

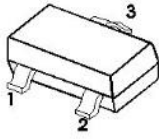
## SOT-23

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

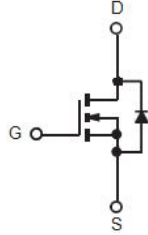
产品特性总结Product Summary	
VDS	20V
RDSON(@VGS= 4.5V)	<35mΩ
RDSON(@VGS= 2.5V)	<45mΩ

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
- 高电流处理能力 High Current Handling Capability
- 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
- LED驱动 LED Driver

## 等效电路 Equivalent circuit

极限值和温度特性 (TA = 25°C 除非另有规定)

Maximum Ratings & Thermal Characteristics (Ratings at 25°C 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 <sub>DS</sub>	20	V
栅源电压 Gate-Source Voltage	V <sub>GS</sub>	±10	V
漏极连续电流 Continuous Drain Current	I <sub>D</sub>	4.5	A
漏极脉冲电流 Pulsed Drain Current (note 1)	I <sub>DM</sub>	18	A
最大功耗 Maximum Power Dissipation	P <sub>D</sub>	1.2	W
结环热阻 Thermal Resistance from Junction to Ambient (note 2)	R <sub>θJA</sub>	100	°C/W
结温和存储温度 Junction and Storage Temperature	T <sub>J</sub> 、T <sub>STG</sub>	-50~+150	°C

电特性 (TA = 25°C 除非另有规定)

Electrical Characteristics (Ratings at 25°C 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 <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	20	--	--	V
零栅压漏极电流 Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> = 20V, V <sub>GS</sub> = 0V	--	--	1	μA
栅源漏电流 Gate-body leakage current	I <sub>GSS</sub>	V <sub>GS</sub> = ±10V, V <sub>DS</sub> = 0V	--	--	±100	nA
栅源阈值电压 Gate threshold voltage (note 3)	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	0.4	0.6	1.0	V
漏源极导通电阻 Drain-source on-resistance (note 3)	R <sub>DS(on)</sub>	V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 4A	--	28	35	mΩ
		V <sub>GS</sub> = 3.3V, I <sub>D</sub> = 2A	--	32	40	mΩ
		V <sub>GS</sub> = 2.5V, I <sub>D</sub> = 1A	--	36	45	mΩ
二极管正向电压 Diode forward voltage (note 3)	V <sub>SD</sub>	I <sub>S</sub> = 2A, V <sub>GS</sub> = 0V	--	0.74	1.2	V

动态特性Dynamic Characteristics (note4)						
输入电容Input Capacitance	$C_{iss}$	$V_{DS}=10V, V_{GS}=0V,$ $f=1MHz$	--	280	--	pF
输出电容Output Capacitance	$C_{oss}$		--	46	--	pF
反向传输电容 Reverse Transfer Capacitance	$C_{rss}$		--	42	--	pF
开关特性Switching Characteristics (note 4)						
开启延迟时间Turn-on delay time	$t_{d(on)}$	$V_{DD}=10V, I_D=4A, R_G=3.3\Omega,$ $V_{GS}=4.5V$	--	11	--	ns
开启上升沿时间Turn-on rise time	$t_r$		--	35	--	ns
关断延迟时间Turn-off delay time	$t_{d(off)}$		--	25	--	ns
关断下降沿时间Turn-off fall time	$t_f$		--	32	--	ns
总栅极电荷Total Gate Charge	$Q_g$	$V_{DS}=10V, I_D=3A,$ $V_{GS}=5V$	--	4.7	--	nC
栅源电荷Gate-Source Charge	$Q_{gs}$		--	0.6	--	nC
栅漏电荷Gate-Drain Charge	$Q_{gd}$		--	1.7	--	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

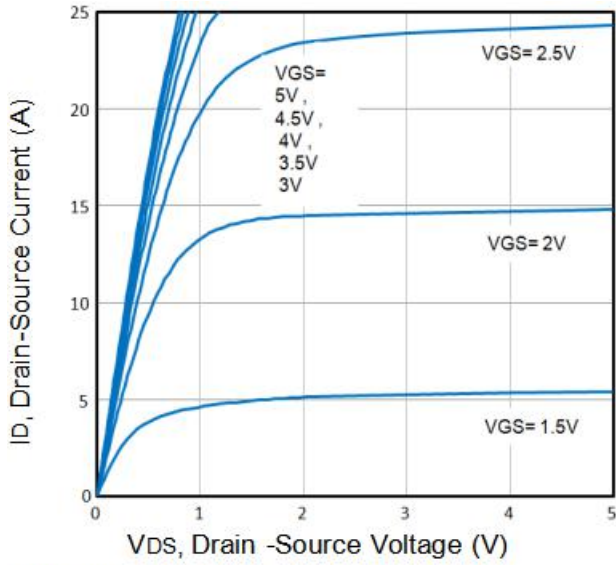


Fig1. Typical Output Characteristics

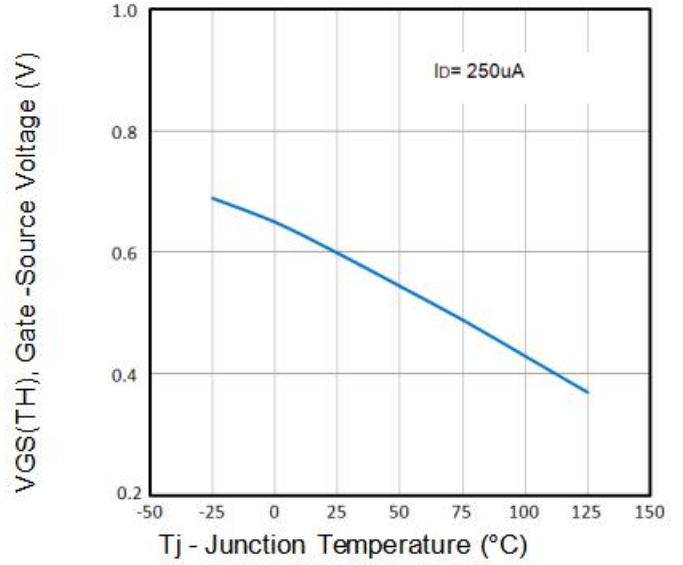


Fig2. Normalized Threshold Voltage Vs. Temperature

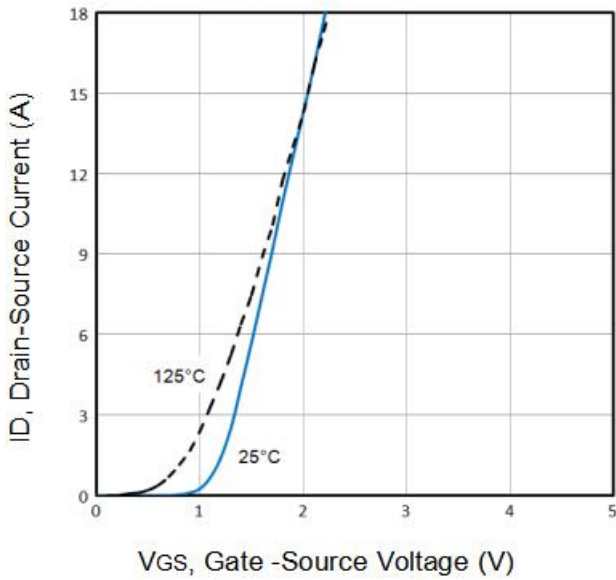


Fig3. Typical Transfer Characteristics

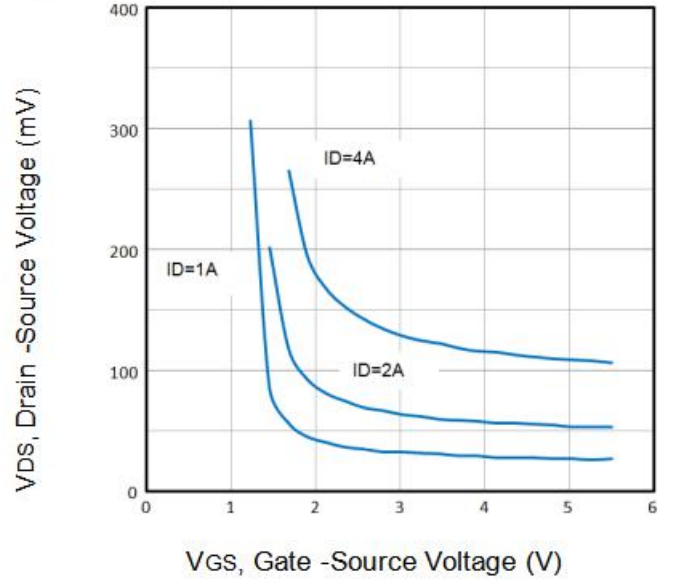


Fig4. Drain-Source Voltage vs Gate-Source Voltage

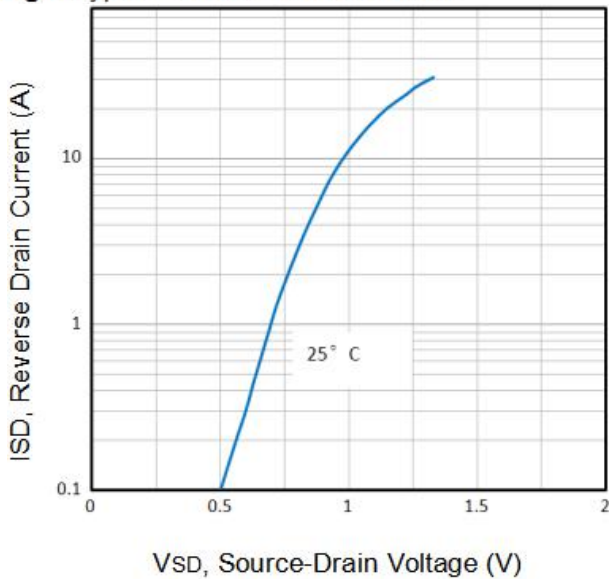


Fig5. Typical Source-Drain Diode Forward Voltage

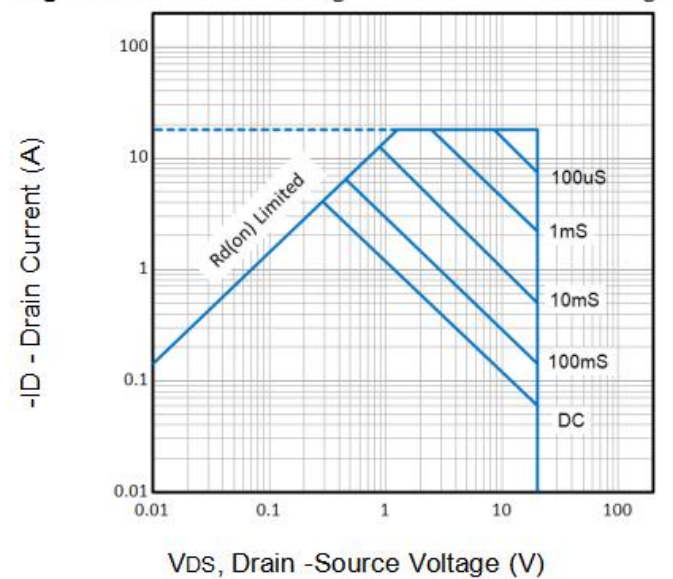


Fig6. Maximum Safe Operating Area

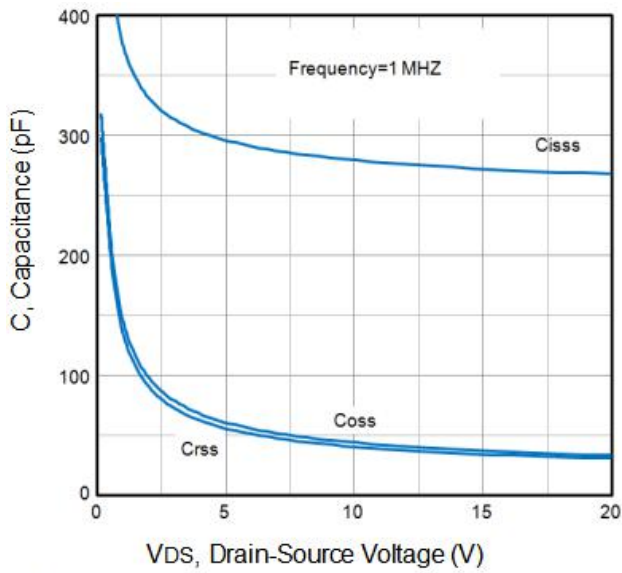


Fig7. Typical Capacitance Vs. Drain-Source Voltage

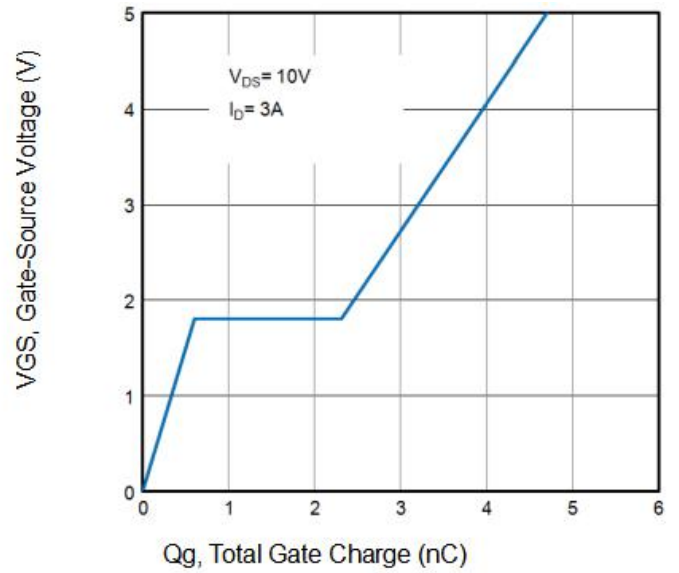
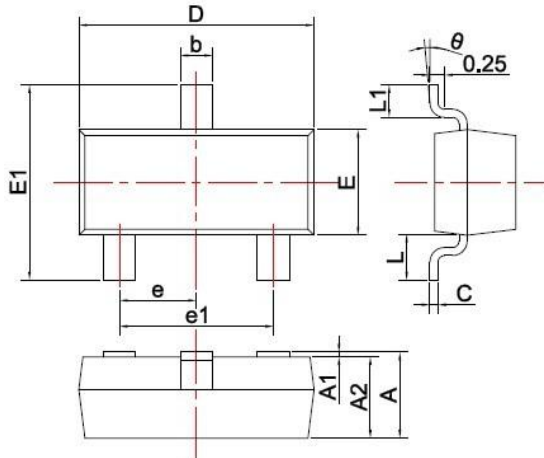


Fig8. Typical Gate Charge Vs. Gate-Source Voltage

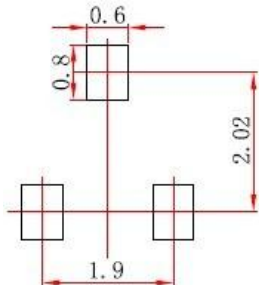
封装外形图 SOT-23 Package Outline Dimensions



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.