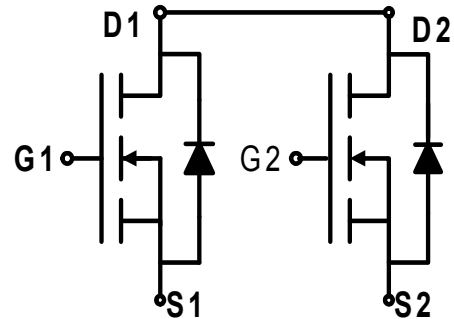




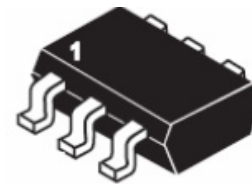
- ★ Green Device Available
- ★ Super Low Gate Charge
- ★ Excellent Cdv/dt effect decline
- ★ Advanced high cell density Trench technology

### Description

The WL8205A is the low R<sub>DS(on)</sub> trenched N-CHMOSFETs with robust ESD protection. This product is suitable for Lithium-ion battery pack applications. The WL8205A meet the RoHS and Green Product requirement with full function reliability approved.



SOT23-6L Pin Configuration



### Product Summary

BVDSS	R <sub>DS(on)</sub>	ID
20V	19.0mΩ	6A

### Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
WL8205A	8205A	SOT23-6L	Ø180mm	8mm	3000 units

### Absolute Maximum Ratings (T<sub>A</sub>=25°C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V <sub>DS</sub>	20	V
Gate-Source Voltage	V <sub>GS</sub>	±10	V
Drain Current-Continuous	I <sub>D</sub>	6	A
Drain Current-Pulsed <sup>(Note 1)</sup>	I <sub>DM</sub>	25	A
Maximum Power Dissipation	P <sub>D</sub>	1.25	W
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 To 150	°C

### Thermal Characteristic

Thermal Resistance, Junction-to-Ambient <sup>(Note 2)</sup>	R <sub>θJA</sub>	100	°C/W
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### N-Channel Enhancement Mode Power MOSFET

Gate-Body Leakage Current	$I_{GSS}$	$V_{GS}=\pm 10V, V_{DS}=0V$	-	-	$\pm 100$	nA
<b>On Characteristics</b> (Note 3)						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.5	0.7	1.2	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=4.5V, I_D=4A$	-	19	27	m $\Omega$
		$V_{GS}=2.5V, I_D=3A$	-	25	37	m $\Omega$
Forward Transconductance	$g_{FS}$	$V_{DS}=5V, I_D=4A$	-	10	-	S
<b>Dynamic Characteristics</b> (Note4)						
Input Capacitance	$C_{ISS}$	$V_{DS}=8V, V_{GS}=0V,$ $F=1.0MHz$	-	600	-	PF
Output Capacitance	$C_{OSS}$		-	330	-	PF
Reverse Transfer Capacitance	$C_{RSS}$		-	140	-	PF
<b>Switching Characteristics</b> (Note 4)						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=10V, I_D=1A$ $V_{GS}=4V, R_{GEN}=10\Omega$	-	18	-	nS
Turn-on Rise Time	$t_r$		-	5	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	43	-	nS
Turn-Off Fall Time	$t_f$		-	20	-	nS
Total Gate Charge	$Q_g$	$V_{DS}=10V, I_D=4A,$ $V_{GS}=4.5V$	-	11	-	nC
Gate-Source Charge	$Q_{gs}$		-	2.3	-	nC
Gate-Drain Charge	$Q_{gd}$		-	2.5	-	nC
<b>Drain-Source Diode Characteristics</b>						
Diode Forward Voltage (Note 3)	$V_{SD}$	$V_{GS}=0V, I_S=2A$	-	0.8	1.2	V
Diode Forward Current (Note 2)	$I_S$		-	-	2	A

#### Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board,  $t \leq 10$  sec.
3. Pulse Test: Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$ .
4. Guaranteed by design, not subject to production



Typical Electrical and Thermal Characteristics

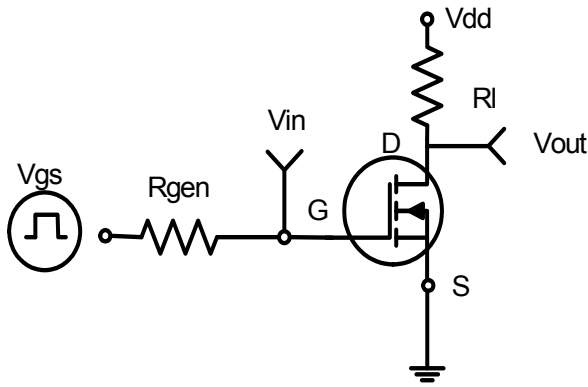


Figure 1: Switching Test Circuit

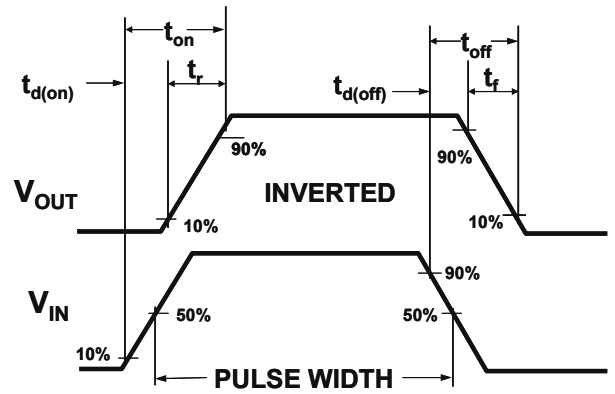


Figure 2: Switching Waveforms

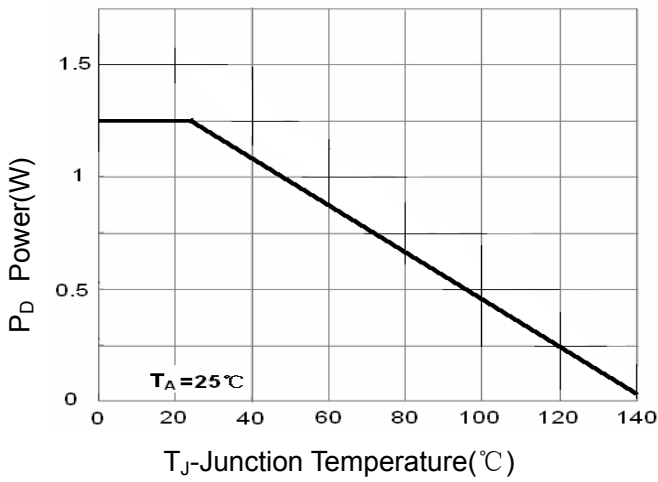


Figure 3 Power Dissipation

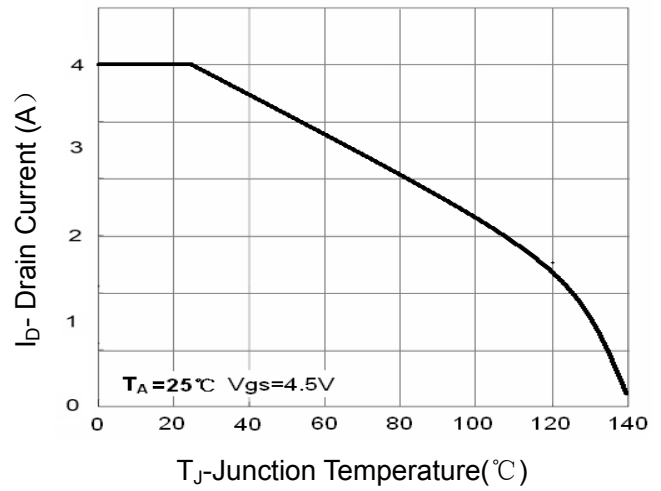


Figure 4 Drain Current

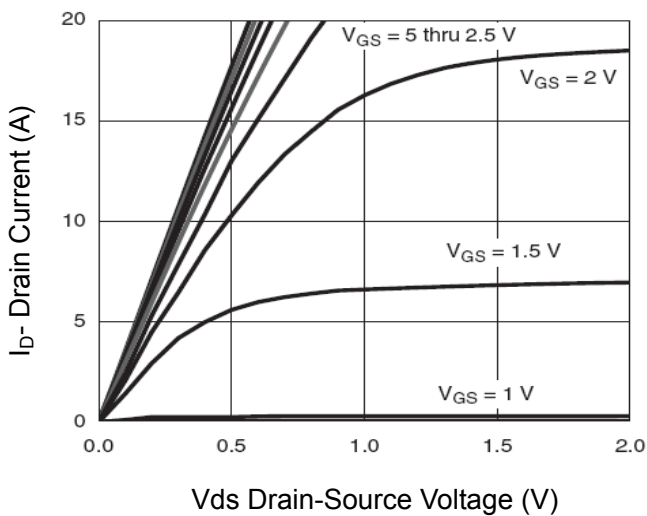


Figure 5 Output Characteristics

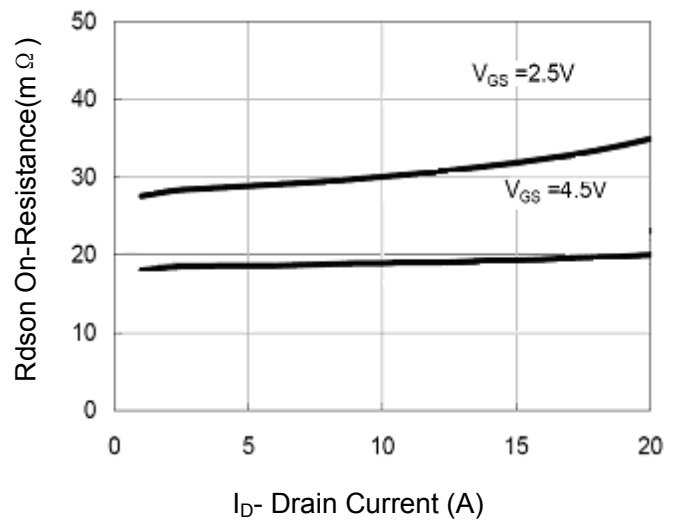


Figure 6 Drain-Source On-Resistance

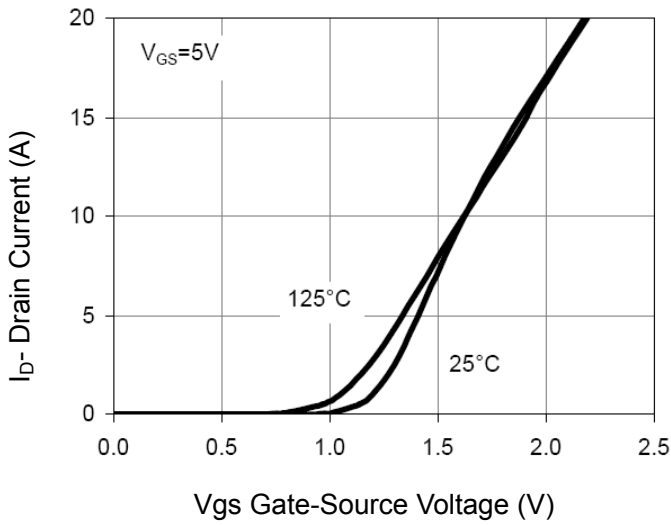


Figure 7 Transfer Characteristics

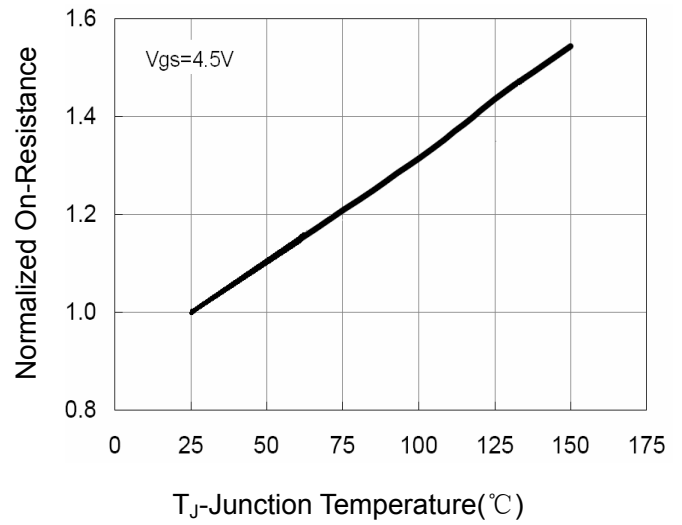


Figure 8 Drain-Source On-Resistance

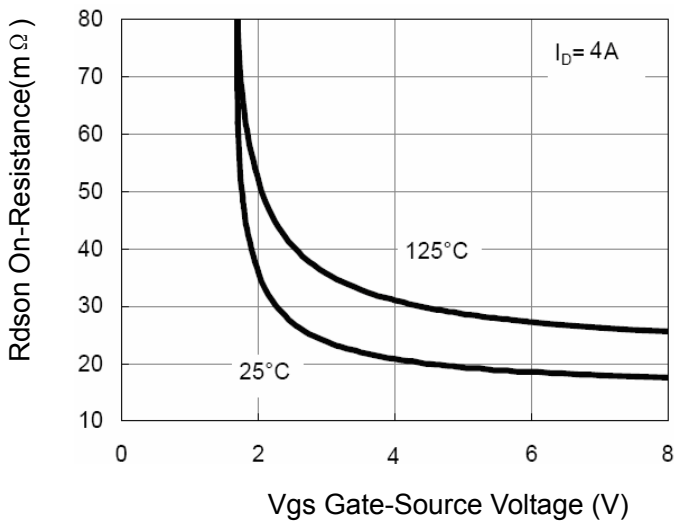


Figure 9  $R_{DS(on)}$  vs  $V_{GS}$

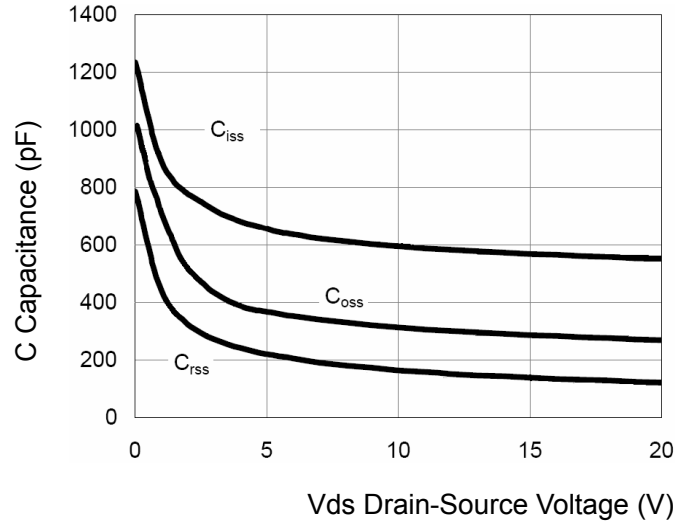


Figure 10 Capacitance vs  $V_{DS}$

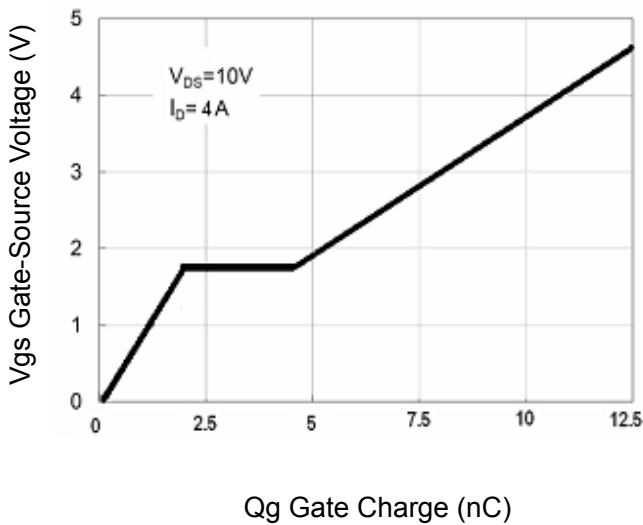


Figure 11 Gate Charge

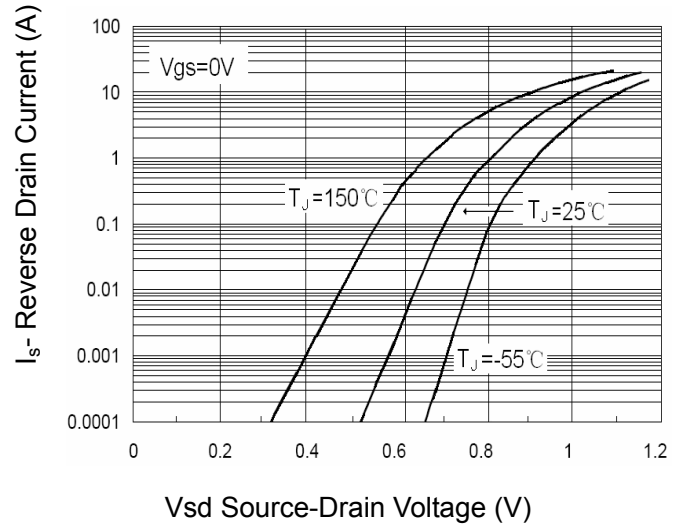


Figure 12 Source- Drain Diode Forward

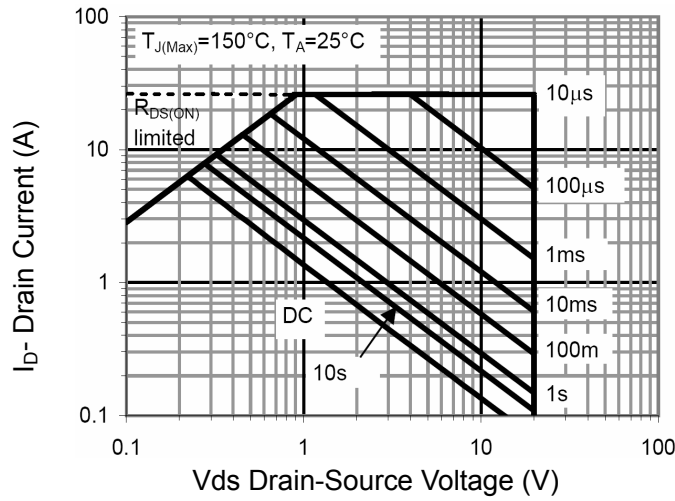


Figure 13 Safe Operation Area

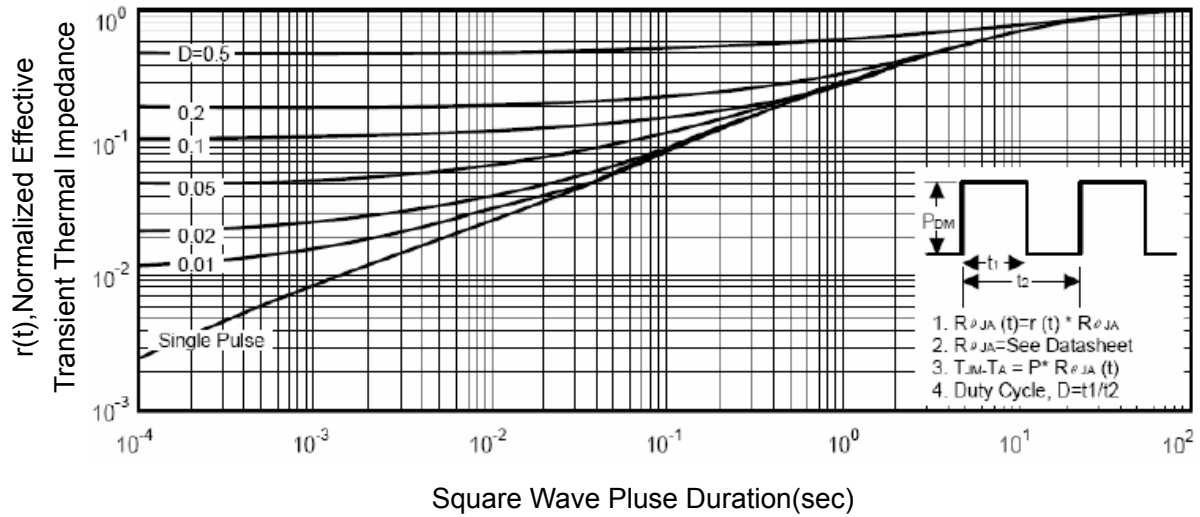
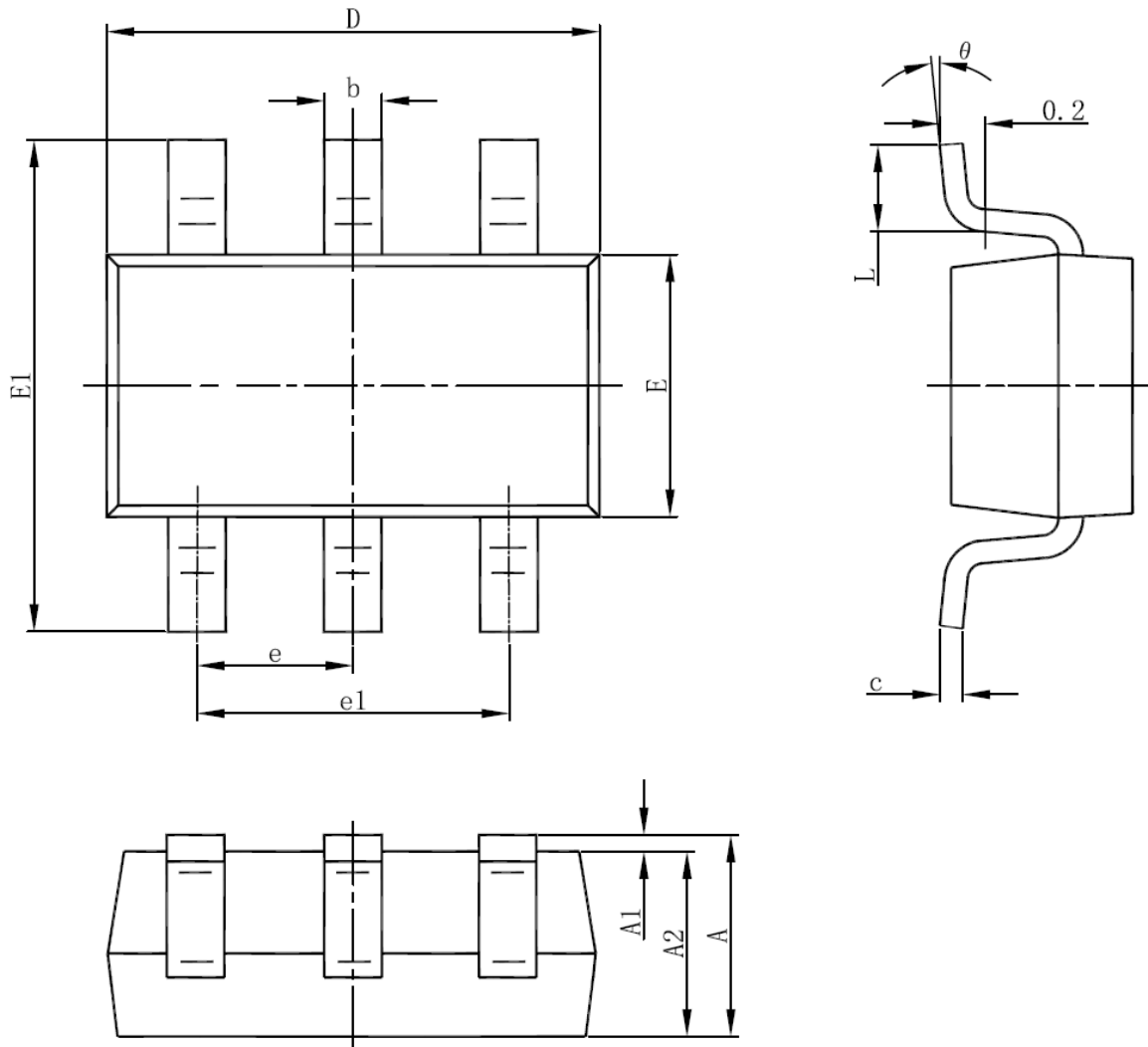


Figure 14 Normalized Maximum Transient Thermal Impedance



SOT23-6L Package Information



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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