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

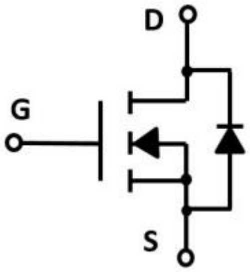
■Features 特点

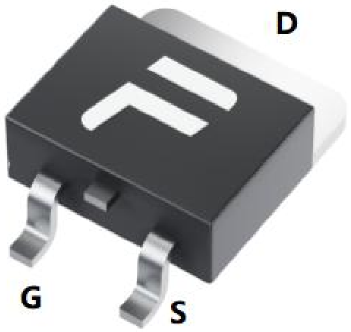
Low on-resistance 低导通电阻
$R_{DS(ON)}$=15.6mΩ(Type)@V_{GS}=10V

■Applications 应用

Motor Driving in Power Tool,E-vehicle,Robotics 电动工具、电动汽车、机器人马达驱动
Current Switching in DC/DC&AC/DC(SR) Sub-systems 电源转换总线系统电流开关
Power Management in Telecom.,Industrial Automation 通信、工业自动化电源管理

■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}	150	V
Gate- Source Voltage 栅极-源极电压	V_{GS}	$\underline{+}20$	V
Drain Current (continuous)漏极电流-连续	I_D（at T_C = 25°C）	50	A
Drain Current (pulsed)漏极电流-脉冲	I_{DM}	200	A
Total Device Dissipation 总耗散功率	P_{TOT}(at T_C = 25°C)	96	W
Thermal Resistance Junction-Case/Ambient 热阻	$R_{\Theta JC}$ $R_{\Theta JA}$	1.3 50	℃/W
Avalanche Energy Single Pulse 雪崩能量	E_{AS}	135	mJ
Junction/Storage Temperature 结温/储存温度	T_J,T_{stg}	150℃,-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}	150	—	—	V
Gate Threshold Voltage 栅极开启电压(I_D =250uA,V_{GS}= V_{DS})	$V_{GS(th)}$	2.2	3.2	4.2	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=20A,V_{GS}=10V)	$R_{DS(ON)}$	—	15.6	18.8	mΩ
Diode Forward Voltage Drop 内附二极管正向压降(I_{SD}=20A,V_{GS}=0V)	V_{SD}	—	—	1.2	V
Input Capacitance 输入电容 (V_{GS}=0V, V_{DS}=75V,f=1MHz)	C_{ISS}	—	2500	—	pF
Common Source Output Capacitance 共源输出电容(V_{GS}=0V, V_{DS}=75V,f=1MHz)	C_{OSS}	—	210	—	pF
Reverse Transfer Capacitance 反馈电容(V_{GS}=0V, V_{DS}=75V,f=1MHz)	C_{RSS}	—	20	—	pF
Total Gate Charge 栅极电荷密度 (V_{DS}=75V, I_D=20A, V_{GS}=10V)	Q_g	—	23	—	nC
Gate Source Charge 栅源电荷密度 (V_{DS}=75V, I_D=20A, V_{GS}=10V)	Q_{gs}	—	7.7	—	nC
Gate Drain Charge 栅漏电荷密度 (V_{DS}=75V, I_D=20A, V_{GS}=10V)	Q_{gd}	—	4.7	—	nC
Turn-ON Delay Time 开启延迟时间 (V_{DS}=75V I_D=20A, R_{GEN}=6Ω,V_{GS}=10V)	$t_{d(on)}$	—	7.1	—	ns
Turn-ON Rise Time 开启上升时间 (V_{DS}=75V I_D=20A, R_{GEN}=6Ω,V_{GS}=10V)	t_r	—	8.4	—	ns
Turn-OFF Delay Time 关断延迟时间 (V_{DS}=75V I_D=20A, R_{GEN}=6Ω,V_{GS}=10V)	$t_{d(off)}$	—	17	—	ns
Turn-OFF Fall Time 关断下降时间 (V_{DS}=75V I_D=20A, R_{GEN}=6Ω,V_{GS}=10V)	t_f	—	11	—	ns

■Typical Characteristic Curve 典型特性曲线

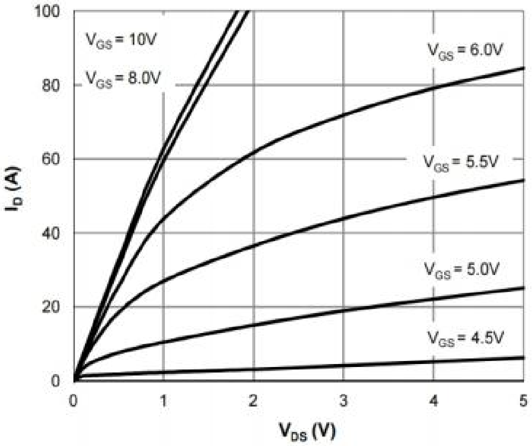


Figure 1: Output Characteristics

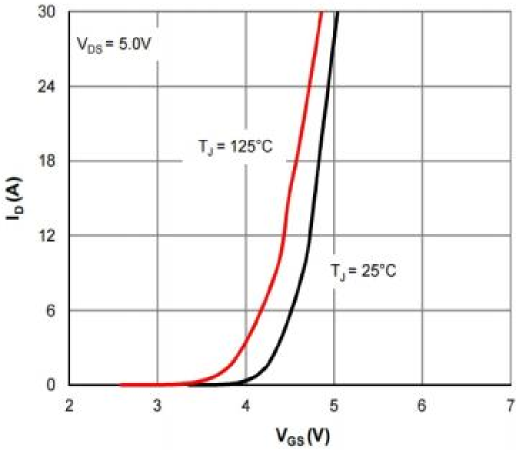


Figure 2: Transfer Characteristics

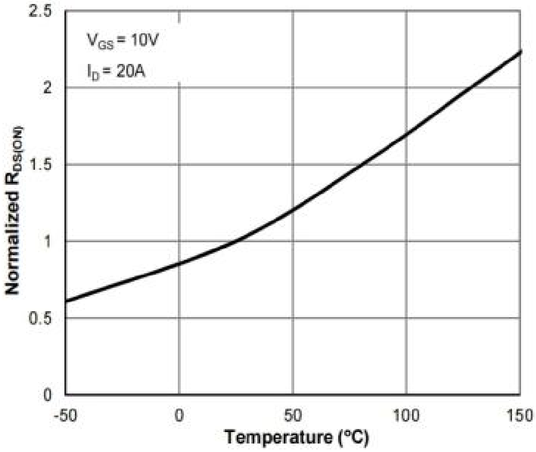


Figure 3: On-Resistance vs. T_J

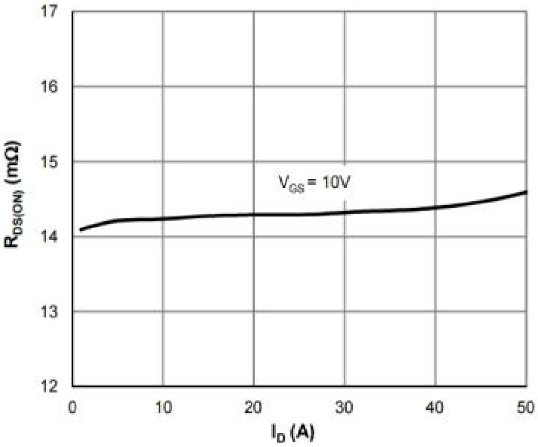


Figure 4: On-Resistance vs. Drain Current

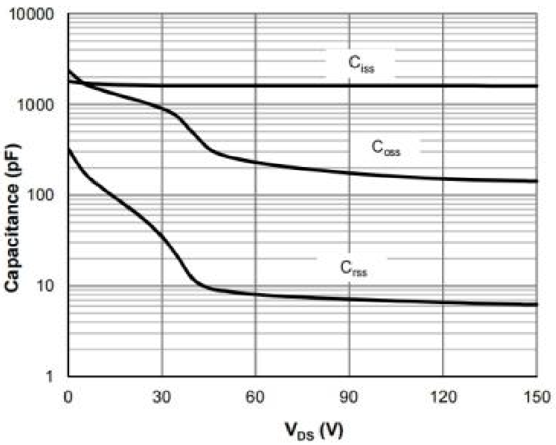


Figure 5: Capacitance Characteristics

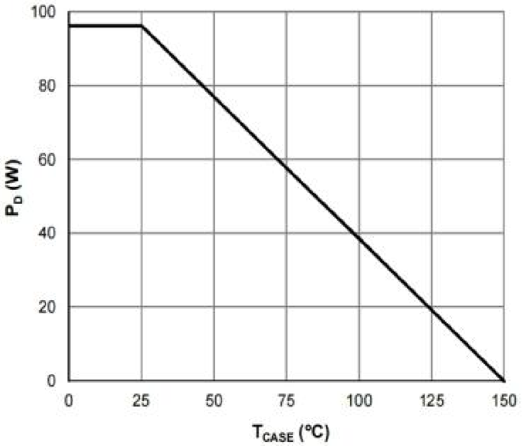


Figure 6: Power Characteristics

■Typical Characteristic Curve 典型特性曲线

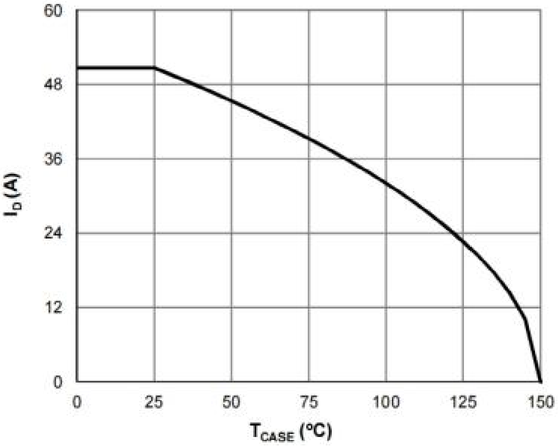


Figure 7: Drain Current Characteristics

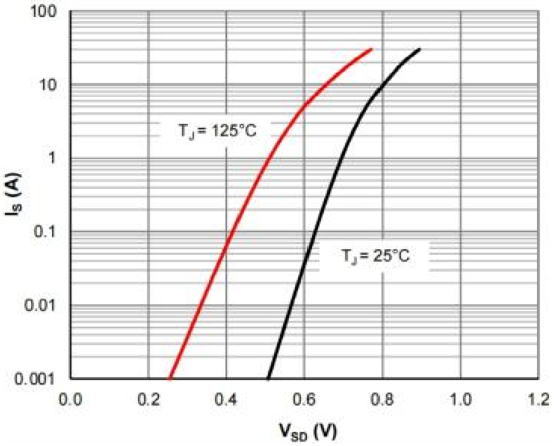


Figure 8: Diode Characteristics

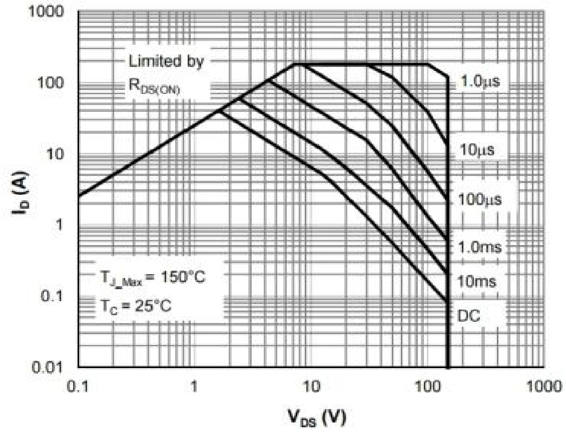


Figure 9: Safe Operating Area

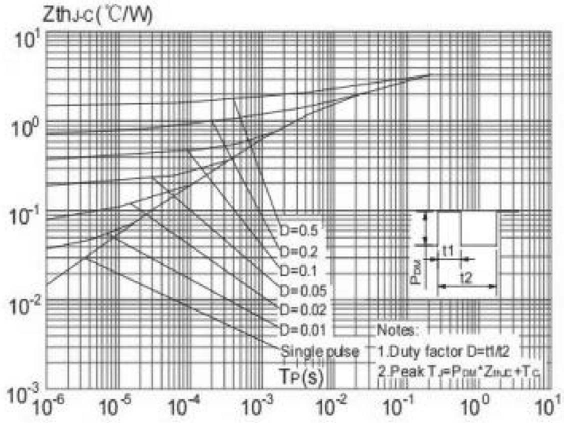
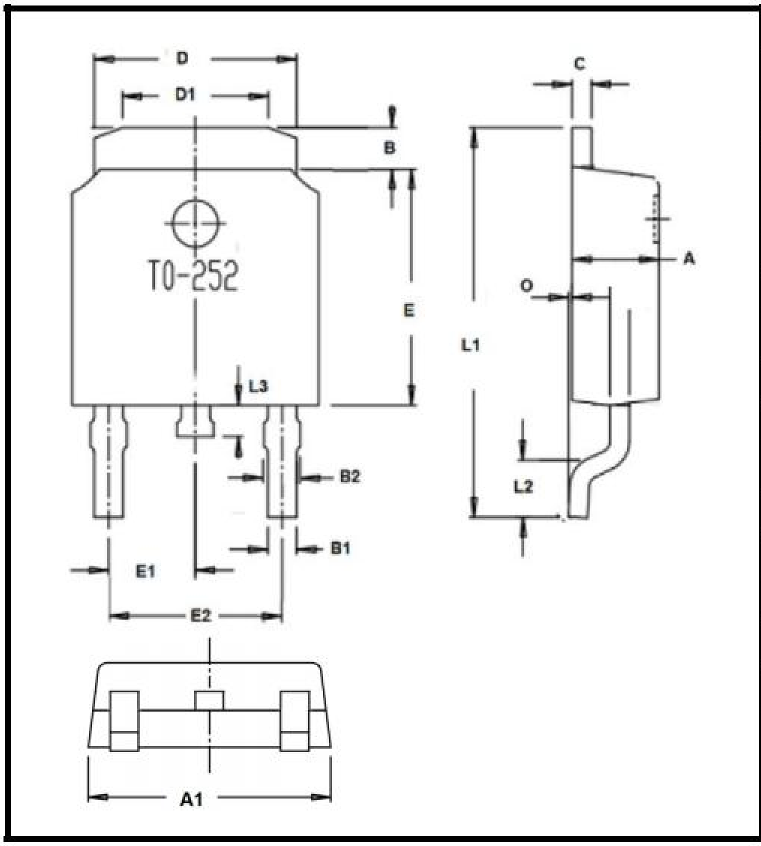


Figure 10: Transient Thermal Response Curve

■ Dimension 外形封装尺寸



Dim.	Min.	Max.
A	2.1	2.5
A1	6.3	6.9
B	0.95	1.55
B1	0.6	0.8
B2	0.75	0.95
C	Typ0.5	
D	5.3	5.5
D1	3.65	4.05
E	5.8	6.4
E1	Typ2.3	
E2	Typ4.6	
O	0	0.15
L1	9	11
L2	Typ1.5	
L3	0.7	1

All Dimensions in millimeter