

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

**SIF1N60EA**

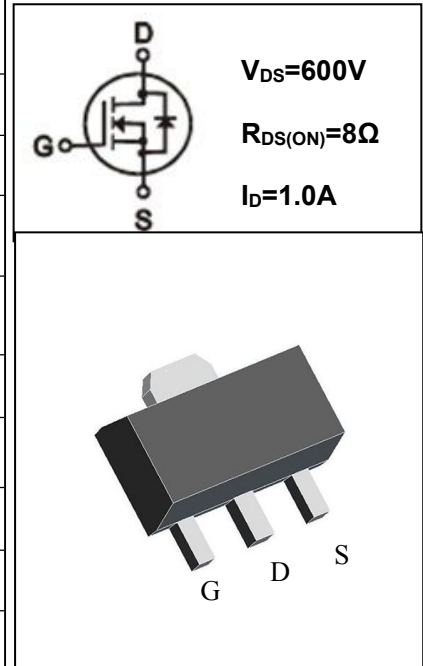
- 特点：导通电阻低 开关速度快 输入阻抗高 符合RoHS规范
- FEATURES: ■LOW ON-RESISTANCE ■FAST SWITCHING ■HIGH INPUT RESISTANCE ■RoHS COMPLIANT
- 应用：电子镇流器 电子变压器 开关电源
- APPLICATION: ■ELECTRONIC BALLAST ■ELECTRONIC TRANSFORMER ■SWITCH MODE POWER SUPPLY

●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>	600	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>	1.0*	A
漏极电流 Continuous Drain Current TC=100°C	I <sub>D</sub>	0.6*	A
最大脉冲电流 Drain Current — Pulsed ①	I <sub>DM</sub>	4.0*	A
耗散功率 Power Dissipation (T <sub>L</sub> =25°C)	P <sub>D</sub>	3	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



\*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	600			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> =600V, V <sub>GS</sub> =0V, T <sub>J</sub> =25°C			25	μA
		V <sub>DS</sub> =480V, 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> =40V, I <sub>D</sub> =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	SIF1N60EA SOT-89-TR	SIF1N60EA 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 ( $V_{DS} = 0$ )	$I_{GSS}$	$V_{GS} = \pm 30V$			$\pm 100$	nA
漏-源导通电阻 Static Drain-source On Resistance	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 0.5A$ ③		8.0	9	$\Omega$
输入电容 Input Capacitance	$C_{iss}$	$V_{GS} = 0V, V_{DS} = 25V$ $F = 1.0MHz$		150		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		$\mu C$

● 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	$R_{thJC}$	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

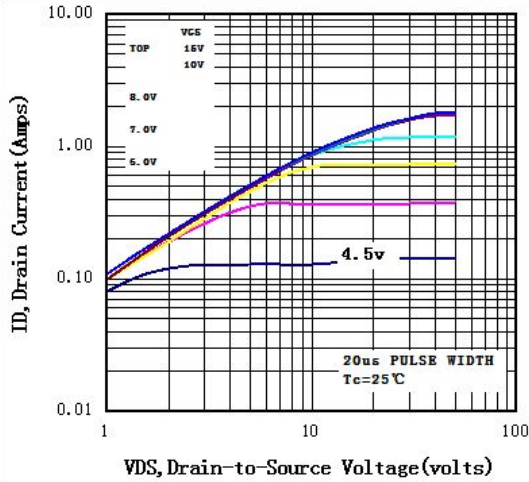


图 1 输出特性曲线,  $T_c=25^\circ\text{C}$   
Fig1 Typical Output Characteristics,  $T_c=25^\circ\text{C}$

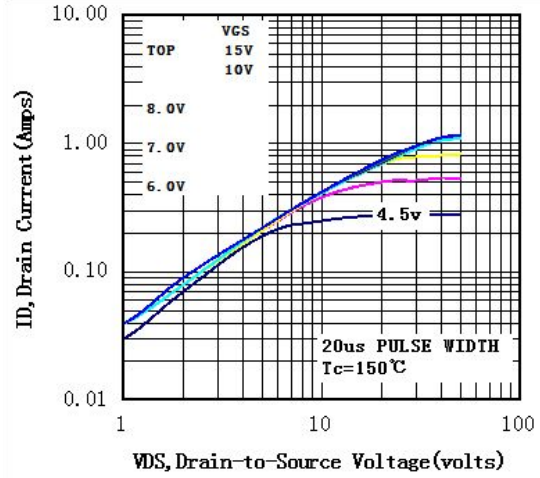


图 2 输出特性曲线,  $T_c=150^\circ\text{C}$   
Fig2 Typical Output Characteristics,  $T_c=150^\circ\text{C}$

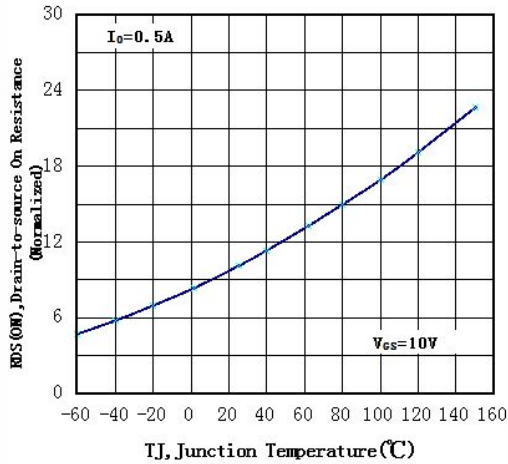


图 3 归一化导通电阻与温度曲线  
Fig3 Normalized On-Resistance Vs. Temperature

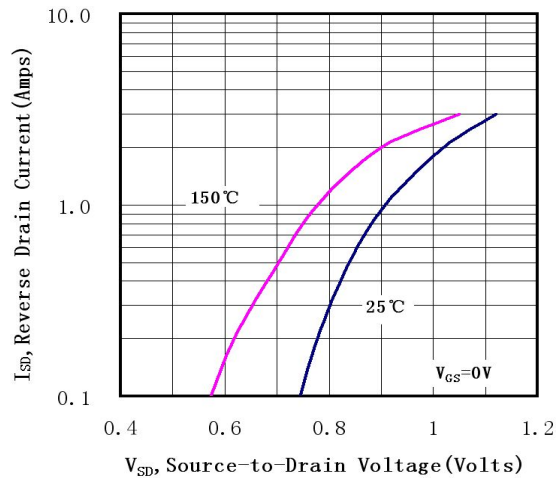


图 4 二极管正向电压曲线  
Fig4 Typical Source-Drain Diode Forward Voltage

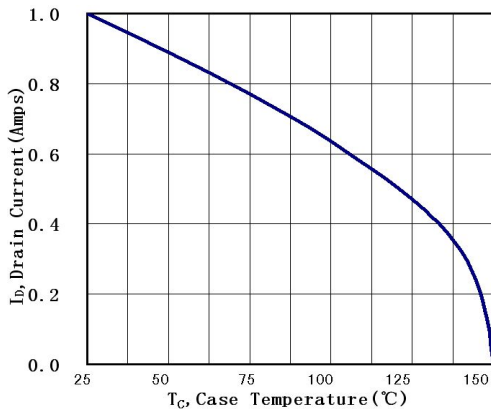


图 5 最大漏极电流与壳温曲线  
Fig5 Maximum Drain Current Vs. Case Temperature

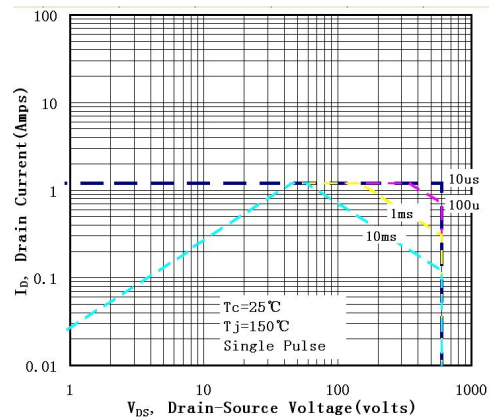


图 6 最大安全工作区曲线  
Fig6 Maximum Safe Operating Area

## 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

