N-沟道功率 MOS 管/ N-CHANNEL POWER MOSFET SIF18N65F

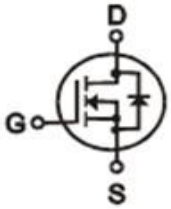
●特点：热阻低　开关速度快　输入阻抗高　符合RoHS规范
●**FEATURES**：■LOW THERMAL RESISTANCE ■FAST SWITCHING ■HIGH INPUT RESISTANCE ■RoHS COMPLIANT
●应用：电子镇流器　电子变压器　开关电源
●**APPLICATION**: ■ELECTRONIC BALLAST ■ELECTRONIC TRANSFORMER ■SWITCH MODE POWER SUPPLY

●最大额定值（TC=25°C）

●Absolute Maximum Ratings（Tc=25°C）

TO-220/220FP(L)/262/263

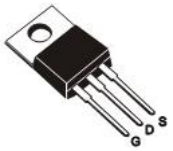
参数 PARAMETER	符号 SYMBOL	额定值 VALUE	单位 UNIT
漏-源电压 Drain-source Voltage	V_{DS}	650	V
栅-源电压 gate-source Voltage	V_{GS}	±30	V
漏极电流 Continuous Drain Current TC=25℃	I_D	18	A
漏极电流 Continuous Drain Current TC=100℃	I_D	11	A
最大脉冲电流 Drain Current －Pulsed ①	I_{DM}	72	A
耗散功率 Power Dissipation	P_{tot}	TO-220:225 TO-220FP(L):65	W
最高结温 Junction Temperature	Tj	-55~150	°C
存储温度 Storage Temperature	T_{STG}	-55~150	°C
单脉冲雪崩能量 Single Pulse Avalanche Energy②	E_{AS}	550	mJ



V_{DS}=650V

$R_{DS(ON)}$=0.39Ω

I_D=18A



TO-220

TO-220FP (L)

●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	650			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		0.65		V/°C
栅极开启电压 Gate Threshold Voltage	$V_{GS(TH)}$	V_{GS}=V_{DS}, I_D=250μA	3.0		5.0	V
漏-源漏电流 Drain-source Leakage Current	I_{DSS}	V_{DS} =650V, V_{GS} =0V, Tj=25°C			1	μA
		V_{DS} =520V, V_{GS} =0V, Tj=125°C			10	μA
跨导 Forward Transconductance	gfs	V_{DS} =15V, I_D=9.0A ③		15		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-220 条管装/TUBE PACKING	SIF18N65F TO-220-TU	SIF18N65F TO-220-TU-HF
TO-220FP(L) 条管装/TUBE PACKING	SIF18N65F TO-220FP(L)-TU	SIF18N65F TO-220FP(L)-TU-HF

N-沟道功率 MOS 管/ N-CHANNEL POWER MOSFET SIF18N65F

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=9.0A ③		0.39	0.45	Ω
输入电容 Input Capacitance	Ciss	V_{GS} = 0V, V_{DS} = 25V F = 1.0MHZ		2490		pF
输出电容 Output Capacitance	Coss			260		
反向传输电容 Reverse transfer Capacitance	Crss			21		
关断延迟 Turn -Off Delay Time	Td(off)	V_{DD}=325V, I_D =18A R_G=25Ω ③		175		ns
栅极电荷 Total Gate Charge	Qg	I_D =18A, V_{DS} = 520V V_{GS} = 10V ③		51.8		nC
栅源电荷 Gate-to-Source Charge	Qgs			14.6		nC
栅漏电荷 Gate-to-Drain Charge	Qgd			19.9		nC
二极管正向电流 Continuous Diode Forward Current	I_S				18	A
二极管正向压降 Diode Forward Voltage	V_{SD}	Tj=25°C, Is=18A V_{GS} =0V ③			1.4	V
反向恢复时间 Reverse Recovery Time	trr	Tj=25°C,If=18A di/dt=100A/μs ③		450		ns
反向恢复电荷 Reverse Recovery Charge	Qrr			4.9		uC

●热特性

●Thermal Characteristics

参数 PARAMETER	符号 SYMBOL	最大值 MAX		单位 UNIT
		TO-220	TO-220FP(L)	
热阻结-壳 Thermal Resistance Junction-case	Rth_{JC}	0.56	1.92	℃/W
热阻结-环境 Thermal Resistance Junction-ambient	Rth_{JA}	62.5	62.5	℃/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=25ºC, V_{DD} =50V, L=8mH, R_G =25Ω, I_{AS}=12A

Starting Tj=25ºC, V_{DD} =50V, L=8mH, R_G =25Ω, I_{AS}=12A

③ 脉冲测试：脉冲宽度≤ 300μs ， 占空比≤ 2 %

Pulse Test : Pulse width ≤ 300μs, Duty cycle ≤ 2%

● 特性曲线

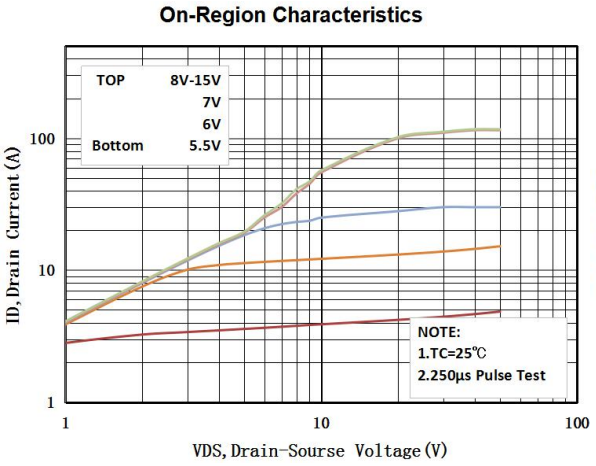


Fig1 Typical Output Characteristics, Tc=25℃

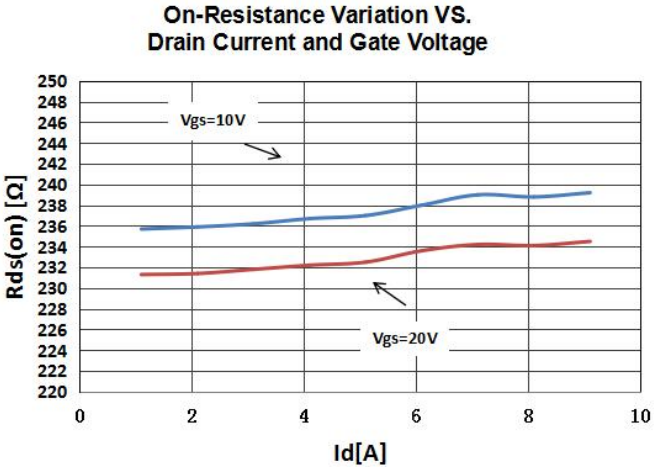


Fig2 On-Resistance Vs.Drain Current and Gate Voltage

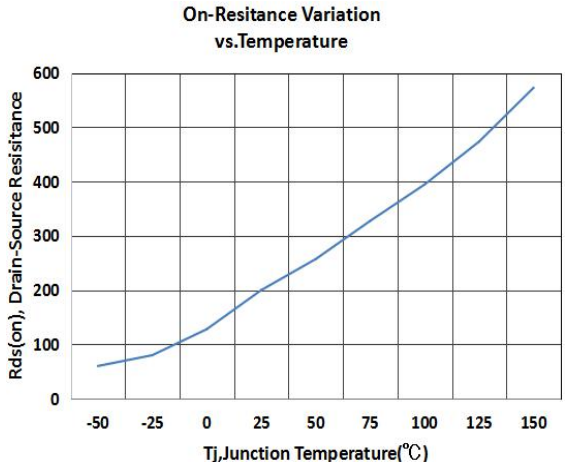


Fig3 On-Resistance Vs.Temperature

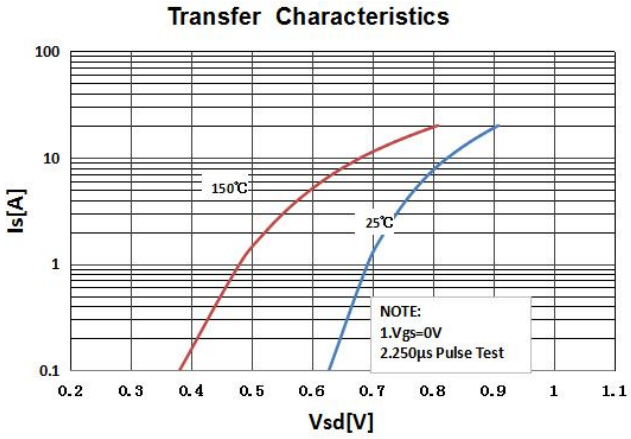


Fig4 Typical Source-Drain Diode Forward Voltage

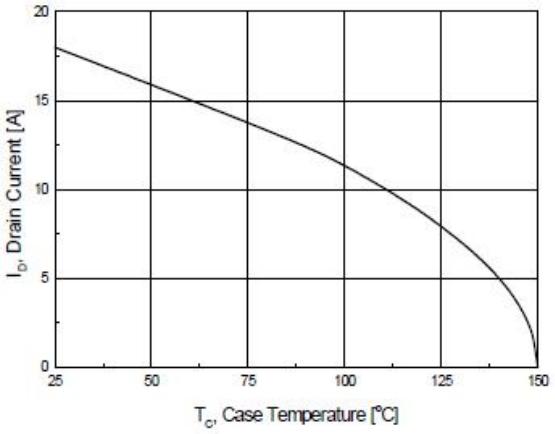


Fig5 Maximum Drain Current Vs.Case Temperature

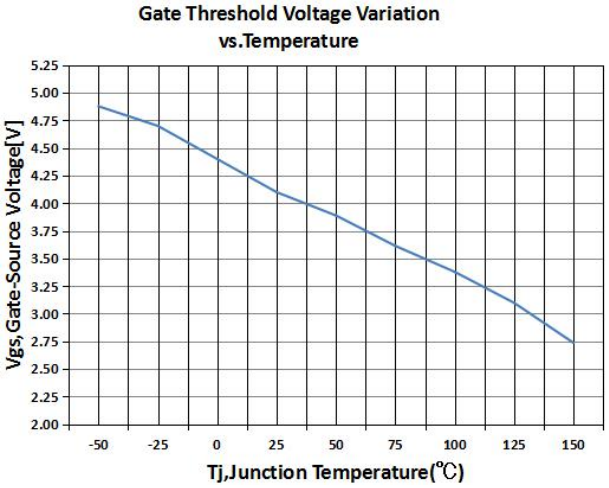


Fig6 Gate Threshold Voltage Variation vs.Temperature

● 特性曲线

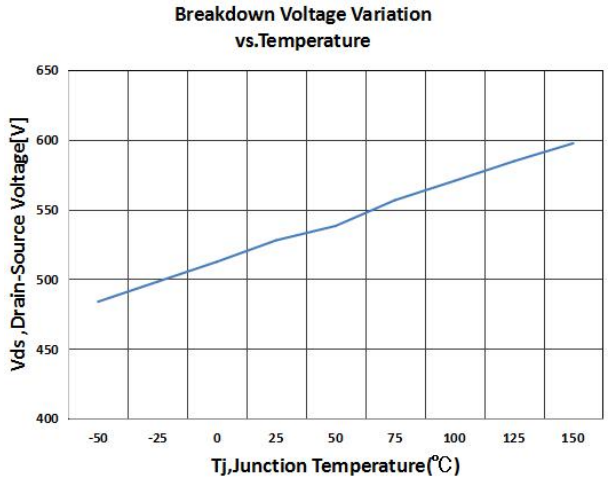


Fig7 Breakdown Voltage Variation vs.Temperature

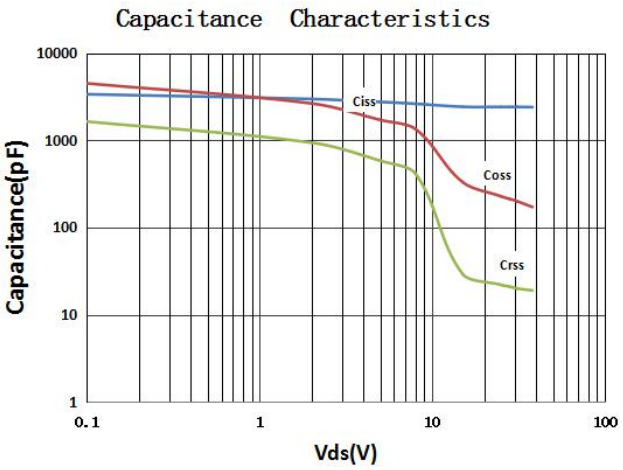


Fig8 Capacitance Characteristics

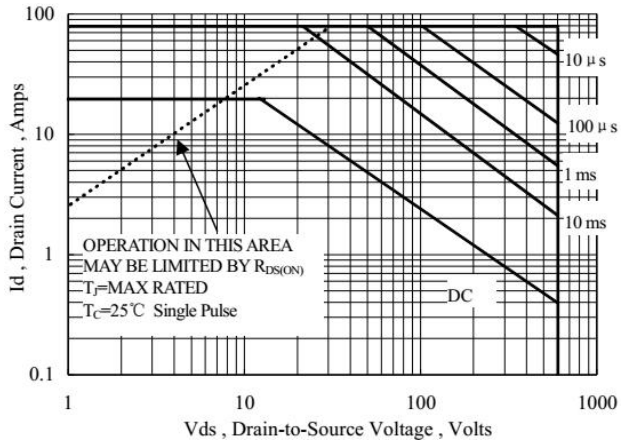


Fig9-1 Maximum Safe Operating Area(TO-220)

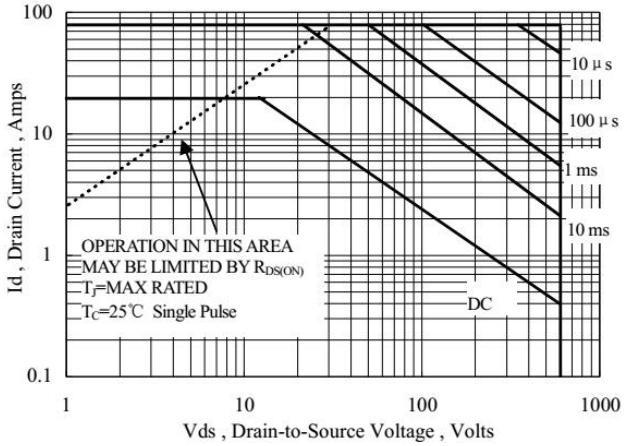


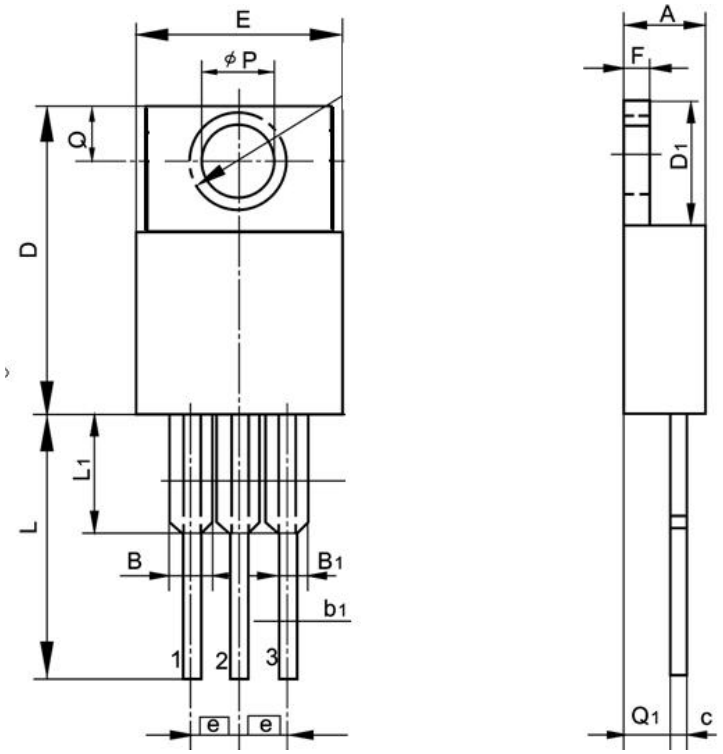
Fig9-2 Maximum Safe Operating Area(TO-220FP)

TO-220 封装机械尺寸

TO-220 MECHANICAL DATA

单位：毫米/UNIT：mm

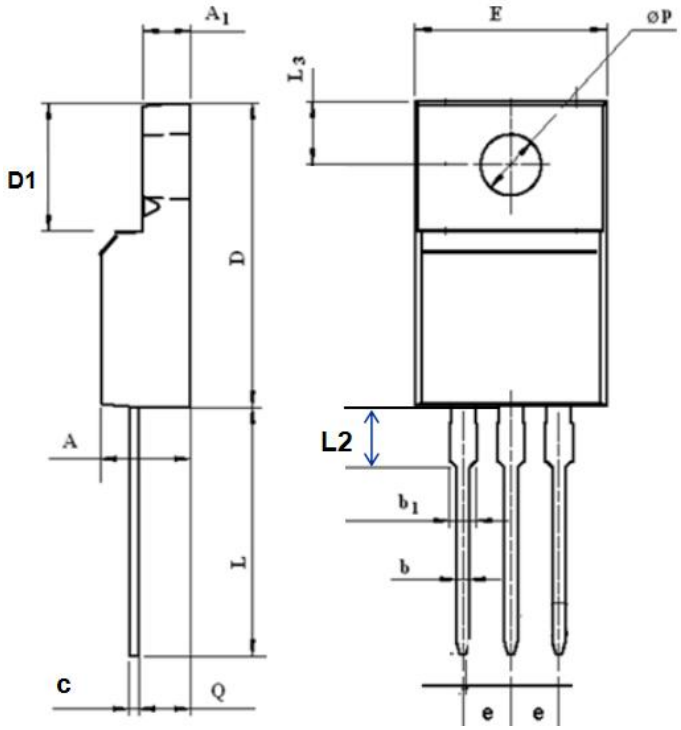
符号 SYMBOL	最小值 min	典型值 nom	最大值 max	符号 SYMBOL	最小值 min	典型值 nom	最大值 max
A	4.00		4.80	E	9.90		10.70
B	1.20		1.50	e		2.54	
B1	1.00		1.40	F	1.10		1.45
b1	0.65		1.00	L	12.50		14.50
c	0.35		0.75	L1	3.00	3.50	4.00
D	15.00		16.50	Q	2.50		3.00
D1	5.90		6.90	Q1	2.00		3.00
				ΦP	3.60		3.90



TO-220FP 封装机械尺寸
TO-220FP MECHANICAL DATA

单位:毫米/UNIT：mm

符号 SYMBOL	最小值 min	典型值 nom	最大值 max	符号 SYMBOL	最小值 min	典型值 nom	最大值 max
A	4.40		4.95	E	9.60		10.30
A_1	2.30		2.90	e		2.54	
b	**0.70**		**0.90**	**L**	**12.40**		**14.00**
b_1	**1.18**		**1.45**	**L_2**	**2.30**		**2.60**
c	**0.40**		**0.70**	L_3	3.00		4.00
D	14.50		17.00	øp	3.00		3.50
D1	6.10		9.00	Q	2.30		2.80



TO-220FPL 封装机械尺寸
TO-220FPL MECHANICAL DATA

单位:毫米/UNIT：mm

符号 SYMBOL	最小值 min	典型值 nom	最大值 max	符号 SYMBOL	最小值 min	典型值 nom	最大值 max
A	9.90		10.36	a	1.08		1.48
B	15.40		16.40	a1	0.70		0.90
B1	3.05		3.55	E	2.34		2.75
C	4.40		5.00	C1	2.25		2.85
c	0.40		0.60	C2	2.45		3.05
b	12.40		13.50	R	2.90		3.35
b1	2.90		3.90