

N-沟道功率 MOS 管/ N-CHANNEL POWER MOSFET

SIF9N10A

●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

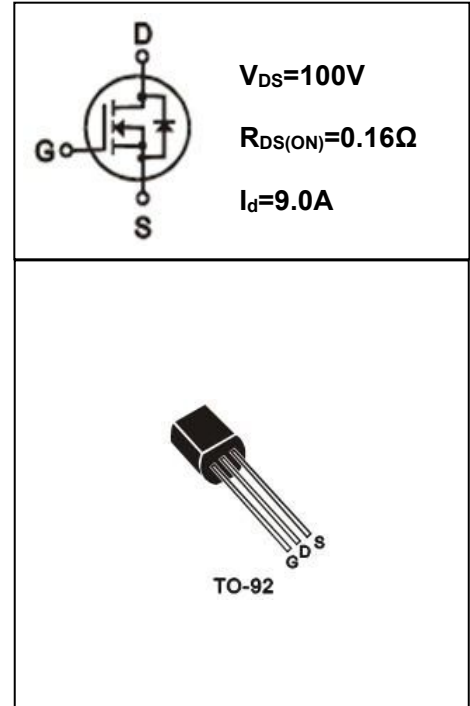
●应用：不间断电源 照明

●APPLICATION: ■UPS ■LIGHTING

●最大额定值 (Tc=25°C)

●Absolute Maximum Ratings (Tc=25°C) **TO-92**

参数 PARAMETER	符号 SYMBOL	额定值 VALUE	单位 UNIT
漏-源电压 Drain-source Voltage	V _{DS}	100	V
-源电压 gate-source Voltage	V _{GS}	±20	V
漏极电流 Continuous Drain Current TC=25°C	I _D	9.0	A
漏极电流 Continuous Drain Current TC=100°C	I _D	4.5	A
最大脉冲电流 Drain Current — Pulsed ①	I _{DM}	36	A
耗散功率 Power Dissipation	P _{tot}	1.0	W
最高结温 Junction Temperature	T _J	150	°C
z存储温度 Storage Temperature	T _{STG}	-55-150	°C
单脉冲雪崩能量 Single Pulse Avalanche Energy ②	E _{AS}	80	mJ



●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	100			V
击穿电压温度系数 Breakdown Voltage Temperature Coefficient	ΔBV _{DSS} / ΔT _J	I _D =250uA, Referenced to 25°C		0.5		V/°C
栅极开启电压 Gate Threshold Voltage	V _{GS(TH)}	V _{GS} =V _{DS} , I _D =250μA	1.5		2.5	V
漏-源漏电流 Drain-source Leakage Current	I _{DSS}	V _{DS} =100V, V _{GS} =0V, T _J =25°C			1	μA
		V _{DS} =100V, V _{GS} =0V, T _J =125°C			10	μA
跨导 Forward Transconductance	GFS	V _{DS} =10V, I _D =4.5A ③	5.0			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
TO-92 盒式编带/AMMOPACK	SIF9N10A TO-92-AP	SIF9N10A TO-92-AP-HF

N-沟道功率 MOS 管/ N-CHANNEL POWER MOSFET

SIF9N10A

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}	$V_{GS} = \pm 10V$			± 100	nA
漏-源导通电阻 Static Drain-source On Resistance	$R_{DS(ON)}$	$V_{GS} = 4.5V, I_D = 2.5A$ ③		0.20	0.35	Ω
漏-源导通电阻 Static Drain-source On Resistance	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 4.5A$ ③		0.16	0.25	Ω
输入电容 Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 25V$ $F = 1.0MHz$		365		pF
输出电容 Output Capacitance	C_{oss}			75		pF
米勒电容 Miller Capacitance	C_{rss}			20		pF
关断延迟 Turn -Off Delay Time	$T_d(off)$	$V_{DD} = 100V, I_D = 9A$ $R_G = 3.5\Omega, R_D = 25\Omega$ ③		34		ns
栅极电荷 Total Gate Charge	Q_g	$I_D = 9.0A, V_{DS} = 50V$ $V_{GS} = 10V$ ③		9.50		nC
栅源电荷 Gate-to-Source Charge	Q_{gs}			1.90		nC
栅漏电荷 Gate-to-Drain Charge	Q_{gd}			3.10		nC
二极管正向电流 Continuous Diode Forward Current	I_S				9.0	A
二极管正向压降 Diode Forward Voltage	V_{SD}	$T_j = 25^\circ C, I_S = 9A$ $V_{GS} = 0V$ ③			1.45	V
反向恢复时间 Reverse Recovery Time	t_{rr}	$T_j = 25^\circ C, I_f = 9A$ $di/dt = 100A/\mu s$ ③			20	ns
反向恢复电荷 Reverse Recovery Charge	Q_{rr}			138		nC

●热特性

●Thermal Characteristics

参数 PARAMETER	符号 SYMBOL	最大值 MAX	单位 UNIT
热阻结-壳 Thermal Resistance Junction-case	R_{thJC}	125.0	$^\circ C/W$
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= $25^\circ C$, $V_{DD} = 50V$, $L = 2.0mH$, $R_G = 25\Omega$, $I_{AS} = 9A$
Starting $T_j = 25^\circ C$, $V_{DD} = 50V$, $L = 2.0mH$, $R_G = 25\Omega$, $I_{AS} = 9A$
- 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 $\leq 2\%$

N-沟道功率 MOS 管/ N-CHANNEL POWER MOSFET

SIF9N10A

● 特性曲线

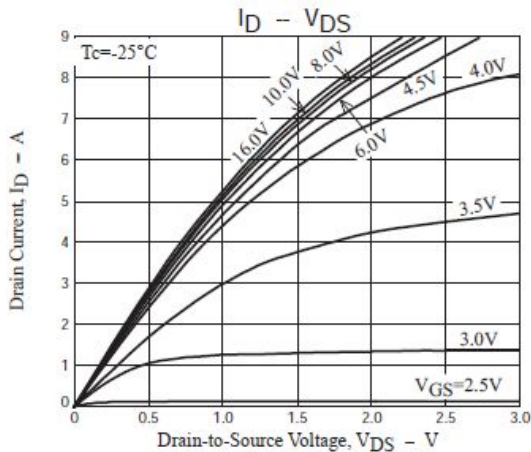


图 1 输出特性曲线, Tc=25°C

Fig1 Typical Output Characteristics, Tc=25°C

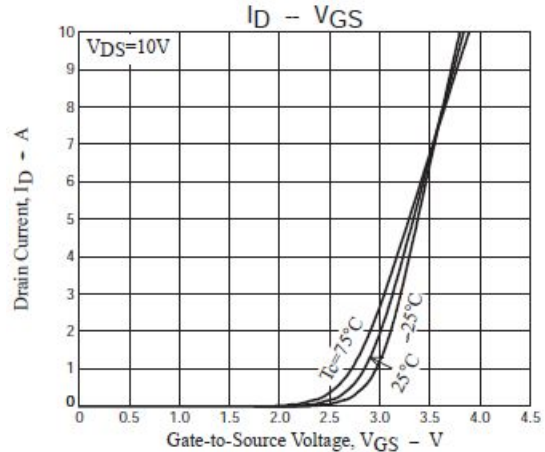


图 2 栅源开启电压与环境温度关系曲线

Fig2 Gate-to-Source Voltage Vs Case Temperature

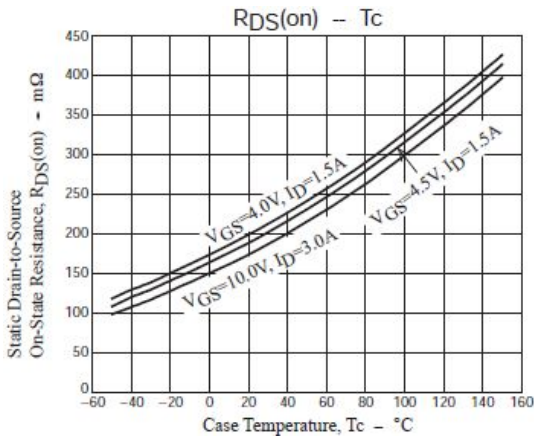


图 3 导通电阻与温度曲线

Fig3 Normalized On-Resistance Vs. Temperature

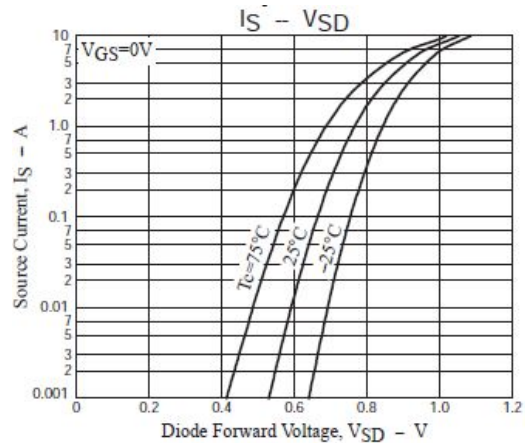


图 4 二极管正向压降与正向电流曲线

Fig4 Typical Source-Drain Diode Forward Voltage

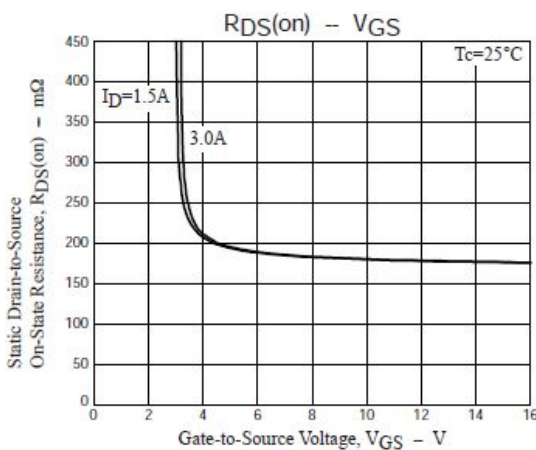


图 5 漏极电流与导通电阻曲线

Fig5 Drain-current Vs On-Resistance

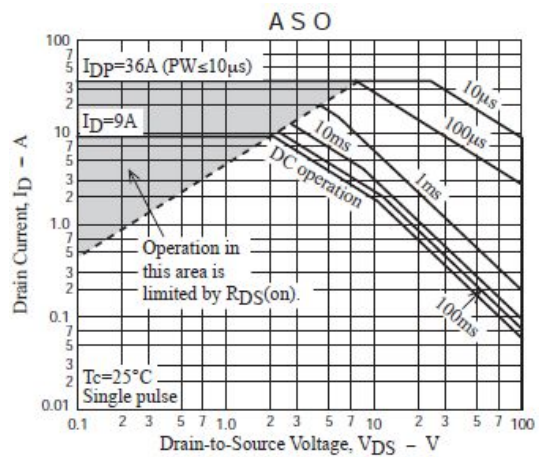


图 6 最大安全工作区

Fig6 Maximum Safe Operating Area

TO-92 封装机械尺寸 TO-92 MECHANICAL DATA

单位:毫米/UNIT: mm

符号/SYMBOL	最小值/min	典型值/nom	最大值/max
A	4.30		5.30
b	0.30		0.55
c	0.30		0.50
φD D	4.30		5.20
d	1.00		1.70
E	3.20		4.20
e		2.54	
e1		1.27	
L	12.70		15.00
L1	1.50		2.00

