SOP-8 P Channel Enhancement 沟道增强型 MOS Field Effect Transistor 场效应管

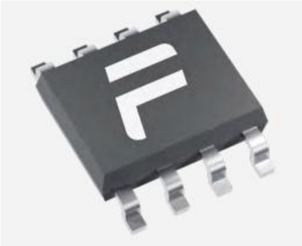
■Features 特点

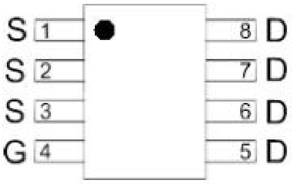
Low on-resistance 低导通电阻
$R_{DS(ON)}=43m\Omega@V_{GS}=-10V$
$R_{DS(ON)}=59m\Omega@V_{GS}=-4.5V$

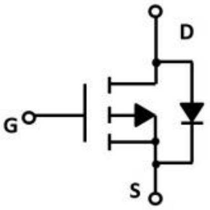
■Applications 应用

Load Switch 负载开关
PWM Application 脉宽调制

■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 $T_A = 25°C$）	-5.1	A
Drain Current (pulsed)漏极电流-脉冲	I_{DM}	-20	A
Total Device Dissipation 总耗散功率	P_{TOT}(at $T_A = 25°C$)	2.5	W
Thermal Resistance Junction-Ambient 热阻	$R_{\theta JA}$	50	℃/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}	-30	—	—	V
Gate Threshold Voltage 栅极开启电压(I_D = -250uA,V_{GS}= V_{DS})	$V_{GS(th)}$	-1	-1.5	-2.4	V
Zero Gate Voltage Drain Current 零栅压漏极电流(V_{GS}=0V, V_{DS}= -24V)	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= -5.1A,V_{GS}= -10V) (I_D= -4.2A,V_{GS}= -4.5V)	$R_{DS(ON)}$	—	43 59	48 78	mΩ
Diode Forward Voltage Drop 内附二极管正向压降(I_{SD}= -4A,V_{GS}=0V)	V_{SD}	—	—	-1.2	V
Input Capacitance 输入电容 (V_{GS}=0V, V_{DS}= -15V,f=1MHz)	C_{ISS}	—	719	—	pF
Common Source Output Capacitance 共源输出电容(V_{GS}=0V, V_{DS}= -15V,f=1MHz)	C_{OSS}	—	78	—	pF
Reverse Transfer Capacitance 反馈电容(V_{GS}=0V, V_{DS}= -15V,f=1MHz)	C_{RSS}	—	64	—	pF
Total Gate Charge 栅极电荷密度 (V_{DS}= -15V, I_D= -5.1A, V_{GS}= -4.5V)	Q_g	—	14	—	nC
Gate Source Charge 栅源电荷密度 (V_{DS}= -15V, I_D= -5.1A, V_{GS}= -4.5V)	Q_{gs}	—	3	—	nC
Gate Drain Charge 栅漏电荷密度 (V_{DS}= -15V, I_D= -5.1A, V_{GS}= -4.5V)	Q_{gd}	—	2	—	nC
Turn-ON Delay Time 开启延迟时间 (V_{DS}= -15V I_D= -1A, R_{GEN}=6Ω,V_{GS}= -10V)	$t_{d(on)}$	—	7	—	ns
Turn-ON Rise Time 开启上升时间 (V_{DS}= -15V I_D= -1A, R_{GEN}=6Ω,V_{GS}= -10V)	t_r	—	37	—	ns
Turn-OFF Delay Time 关断延迟时间 (V_{DS}= -15V I_D= -1A, R_{GEN}=6Ω,V_{GS}= -10V)	$t_{d(off)}$	—	32	—	ns
Turn-OFF Fall Time 关断下降时间 (V_{DS}= -15V I_D= -1A, R_{GEN}=6Ω,V_{GS}= -10V)	t_f	—	42	—	ns

■Typical Characteristic Curve 典型特性曲线

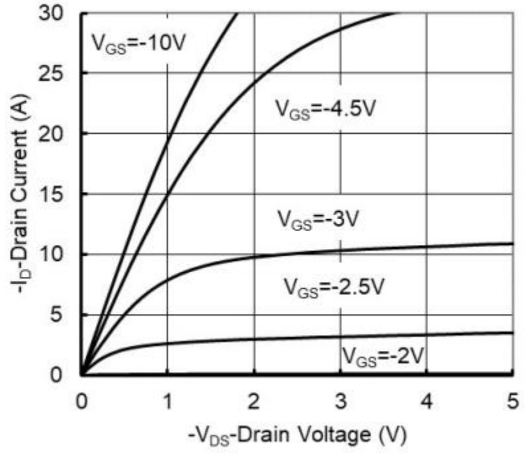


Figure 1: Output Characteristics

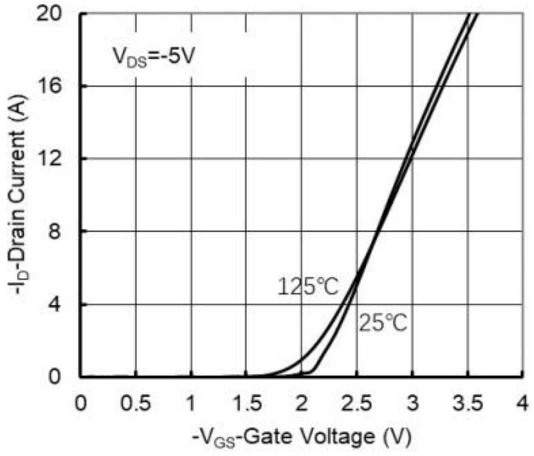


Figure 2: Transfer Characteristics

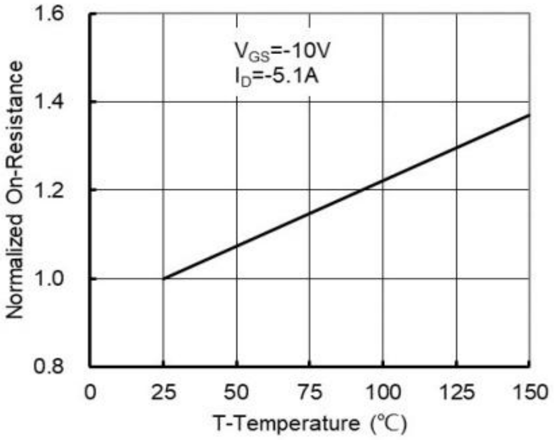


Figure 3: On-Resistance vs. T_J

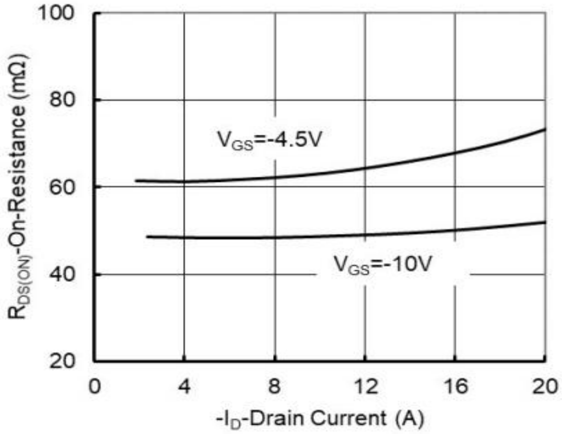


Figure 4: On-Resistance vs. Drain Current

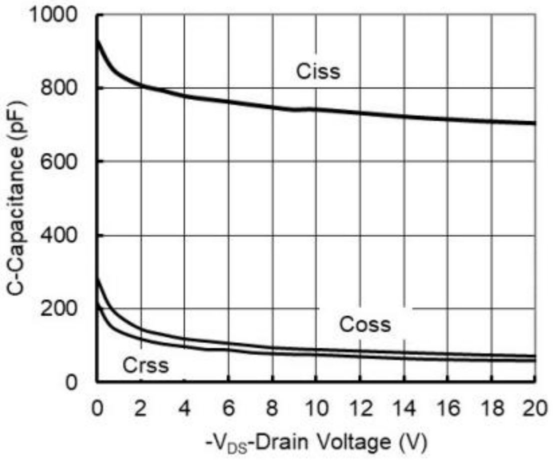


Figure 5: Capacitance Characteristics

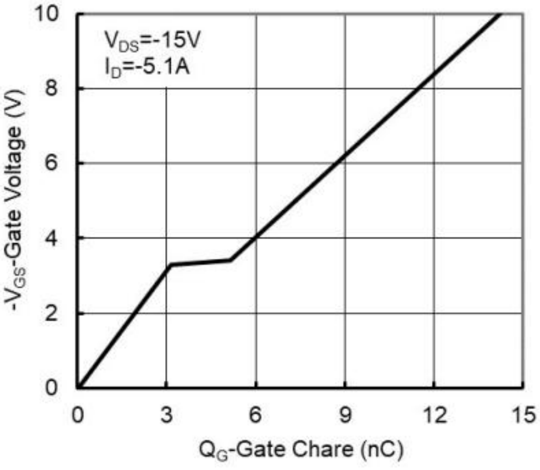


Figure 6: Gate-Charge Characteristics

■Typical Characteristic Curve 典型特性曲线

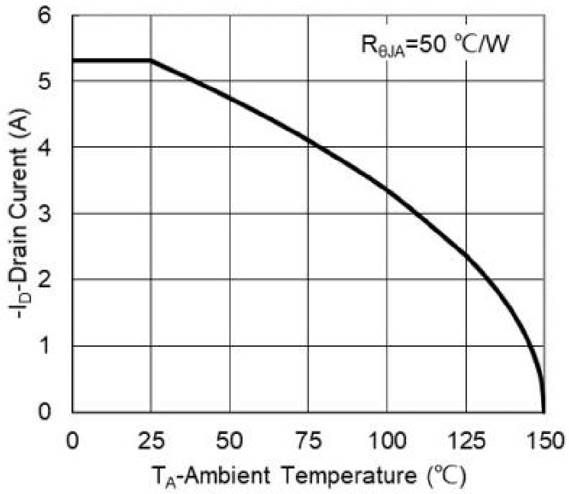


Figure 7: Power Rating Curve

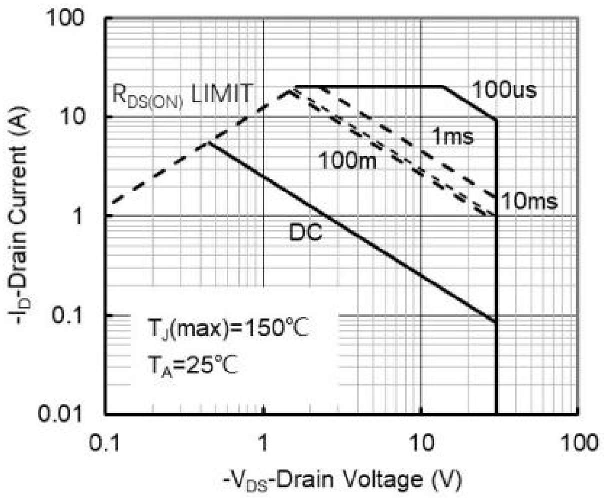


Figure 8: Safe Operating Area

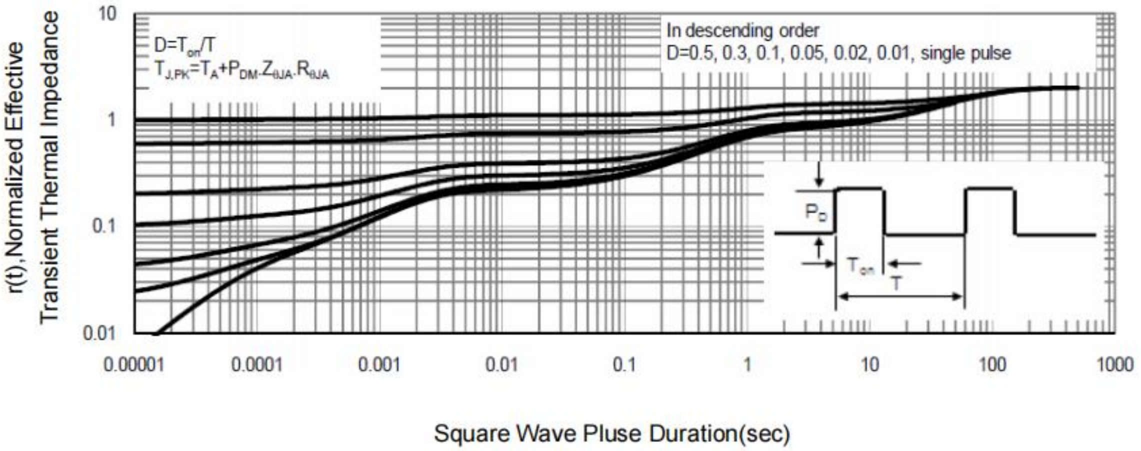
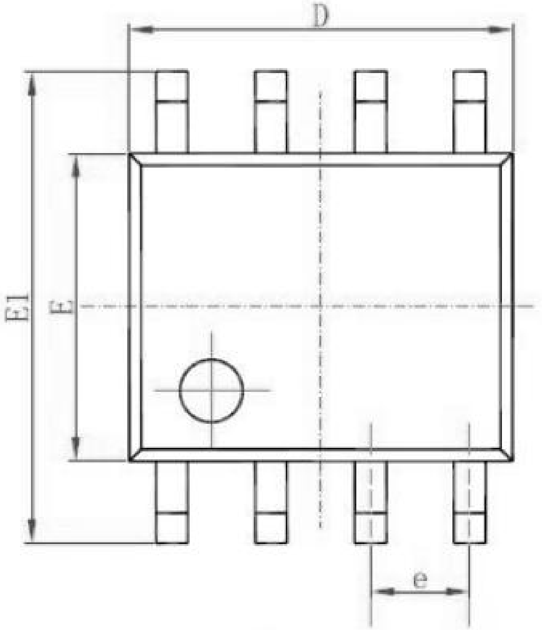
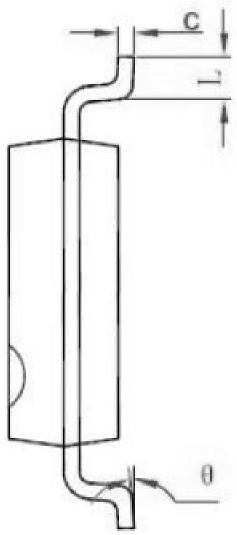
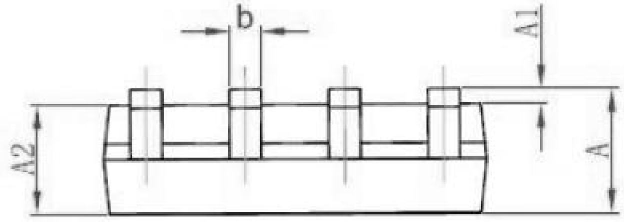


Figure 9: Transient Thermal Response Curve

■ Dimension 外形封装尺寸







Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°