



## 20V Single N-Channel Enhancement-Mode MOSFET

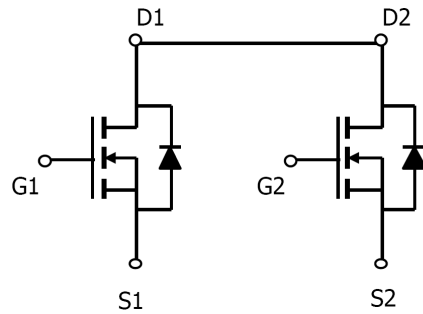
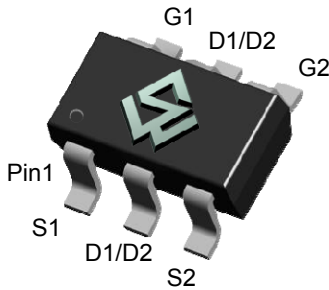
### General Description

- Low gate charge.
- Use as a load switch.
- Use in PWM applications

### Product Summary

- $BV_{DSS}$  20V
- $R_{DS(on)}$  @VGS = 4.5V < 30mΩ
- $R_{DS(on)}$  @VGS = 2.5V < 40mΩ

SOT23-6L



### Absolute Maximum Ratings ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Maximum	Units
Drain-Source Voltage	$V_{DS}$	20	V
Gate-Source Voltage	$V_{GS}$	±8	V
Drain Current ( $T_A=25^\circ\text{C}$ )	$I_D$	6.0	A
Drain Current ( $T_A=75^\circ\text{C}$ )		3.2	A
Pulsed Drain Current <sup>a</sup>	$I_{DM}$	24	A
Power Dissipation <sup>b</sup> ( $T_A=25^\circ\text{C}$ )	$P_D$	1.25	W
Power Dissipation <sup>b</sup> ( $T_A=75^\circ\text{C}$ )		1.0	W
Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 ~ +150	°C

### Thermal Characteristics

Parameter	Symbol	Maximum	Units
Junction-to-Ambient <sup>a</sup> ( $t \leq 10\text{s}$ )	$R_{\theta JA}$	100	°C/W
Junction-to-Ambient <sup>a,d</sup> (Steady-State)		130	°C/W
Junction-to-Lead (Steady-State)	$R_{\theta JL}$	90	°C/W

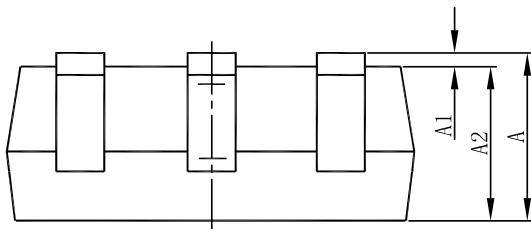
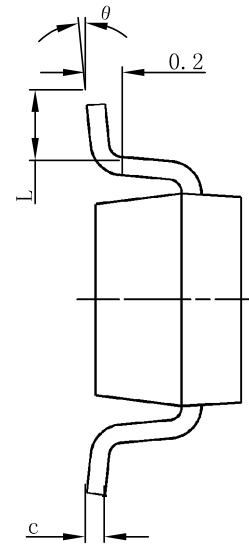
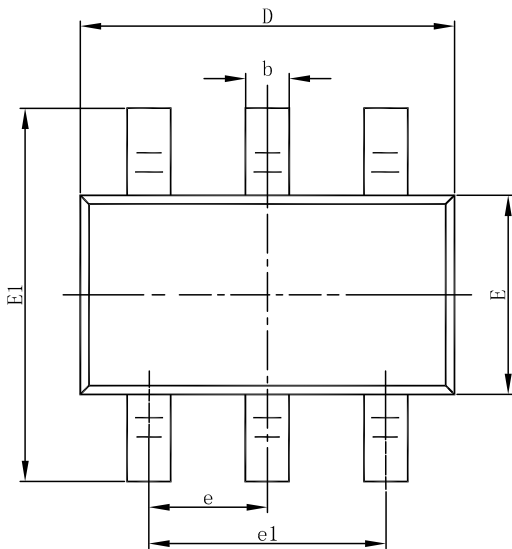


Electrical Characteristics (T <sub>A</sub> = 25°C unless otherwise noted)						
Symbol	Parameter	Conditions	Min	Typ	Max	Units
<b>Off Characteristics</b>						
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> = 0V , I <sub>D</sub> = 250uA	20			V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> = 20V , V <sub>GS</sub> = 0V			1	uA
I <sub>GSS</sub>	Gate-Body Leakage Current	V <sub>GS</sub> = ±8V , V <sub>DS</sub> = 0V			±100	nA
<b>On Characteristics</b>						
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250uA	0.45		1.2	V
R <sub>DS(ON)</sub>	Drain-Source On-State Resistance	V <sub>GS</sub> = 4.5V , I <sub>D</sub> = 6.0A		22	30	mΩ
		V <sub>GS</sub> = 2.5V , I <sub>D</sub> = 5.0A		28	35	mΩ
g <sub>FS</sub>	Forward Transconductance	V <sub>DS</sub> = 4.5V , I <sub>D</sub> = 6.0A		20		S
<b>Drain-Source Diode Characteristics</b>						
V <sub>SD</sub>	Diode Forward Voltage	V <sub>GS</sub> = 0V , I <sub>S</sub> = 1.0A			1.2	V
I <sub>S</sub>	Maximum Body-Diode Continuous Current				2.0	A
<b>Dynamic Characteristics</b>						
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> = 10V , V <sub>GS</sub> = 0V f = 1.0MHz		650		pF
C <sub>oss</sub>	Output Capacitance			165		pF
C <sub>rss</sub>	Reverse Transfer Capacitance			143		pF
<b>Switching Characteristics</b>						
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> = 10V , I <sub>D</sub> = 6A V <sub>GS</sub> = 4V		11.5		nC
Q <sub>gs</sub>	Gate-Source Charge			1.2		nC
Q <sub>gd</sub>	Gate-Drain Charge			3.5		nC
t <sub>D(ON)</sub>	Turn-On Delay Time	V <sub>DD</sub> = 10V , I <sub>D</sub> = 1A V <sub>GS</sub> = 4 V R <sub>GEN</sub> = 3 ohm		4.5		ns
t <sub>r</sub>	Turn-On Rise Time			14		ns
t <sub>D(OFF)</sub>	Turn-Off Delay Time			29		ns
t <sub>f</sub>	Turn-Off Fall Time			8.2		ns

- Repetitive rating, Pulse width limited by junction temperature T<sub>J(MAX)</sub>=150 °C. Ratings are based on low frequency and duty cycles to keep initial T<sub>J</sub>=25 °C
- The power dissipation P<sub>D</sub> is based on T<sub>J(MAX)</sub>=150 °C , using ≤10s junction-to-ambient thermal resistance.
- The value of R<sub>θJA</sub> is measured with the device mounted on 1in<sup>2</sup> FR-4 board with 2oz. Copper, in a still air environment with T<sub>A</sub> = 25°C. The value in any given application depends on the user's specific board design.
- The R<sub>θJA</sub> is the sum of the thermal impedance from junction to lead R<sub>θJL</sub> and lead to ambient.



## SOT23-6L Package Outline



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°

单击下面可查看定价，库存，交付和生命周期等信息

[>>SiliconWisdom\(矽睿半导体\)](#)