安徽富信半导体科技有限公司

ANHUI FOSAN SEMICONDUCTOR TECHNOLOGY CO. , LTD.

FSD4N65

TO-252 N Channel Enhancement 沟道增强型
MOS Field Effect Transistor 场效应管

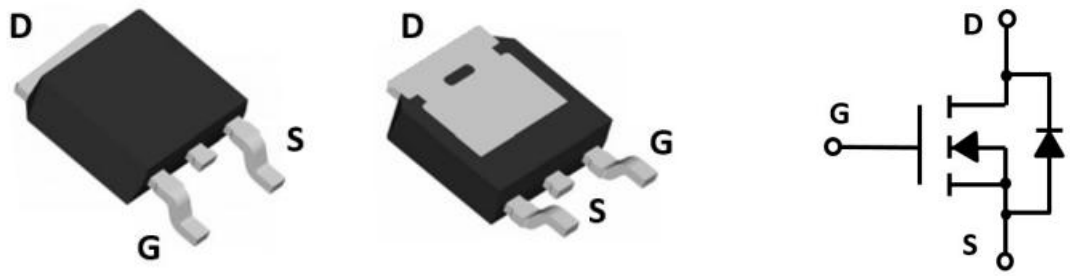
■Features 特点

Low Gate Charge 低电荷密度
$R_{DS(ON)}$=2000mΩ(Type)@V_{GS}=10V

■Applications 应用

Fast switch 快速开关
DC/DC Converter 升压转换
PWM Application 脉宽调制应用

■Internal Schematic Diagram 内部结构



■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}	650	V
Gate- Source Voltage 栅极-源极电压	V_{GS}	±30	V
Drain Current (continuous)漏极电流-连续	I_D	4	A
Drain Current (pulsed)漏极电流-脉冲	I_{DM}	16	A
Total Device Dissipation 总耗散功率	P_D	33	W
Avalanche Energy Single Pulse 雪崩能量	E_{AS}	112	mJ
Thermal Resistance Junction 热阻	$R_{\Theta JA}$	3.8	℃/W
Junction/Storage Temperature 结温/储存温度	T_J,T_{stg}	-55~150	℃

■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}	650	—	—	V
Gate Threshold Voltage 栅极开启电压(I_D =250uA,V_{GS}= V_{DS})	$V_{GS(th)}$	2	3	4	V
Zero Gate Voltage Drain Current 零栅压漏极电流(V_{GS}=0V, V_{DS}= 650V)	I_{DSS}	—	—	10	uA
Gate Body Leakage 栅极漏电流(V_{GS}=±30V, V_{DS}=0V)	I_{GSS}	—	—	±100	nA
Static Drain-Source On-State Resistance 静态漏源导通电阻(I_D=2A,V_{GS}=10V)	$R_{DS(ON)}$	—	2000	2400	mΩ
Diode Forward Voltage Drop 内附二极管正向压降(I_{SD}=4A,V_{GS}=0V)	V_{SD}	—	—	1.4	V
Input Capacitance 输入电容 (V_{GS}=0V, V_{DS}=25V,f=1MHz)	C_{ISS}	—	520	—	pF
Common Source Output Capacitance 共源输出电容(V_{GS}=0V, V_{DS}=25V,f=1MHz)	C_{OSS}	—	70	—	pF
Reverse Transfer Capacitance 反馈电容 (V_{GS}=0V, V_{DS}=25V,f=1MHz)	C_{RSS}	—	8	—	pF
Total Gate Charge 栅极电荷密度 (V_{DS}=520V, I_D=4A, V_{GS}=10V)	Q_g	—	15	—	nC
Gate Source Charge 栅源电荷密度 (V_{DS}=520V, I_D=4A, V_{GS}=10V)	Q_{gs}	—	3	—	nC
Gate Drain Charge 栅漏电荷密度 (V_{DS}=520V, I_D=4A, V_{GS}=10V)	Q_{gd}	—	8	—	nC
Turn-ON Delay Time 开启延迟时间 (V_{DS}=325V I_D=4A, R_{GEN}=25Ω,V_{GS}=10V)	$t_{d(on)}$	—	13	—	ns
Turn-ON Rise Time 开启上升时间 (V_{DS}=325V I_D=4A, R_{GEN}=25Ω,V_{GS}=10V)	t_r	—	45	—	ns
Turn-OFF Delay Time 关断延迟时间 (V_{DS}=325V I_D=4A, R_{GEN}=25Ω,V_{GS}=10V)	$t_{d(off)}$	—	25	—	ns
Turn-OFF Fall Time 关断下降时间 (V_{DS}=325V I_D=4A, R_{GEN}=25Ω,V_{GS}=10V)	t_f	—	35	—	ns

■Typical Characteristic Curve 典型特性曲线

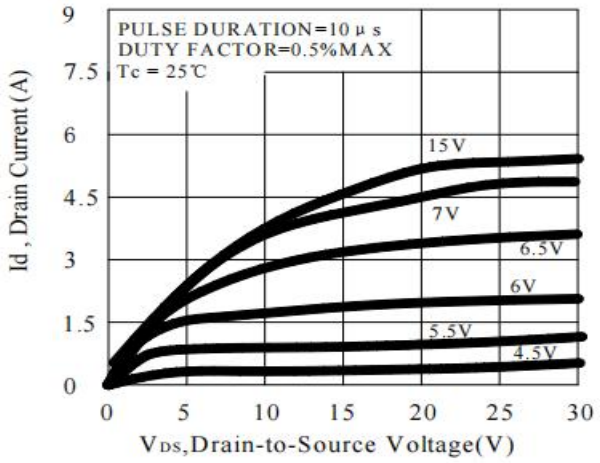


Figure 1: Output Characteristics

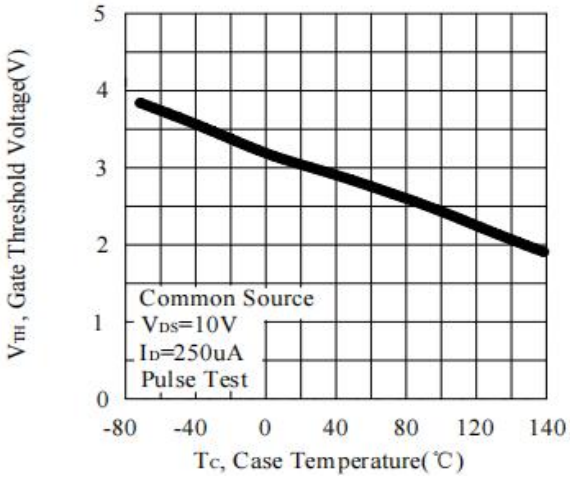


Figure 2: Threshold Voltage Characteristics

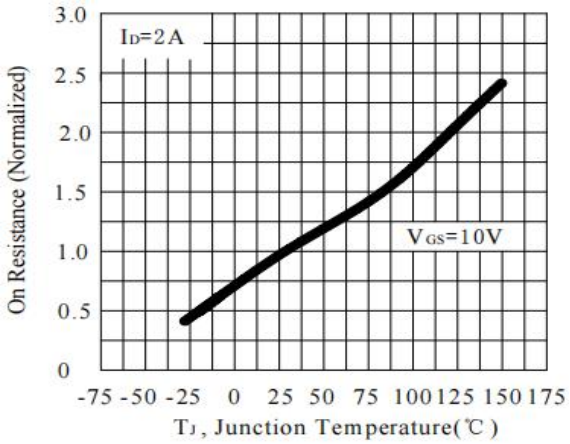


Figure 3: On-Resistance vs. T_J

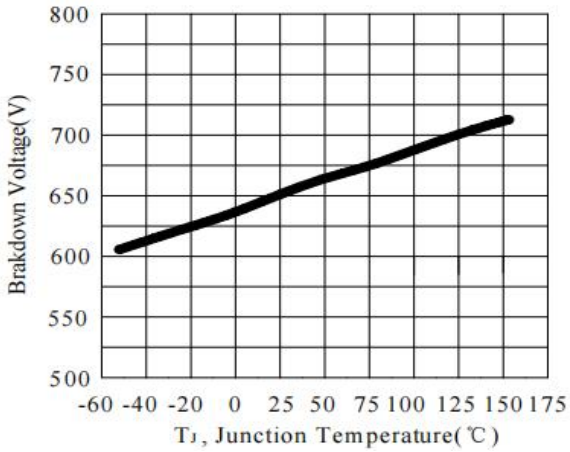


Figure 4:Breakdown Voltage vs. T_J

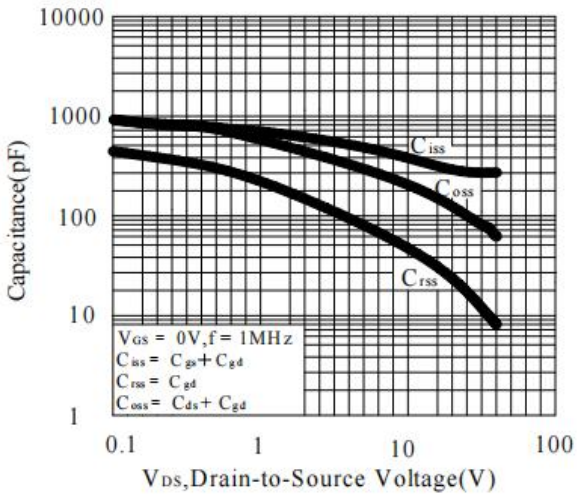


Figure 5: Capacitance Characteristics

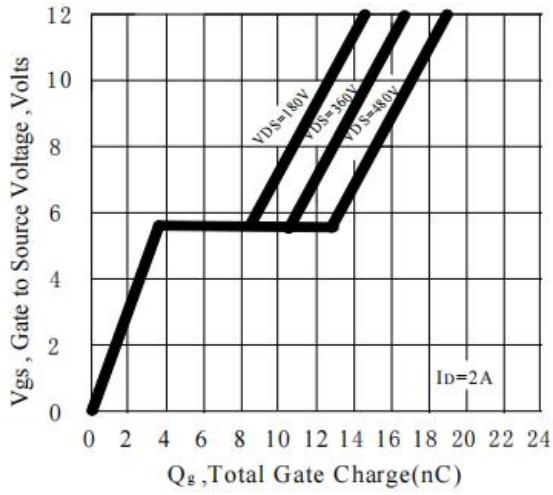


Figure 6: Gate-Charge Characteristics

■Typical Characteristic Curve 典型特性曲线

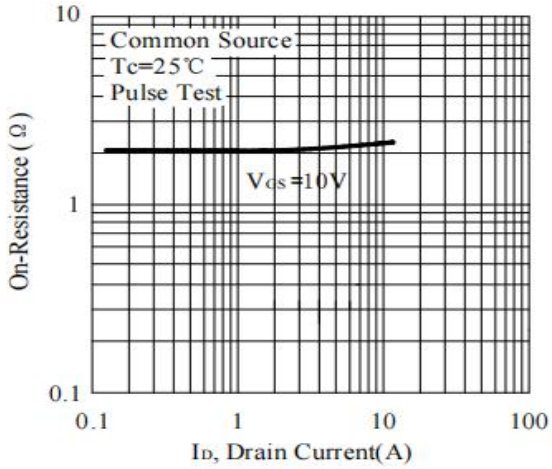


Figure 7: On-Resistance vs. Drain Current

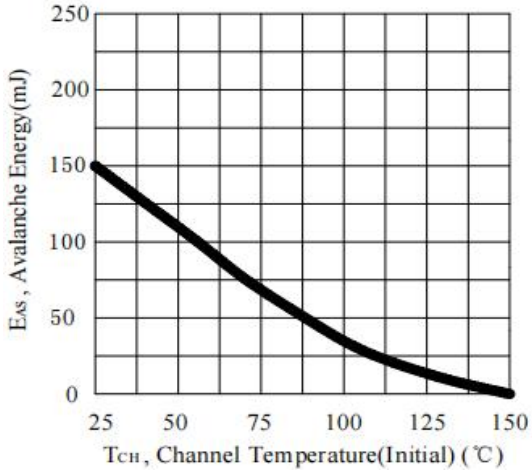


Figure 8: Avalanche Energy Characteristics

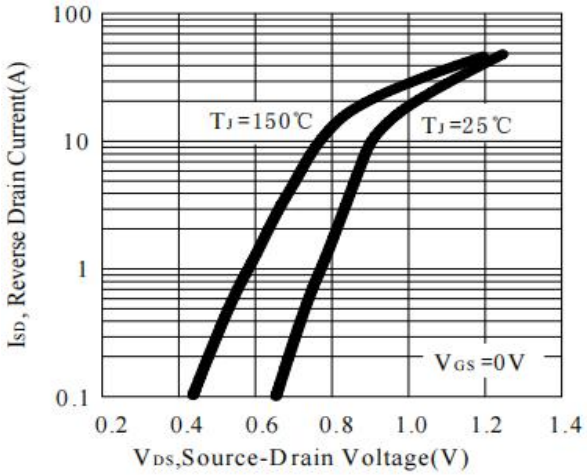


Figure 9: Diode Characteristics

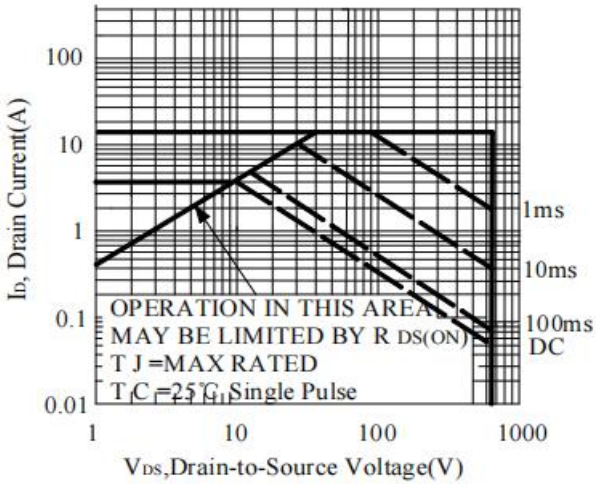


Figure 10: Safe Operating Area

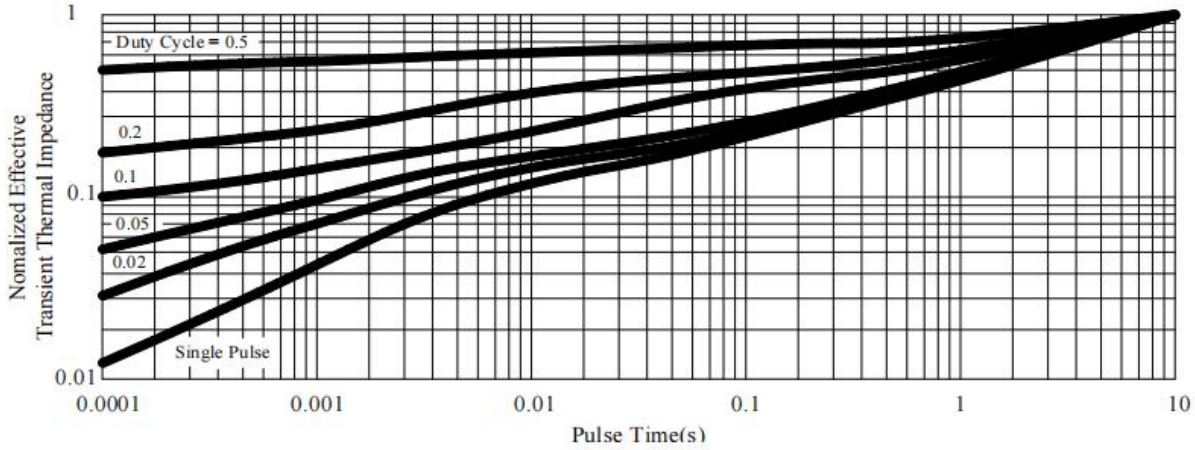
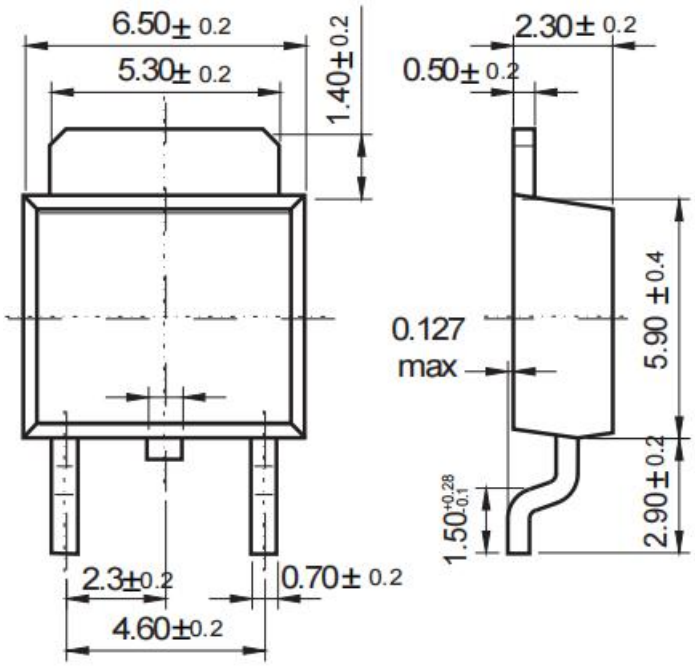


Figure 11: Transient Thermal Response Curve

■ **Package Dimension** 外形封装尺寸

TO-252

Unit: mm



Dimensions in inches and (millimeters)