

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

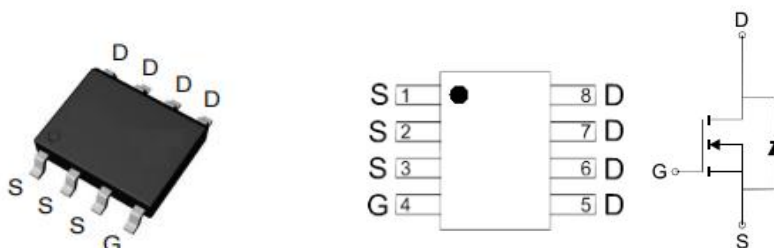
■ Features 特点

Low on-resistance 低导通电阻
 $R_{DS(ON)}=15m\Omega(\text{Type})@V_{GS}=10V$
 $R_{DS(ON)}=18m\Omega(\text{Type})@V_{GS}=4.5V$

■ Applications 应用

Load Switch 负载开关
 Motor Drives 马达驱动
 DC-DC Conversion 升压转换
 Synchronous Rectification 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}	60	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 $T_A = 25^\circ C$ at $T_A = 70^\circ C$)	10 8	A
Drain Current (pulsed)漏极电流-脉冲	I_{DM}	38	A
Total Device Dissipation 总耗散功率	$P_{TOT}(\text{at } T_A = 25^\circ C)$	3.5	W
Avalanche Energy(Single Pulse)雪崩能量	E_{AS}	36	mJ
Thermal Resistance Junction-Ambient 热阻	$R_{\theta JA}$	35	$^\circ C/W$
Junction/Storage Temperature 结温/储存温度	T_J, T_{stg}	-55~150	$^\circ C$

■ **Electrical Characteristics 电特性**

($T_A=25^{\circ}\text{C}$ unless otherwise noted 如无特殊说明, 温度为 25°C)

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($I_D=250\mu\text{A}, V_{GS}=0\text{V}$)	BV_{DSS}	60	—	—	V
Gate Threshold Voltage 栅极开启电压($I_D=250\mu\text{A}, V_{GS}=V_{DS}$)	$V_{GS(th)}$	1.4	—	2.4	V
Zero Gate Voltage Drain Current 零栅压漏极电流($V_{GS}=0\text{V}, V_{DS}=48\text{V}$)	I_{DSS}	—	—	1	μA
Gate Body Leakage 栅极漏电流($V_{GS}=\pm 20\text{V}, V_{DS}=0\text{V}$)	I_{GSS}	—	—	± 100	nA
Static Drain-Source On-State Resistance 静态漏源导通电阻($I_D=10\text{A}, V_{GS}=10\text{V}$) ($I_D=7\text{A}, V_{GS}=4.5\text{V}$)	$R_{DS(ON)}$	—	15 18	22 28	$\text{m}\Omega$
Diode Forward Voltage Drop 内附二极管正向压降($I_{SD}=10\text{A}, V_{GS}=0\text{V}$)	V_{SD}	—	—	1.3	V
Input Capacitance 输入电容 ($V_{GS}=0\text{V}, V_{DS}=30\text{V}, f=1\text{MHz}$)	C_{ISS}	—	1370	1780	pF
Common Source Output Capacitance 共源输出电容($V_{GS}=0\text{V}, V_{DS}=30\text{V}, f=1\text{MHz}$)	C_{OSS}	—	135	—	pF
Reverse Transfer Capacitance 反馈电容($V_{GS}=0\text{V}, V_{DS}=30\text{V}, f=1\text{MHz}$)	C_{RSS}	—	60	—	pF
Total Gate Charge 栅极电荷密度 ($V_{DS}=30\text{V}, I_D=10\text{A}, V_{GS}=10\text{V}$)	Q_g	—	26	37	nC
Gate Source Charge 栅源电荷密度 ($V_{DS}=30\text{V}, I_D=10\text{A}, V_{GS}=10\text{V}$)	Q_{gs}	—	5	—	nC
Gate Drain Charge 栅漏电荷密度 ($V_{DS}=30\text{V}, I_D=10\text{A}, V_{GS}=10\text{V}$)	Q_{gd}	—	5	—	nC
Turn-ON Delay Time 开启延迟时间 ($V_{DS}=30\text{V}, I_D=1\text{A}, R_{GEN}=6\Omega, V_{GS}=10\text{V}$)	$t_{d(on)}$	—	14	26	ns
Turn-ON Rise Time 开启上升时间 ($V_{DS}=30\text{V}, I_D=1\text{A}, R_{GEN}=6\Omega, V_{GS}=10\text{V}$)	t_r	—	8	15	ns
Turn-OFF Delay Time 关断延迟时间 ($V_{DS}=30\text{V}, I_D=1\text{A}, R_{GEN}=6\Omega, V_{GS}=10\text{V}$)	$t_{d(off)}$	—	38	69	ns
Turn-OFF Fall Time 关断下降时间 ($V_{DS}=30\text{V}, I_D=1\text{A}, R_{GEN}=6\Omega, V_{GS}=10\text{V}$)	t_f	—	12	22	ns

■ Typical Characteristic Curve 典型特性曲线

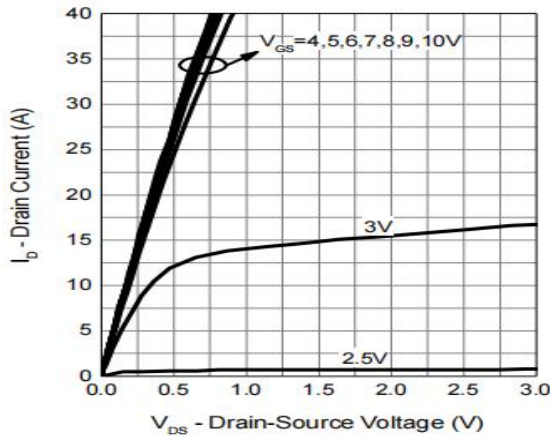


Figure 1: Output Characteristics

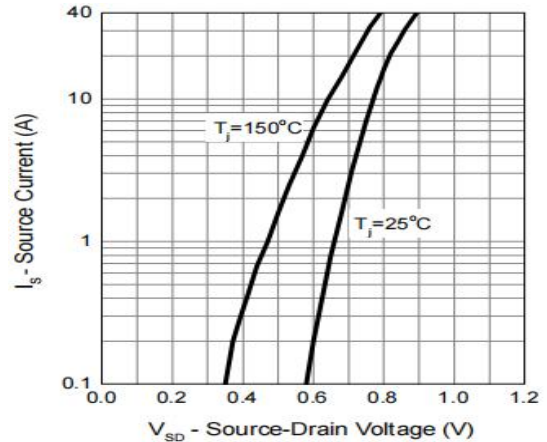


Figure 2: Diode Forward Characteristics

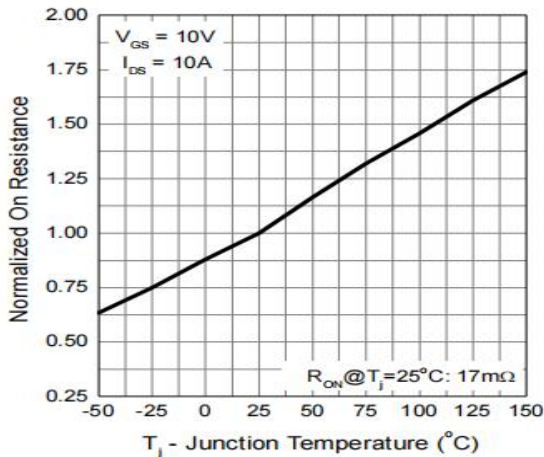


Figure 3: On-Resistance vs. T_J

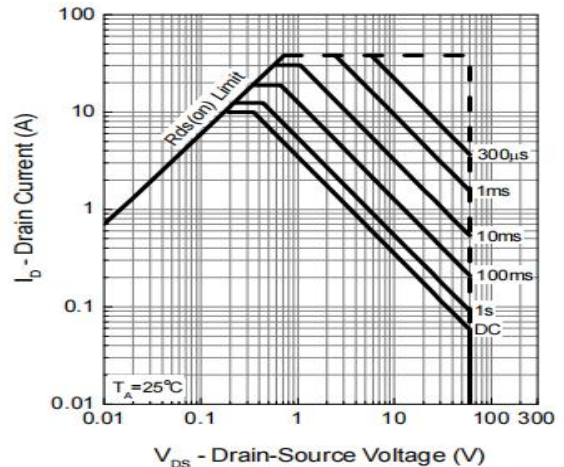


Figure 4: Safe Operating Area

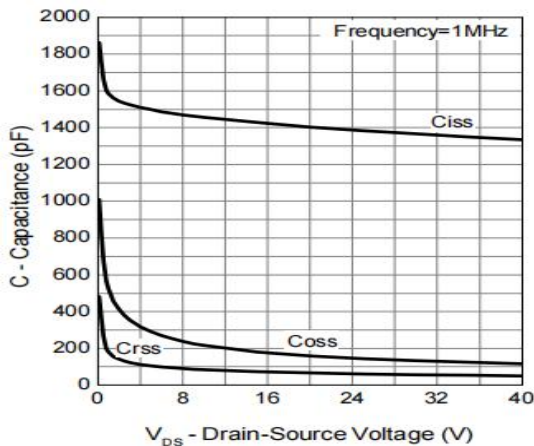


Figure 5: Capacitance Characteristics

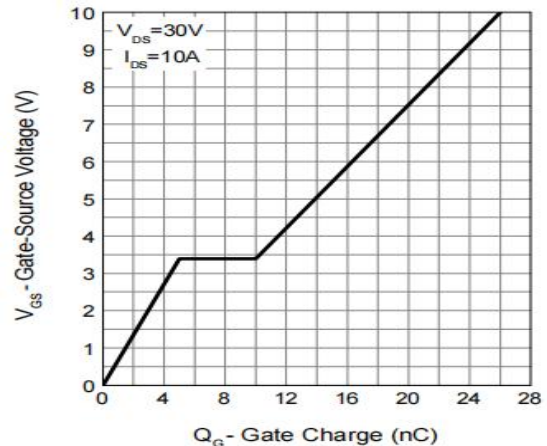
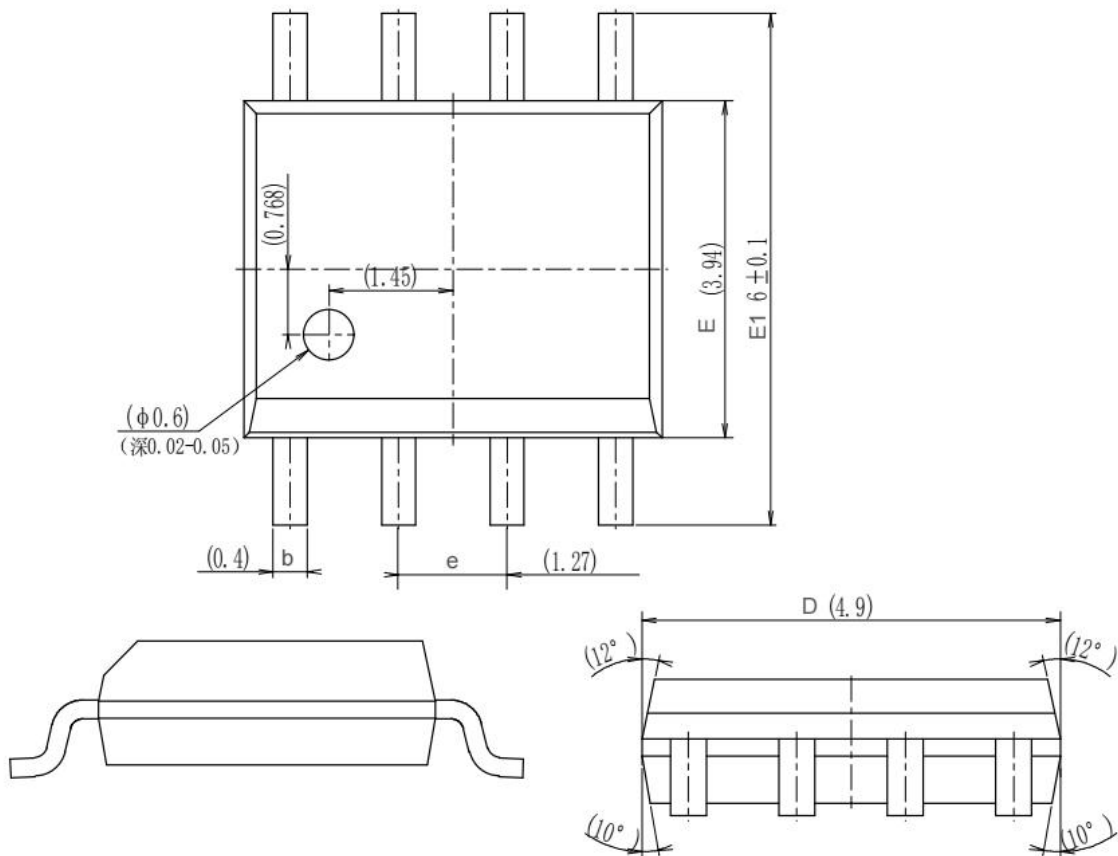


Figure 6: Gate-Charge Characteristics

■ Dimension 外形封装尺寸



字符	Dimension millimeters		
	Min	Standard	Max
A	1.500	1.600	1.700
A1	0.050		
A2	1.350	1.450	1.550
b	0.300	0.400	0.500
c	0.220	0.254	0.280
D	4.800	4.900	5.000
E	3.840	3.940	4.040
E1	5.900	6.000	6.100
e		1.27 (BSC)	
L	0.520	0.620	0.720
θ	0°		8°