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

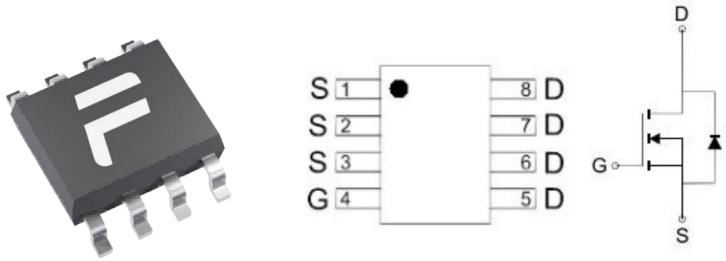
■Features 特点

Low on-resistance Low Qg 低导通电阻/低栅电荷密度
$R_{DS(ON)}$=6.5mΩ(Type)@V_{GS}=10V
$R_{DS(ON)}$= 10.5mΩ(Type)@V_{GS}=4.5V

■Applications 应用

DC-DC Power System 升压转换
High Frequency Point-of-Load Synchronous Buck Converter负载点高频同步整流

■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}	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　at T_A = 70°C)	15 10	A
Drain Current(pulsed）漏极电流-脉冲	I_{DM}	80	A
Total Device Dissipation 总耗散功率	P_{TOT}(at T_A = 25°C at T_C = 25°C)	1.5 3.5	W
Thermal Resistance Junction-A/C 热阻	$R_{\Theta JA}$ $R_{\Theta JC}$	85 35	℃/W
Avalanche Energy Single Pulse 雪崩能量	E_{AS}	105.8	mJ
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	Type 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})	$V_{GS(th)}$	1.0	1.5	2.5	V
Zero Gate Voltage Drain Current 零栅压漏极电流（V_{GS}=0V, V_{DS}= 30V)	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= 11A,V_{GS}=4.5V)	$R_{DS(ON)}$	—	6.5 10.5	8 14	mΩ
Diode Forward Voltage Drop 内附二极管正向压降（I_{SD}=20A,V_{GS}=0V)	V_{SD}	—	—	1.2	V
Input Capacitance 输入电容 (V_{GS}=0V, V_{DS}= 15V,f=1MHz)	C_{ISS}	—	1700	—	pF
Common Source Output Capacitance 共源输出电容（V_{GS}=0V, V_{DS}= 15V,f= 1MHz)	C_{OSS}	—	320	—	pF
Reverse Transfer Capacitance 反馈电容（V_{GS}=0V, V_{DS}= 15V,f= 1MHz)	C_{RSS}	—	300	—	pF
Total Gate Charge 栅极电荷密度 （V_{DS}= 15V, I_D= 10A, V_{GS}= 10V)	Qg	—	45	—	nC
Gate Source Charge 栅源电荷密度 （V_{DS}= 15V, I_D= 10A, V_{GS}= 10V)	Qgs	—	3	—	nC
Gate Drain Charge 栅漏电荷密度 （V_{DS}= 15V, I_D= 10A, V_{GS}= 10V)	Qgd	—	15	—	nC
Turn-ON Delay Time 开启延迟时间 (V_{DS}= 15V I_D=20A, R_{GEN}=3Ω,V_{GS}= 10V)	$t_{d(on)}$	—	21	—	ns
Turn-ON Rise Time 开启上升时间 (V_{DS}= 15V I_D=20A, R_{GEN}=3Ω,V_{GS}= 10V)	t_r	—	32	—	ns
Turn-OFF Delay Time 关断延迟时间 (V_{DS}= 15V I_D=20A, R_{GEN}=3Ω,V_{GS}= 10V)	$t_{d(off)}$	—	59	—	ns
Turn-OFF Fall Time 关断下降时间 (V_{DS}= 15V I_D=20A, R_{GEN}=3Ω,V_{GS}= 10V)	t_f	—	34	—	ns

■Typical Characteristic Curve 典型特性曲线

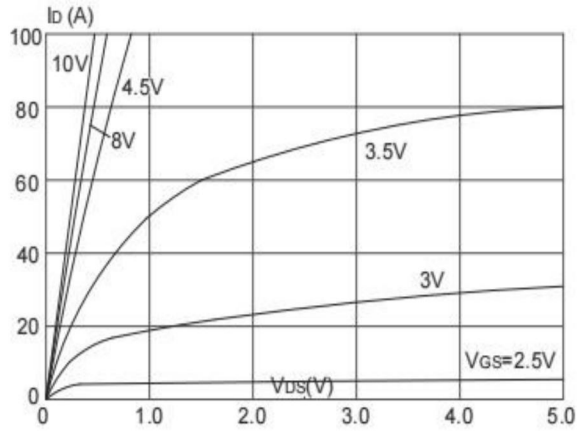


Figure 1: Output Characteristics

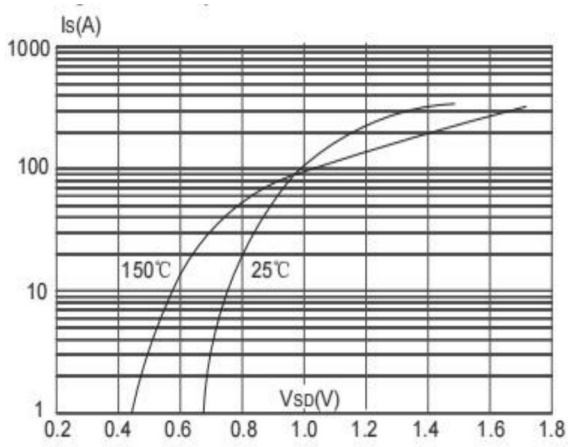


Figure 2: Diode Forward Characteristics

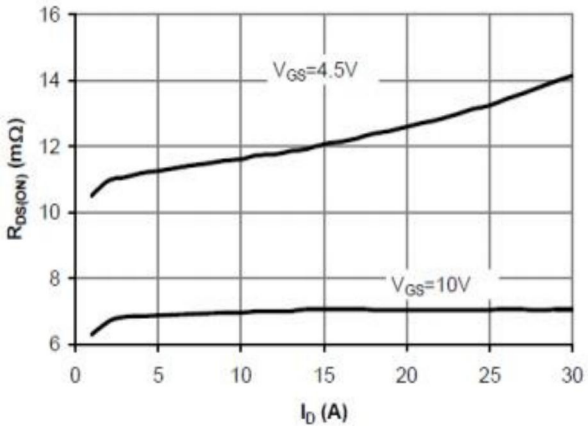


Figure 3: On-Resistance vs. I_D

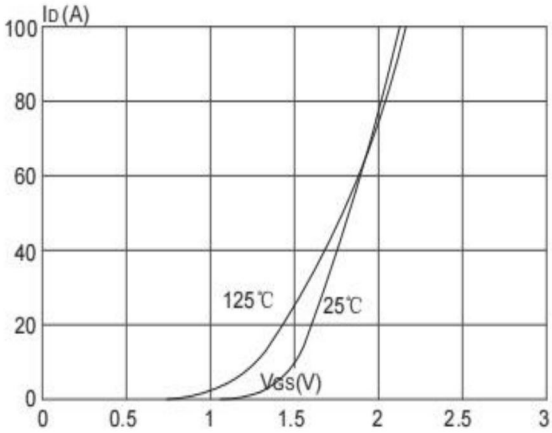


Figure 4: Transfer Characteristics

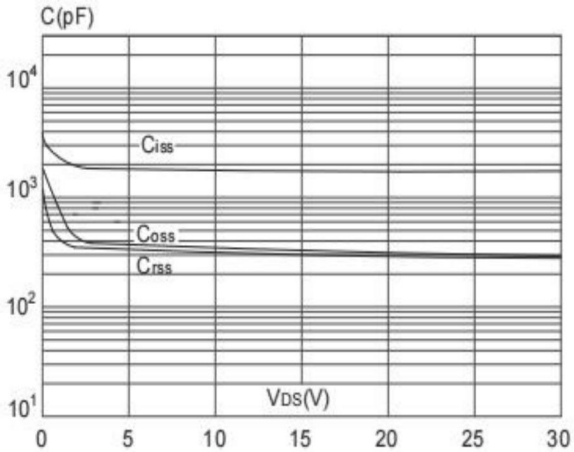


Figure 5: Capacitance Characteristics

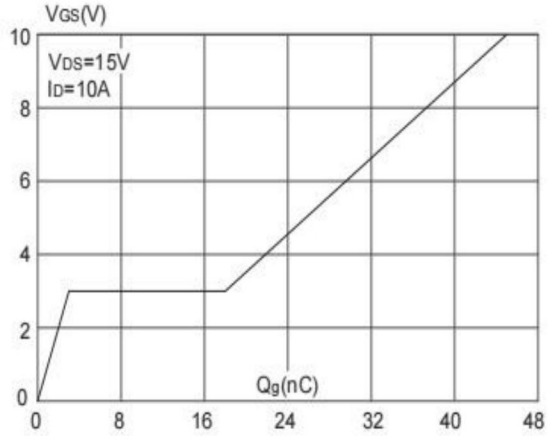


Figure 6: Gate-Charge Characteristics

■Typical Characteristic Curve 典型特性曲线

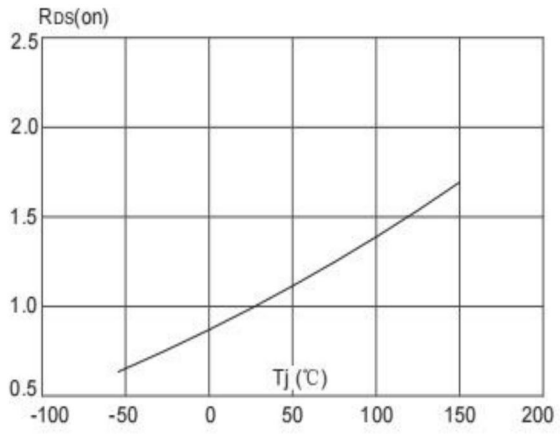


Figure 7: On-Resistance vs. T_J

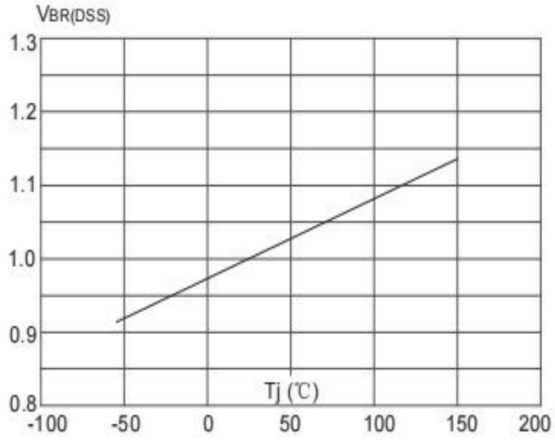


Figure 8: Breakdown Voltage vs. T_J

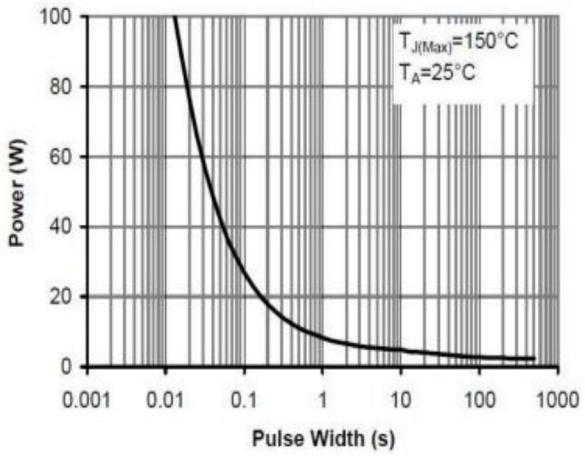


Figure 9: Power Rating Curve

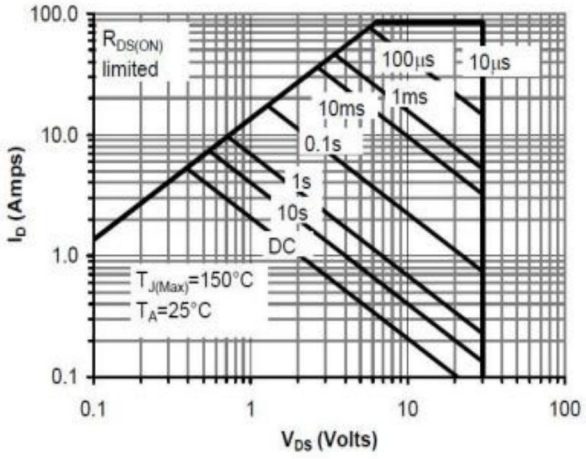


Figure 10: Safe Operating Area

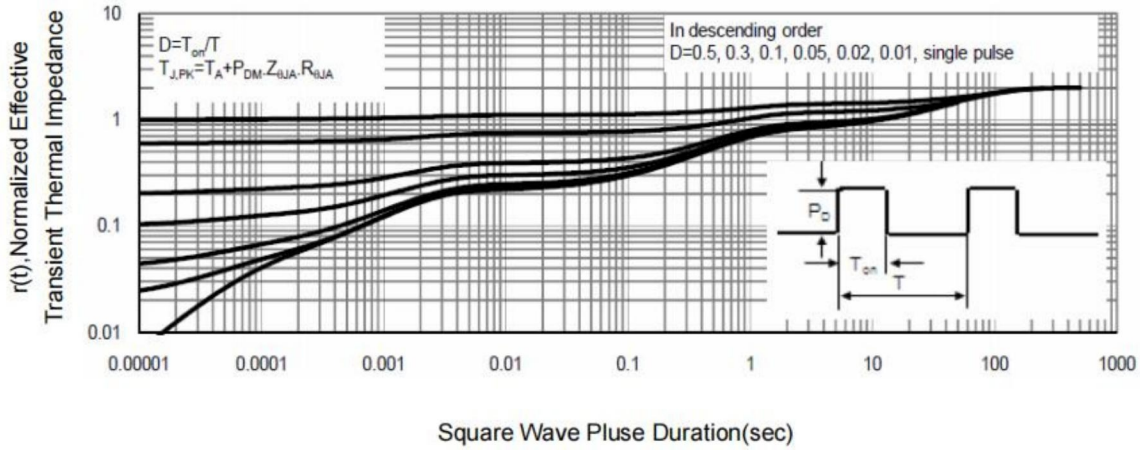
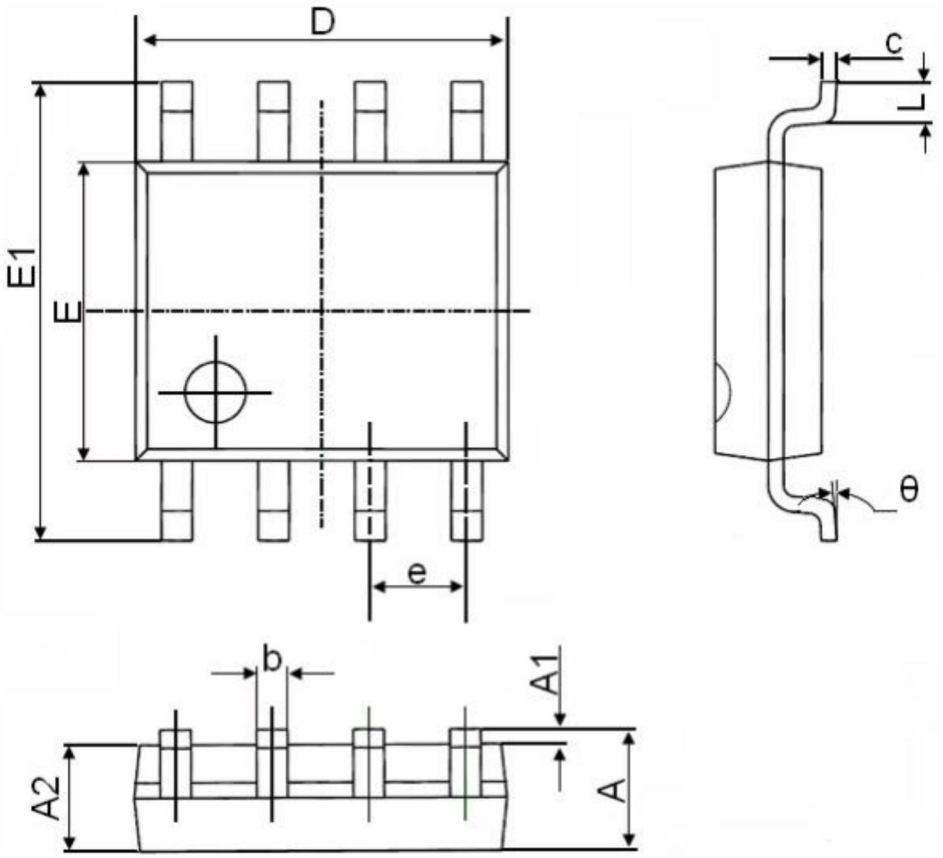


Figure 11: Transient Thermal Response Curve

■ 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°