

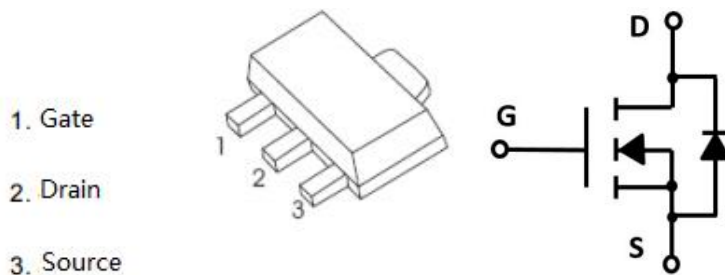


# 安徽富信半导体科技有限公司

ANHUI FOSAN SEMICONDUCTOR TECHNOLOGY CO., LTD.

FS5N10F

## SOT-89 100V N Channel Enhancement 沟道增强型 MOS Field Effect Transistor 场效应管



### ■ Absolute Maximum Ratings 最大额定值

Characteristic 特性参数	Symbol 符号	Rat 额定值	Unit 单位
Drain-Source Voltage 漏极-源极电压	$BV_{DSS}$	100	V
Gate- Source Voltage 栅极-源极电压	$V_{GS}$	$\pm 20$	V
Drain Current (continuous)漏极电流-连续	$I_D$ (at $T_A = 25^\circ C$ )	5	A
Drain Current (pulsed)漏极电流-脉冲	$I_{DM}$	20	A
Total Device Dissipation 总耗散功率	$P_D$ (at $T_A = 25^\circ C$ )	2000	mW
Thermal Resistance Junction-Ambient 热阻	$R_{\theta JA}$	62	$^\circ C/W$
Junction/Storage Temperature 结温/储存温度	$T_J, T_{stg}$	-55~150	$^\circ C$

### ■ Device Marking 产品字标

FS5N10F=5N10



## ■ Electrical Characteristics 电特性

( $T_A=25^{\circ}\text{C}$  unless otherwise noted 如无特殊说明, 温度为  $25^{\circ}\text{C}$ )

Characteristic 特性参数	Symbol 符号	Min 最小值	Typ 典型值	Max 最大值	Unit 单位
Drain-Source Breakdown Voltage 漏极-源极击穿电压( $I_D=250\mu\text{A}, V_{GS}=0\text{V}$ )	$BV_{DSS}$	100	—	—	V
Gate Threshold Voltage 栅极开启电压( $I_D=250\mu\text{A}, V_{GS}=V_{DS}$ )	$V_{GS(th)}$	1	1.65	2.5	V
Zero Gate Voltage Drain Current 零栅压漏极电流( $V_{GS}=0\text{V}, V_{DS}=100\text{V}$ )	$I_{DSS}$	—	—	1	$\mu\text{A}$
Gate Body Leakage 栅极漏电流( $V_{GS}=\pm 20\text{V}, V_{DS}=0\text{V}$ )	$I_{GSS}$	—	—	$\pm 100$	nA
Static Drain-Source On-State Resistance 静态漏源导通电阻( $I_D=3\text{A}, V_{GS}=10\text{V}$ ) ( $I_D=1\text{A}, V_{GS}=4.5\text{V}$ )	$R_{DS(ON)}$	—	86 113	100 130	$\text{m}\Omega$
Diode Forward Voltage Drop 内附二极管正向压降( $I_{SD}=3\text{A}, V_{GS}=0\text{V}$ )	$V_{SD}$	—	—	1.3	V
Input Capacitance 输入电容 ( $V_{GS}=0\text{V}, V_{DS}=50\text{V}, f=1\text{MHz}$ )	$C_{ISS}$	—	210	—	pF
Common Source Output Capacitance 共源输出电容( $V_{GS}=0\text{V}, V_{DS}=50\text{V}, f=1\text{MHz}$ )	$C_{OSS}$	—	30	—	pF
Reverse Transfer Capacitance 反馈电容( $V_{GS}=0\text{V}, V_{DS}=50\text{V}, f=1\text{MHz}$ )	$C_{RSS}$	—	2	—	pF
Total Gate Charge 栅极电荷密度 ( $V_{DS}=50\text{V}, I_D=5\text{A}, V_{GS}=10\text{V}$ )	$Q_g$	—	4	—	nC
Gate Source Charge 栅源电荷密度 ( $V_{DS}=50\text{V}, I_D=5\text{A}, V_{GS}=10\text{V}$ )	$Q_{gs}$	—	2	—	nC
Gate Drain Charge 栅漏电荷密度 ( $V_{DS}=50\text{V}, I_D=5\text{A}, V_{GS}=10\text{V}$ )	$Q_{gd}$	—	1	—	nC
Turn-ON Delay Time 开启延迟时间 ( $V_{DS}=50\text{V}, I_D=1.5\text{A}, R_{GEN}=1\Omega, V_{GS}=10\text{V}$ )	$t_{d(on)}$	—	15	—	ns
Turn-ON Rise Time 开启上升时间 ( $V_{DS}=50\text{V}, I_D=1.5\text{A}, R_{GEN}=1\Omega, V_{GS}=10\text{V}$ )	$t_r$	—	5	—	ns
Turn-OFF Delay Time 关断延迟时间 ( $V_{DS}=50\text{V}, I_D=1.5\text{A}, R_{GEN}=1\Omega, V_{GS}=10\text{V}$ )	$t_{d(off)}$	—	22	—	ns
Turn-OFF Fall Time 关断下降时间 ( $V_{DS}=50\text{V}, I_D=1.5\text{A}, R_{GEN}=1\Omega, V_{GS}=10\text{V}$ )	$t_f$	—	3	—	ns

## ■ Typical Characteristic Curve 典型特性曲线

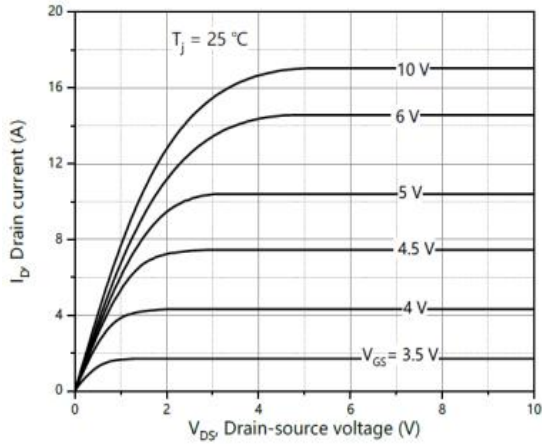


Figure 1: Output Characteristics

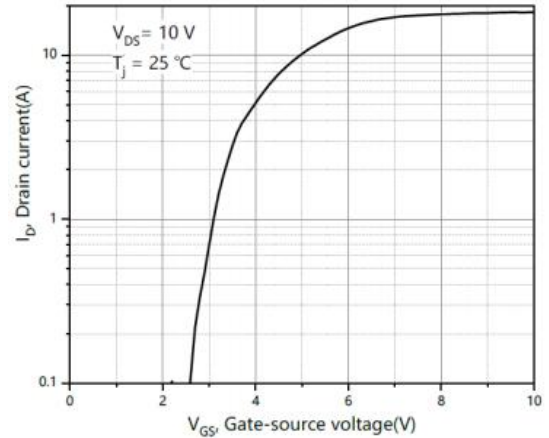


Figure 2: Transfer Characteristics

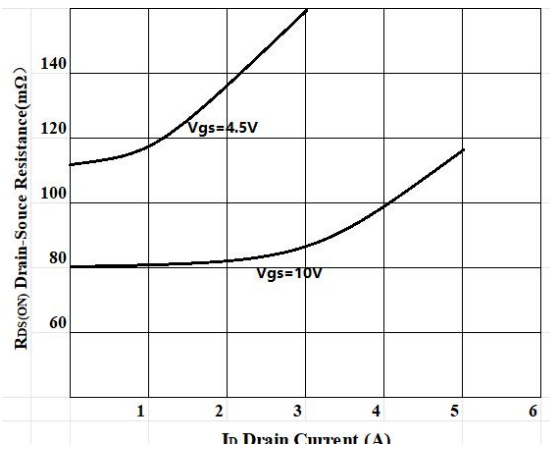


Figure 3: On-Resistance vs. Drain Current

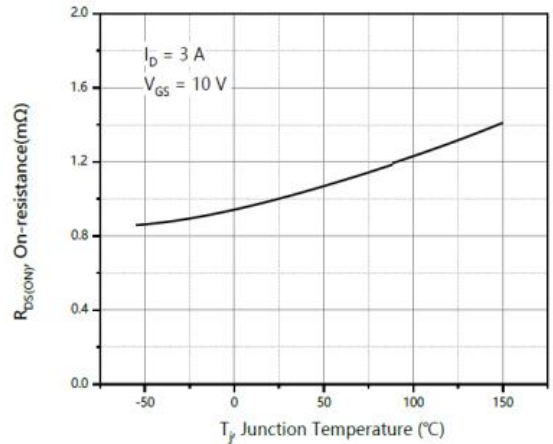


Figure 4: On-Resistance vs. Temperature

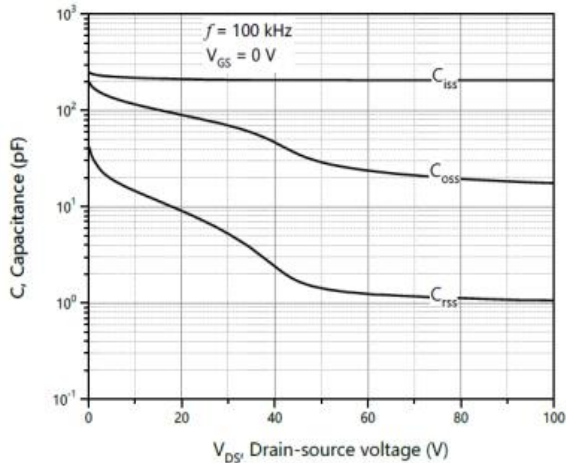


Figure 5: Capacitance Characteristics

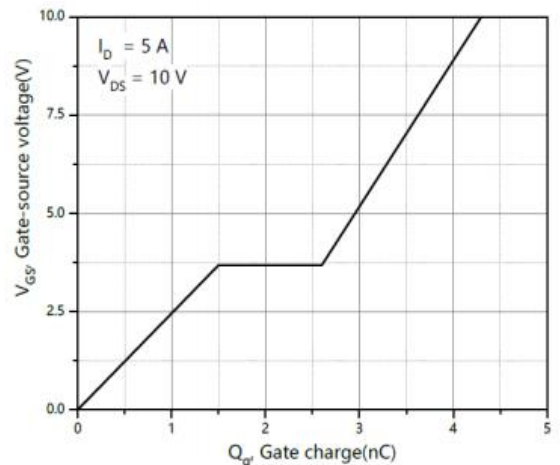


Figure 6: Gate-Charge Characteristics

## ■ Typical Characteristic Curve 典型特性曲线

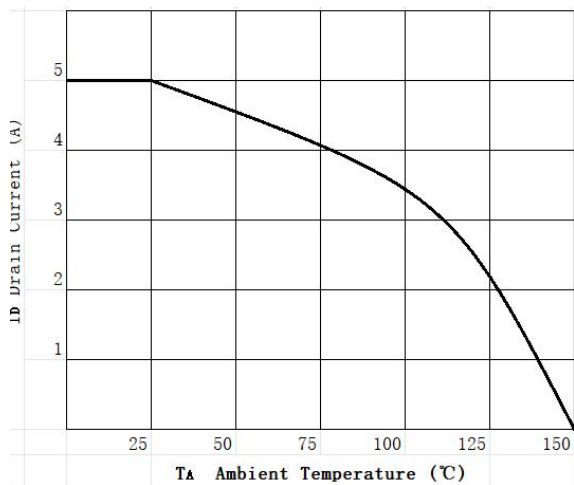


Figure 7: Drain Current vs. Temperature

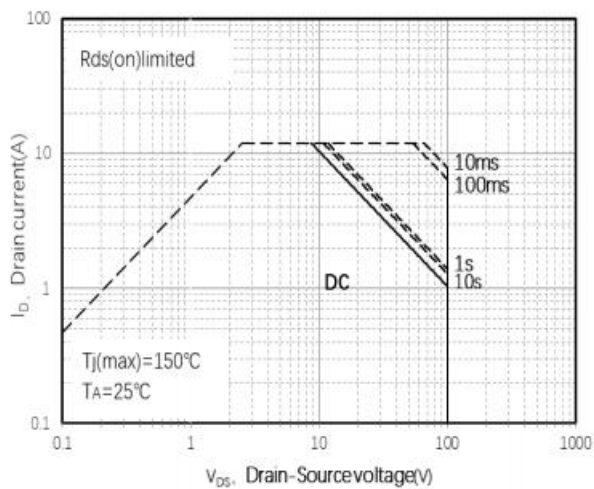


Figure 8: Safe Operating Area

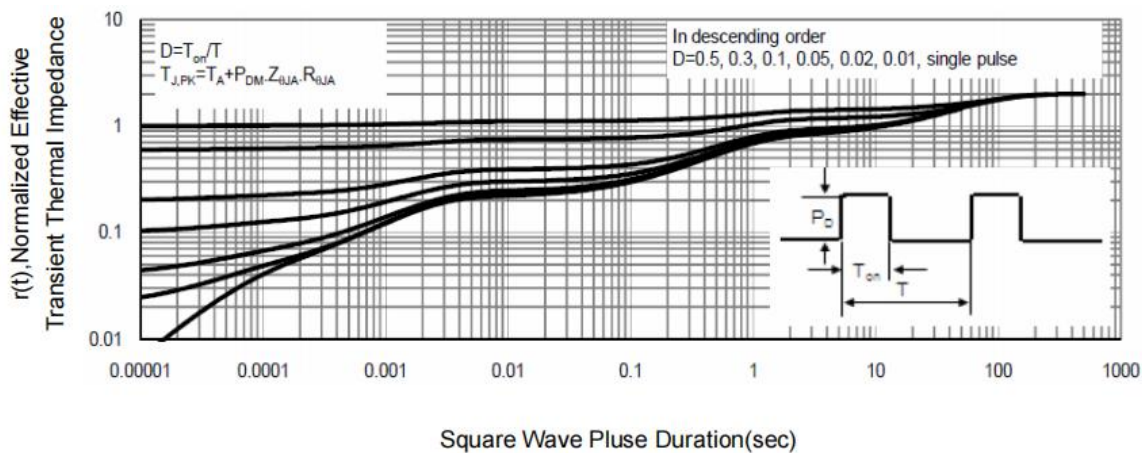
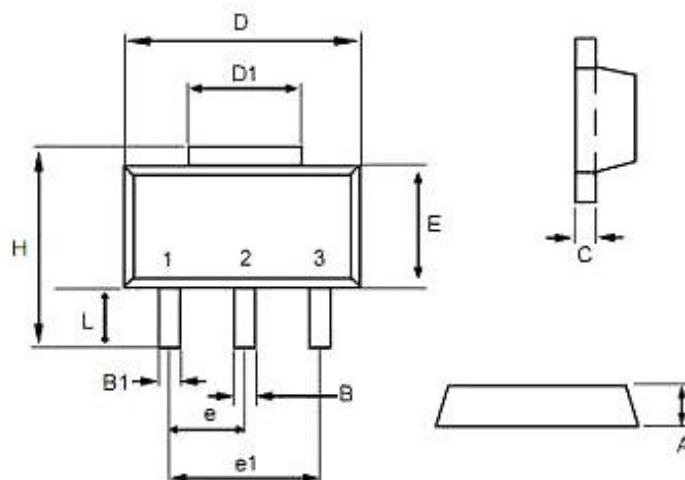


Figure 9: Transient Thermal Response Curve

## Dimension 外形封装尺寸



Dim	min	max
A	1.40	1.60
B	0.40	0.56
B1	0.35	0.48
C	0.35	0.44
D	4.40	4.60
D1	1.35	1.83
e	1.50 BSC	
e1	3.00 BSC	
E	2.29	2.60
H	3.75	4.25
L	0.80	1.20