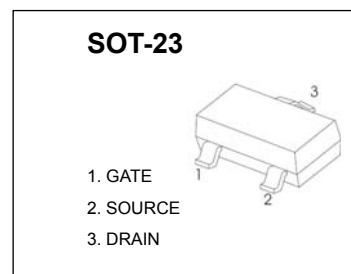


### SI2301B P-Channel 20-V(D-S) MOSFET

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	$I_D$
-20V	120 mΩ@-4.5V	2.5 A
	150 mΩ@-2.5V	



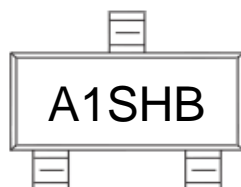
#### FEATURE

TrenchFET Power MOSFET

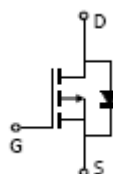
#### APPLICATION

- Load Switch for Portable Devices
- DC/DC Converter

#### MARKING



#### Equivalent Circuit



#### Maximum ratings ( $T_a=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	-20	V
Gate-Source Voltage	$V_{GS}$	$\pm 8$	
Continuous Drain Current ( $T_J=150^{\circ}\text{C}$ )	$I_D$	-2.5	A
Pulsed Drain Current	$I_{DM}$	-10	
Continuous Source-Drain Diode Current	$I_S$	-0.72	
Maximum Power Dissipation	$P_D$	0.35	W
Thermal Resistance from Junction to Ambient( $t \leq 5s$ )	$R_{\theta JA}$	357	$^{\circ}\text{C}/\text{W}$
Junction Temperature	$T_J$	150	$^{\circ}\text{C}$
Storage Temperature	$T_{stg}$	-55 ~ +150	

$T_a=25\text{ }^\circ\text{C}$  unless otherwise specified

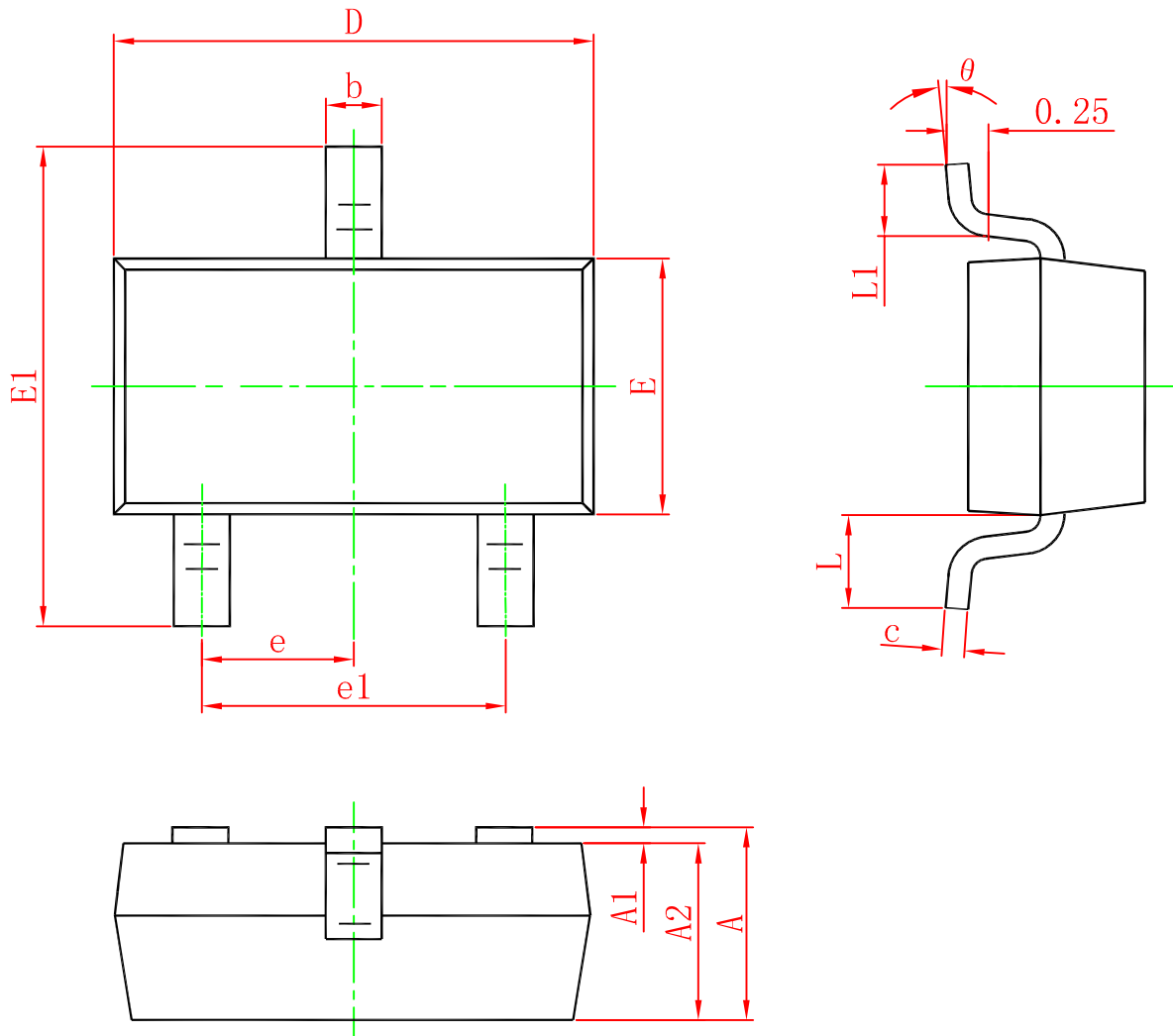
Parameter	Symbol	Test Condition	Min	Typ	Max	Units
<b>Static</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-20			V
Gate-source threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.4		-1	
Gate-source leakage	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 8V$			$\pm 100$	nA
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = -20V, V_{GS} = 0V$			-1	$\mu A$
Drain-source on-state resistance <sup>a</sup>	$R_{DS(on)}$	$V_{GS} = -4.5V, I_D = -2.8A$		0.095	0.120	$\Omega$
		$V_{GS} = -2.5V, I_D = -2.0A$		0.120	0.150	
Forward transconductance <sup>a</sup>	$g_{fs}$	$V_{DS} = -5V, I_D = -2.8A$		4.0		S
<b>Dynamic<sup>b</sup></b>						
Input capacitance	$C_{iss}$	$V_{DS} = -10V, V_{GS} = 0V, f = 1MHz$		405		pF
Output capacitance	$C_{oss}$			75		
Reverse transfer capacitance	$C_{rss}$			55		
Total gate charge	$Q_g$	$V_{DS} = -10V, V_{GS} = -4.5V, I_D = -3A$		5.5	10	nC
				3.3	6	
Gate-source charge	$Q_{gs}$	$V_{DS} = -10V, V_{GS} = -2.5V, I_D = -3A$		0.7		
Gate-drain charge	$Q_{gd}$			1.3		
Gate resistance	$R_g$	$f = 1MHz$		6.0		$\Omega$
Turn-on delay time	$t_{d(on)}$	$V_{DD} = -10V,$ $R_L = 10\Omega, I_D = -1A,$ $V_{GEN} = -4.5V, R_g = 1\Omega$		11	20	ns
Rise time	$t_r$			35	60	
Turn-off delay time	$t_{d(off)}$			30	50	
Fall time	$t_f$			10	20	
<b>Drain-source body diode characteristics</b>						
Continuous source-drain diode current	$I_S$	$T_C = 25^\circ C$			-1.3	A
Pulse diode forward current <sup>a</sup>	$I_{SM}$				-10	
Body diode voltage	$V_{SD}$	$I_S = -0.7A$		-0.8	-1.2	V

**Notes :**

a. Pulse Test : Pulse Width < 300 $\mu s$ , Duty Cycle  $\leq 2\%$ .

b. Guaranteed by design, not subject to production testing.

SOT-23 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°