PDFN5060-8 N Channel Enhancement 沟道增强型
MOS Field Effect Transistor 场效应管

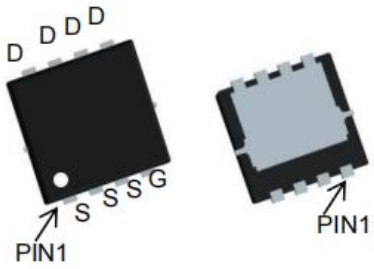
■Features 特点

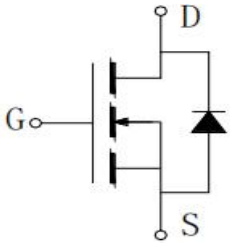
Low on-resistance 低导通电阻
$R_{DS(ON)}$=7.2mΩ(Type)@V_{GS}=10V
$R_{DS(ON)}$=9.5mΩ(Type)@V_{GS}=4.5V
SGT Technology 屏蔽栅技术
Excellent QG x RDS(on) product(FOM)

■Applications 应用

Switch Application System 开关系统

■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}	100	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_A = 25°C）	78 17	A
Drain Current (pulsed)漏极电流-脉冲	I_{DM}(at T_C = 25°C)	272	A
Total Device Dissipation 总耗散功率	P_{TOT}(at T_C = 25°C at T_A = 25°C)	57 4.2	W
Avalanche Energy(Single Pulse)雪崩能量	E_{AS}	36	mJ
Thermal Resistance Junction-C/A 热阻	$R_{\Theta JC}$/$R_{\Theta JA}$	2.2/30	℃/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}	100	—	—	V
Gate Threshold Voltage 栅极开启电压(I_D =250uA,V_{GS}= V_{DS})	$V_{GS(th)}$	1.2	1.9	2.3	V
Zero Gate Voltage Drain Current 零栅压漏极电流(V_{GS}=0V, V_{DS}= 100V)	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=16A,V_{GS}=4.5V)	$R_{DS(ON)}$	—	7.2 9.5	8.5 13	mΩ
Diode Forward Voltage Drop 内附二极管正向压降(I_{SD}=20A,V_{GS}=0V)	V_{SD}	—	0.85	1.2	V
Input Capacitance 输入电容 (V_{GS}=0V, V_{DS}=50V,f=1MHz)	C_{ISS}	—	2455	—	pF
Common Source Output Capacitance 共源输出电容(V_{GS}=0V, V_{DS}=50V,f=1MHz)	C_{OSS}	—	150	—	pF
Reverse Transfer Capacitance 反馈电容 (V_{GS}=0V, V_{DS}=50V,f=1MHz)	C_{RSS}	—	15	—	pF
Total Gate Charge 栅极电荷密度 (V_{DS}=50V, I_D=20A, V_{GS}=10V)	Q_g	—	45	—	nC
Gate Source Charge 栅源电荷密度 (V_{DS}=50V, I_D=20A, V_{GS}=10V)	Q_{gs}	—	8	—	nC
Gate Drain Charge 栅漏电荷密度 (V_{DS}=50V, I_D=20A, V_{GS}=10V)	Q_{gd}	—	12	—	nC
Turn-ON Delay Time 开启延迟时间 (V_{DS}=50V I_D=20A, R_{GEN}=3Ω,V_{GS}=10V)	$t_{d(on)}$	—	8	—	ns
Turn-ON Rise Time 开启上升时间 (V_{DS}=50V I_D=20A, R_{GEN}=3Ω,V_{GS}=10V)	t_r	—	13	—	ns
Turn-OFF Delay Time 关断延迟时间 (V_{DS}=50V I_D=20A, R_{GEN}=3Ω,V_{GS}=10V)	$t_{d(off)}$	—	25	—	ns
Turn-OFF Fall Time 关断下降时间 (V_{DS}=50V I_D=20A, R_{GEN}=3Ω,V_{GS}=10V)	t_f	—	9	—	ns

■Typical Characteristic Curve 典型特性曲线

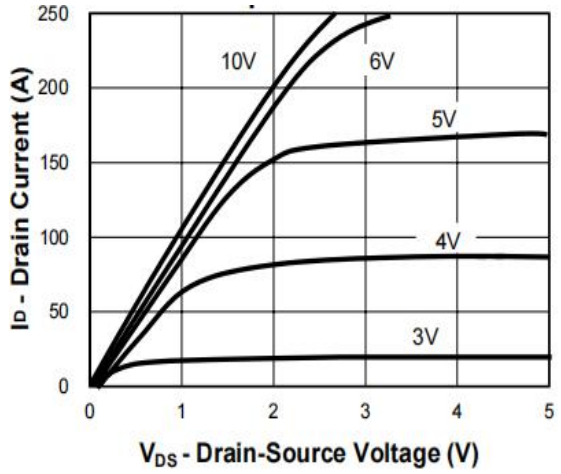


Figure 1: Output Characteristics

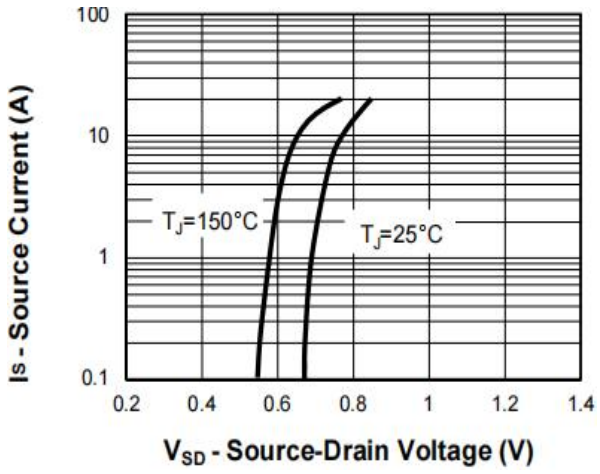


Figure 2: Diode Forward Characteristics

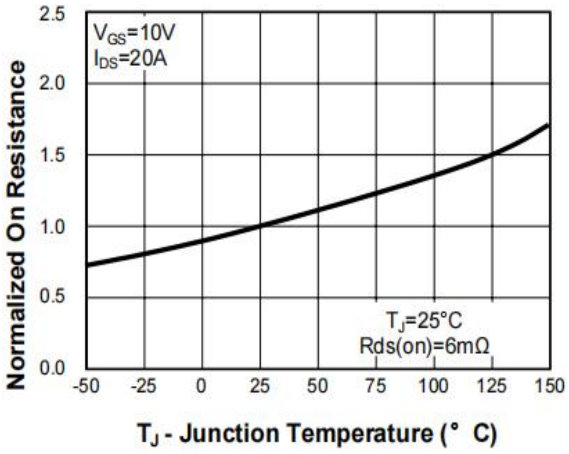


Figure 3: On-Resistance vs. T_J

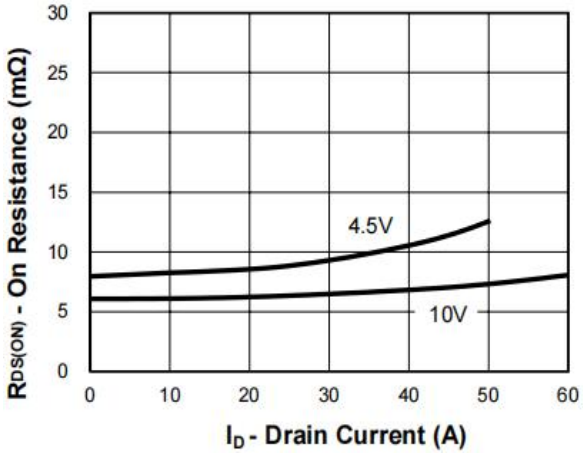


Figure 4: On-Resistance vs. Drain Current

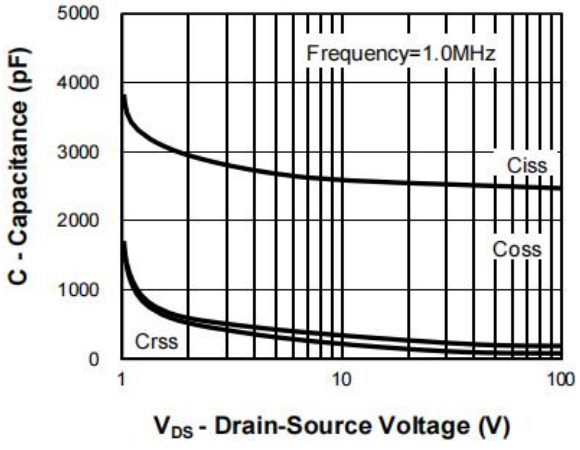


Figure 5: Capacitance Characteristics

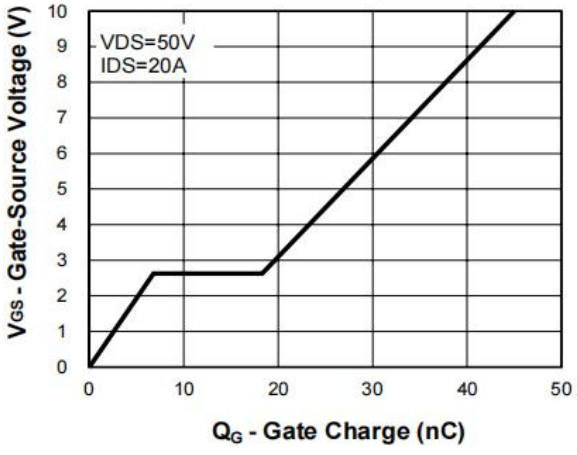


Figure 6: Gate-Charge Characteristics

■Typical Characteristic Curve 典型特性曲线

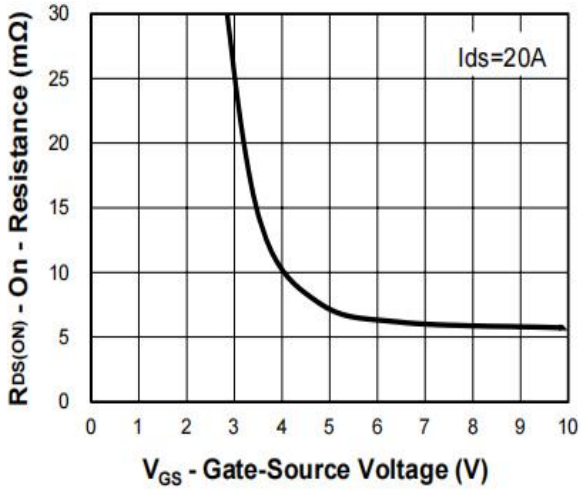


Figure 7: Drain Current vs. V_{GS}

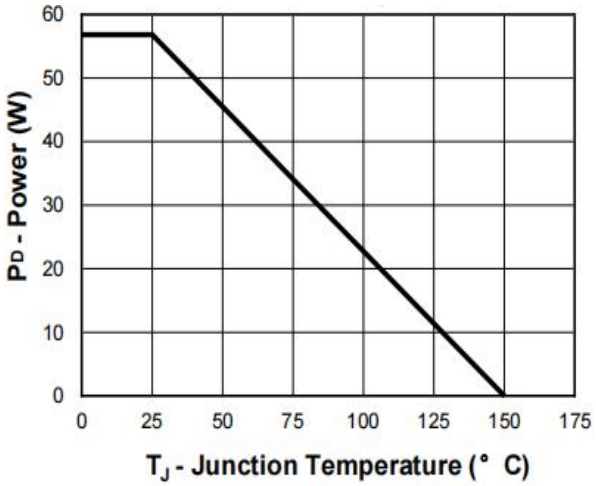


Figure 8: Power Rating Curve

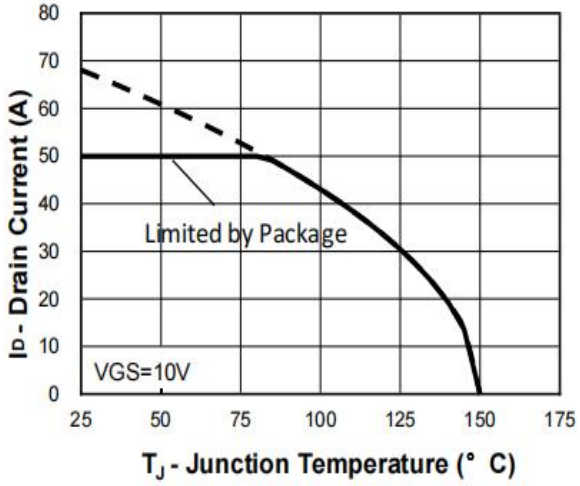


Figure 9: Drain Current Characteristics

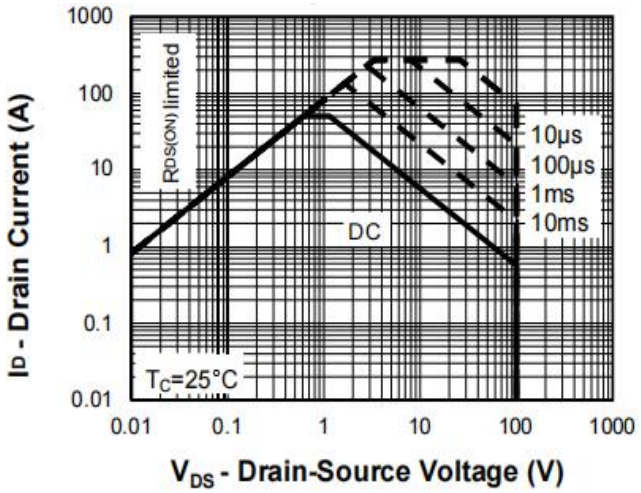


Figure 10: Safe Operating Area

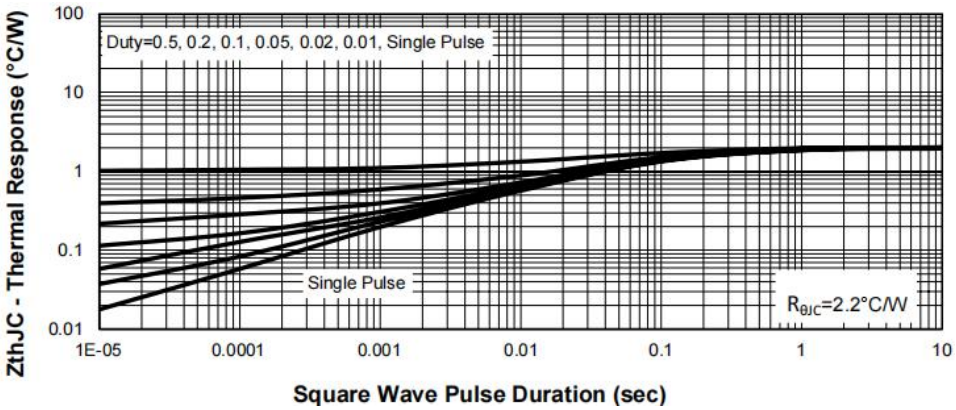
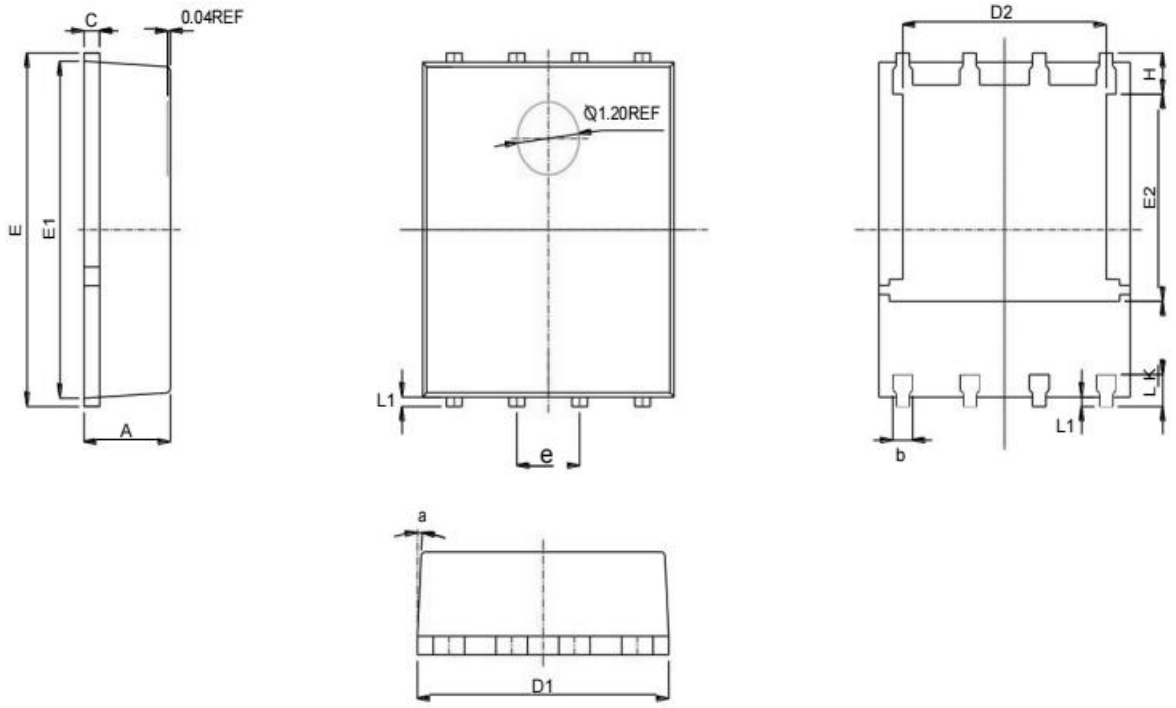


Figure 11: Transient Thermal Response Curve

■ Dimension 外形封装尺寸



SYMBOL	MM			INCH		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.90	1.00	1.10	0.035	0.039	0.043
b	0.33	0.42	0.51	0.013	0.017	0.020
c	0.20	0.25	0.30	0.008	0.010	0.012
D1	4.80	4.90	5.00	0.189	0.193	0.197
D2	3.61	3.79	3.96	0.142	0.149	0.156
E	5.90	6.00	6.10	0.232	0.236	0.240
E1	5.65	5.75	5.85	0.222	0.226	0.230
E2	3.38	3.58	3.78	0.133	0.141	0.149
e	1.27 BSC			0.050 BSC		
H	0.41	0.51	0.61	0.016	0.020	0.024
k	1.10			0.043		
L	0.51	0.61	0.71	0.020	0.024	0.028
L1	0.06	0.13	0.20	0.002	0.005	0.008
a	0°		12°	0°		12°