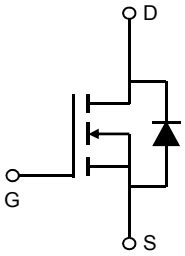
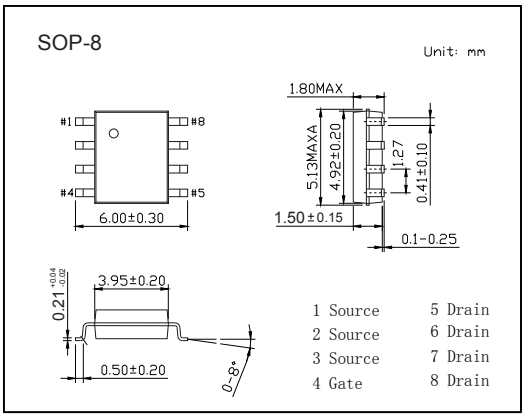
N-Channel MOSFET

■ Features

- $V_{DS\,(V)}$ = 30V
- I_D = 15 A (V_{GS} = 10V)
- $R_{DS(ON)}$ < 7.5mΩ (V_{GS} = 10V)
- $R_{DS(ON)}$ < 11.0mΩ (V_{GS} = 4.5V)





■ Absolute Maximum Ratings Ta = 25℃

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current	TA=25℃	I_D	15	A
	TA=70℃		12	
Pulsed Drain Current		I_{DM}	100	
Avalanche Current		I_{AS}	22	
Avalanche energy	L=0.1mH	E_{AS}	24	mJ
Power Dissipation	TA=25℃	P_D	3.1	W
	TA=70℃		2	
Thermal Resistance.Junction- to-Ambient	t ≤ 10s	R_{thJA}	40	℃/W
	Steady-State		75	
Thermal Resistance.Junction- to-Lead		R_{thJL}	24	
Junction Temperature		T_J	150	℃
Storage Temperature Range		T_{stg}	-55 to 150	

■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	I_D=250 uA, V_{GS}=0V	30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V, V_{GS}=0V			1	uA
		V_{DS}=30V, V_{GS}=0V, T_J=55℃			5	
Gate-Body Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} , I_D=250uA	1.5		2.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=15A			7.5	mΩ
		V_{GS}=10V, I_D=15A T_J=125℃			12	
		V_{GS}=4.5V, I_D=12A			11	
On State Drain Current	$I_{D(ON)}$	V_{GS}=10V, V_{DS}=5V	100			A
Forward Transconductance	g_{FS}	V_{DS}=5V, I_D=12A		45		S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=15V, f=1MHz	610		910	pF
Output Capacitance	C_{oss}		88		160	
Reverse Transfer Capacitance	C_{rss}		40		100	
Gate Resistance	R_g	V_{GS}=0V, V_{DS}=0V, f=1MHz	0.8		2.4	Ω
Total Gate Charge (10V)	Q_g	V_{GS}=10V, V_{DS}=15V, I_D=12A	11		17	nC
Total Gate Charge (4.5V)			5		8	
Gate Source Charge	Q_{gs}		1.9		2.9	
Gate Drain Charge	Q_{gd}		1.8		4.2	
Turn-On DelayTime	$t_{d(on)}$	V_{GS}=10V, V_{DS}=15V, R_L=1.25Ω, R_{GEN}=3Ω		4.4		ns
Turn-On Rise Time	t_r			9		
Turn-Off DelayTime	$t_{d(off)}$			17		
Turn-Off Fall Time	t_f			6		
Body Diode Reverse Recovery Time	t_{rr}	I_F= 12A, dI/dt= 500A/us	5.6		8	
Body Diode Reverse Recovery Charge	Q_{rr}		6.4		9.6	nC
Maximum Body-Diode Continuous Current	I_S				4	A
Diode Forward Voltage	V_{SD}	I_S=1A,V_{GS}=0V			1	V

Note : The static characteristics in Figures 1 to 6 are obtained using <300 μs pulses, duty cycle 0.5% max.