

P-Ch 20V Fast Switching MOSFETs

- ★ Green Device Available
- ★ Super Low Gate Charge
- ★ Excellent Cdv/dt effect decline
- ★ Advanced high cell density Trench technology

Product Summary



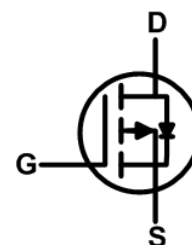
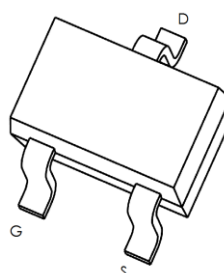
BVDSS	RDSON	ID
-20V	70mΩ	-1.8A

Description

The SL2301W is the high cell density trenched P-ch MOSFETs, which provides excellent RDSON and efficiency for most of the small power switching and load switch applications.

The SL2301W meet the RoHS and Green product requirement with full function reliability approved.

SOT323 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-20	V
V_{GS}	Gate-Source Voltage	± 12	V
$I_D@T_A=25^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ -4.5\text{V}^1$	-1.8	A
$I_D@T_A=70^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ -4.5\text{V}^1$	-	A
I_{DM}	Pulsed Drain Current ²	-5.6	A
$P_D@T_A=25^\circ\text{C}$	Total Power Dissipation ³	0.57	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ\text{C}$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient ¹	---	220	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance Junction-Case ¹	---	---	$^\circ\text{C/W}$

Electrical Characteristics ($T_J=25^\circ\text{C}$, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=-250\mu A$	-20	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance ²	$V_{GS}=-4.5V$, $I_D=-1A$	---	70	90	m Ω
		$V_{GS}=-2.5V$, $I_D=-0.5A$	---	100	120	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=-250\mu A$	-0.4	-0.7	-1.0	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=-16V$, $V_{GS}=0V$, $T_J=25^\circ\text{C}$	---	---	-1	μA
		$V_{DS}=-16V$, $V_{GS}=0V$, $T_J=55^\circ\text{C}$	---	---	-5	
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 8V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=-5V$, $I_D=-1.4A$	8	---	---	S
Q_g	Total Gate Charge (-4.5V)	$V_{DS}=-10V$, $V_{GS}=-4.5V$, $I_D=-1.4A$	---	8.2	---	nC
Q_{gs}	Gate-Source Charge		---	1.1	---	
Q_{gd}	Gate-Drain Charge		---	2.0	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=-10V$, $V_{GS}=-4.5V$, $R_G=3\Omega$ $I_D=-1.4A$	---	7.0	---	ns
T_r	Rise Time		---	32	---	
$T_{d(off)}$	Turn-Off Delay Time		---	49	---	
T_f	Fall Time		---	55	---	
C_{iss}	Input Capacitance	$V_{DS}=-10V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	350	---	pF
C_{oss}	Output Capacitance		---	75	---	
C_{rss}	Reverse Transfer Capacitance		---	67	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current ^{1,4}	$V_G=V_D=0V$, Force Current	---	---	-1.8	A
V_{SD}	Diode Forward Voltage ²	$V_{GS}=0V$, $I_S=-0.3A$, $T_J=25^\circ\text{C}$	---	---	-1.2	V

Note :

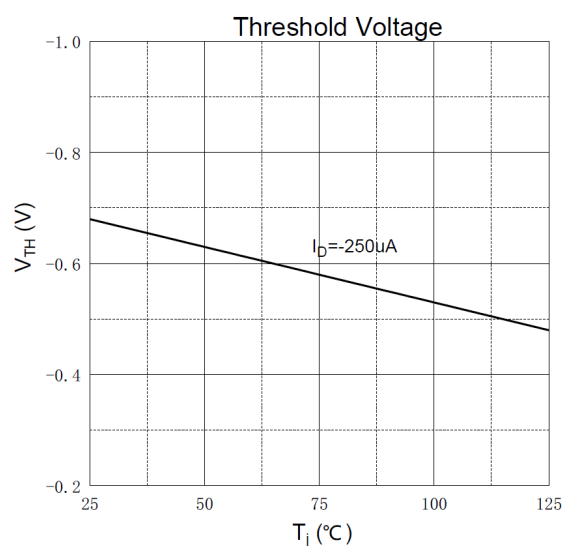
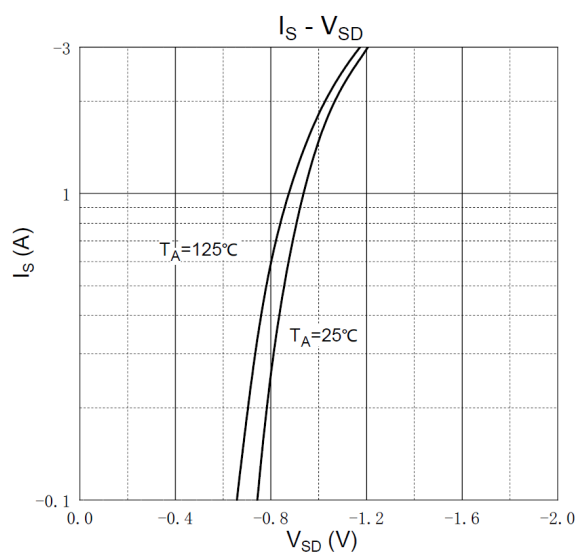
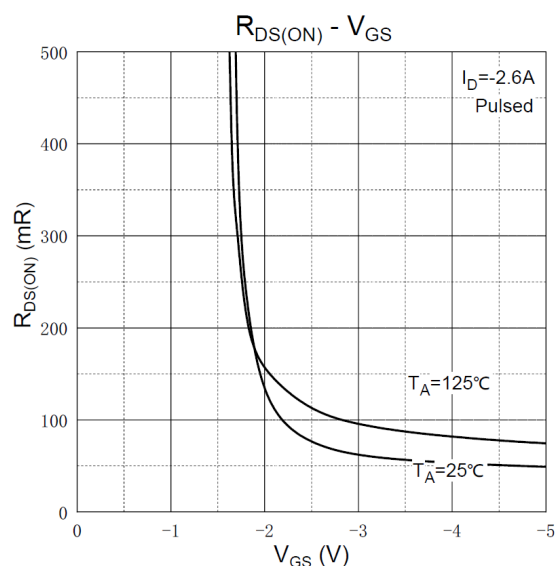
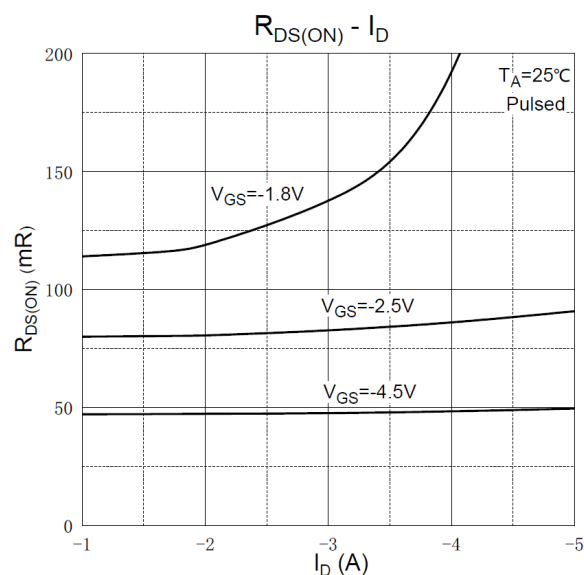
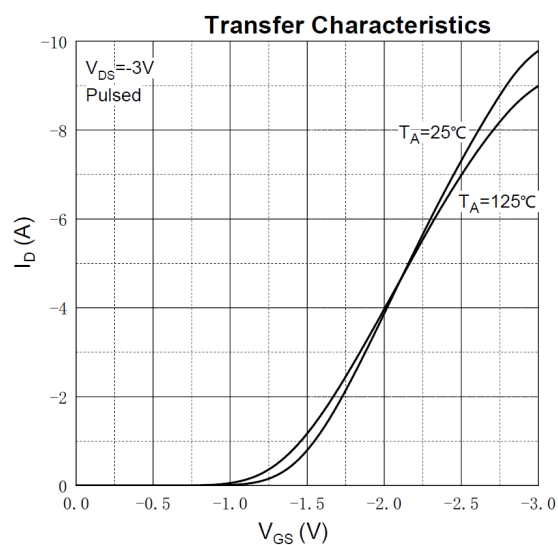
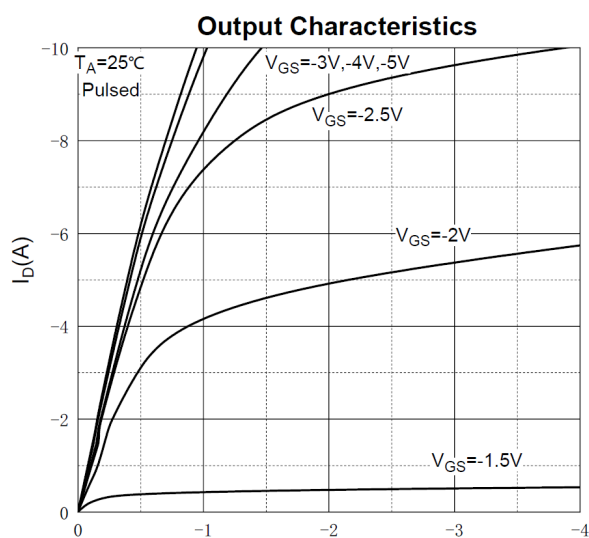
1.The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper.

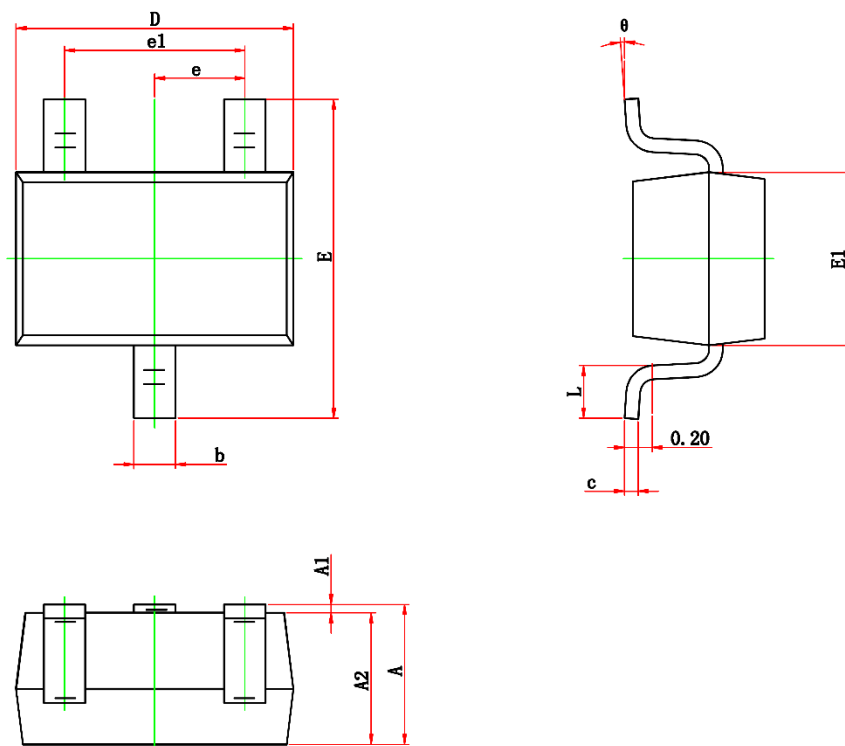
2.The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$

3.The power dissipation is limited by 150°C junction temperature

4.The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.

Typical Characteristics



Package Mechanical Data-SOT323


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.050	0.150	0.002	0.006
D	1.900	2.200	0.075	0.087
E	2.000	2.450	0.079	0.096
E1	1.150	1.350	0.045	0.053
e	0.650TYP.		0.026TYP.	
e1	1.200	1.400	0.047	0.055
L	0.200	0.460	0.008	0.018
θ	0°	8°	0°	8°