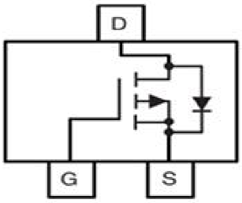
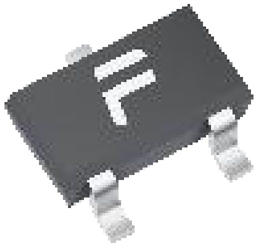
SOT-23-3L -20V P Channel Enhancement 沟道增强型 MOS Field Effect Transistor 场效应管





■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}	-20	V
Gate- Source Voltage 栅极-源极电压	V_{GS}	±12	V
Drain Current (continuous)漏极电流-连续	I_D（at $T_A = 25°C$）	-7	A
Drain Current (pulsed)漏极电流-脉冲	I_{DM}	-28	A
Total Device Dissipation 总耗散功率	P_D(at $T_A = 25°C$)	1400	mW
Thermal Resistance Junction-Ambient 热阻	$R_{\Theta JA}$	89.2	℃/W
Junction/Storage Temperature 结温/储存温度	T_J, T_{stg}	-55~150	℃

■Device Marking 产品字标

FS7P02=7P02

■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}	-20	—	—	V
Gate Threshold Voltage 栅极开启电压(I_D = -250uA,V_{GS}= V_{DS})	$V_{GS(th)}$	-0.5	-0.65	-1	V
Zero Gate Voltage Drain Current 零栅压漏极电流(V_{GS}=0V, V_{DS}= -20V)	I_{DSS}	—	—	-1	uA
Gate Body Leakage 栅极漏电流(V_{GS}=±12V, V_{DS}=0V)	I_{GSS}	—	—	±100	nA
Static Drain-Source On-State Resistance 静态漏源导通电阻(I_D= -6A,V_{GS}= -4.5V) (I_D= -4A,V_{GS}= -2.5V)	$R_{DS(ON)}$	—	16 22	25 35	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}= -10V,f=1MHz)	C_{ISS}	—	1500	—	pF
Common Source Output Capacitance 共源输出电容(V_{GS}=0V, V_{DS}= -10V,f=1MHz)	C_{OSS}	—	327	—	pF
Reverse Transfer Capacitance 反馈电容 (V_{GS}=0V, V_{DS}= -10V,f=1MHz)	C_{RSS}	—	276	—	pF
Total Gate Charge 栅极电荷密度 (V_{DS}= -10V, I_D= -6A, V_{GS}= -4.5V)	Q_g	—	10	—	nC
Gate Source Charge 栅源电荷密度 (V_{DS}= -10V, I_D= -6A, V_{GS}= -4.5V)	Q_{gs}	—	3	—	nC
Gate Drain Charge 栅漏电荷密度 (V_{DS}= -10V, I_D= -6A, V_{GS}= -4.5V)	Q_{gd}	—	4	—	nC
Turn-ON Delay Time 开启延迟时间 (V_{DS}= -10V I_D= -1A, R_{GEN}=6Ω,V_{GS}= -4.5V)	$t_{d(on)}$	—	15	—	ns
Turn-ON Rise Time 开启上升时间 (V_{DS}= -10V I_D= -1A, R_{GEN}=6Ω,V_{GS}= -4.5V)	t_r	—	30	—	ns
Turn-OFF Delay Time 关断延迟时间 (V_{DS}= -10V I_D= -1A, R_{GEN}=6Ω,V_{GS}= -4.5V)	$t_{d(off)}$	—	48	—	ns
Turn-OFF Fall Time 关断下降时间 (V_{DS}= -10V I_D= -1A, R_{GEN}=6Ω,V_{GS}= -4.5V)	t_f	—	23	—	ns

■Typical Characteristic Curve 典型特性曲线

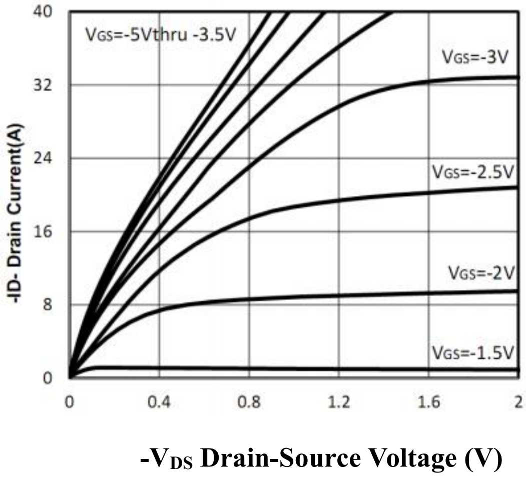


Figure 1: Output Characteristics

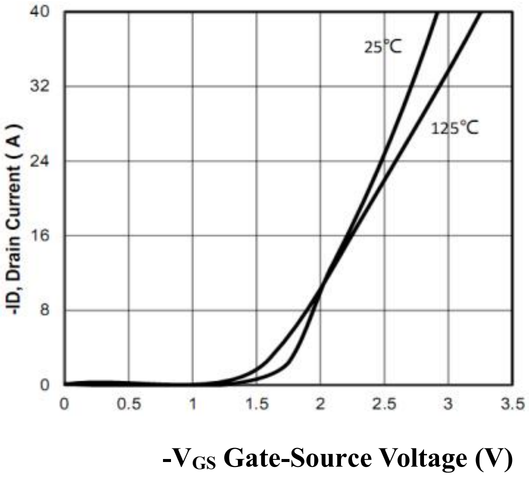


Figure 2: Transfer Characteristics

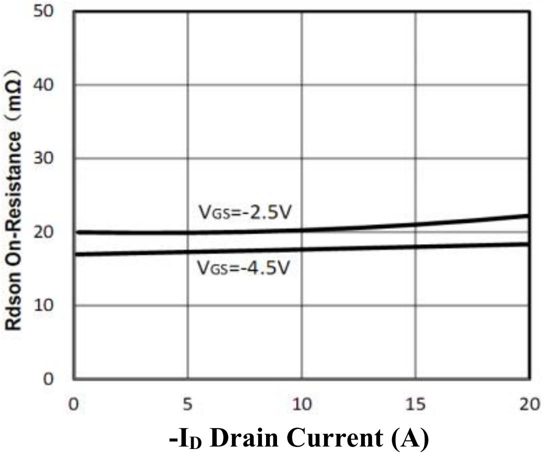


Figure 3: On-Resistance vs. Drain Current

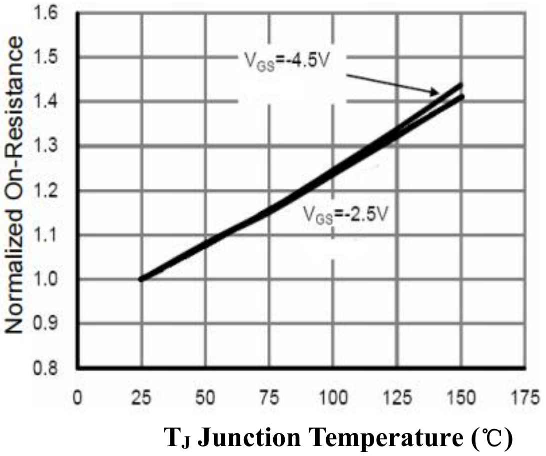


Figure 4: On-Resistance vs. Temperature

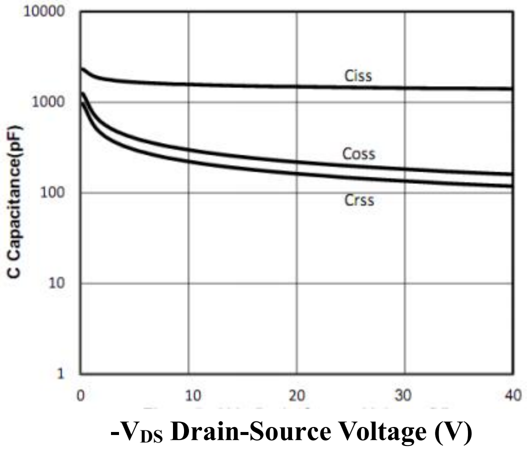


Figure 5: Capacitance Characteristics

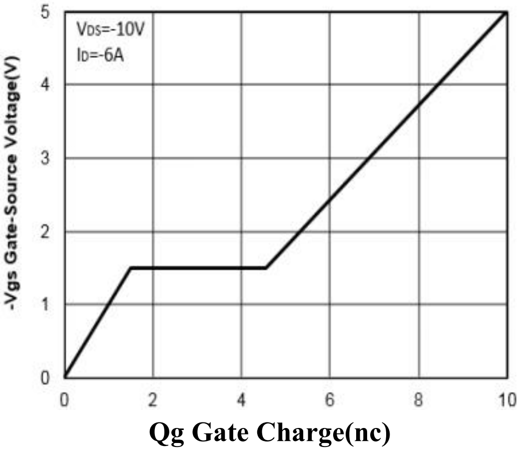
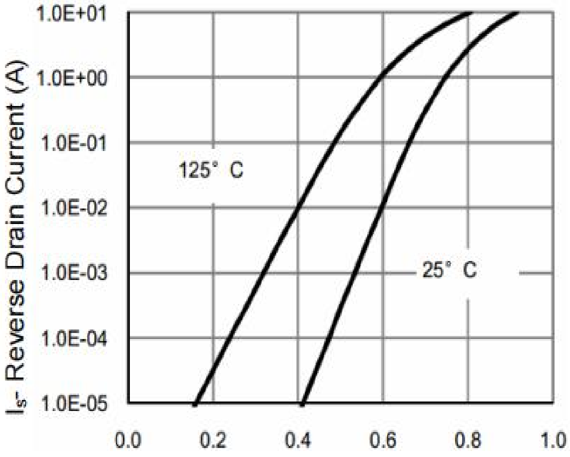


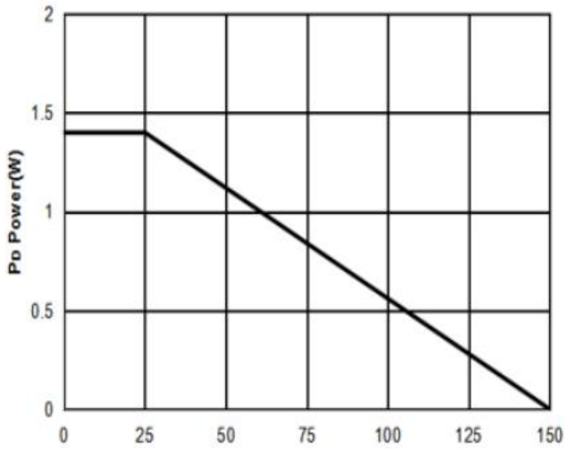
Figure 6: Gate-Charge Characteristics

■Typical Characteristic Curve 典型特性曲线



-V_{sd} Source-Drain Voltage(V)

Figure 7: Body Diode Characteristics



T_J Junction Temperature (℃)

Figure 8: Power Dissipation

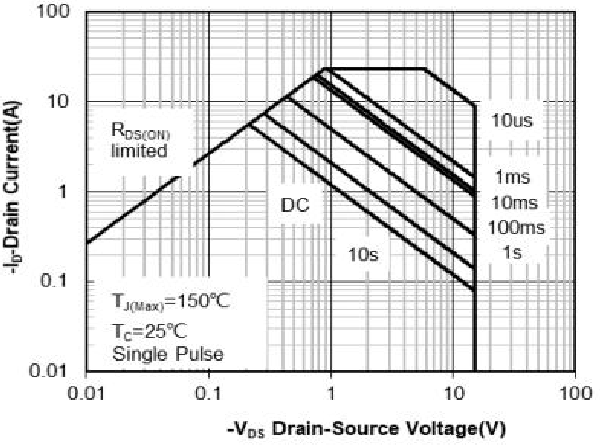


Figure 9: Safe Operating Area

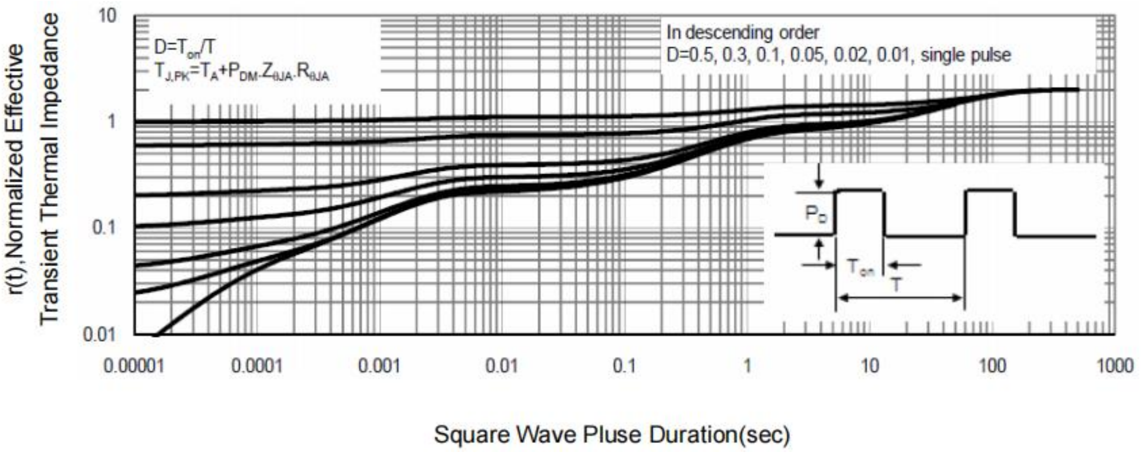
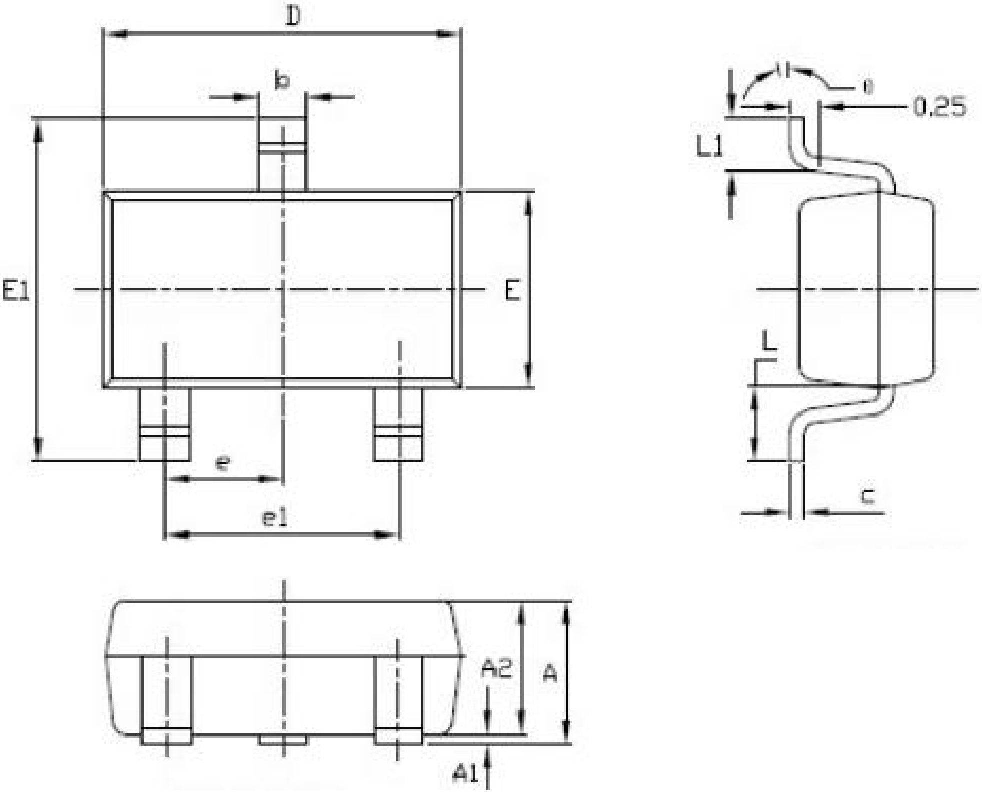


Figure 10: Transient Thermal Response Curve

■Dimension 外形封装尺寸



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.900	1.00	0.035	0.039
e1	1.800	2.000	0.071	0.079
L	0.450	0.650	0.018	0.026
L1	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°