

N-沟道功率 MOS 管/ N-CHANNEL POWER MOSFET

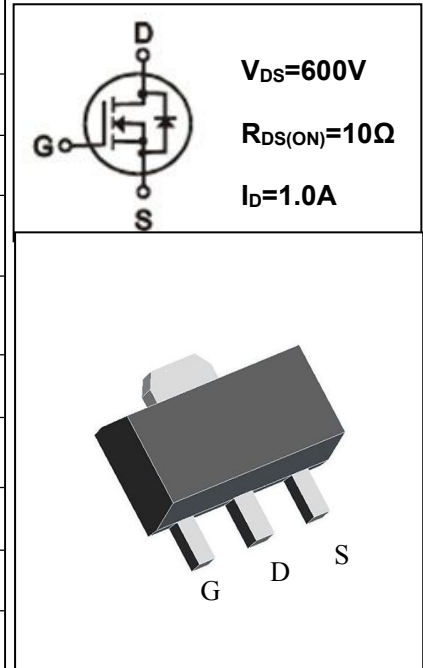
SIF1N60E

- 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 _{DS}	600	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	0.6*	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 Energy ②	E _{AS}		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	600			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} = 600V, V _{GS} = 0V, T _J = 25°C			25	μA
		V _{DS} = 480V, V _{GS} = 0V, T _J = 125°C			250	μA
跨导 Forward Transconductance	g _{fs}	V _{DS} = 40V, I _D = 0.5A ③	0.5			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
SOT-89 编带装/TAPE & REEL PACKING	SIF1N60E SOT-89-TR	SIF1N60E SOT-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}	$V_{GS} = \pm 30V$			± 100	nA
漏-源导通电阻 Static Drain-source On Resistance	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 0.5A$ ③		10.0	12	Ω
输入电容 Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 25V$ $F = 1.0MHz$		120		pF
输出电容 Output Capacitance	C_{oss}			25		
反向传输电容 Reverse transfer Capacitance	C_{rss}			5.4		
关断延迟 Turn -Off Delay Time	$T_d(off)$	$V_{DD} = 300V, I_D = 1.0A$ $R_G = 25\Omega$ ③		13		ns
栅极电荷 Total Gate Charge	Q_g	$I_D = 1.0A, V_{DS} = 480V$ $V_{GS} = 10V$ ③		4.8		nC
栅源电荷 Gate-to-Source Charge	Q_{gs}			0.7		nC
栅漏电荷 Gate-to-Drain Charge	Q_{gd}			2.7		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}	$T_j = 25^\circ C, I_S = 0.5A$ $V_{GS} = 0V$ 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
		SOT-89	
热阻结-壳 Thermal Resistance Junction-case	R_{thJC}	41.67	$^\circ C/W$
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= $25^\circ C$, $V_{DD} = 50V$, $L = 30mH$, $R_G = 25\Omega$, $I_{AS} = 1.0A$
Starting $T_j = 25^\circ C$, $V_{DD} = 50V$, $L = 30mH$, $R_G = 25\Omega$, $I_{AS} = 1.0A$
- 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

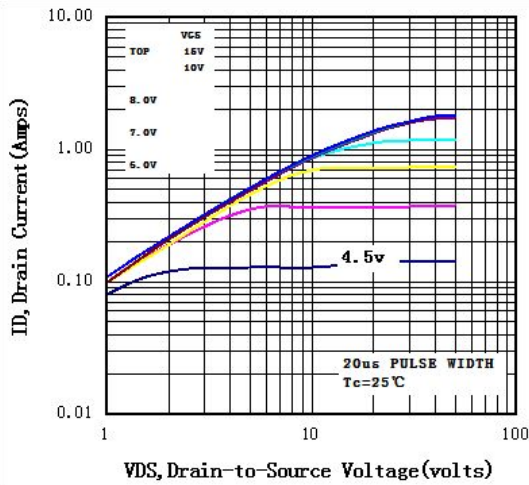


图 1 输出特性曲线, $T_c=25^\circ\text{C}$
Fig1 Typical Output Characteristics, $T_c=25^\circ\text{C}$

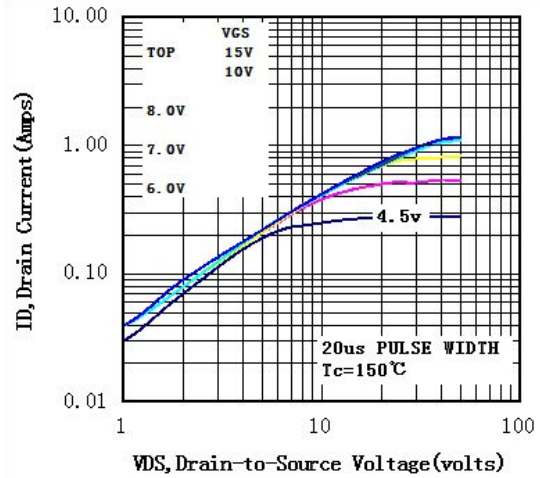


图 2 输出特性曲线, $T_c=150^\circ\text{C}$
Fig2 Typical Output Characteristics, $T_c=150^\circ\text{C}$

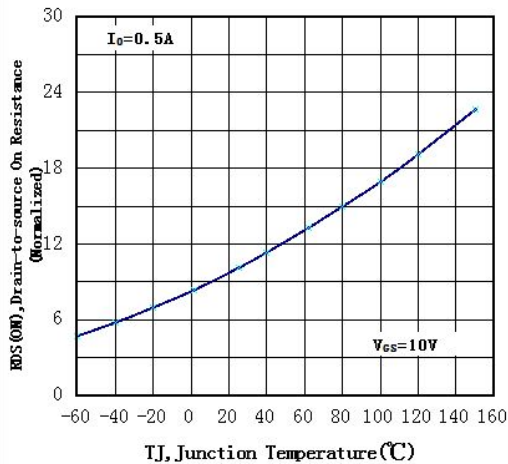


图 3 归一化导通电阻与温度曲线
Fig3 Normalized On-Resistance Vs. Temperature

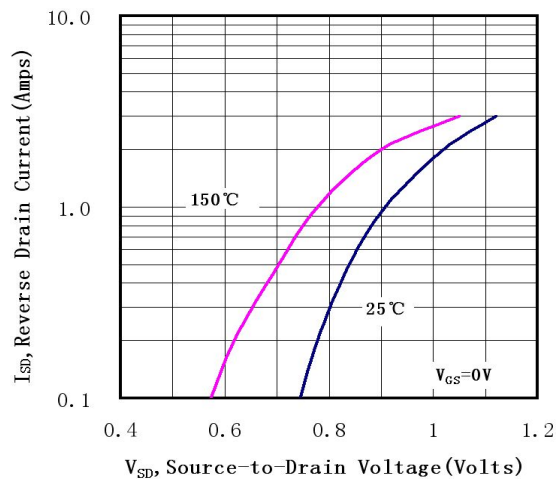


图 4 二极管正向电压曲线
Fig4 Typical Source-Drain Diode Forward Voltage

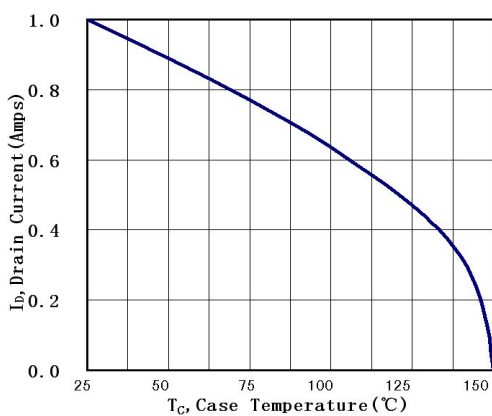


图 5 最大漏极电流与壳温曲线
Fig5 Maximum Drain Current Vs. Case Temperature

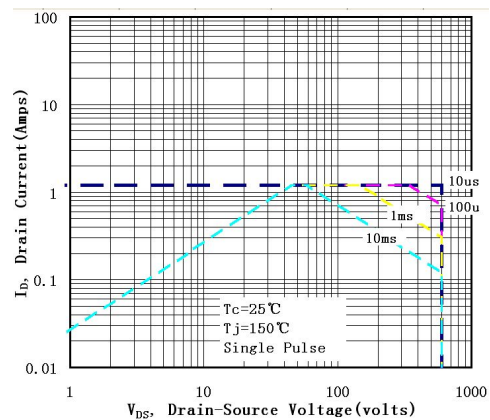


图 6 最大安全工作区曲线
Fig6 Maximum Safe Operating Area

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

