

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

$R_{DS(ON)}=7.2m\Omega(\text{Type})@V_{GS}=10V$

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

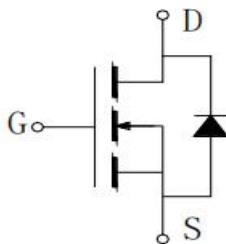
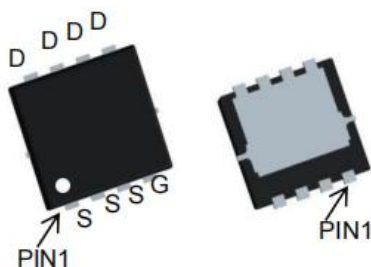
SGT Technology 屏蔽栅技术

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 $T_C = 25^\circ C$ at $T_A = 25^\circ C$)	78 17	A
Drain Current (pulsed)漏极电流-脉冲	$I_{DM}(\text{at } T_C = 25^\circ C)$	272	A
Total Device Dissipation 总耗散功率	$P_{TOT}(\text{at } T_C = 25^\circ C$ at $T_A = 25^\circ C)$	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	$^\circ C/W$
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℃ 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

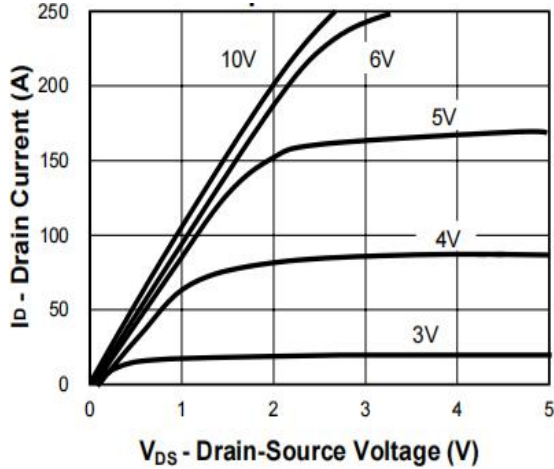


Figure 1: Output Characteristics

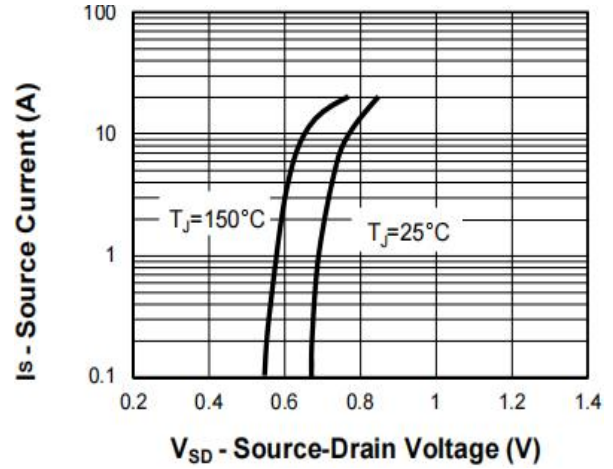


Figure 2: Diode Forward Characteristics

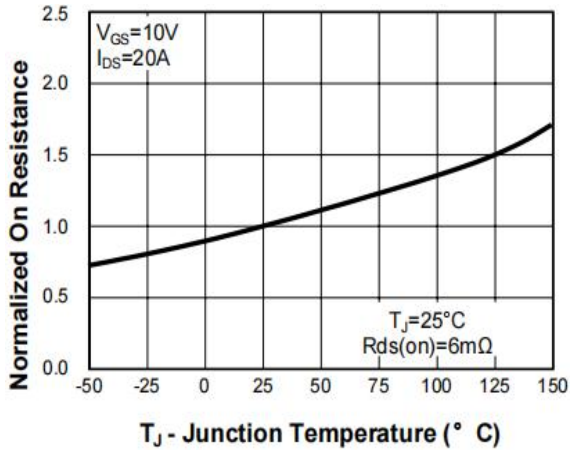


Figure 3: On-Resistance vs. T_J

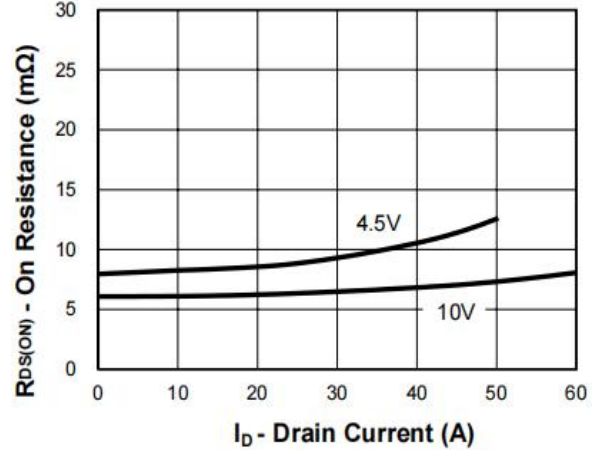


Figure 4: On-Resistance vs. Drain Current

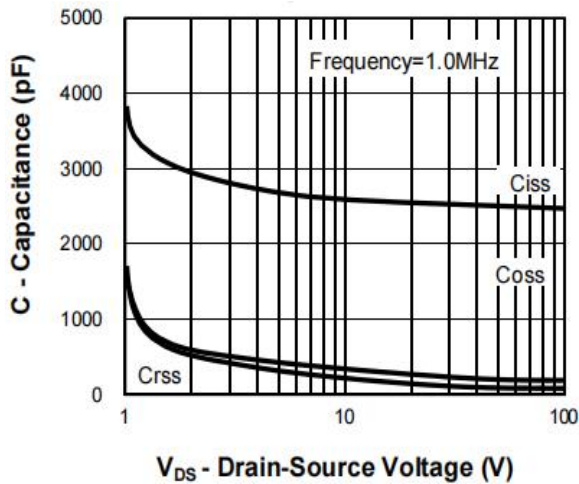


Figure 5: Capacitance Characteristics

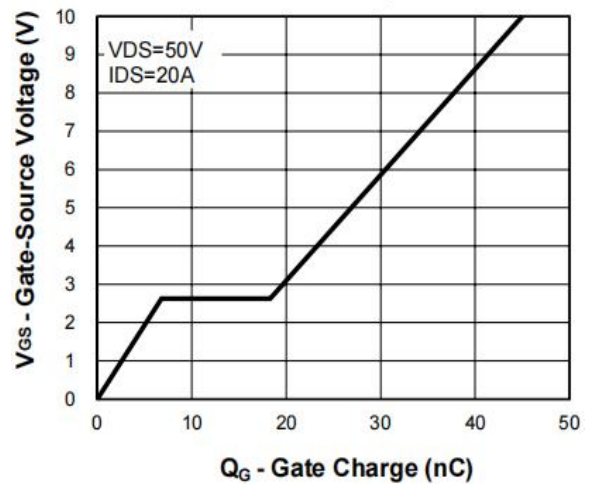


Figure 6: Gate-Charge Characteristics

■ Typical Characteristic Curve 典型特性曲线

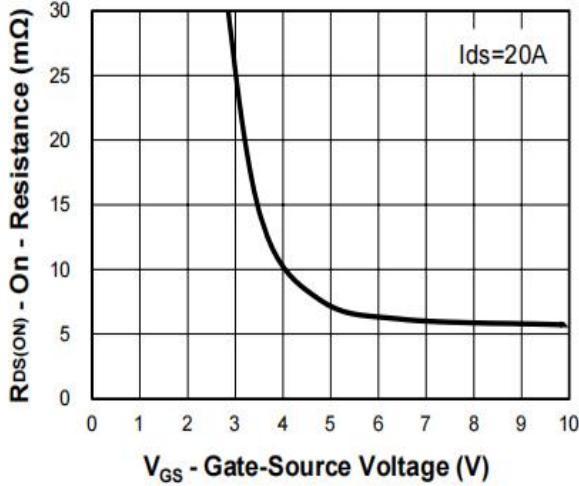


Figure 7: Drain Current vs. V_{GS}

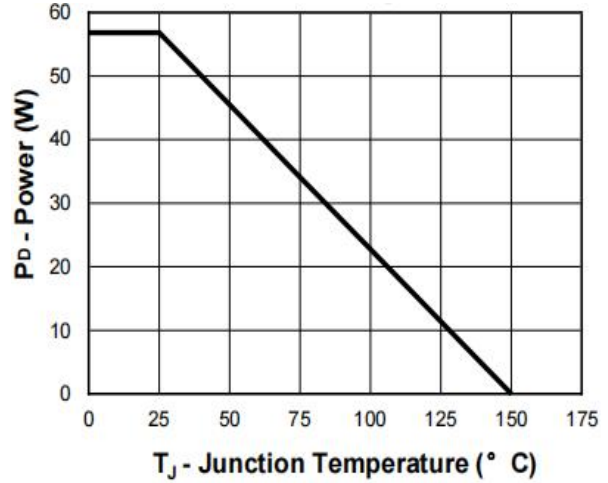


Figure 8: Power Rating Curve

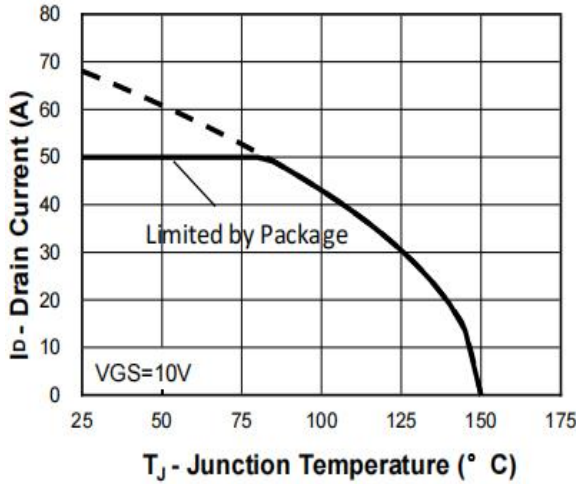


Figure 9: Drain Current Characteristics

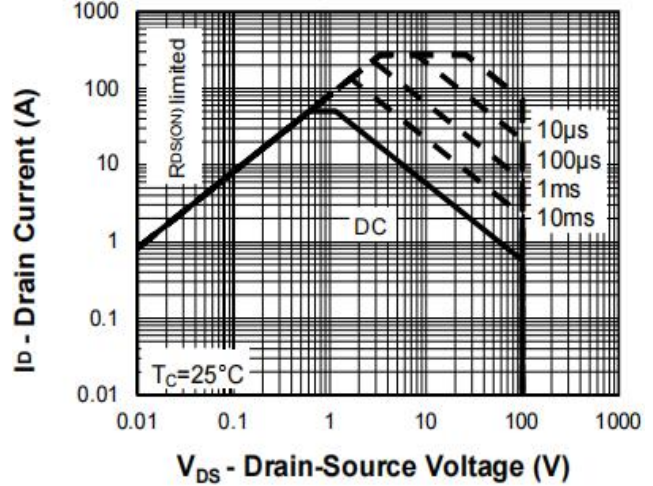


Figure 10: Safe Operating Area

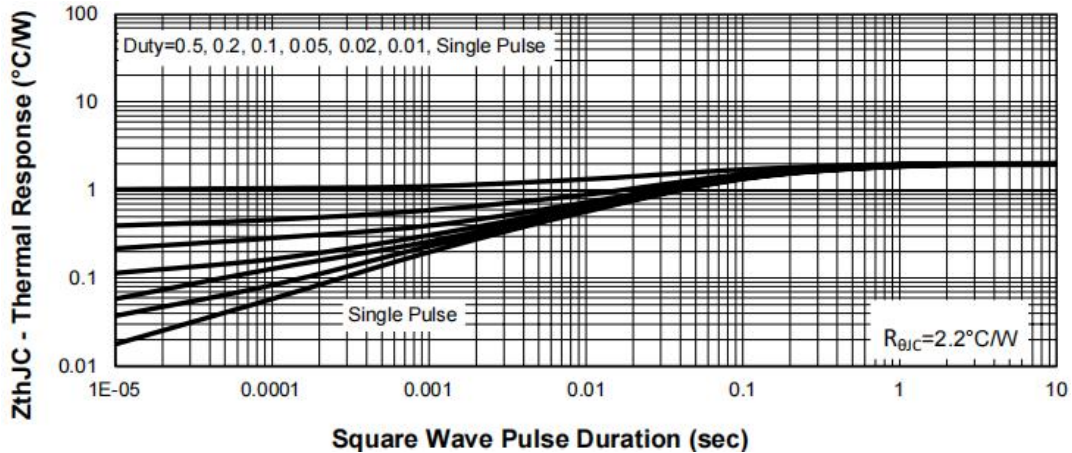
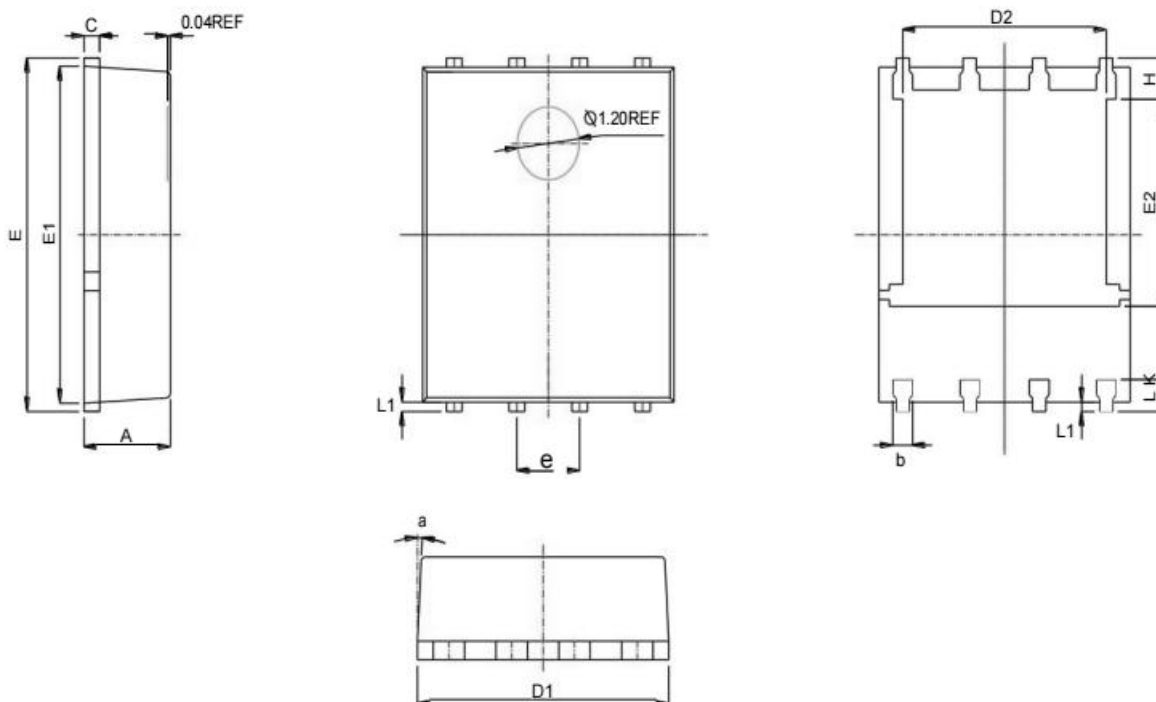


Figure 11: Transient Thermal Response Curve

■ **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°