

PDFN5X6-8L 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

$R_{DS(ON)}=5.5m\Omega(\text{Type})@V_{GS}=10V$

$R_{DS(ON)}=9.5m\Omega(\text{Type})@V_{GS}=4.5V$

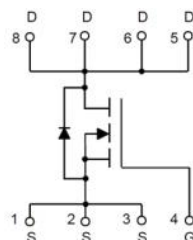
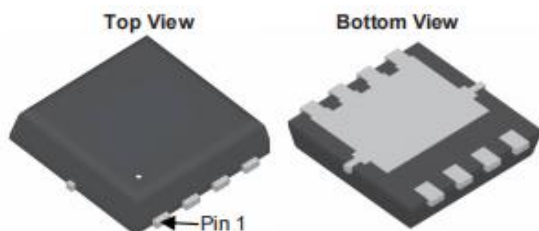
■Applications 应用

Load Switching 负载开关

Uninterruptible power supply 不间断电源

switched and high frequency circuits 开关和高频电路

■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 $T_C = 25^\circ\text{C}$ at $T_C = 100^\circ\text{C}$)	40 25	A
Drain Current (pulsed)漏极电流-脉冲	I_{DM}	140	A
Total Device Dissipation 总耗散功率	P_{TOT} (at $T_C = 25^\circ\text{C}$ at $T_A = 25^\circ\text{C}$)	21 5	W
Avalanche Energy(Single Pulse)雪崩能量	E_{AS}	56	mJ
Thermal Resistance Junction-Ambient 热阻	$R_{\theta JC}/R_{\theta JA}$	6/25	$^\circ\text{C}/\text{W}$
Junction/Storage Temperature 结温/储存温度	T_J, T_{stg}	-55~150	$^\circ\text{C}$

■ 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}	30	—	—	V
Gate Threshold Voltage 栅极开启电压(I _D =250uA, V _{GS} =V _{DS})	V _{GS(th)}	1.0	1.5	2.5	V
Zero Gate Voltage Drain Current 零栅压漏极电流(V _{GS} =0V, V _{DS} =30V)	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 =15A, V _{GS} =10V) (I _D =15A, V _{GS} =4.5V)	R _{DS(ON)}	—	5.5 9.5	7.5 11.5	mΩ
Diode Forward Voltage Drop 内附二极管正向压降(I _{SD} =15A, V _{GS} =0V)	V _{SD}	—	0.8	1.2	V
Input Capacitance 输入电容 (V _{GS} =0V, V _{DS} =15V, f=1MHz)	C _{ISS}	—	1015	—	pF
Common Source Output Capacitance 共源输出电容(V _{GS} =0V, V _{DS} =15V, f=1MHz)	C _{OSS}	—	201	—	pF
Reverse Transfer Capacitance 反馈电容 (V _{GS} =0V, V _{DS} =15V, f=1MHz)	C _{RSS}	—	164	—	pF
Total Gate Charge 栅极电荷密度 (V _{DS} =15V, I _D =15A, V _{GS} =10V)	Q _g	—	23.6	—	nC
Gate Source Charge 栅源电荷密度 (V _{DS} =15V, I _D =15A, V _{GS} =10V)	Q _{gs}	—	7	—	nC
Gate Drain Charge 栅漏电荷密度 (V _{DS} =15V, I _D =15A, V _{GS} =10V)	Q _{gd}	—	3.9	—	nC
Turn-ON Delay Time 开启延迟时间 (V _{DS} =20V I _D =2A, R _{GEN} =3Ω, V _{GS} =10V)	t _{d(on)}	—	7	—	ns
Turn-ON Rise Time 开启上升时间 (V _{DS} =20V I _D =2A, R _{GEN} =3Ω, V _{GS} =10V)	t _r	—	19	—	ns
Turn-OFF Delay Time 关断延迟时间 (V _{DS} =20V I _D =2A, R _{GEN} =3Ω, V _{GS} =10V)	t _{d(off)}	—	24	—	ns
Turn-OFF Fall Time 关断下降时间 (V _{DS} =20V I _D =2A, R _{GEN} =3Ω, V _{GS} =10V)	t _f	—	24	—	ns

■ Typical Characteristic Curve 典型特性曲线

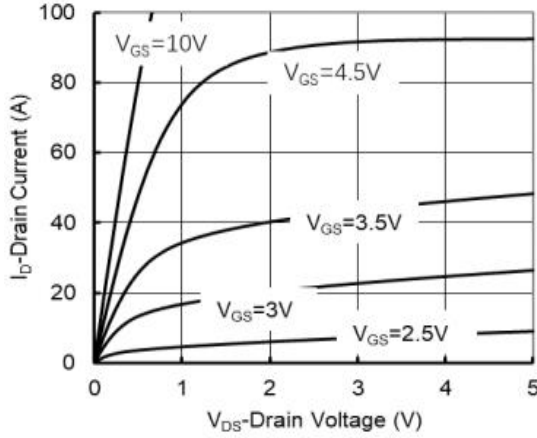


Figure 1: Output Characteristics

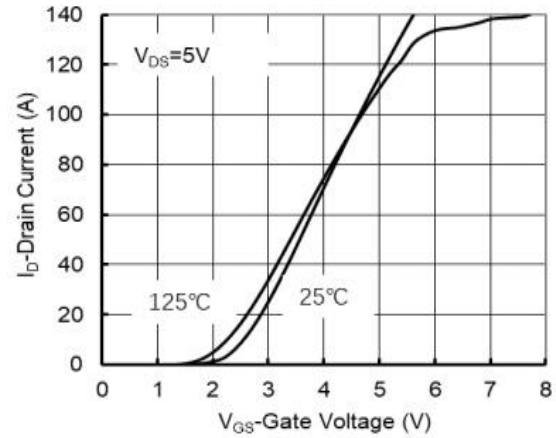


Figure 2: Transfer Characteristics

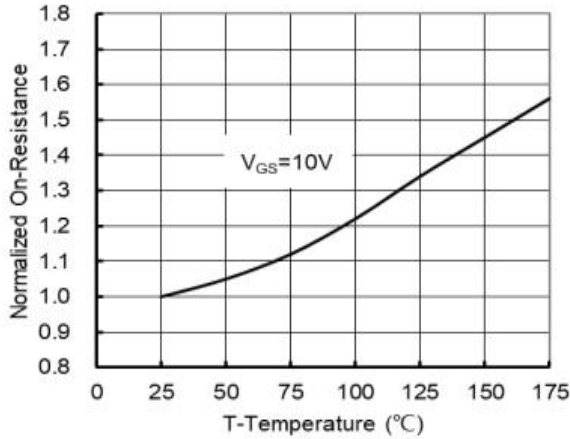


Figure 3: On-Resistance vs. T_J

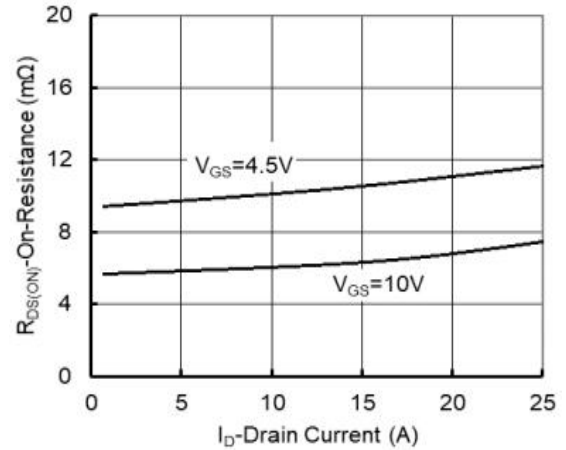


Figure 4: On-Resistance vs. Drain Current

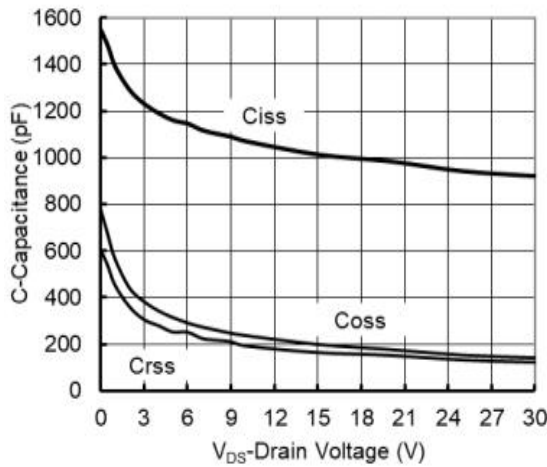


Figure 5: Capacitance Characteristics

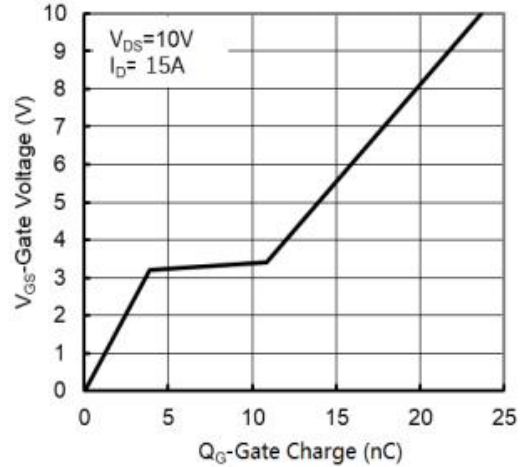


Figure 6: Gate-Charge Characteristics

■ Typical Characteristic Curve 典型特性曲线

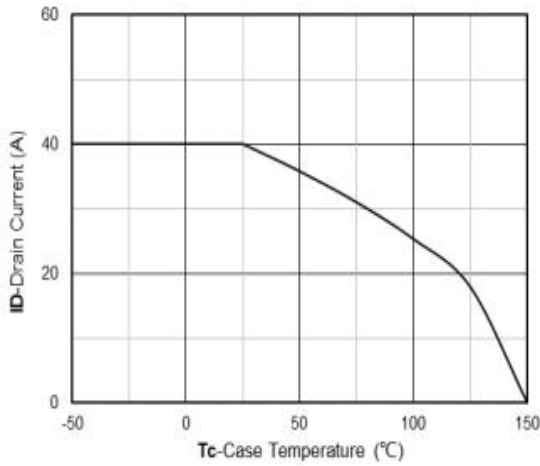


Figure 7: Drain Current Characteristics

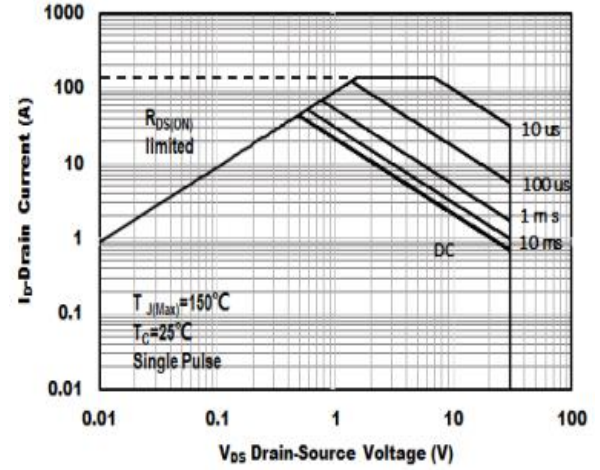


Figure 8: Safe Operating Area

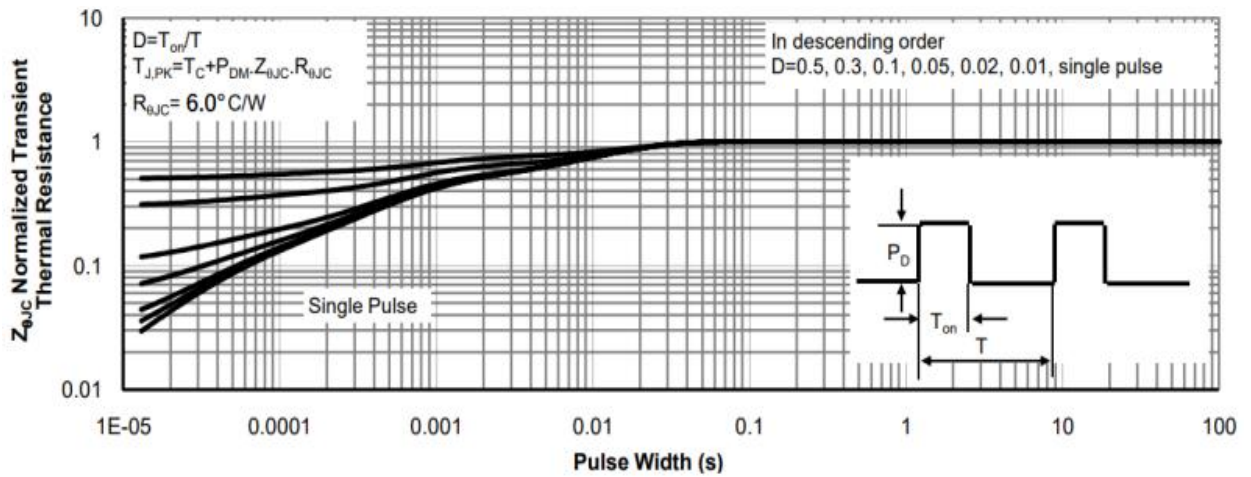
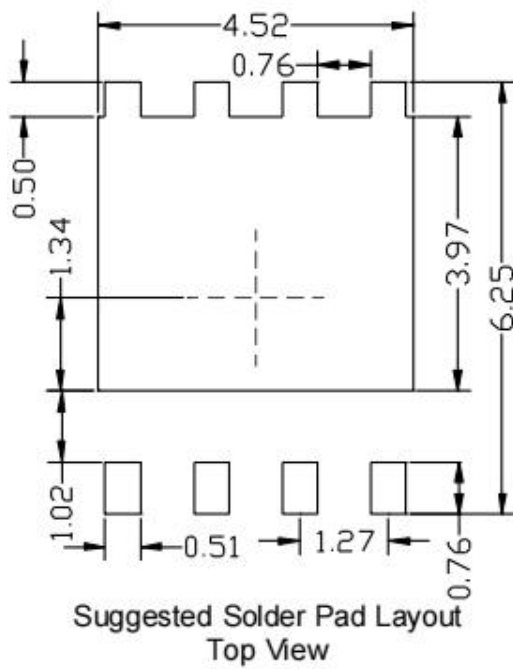
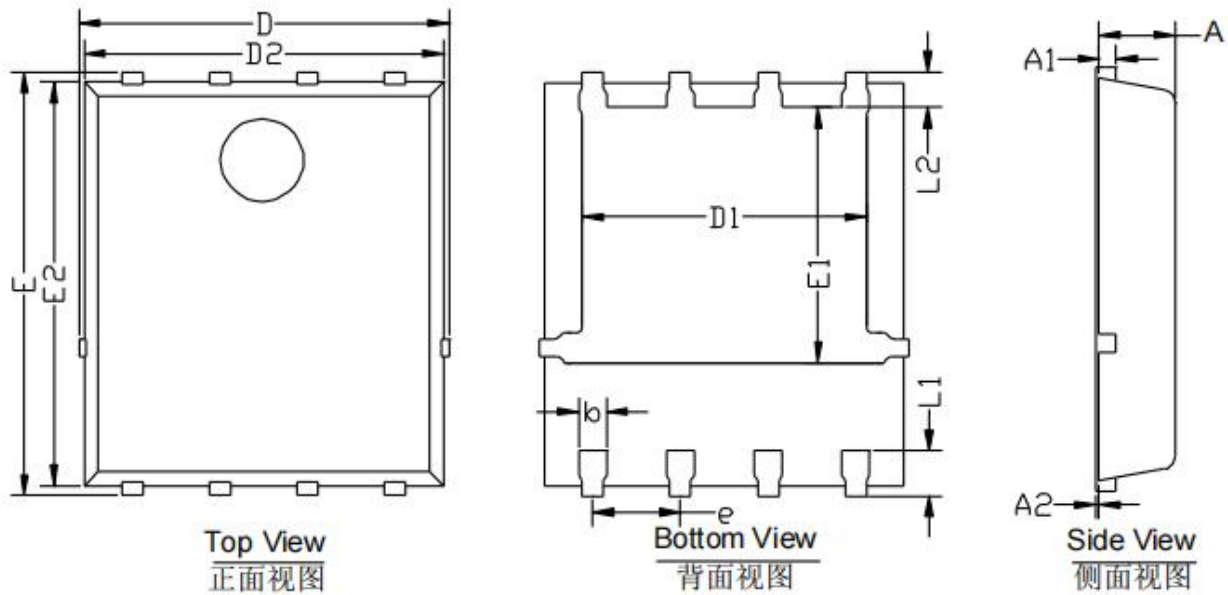


Figure 9: Transient Thermal Response Curve

■ **Dimension 外形封装尺寸**



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
D	5.15	5.35	5.55
E	5.95	6.15	6.35
A	1.00	1.10	1.20
A1	0.254 BSC		
A2			0.10
D1	3.92	4.12	4.32
E1	3.52	3.72	3.92
D2	5.00	5.20	5.40
E2	5.66	5.86	6.06
L1	0.56	0.66	0.76
L2	0.50 BSC		
b	0.31	0.41	0.51
e	1.27 BSC		