

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

$R_{DS(ON)}=2000m\Omega(\text{Type})@V_{GS}=10V$

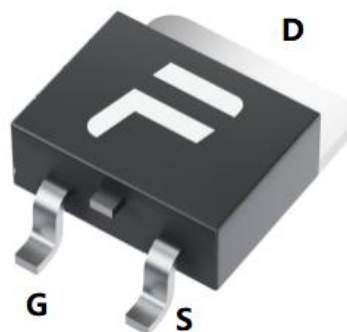
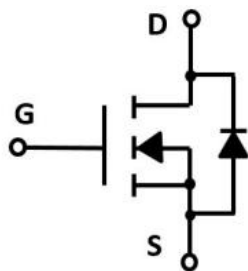
■Applications 应用

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	$^{\circ}C/W$
Junction/Storage Temperature 结温/储存温度	T_J, T_{stg}	-55~150	$^{\circ}C$

■ 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

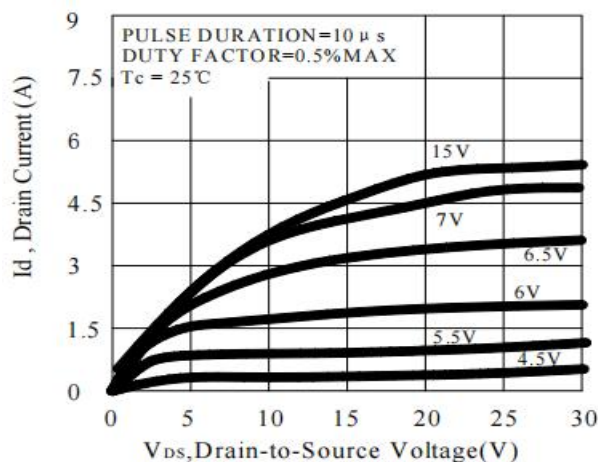


Figure 1: Output Characteristics

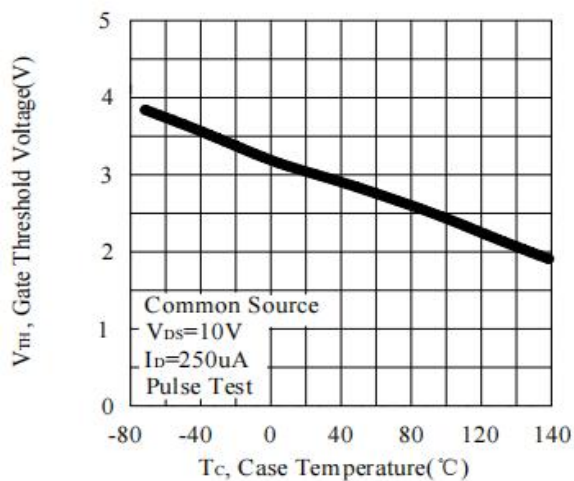


Figure 2: Threshold Voltage Characteristics

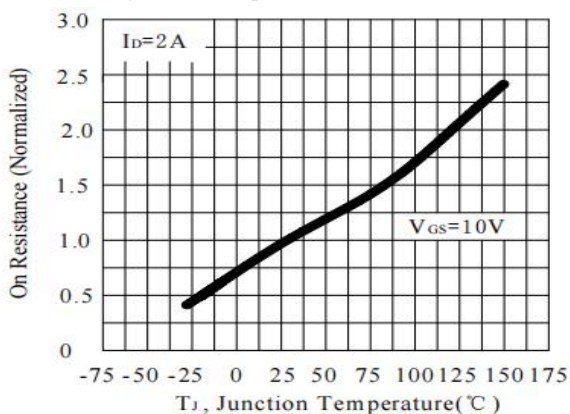


Figure 3: On-Resistance vs. T_j

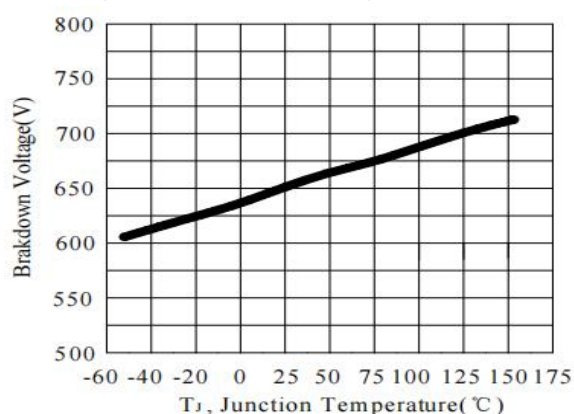


Figure 4: Breakdown Voltage vs. T_j

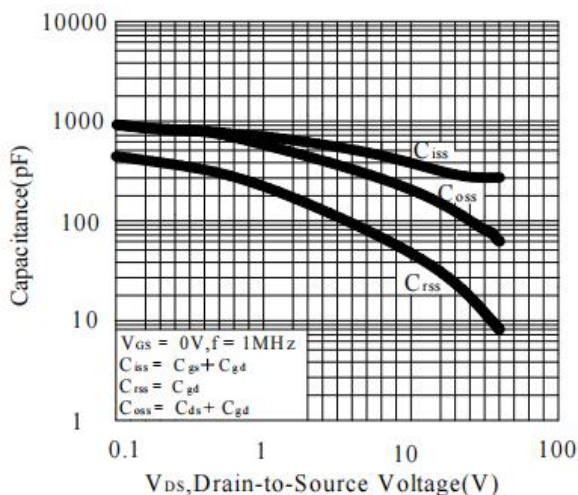


Figure 5: Capacitance Characteristics

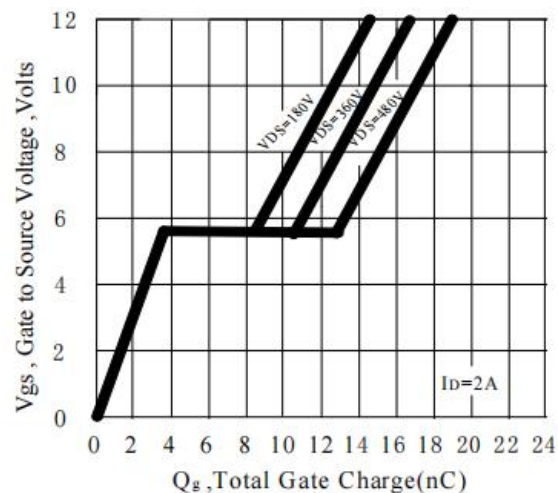


Figure 6: Gate-Charge Characteristics

■ Typical Characteristic Curve 典型特性曲线

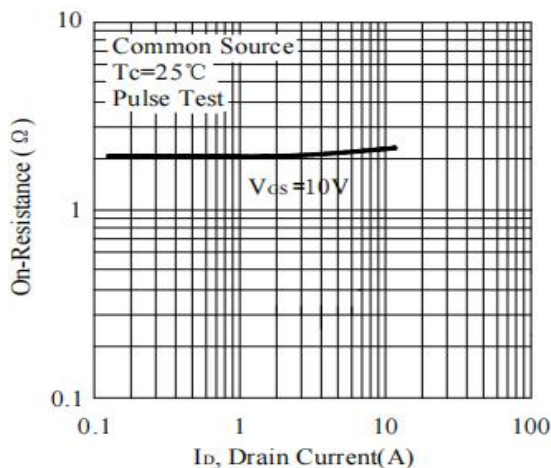


Figure 7: On-Resistance vs. Drain Current

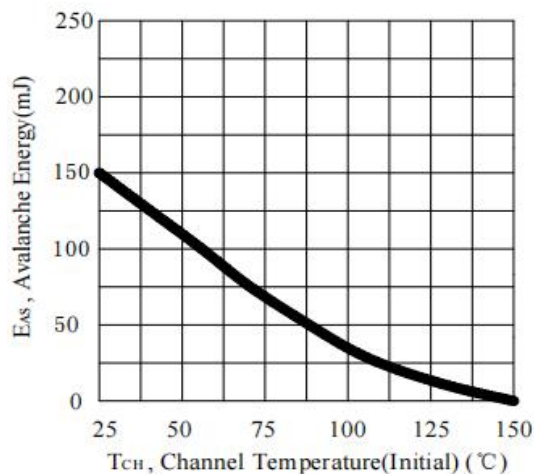


Figure 8: Avalanche Energy Characteristics

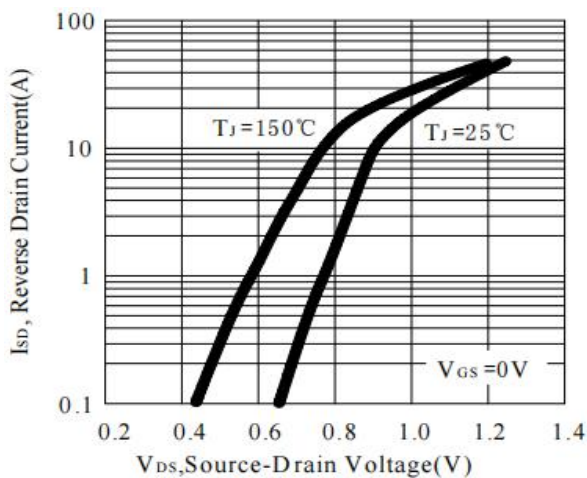


Figure 9: Diode Characteristics

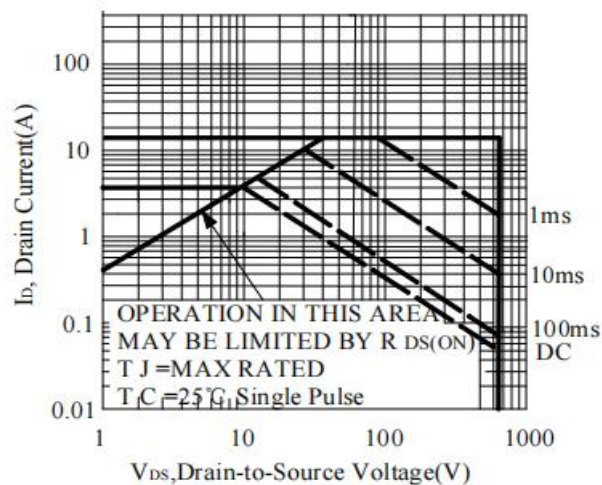


Figure 10: Safe Operating Area

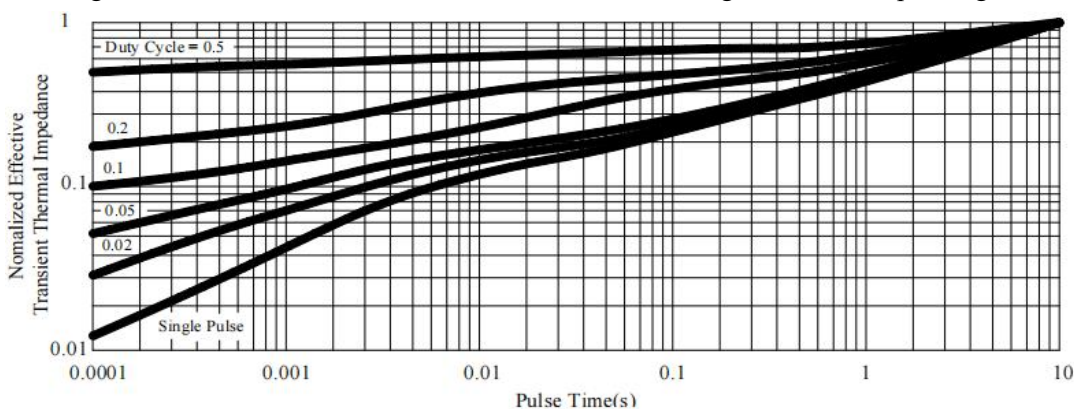
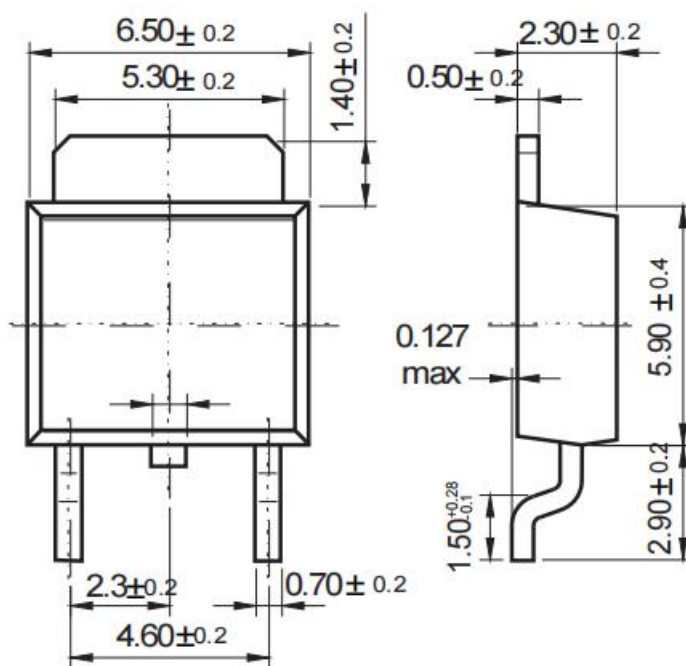


Figure 11: Transient Thermal Response Curve

■ Package Dimension 外形封装尺寸

TO-252

Unit: mm



Dimensions in inches and (millimeters)