

SOT-23 Plastic-Encapsulate MOSFETS

SI2301 / BY2301

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

V(BR)DSS	RDS(on)MAX	ID
-20 V	95mΩ@-4.5V	-2.8A
	130mΩ@-2.5V	

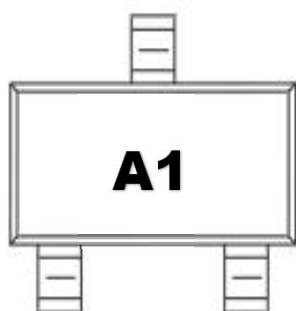
FEATURE

※ TrenchFET Power MOSFET

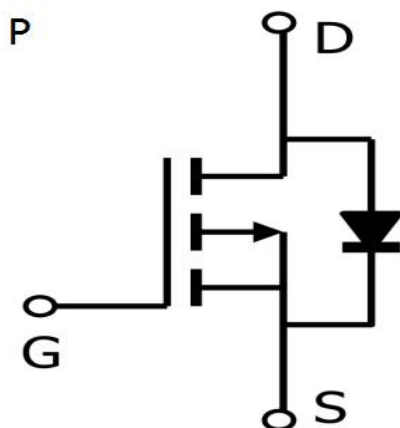
APPLICATION

※ Load Switch for Portable Devices
※ DC/DC Converter

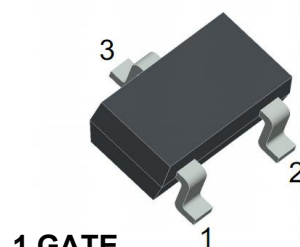
MARKING



Equivalent Circuit



SOT-23


1.GATE
2.SOURCE
3.DRAIN

Maximum ratings (Ta=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	VDS	-20	V
Gate-Source Voltage	VGS	±12	
Continuous Drain Current	ID	-2.8	A
Pulsed Diode Current	IDM	-10	
Continuous Source-Drain Current(Diode Conduction)	IS	-1.3	
Power Dissipation	PD	1.25	W
Thermal Resistance from Junction to Ambient (t≤5s)	RθJA	150	℃/W
Operating Junction	TJ	150	℃
Storage Temperature	TSTG	-55~+150	℃

MOSFET ELECTRICAL CHARACTERISTICS

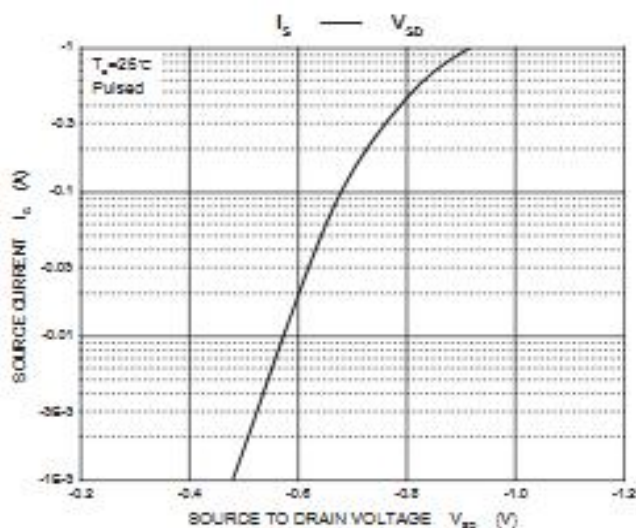
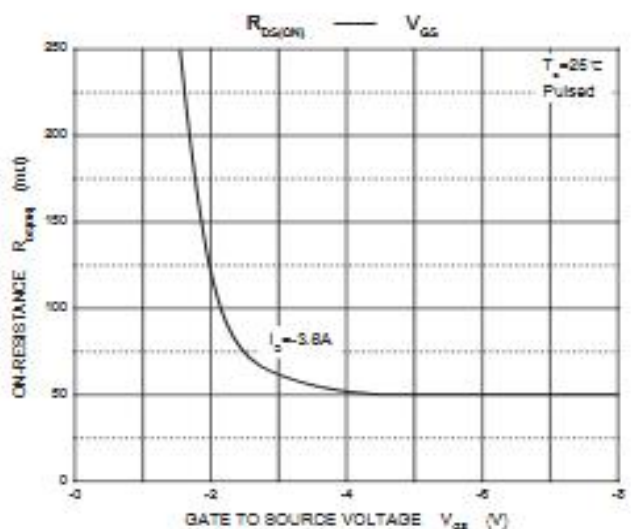
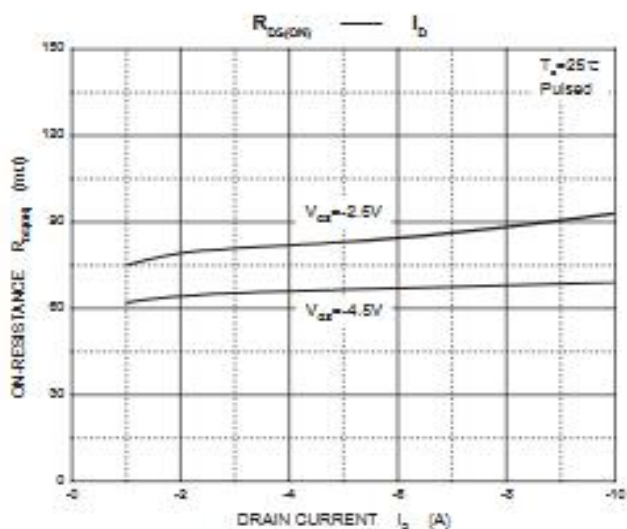
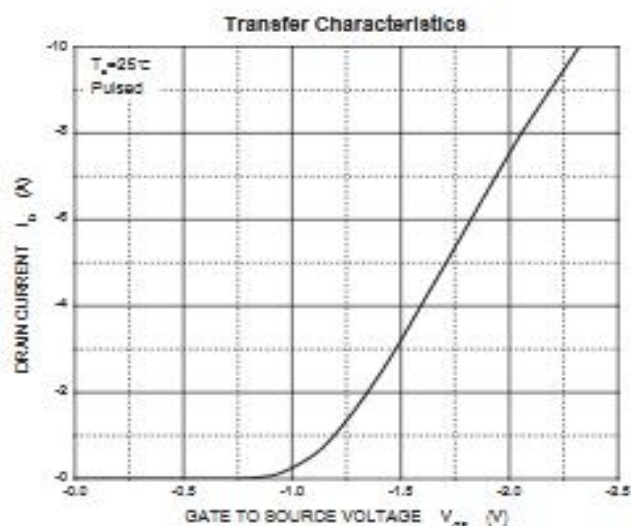
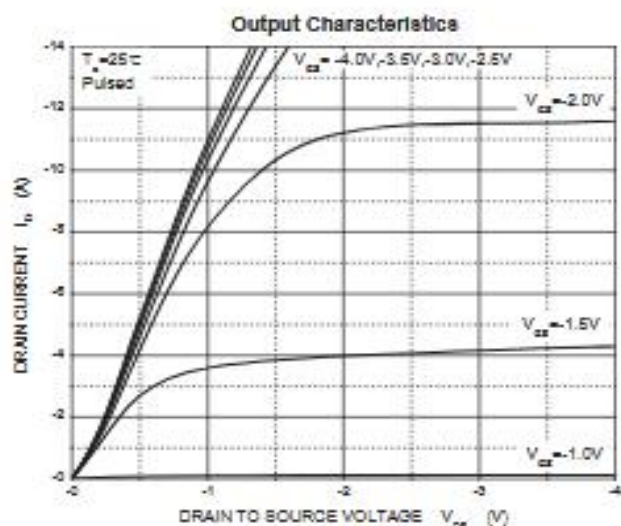
Static Electrical Characteristics (Ta = 25 °C Unless Otherwise Noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Drain-source breakdown voltage	V(BR)DSS	VGS = 0V, ID =-250μA	-20			V
Gate-source threshold voltage	VGS(th)	VDS =VGS, ID =-250μA	-0.4		-1	V
Gate-source leakage	IGSS	VDS =0V, VGS =±12V			±100	nA
Zero gate voltage drain current	IDSS	VDS = -16V, VGS =0V		-0.7	-1	μA
Drain-source on-state resistancea	RDS(on)	VGS =-4.5V, ID = -2.8A		70	95	mΩ
		VGS =-2.5V, ID =-2.0A		87	130	mΩ
Forward transconductancea	gfs	VDS =-4.5V, ID =-2.8A		4		S
Diode forward voltage	VSD	IS=-1.25A,VGS=0V		-0.8	-1.3	V
Dynamic						
Input capacitance	Ciss	VDS =-6V, VGS =0V, f=1MHz		589		pF
Output capacitance	Coss			92		pF
Reverse transfer capacitanceb	Crss			68		pF
Total gate charge	Qg	VDS =-6V,VGS =-4.5V, ID =-2.8A		5.5	10	nC
Gate-source charge	Qgs			0.7		nC
Gate-drain charge	Qgd			1.3		nC
Gate resistance	Rg	f=1MHz		6.0		Ω
Switchingb						
Turn-on delay time	td(on)	VDD=-6V RL=6Ω, ID ≈-1A, VGEN=-4.5V,Rg=6Ω		10	20	ns
Rise time	tr			35	60	ns
Turn-off delay time	td(off)			30	50	ns
Fall time	tf			10	20	ns
Drain-source body diode characteristics						
Continuous Source-Drain Diode Current	IS	Tc=25℃			-1.3	A
Pulsed Diode forward Curren	ISM				-10	A

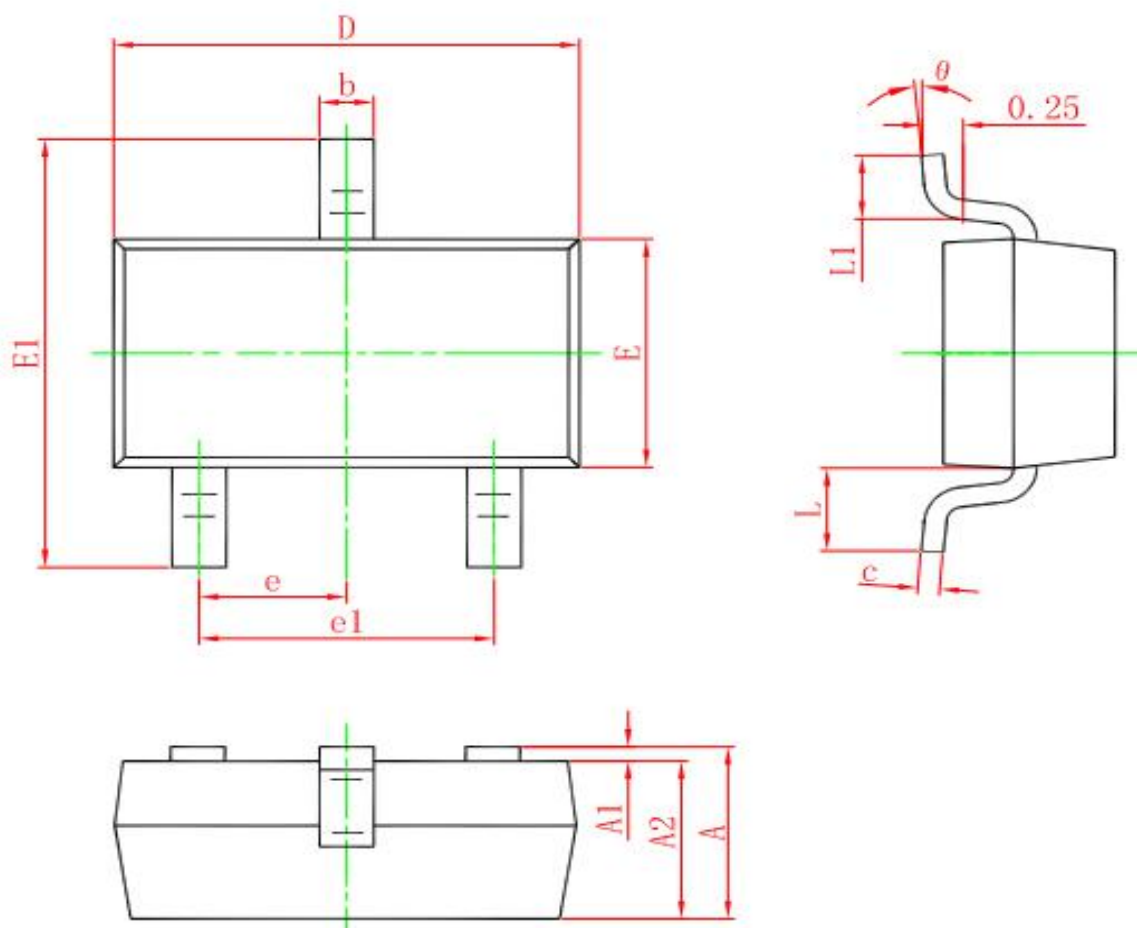
Note :

1. Repetitive Rating : Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t < 5 sec.
3. Pulse Test : Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production testing.

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS



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°