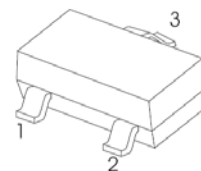


SI2301AP-Channel 20-V(D-S) MOSFET

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-20V	85 mΩ@-4.5V	-2.8A
	110mΩ@-2.5V	

SOT - 23



1. GATE
2. SOURCE
3. DRAIN

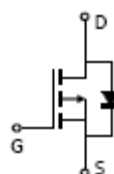
FEATURE

- TrenchFET Power MOSFET

APPLICATION

- Load Switch for Portable Devices
- DC/DC Converter

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}	± 12	
Continuous Drain Current	I_D	-2.8	A
Pulsed Drain Current	I_{DM}	-12	
Continuous Source-Drain Diode Current	I_S	-0.72	
Maximum Power Dissipation	P_D	0.4	W
Thermal Resistance from Junction to Ambient($t \leq 5s$)	$R_{\theta JA}$	125	$^{\circ}\text{C/W}$
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature	T_{stg}	-55 ~+150	

T_a=25 °C unless otherwise specified

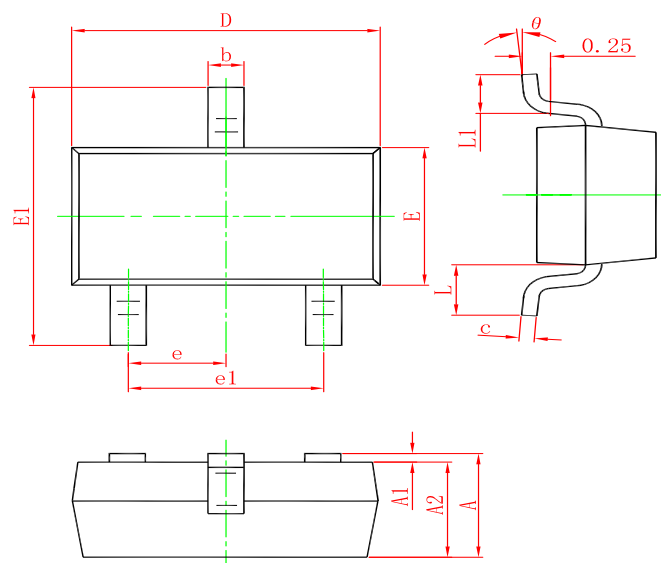
Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Static						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =-250μA	-20			V
Gate-source threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-0.4		-1	
Gate-source leakage	I _{GSS}	V _{DS} =0V, V _{GS} =±8V			±100	nA
Zero gate voltage drain current	I _{DSS}	V _{DS} =-20V, V _{GS} =0V			-1	μA
Drain-source on-state resistance ^a	R _{DS(on)}	V _{GS} =-4.5V, I _D =-2.8A			85	mΩ
		V _{GS} =-2.5V, I _D =-2.0A			110	
Forward transconductance ^a	g _{fs}	V _{DS} =-5V, I _D =-2.8A		6.5		S
Dynamic ^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
		V _{DS} =-10V, V _{GS} =-2.5V, I _D =-3A		3.3	6	
Gate-source charge	Q _{gs}			0.7		
Gate-drain charge	Q _{gd}			1.3		
Gate resistance	R _g	f =1MHz		6.0		Ω
Turn-on delay time	t _{d(on)}	V _{DD} =-10V, R _L =10Ω, I _D =-1A, V _{GEN} =-4.5V, R _g =1Ω		11	20	ns
Rise time	t _r			35	60	
Turn-off delay time	t _{d(off)}			30	50	
Fall time	t _f			10	20	
Drain-source body diode characteristics						
Continuous source-drain diode current	I _S	T _C =25°C			-1.3	A
Pulse diode forward current ^a	I _{SM}				-10	
Body diode voltage	V _{SD}	I _S =-0.7A		-0.8	-1.2	V

Notes :

a. Pulse Test : Pulse Width < 300μs, Duty Cycle ≤ 2%.

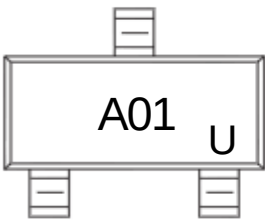
b. Guaranteed by design, not subject to production testing.

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°

Marking



Ordering information

Order code	Package	Baseqty	Deliverymode
SI2301A	SOT-23	3000	Tape and reel