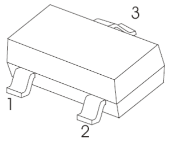
扬晶
YANG JING

SHENZHEN YANGJING MICROELECTRONICS CO.,LTD

SOT-23 Plastic-Encapsulate MOSFETS

SI2301 P-Channel 20-V(D-S) MOSFET

SOT-23



1. GATE
2. SOURCE
3. DRAIN

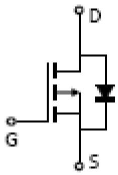
FEATURE

TrenchFET Power MOSFET

APPLICATIONS

- Load Switch for Portable Devices
- DC/DC Converter

MARKING: A1SHB



Maximum ratings (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	±8	
Continuous Drain Current	I_D	-2.3	A
Pulsed Drain Current	I_{DM}	-10	
Continuous Source-Drain Diode Current	I_S	-0.72	
Maximum Power Dissipation	P_D	0.35	W
Thermal Resistance from Junction to Ambient(t ≤5s)	$R_{\theta JA}$	357	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{stg}	-55 ~+150	

Electrical characteristics (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Static						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =-250μA	-20			V
Gate-source threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-0.4		-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 =-2.8A		0.090	0.112	Ω
		V_{GS} =-2.5V, I_D =-2.0A		0.110	0.142	
Forward transconductance [a]	g_{fs}	V_{DS} =-5V, I_D =-2.8A		6.5		S
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} =-4.5V,I_D =-3A		5.5	10	nC
		V_{DS} =-10V,V_{GS} =-2.5V,I_D =-3A		3.3	6	
Gate-source charge	Q_{gs}			0.7		
Gate-drain charge	Q_{gd}			1.3		
Gate resistance	R_g	f =1MHz		6.0		Ω
Turn-on delay time	$t_{d(on)}$	V_{DD}=-10V, R_L=10Ω, I_D =-1A, V_{GEN}=-4.5V,Rg=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	
Drain-source body diode characteristics						
Continuous source-drain diode current	I_S	T_C=25℃			-1.3	A
Pulse diode forward current [a]	I_{SM}				-10	
Body diode voltage	V_{SD}	I_S=-0.7A		-0.8	-1.2	V

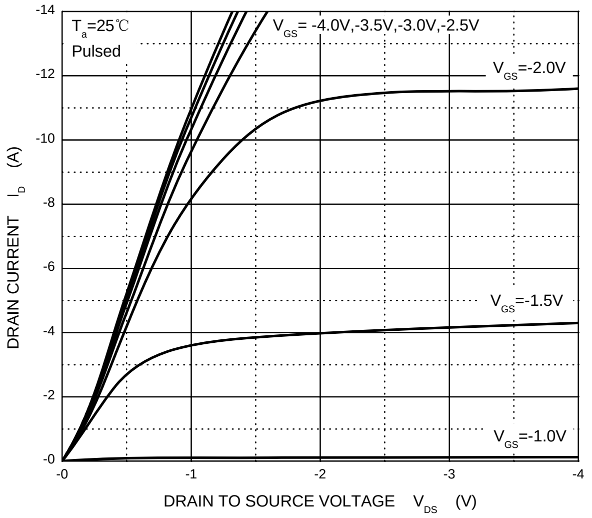
Notes :

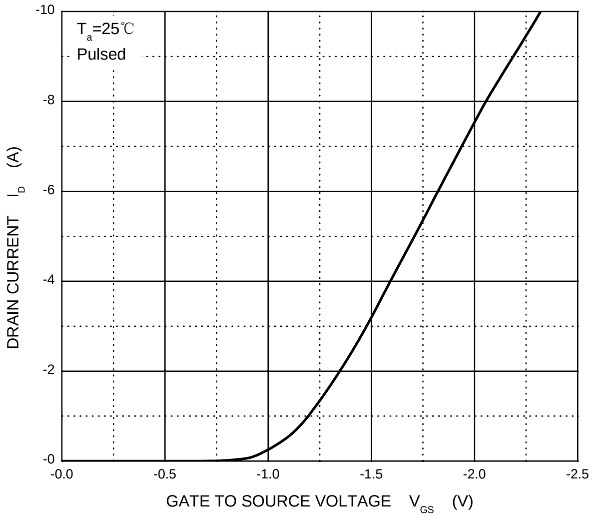
a.Pulse Test : Pulse Width < 300μs, Duty Cycle ≤2%.

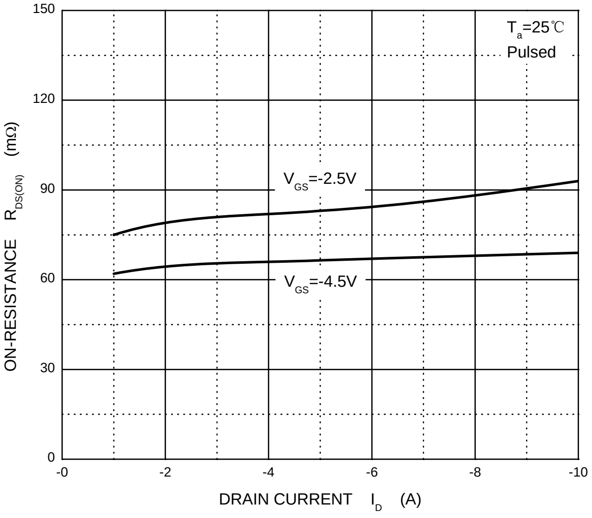
b.Guaranteed by design, not subject to production testing.

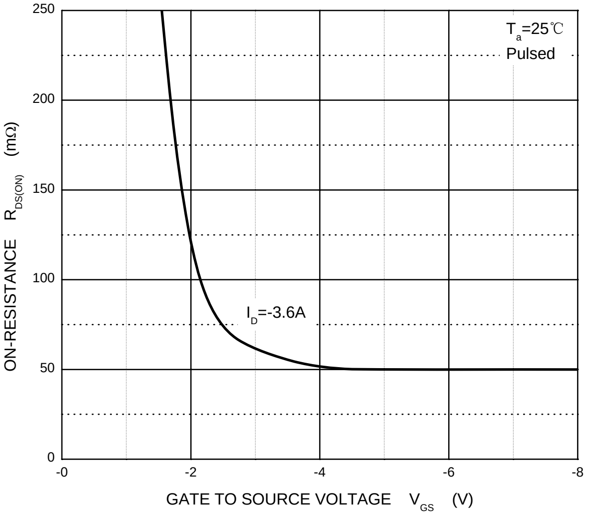
Typical Characteristics

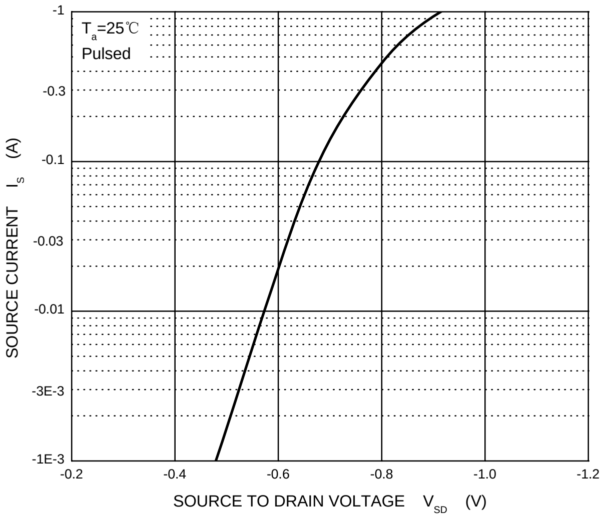
SI2301


Output Characteristics


Transfer Characteristics


$R_{DS(ON)}$ —— I_D


$R_{DS(ON)}$ —— V_{GS}


I_S —— V_{SD}