

N-沟道功率 MOS 管/ N-CHANNEL POWER MOSFET

SIF1N50F

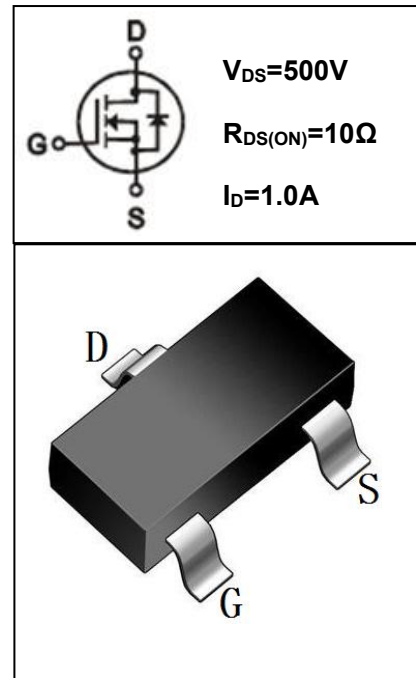
- 特点: 导通电阻低 开关速度快 输入阻抗高 符合RoHS规范
- FEATURES: ■LOW ON-RESISTANCE ■FAST SWITCHING ■HIGH INPUT RESISTANCE ■RoHS COMPLIANT
- 应用: 电子镇流器 电子变压器 开关电源
- APPLICATION: ■ELECTRONIC BALLAST ■ELECTRONIC TRANSFORMER ■SWITCH MODE POWER SUPPLY

●最大额定值 (TC=25°C)

●Absolute Maximum Ratings (Tc=25°C)

SOT23-3D

参数 PARAMETER	符号 SYMBOL	额定值 VALUE	单位 UNIT
漏-源电压 Drain-source Voltage	V _{DS}	500	V
栅-源电压 gate-source Voltage	V _{GS}	±30	V
漏极电流 Continuous Drain Current TC=25°C	I _D	1.0*	A
漏极电流 Continuous Drain Current TC=100°C	I _D	0.63*	A
最大脉冲电流 Drain Current – Pulsed ①	I _{DM}	4.0*	A
耗散功率 Power Dissipation (T _L =25°C)	P _D	3	W
最高结温 Junction Temperature	T _J	150	°C
存储温度 Storage Temperature	T _{STG}	-55-150	°C
单脉冲雪崩能量 Single Pulse Avalanche Energy②	E _{AS}	3.8	mJ



*漏极电流由最高结温限制

*Drain current limited by maximum junction temperature

●电特性 (Tc=25°C)

●Electronic Characteristics (Tc=25°C)

参数 PARAMETER	符号 SYMBOL	测试条件 TEST CONDITION	最小值 MIN	典型值 TYP	最大值 MAX	单位 UNIT
漏-源击穿电压 Drain-source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	500			V
击穿电压温度系数 Breakdown Voltage Temperature Coefficient	ΔBV _{DSS} /ΔT _J	I _D =250uA, Referenced to 25°C		0.6		V/°C
栅极开启电压 Gate Threshold Voltage	V _{GS(TH)}	V _{GS} =V _{DS} , I _D =250μA	2.0		4.0	V
漏-源漏电流 Drain-source Leakage Current	I _{DSS}	V _{DS} =500V, V _{GS} =0V, T _J =25°C			1	μA
		V _{DS} =400V, V _{GS} =0V, T _J =125°C			100	μA
跨导 Forward Transconductance	g _{fs}	V _{DS} =15V, I _D =0.5A ③		0.57		S

●订单信息/ORDERING INFORMATION:

包装形式/PACKING	订货编码/ORDERING CODE	
	普通塑封料/ Nomal Package Material	无卤塑封料/Halogen Free
SOT23-3D 编带装 /TAPE & REEL PACKING	SIF1N50F SOT23-3D-TR	SIF1N50F SOT23-3D-TR-HF

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参数 PARAMETER	符号 SYMBOL	测试条件 TEST CONDITION	最小值 MIN	典型值 TYP	最大值 MAX	单位 UNIT
栅极漏电流 Gate-body Leakage Current ($V_{DS} = 0$)	I_{GSS}	$V_{GS} = \pm 30V$			± 100	nA
漏-源导通电阻 Static Drain-source On Resistance	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 0.5A$ ③		10	13	Ω
输入电容 Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 25V$ $F = 1.0MHz$		74		pF
输出电容 Output Capacitance	C_{oss}			38		
反向传输电容 Reverse transfer Capacitance	C_{rss}			3		
关断延迟 Turn -Off Delay Time	$T_d(off)$	$V_{DD} = 250V, I_D = 1.0A$ $R_G = 25\Omega$ ③		13		ns
栅极电荷 Total Gate Charge	Q_g	$I_D = 1.0A, V_{DS} = 400V$ $V_{GS} = 10V$ ③		4.9		nC
栅源电荷 Gate-to-Source Charge	Q_{gs}			1.1		nC
栅漏电荷 Gate-to-Drain Charge	Q_{gd}			2.9		nC
二极管正向电流 Continuous Diode Forward Current	I_s				1.0	A
二极管正向压降 Diode Forward Voltage	V_{SD}	$T_j = 25^\circ C, I_s = 1.0A$ $V_{GS} = 0V$ ③			1.4	V
反向恢复时间 Reverse Recovery Time	t_{rr}	$T_j = 25^\circ C, I_f = 1.0A$ $di/dt = 100A/\mu s$ ③		190		ns
反向恢复电荷 Reverse Recovery Charge	Q_{rr}			0.53		μC

●热特性

●Thermal Characteristics

参数 PARAMETER	符号 SYMBOL	最大值 MAX	单位 UNIT
		SOT23-3D	
热阻结-壳 Thermal Resistance Junction-case	R_{thJC}	41.67	$^\circ C/W$

注释(Notes):

- ① 脉冲宽度：以最高节温为限制
Repetitive rating: Pulse width limited by maximum junction temperature
- ② 初始结温= $25^\circ C$, $V_{DD} = 50V$, $L = 3mH$, $R_G = 25\Omega$, $I_{AS} = 1.6A$
Starting $T_j = 25^\circ C$, $V_{DD} = 50V$, $L = 3mH$, $R_G = 25\Omega$, $I_{AS} = 1.6A$
- ③ 脉冲测试：脉冲宽度 $\leq 300\mu s$ ，占空比 $\leq 2\%$
Pulse Test : Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$

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● 特性曲线

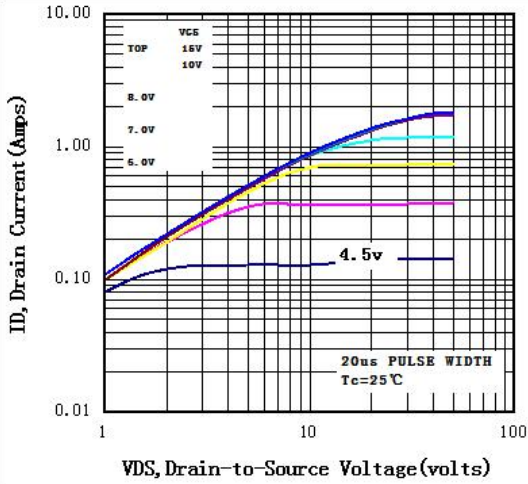


图 1 输出特性曲线, Tc=25°C

Fig1 Typical Output Characteristics, Tc=25°C

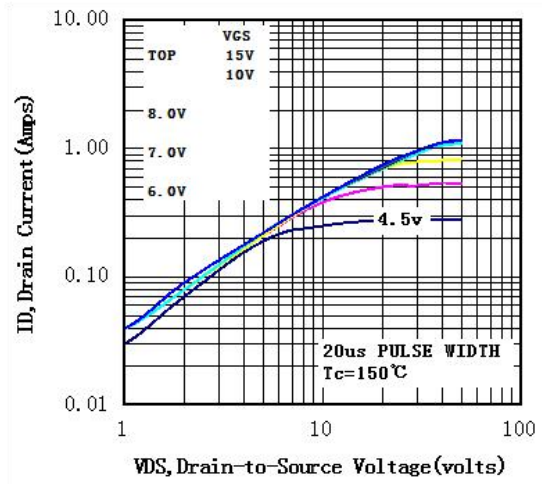


图 2 输出特性曲线, Tc=150°C

Fig2 Typical Output Characteristics, Tc=150°C

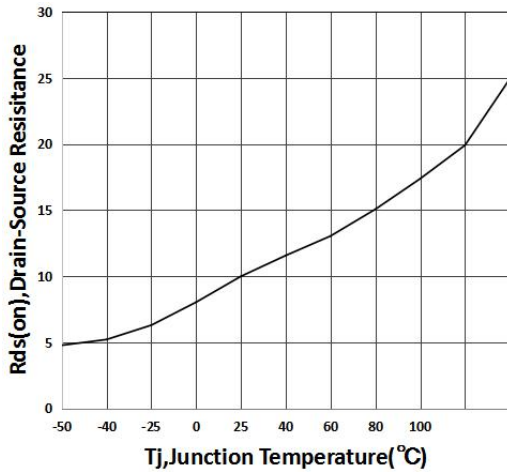


图 3 导通电阻与温度曲线

Fig3 On-Resistance Vs. Temperature

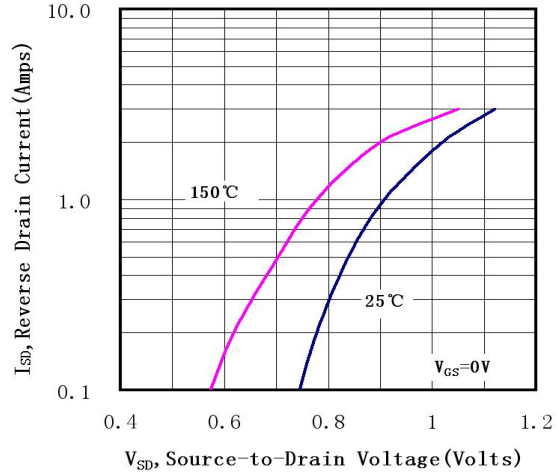


图 4 二极管正向电压曲线

Fig4 Typical Source-Drain Diode Forward Voltage

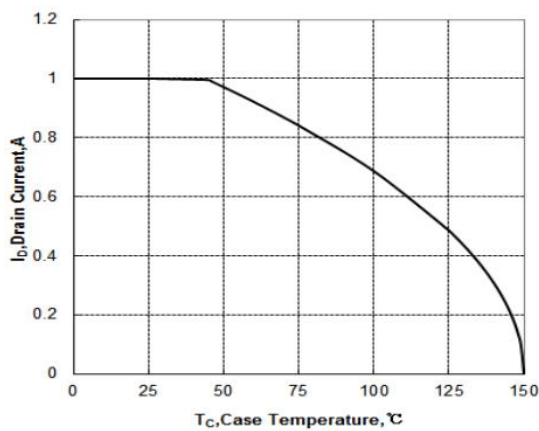


图 5 最大漏极电流与壳温曲线

Fig5 Maximum Drain Current Vs. Case Temperature

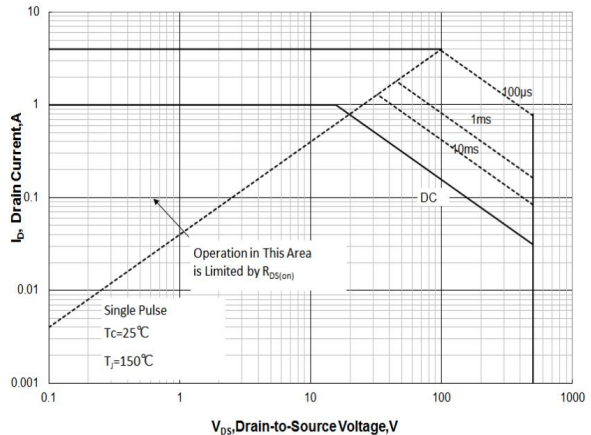


图 6 最大安全工作区曲线

Fig6 Maximum Safe Operating Area

SOT23-3D 封装机械尺寸 SOT23-3D MECHANICAL DATA

单位:毫米/UNIT: mm

符号/SYMBOL	最小值/min	典型值/nom	最大值/max
A	0.90		1.45
A1	0		0.15
A2	0.90		1.30
A3	0.60		0.70
b	0.35		0.49
C	0.08		0.22
D	2.80		3.00
E	2.60		3.00
E1	1.50		1.70
e	0.85		1.05
e1	1.85		2.00
L	0.35		0.60
θ	0		8°

