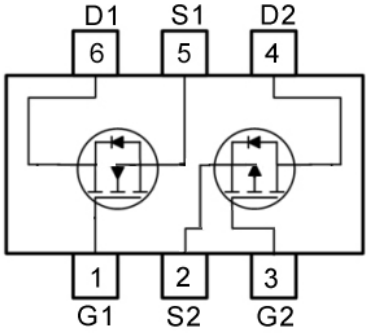
Description

The enhancement mode MOS is extremely high density cell and low on-resistance.

MOSFET Product Summary		
V_{DS}(V)	$R_{DS(on)}$(Ω)	I_D(A)
N-Channel 20	0.043@ V_{GS}=4.5V	3
P-Channel -20	0.08@ V_{GS}=-4.5V	-2.8



Pin configuration (Top view)

N-Channel

Absolute maximum rating@25℃

Parameter		Symbol	Value	Units
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	±8	V
Drain Current	Continuous	I_D	3	A
	Pulsed	I_D	9	A
Total Power Dissipation		P_D	1.25	W
Operating Junction Temperature Range		T_J	-55 to 150	℃

Thermal Characteristics

Parameter		Symbol	Typ	Max	Units
Maximum Junction-to-Ambient A	t≤10s	θ_{JA}	-	100	℃/W

Electrical characteristics per line@25℃(unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
OFF/ON CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	I_D =250μA,V_{GS}=0V	20		-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =20V,V_{GS}=0V	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{DS} =0V,V_{GS}=±8V	-	-	±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	0.6	-	1.2	V
Static Drain-Source On-Resistance[2]	$R_{DS(ON)}$	V_{GS}=4.5V, I_D =2.8A	-	0.043	0.060	Ω
		V_{GS}=2.5V, I_D =2.0A	-	0.052	0.115	Ω
		V_{GS}=1.8V, I_D =2.0A	-	0.080	0.130	Ω
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	V_{GS}=0V, V_{DS} =10V, f=1MHz	-	450		pF
Output Capacitance	C_{OSS}		-	70		pF
Reverse Transfer Capacitance	C_{RSS}		-	43		pF
SWITCHING PARAMETERS						
Turn-On Delay Time	$t_{d(on)}$	V_{DS}=10V, V_{GS} =4.5V, R_G=6Ω, I_D =1A	-	7	15	ns
Turn-Off Delay Time	$t_{d(off)}$		-	16	60	ns
Turn-On Rise Time	Tr		-	55	80	ns
Turn-On Fall Time	Tf		-	20	25	ns
Total Gate Charge	Qg(10)	V_{DS}=10V, V_{GS} =4.5V, I_D =3.6A		5.2	10	nC
Gate-Source Charge	Qgs			0.65		nC
Gate-Drain Charge	Qgd			1.5		nC
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS}=0V,I_S=1.0A		0.76	1.2	V
Maximum Continuous rain-Source Diode Forward Current	I_S				1.6	A

P-Channel

Absolute maximum rating@25℃

Rating		Symbol	Value	Units
Drain-Source Voltage		V_{DS}	-20	V
Gate-Source Voltage		V_{GS}	±8	V
Drain Current	Continuous	I_D	-2.8	A
	Pulsed	I_D	-8	A
Total Power Dissipation	T_A=25℃	P_D	900	mW
	T_A=125℃	P_D	570	mW

Electrical characteristics per line@25℃(unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	I_D =-250μA,V_{GS}=0V	-20	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =-20V,V_{GS}=0V	-	-	-1	μA
Gate-Body Leakage Current	I_{GSS}	V_{DS} =0V,V_{GS}=±10V	-	-	±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-0.5		-1.1	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-4.5V, I_D =-2.8A	-	0.08	0.11	Ω
		V_{GS}=-2.5V, I_D =-2.0A	-	0.11	0.15	Ω
Forward Tran conductance	g_{FS}	V_{GS}=5V, I_D =50mA, T_A=125℃		6.5		S
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	V_{GS}=0V, V_{DS} =10V, f=1MHz	-	360		pF
Output Capacitance	C_{DSS}		-	125		pF
Reverse Transfer Capacitance	C_{RSS}		-	50		pF
SWITCHING PARAMETERS						
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=-6V, V_{GS} =-4.5V, R_L=6Ω, R_G=6Ω, I_D =-1A	-		17	ns
Turn-Off Delay Time	$t_{d(off)}$		-		35	ns

N-Channel

Typical Characteristics

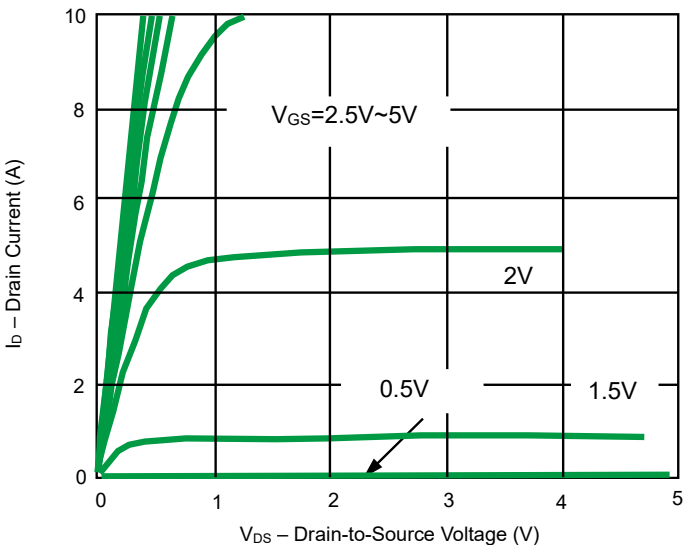


Fig 1. Output Characteristics

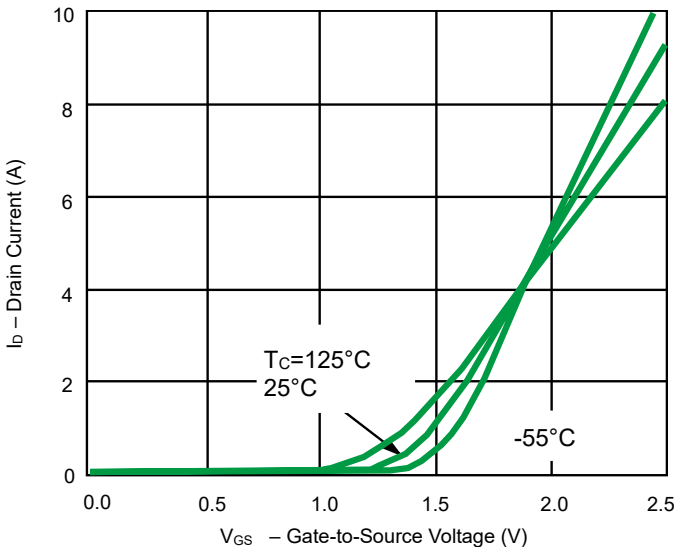


Fig 2. Transfer Characteristics

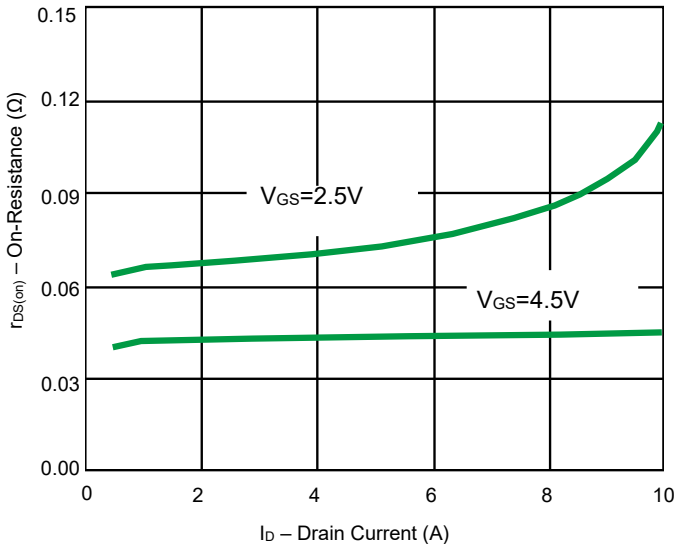


Fig 3. On-Resistance vs. Drain Current

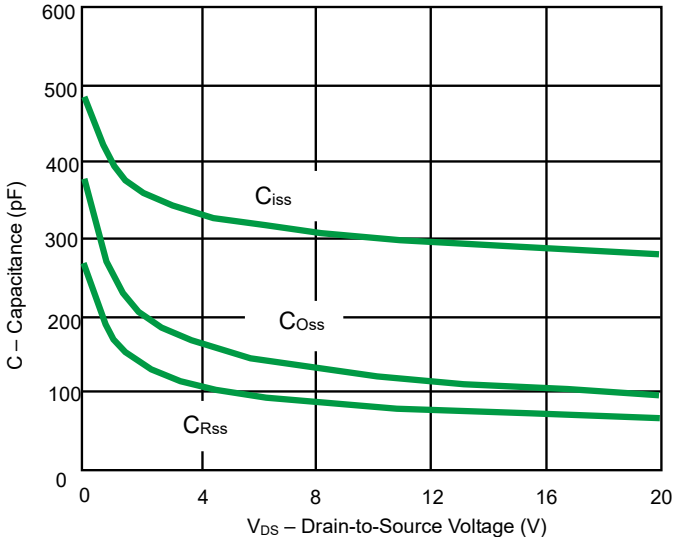


Fig 4. Capacitance Characteristics

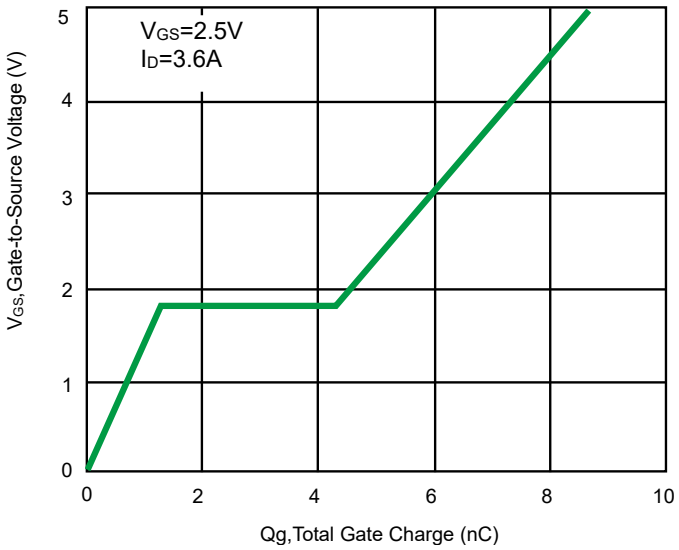


Fig 5. Gate Charge Characteristics

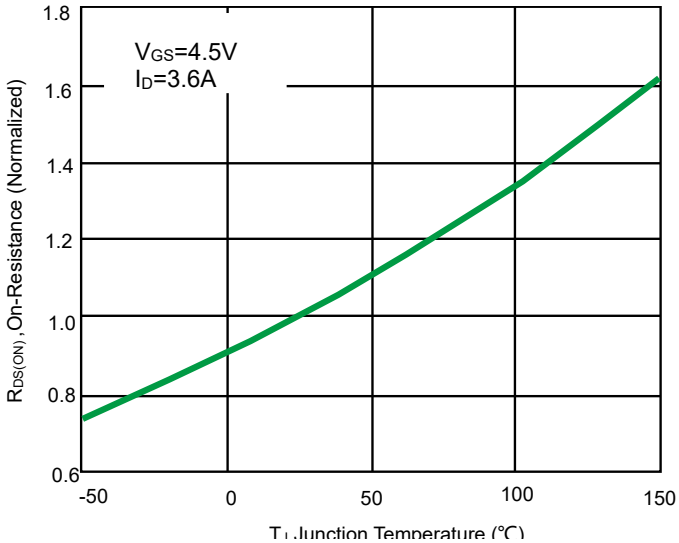


Fig 6. On-Resistance vs. Junction Temperature

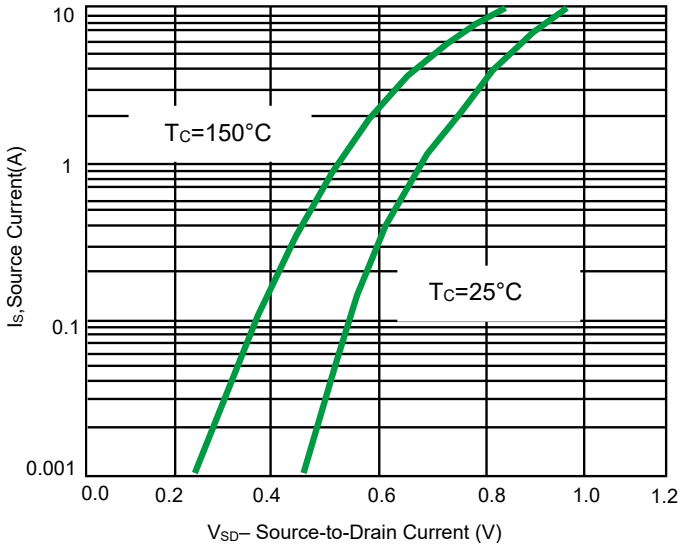


Fig 7. Source-Drain Diode Forward Voltage

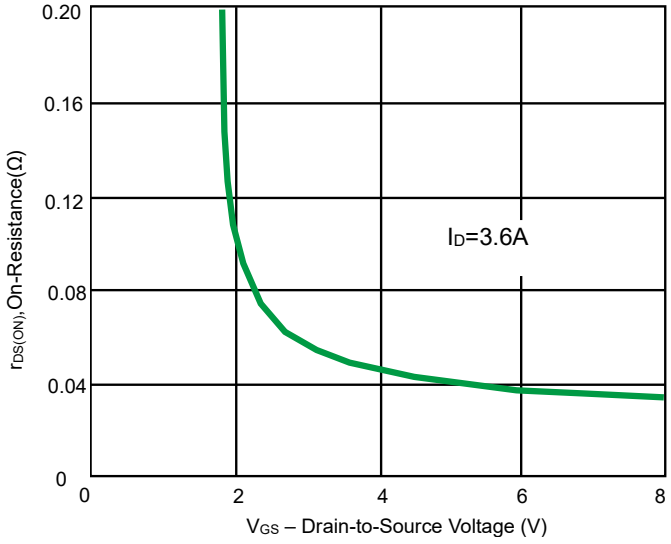


Fig 8. On-Resistance vs. Gate-to-Source Voltage

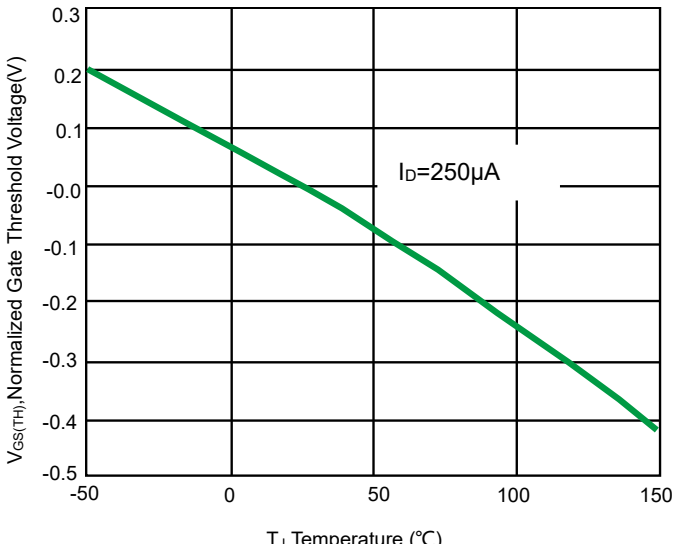


Fig 9. Normalized Gate Threshold Voltage vs. Temperature

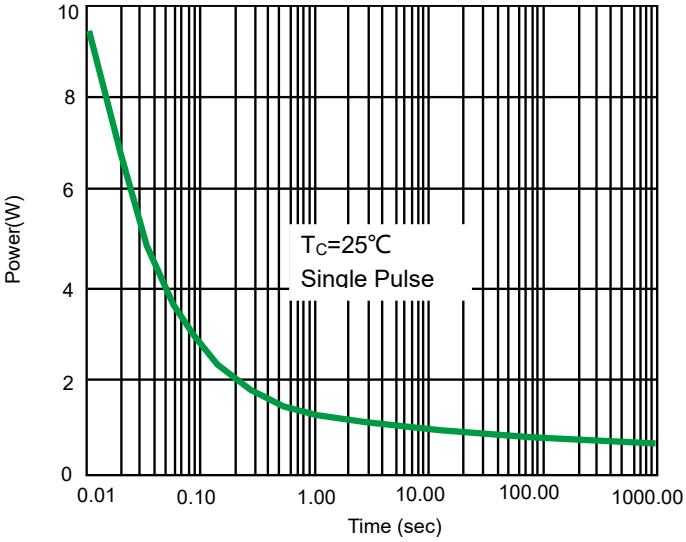


Fig 10. Single Pulse Power

P-Channel

Typical Characteristics

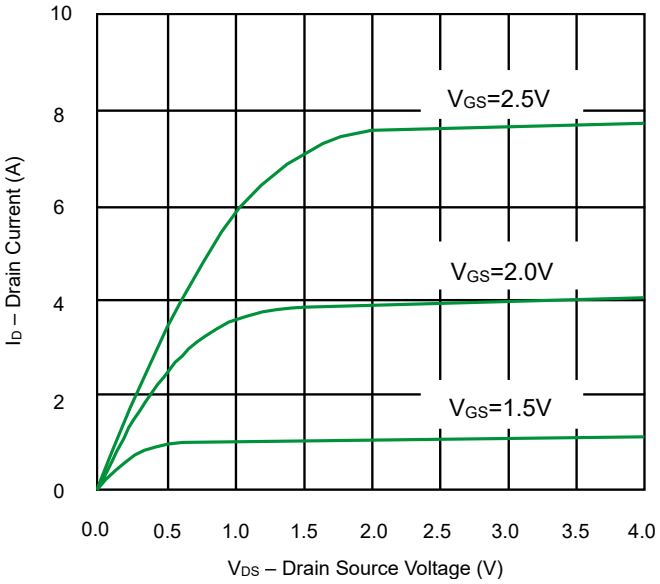


Fig 1. Output Characteristics

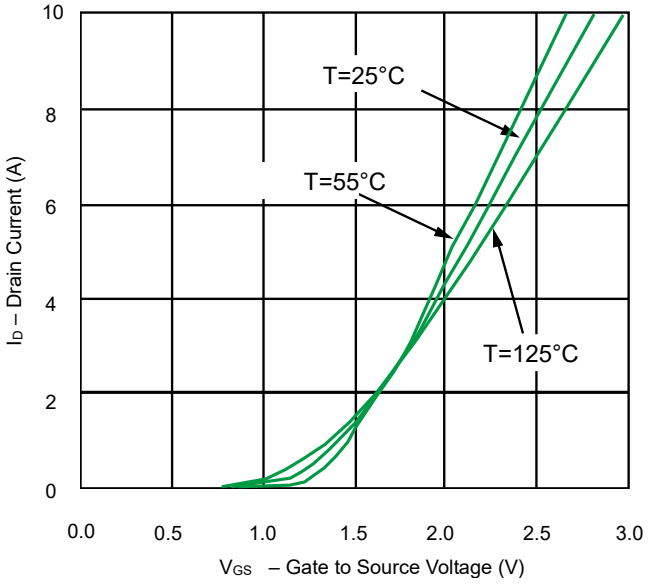


Fig 2. Transfer Characteristics

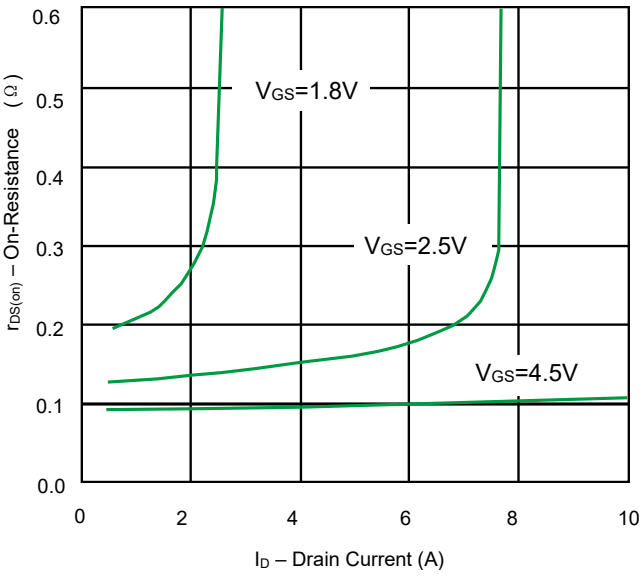


Fig 3. On-Resistance vs. Drain Current

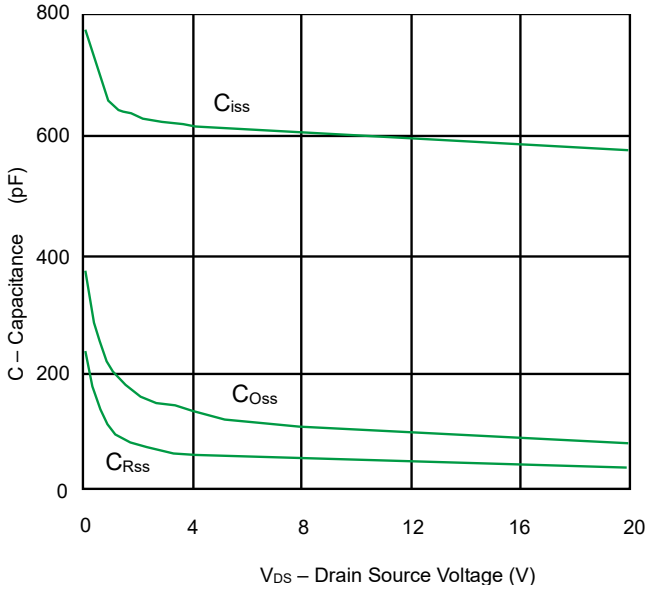
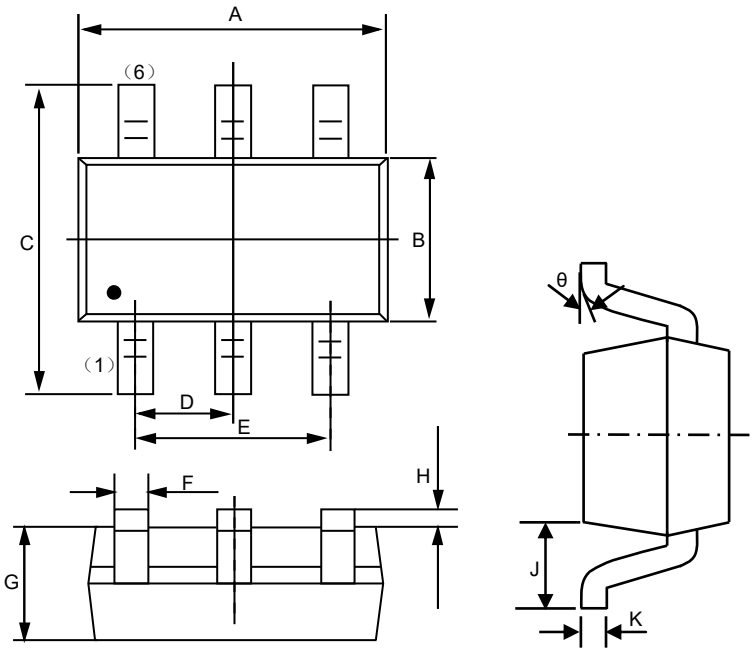
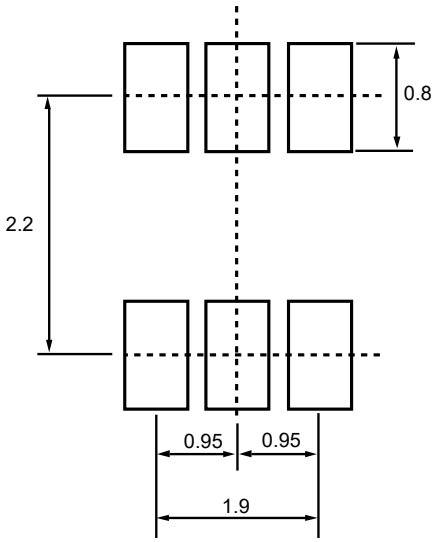


Fig 4. Capacitance

Product dimension (SOT-23-6L)



Dim	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	2.820	3.020	0.111	0.119
B	1.500	1.700	0.059	0.067
C	2.650	2.950	0.104	0.116
D	0.950（BSC）		0.037（BSC）	
E	1.800	2.000	0.071	0.079
F	0.300	0.500	0.012	0.020
G	1.050	1.150	0.041	0.045
H	0.000	0.100	0.000	0.004
J	0.45	0.60	0.0180	0.0236
K	0.100	0.200	0.004	0.008
θ	0°	8°	0°	8°



Unit:mm

Suggested PCB Layout

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