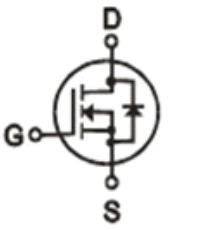
N-沟道功率 MOS 管/ N-CHANNEL POWER MOSFET SIF4N60C

●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

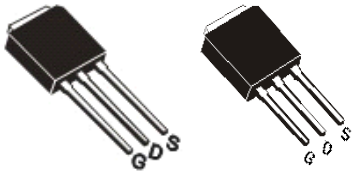
●最大额定值（Tc=25°C）

●Absolute Maximum Ratings（Tc=25°C）　TO-251/251S/252

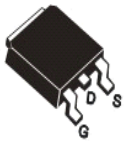
参数 PARAMETER	符号 SYMBOL	额定值 VALUE	单位 UNIT
漏-源电压 Drain-source Voltage	V_{DS}	600	V
栅-源电压 gate-source Voltage	V_{GS}	± 30	V
漏极电流 Continuous Drain Current TC=25℃	I_D	4.0*	A
漏极电流 Continuous Drain Current TC=100℃	I_D	2.5*	A
最大脉冲电流 Drain Current －Pulsed ①	I_{DM}	16*	A
耗散功率 Power Dissipation	P_{tot}	50	W
最高结温 Junction Temperature	Tj	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}	128	mJ



V_{DS}=600V
$R_{DS(ON)}$=2.5Ω
I_D=4.0A



TO-251(IPAK)　TO-251S



TO-252(DPAK)

*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	$\Delta BV_{DSS}/\Delta Tj$	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, Tj=25°C			25	μA
		V_{DS} =480V, V_{GS} =0V, Tj=125°C			250	μA
跨导 Forward Transconductance	gfs	V_{DS} =40V, I_D=2.0A ③		2.5		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-252或251或251S 条管装/TUBE PACKING	SIF4N60C TO-251-TU 或 TO-251S-TU 或 TO-252-TU	SIF4N60C TO-251-TU-HF 或 TO-251S-TU-HF 或 TO-252-TU-HF
TO-252 编带装/TAPE & REEL PACKING	SIF4N60C TO-252-TR	SIF4N60C TO-252-TR-HF

N-沟道功率 MOS 管/ N-CHANNEL POWER MOSFET SIF4N60C

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} =±30V			±100	nA
漏-源导通电阻 Static Drain-source On Resistance	$R_{DS(ON)}$	V_{GS} =10V, I_D=2.0A ③		2.00	2.5	Ω
输入电容 Input Capacitance	Ciss	V_{GS} = 0V, V_{DS} = 25V F = 1.0MHZ		580		pF
关断延迟 Turn -Off Delay Time	Td(off)	V_{DD}=300V, I_D =4.0A R_G=25Ω ③		20		ns
栅极电荷 Total Gate Charge	Qg	I_D =4.0A, V_{DS} = 480V V_{GS} = 10V ③		14.8		nC
栅源电荷 Gate-to-Source Charge	Qgs			3.4		nC
栅漏电荷 Gate-to-Drain Charge	Qgd			4.8		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}	Tj=25°C, Is=4.0A V_{GS} =0V ③			1.4	V
反向恢复时间 Reverse Recovery Time	trr	Tj=25°C, If=4.0A di/dt=100A/μs ③		390		ns
反向恢复电荷 Reverse Recovery Charge	Qrr			1.5		uC

●热特性
●Thermal Characteristics

参数 PARAMETER	符号 SYMBOL	最大值 MAX	单位 UNIT
		TO-251/251S/252	
热阻结-壳 Thermal Resistance Junction-case	Rth_{JC}	2.50	℃/W
热阻结-环境 Thermal Resistance Junction-ambient	Rth_{JA}	110.0	℃/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°C, V_{DD} =50V, L=25mH, R_G =25Ω, I_{AS}=4.0A
Starting Tj=25°C, V_{DD} =50V, L=25mH, R_G =25Ω, I_{AS}=4.0A

③ 脉冲测试：脉冲宽度≤ 300μs ， 占空比≤ 2 %
Pulse Test : Pulse width ≤ 300μs, Duty cycle ≤ 2%

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● 特性曲线

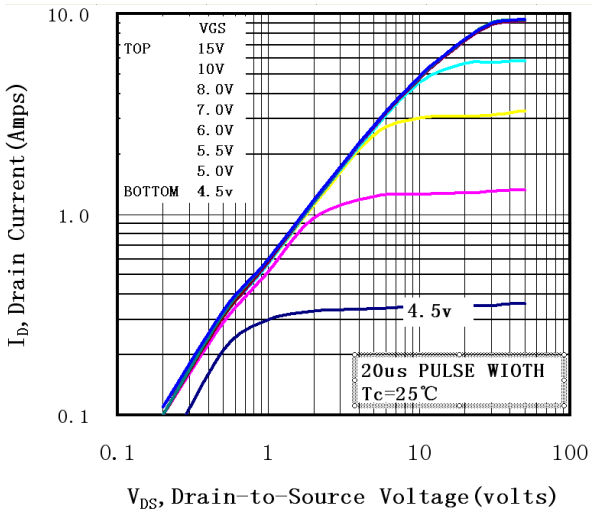


图 1 输出特性曲线, Tc=25℃

Fig1 Typical Output Characteristics, Tc=25℃

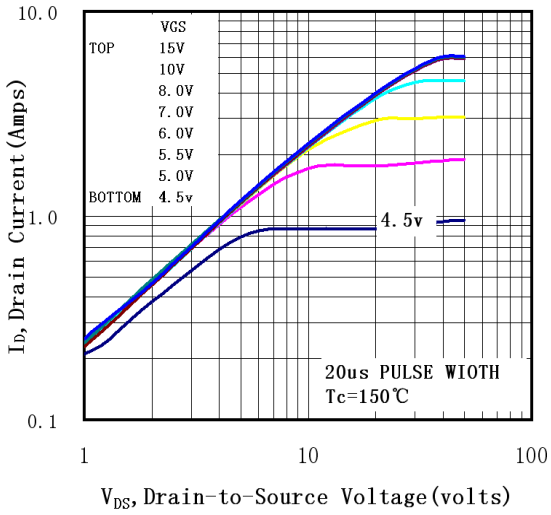


图 2 输出特性曲线, Tc=150℃

Fig2 Typical Output Characteristics, Tc=150℃

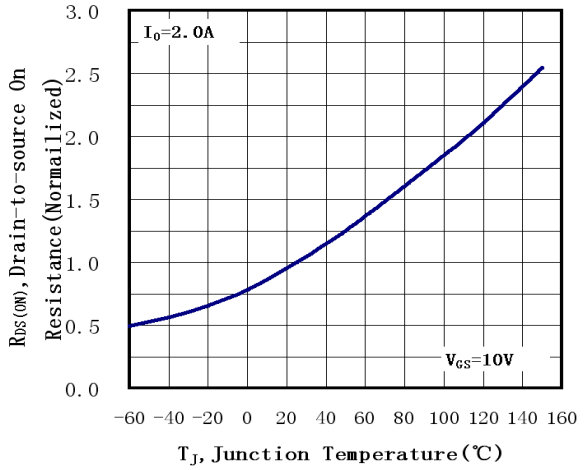


图 3 归一化导通电阻与温度曲线

Fig3 Normalized Resistance Vs.Temperature

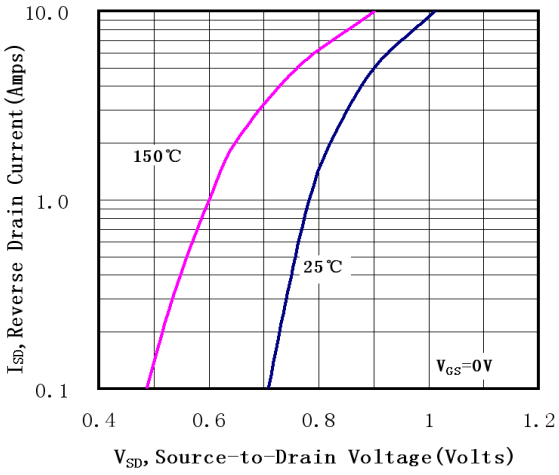


图 4 二极管正向电压曲线

Fig4 Typical Source-Drain Diode Forward Voltage

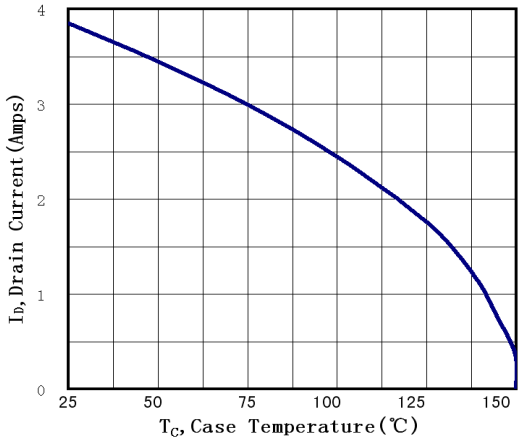


图 5 最大漏极电流与壳温曲线

Fig5 Maximum Drain Current Vs.Case Temperature

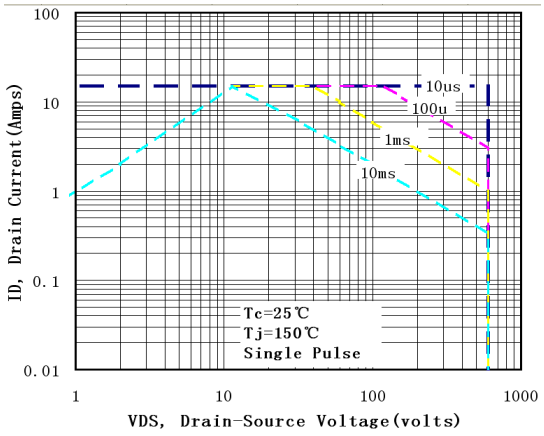


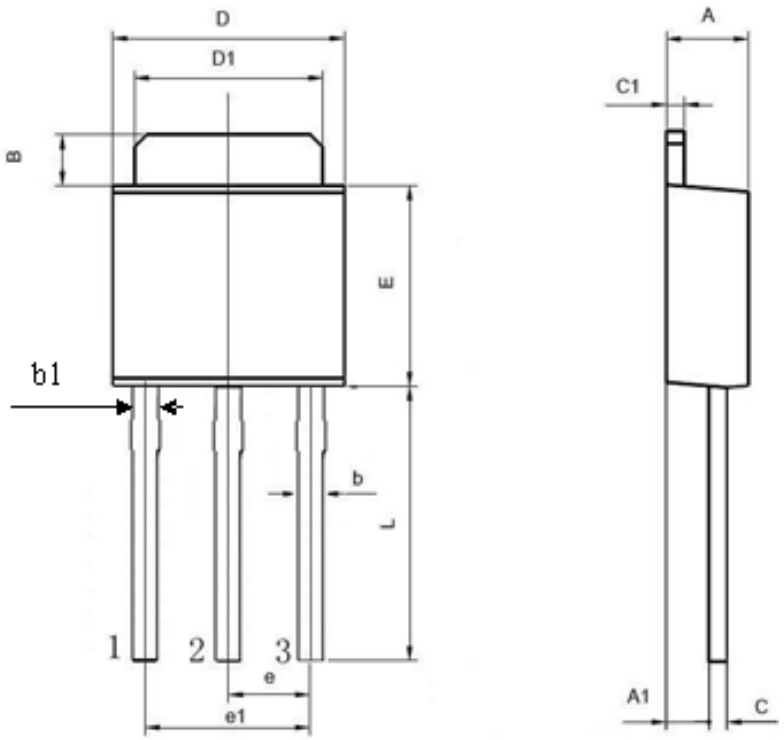
图 6 最大安全工作区曲线

Fig6 Maximum Safe Operating Area

TO-251 封装机械尺寸
TO-251 (IPAK) MECHANICAL DATA

单位:毫米/UNIT：mm

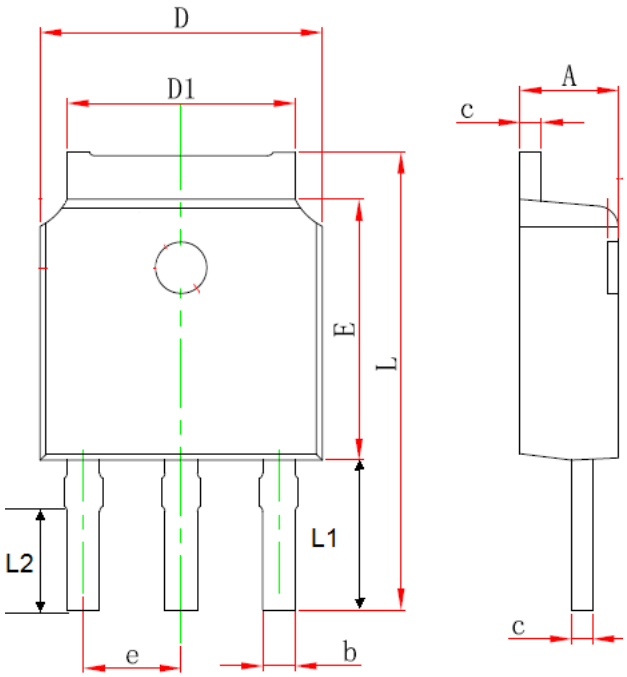
符号/SYMBOL	最小值/min	典型值/nom	最大值/max
A	2.10		2.50
A_1	0.95		1.30
B	0.80		1.25
b	0.50		0.80
b_1	0.70		0.90
c	0.45		0.70
c1	0.45		0.70
D	6.35		6.80
D_1	5.10		5.50
E	5.30		6.30
e	2.25	2.30	2.35
L	7.00		9.20



TO-251S 封装机械尺寸
TO-251S (IPAK) MECHANICAL DATA

单位:毫米/UNIT：mm

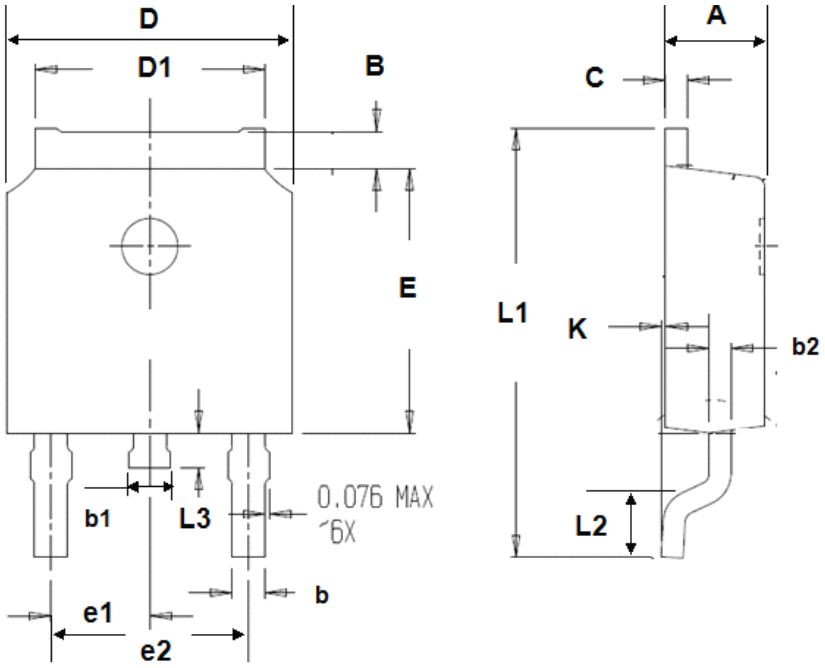
符号/SYMBOL	最小值/min	典型值/nom	最大值/max
A	2.20		2.40
b	0.60		0.85
C	0.45	0.50	0.60
D	6.50		6.70
D1	5.10		5.50
E	5.9		6.20
e	2.18	2.29	2.38
L	11.00		12.40
L1	4.8		5.3
L2	3.5		4.2



TO-252 封装机械尺寸
TO-252 MECHANICAL DATA

单位:毫米/UNIT：mm

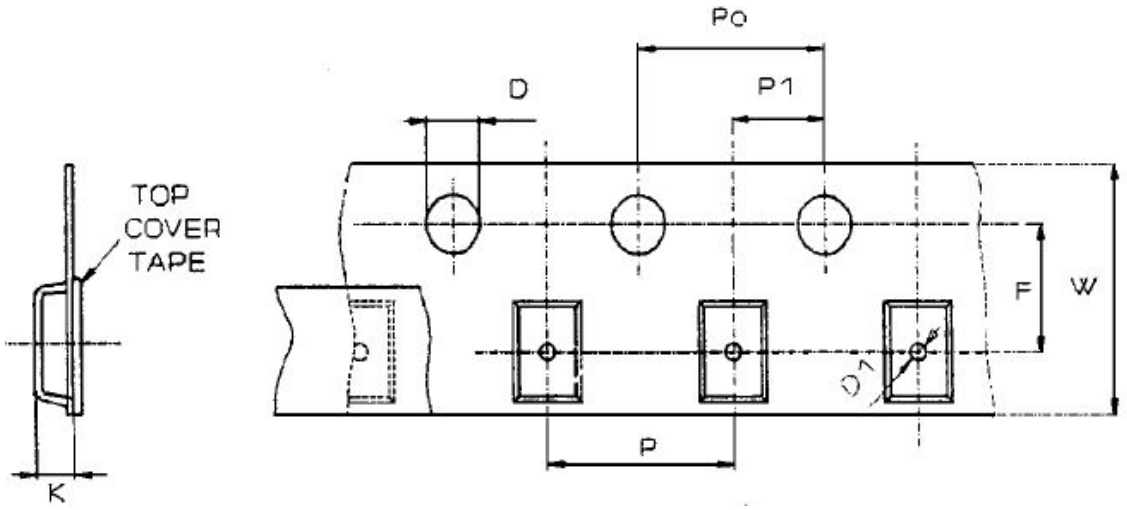
符号 SYMBOL	最小值 min	最大值 max	符号 SYMBOL	最小值 min	最大值 max
A	2.10	2.50	B	0.85	1.25
b	0.50	0.80	b1	0.50	0.90
b2	0.45	0.70	C	0.45	0.70
D	6.30	6.75	D1	5.10	5.50
E	5.30	6.30	e1	2.25	2.35
L1	9.20	10.60	e2	4.45	4.75
L2	0.90	1.75	L3	0.60	1.10
K	0.00	0.23			



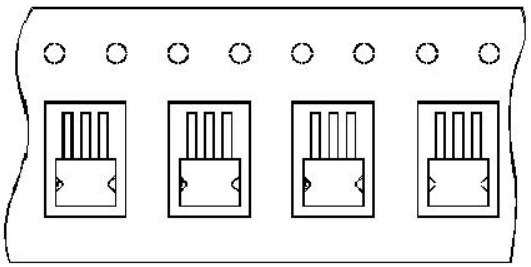
TO-252 编带规格尺寸
TO-252 TAPE AND REEL DATA

单位:毫米/UNIT：mm

符号 SYMBOL	最小值 min	最大值 max	符号 SYMBOL	最小值 min	最大值 max
W	16.0-0.3	16.0+0.3	F	7.5-0.1	7.5+0.1
P0	4.0-0.1	4.0+0.1	D	1.5-0.0	1.5+0.1
P	8.0-0.1	8.0+0.1	P1	2.0-0.1	2.0+0.1
K	2.65	2.80	D1	1.5-0.0	1.5+0.1



使用供带方向/USER DIRECTION OF FEED



编带器件定位/UNIT ORIENTATION