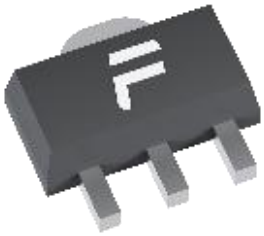
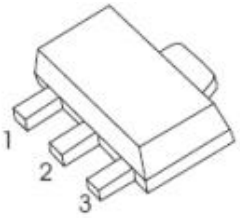
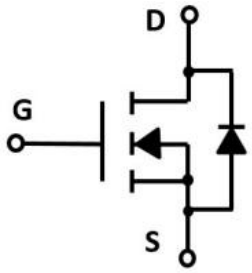
FS3N20F

SOT-89-3L　200V N Channel Enhancement 沟道增强型
MOS Field Effect Transistor 场效应管



1. Gate
2. Drain
3. Source





■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}	200	V
Gate- Source Voltage 栅极-源极电压	V_{GS}	±20	V
Drain Current (continuous)漏极电流-连续	I_D（at T_A = 25°C）	3	A
Drain Current (pulsed)漏极电流-脉冲	I_{DM}	4	A
Total Device Dissipation 总耗散功率	P_D(at T_A = 25°C)	1500	mW
Thermal Resistance Junction-Ambient 热阻	$R_{\Theta JA}$	83	℃/W
Junction/Storage Temperature 结温/储存温度	T_J,T_{stg}	-55~150	℃

■Device Marking 产品字标

FS3N20F=3N20

■Electrical Characteristics 电特性

(T_A=25℃ unless otherwise noted 如无特殊说明，温度为 25℃)

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 =250uA,V_{GS}=0V)	BV_{DSS}	200	—	—	V
Gate Threshold Voltage 栅极开启电压(I_D =250uA,V_{GS}= V_{DS})	$V_{GS(th)}$	1	2	3	V
Zero Gate Voltage Drain Current 零栅压漏极电流(V_{GS}=0V, V_{DS}= 150V)	I_{DSS}	—	—	1	uA
Gate Body Leakage 栅极漏电流(V_{GS}=±20V, V_{DS}=0V)	I_{GSS}	—	—	±100	nA
Static Drain-Source On-State Resistance 静态漏源导通电阻(I_D=1A,V_{GS}=10V) (I_D=1A,V_{GS}=4.5V)	$R_{DS(ON)}$	—	690 710	780 850	mΩ
Diode Forward Voltage Drop 内附二极管正向压降(I_{SD}=1A,V_{GS}=0V)	V_{SD}	—	—	1.2	V
Input Capacitance 输入电容 (V_{GS}=0V, V_{DS}=50V,f=1MHz)	C_{ISS}	—	235	—	pF
Common Source Output Capacitance 共源输出电容(V_{GS}=0V, V_{DS}=50V,f=1MHz)	C_{OSS}	—	36	—	pF
Reverse Transfer Capacitance 反馈电容(V_{GS}=0V, V_{DS}=50V,f=1MHz)	C_{RSS}	—	20	—	pF
Total Gate Charge 栅极电荷密度 (V_{DS}=75V, I_D=1A, V_{GS}=10V)	Q_g	—	8	—	nC
Gate Source Charge 栅源电荷密度 (V_{DS}=75V, I_D=1A, V_{GS}=10V)	Q_{gs}	—	2	—	nC
Gate Drain Charge 栅漏电荷密度 (V_{DS}=75V, I_D=1A, V_{GS}=10V)	Q_{gd}	—	2	—	nC
Turn-ON Delay Time 开启延迟时间 (V_{DS}=75V I_D=1A, R_{GEN}=6Ω,V_{GS}=10V)	$t_{d(on)}$	—	8	—	ns
Turn-ON Rise Time 开启上升时间 (V_{DS}=75V I_D=1A, R_{GEN}=6Ω,V_{GS}=10V)	t_r	—	10	—	ns
Turn-OFF Delay Time 关断延迟时间 (V_{DS}=75V I_D=1A, R_{GEN}=6Ω,V_{GS}=10V)	$t_{d(off)}$	—	20	—	ns
Turn-OFF Fall Time 关断下降时间 (V_{DS}=75V I_D=1A, R_{GEN}=6Ω,V_{GS}=10V)	t_f	—	15	—	ns

■Typical Characteristic Curve 典型特性曲线

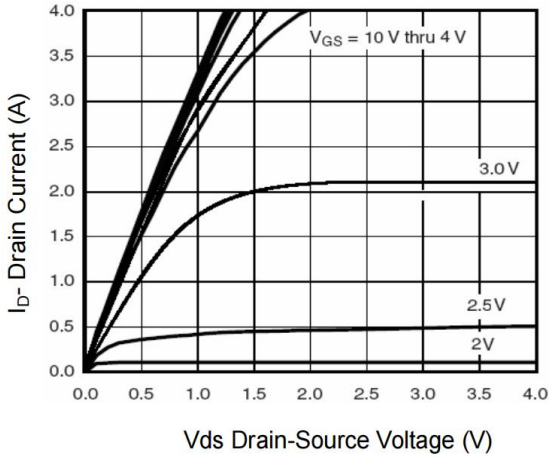


Figure 1: Output Characteristics

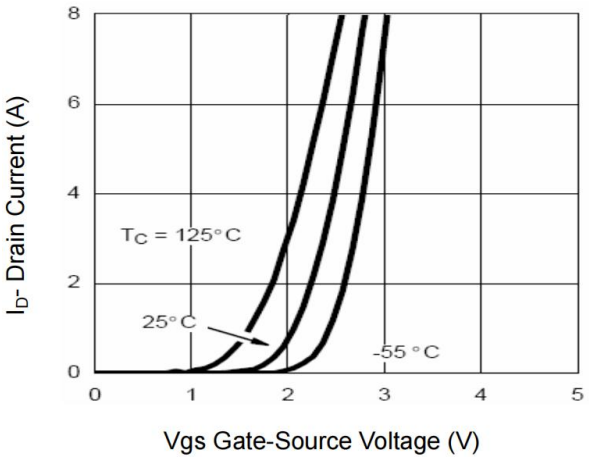


Figure 2: Transfer Characteristics

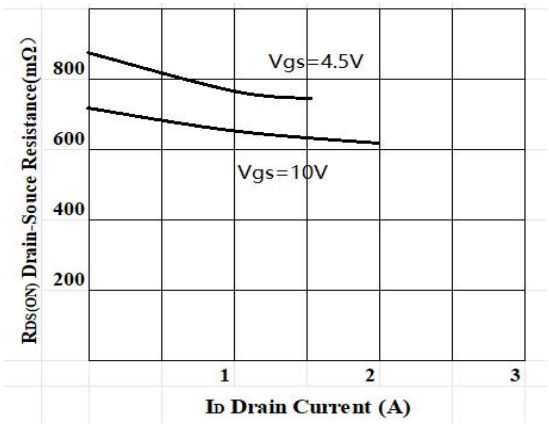


Figure 3: On-Resistance vs. Drain Current

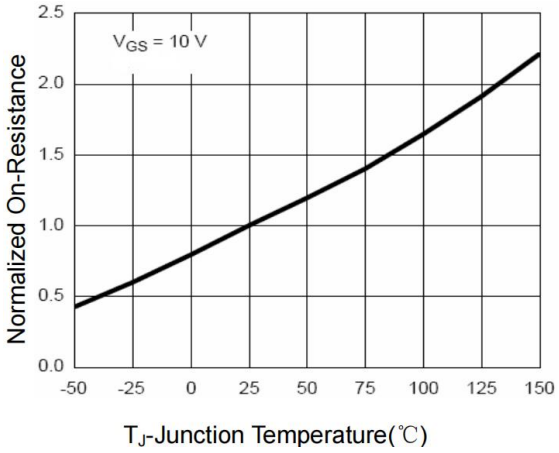


Figure 4: On-Resistance vs. Temperature

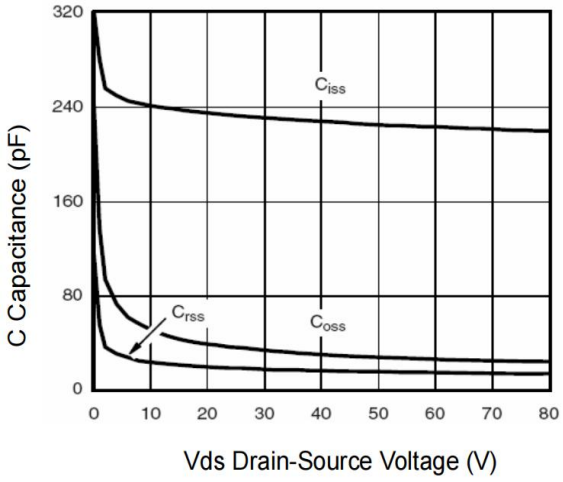


Figure 5: Capacitance Characteristics

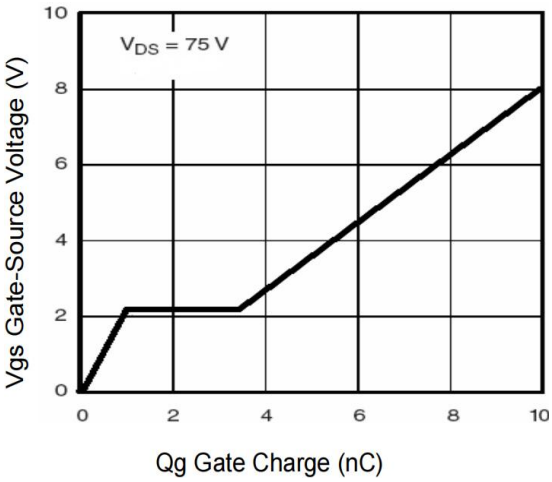


Figure 6: Gate-Charge Characteristics

■Typical Characteristic Curve 典型特性曲线

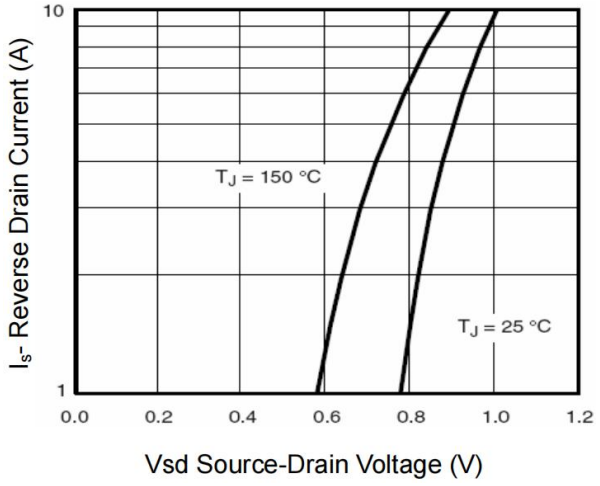


Figure 7: Diode Characteristics

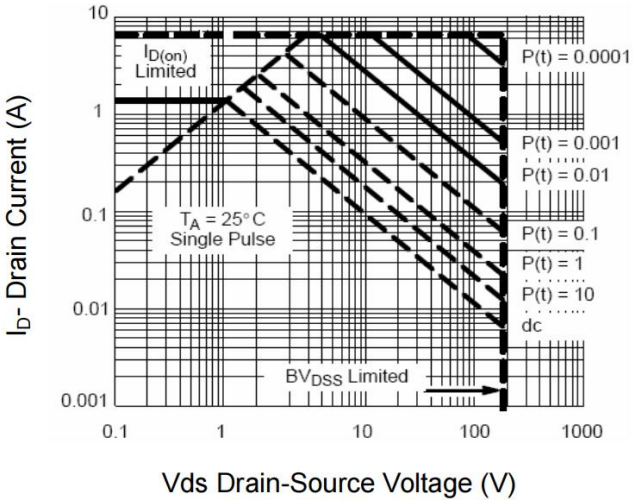


Figure 8: Safe Operating Area

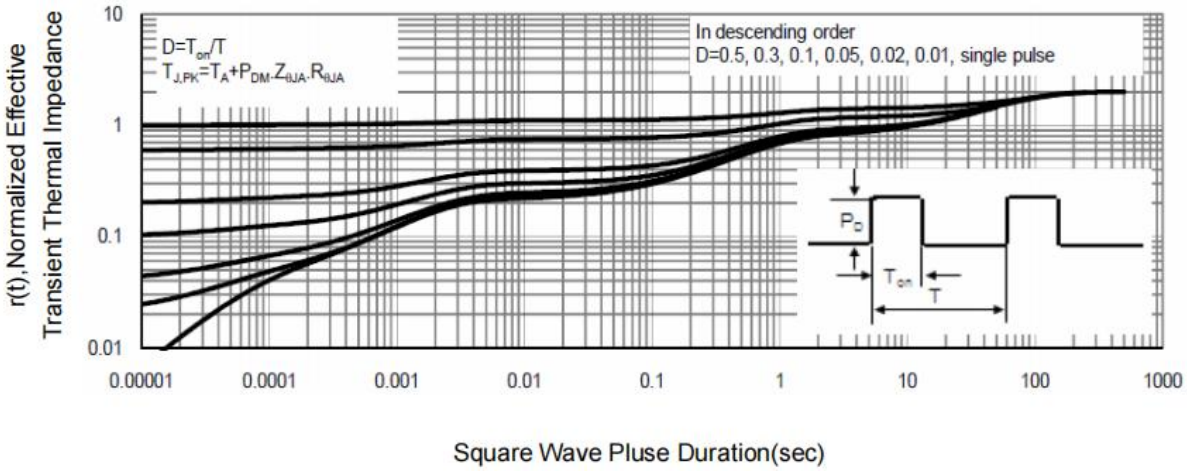
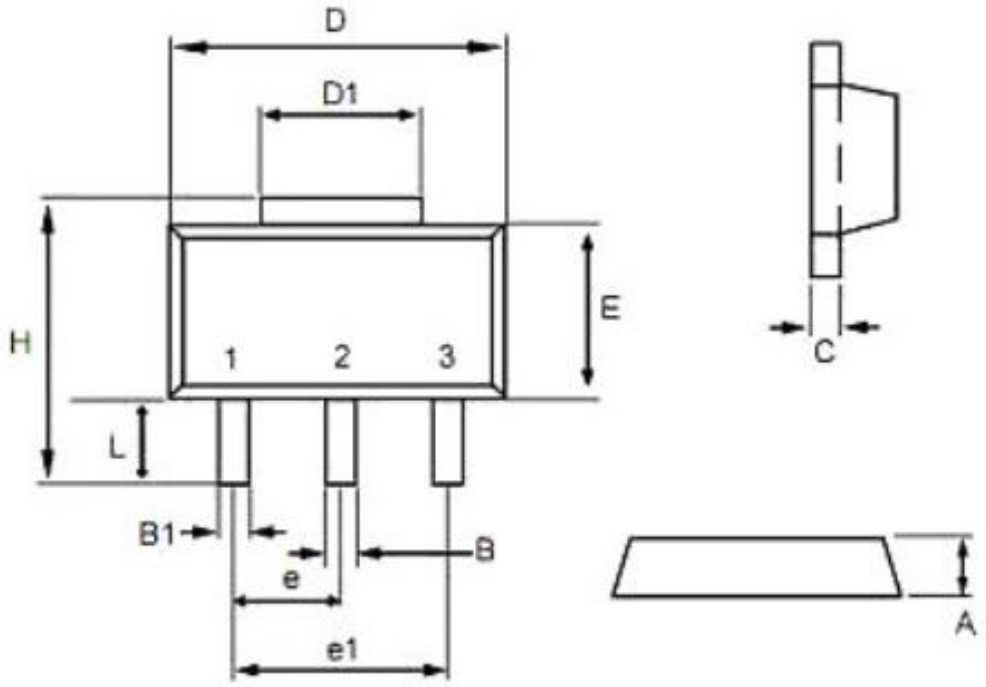


Figure 9: Transient Thermal Response Curve

■Dimension 外形封装尺寸



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.40	1.60	0.055	0.063
B	0.40	0.56	0.016	0.022
B1	0.35	0.48	0.014	0.019
C	0.35	0.44	0.014	0.017
D	4.40	4.60	0.173	0.181
D1	1.35	1.83	0.053	0.072
e	1.45	1.55	0.057	0.061
e1	2.95	3.05	0.116	0.120
E	2.29	2.60	0.090	0.102
H	3.75	4.25	0.148	0.167
L	0.80	1.20	0.031	0.047