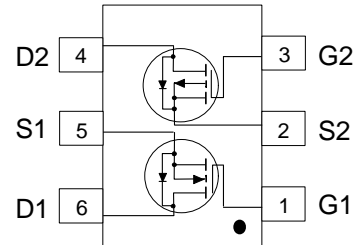


Description

The enhancement mode MOS is extremely 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



SOT-23-6L 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}	$I_D = 250\mu A, V_{GS} = 0V$	20		-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 20V, V_{GS} = 0V$	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 8V$	-	-	± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	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	$t_{d(on)}$	$V_{DS} = 10V, V_{GS} = 4.5V,$ $R_G = 6\Omega,$ $I_D = 1A$	-	7	15	ns
Turn-Off Delay Time	$t_{d(off)}$		-	16	60	ns
Turn-On Rise Time	T_r		-	55	80	ns
Turn-On Fall Time	T_f		-	20	25	ns
Total Gate Charge	$Q_g(10)$	$V_{DS} = 10V, V_{GS} = 4.5V,$ $I_D = 3.6A$		5.2	10	nC
Gate-Source Charge	Q_{gs}			0.65		nC
Gate-Drain Charge	Q_{gd}			1.5		nC
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS} = 0V, I_S = 1.0A$		0.76	1.2	V
Maximum Continuous Drain-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}	$I_D = -250\mu A, V_{GS} = 0V$	-20	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -20V, V_{GS} = 0V$	-	-	-1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 10V$	-	-	± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-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 Trans conductance	g_{FS}	$V_{GS} = 5V, I_D = 50mA, T_A = 125^\circ C$		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	$t_{d(on)}$	$V_{DD} = -6V, V_{GS} = -4.5V, R_L = 6\Omega, R_G = 6\Omega, I_D = -1A$	-		17	ns
Turn-Off Delay Time	$t_{d(off)}$		-		35	ns

N-Channel

Typical Characteristics

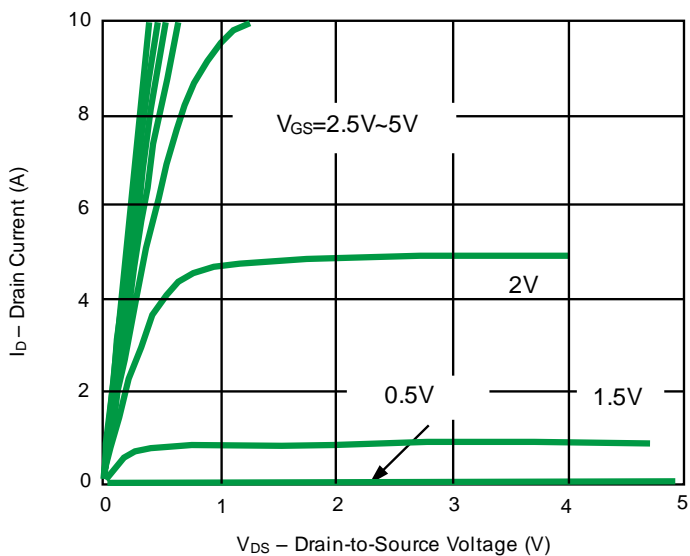


Fig 1. Output Characteristics

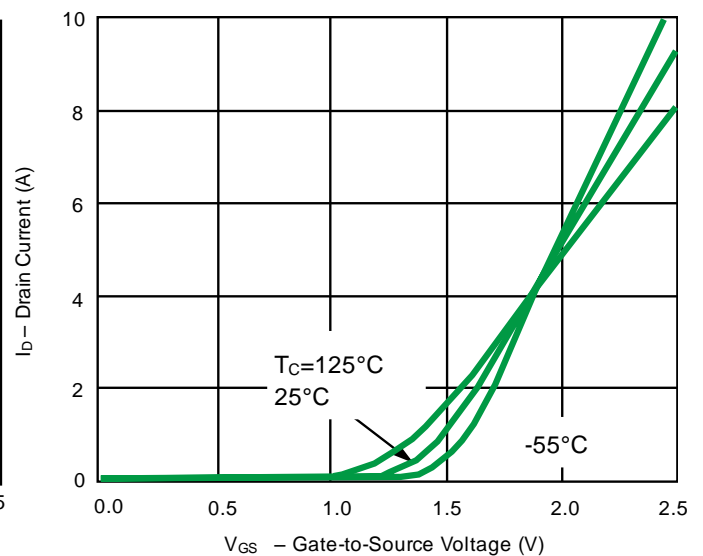


Fig 2. Transfer Characteristics

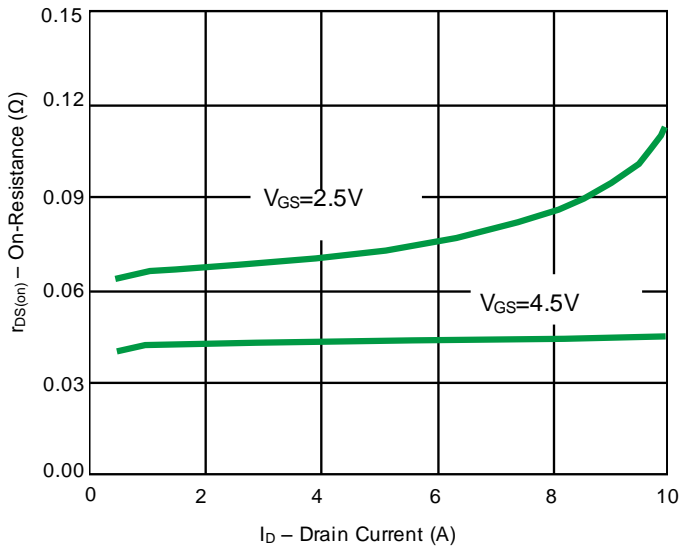


Fig 3. On-Resistance vs. Drain Current

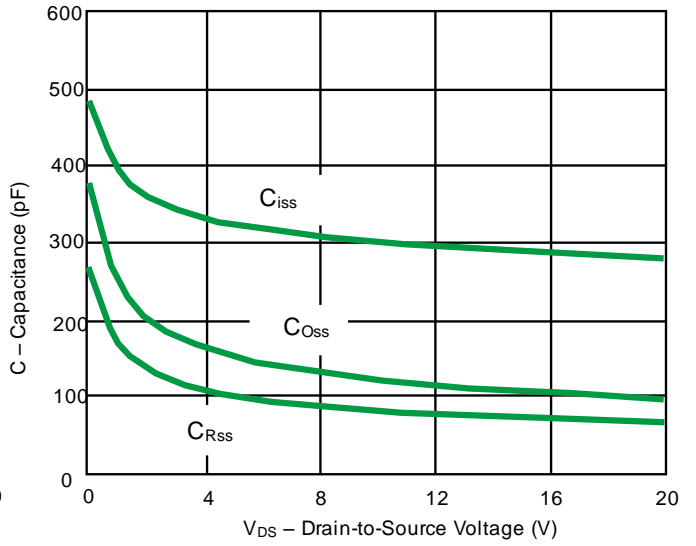


Fig 4. Capacitance Characteristics

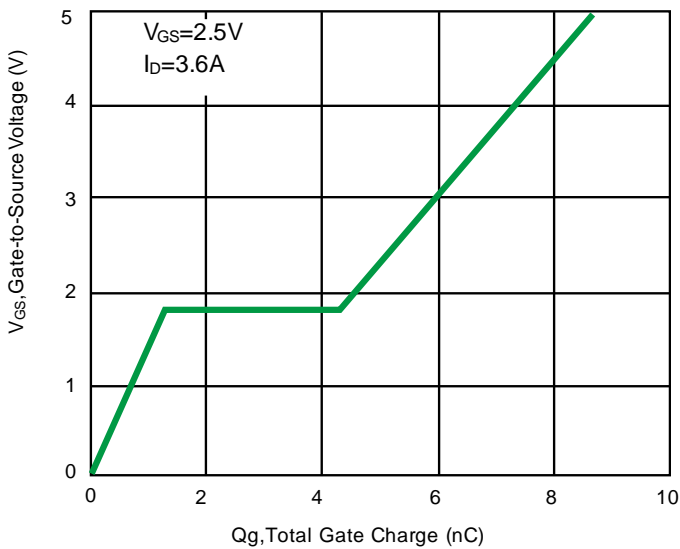


Fig 5. Gate Charge Characteristics

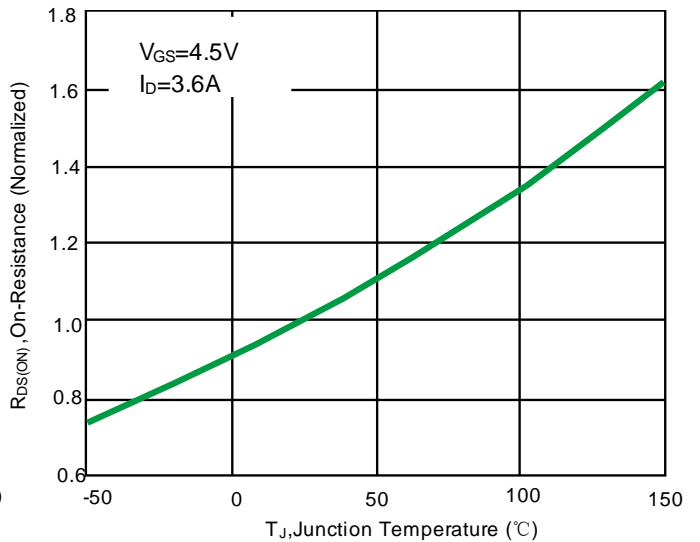


Fig 6. On-Resistance vs. Junction Temperature

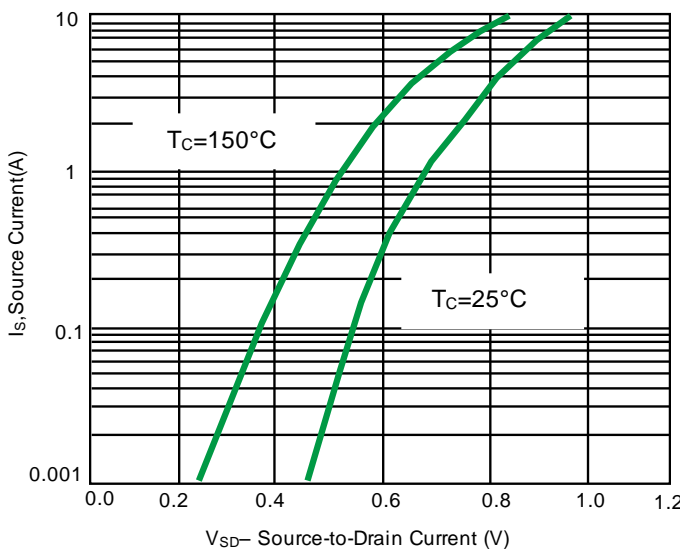


Fig 7. Source-Drain Diode Forward Voltage

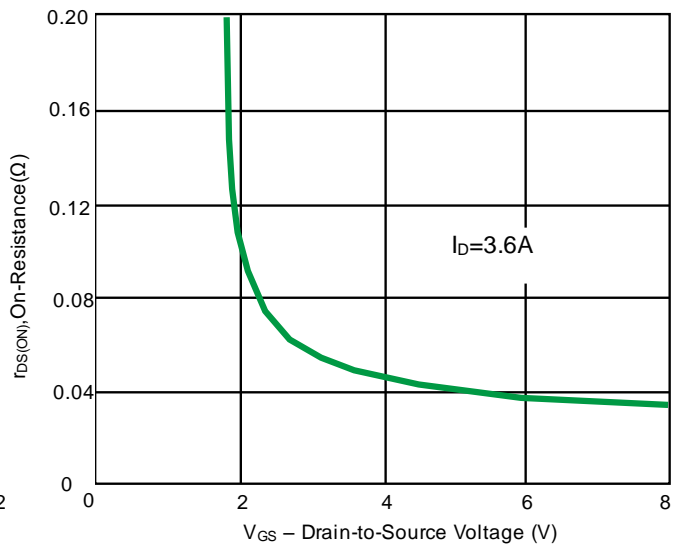


Fig 8. On-Resistance vs. Gate-to-Source Voltage

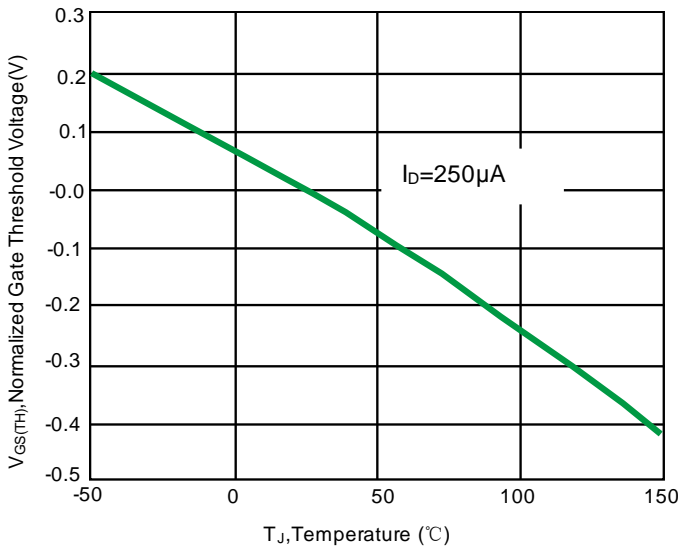


Fig 9. Normalized Gate Threshold Voltage vs. Temperature

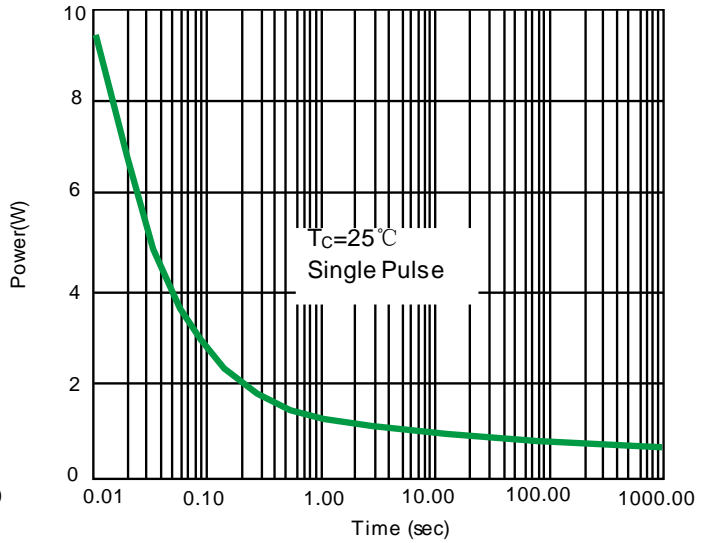


Fig 10. Single Pulse Power

P-Channel

Typical Characteristics

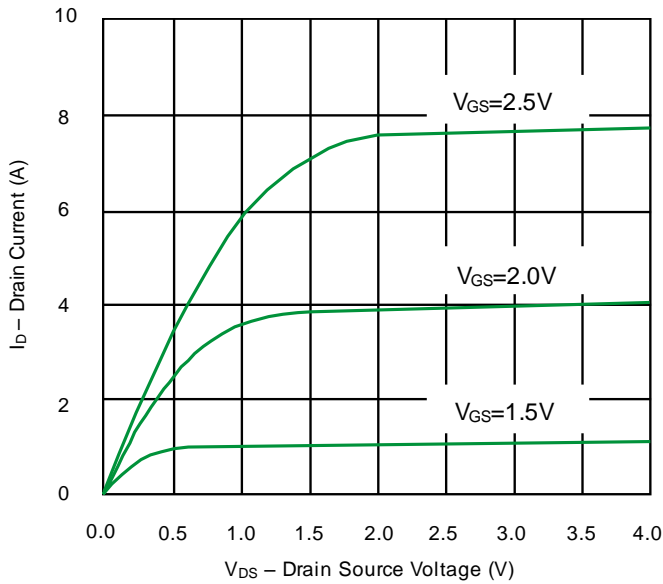


Fig 1. Output Characteristics

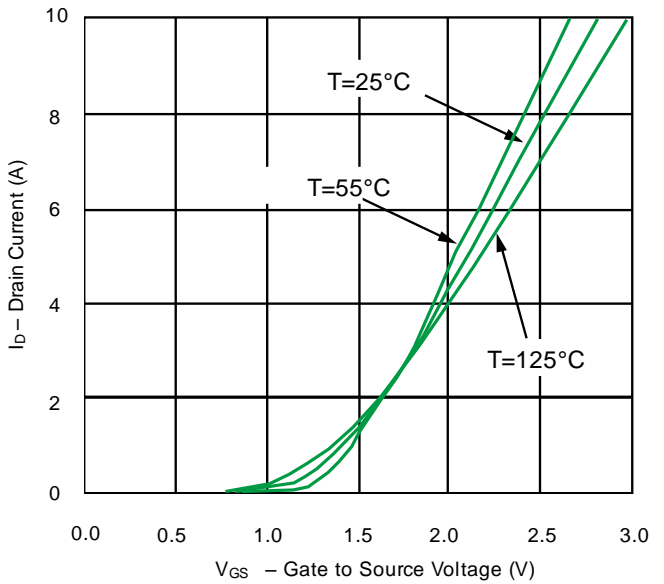


Fig 2. Transfer Characteristics

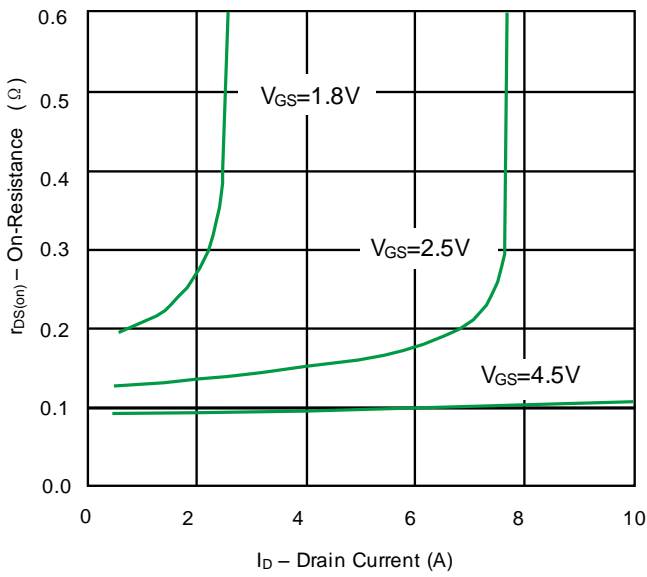


Fig 3. On-Resistance vs. Drain Current

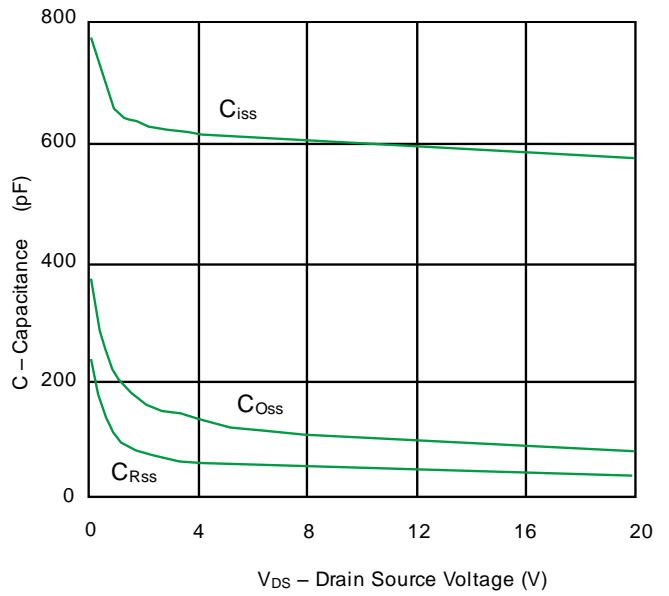
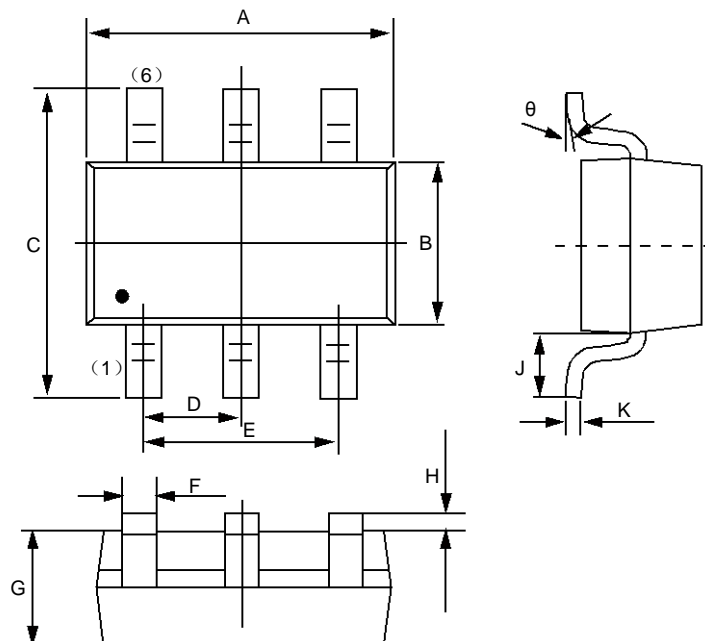



Fig 4. Capacitance

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°


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