Dual N-Channel 20V Power MOSFET

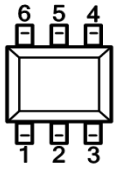
B_{VDSS}=20V ,
$R_{DS(ON)}$=24.5mΩ
ID=6A

Features:

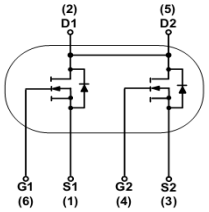
- Super high dense cell design for low $R_{DS(ON)}$
- Rugged and reliable
- Surface Mount Package
-

Application

- DC-DC converters
- Power management in portable and Battery-powered products



Top View
SOT23-6L



Absolute Maximum Ratings (T_A=25℃ Unless Otherwise Noted)

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DSS}	20	V
Gate-Source Voltage		V_{GS}	±10	V
Continuous Drain Current (1)		I_D	6	A
Pulsed Drain Current (1), (2)		I_{DM}	20	A
Power Dissipation (1)	T_A=25℃	PD	0.83	W
	T_A=100℃		0.3	
Operating Junction and Storage Temperature Range		T_J, Tstg	-55 to150	℃

Thermal Characteristics

Symbol	Characteris	Typ	Max.	Units
$R_{\theta JA}$*	Junction-to-Ambient	--	150	℃/ W

Notes：

(1). Surface Mounted on 1 in2 pad area, t ≤ 10 sec

(2). Pulse width ≤ 300 μs, duty cycle ≤ 2 %

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Electrical Characteristics (T_A =25℃ Unless Otherwise Specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
STATIC						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V,I_D=250μA	20	--	--	V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=250μA	0.5	0.7	1	V
I_{GSS}	Gate-Body Leakage	V_{GS}=±10V	--	--	±0.1	uA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=16V,V_{GS}=0V	--	--	1	μA
$R_{DS(ON)}$	Drain-Source On-Resistance	V_{GS}=4.5V,I_D=6A	18	22	24.5	mΩ
$R_{DS(ON)}$	Drain-Source On-Resistance	V_{GS}=2.5V,I_D=5A	--	28	38	mΩ
DYNAMIC						
Qg	Total Gate Charge	V_{DS} = 10V, ID = 6A, VGS = 4.5V	--	9	--	nC
Qgs	Gate-Source Charge		--	0.95	--	
Qgd	Gate-Drain Charge		--	4	--	
Ciss	Input Capacitance	V_{DS} = 10V, VGS = 0V, f = 1.0MHz	--	490	--	PF
Coss	Output Capacitance		--	81	--	
Crss	Reverse Transfer Capacitance		--	67	--	
$t_{d(on)}$	Turn-On Delay Time	V_{DS} = 10 V, V_{GEN} = 4.5 V R_G = 6 Ω, R_L = 10 Ω, I_{DS} = 1 A	--	2.6	--	ns
t_r	Turn-On Rise Time		--	27	--	
$t_{d(off)}$	Turn-Off Delay Time		--	25	--	
t_r	Turn-Off Fall Time		--	20	--	

Source-Drain Diode Ratings and Characteristics

Symbol	Characteristic	Min.	Typ.	Max.	Unit	Test Condition
I_S	Continuous Source current	--	--	1	A	Integral reverse PN diode in The MOSFET
I_{SM}	Pulsed Source Current	--	--	4		
V_{SD}	Diode Forward voltage	--	0.7	1.3	V	I_S=1A,V_{GS}=0V

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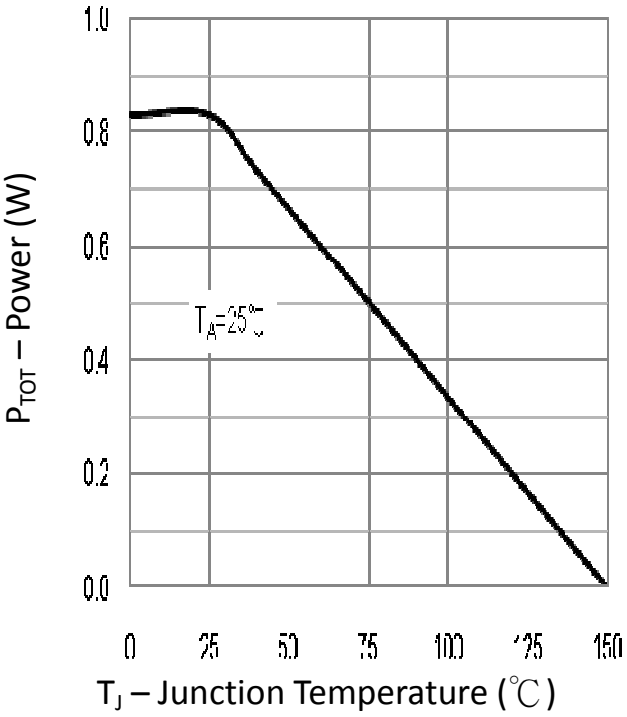
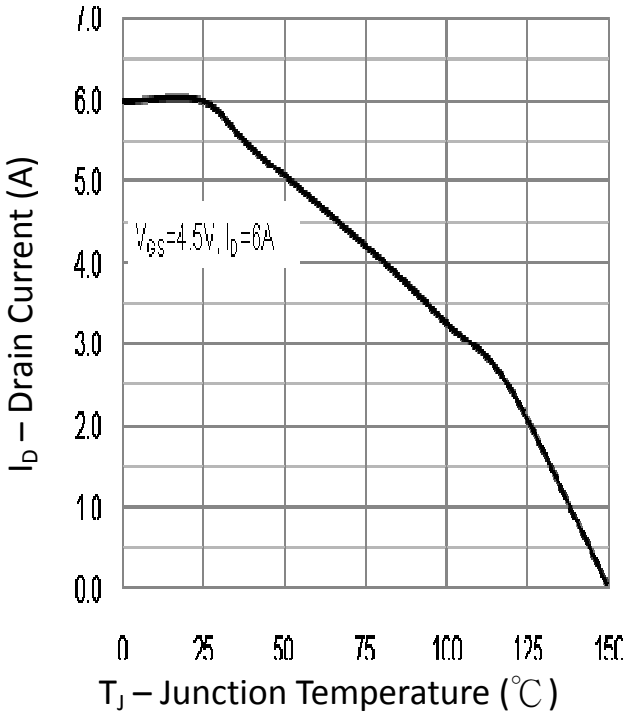
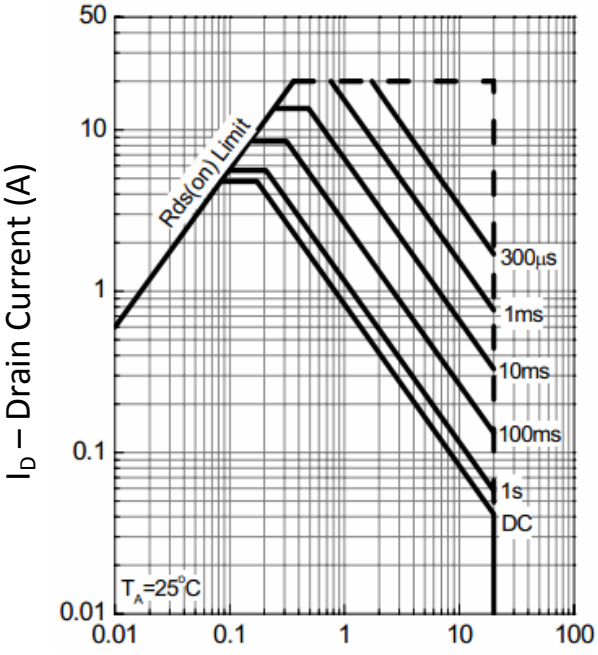
Power Dissipation



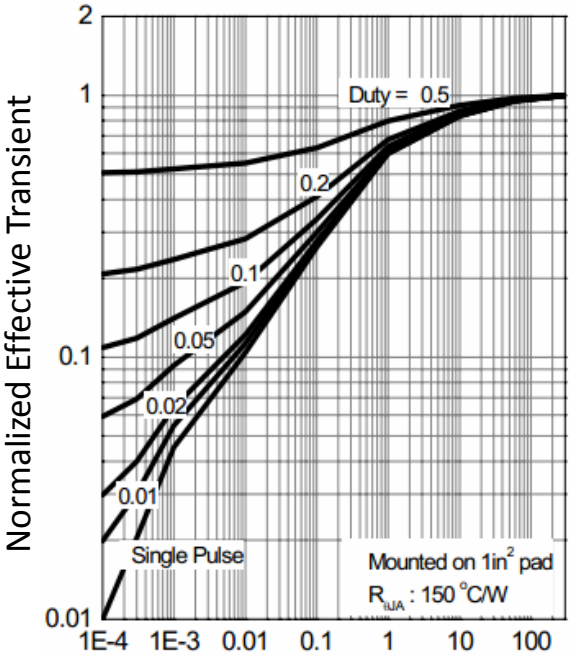
Drain Current



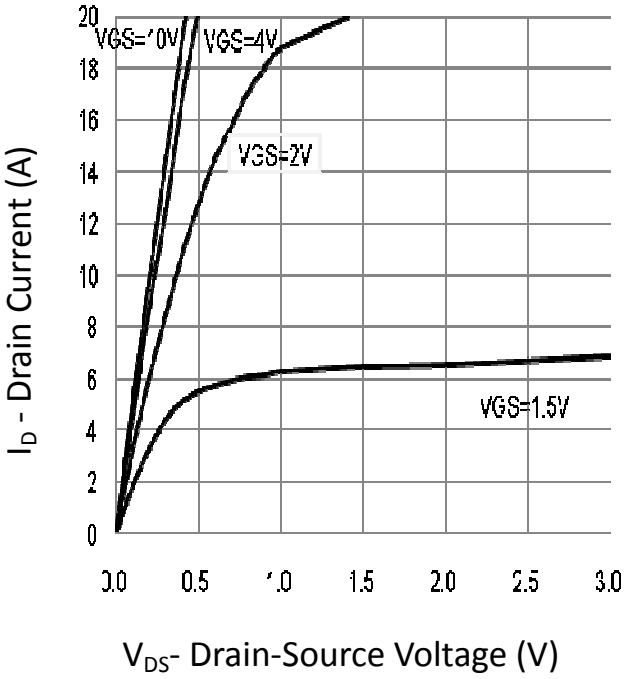
Safe Operation Area



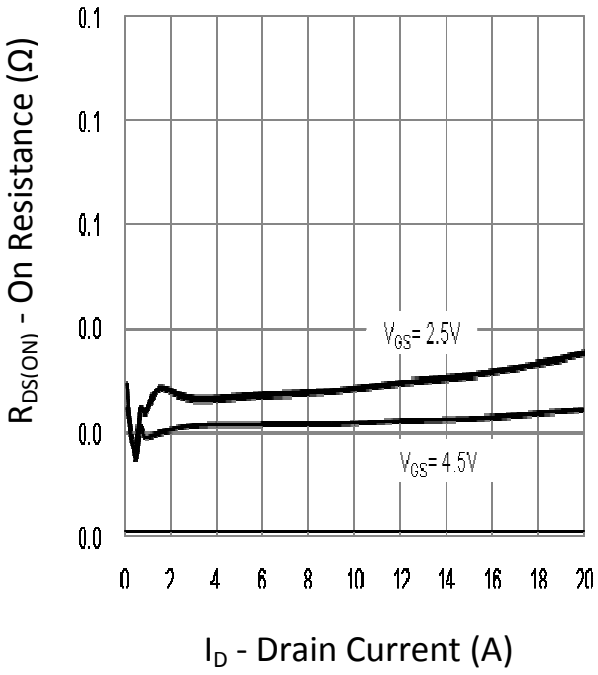
Thermal Transient Impedance



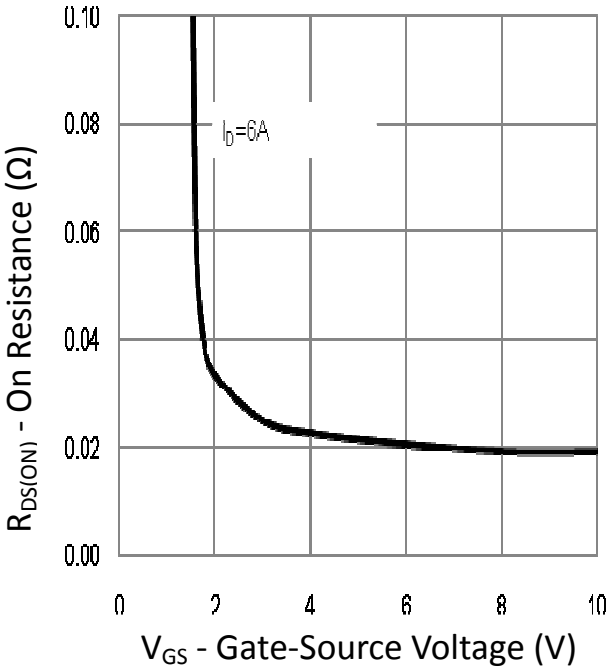
Output Characteristics



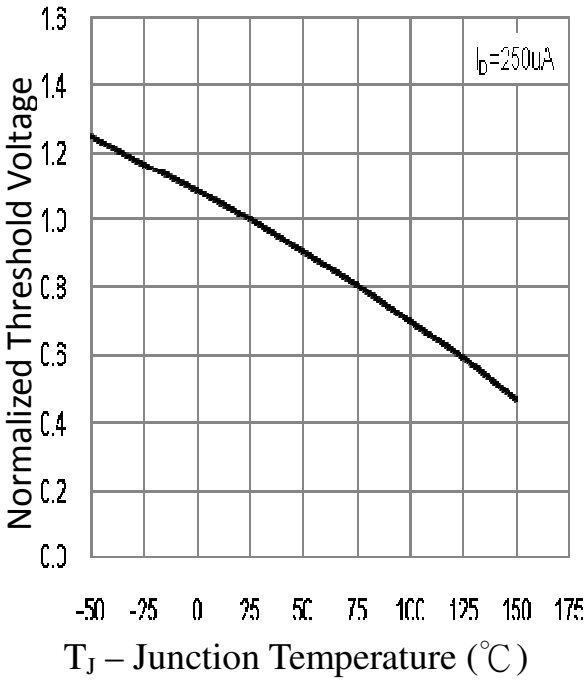
Drain-Source On Resistance



Transfer Characteristics



Gate Threshold Voltage



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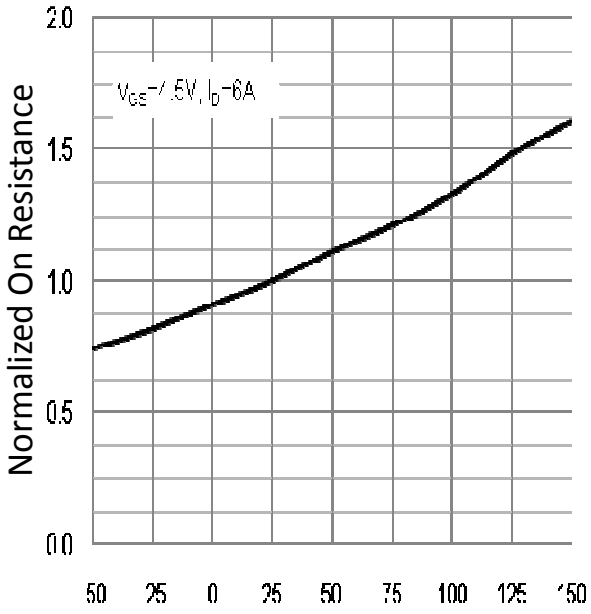
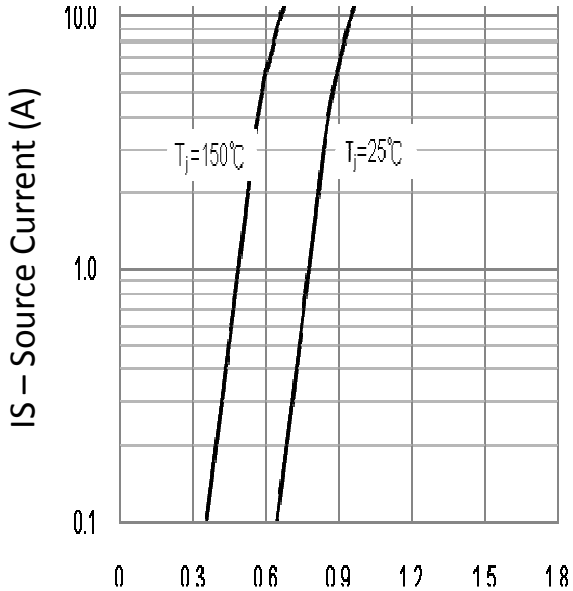
Drain-Source On Resistance



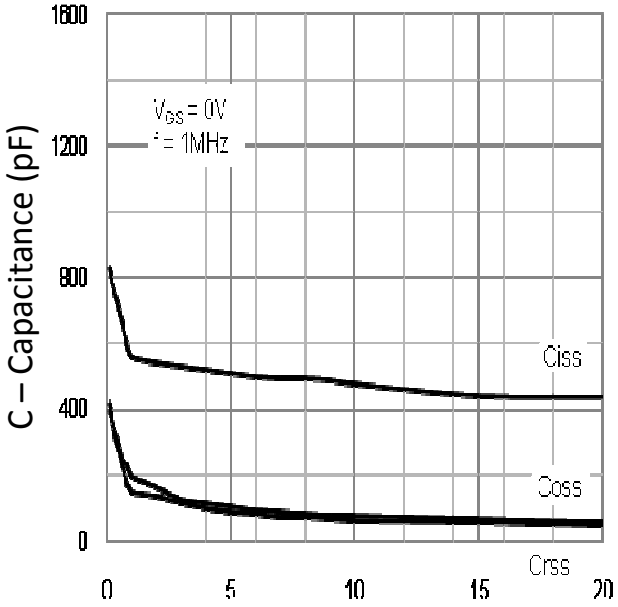
T_J – Junction Temperature (℃)

Source-Drain Diode Forward



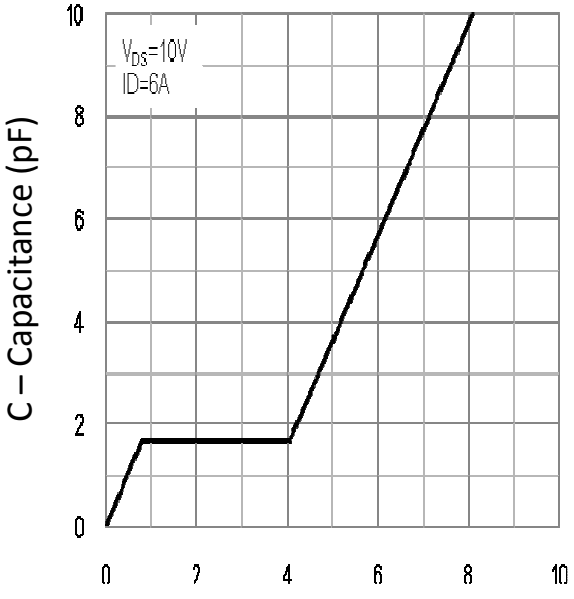
V_{SD} – Source-Drain Voltage (V)

Capacitance



V_{DS} – Drain-Source Voltage (V)

Gate Charge



Q_G – Gate Charge (nC)

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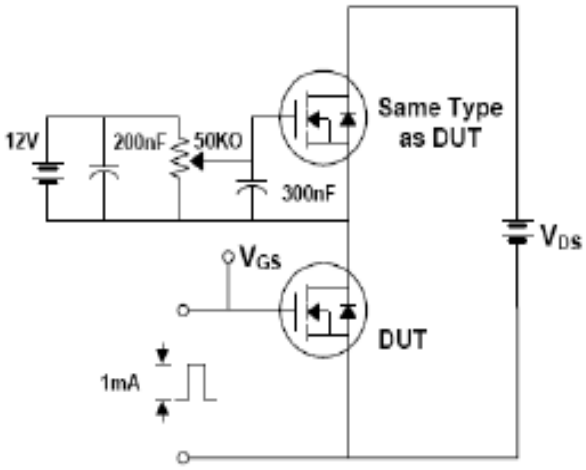
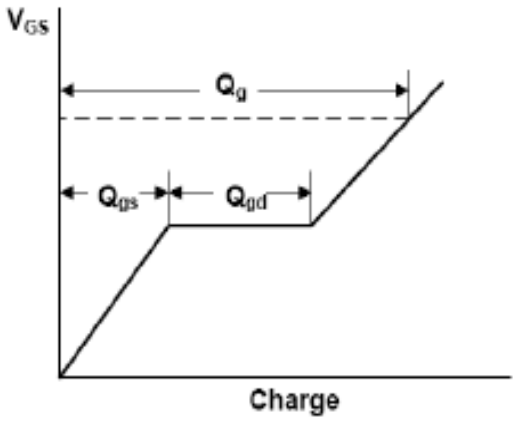
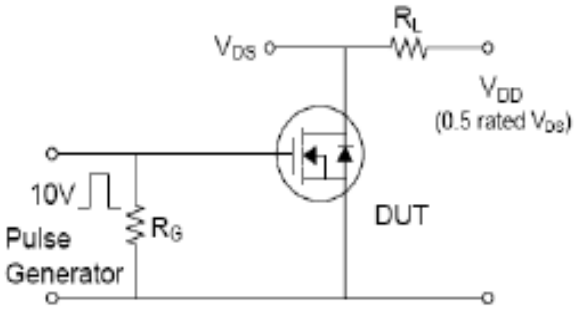
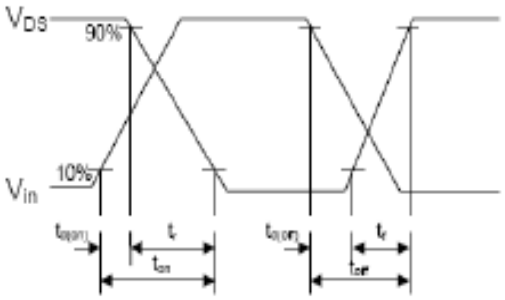
Test Circuit and Waveform



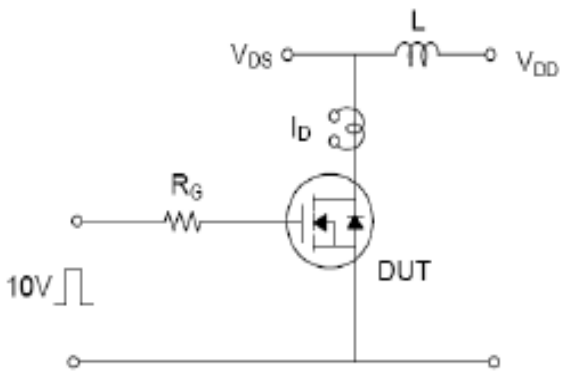


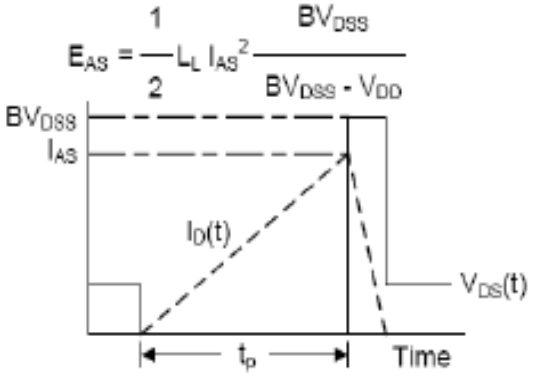
Switching Time Test Circuit & Waveforms





Unclamped Inductive Switching Test Circuit & Waveforms





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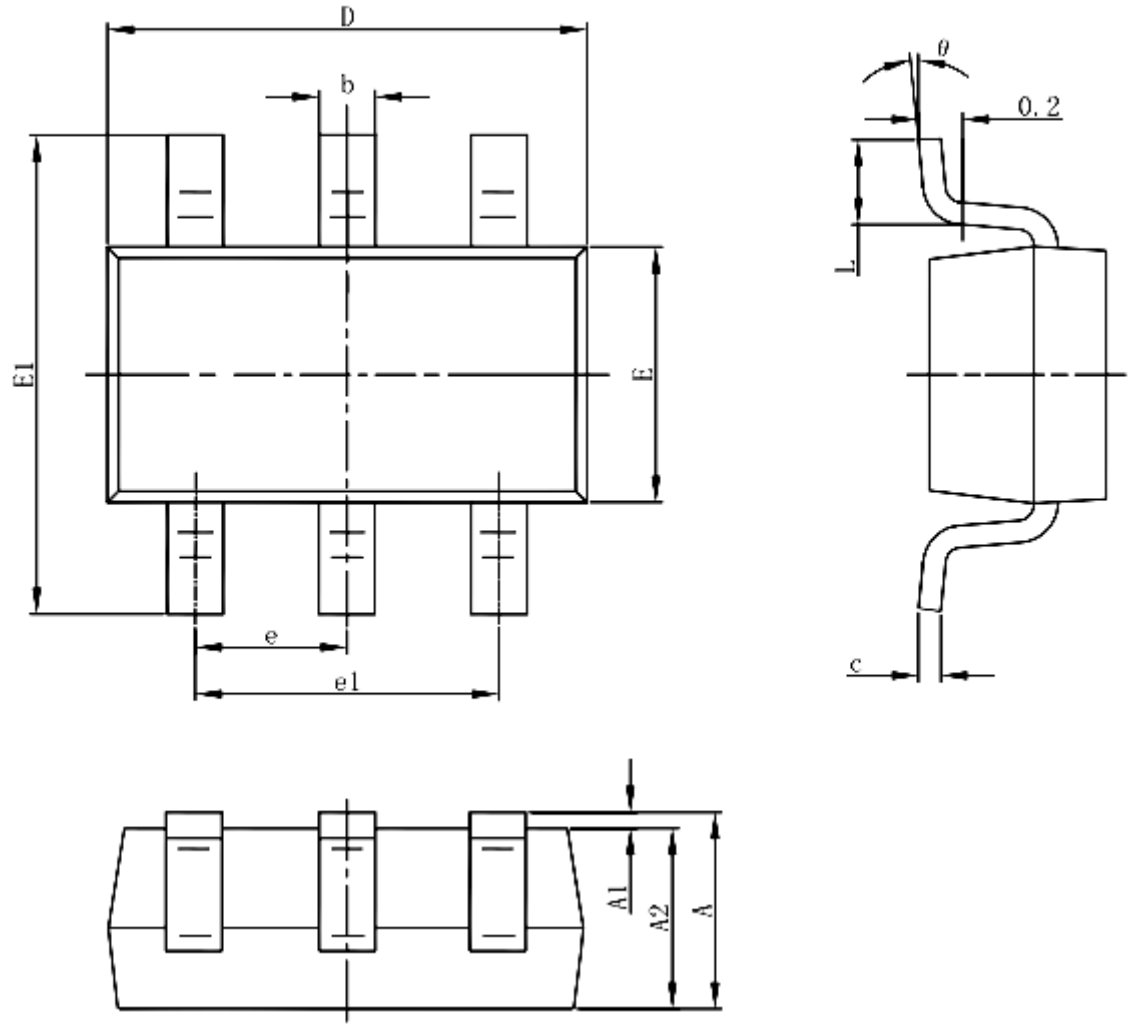
Package Dimension

SOT-23-6L PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

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