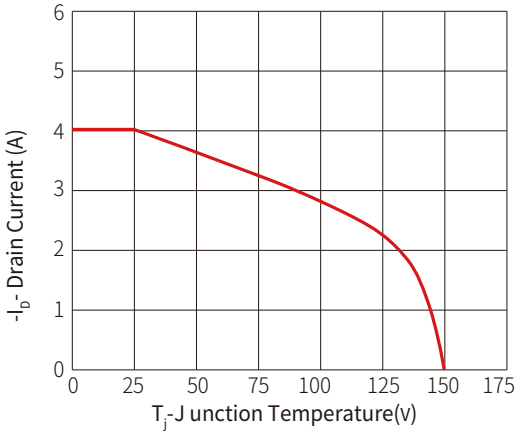
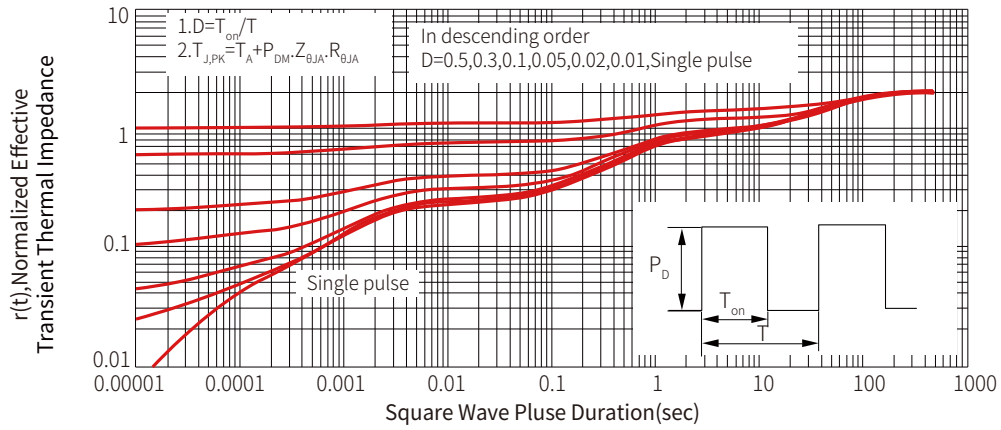
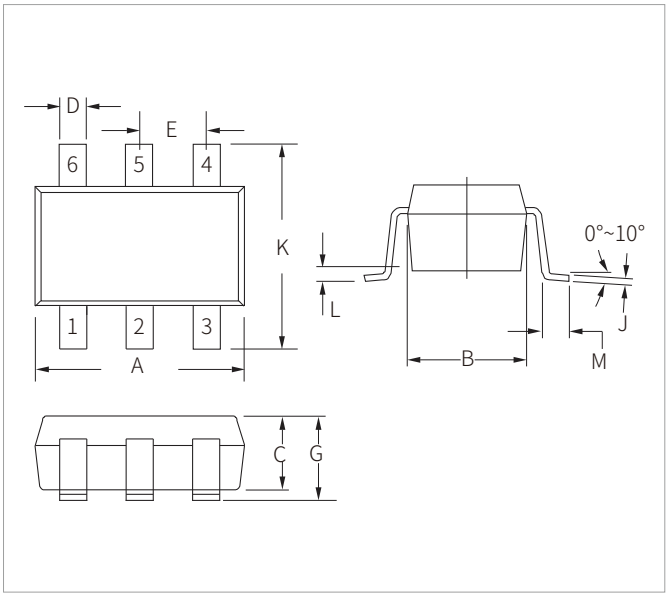


Figure 11: Normalized Maximum Transient Thermal Impedance

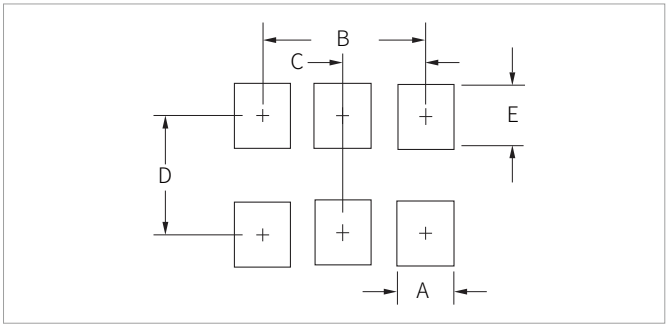


SOT-23-6L PACKAGE INFORMATION



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
SPM06120CS	SOT-23-6L	3000PCS	7”

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