



**SOT-23 Plastic-Encapsulate MOSFETS**

**MK2301C**

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

V(BR)DSS	RDS(on)MAX	ID
-20 V	120mΩ@-4.5V	-2.5A
	150mΩ@-2.5V	

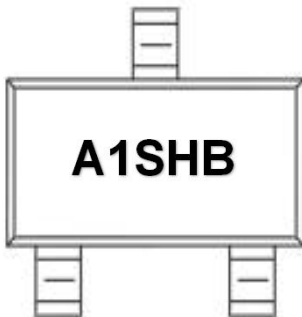
**FEATURE**

- ※ TrenchFET Power MOSFET
- ※ Advanced trench process technology

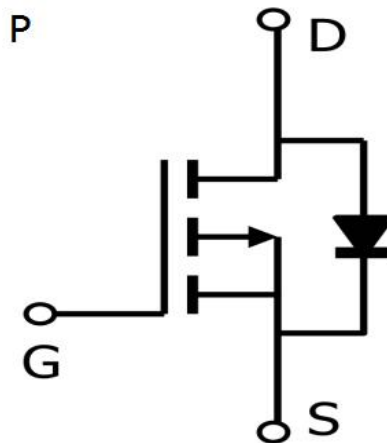
**APPLICATION**

- ※ Load Switch for Portable Devices
- ※ DC/DC Converter

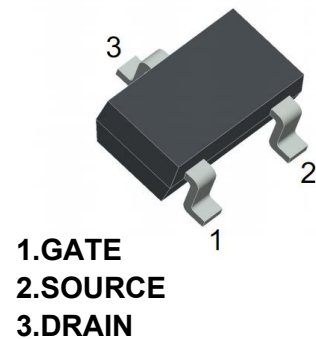
**MARKING**



**Equivalent Circuit**



**SOT-23**



**Maximum ratings ( Ta=25°C unless otherwise noted)**

Parameter	Symbol	Value	Unit
Drain-Source Voltage	VDS	-20	V
Gate-Source Voltage	VGS	±12	
Continuous Drain Current	ID	-2.5	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	°C/W
Operating Junction	TJ	150	°C
Storage Temperature	TSTG	-55~+150	°C



**MOSFET ELECTRICAL CHARACTERISTICS**

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

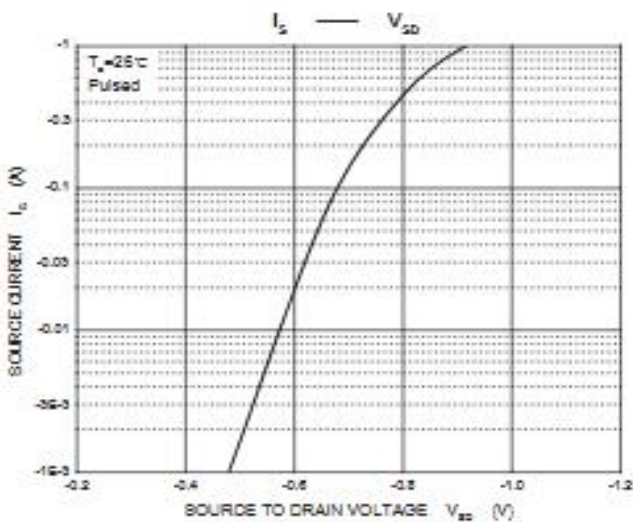
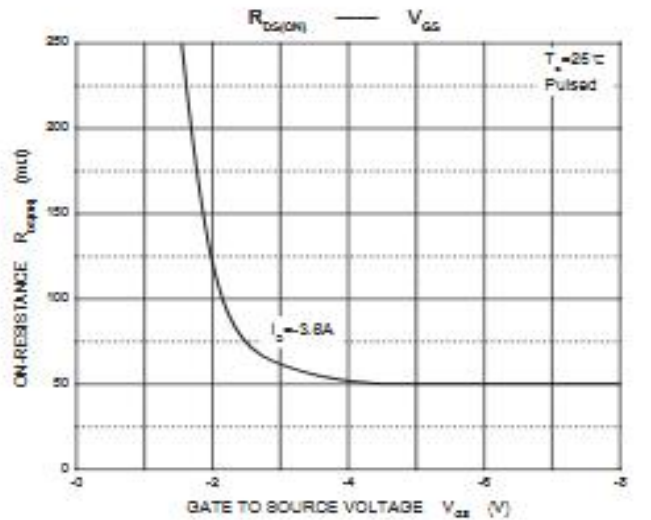
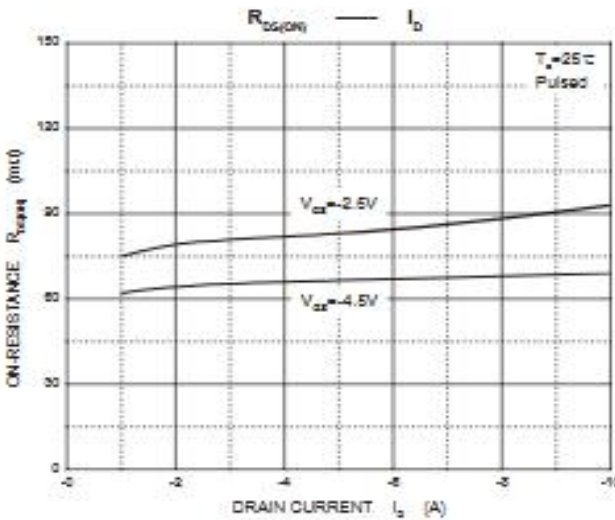
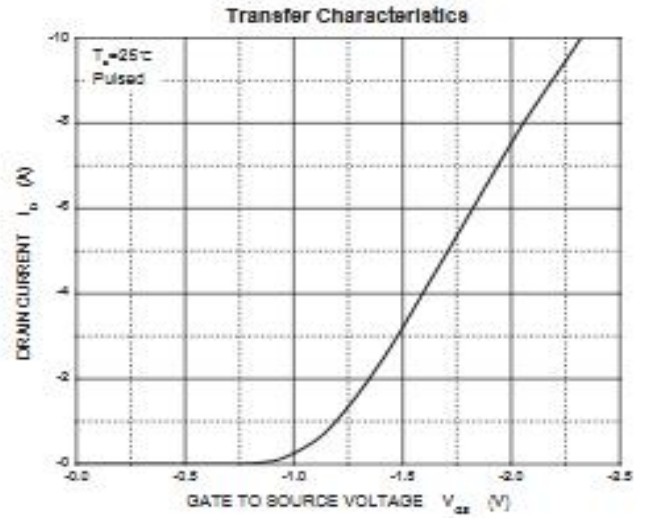
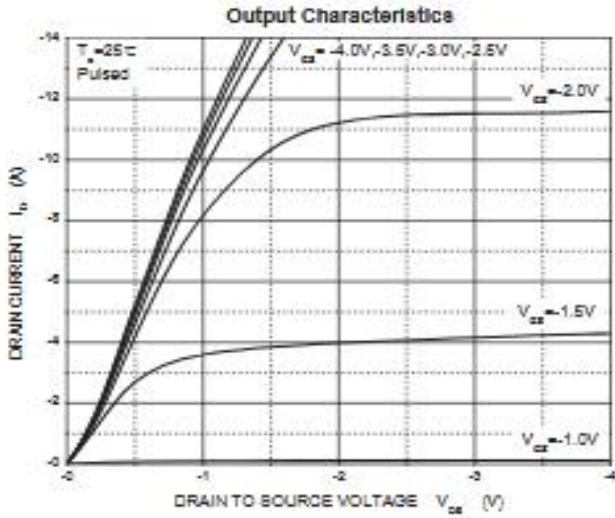
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Static</b>						
Drain-source breakdown voltage	V(BR)DSS	VGS = 0V, ID = -250μA	-20			V
Gate-source threshold voltage	VGS(th)	VDS = VGS, ID = -250μA	-0.4		-1	V
Gate-source leakage	IGSS	VDS = 0V, VGS = ±12V			±100	nA
Zero gate voltage drain current	IDSS	VDS = -18V, VGS = 0V			-1	μA
Drain-source on-state resistancea	RDS(on)	VGS = -4.5V, ID = -2.5A		98	120	mΩ
		VGS = -2.5V, ID = -2.0A		121	150	mΩ
Forward transconductancea	gfs	VDS = -4.5V, ID = -2.5A		4		S
Diode forward voltage	VSD	IS = -1.25A, VGS = 0V		-0.8	-1.1	V
<b>Dynamic</b>						
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 = -2.5A		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
<b>Switchingb</b>						
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
<b>Drain-source body diode characteristics</b>						
Continuous Source-Drain Diode Current	IS	Tc = 25°C			-1.3	A
Pulsed Diode forward Current	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.

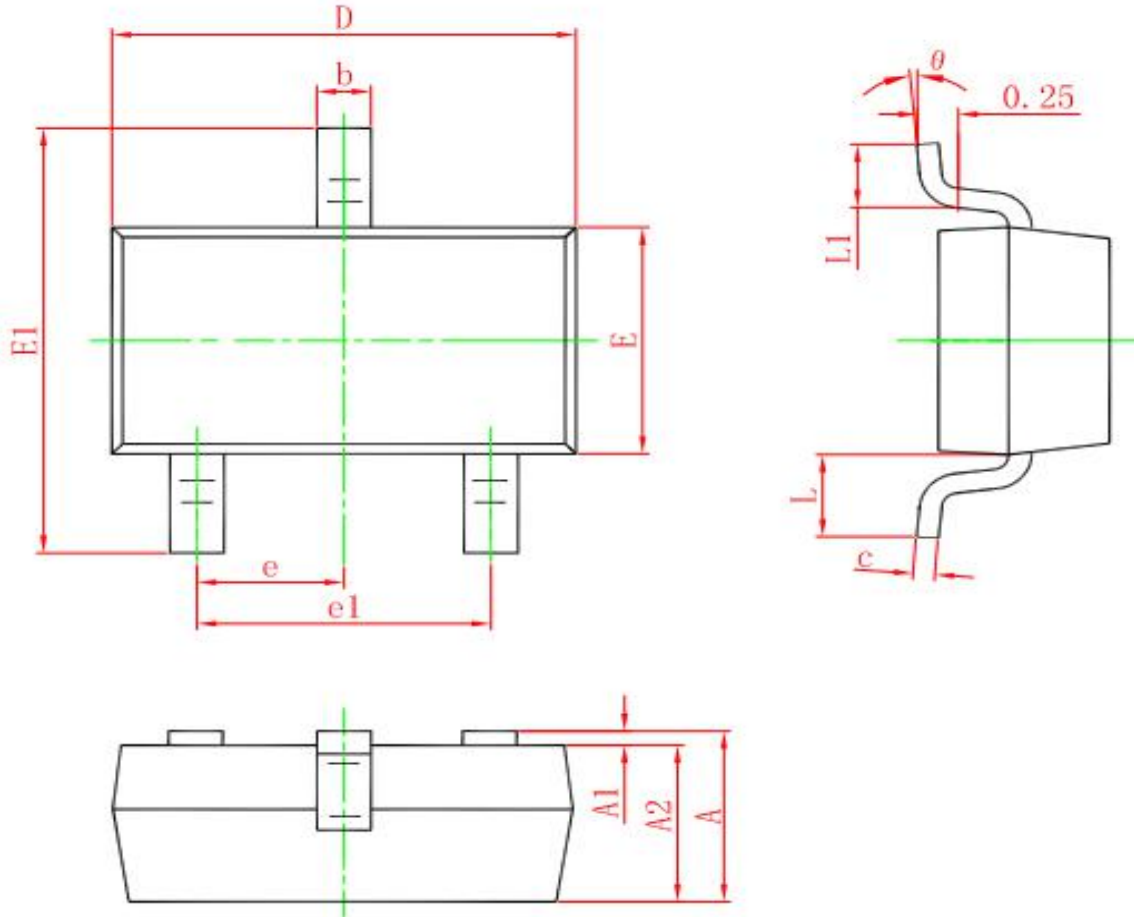


TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS





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°