

PDFN5X6-8L 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

$R_{DS(ON)}=5.7m\Omega(\text{Type})@V_{GS}=-10V$

$R_{DS(ON)}=8.5m\Omega(\text{Type})@V_{GS}=-4.5V$

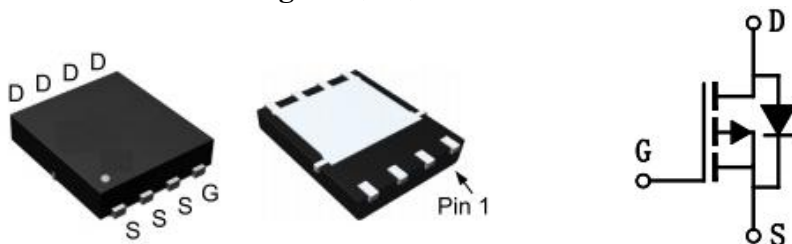
■Applications 应用

Load Switch 负载开关

PWM Application 脉宽调制

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 $T_C = 25^\circ\text{C}$ at $T_A = 25^\circ\text{C}$)	-50 -20	A
Drain Current (pulsed)漏极电流-脉冲	I_{DM}	-100	A
Total Device Dissipation 总耗散功率	$P_{TOT}(\text{at } T_C/T_A = 25^\circ\text{C})$	29.8/2.3	W
Avalanche Energy(Single Pulse)雪崩能量	E_{AS}	49	mJ
Thermal Resistance Junction-Ambient 热阻	$R_{\theta JA}$	55	$^\circ\text{C/W}$
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°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 = -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)}	-1.3	-1.8	-2.3	V
Zero Gate Voltage Drain Current 零栅压漏极电流(V _{GS} =0V, V _{DS} = -24V)	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 = -20A, V _{GS} = -10V) (I _D = -20A, V _{GS} = -4.5V)	R _{DS(ON)}	—	5.7 8.5	7 12	mΩ
Diode Forward Voltage Drop 内附二极管正向压降(I _{SD} = -1A, V _{GS} =0V)	V _{SD}	—	-0.7	-1	V
Input Capacitance 输入电容 (V _{GS} =0V, V _{DS} = -15V, f=1MHz)	C _{ISS}	—	2830	—	pF
Common Source Output Capacitance 共源输出电容(V _{GS} =0V, V _{DS} = -15V, f=1MHz)	C _{OSS}	—	430	—	pF
Reverse Transfer Capacitance 反馈电容 (V _{GS} =0V, V _{DS} = -15V, f=1MHz)	C _{RSS}	—	365	—	pF
Total Gate Charge 栅极电荷密度 (V _{DS} = -15V, I _D = -20A, V _{GS} = -10V)	Q _g	—	50	—	nC
Gate Source Charge 栅源电荷密度 (V _{DS} = -15V, I _D = -20A, V _{GS} = -10V)	Q _{gs}	—	9	—	nC
Gate Drain Charge 栅漏电荷密度 (V _{DS} = -15V, I _D = -20A, V _{GS} = -10V)	Q _{gd}	—	12	—	nC
Turn-ON Delay Time 开启延迟时间 (V _{DS} = -15V I _D = -1A, R _{GEN} =3 Ω, V _{GS} = -10V)	t _{d(on)}	—	13	—	ns
Turn-ON Rise Time 开启上升时间 (V _{DS} = -15V I _D = -1A, R _{GEN} =3 Ω, V _{GS} = -10V)	t _r	—	18	—	ns
Turn-OFF Delay Time 关断延迟时间 (V _{DS} = -15V I _D = -1A, R _{GEN} =3 Ω, V _{GS} = -10V)	t _{d(off)}	—	125	—	ns
Turn-OFF Fall Time 关断下降时间 (V _{DS} = -15V I _D = -1A, R _{GEN} =3 Ω, V _{GS} = -10)	t _f	—	66	—	ns

■ Typical Characteristic Curve 典型特性曲线

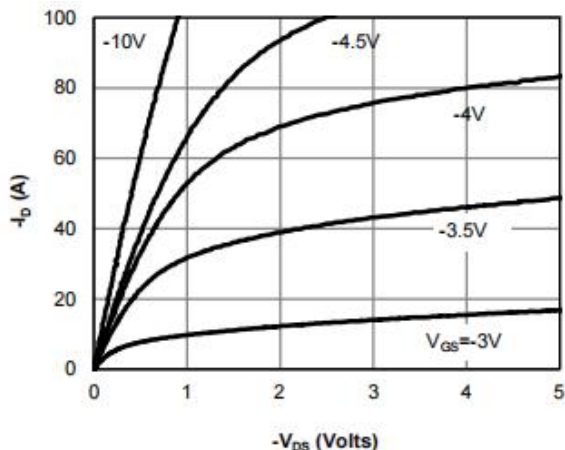


Figure 1: Output Characteristics

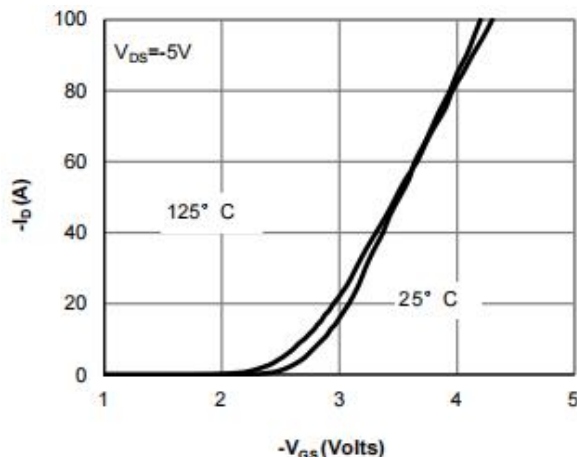


Figure 2: Transfer Characteristics

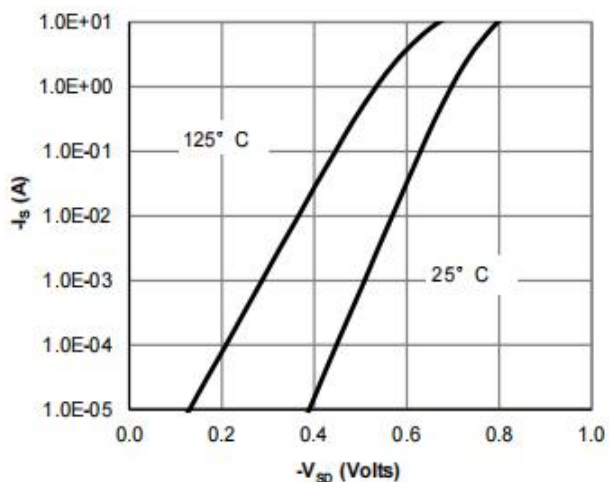


Figure 3: Diode Characteristics

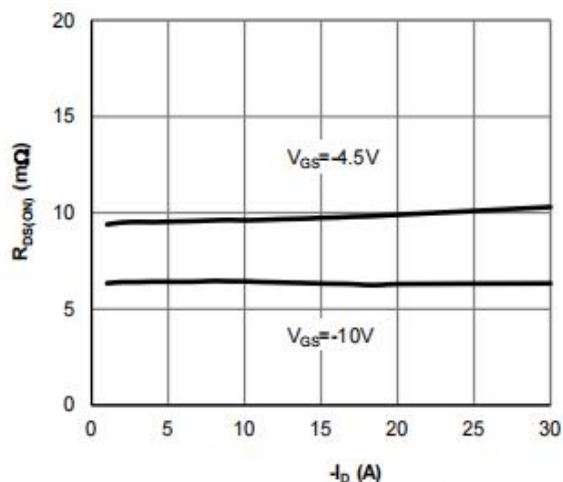


Figure 4: On-Resistance vs. Drain Current

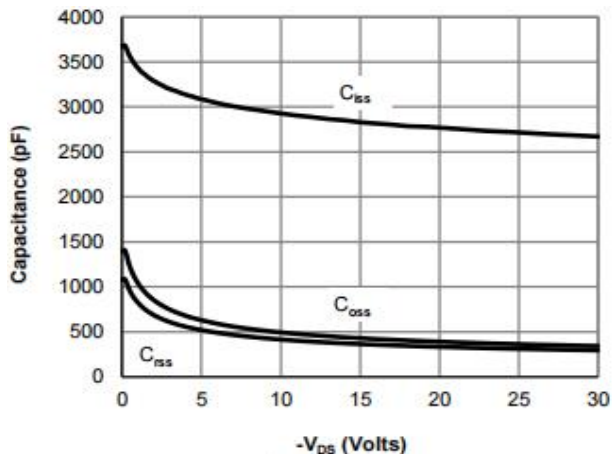


Figure 5: Capacitance Characteristics

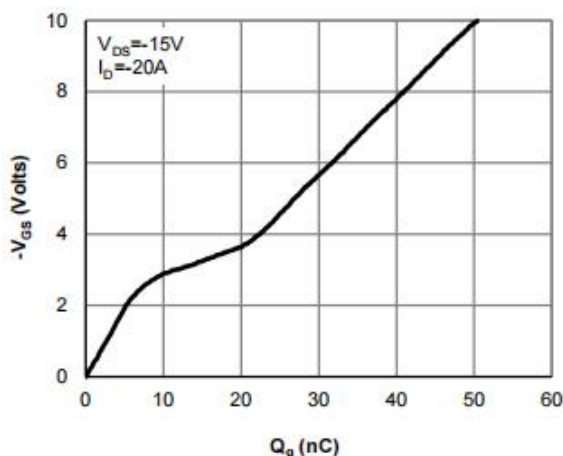


Figure 6: Gate-Charge Characteristics

■ Typical Characteristic Curve 典型特性曲线

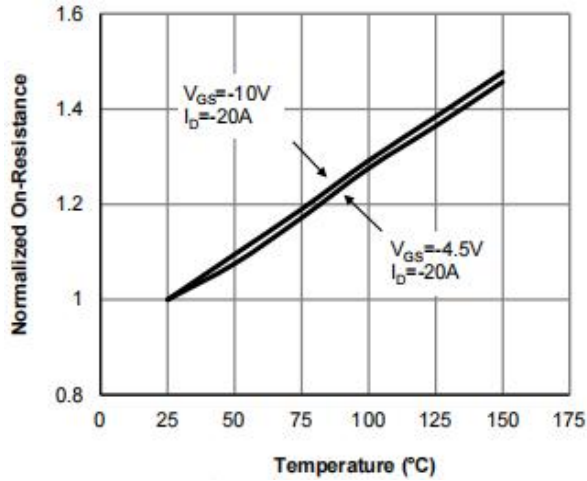


Figure 7: On-Resistance vs. T_j

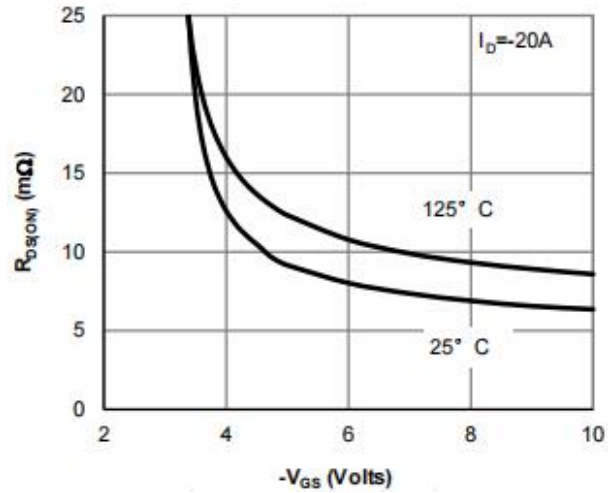


Figure 8: On-Resistance vs. V_{GS}

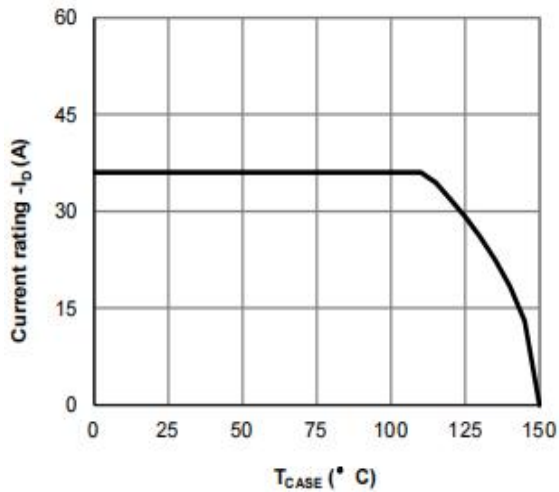


Figure 9: Drain Current Characteristics

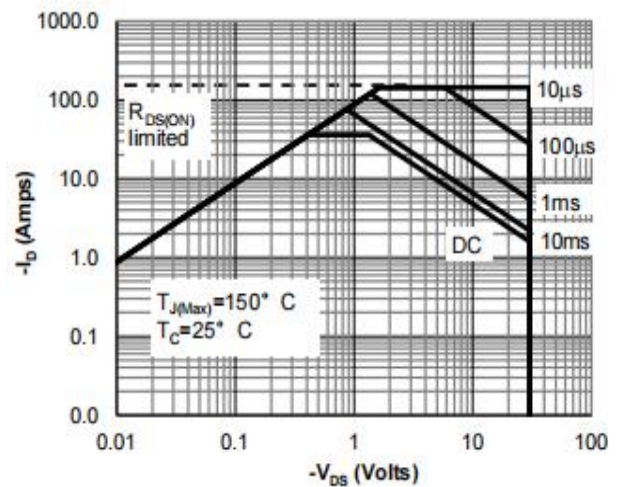


Figure 10: Safe Operating Area

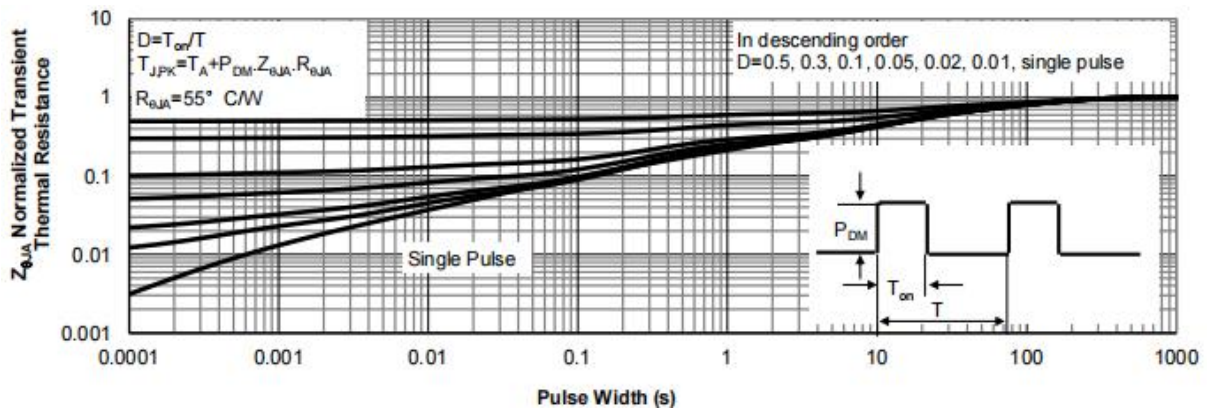


Figure 11: Transient Thermal Response Curve

■ **Dimension 外形封装尺寸**

