PDFN3.3X3.3-8 N Channel Enhancement 沟道增强型
MOS Field Effect Transistor 场效应管

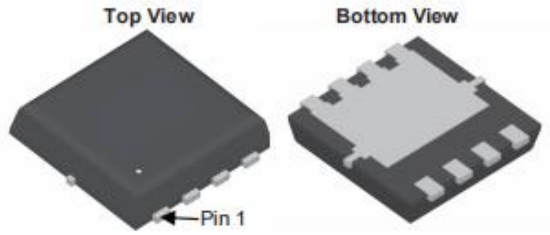
■Features 特点

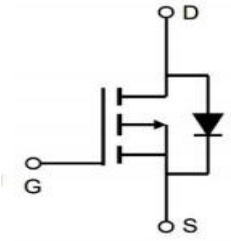
Low on-resistance 低导通电阻
$R_{DS(ON)}$=12mΩ(Type)@V_{GS}= -10V
$R_{DS(ON)}$=18mΩ(Type)@V_{GS}= -4.5V
ESD Protection 静电保护 3KV

■Applications 应用

PWM 脉宽调制
Load Switch 负载开关
Power Management 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}	-30	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 TC = 25°C at TC = 100°C）	-30 -19	A
Drain Current (pulsed)漏极电流-脉冲	I_{DM}	-120	A
Total Device Dissipation 总耗散功率	P_{TOT}(at TC = 25°C)	25	W
Avalanche Energy(Single Pulse)雪崩能量	E_{AS}	42	mJ
Thermal Resistance 热阻	$R_{\Theta JC}$ $R_{\Theta JA}$	4.3 50	℃/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}	-30	—	—	V
Gate Threshold Voltage 栅极开启电压(I_D = -250uA,V_{GS}= V_{DS})	$V_{GS(th)}$	-1.2	-1.8	-2.5	V
Zero Gate Voltage Drain Current 零栅压漏极电流(V_{GS}=0V, V_{DS}= -30V)	I_{DSS}	—	—	-1	μA
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= -10A,V_{GS}= -10V) (I_D= -5A,V_{GS}= -4.5V)	$R_{DS(ON)}$	—	12 18	16 23	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}= -15V,f=1MHz)	C_{ISS}	—	2143	—	pF
Common Source Output Capacitance 共源输出电容(V_{GS}=0V, V_{DS}= -15V,f=1MHz)	C_{OSS}	—	277	—	pF
Reverse Transfer Capacitance 反馈电容 (V_{GS}=0V, V_{DS}= -15V,f=1MHz)	C_{RSS}	—	242	—	pF
Total Gate Charge 栅极电荷密度 (V_{DS}= -15V, I_D= -20A, V_{GS}= -10V)	Q_g	—	42	—	nC
Gate Source Charge 栅源电荷密度 (V_{DS}= -15V, I_D= -20A, V_{GS}= -10V)	Q_{gs}	—	8.5	—	nC
Gate Drain Charge 栅漏电荷密度 (V_{DS}= -15V, I_D= -20A, V_{GS}= -10V)	Q_{gd}	—	5.5	—	nC
Turn-ON Delay Time 开启延迟时间 (V_{DS}= -15V I_D= -1A, R_{GEN}=3.3Ω,V_{GS}= -10V)	$t_{d(on)}$	—	14	—	ns
Turn-ON Rise Time 开启上升时间 (V_{DS}= -15V I_D= -1A, R_{GEN}=3.3Ω,V_{GS}= -10V)	t_r	—	26	—	ns
Turn-OFF Delay Time 关断延迟时间 (V_{DS}= -15V I_D= -1A, R_{GEN}=3.3Ω,V_{GS}= -10V)	$t_{d(off)}$	—	27	—	ns
Turn-OFF Fall Time 关断下降时间 (V_{DS}= -15V I_D= -1A, R_{GEN}=3.3Ω,V_{GS}= -10)	t_f	—	5	—	ns

■Typical Characteristic Curve 典型特性曲线

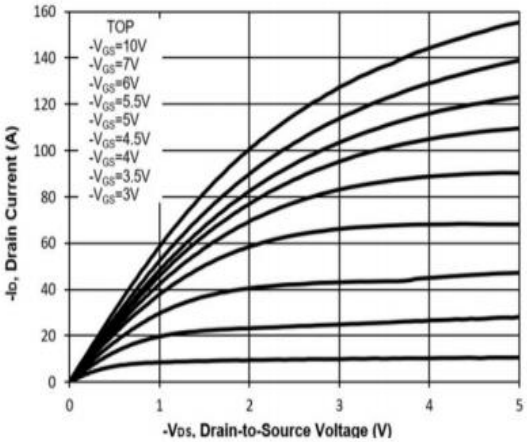


Figure 1: Output Characteristics

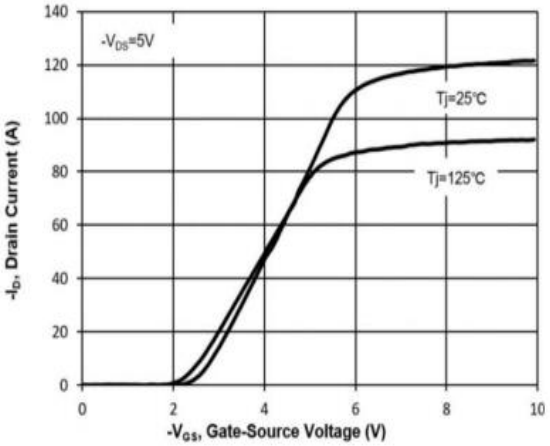


Figure 2: Transfer Characteristics

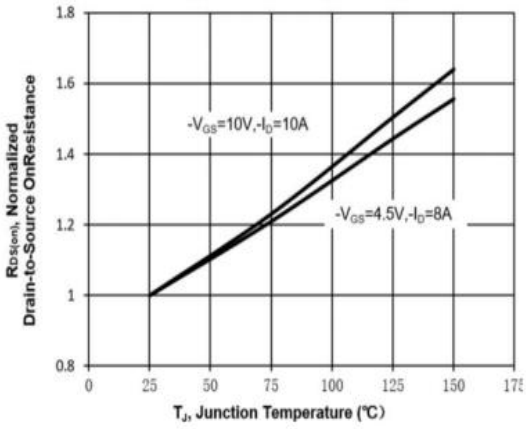


Figure 3: On-Resistance vs. T_J

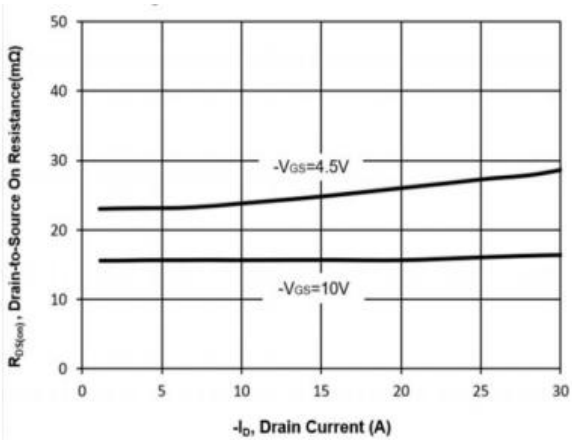


Figure 4: On-Resistance vs. Drain Current

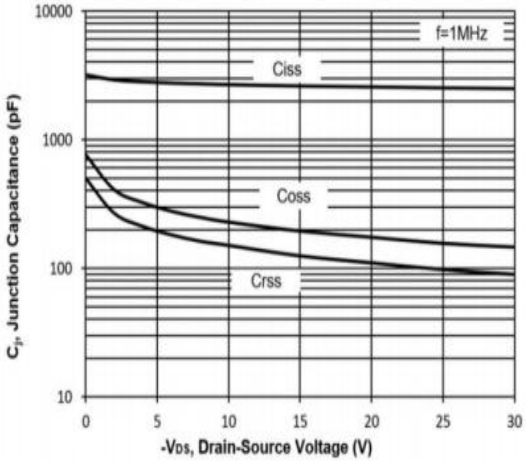


Figure 5: Capacitance Characteristics

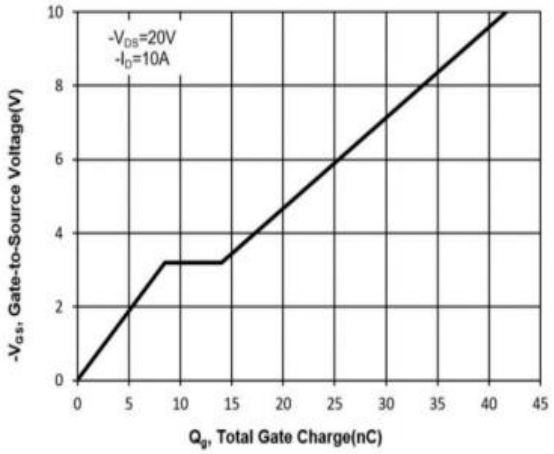


Figure 6: Gate-Charge Characteristics

■Typical Characteristic Curve 典型特性曲线

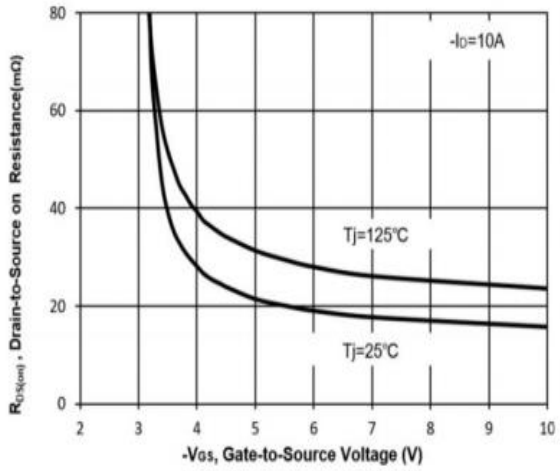


Figure 7: Drain Current vs. V_{GS}

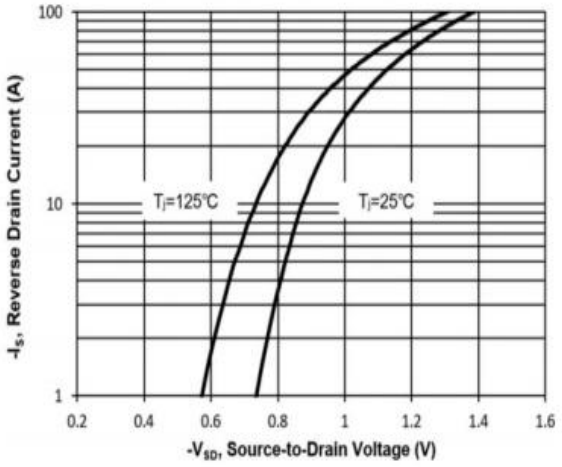


Figure 8: Diode Characteristics

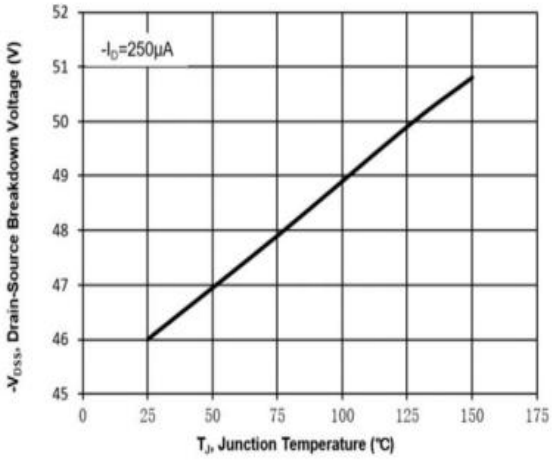


Figure 9: Breakdown Voltage Characteristics

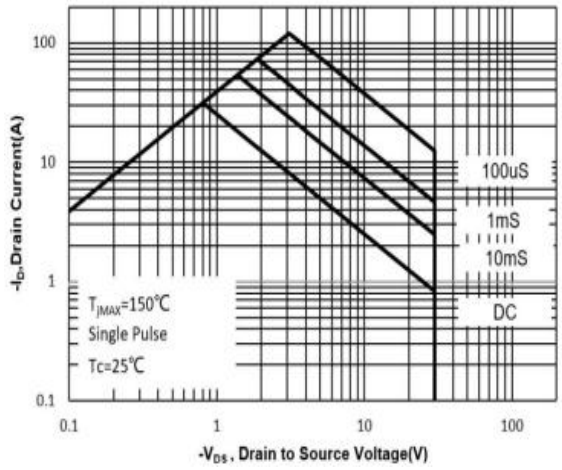


Figure 10: Safe Operating Area

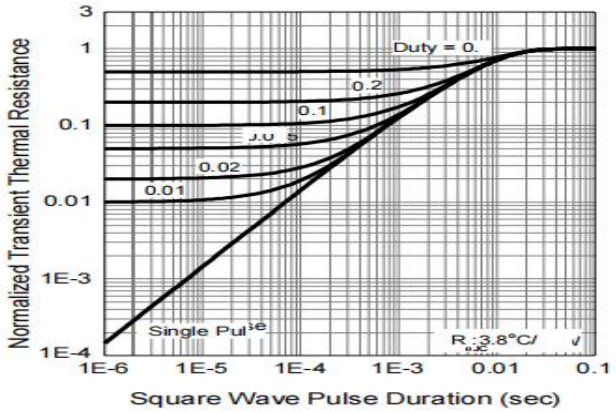
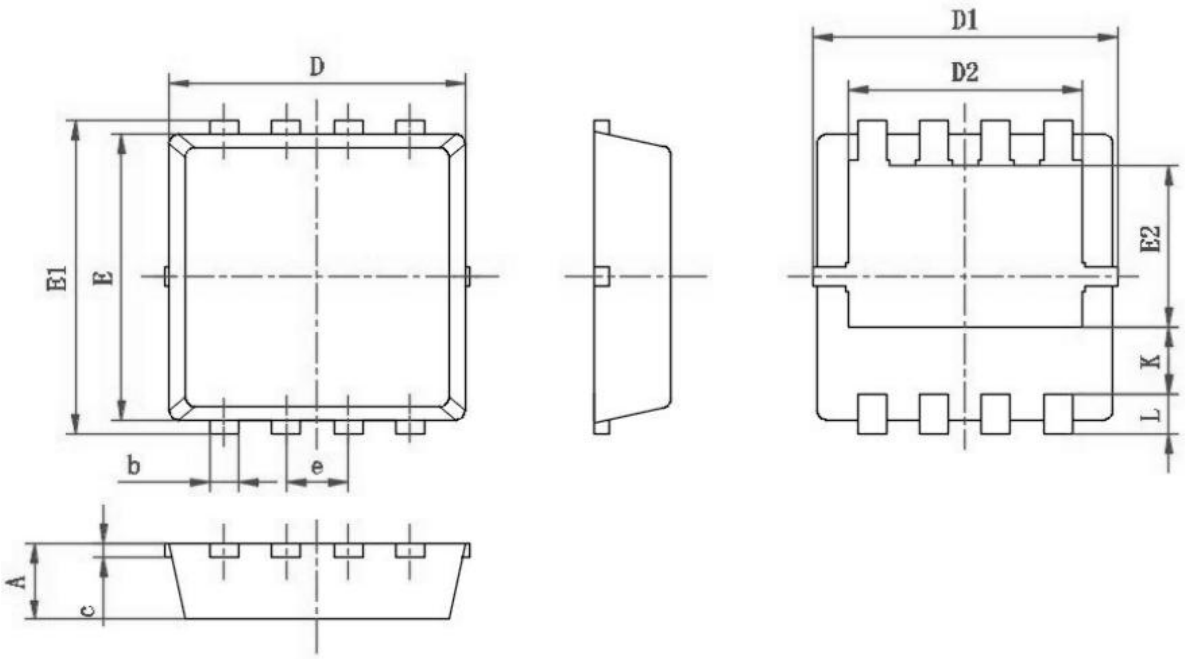


Figure 11: Transient Thermal Response Curve

■ Dimension 外形封装尺寸



符号	尺寸		符号	尺寸		符号	尺寸	
	Min	Max		Min	Max		Min	Max
A	0.7	0.9	E	2.9	3.1	e	(0.65)	
D	3.0	3.2	E1	3.1	3.5	b	0.25	0.35
D1	3.0	3.4	E2	1.55	1.95	c	0.1	0.2
D2	2.25	2.65	K	(0.65)		L	0.3	0.55