SOT-23 Plastic-Encapsulate MOSFETS

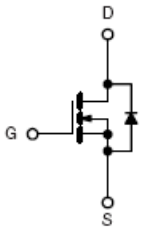
N-Channel 20-V(D-S) MOSFET

FEATURE

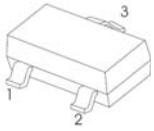
TrenchFET Power MOSFET

APPLICATIONS

- Load Switch for Portable Devices
- DC/DC Converter



SOT-23



1. GATE
2. SOURCE
3. DRAIN

MARKING: 2302A

Maximum ratings (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±10	
Continuous Drain Current	I_D	4.3	A
Power Dissipation	P_D	0.4	W
Thermal Resistance from Junction to Ambient (t≤5s)	$R_{\theta JA}$	312.5	℃/W
Operating Junction	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-threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	0.55	0.85	1.25	
Gate-body leakage	I_{GSS}	V_{DS} =0V, V_{GS} =±10V			±100	nA
Zero gate voltage drain current	I_{DSS}	V_{DS} =20V, V_{GS} =0V			1	μA
Drain-source on-resistance[a]	$r_{DS(on)}$	V_{GS} =4.5V, I_D =4.3A			27	mΩ
		V_{GS} =2.5V, I_D =3A			44	
Forward transconductance[a]	g_{fs}	V_{DS} =5V, I_D =3.6A		8		S
Diode forward voltage	V_{SD}	I_S=1A,V_{GS}=0V			1.2	V
Dynamic						
Total gate charge	Q_g	V_{DS} =10V,V_{GS} =4.5V,I_D =3.6A		6.0		nC
Gate-source charge	Q_{gs}			4.0		
Gate-drain charge	Q_{gd}			1.5		
Input capacitance [b]	C_{iss}	V_{DS} =15V,V_{GS} =0V,f=1MHz		455		pF
Output capacitance [b]	C_{oss}			64		
Reverse transfer capacitance[b]	C_{rss}			55		
Switching[b]						
Turn-on delay time	$t_{d(on)}$	V_{DD}=10V, R_L=5.5Ω, I_D ≈1A, V_{GEN}=4.5V,Rg=25Ω		4		ns
Rise time	t_r			13		
Turn-off delay time	$t_{d(off)}$			65		
Fall time	t_f			33		

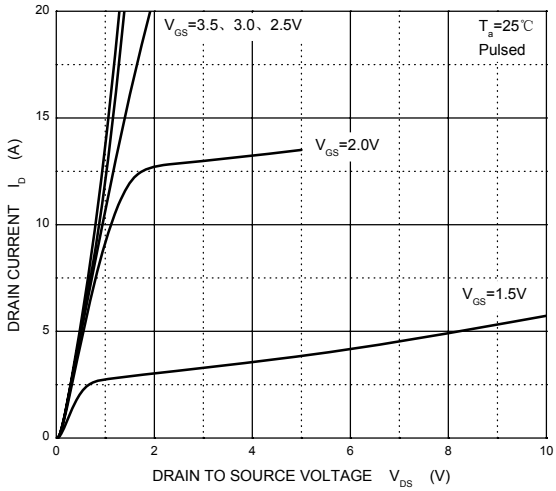
Notes :

a. Pulse Test : Pulse width≤300μs, duty cycle ≤2%.

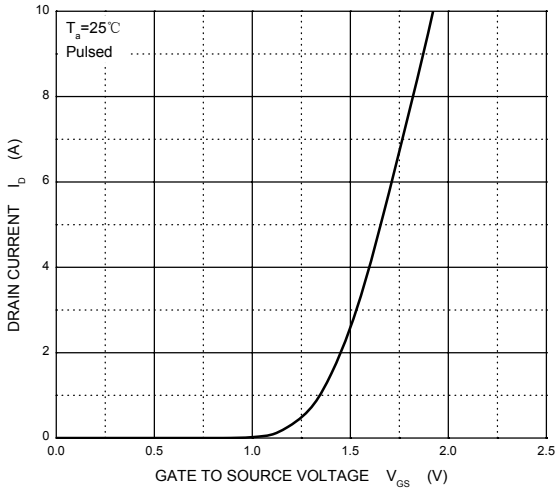
b. These parameters have no way to verify.

Typical Characteristics

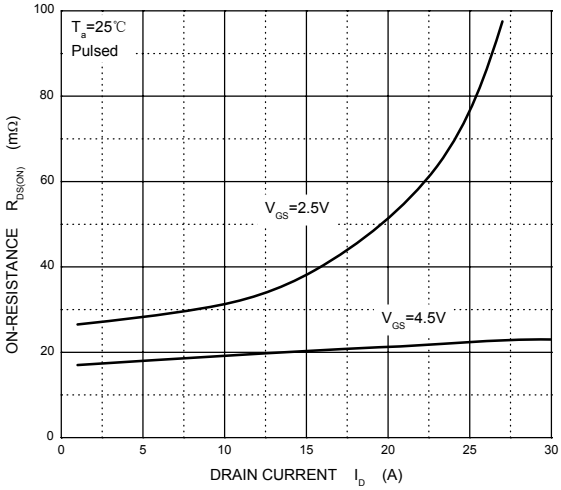
Output Characteristics



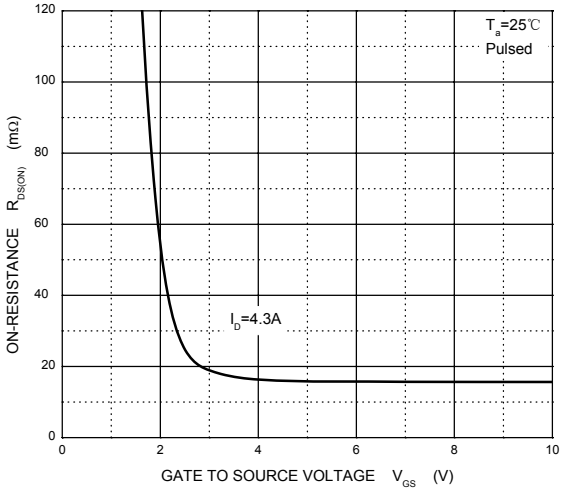
Transfer Characteristics



$R_{DS(ON)}$ —— I_D



$R_{DS(ON)}$ —— V_{GS}



I_S —— V_{SD}