JST2301H

-20V,-3A
P-Channel Mosfet

FEATURES

RDS(ON)≤ 110mΩ @VGS=-4.5V

RDS(ON)≤ 140mΩ @VGS=-2.5V

APPLICATIONS

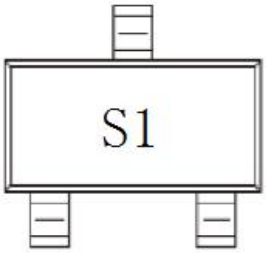
Load Switch for Portable Devices

DC/DC Converter

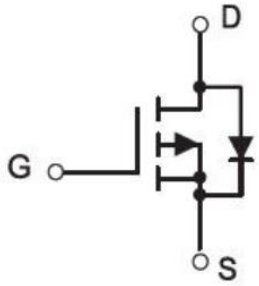
SOT-23

1. GATE
2. SOURCE
3. DRAIN

MARKING



P-CHANNEL MOSFET



Maximum ratings (T_a=25℃ 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	-3	A
Pulsed Drain Current	I_{DM}	-12	
Maximum Power Dissipation	P_D	0.4	W
Thermal Resistance from Junction to Ambient(t ≤5s)	$R_{\theta JA}$	312	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{stg}	-55 ~+150	

MOSFET ELECTRICAL CHARACTERISTICS T_a=25 ℃ 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	-24.5		V
Gate-source threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-0.4	-0.6	-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 =-1A		76	110	mΩ
		V_{GS} =-2.5V, I_D =-1A		102	140	
Body diode voltage	V_{SD}	I_S=-0.7A		-0.75	-1.2	V
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}=-2.5V ID=-3A			6	nC
Gate-source charge	Q_{gs}			0.7		
Gate-drain charge	Q_{gd}			1.3		
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	

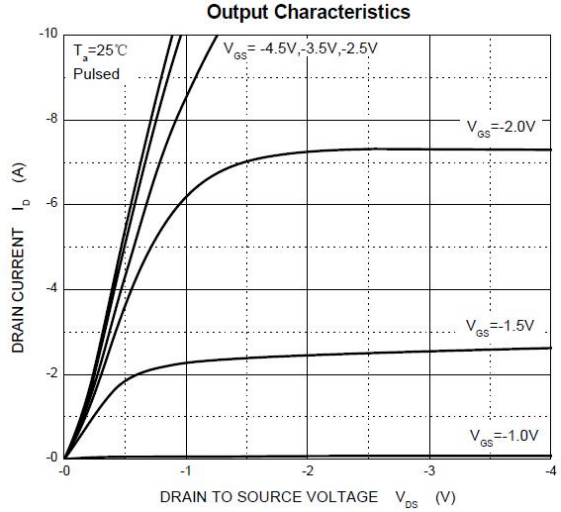
Notes :

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

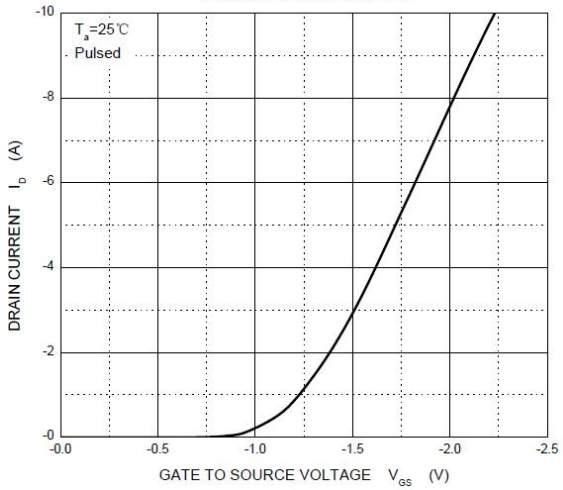
b. Guaranteed by design, not subject to production testing.

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

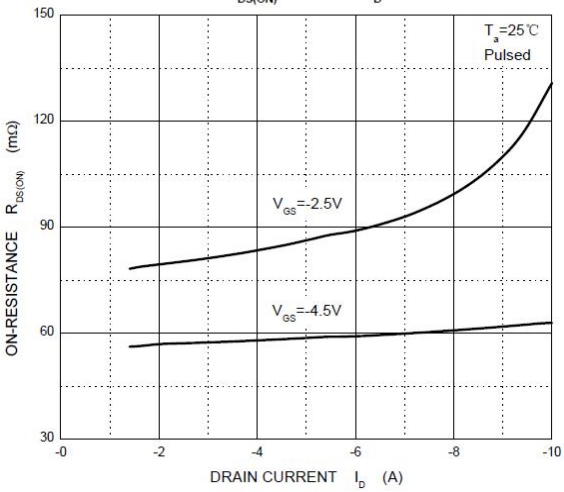
Output Characteristics



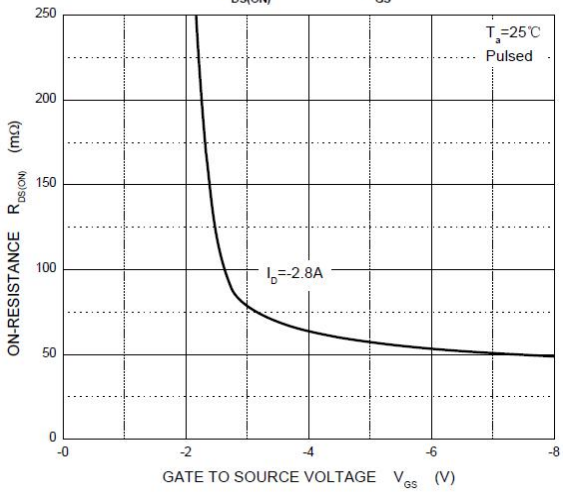
Transfer Characteristics



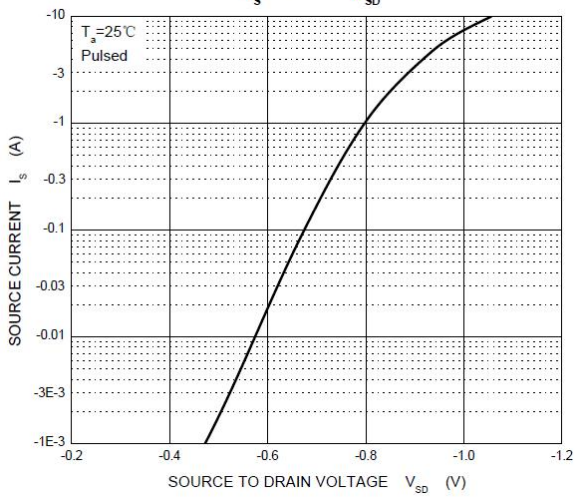
$R_{DS(ON)}$ — I_D



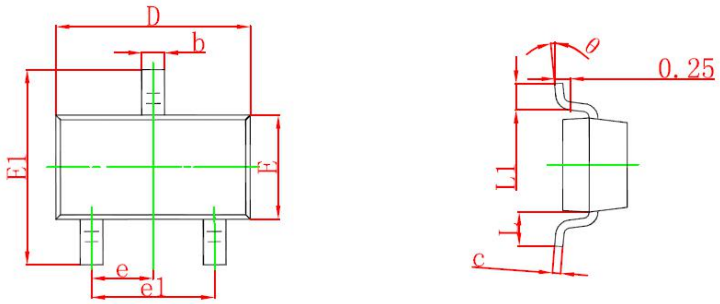
$R_{DS(ON)}$ — V_{GS}

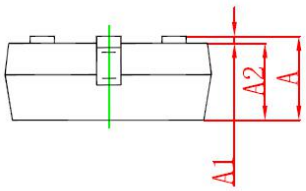


I_S — V_{SD}



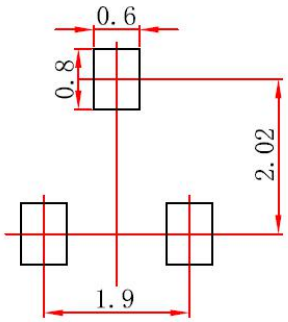
SOT-23 package





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°

SOT-23 Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.

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