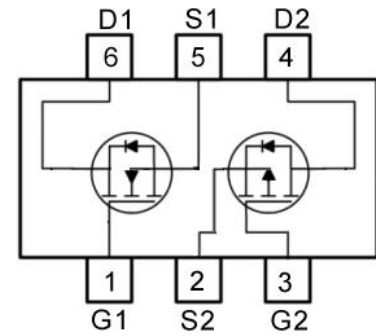


Description

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

MOSFET Product Summary		
$V_{DS}(V)$	$R_{DS(on)}(\Omega)$	$I_D(A)$
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°C

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	°C

Thermal Characteristics

Parameter		Symbol	Typ	Max	Units
Maximum Junction-to-Ambient A	$t \leq 10s$	θ_{JA}	-	100	°C/W

Electrical characteristics per line@25°C (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°C

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	$T_A = 25^\circ C$	P_D	900	mW
	$T_A = 125^\circ C$	P_D	570	mW

Electrical characteristics per line@25°C (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	-0.45		-0.9	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

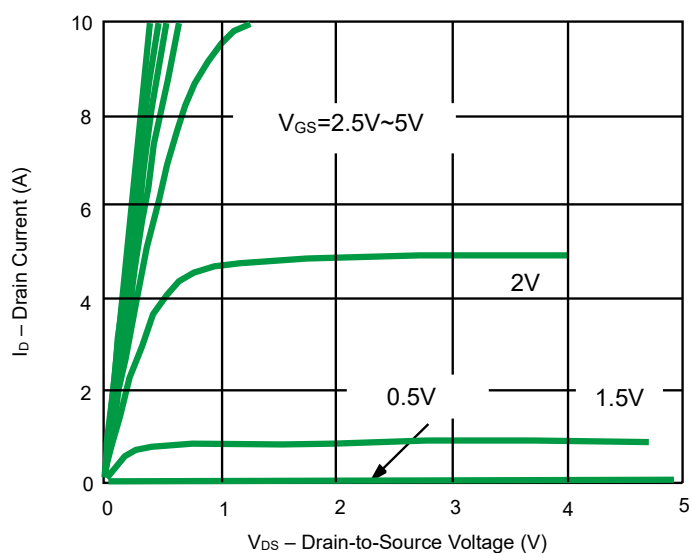


Fig 1. Output Characteristics

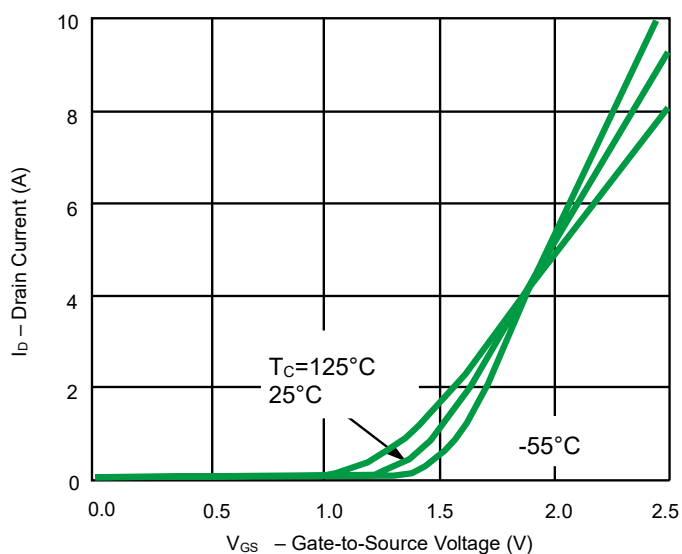


Fig 2. Transfer Characteristics

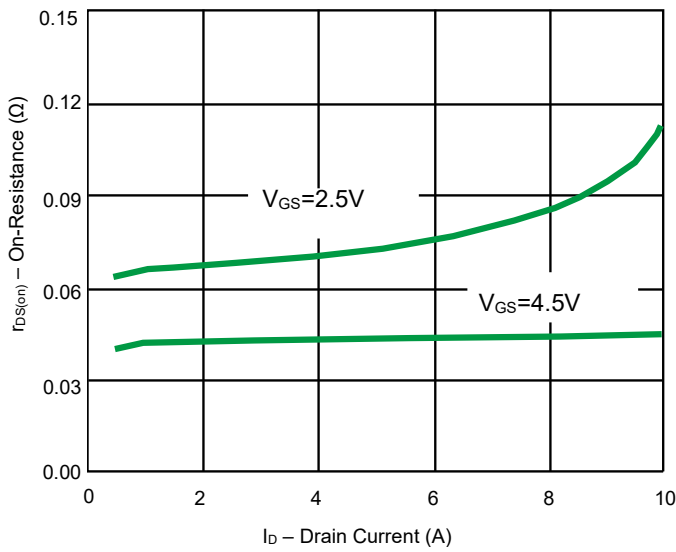


Fig 3. On-Resistance vs. Drain Current

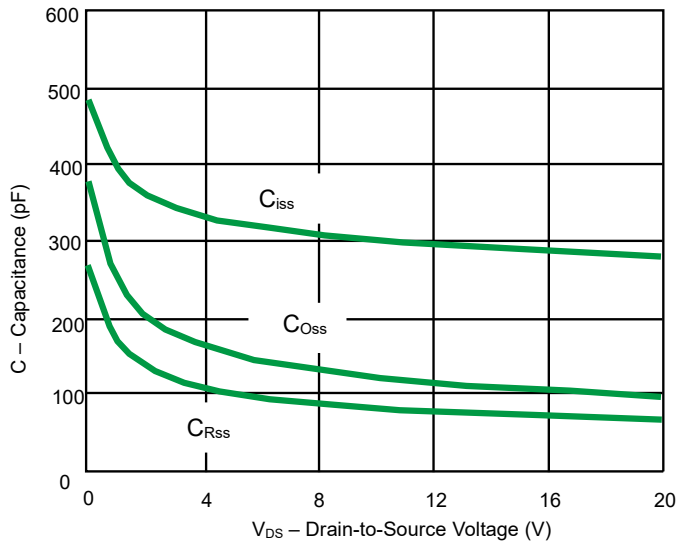


Fig 4. Capacitance Characteristics

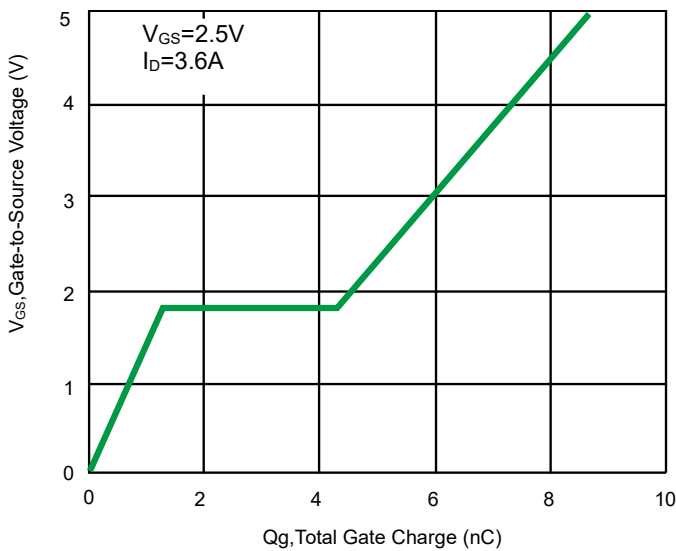


Fig 5. Gate Charge Characteristics

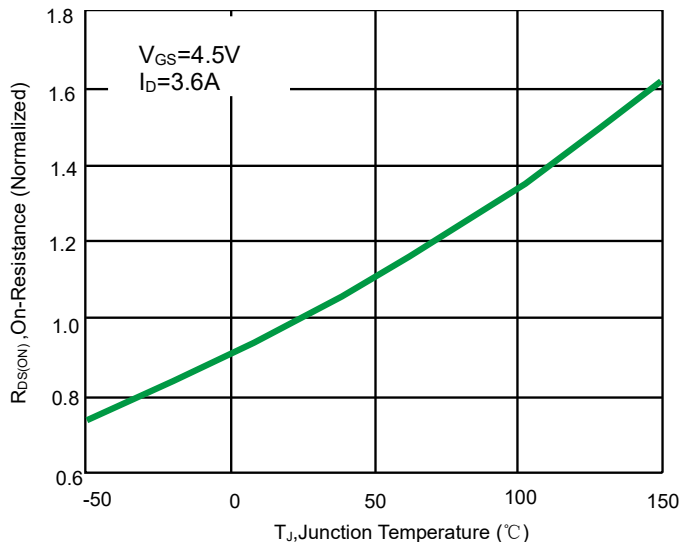


Fig 6. On-Resistance vs. Junction Temperature

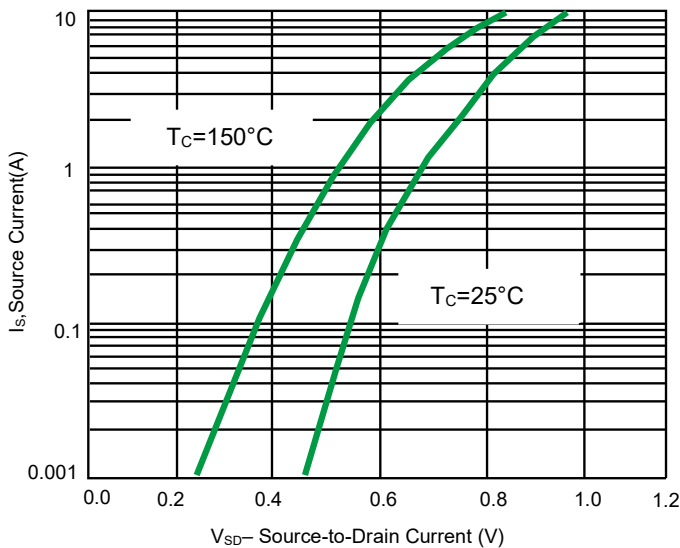


Fig 7. Source-Drain Diode Forward Voltage

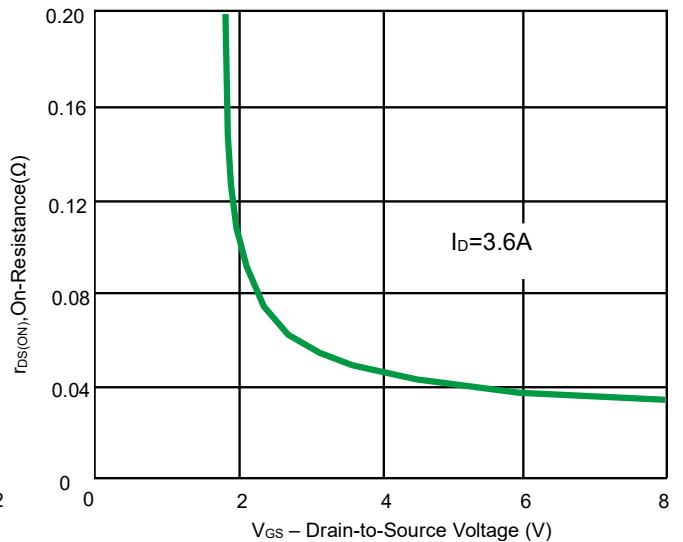


Fig 8. On-Resistance vs. Gate-to-Source Voltage

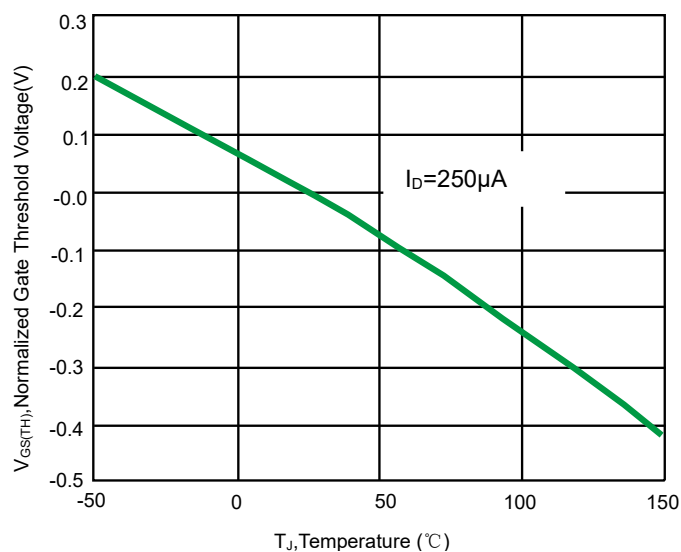


Fig 9. Normalized Gate Threshold Voltage vs. Temperature

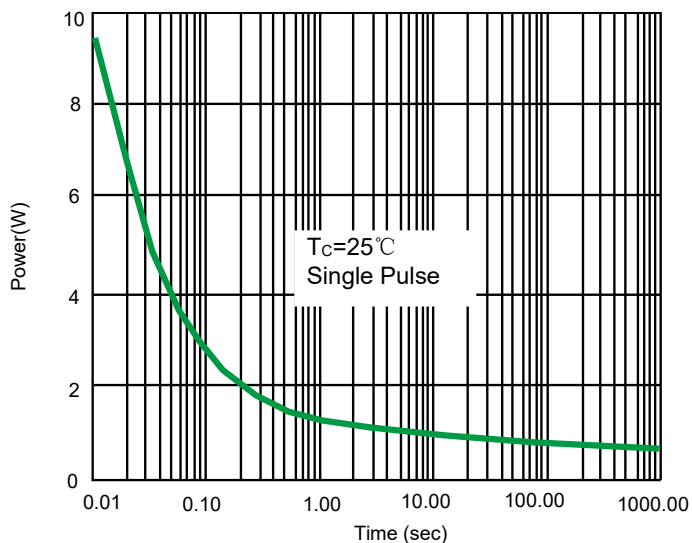


Fig 10. Single Pulse Power

P-Channel

Typical Characteristics

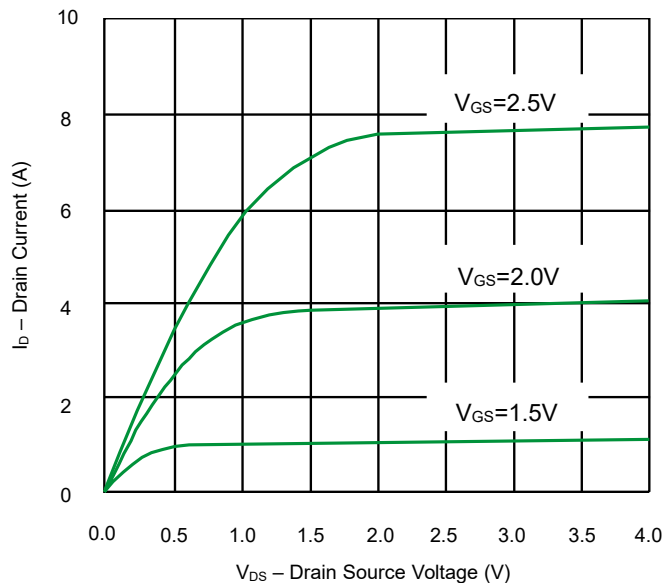


Fig 1. Output Characteristics

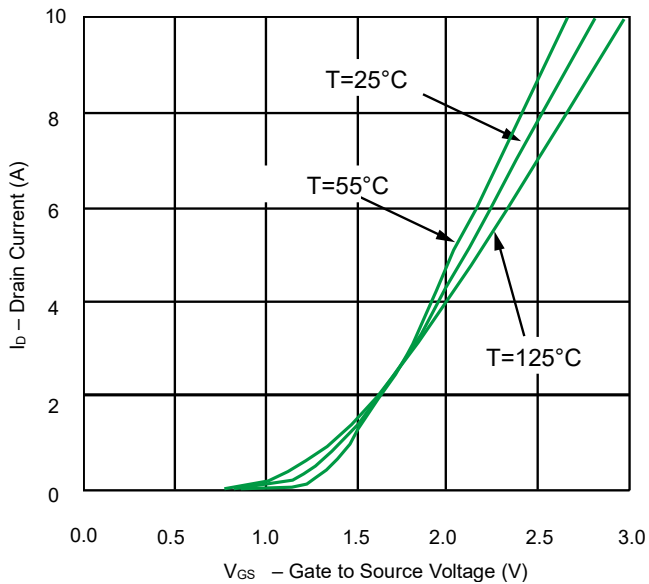


Fig 2. Transfer Characteristics

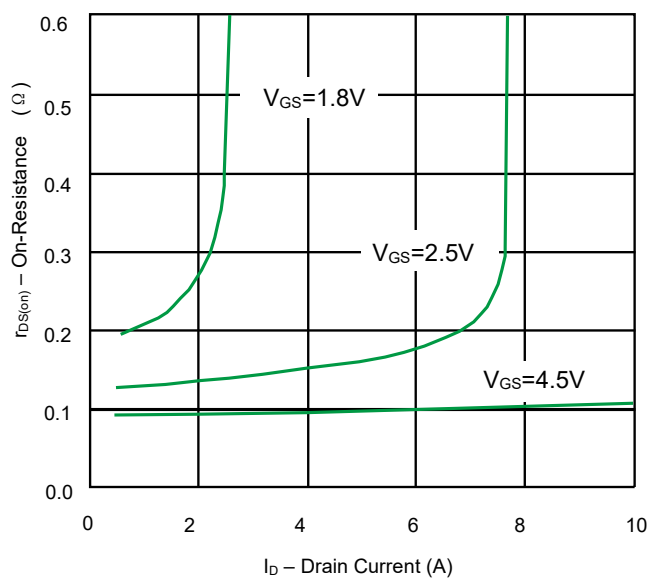


Fig 3. On-Resistance vs. Drain Current

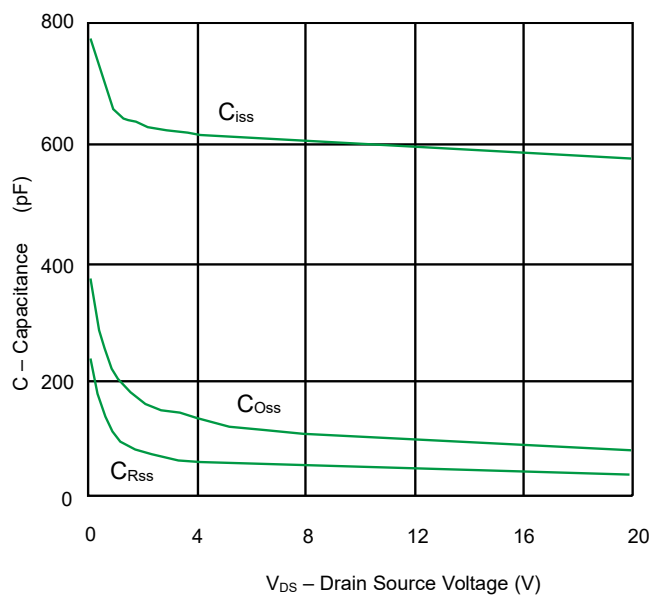
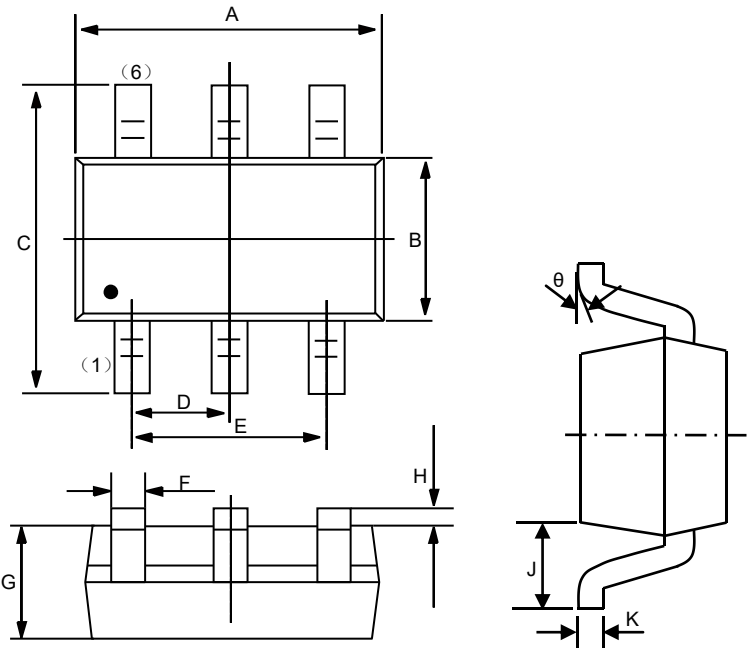
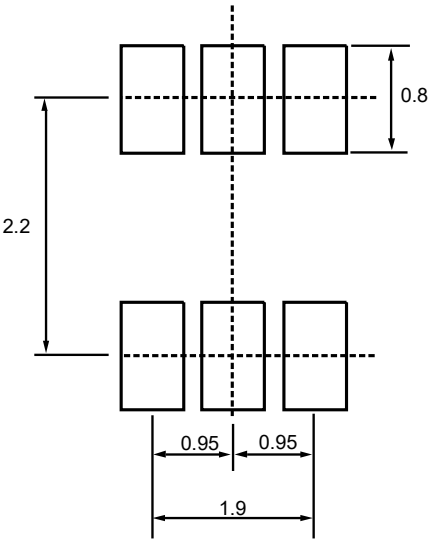


Fig 4. Capacitance

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°



Suggested PCB Layout

Unit:mm

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