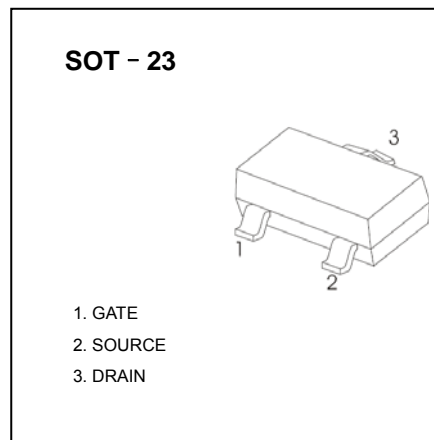


# SOT-23 Plastic-Encapsulate MOSFETS

UMW SI2302B N-Channel 20-V(D-S) MOSFET

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	$I_D$
20V	80mΩ@4.5V	2.5A
	100mΩ@2.5V	



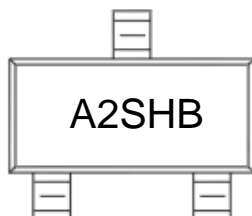
### FEATURE

- TrenchFET Power MOSFET

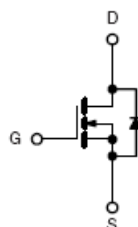
### APPLICATION

- Load Switch for Portable Devices
- DC/DC Converter

### MARKING



### Equivalent Circuit



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	20	V
Gate-Source Voltage	$V_{GS}$	±8	
Continuous Drain Current	$I_D$	2.5	A
Continuous Source-Drain Current(Diode Conduction)	$I_S$	0.6	
Power Dissipation	$P_D$	0.4	W
Thermal Resistance from Junction to Ambient ( $t \leq 5s$ )	$R_{\theta JA}$	312.5	$^{\circ}C/W$
Operating Junction	$T_J$	150	$^{\circ}C$
Storage Temperature	$T_{STG}$	-55 ~ +150	

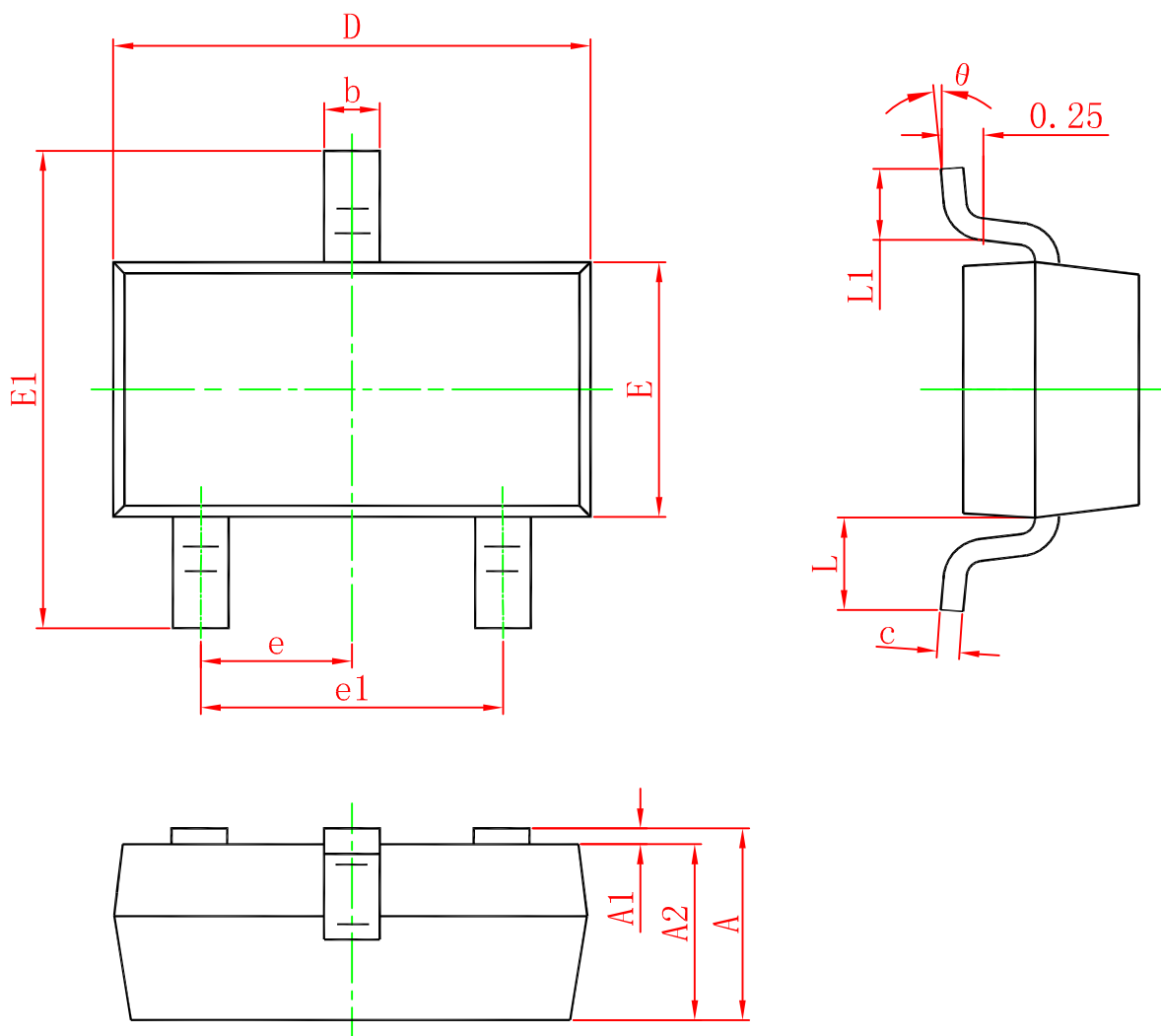
**$T_a=25^{\circ}\text{C}$  unless otherwise specified**

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
<b>Static</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 10\mu A$	20			V
Gate-threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 50\mu A$	0.65	0.95	1.2	
Gate-body 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-resistance <sup>a</sup>	$r_{DS(on)}$	$V_{GS} = 4.5V, I_D = 2.6A$		0.045	0.070	$\Omega$
		$V_{GS} = 2.5V, I_D = 2.1A$		0.060	0.100	
Forward transconductance <sup>a</sup>	$g_{fs}$	$V_{DS} = 5V, I_D = 3.6A$		8		S
Diode forward voltage	$V_{SD}$	$I_S = 0.94A, V_{GS} = 0V$		0.76	1.2	V
<b>Dynamic</b>						
Total gate charge	$Q_g$	$V_{DS} = 10V, V_{GS} = 4.5V, I_D = 3.6A$		4.0	10	nC
Gate-source charge	$Q_{gs}$			0.65		
Gate-drain charge	$Q_{gd}$			1.5		
Input capacitance <sup>b</sup>	$C_{iss}$	$V_{DS} = 10V, V_{GS} = 0V, f = 1MHz$		300		pF
Output capacitance <sup>b</sup>	$C_{oss}$			120		
Reverse transfer capacitance <sup>b</sup>	$C_{rss}$			80		
<b>Switching<sup>b</sup></b>						
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 10V,$ $R_L = 5.5\Omega, I_D \approx 3.6A,$ $V_{GEN} = 4.5V, R_g = 6\Omega$		7	15	ns
Rise time	$t_r$			55	80	
Turn-off delay time	$t_{d(off)}$			16	60	
Fall time	$t_f$			10	25	

**Notes :**

- Pulse Test : Pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$ .
- These parameters have no way to verify.

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°