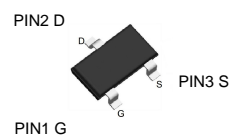


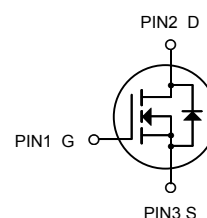


## N-Channel Enhancement Mode Field Effect Transistor

- $V_{DSS} = 20\text{ V}$      $I_D = 6.0\text{ A}$
- $R_{DS(on)} < 27\text{ m}\Omega @ V_{GS} = 4.5\text{ V}$
- $R_{DS(on)} < 42\text{ m}\Omega @ V_{GS} = 2.5\text{ V}$
- $R_{DS(on)} < 73\text{ m}\Omega @ V_{GS} = 1.8\text{ V}$



## SOT23



N-Channel MOSFET

## DESCRIPTION

The SI2300 uses advanced trench technology to provide excellent  $R_{DS(on)}$ . This device is suitable for use as a uni-directional or bi-directional load switch.

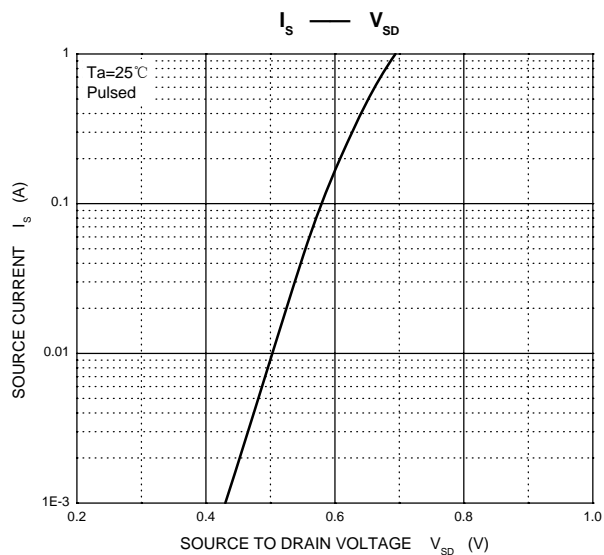
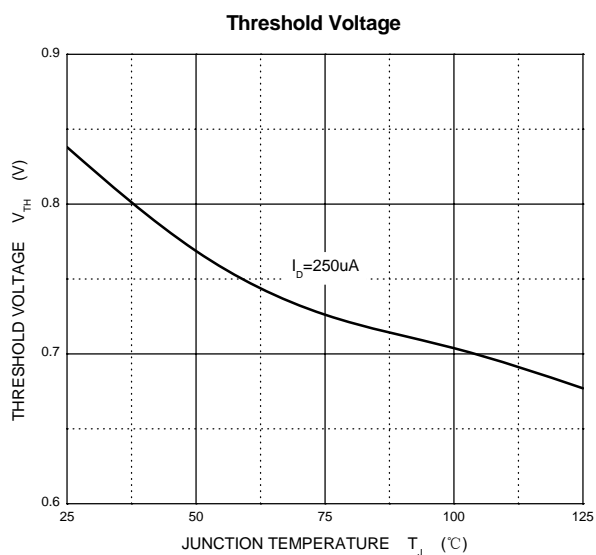
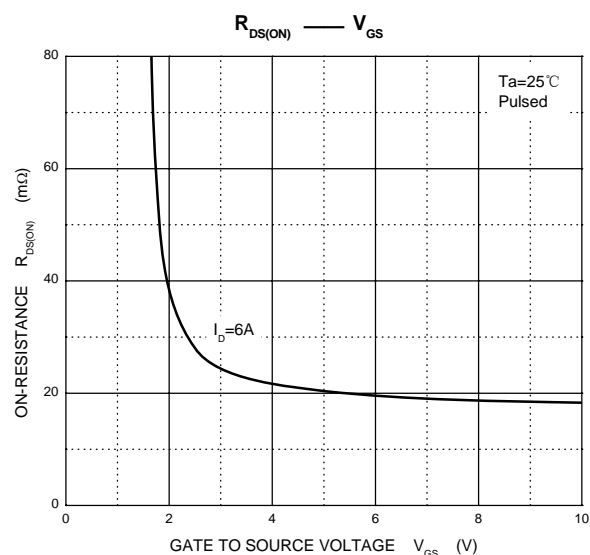
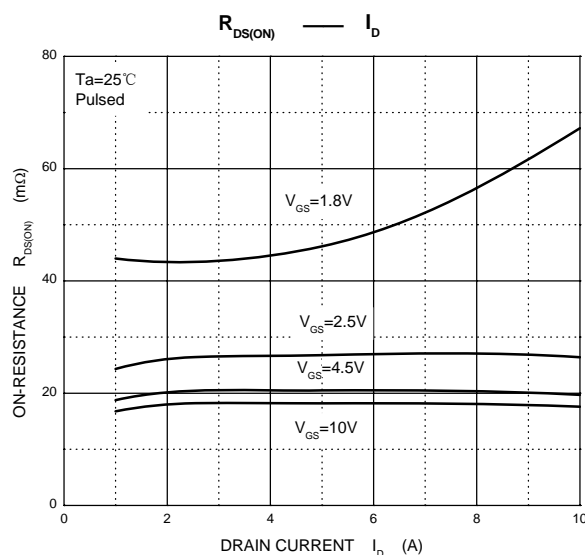
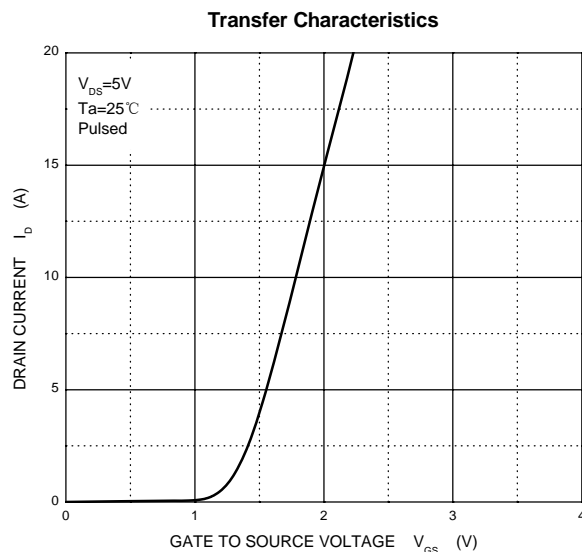
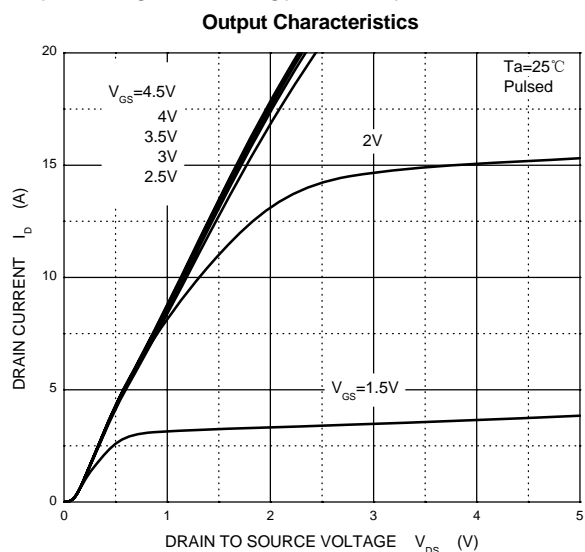
Maximum ratings ( $T_a = 25^\circ\text{C}$  unless otherwise noted)

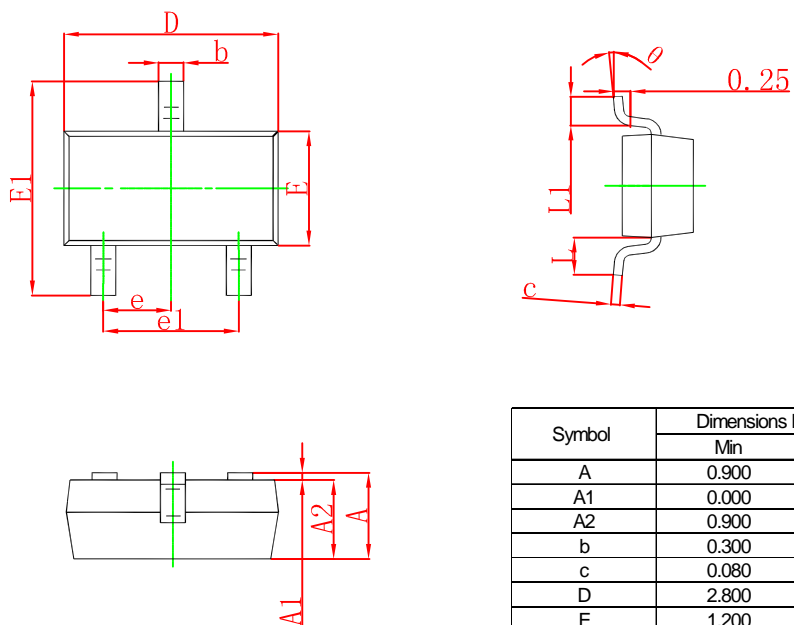
Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	20	V
Gate-Source Voltage	$V_{GS}$	$\pm 12$	
Continuous Drain Current	$I_D$	6	A
Pulsed Drain Current	$I_{DM}$	25	
Maximum Body-Diode Continuous Current	$I_S$	2	
Power Dissipation	$P_D$	0.35	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	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	Unit
<b>STATIC PARAMETERS</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	20			V
Gate-source leakage current	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 12V$			$\pm 100$	nA
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = 16V, V_{GS} = 0V$			1.0	$\mu A$
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.5	0.7	1.0	V
Drain-source on-state resistance	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 5.0A$		22	27	m $\Omega$
		$V_{GS} = 2.5V, I_D = 4.0A$		35	42	
		$V_{GS} = 1.8V, I_D = 2.0A$			73	
Diode forward voltage	$V_{SD}$	$V_{GS} = 0V, I_S = 1A$		0.75	1	V
Forward transconductance	$g_{fs}$	$V_{DS} = 5V, I_D = 3.8A$	4			S
<b>DYNAMIC PARAMETERS*</b>						
Input capacitance	$C_{iss}$	$V_{DS} = 10V, V_{GS} = 0V, f = 1MHz$		630		pF
Output capacitance	$C_{oss}$			164		
Reverse transfer capacitance	$C_{rss}$			137		
Gate resistance	$R_g$	$V_{DS} = 0V, V_{GS} = 0V, f = 1MHz$		1.5		$\Omega$
<b>SWITCHING PARAMETERS*</b>						
Turn-on delay time	$t_{d(on)}$	$V_{GS} = 5V, V_{DS} = 10V,$ $R_L = 1.7\Omega, R_{GEN} = 6\Omega$		5.5		ns
Rise time	$t_r$			14		
Turn-off delay time	$t_{d(off)}$			29		
Fall time	$t_f$			10.2		

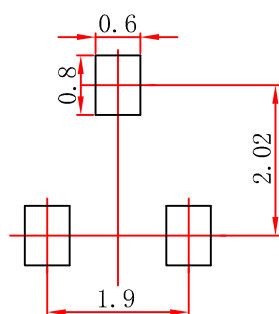
\*These parameters have no way to verify.





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
	0°	8°	0°	°

6 2 7    6 X J J H V W H G    ~~R X W~~ / D \



- Note:
1. Controlling dimension: in millimeters.
  2. General tolerance:  $\pm 0.05$ mm.
  3. The pad layout is for reference purposes only.