

**N-沟道功率 MOS 管/ N-CHANNEL POWER MOSFET**

**SIF4N30E**

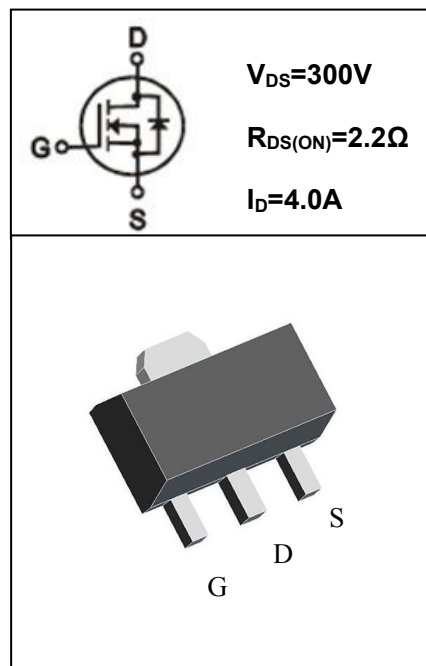
- 特点：导通电阻低 开关速度快 输入阻抗高 符合RoHS规范
- FEATURES: ■LOW ON-RESISTANCE ■FAST SWITCHING ■HIGH INPUT RESISTANCE ■RoHS COMPLIANT
- 应用：电子镇流器 电子变压器 开关电源
- APPLICATION: ■ELECTRONIC BALLAST■ELECTRONIC TRANSFORMER■SWITCH MODE POWER SUPPLY

●最大额定值 (Tc=25°C)

●Absolute Maximum Ratings (Tc=25°C)

SOT-89

参数 PARAMETER	符号 SYMBOL	额定值 VALUE	单位 UNIT
漏-源电压 Drain-source Voltage	V <sub>DS</sub>	300	V
栅-源电压 gate-source Voltage	V <sub>GS</sub>	±30	V
漏极电流 Continuous Drain Current TC=25°C	I <sub>D</sub>	4.0	A
漏极电流 Continuous Drain Current TC=100°C	I <sub>D</sub>	2.4	A
最大脉冲电流 Drain Current – Pulsed ①	I <sub>DM</sub>	16	A
耗散功率 Power Dissipation (T <sub>L</sub> =25°C)	P <sub>tot</sub>	4	W
最高结温 Junction Temperature	T <sub>J</sub>	150	°C
存储温度 Storage Temperature	T <sub>STG</sub>	-55-150	°C
单脉冲雪崩能量 Single Pulse Avalanche Energy ②	E <sub>AS</sub>		mJ



V<sub>DS</sub>=300V

R<sub>DS(ON)</sub>=2.2Ω

I<sub>D</sub>=4.0A

\*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 <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	500			V
击穿电压温度系数 Breakdown Voltage Temperature Coefficient	ΔBV <sub>DSS</sub> /ΔT <sub>J</sub>	I <sub>D</sub> =250uA, Referenced to 25°C		0.6		V/°C
栅极开启电压 Gate Threshold Voltage	V <sub>GS(TH)</sub>	V <sub>GS</sub> =V <sub>DS</sub> , I <sub>D</sub> =250μA	2.0		4.0	V
漏-源漏电流 Drain-source Leakage Current	I <sub>DSS</sub>	V <sub>DS</sub> =300V, V <sub>GS</sub> =0V, T <sub>J</sub> =25°C			25	μA
		V <sub>DS</sub> =400V, V <sub>GS</sub> =0V, T <sub>J</sub> =125°C			250	μA
跨导 Forward Transconductance	g <sub>fs</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =2A ③	0.8			S

●订单信息/ORDERING INFORMATION:

包装形式/PACKING	订货编码/ORDERING CODE	
	普通塑封料 Normal Package Material	无卤塑封料 Halogen Free
SOT-89 编带装/TAPE & REEL PACKING	SIF4N30E SOT-89-TR	SIF4N30ESOT-89-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 ( $V_{DS} = 0$ )	$I_{GSS}$	$V_{GS} = \pm 30V$			$\pm 100$	nA
漏-源导通电阻 Static Drain-source On Resistance	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 2.0A$ ③		2.2	2.5	$\Omega$
输入电容 Input Capacitance	$C_{iss}$	$V_{GS} = 0V, V_{DS} = 25V$ $F = 1.0MHz$		480		pF
关断延迟 Turn -Off Delay Time	$T_d(off)$	$V_{DD} = 250V, I_D = 4.0A$ $R_G = 25\Omega$ ③		18		ns
栅极电荷 Total Gate Charge	$Q_g$	$I_D = 4.0A, V_{DS} = 240V$ $V_{GS} = 10V$ ③		11		nC
栅源电荷 Gate-to-Source Charge	$Q_{gs}$			2.2		nC
栅漏电荷 Gate-to-Drain Charge	$Q_{gd}$			3.5		nC
二极管正向电流 Continuous Diode Forward Current	$I_S$				4.0	A
二极管正向压降 Diode Forward Voltage	$V_{SD}$	$T_j = 25^\circ C, I_S = 4.0A$ $V_{GS} = 0V$ ③			1.4	V
反向恢复时间 Reverse Recovery Time	$t_{rr}$	$T_j = 25^\circ C, I_f = 4.0A$ $di/dt = 100A/\mu s$ ③		190		ns
反向恢复电荷 Reverse Recovery Charge	$Q_{rr}$			0.53		$\mu C$

● 热特性

● Thermal Characteristics

参数 PARAMETER	符号 SYMBOL	最大值 MAX	单位 UNIT
		SOT-89	
热阻结-壳 Thermal Resistance Junction-case	$R_{thJC}$	31.25	$^\circ C/W$
热阻结-环境 Thermal Resistance Junction-ambient	$R_{thJA}$	140.0	$^\circ C/W$

注释(Notes):

- ① 脉冲宽度：以最高结温为限制  
Repetitive rating: Pulse width limited by maximum junction temperature
- ② 初始结温= $25^\circ C$ ,  $V_{DD} = 50V$ ,  $L = 20mH$ ,  $R_G = 25\Omega$ ,  $I_{AS} = 30A$   
Starting  $T_j = 25^\circ C$ ,  $V_{DD} = 50V$ ,  $L = 20mH$ ,  $R_G = 25\Omega$ ,  $I_{AS} = 4.0A$
- 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

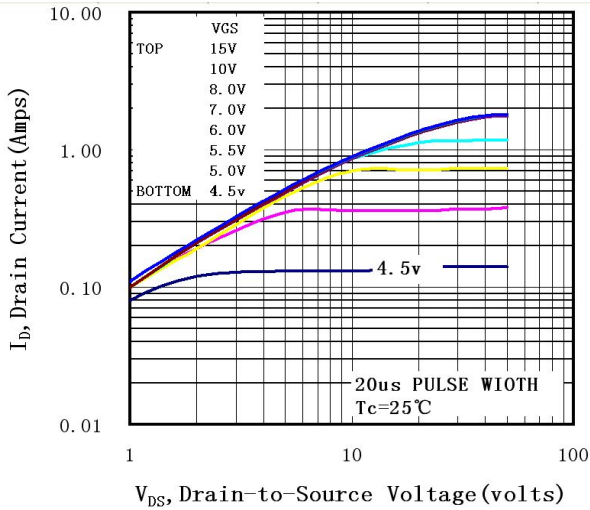


图 1 输出特性曲线, Tc=25°C

Fig1 Typical Output Characteristics, Tc=25°C

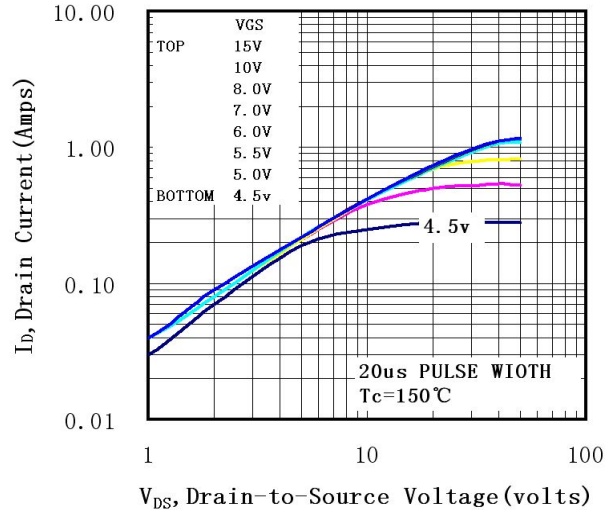


图 2 输出特性曲线, Tc=150°C

Fig2 Typical Output Characteristics, Tc=150°C

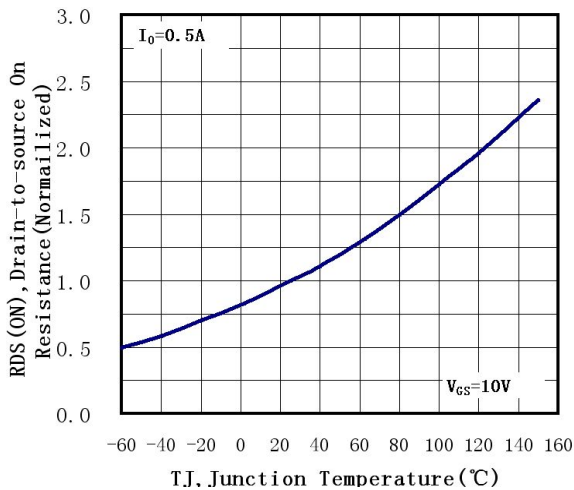


图 3 归一化导通电阻与温度曲线

Fig3 Normalized On-Resistance Vs. Temperature

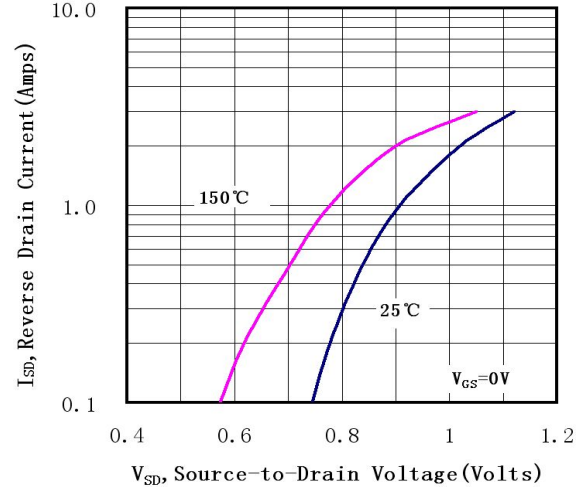


图 4 二极管正向电压曲线

Fig4 Typical Source-Drain Diode Forward Voltage

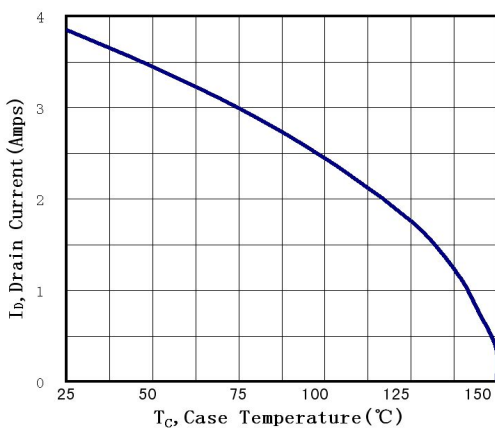


图 5 最大漏极电流与壳温曲线

Fig5 Maximum Drain Current Vs. Case Temper

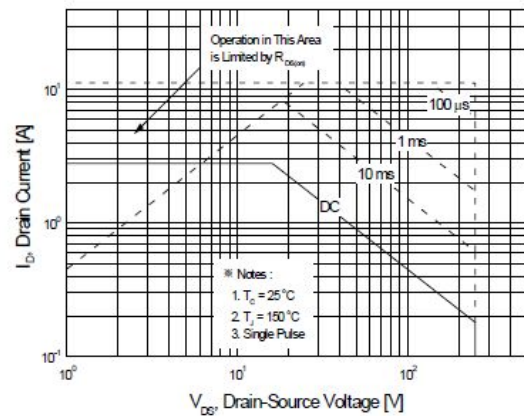


图 6 SIF4N30E

最大安全工作区曲线

Fig6 Maximum Safe Operating Area

### SOT-89 封装机械尺寸 SOT-89 MECHANICAL DATA

单位:毫米/UNIT: mm

符号/SYMBOL	最小值/min	典型值/nom	最大值/max
A	4.4		4.7
B	2.35		2.65
C	3.878		4.478
D	1.45		1.65
E	0.8		1.2
F	0.3		0.5
G	1.40		1.60
H	2.8		3.2
I	0.36		0.56
J	0.35		0.5
K		6°	
L	1.4		1.7

LJ

