SOT-23

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

产品特性总结Product Summary	
VDS	-20V
RDSON(@V_{GS}= -4.5V)	＜90mΩ
RDSON(@V_{GS}= -3.3V)	＜100mΩ

根据客户要求打印 According to customer requirement

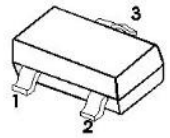
特征 Features

- 低导通电阻Low Rds(on)@V_{GS}= - 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

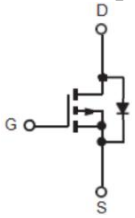
- 用于便携式设备的直流/直流转换DC/DC Converter for Portable Devices
- 用于便携式设备的负载开关Load Switch for Portable Devices
- 小型无刷电机驱动Small brushless DC motor drive
- 电源管理功能Power Management Functions

脚位定义Pin Definition



1. Gate
2. Source
3. Drain

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	-4.2	A
漏极脉冲电流Pulsed Drain Current (note 1)	I_{DM}	-16.8	A
最大功耗Maximum Power Dissipation	P_D	1.25	W
结环热阻Thermal Resistance from Junction to Ambient (note 2)	$R_{\theta JA}$	100	℃/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} = - 20V,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	-0.4	-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	--	37	48	mΩ
		V_{GS} = - 3.3V, I_D = - 3A	--	40	55	mΩ
		V_{GS} = - 2.5V, I_D = - 2A	--	45	60	mΩ
二极管正向电压 Diode forward voltage (note 3)	V_{SD}	I_S= - 2A, V_{GS} = 0V	--	-0.87	-1.2	V

动态特性Dynamic Characteristics (note4)						
输入电容Input Capacitance	C_{iss}	V_{DS}= -10V,V_{GS}=0V, f=1MHz	--	760	--	pF
输出电容Output Capacitance	C_{oss}		--	94	--	pF
反向传输电容 Reverse Transfer Capacitance	C_{rss}		--	76	--	pF
开关特性Switching Characteristics (note 4)						
开启延迟时间Turn-on delay time	td(on)	V_{DD}= -10V,I_D= -2A,R_G= 3.3Ω, V_{GS}= -4.5V	--	5.5	--	ns
开启上升沿时间Turn-on rise time	tr		--	3.9	--	ns
关断延迟时间Turn-off delay time	td(off)		--	11.3	--	ns
关断下降沿时间Turn-off fall time	tf		--	36	--	ns
总栅极电荷Total Gate Charge	Q_g	V_{DS}= -10V,I_D=-3A, V_{GS}=-4.5V	--	7.6	--	nC
栅源电荷Gate-Source Charge	Qgs		--	0.9	--	nC
栅漏电荷Gate-Drain Charge	Qgd		--	1.8	--	nC

***Notes :**

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

典型特性曲线 Typical characteristics

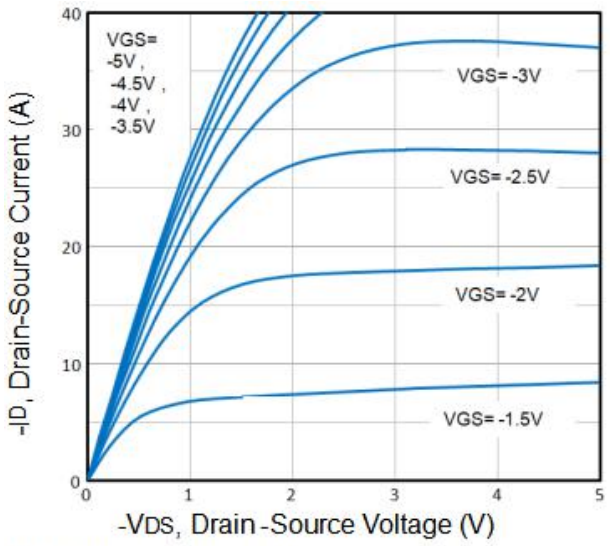


Fig1. Typical Output Characteristics

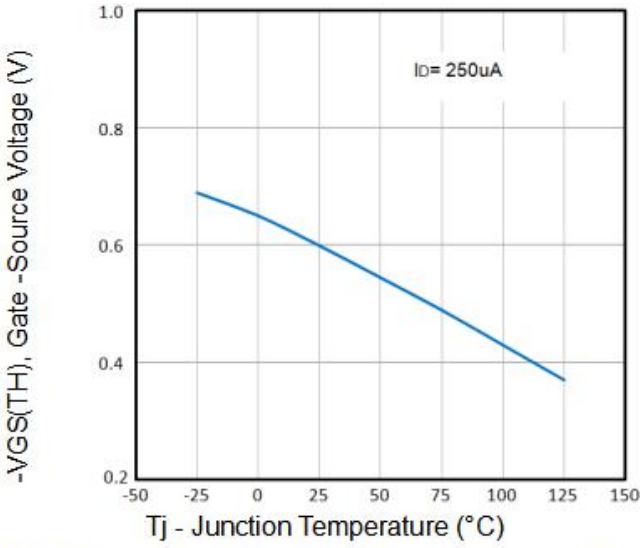


Fig2. Normalized Threshold Voltage Vs. Temperature

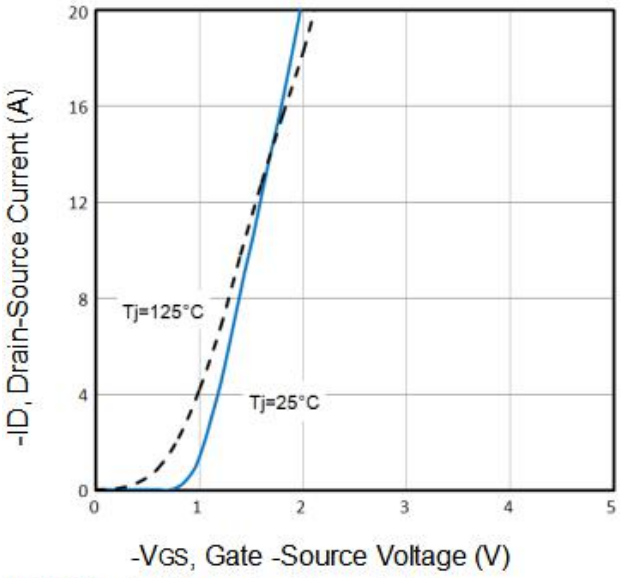


Fig3. Typical Transfer Characteristics

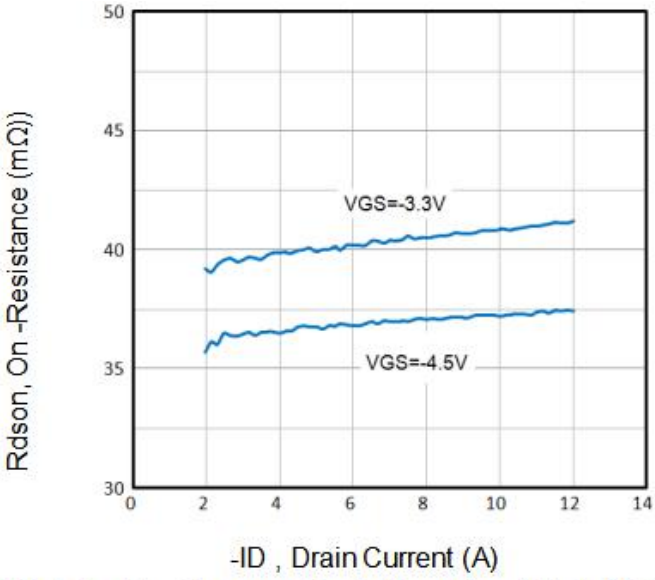


Fig4. On-Resistance vs. Drain Current and Gate Voltage

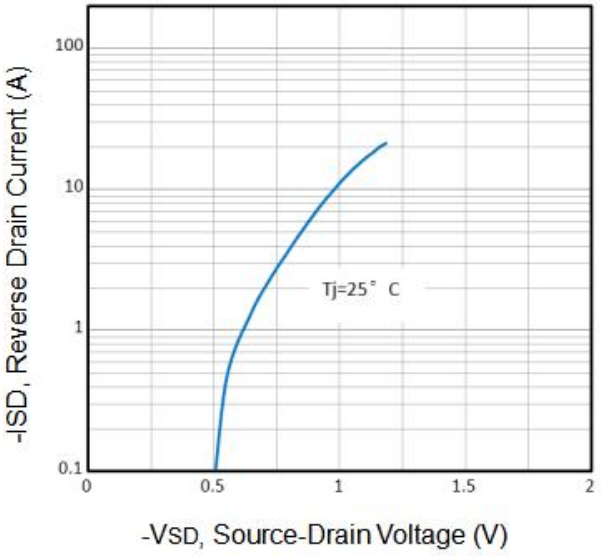


Fig5. Typical Source-Drain Diode Forward Voltage

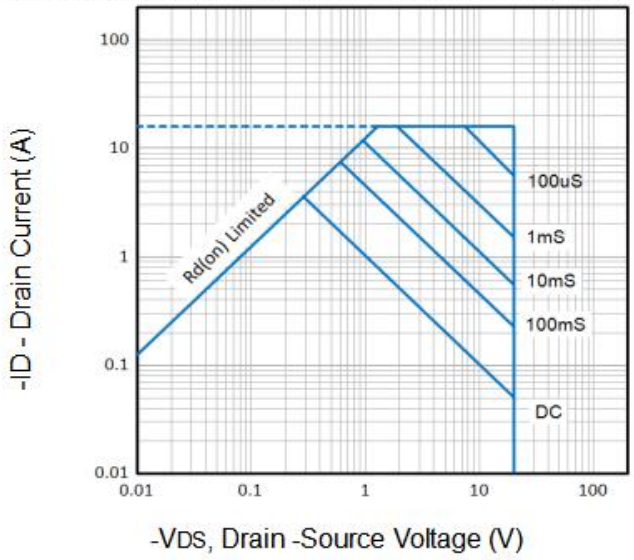


Fig6. Maximum Safe Operating Area

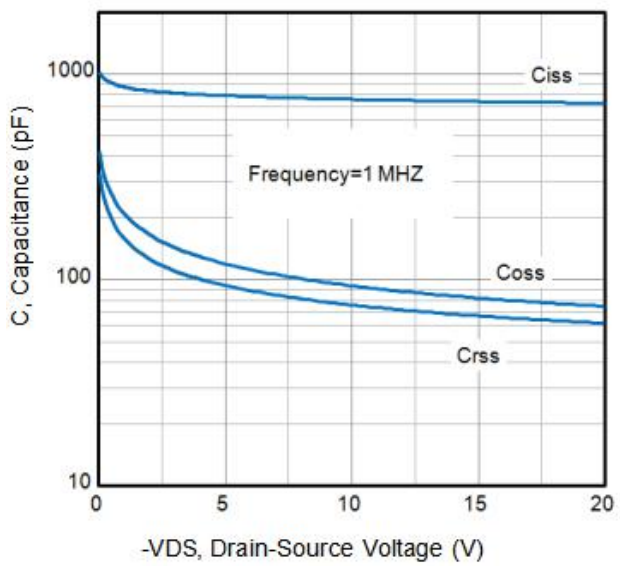


Fig7. Typical Capacitance Vs. Drain-Source Voltage

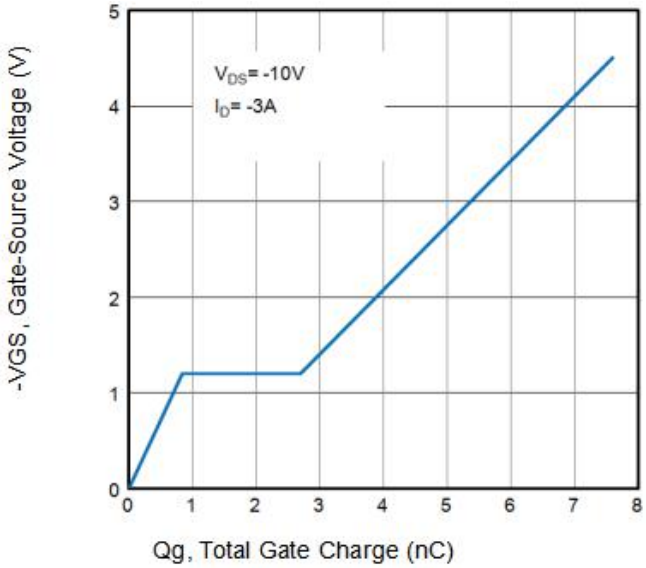
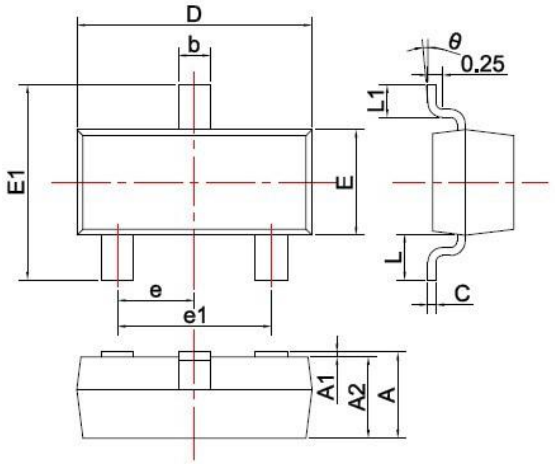


Fig8. Typical Gate Charge Vs. Gate-Source Voltage

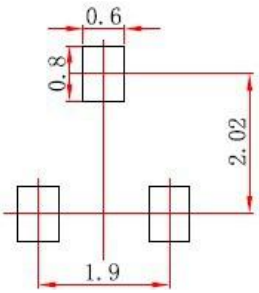
封装外形图 SOT-23 Package Outline Dimensions



SYMBOL	DIMENSIONS	
	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°

Unit: mm

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.