PDFN5060-8L N Channel SGT Enhancement 沟道屏蔽栅增强型
MOS Field Effect Transistor 场效应管

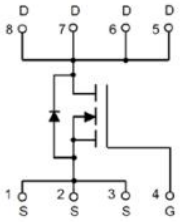
■Features 特点

Low on-resistance 低导通电阻
$R_{DS(ON)}$=4.2mΩ(Type)@V_{GS}=10V
$R_{DS(ON)}$=5.8mΩ(Type)@V_{GS}=4.5V

■Applications 应用

Switch Application System 开关系统
Uninterrupible Power Supplies 不间断电源
Synchronous Rectification for AC/DC Quick Charger 快充同步整流

■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_C = 25°C at T_C = 100°C）	80 55	A
Drain Current (pulsed)漏极电流-脉冲	I_{DM}	300	A
Total Device Dissipation 总耗散功率	P_{TOT}(at T_C = 25°C)	58	W
Avalanche Energy(Single Pulse)雪崩能量	EAS	121	mJ
Thermal Resistance Junction-Case 结壳热阻	$R_{\Theta JC}$	2.2	℃/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}	60	—	—	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}= 60V)	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) (I_D=20A,V_{GS}=4.5V)	$R_{DS(ON)}$	—	4.2 5.8	5.5 7.5	mΩ
Diode Forward Voltage Drop 内附二极管正向压降(I_{SD}=20A,V_{GS}=0V)	V_{SD}	—	0.8	1.2	V
Input Capacitance 输入电容 (V_{GS}=0V, V_{DS}=30V,f=1MHz)	C_{ISS}	—	2140	—	pF
Common Source Output Capacitance 共源输出电容(V_{GS}=0V, V_{DS}=30V,f=1MHz)	C_{OSS}	—	850	—	pF
Reverse Transfer Capacitance 反馈电容 (V_{GS}=0V, V_{DS}=30V,f=1MHz)	C_{RSS}	—	60	—	pF
Total Gate Charge 栅极电荷密度 (V_{DS}=30V, I_D=20A, V_{GS}=10V)	Q_g	—	30	—	nC
Gate Source Charge 栅源电荷密度 (V_{DS}=30V, I_D=20A, V_{GS}=10V)	Q_{gs}	—	4.5	—	nC
Gate Drain Charge 栅漏电荷密度 (V_{DS}=30V, I_D=20A, V_{GS}=10V)	Q_{gd}	—	5	—	nC
Turn-ON Delay Time 开启延迟时间 (V_{DS}=30V I_D=20A, R_{GEN}=5Ω,V_{GS}=10V)	$t_{d(on)}$	—	7	—	ns
Turn-ON Rise Time 开启上升时间 (V_{DS}=30V I_D=20A, R_{GEN}=5Ω,V_{GS}=10V)	t_r	—	8	—	ns
Turn-OFF Delay Time 关断延迟时间 (V_{DS}=30V I_D=20A, R_{GEN}=5Ω,V_{GS}=10V)	$t_{d(off)}$	—	38	—	ns
Turn-OFF Fall Time 关断下降时间 (V_{DS}=30V I_D=20A, R_{GEN}=5Ω,V_{GS}=10V)	t_f	—	16	—	ns

■Typical Characteristic Curve 典型特性曲线

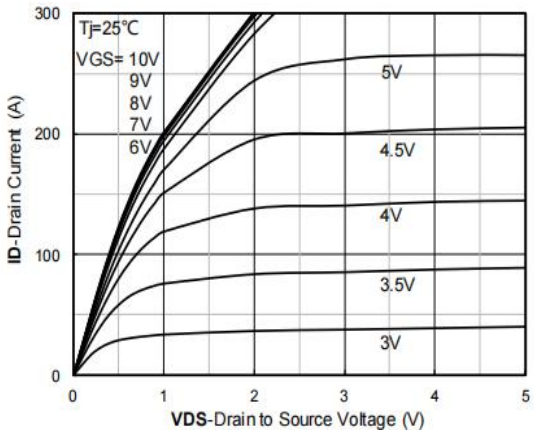


Figure 1: Output Characteristics

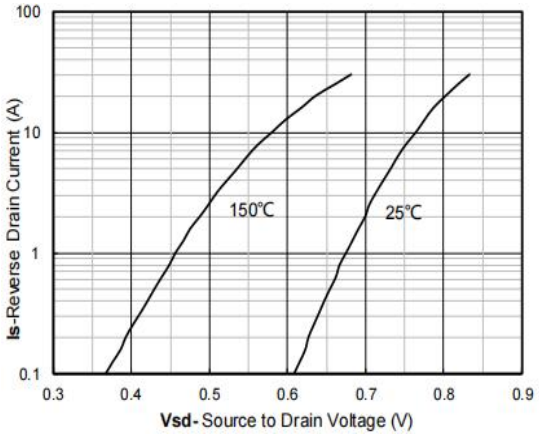


Figure 2: Diode Forward Characteristics

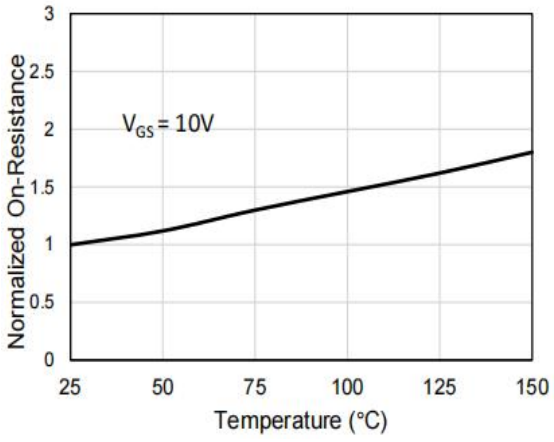


Figure 3: On-Resistance vs. T_J

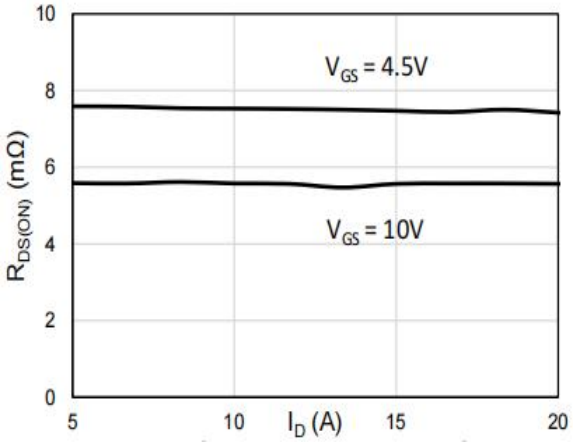


Figure 4: On-Resistance vs. Drain Current

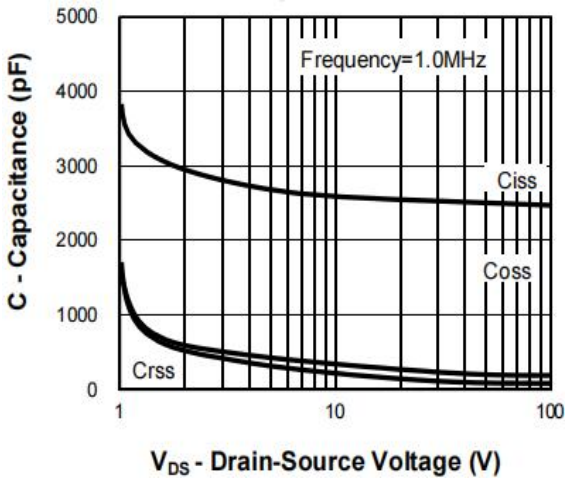


Figure 5: Capacitance Characteristics

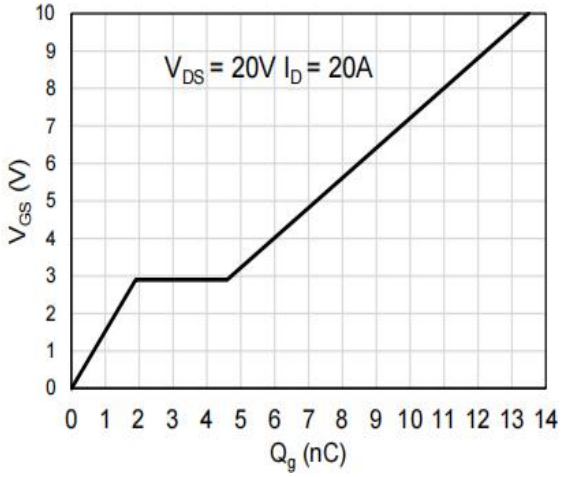


Figure 6: Gate-Charge Characteristics

■Typical Characteristic Curve 典型特性曲线

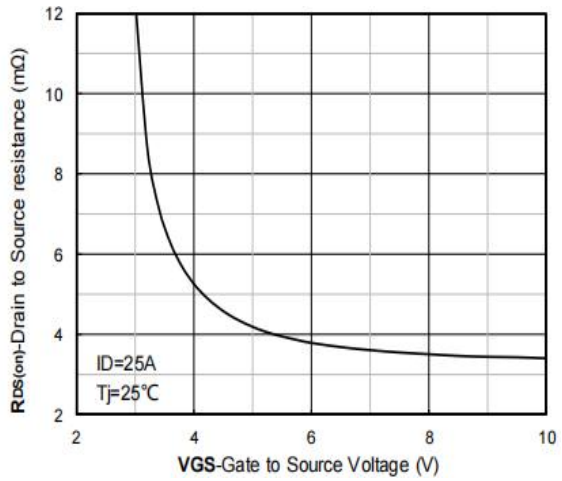


Figure 7: Drain Current vs. V_{GS}

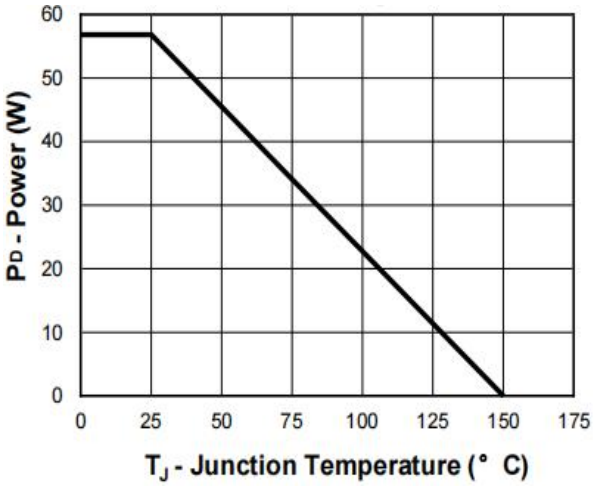


Figure 8: Power Rating Curve

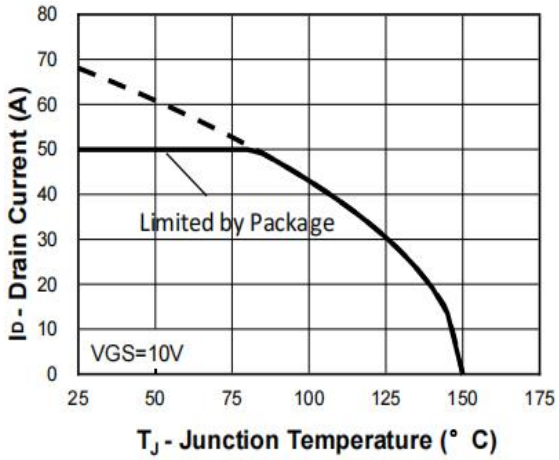


Figure 9: Drain Current Characteristics

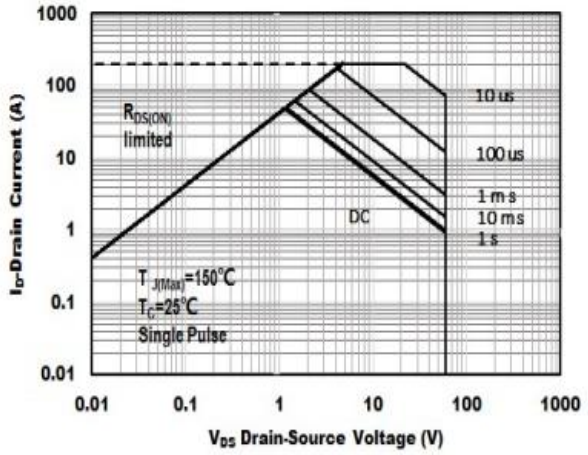


Figure 10: Safe Operating Area

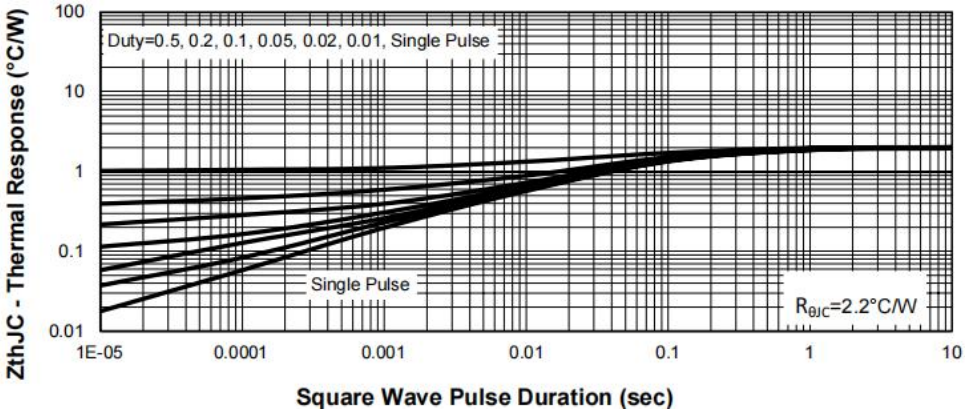
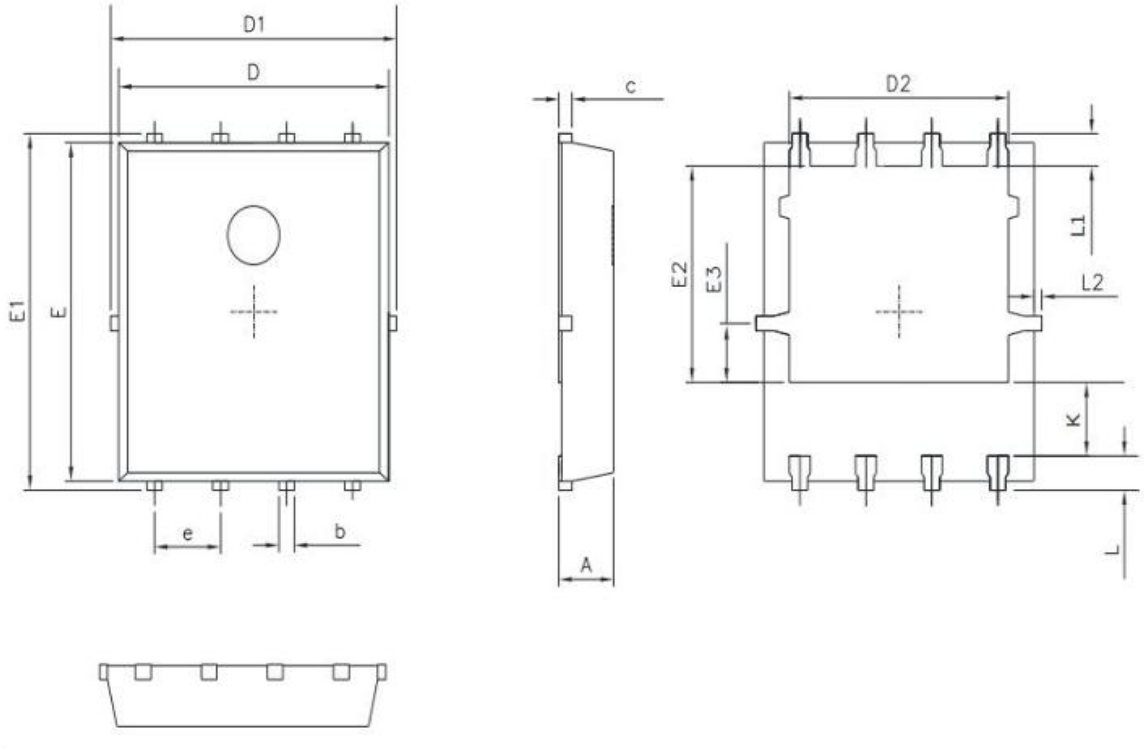


Figure 11: Transient Thermal Response Curve

■ Dimension 外形封装尺寸(Unit:mm)



SYMBOL	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.90	1.10	0.035	0.043
b	0.25	0.50	0.010	0.020
c	0.10	0.30	0.004	0.012
D	4.80	5.30	0.189	0.209
D1	4.90	5.50	0.193	0.217
D2	3.92	4.20	0.154	0.165
E	5.65	5.85	0.222	0.230
E1	5.90	6.20	0.232	0.244
E2	3.33	3.78	0.131	0.149
E3	0.80	1.00	0.031	0.039
e	1.27		0.050	
L	0.40	0.70	0.016	0.028
L1	0.65		0.026	
L2	0.00	0.15	0.000	0.006
K	1.00	1.50	0.039	0.059