

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

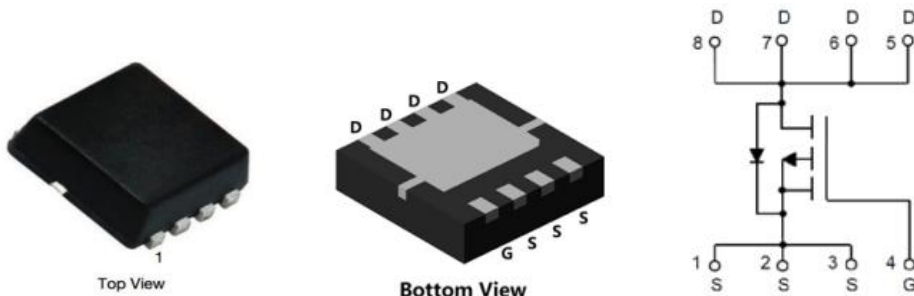
■ Features 特点

Low on-resistance 低导通电阻
 $R_{DS(ON)}=18m\Omega(\text{Type})@V_{GS}=-10V$
 $R_{DS(ON)}=24m\Omega(\text{Type})@V_{GS}=-4.5V$

■ Applications 应用

Portable Equipment 便携设备
 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}	-60	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 $T_A = 25^\circ C$ at $T_C = 25^\circ C$)	-6 -30	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 $T_A = 25^\circ C$ at $T_C = 25^\circ C$)	2 69	W
Avalanche Energy(Single Pulse)雪崩能量	E_{AS}	100	mJ
Thermal Resistance Junction-Ambient 热阻	$R_{\theta JA}/R_{\theta JC}$	63/1.8	$^\circ C/W$
Junction/Storage Temperature 结温/储存温度	T_J, T_{stg}	-55~150	$^\circ C$

■ **Electrical Characteristics 电特性**

($T_A=25^{\circ}\text{C}$ unless otherwise noted 如无特殊说明, 温度为 25°C)

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($I_D = -250\mu\text{A}, V_{GS}=0\text{V}$)	BV_{DSS}	-60	—	—	V
Gate Threshold Voltage 栅极开启电压($I_D = -250\mu\text{A}, V_{GS} = V_{DS}$)	$V_{GS(th)}$	-1	-2	-3	V
Zero Gate Voltage Drain Current 零栅压漏极电流($V_{GS}=0\text{V}, V_{DS}= -60\text{V}$)	I_{DSS}	—	—	-1	μA
Gate Body Leakage 栅极漏电流($V_{GS}=\pm 20\text{V}, V_{DS}=0\text{V}$)	I_{GSS}	—	—	± 100	nA
Static Drain-Source On-State Resistance 静态漏源导通电阻($I_D = -20\text{A}, V_{GS} = -10\text{V}$) ($I_D = -10\text{A}, V_{GS} = -4.5\text{V}$)	$R_{DS(ON)}$	—	18 24	24 33	$\text{m}\Omega$
Diode Forward Voltage Drop 内附二极管正向压降($I_{SD} = -20\text{A}, V_{GS}=0\text{V}$)	V_{SD}	—	-0.9	-1.2	V
Input Capacitance 输入电容 ($V_{GS}=0\text{V}, V_{DS} = -30\text{V}, f=1\text{MHz}$)	C_{ISS}	—	4300	—	pF
Common Source Output Capacitance 共源输出电容($V_{GS}=0\text{V}, V_{DS} = -30\text{V}, f=1\text{MHz}$)	C_{OSS}	—	170	—	pF
Reverse Transfer Capacitance 反馈电容 ($V_{GS}=0\text{V}, V_{DS} = -30\text{V}, f=1\text{MHz}$)	C_{RSS}	—	150	—	pF
Total Gate Charge 栅极电荷密度 ($V_{DS} = -30\text{V}, I_D = -15\text{A}, V_{GS} = -10\text{V}$)	Q_g	—	61	—	nC
Gate Source Charge 栅源电荷密度 ($V_{DS} = -30\text{V}, I_D = -15\text{A}, V_{GS} = -10\text{V}$)	Q_{gs}	—	17	—	nC
Gate Drain Charge 栅漏电荷密度 ($V_{DS} = -30\text{V}, I_D = -15\text{A}, V_{GS} = -10\text{V}$)	Q_{gd}	—	7	—	nC
Turn-ON Delay Time 开启延迟时间 ($V_{DS} = -30\text{V}, I_D = -15\text{A}, R_{GEN}=4.5\Omega, V_{GS} = -10\text{V}$)	$t_{d(on)}$	—	62	—	ns
Turn-ON Rise Time 开启上升时间 ($V_{DS} = -30\text{V}, I_D = -15\text{A}, R_{GEN}=4.5\Omega, V_{GS} = -10\text{V}$)	t_r	—	79	—	ns
Turn-OFF Delay Time 关断延迟时间 ($V_{DS} = -30\text{V}, I_D = -15\text{A}, R_{GEN}=4.5\Omega, V_{GS} = -10\text{V}$)	$t_{d(off)}$	—	376	—	ns
Turn-OFF Fall Time 关断下降时间 ($V_{DS} = -30\text{V}, I_D = -15\text{A}, R_{GEN}=4.5\Omega, V_{GS} = -10\text{V}$)	t_f	—	161	—	ns

■ Typical Characteristic Curve 典型特性曲线

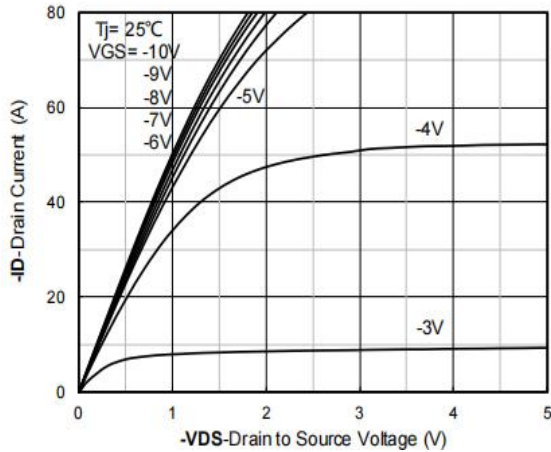


Figure 1: Output Characteristics

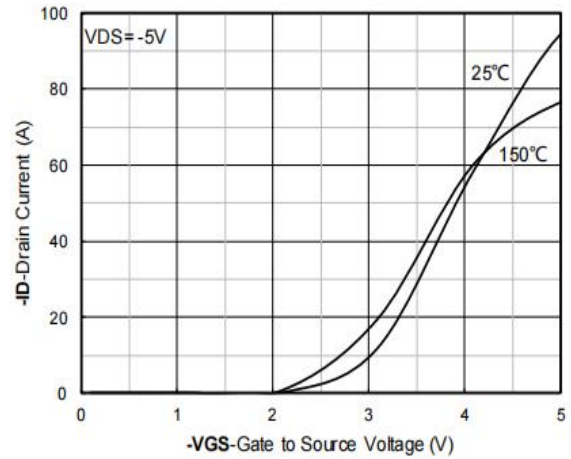


Figure 2: Transfer Characteristics

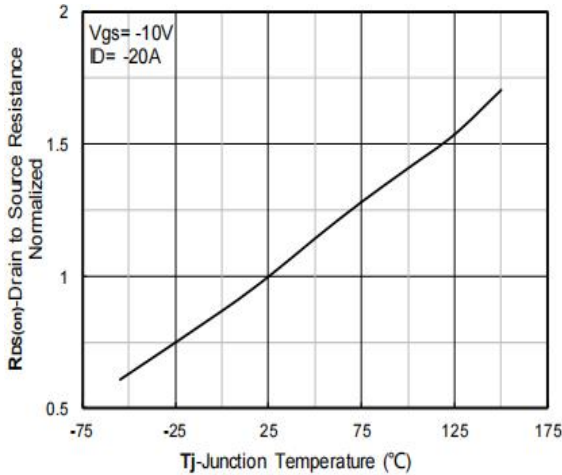


Figure 3: On-Resistance vs. T_j

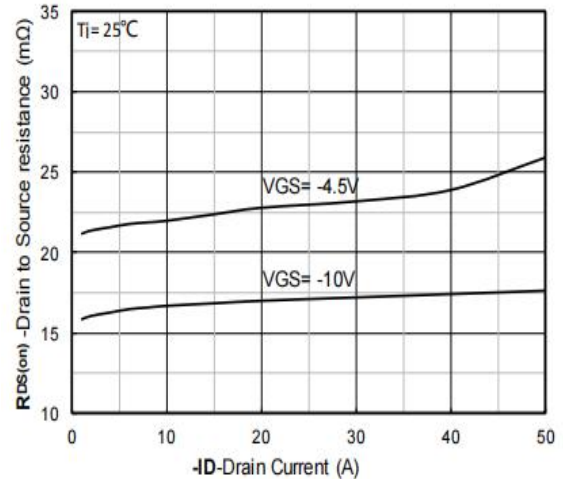


Figure 4: On-Resistance vs. Drain Current

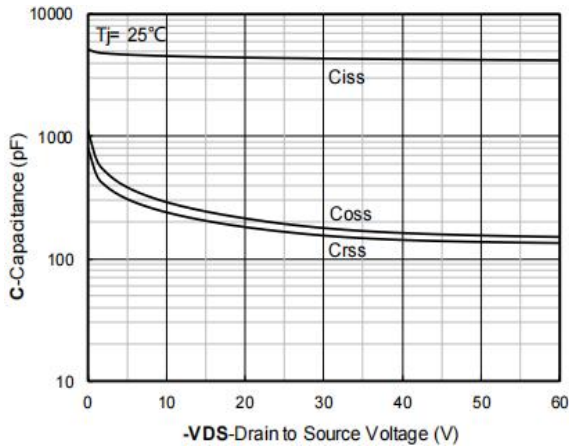


Figure 5: Capacitance Characteristics

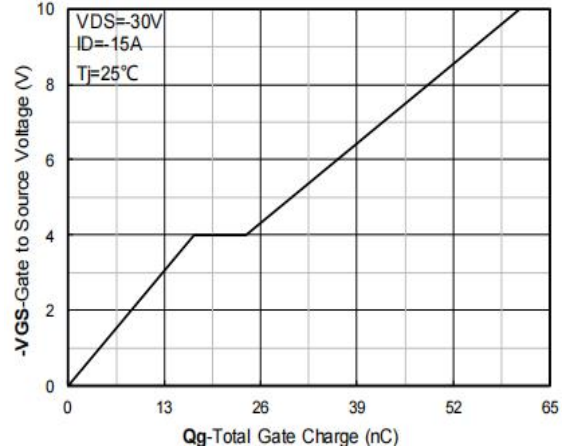


Figure 6: Gate-Charge Characteristics

■ Typical Characteristic Curve 典型特性曲线

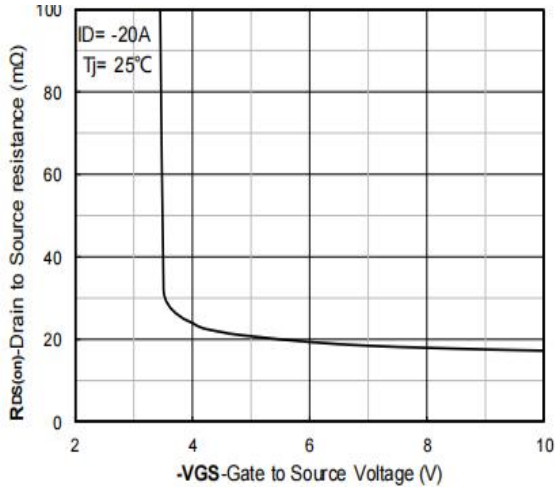


Figure 7: On-Resistance vs. V_{GS}

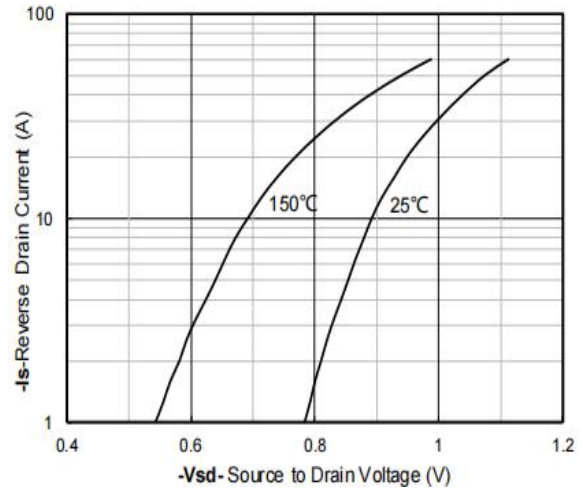


Figure 8: Diode Characteristics

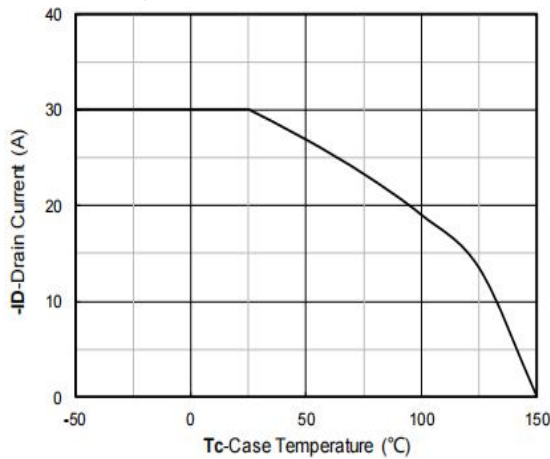


Figure 9: Drain Current Characteristics

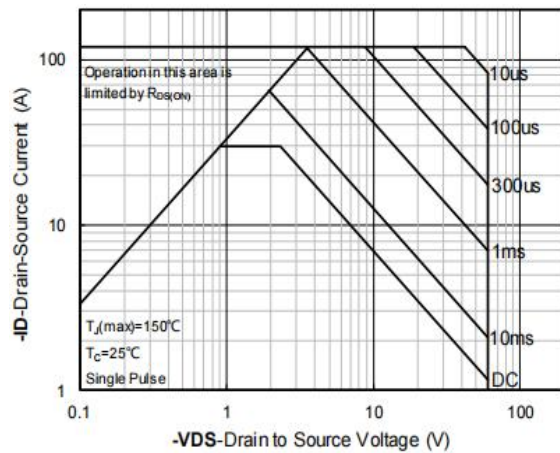


Figure 10: Safe Operating Area

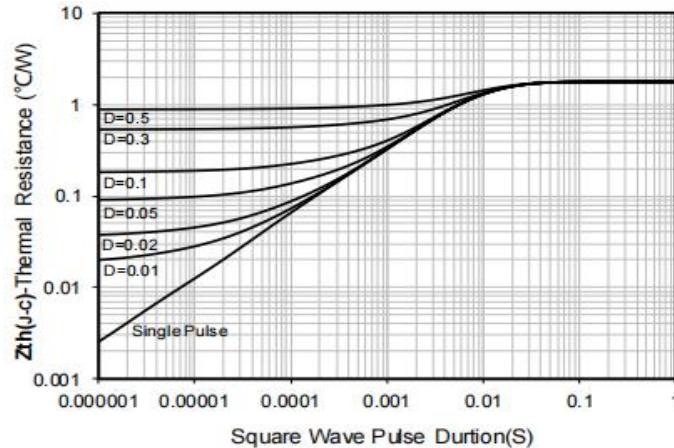
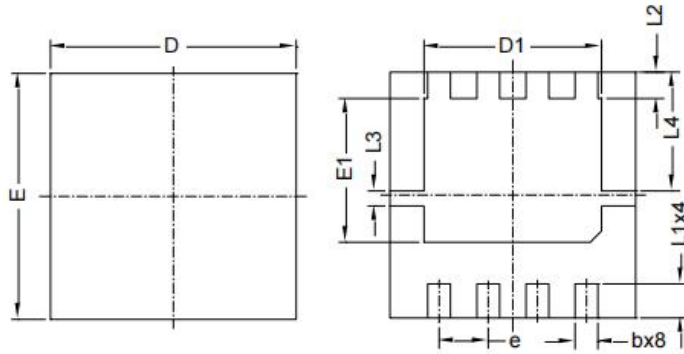


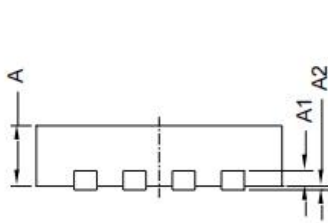
Figure 11: Transient Thermal Response Curve

Dimension 外形封装尺寸

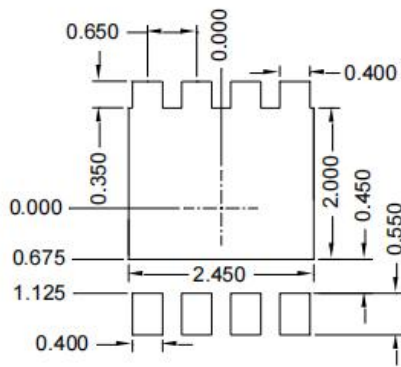


Top View
正面视图

Bottom View
背面视图



Side View
侧面视图



Suggested Solder Pad Layout
Top View

SYMBOL	MILLIMETER		
	MIN	NOM	MAX
D	3.15	3.25	3.35
E	3.15	3.25	3.35
A	0.70	0.80	0.90
A1	0.20 BSC		
A2			0.10
D1	2.20	2.35	2.50
E1	1.80	1.90	2.00
L1	0.35	0.45	0.55
L2	0.35 BSC		
L3	0.20 BSC		
L4	1.57 BSC		
b	0.20	0.30	0.40
e	0.65 BSC		

Note:

1. Controlling dimension in millimeters.
2. General tolerance: ± 0.10 mm.
3. The pad layout is for reference purposes only.