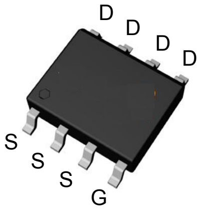
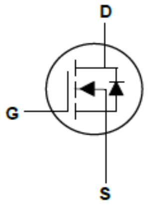
FSL10N08S

N-Channel Enhancement Mode MOSFET

Features

- Fast switching speed
- Reliable and Rugged
- ROHS Compliant
- 100% UIS and Rg Tested

Pin Description

SOP-8	Symbol
	

Applications

- Power Management in Desktop Computer
- DC/DC Converters

V_{DSS}	100	V
$R_{DS(ON)\text{-}Typ}$	8.5	mΩ
I_D	12	A

Absolute Maximum Ratings(TJ=25℃, Unless Otherwise Noted)

Symbol	Parameter		N-Channel	Unit
V_{DSS}	Drain-Source Voltage		100	V
V_{GSS}	Gate-Source Voltage		±20	V
T_J	Maximum Junction Temperature		-55 to 150	℃
T_{STG}	Storage Temperature Range		-55 to 150	℃
E_{AS}	Single Pulse Avalanche Energy[3]	L=0.5mH	156	mJ
I_{DM}①	Pulse Drain Current Tested	T_A=25°C	34	A
I_D	Continuous Drain Current	T_A=25°C	12	A
P_D	Maximum Power Dissipation	T_A=25°C	3.1	W

Thermal Characteristics

Symbol	Parameter	Rating	Unit
$R_{\theta JA}$	Thermal Resistance Junction-Ambient[1]（Max）	80	℃/W

Note ①：Max. current is limited by bonding wire.

Note ②：UIS tested and pulse width are limited by maximum junction temperature 150℃.

Note ③：Surface Mounted on 1in^2 FR-4 board with 1oz.

Electrical Characteristics (T_J=25℃, Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Static Electrical Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250uA	100	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=80V, V_{GS}=0V	---	---	1	uA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS} , I_D=250uA	1.0	---	3.0	V
I_{GSS}	Gate Leakage Current	V_{GS}=±20V, V_{DS}=0V	---	---	±100	nA
$R_{DS(ON)}$	Drain-Source On-state Resistance	V_{GS}=10V , I_D=9A	---	8.5	10.5	mΩ
		V_{GS}=4.5V , I_D=6A	---	10.2	13.3	mΩ
Dynamic Characteristics⑤						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=30V, Freq.=1MHz	---	2130	---	pF
C_{oss}	Output Capacitance		---	690	---	
C_{rss}	Reverse Transfer Capacitance		---	50	---	
$T_{d(on)}$	Turn-on Delay Time	V_{DD}=30V , V_{GEN}=10V , R_G=6Ω, I_{DS}=1A,R_L=30Ω,	---	15	---	nS
T_r	Turn-on Rise Time		---	9	---	
$T_{d(off)}$	Turn-off Delay Time		---	51	---	
T_f	Turn-off Fall Time		---	65	---	
Q_g	Total Gate Charge	V_{DS}=50V , V_{GS}=10V , I_D=9A	---	44	---	nC
Q_{gs}	Gate-Source Charge		---	8	---	
Q_{gd}	Gate-Drain Charge		---	9	---	
Source-Drain Characteristics （T_J=25℃）						
V_{SD}	Diode Forward Voltage2	V_{GS}=0V , I_S=2A ,T_J=25℃	---	0.8	1.3	V
t_{rr}	Reverse Recovery Time	I_{SD}=9A , di/dt=100A/μs，T_J=25℃	---	52	---	nS
Q_{rr}	Reverse Recovery Charge		---	82	---	nC

Note ④： Pulse test (pulse width≤300us, duty cycle≤2%).

Note ⑤ : Guaranteed by design, not subject to production testing.

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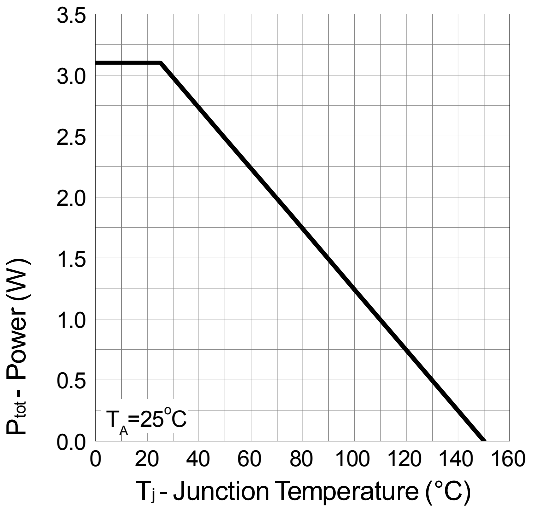
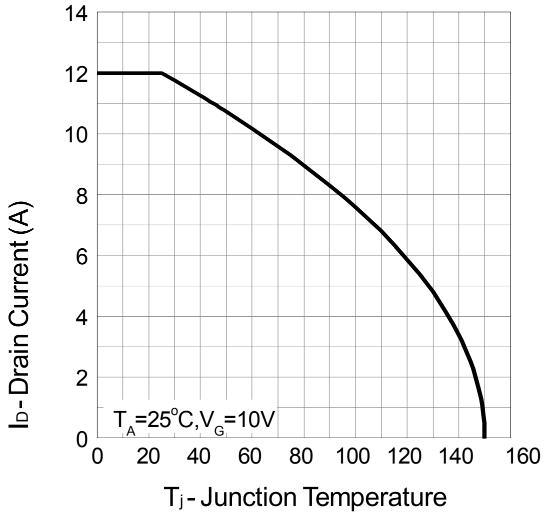
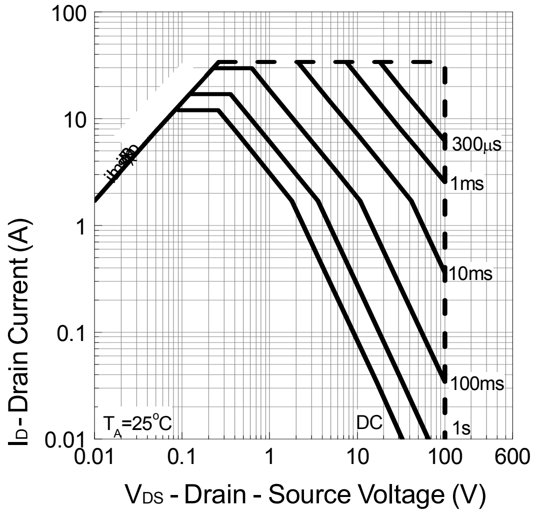
Typical Characteristics



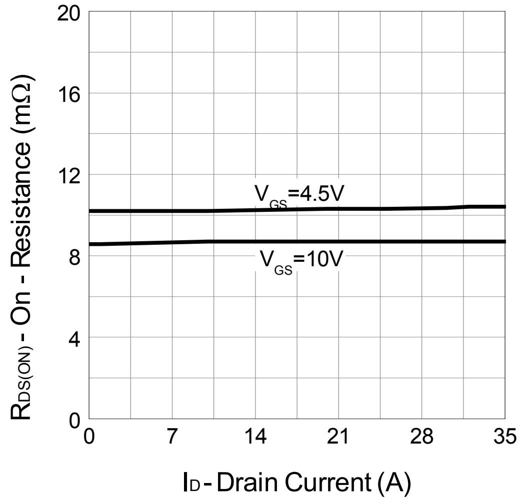
Power Dissipation



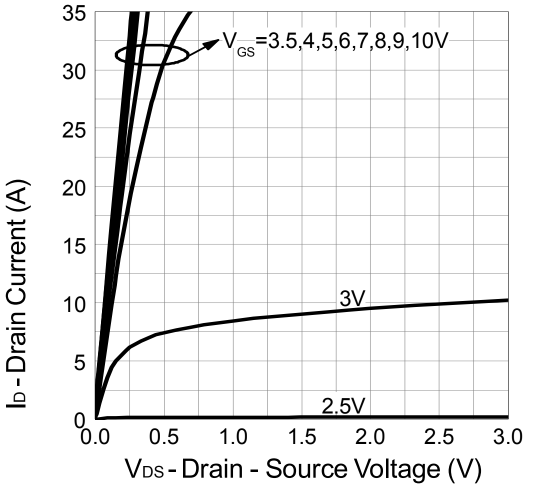
Drain Current



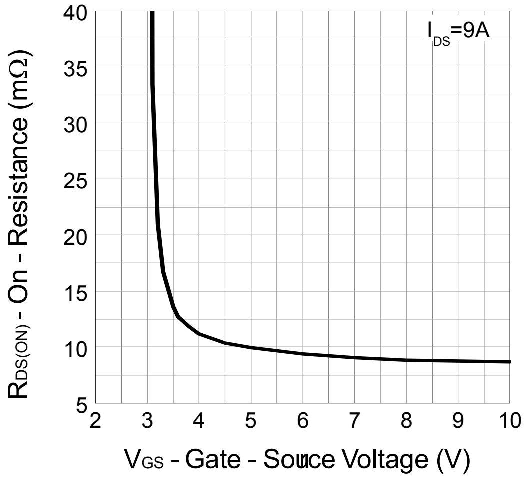
Safe Operation Area



Drain-Source On Resistance

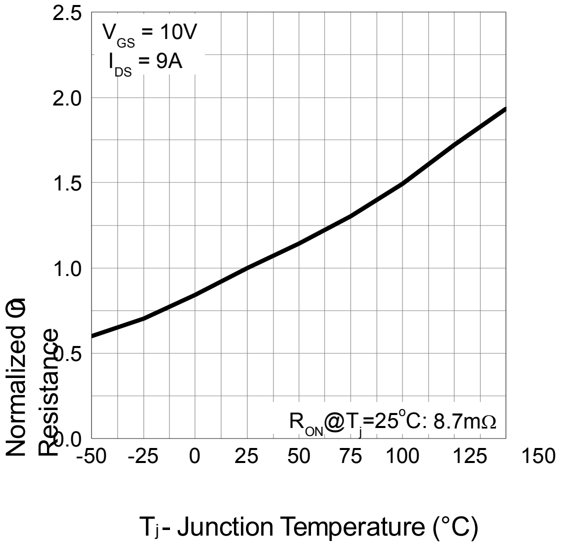


Output Characteristics

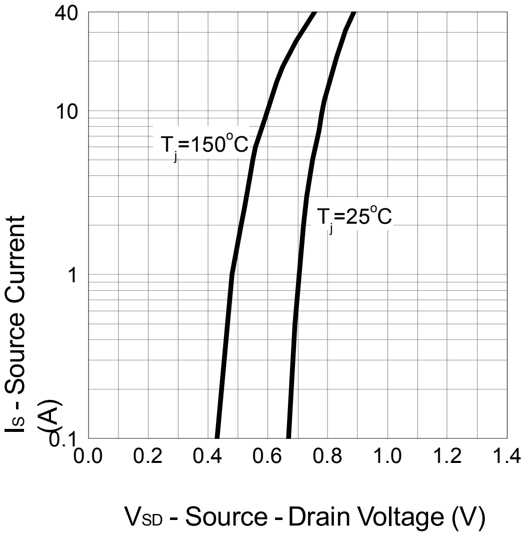


Gate-Source On Resistance

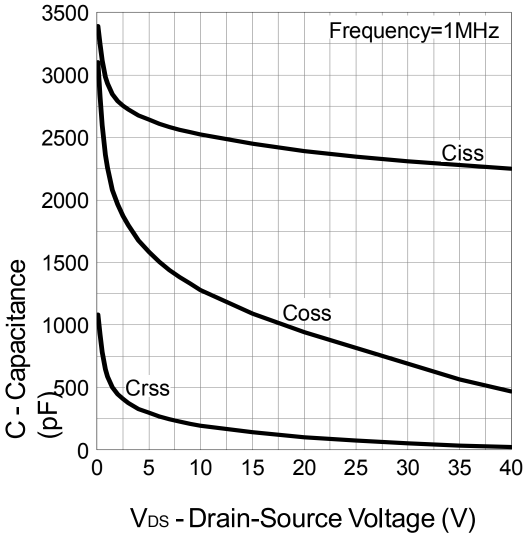
Drain-Source On Resistance



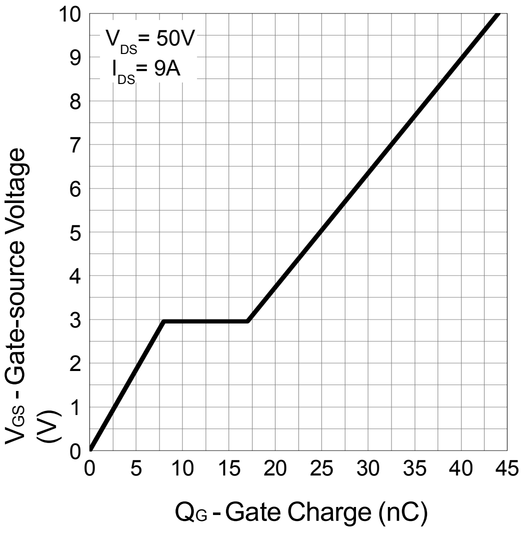
Source-Drain Diode Forward



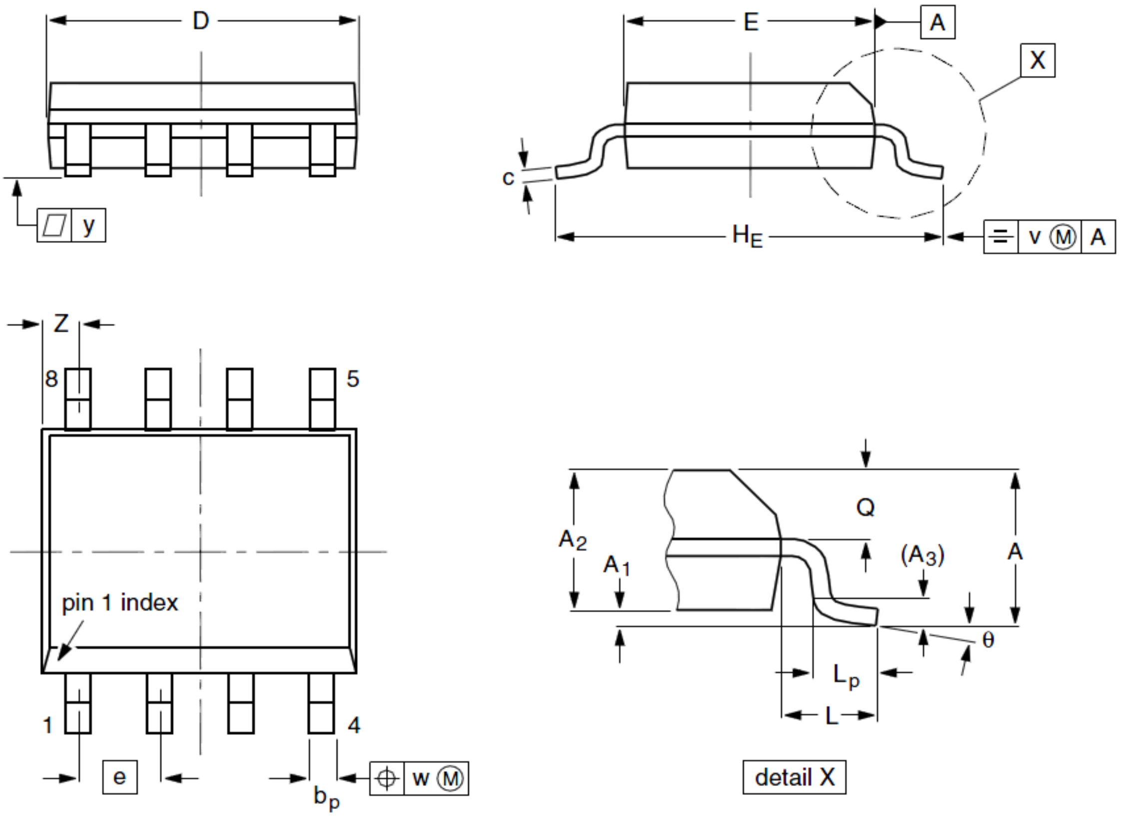
Capacitance



Gate Charge



SOP-8 Package Outline Data



Symbol	**Dimensions** (unit:mm)			**Symbol**	**Dimensions** (unit:mm)		
	Min	**Typ**	**Max**		**Min**	**Typ**	**Max**
A	1.35	1.55	1.75	**A_1**	0.10	0.18	0.25
A_2	1.25	1.45	1.65	**A_3**	--	0.25	--
b_p	0.36	0.42	0.51	**c**	0.19	0.22	0.25
D	4.70	4.92	5.10	**E**	3.80	3.90	4.00
e	--	1.27	--	**H_E**	5.80	6.00	6.20
L	--	1.05	--	**L_P**	0.40	0.68	1.00
Q	0.60	0.65	0.73	**v**	--	0.25	--
w	--	0.25	--	**y**	--	0.10	--
Z	0.30	0.50	0.70	**θ**	0°		8°