



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

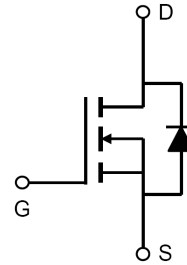
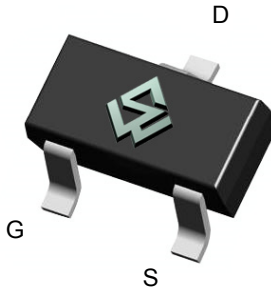
### General Description

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

### Product Summary

- $BV_{DSS}$  20V
- $R_{DS(on)}$  @VGS = 4.5V < 28mΩ
- $R_{DS(on)}$  @VGS = 2.5V < 38mΩ

SOT-23



### 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	$V_{GS}$	±12	V
Drain Current ( $T_A=25^\circ\text{C}$ )	$I_D$	5.4	A
Drain Current ( $T_A=75^\circ\text{C}$ )		2.8	A
Pulsed Drain Current <sup>a</sup>	$I_{DM}$	20	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

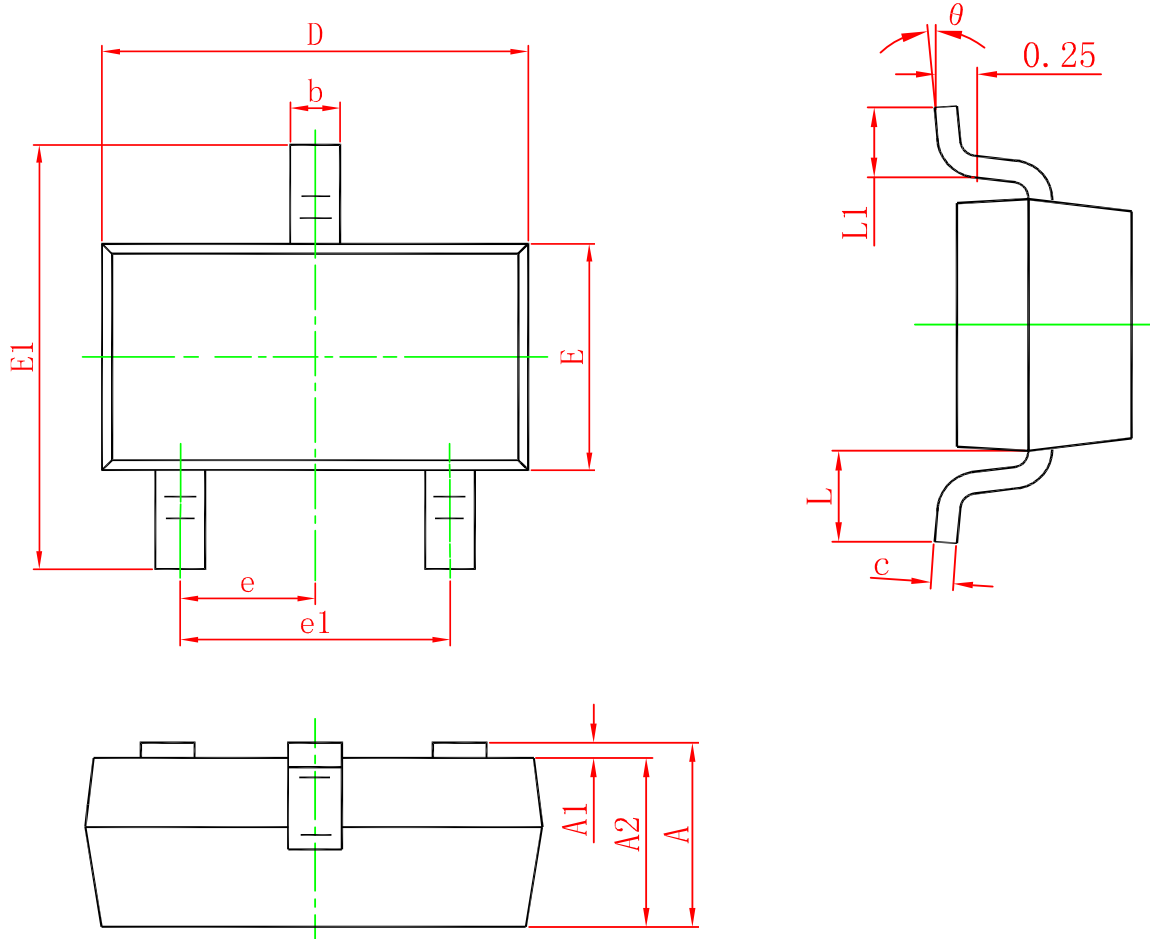


Electrical Characteristics (T <sub>A</sub> = 25°C unless otherwise noted)						
Symbol	Parameter	Conditions	Min	Typ	Max	Units
<b>Off Characteristics</b>						
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> = 0V , I <sub>D</sub> = 250uA	20			V
I <sub>DSS</sub>	Zero Gate Voltage Drain 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	0.5		1.2	V
R <sub>DS(ON)</sub>	Drain-Source On-State Resistance	V <sub>GS</sub> = 4.5V , I <sub>D</sub> = 5.4A		22	28	mΩ
		V <sub>GS</sub> = 2.5V , I <sub>D</sub> = 4.5A		28	38	mΩ
g <sub>FS</sub>	Forward Transconductance	V <sub>DS</sub> = 2.5V , I <sub>D</sub> = 5.4A		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> = 15V , V <sub>GS</sub> = 0V f = 1.0MHz		380		pF
C <sub>oss</sub>	Output Capacitance			52		pF
C <sub>rss</sub>	Reverse Transfer Capacitance			35		pF
<b>Switching Characteristics</b>						
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> = 15V , I <sub>D</sub> = 5.4A V <sub>GS</sub> = 4V		8.5		nC
Q <sub>gs</sub>	Gate-Source Charge			1.5		nC
Q <sub>gd</sub>	Gate-Drain Charge			1.1		nC
t <sub>D(ON)</sub>	Turn-On Delay Time	V <sub>DD</sub> = 15V , I <sub>D</sub> = 1A V <sub>GS</sub> = 4V R <sub>GEN</sub> = 6 ohm		12		ns
t <sub>r</sub>	Turn-On Rise Time			17		ns
t <sub>D(OFF)</sub>	Turn-Off Delay Time			18		ns
t <sub>f</sub>	Turn-Off Fall Time			14		ns

- a. 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
- b. The power dissipation P<sub>D</sub> is based on T<sub>J(MAX)</sub>=150 °C , using ≤10s junction-to-ambient thermal resistance.
- c. 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.
- d. The R<sub>θJA</sub> is the sum of the thermal impedance from junction to lead R<sub>θJL</sub> and lead to ambient.



## SOT-23 Package Outline



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max	Min.	Max.
<b>A</b>	0.900	1.150	0.035	0.045
<b>A1</b>	0.000	0.100	0.000	0.004
<b>A2</b>	0.900	1.050	0.035	0.041
<b>b</b>	0.300	0.500	0.012	0.020
<b>c</b>	0.080	0.150	0.003	0.006
<b>D</b>	2.800	3.000	0.110	0.118
<b>E</b>	1.200	1.400	0.047	0.055
<b>E1</b>	2.250	2.550	0.089	0.100
<b>e</b>	0.950 TYP.		0.037 TYP.	
<b>e1</b>	1.800	2.000	0.071	0.079
<b>L</b>	0.550 REF.	0.022 REF.		
<b>θ</b>	0.300	0.500	0.012	0.020

单击下面可查看定价，库存，交付和生命周期等信息

[>>SiliconWisdom\(矽睿半导体\)](#)