SWF2302A

20V Single N-Channel Enhancement-Mode MOSFET

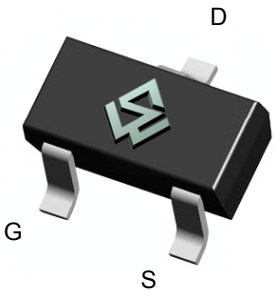
General Description

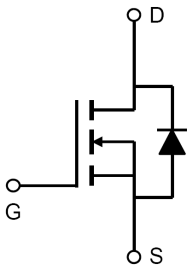
- Low gate charge.
- Use as a load switch.
- Use in PWM applications

Product Summary

- BV_{DSS} 20V
- $R_{DS(on)}$ @VGS = 4.5V < 60mΩ
- $R_{DS(on)}$ @VGS = 2.5V < 80mΩ

SOT-23





Absolute Maximum Ratings (T_A = 25°C unless otherwise noted)

Parameter	Symbol	Maximum	Units
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±10	V
Drain Current (T_A=25ºC)	I_D	3.0	A
Drain Current (T_A=75ºC)		1.2	A
Pulsed Drain Current [a]	I_{DM}	12	A
Power Dissipation [b] (T_A=25ºC)	P_D	1.25	W
Power Dissipation [b] (T_A=75ºC)		1.0	W
Junction and Storage Temperature Range	T_J, T_{STG}	-55 ~ +150	ºC

Thermal Characteristics

Parameter	Symbol	Maximum	Units
Junction-to-Ambient [a] (t ≤ 10s)	$R_{\theta JA}$	100	ºC/W
Junction-to-Ambient [a,d] (Steady-State)		130	ºC/W
Junction-to-Lead (Steady-State)	$R_{\theta JL}$	90	ºC/W

Electrical Characteristics (T_A = 25°C unless otherwise noted)						
Symbol	**Parameter**	**Conditions**	**Min**	**Typ**	**Max**	**Units**
Off Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS} = 0V , I_D = 250uA	20			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 20V , V_{GS} = 0V			1	uA
I_{GSS}	Gate-Body Leakage Current	V_{GS} = ±8V, V_{DS} = 0V			±100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS} , I_D = 250uA	0.5	0.75	1.2	V
$R_{DS(ON))}$	Drain-Source On-State Resistance	V_{GS} = 4.5V , I_D = 3.0A		48	60	mΩ
		V_{GS} = 2.5V , I_D = 1.5A		75	80	mΩ
g_{FS}	Forward Transconductance	V_{DS} = 2.5V , I_D = 3.0A		10		S
Drain-Source Diode Characteristics						
V_{SD}	Diode Forward Voltage	V_{GS} = 0V , I_S = 1.0A			1.2	V
I_S	Maximum Body-Diode Continuous Current				2.0	A
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS} = 10V , V_{GS} = 0V f = 1.0MHz		305		pF
C_{oss}	Output Capacitance			65		pF
C_{rss}	Reverse Transfer Capacitance			40		pF
Q_g	Total Gate Charge	V_{DS} = 10V , I_D = 3.0A V_{GS} =4.5V		2.5		nC
Q_{gs}	Gate-Source Charge			0.4		nC
Q_{gd}	Gate-Drain Charge			0.9		nC
$t_{D(ON)}$	Turn-On Delay Time	V_{DD} = 10V , ID = 1A V_{GS} = 4.5 V R_{GEN} = 6 ohm		6		ns
t_r	Turn-On Rise Time			5.5		ns
$t_{D(OFF)}$	Turn-Off Delay Time			9.2		ns
t_f	Turn-Off Fall Time			1.5		ns

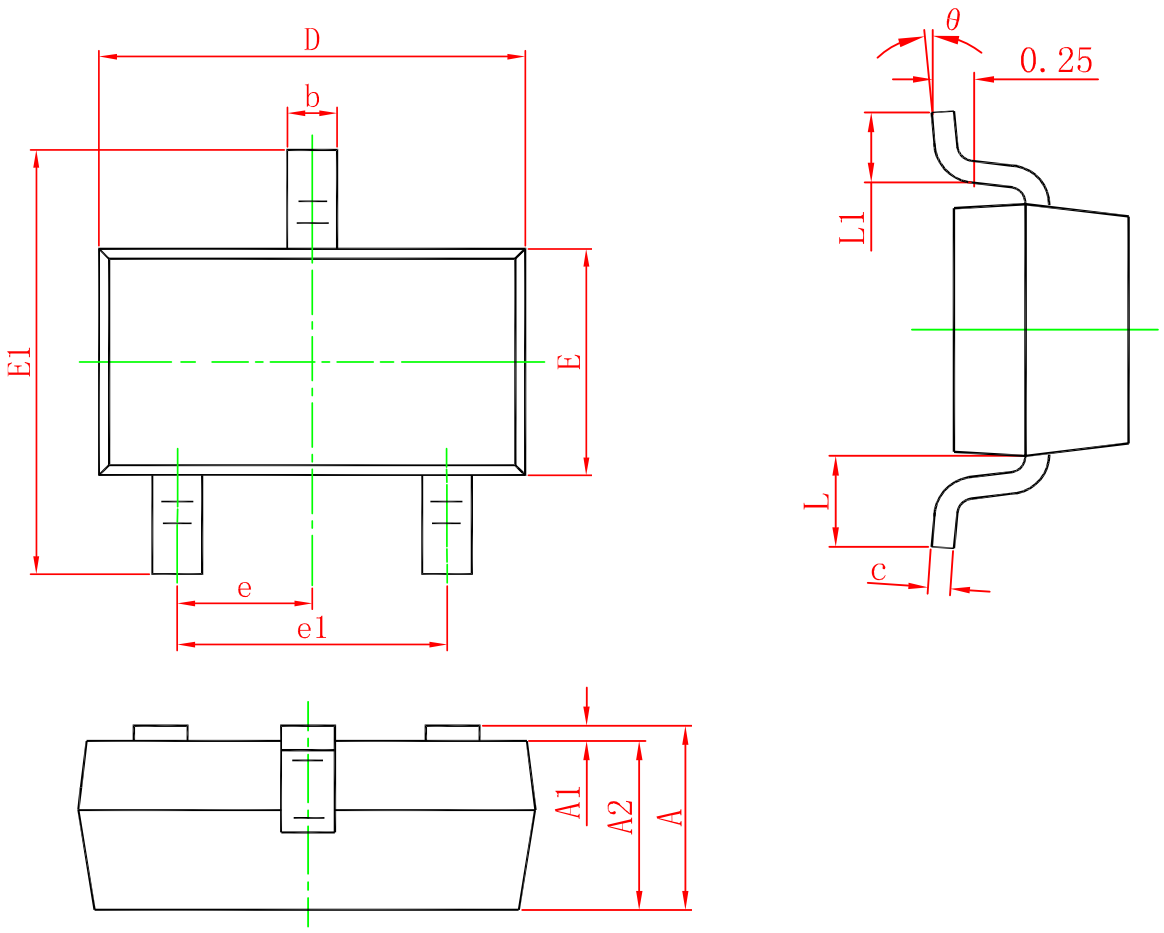
a. Repetitive rating, Pulse width limited by junction temperature $T_{J(MAX)}$=150 ºC. Ratings are based on low frequency and duty cycles to keep initial T_J=25 ºC

b. The power dissipation P_D is based on $T_{J(MAX)}$=150 ºC , using≤10s junction-to-ambient thermal resistance.

c. The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A = 25°C. The value in any given application depends on the user's specific board design.

d. The $R_{\theta JA}$ is the sum of the thermal impedence from junction to lead $R_{\theta JL}$ and lead to ambient.

SOT-23 Package Outline



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.		
θ	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)