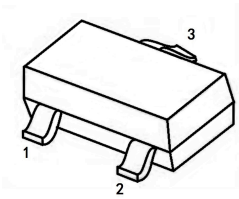
KY2301H

-20V P-Channel Mosfet

FEATURES

- $R_{DS(ON)}$ ≤ 110mΩ(76mΩ Typ.) @V_{GS}=-4.5V
- $R_{DS(ON)}$ ≤ 140mΩ(102mΩ Typ.) @V_{GS}=-2.5V

SOT-23

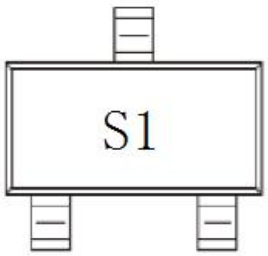


1. GATE
2. SOURCE
3. DRAIN

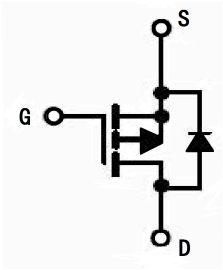
APPLICATIONS

- Load Switch for Portable
- Devices DC/DC Converter

MARKING



P-CHANNEL MOSFET



MAXIMUM RATINGS (T_a=25°C unless otherwise noted)

Symbol	Parameter	Max.	Units
V_{DSS}	Drain-Source Voltage	-20	V
V_{GSS}	Gate-Source Voltage	±12	V
I_D	Continuous Drain Current	-3	A
I_{DM}	Pulsed Drain Current note1	-12	A
P_D	Power Dissipation	0.4	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient (t ≤5s)	312	℃/W
T_J	Junction Temperature	150	℃
T_{STG}	Storage Temperature Range	-55 to +150	℃

MOSFET ELECTRICAL CHARACTERISTICS Ta=25 °C unless otherwise specified

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V,I_D= -250μA	-20	-24.5	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = -20V, V_{GS} = 0V,	-	-	-1	μA
I_{GSS}	Gate to Body Leakage Current	V_{DS} =0V, V_{GS} = ±8V	-	-	±100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}= V_{GS}, I_D= -250μA	-0.4	-0.6	-1.0	V
$R_{DS(on)}$	Static Drain-Source on-Resistance note1	V_{GS} =-4.5V, I_D =-1A	-	76	110	mΩ
		V_{GS} =-2.5V, I_D =-1A	-	102	140	
Dynamic Characteristics note2						
C_{iss}	Input Capacitance	V_{DS} =-10V, V_{GS} = 0V, f = 1.0MHz	-	405	-	pF
C_{oss}	Output Capacitance		-	75	-	pF
C_{rss}	Reverse Transfer Capacitance		-	55	-	pF
Q_g	Total Gate Charge	V_{DS} = -10V, I_D = -3A, V_{GS} = -2.5V	-	-	6	nC
Q_{gs}	Gate-Source Charge		-	0.7	-	nC
Q_{gd}	Gate-Drain(“Miller”) Charge		-	1.3	-	nC
Switching Characteristics note2						
$t_{d(on)}$	Turn-on Delay Time	V_{DD} = -10V, I_D = -1A, R_{GEN}=1Ω,V_{GS}=-4.5V	-	11	20	ns
t_r	Turn-on Rise Time		-	35	60	ns
$t_{d(off)}$	Turn-off Delay Time		-	30	50	ns
t_f	Turn-off Fall Time		-	10	20	ns
Drain-Source Diode Characteristics and Maximum Ratings						
V_{SD}	Drain to Source Diode Forward Voltage	V_{GS} = 0V, I_S = -0.7A	-	-0.75	-1.2	V

Notes: 1. Pulse Test: Pulse width ≤ 300μs, Duty Cycle ≤ 2%

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

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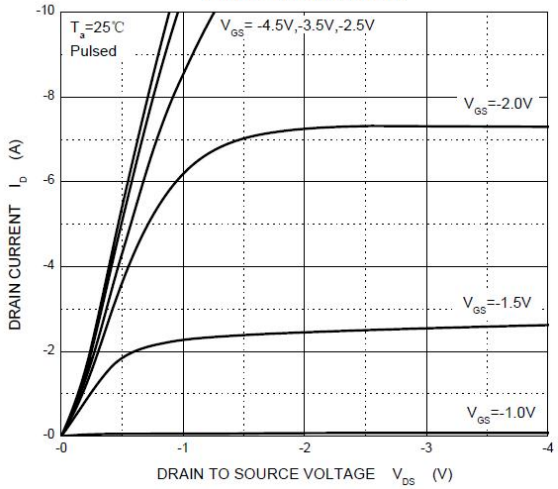
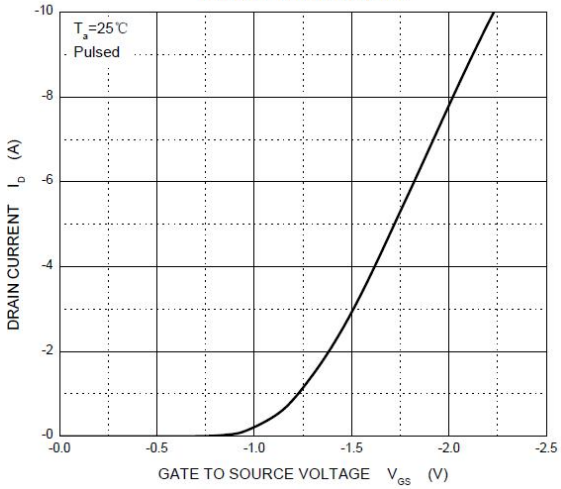
TYPICAL PERFORMANCE CHARACTERISTICS

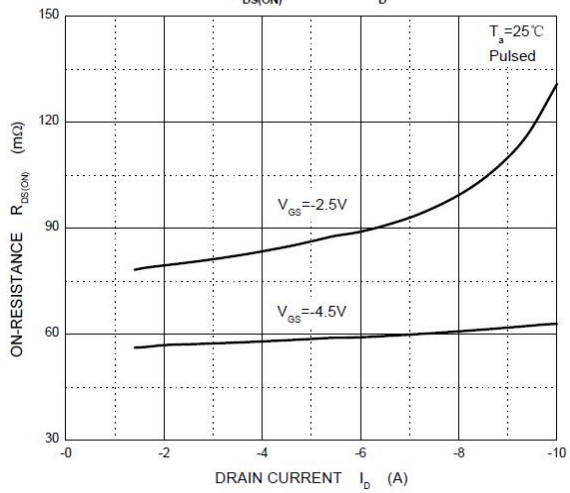
Output Characteristics



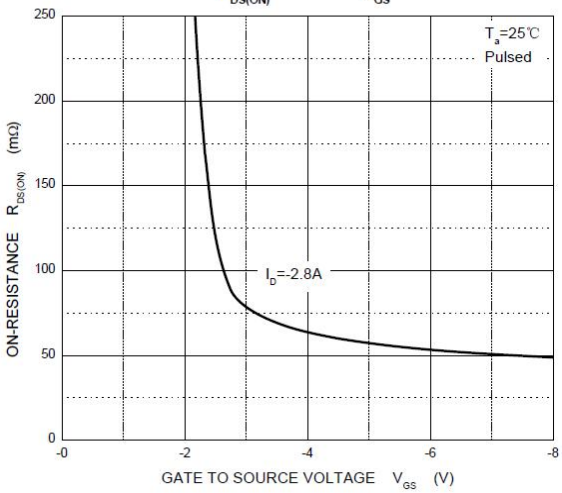
Transfer Characteristics



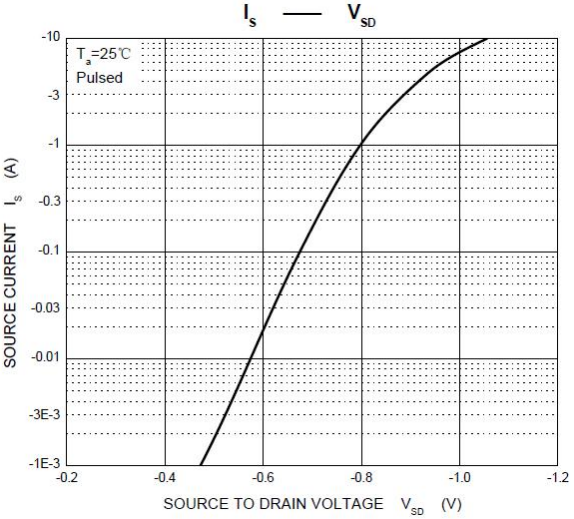
RDS(ON) — ID



RDS(ON) — VGS



IS — VSD



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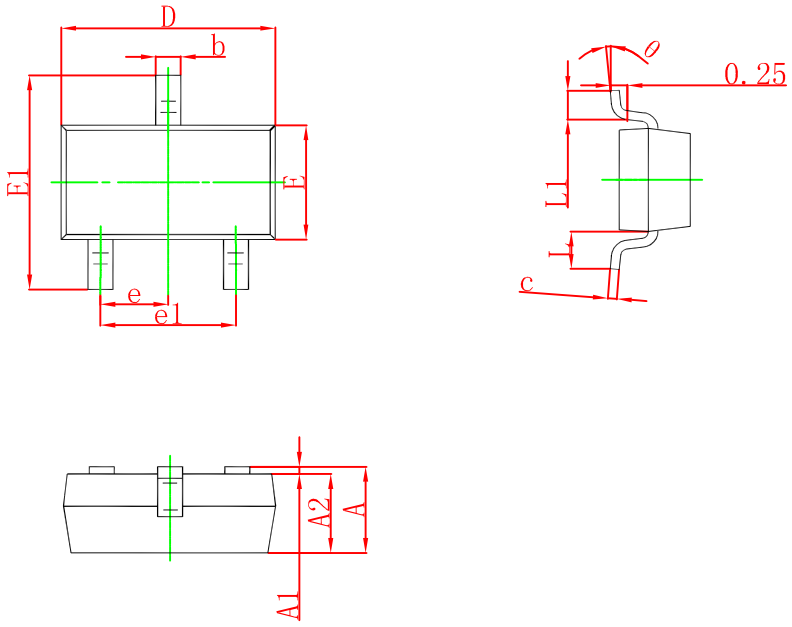
SOT-23 PACKAGE OUTLINE DRAWING



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°