

SOT-23

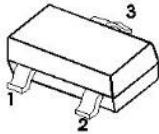
N沟道20V漏-源电压MOS管
N-Channel 20V(D-S) Mosfet

产品特性总结Product Summary

VDS	20V
RDSON(@VGS= 4.5V)	<25mΩ
RDSON(@VGS= 3.3V)	<28mΩ

根据客户要求打印 According to customer requirement

脚位定义Pin Definition



1. Gate
2. Source
3. Drain

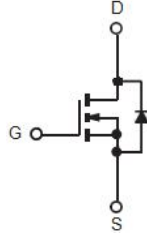
特征 Features

- 低导通电阻Low Rds(on)@VGS= 4.5V
- 沟道功率MOS管TrenchFET Power MOSFET
- 无卤、RoHS认证Halogen-free、RoHS Compliant
- 表贴型封装Surface Mount Package

应用 Applications

- 便携式设备的直流/直流转换DC/DC Converter for Portable Devices
- 开关电路Switching Circuits
- 电源管理Power Management
- 负载开关Load Switch

等效电路Equivalent circuit



极限值和温度特性(TA = 25℃ 除非另有规定)

Maximum Ratings & Thermal Characteristics (Ratings at 25℃ ambient temperature unless otherwise specified.)

参数 Parameters	符号Symbol	数值 Value	单位Unit
漏源电压Drain-Source Voltage	V _{DS}	20	V
栅源电压Gate-Source Voltage	V _{GS}	±10	V
漏极连续电流Continuous Drain Current	I _D	6.2	A
漏极脉冲电流Pulsed Drain Current (note 1)	I _{DM}	20.8	A
最大功耗Maximum Power Dissipation	P _D	1.56	W
结环热阻Thermal Resistance from Junction to Ambient (note 2)	R _{θJA}	80	℃/W
结温和存储温度Junction and Storage Temperature	T _J , T _{STG}	-50~+150	℃

电特性 (TA = 25℃ 除非另有规定)

Electrical Characteristics (Ratings at 25℃ ambient temperature unless otherwise specified.)

参数 Parameters	符号 Symbol	测试条件 Test Condition	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
静态特性Static Characteristics						
漏源击穿电压 Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	20	--	--	V
零栅压漏极电流 Zero gate voltage drain current	I _{DSS}	V _{DS} = 16V, V _{GS} = 0V	--	--	1	μA
栅源漏电流Gate-body leakage current	I _{GSS}	V _{GS} = ± 10V, V _{DS} = 0V	--	--	±100	nA
栅源阈值电压 Gate threshold voltage (note 3)	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	0.45	0.6	1.0	V
漏源极导通电阻 Drain-source on-resistance (note 3)	R _{DS(on)}	V _{GS} = 4.5V, I _D = 4A	--	19.4	25	mΩ
		V _{GS} = 3.3V, I _D = 3A	--	21.5	28	mΩ
二极管正向电压 Diode forward voltage (note 3)	V _{SD}	I _S = 4A, V _{GS} = 0V	--	0.79	1.2	V

动态特性Dynamic Characteristics (note4)						
输入电容Input Capacitance	Ciss	VDS= 10V,VGS=0V, f=1MHz	--	457	--	pF
输出电容Output Capacitance	Coss		--	71	--	pF
反向传输电容 Reverse Transfer Capacitance	Crss		--	66	--	pF
开关特性Switching Characteristics (note 4)						
开启延迟时间Turn-on delay time	td(on)	VDD= 10V,ID= 1A,RG= 3.3Ω, VGS= 4.5V	--	4.1	--	ns
开启上升沿时间Turn-on rise time	tr		--	11.6	--	ns
关断延迟时间Turn-off delay time	td(off)		--	24	--	ns
关断下降沿时间Turn-off fall time	tf		--	7.6	--	ns
总栅极电荷Total Gate Charge	Qg	VDS= 10V,ID=4A, VGS=4.5V	--	6.6	--	nC
栅源电荷Gate-Source Charge	Qgs		--	0.4	--	nC
栅漏电荷Gate-Drain Charge	Qgd		--	2	--	nC

***Notes :**

1. Repetitive rating: Pluse width limited by maximum junction temperature
2. Surface Mounted on FR4 board, $t \leq 10$ sec.
3. Pulse test : Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production.

典型特性曲线 Typical characteristics

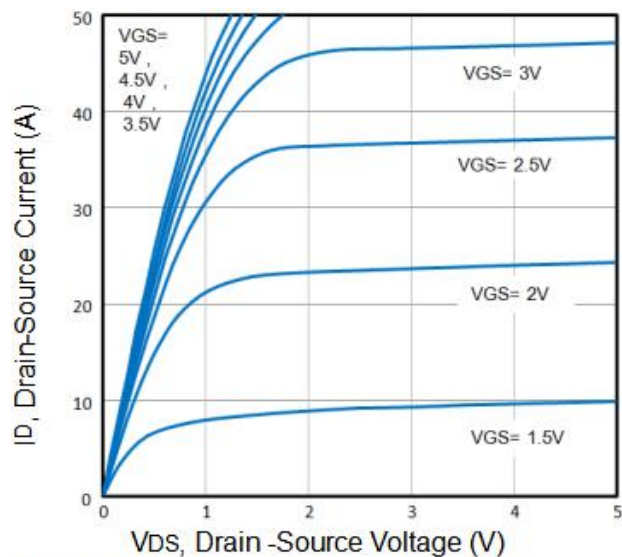


Fig1. Typical Output Characteristics

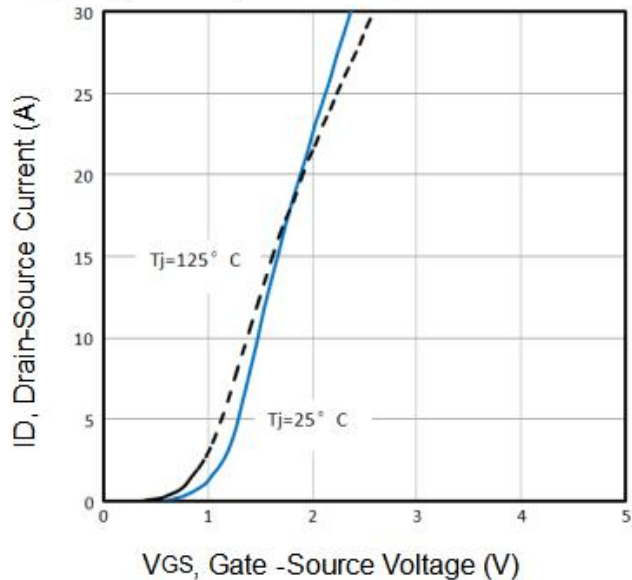


Fig3. Typical Transfer Characteristics

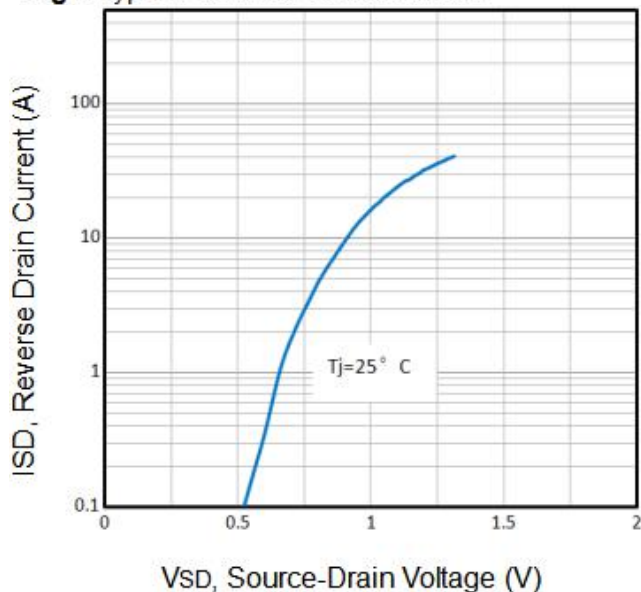


Fig5. Typical Source-Drain Diode Forward Voltage

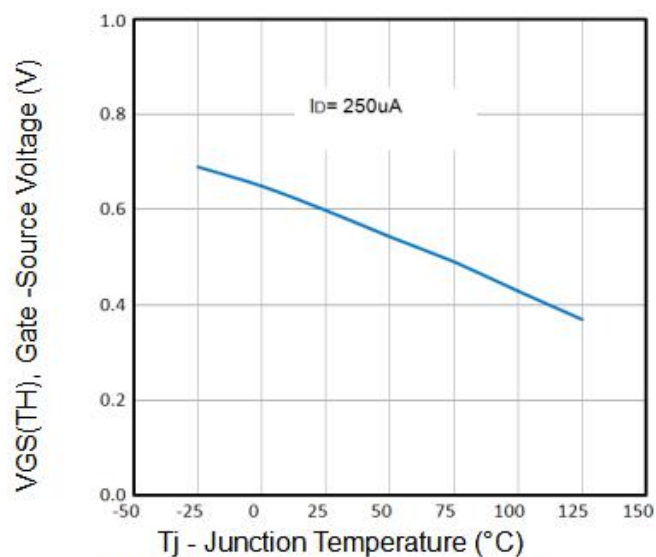


Fig2. VGS(TH) Voltage Vs. Temperature

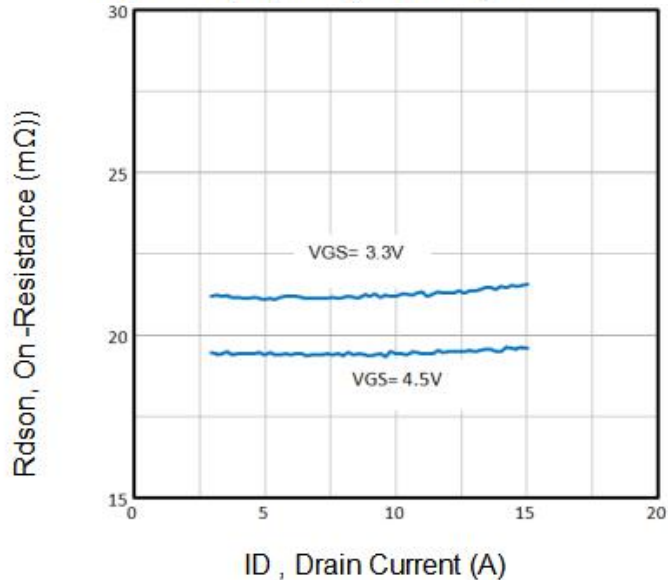


Fig4. On-Resistance vs. Drain Current and Gate

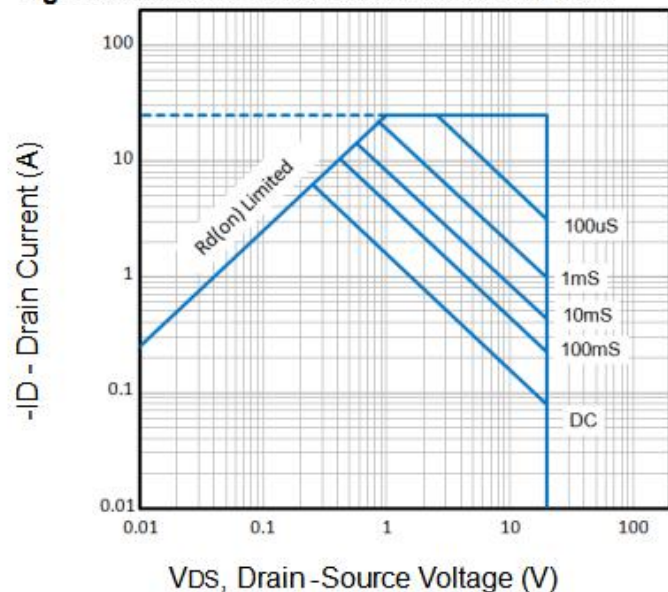


Fig6. Maximum Safe Operating Area

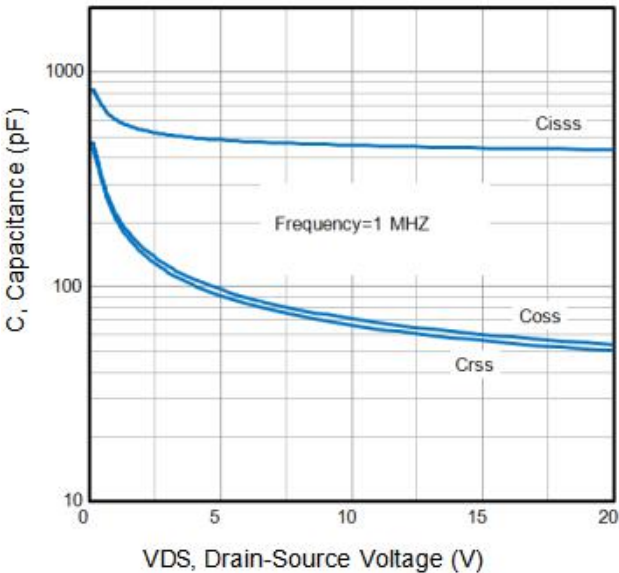


Fig7. Typical Capacitance Vs. Drain-Source Voltage

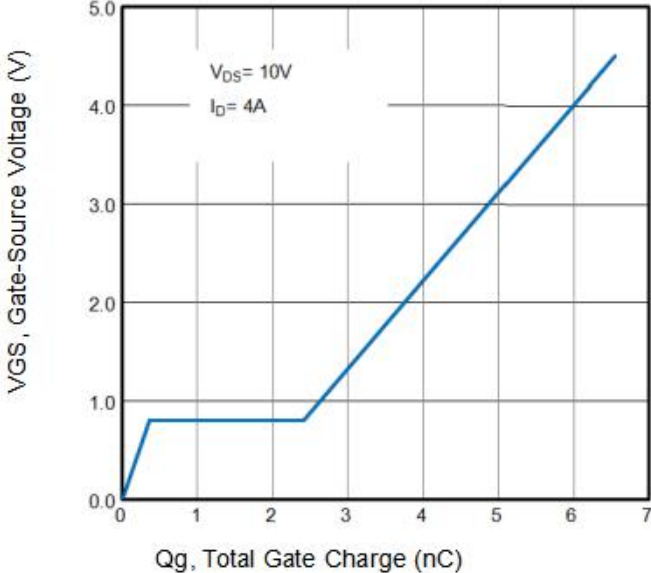
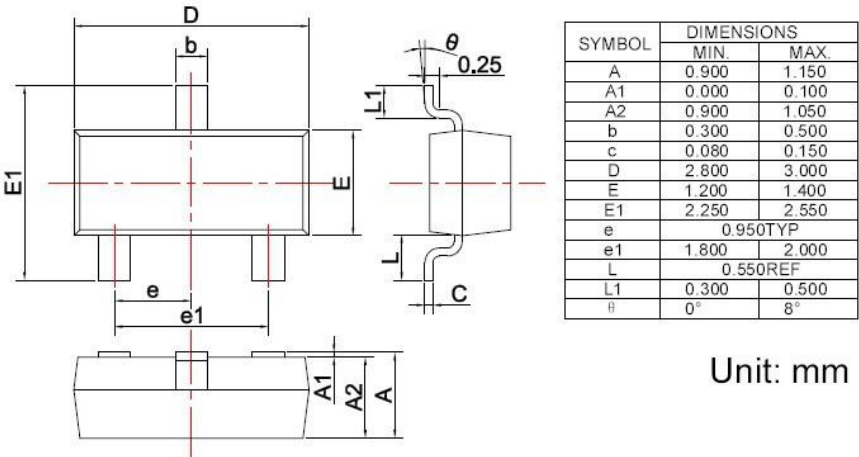
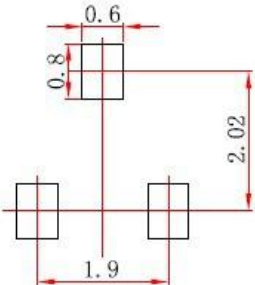


Fig8. Typical Gate Charge Vs. Gate-Source Voltage

封装外形图 SOT-23 Package Outline Dimensions



焊盘设计参考Precautions: PCB Design



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