FSL1103L

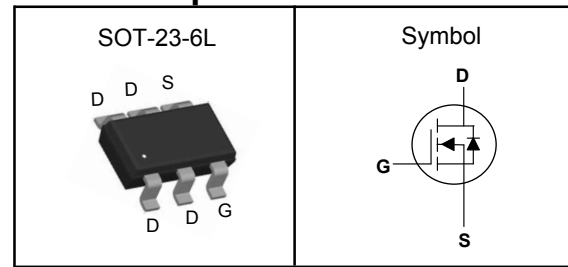## N-Channel Enhancement Mode MOSFET

Features

- Low Rdson for low conduction loss
- Reliable and Rugged
- ROHS Compliant & Halogen-Free

Applications

- Power Management in Desktop Computer
- DC/DC Converters

Pin Description

V_{DSS}	110	V
$R_{DS(ON)-Typ}$	260	mΩ
I_D	3	A

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

Symbol	Parameter	N-Channel	Unit
V_{DSS}	Drain-Source Voltage	110	V
V_{GSS}	Gate-Source Voltage	±20	V
T_J	Maximum Junction Temperature	-55 to 150	℃
T_{STG}	Storage Temperature Range	-55 to 150	℃
I_{DM}[①]	Pulse Drain Current Tested	10	A
I_D	Continuous Drain Current	3	A
P_D	Maximum Power Dissipation	1.25	W

Thermal Characteristics

Symbol	Parameter	Rating	Unit
$R_{θJA}$	Thermal Resistance-Junction to Ambient(t ≤10s)	62.5	℃/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 1in² FR-4 board with 1oz.

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## 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	110	---	---	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	---	2.5	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=3A	---	260	280	mΩ
Dynamic Characteristics[5]						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=15V, Freq.=1MHz	---	332	---	pF
C_{oss}	Output Capacitance		---	40	---	
C_{rss}	Reverse Transfer Capacitance		---	29	---	
$T_{d(on)}$	Turn-on Delay Time	V_{DD}=25V , V_{GS}=10V , R_G=6Ω, I_D=1.5A, R_L=33.3Ω	---	5.7	---	nS
T_r	Turn-on Rise Time		---	4.3		
$T_{d(off)}$	Turn-off Delay Time		---	12.8	---	
T_f	Turn-off Fall Time		---	4.4	---	
Q_g	Total Gate Charge	V_{DS}=50V , V_{GS}=4.5V , I_D=1.5A	---	4.1	---	nC
Q_{gs}	Gate-Source Charge		---	1.4	---	
Q_{gd}	Gate-Drain Charge		---	1.9	---	
Source-Drain Characteristics （T_J=25℃）						
V_{SD}[4]	Diode Forward Voltage	I_S=1A, V_{GS}=0V	---	---	1.2	V

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

Note ⑤：Guaranteed by design, not subject to production testing.
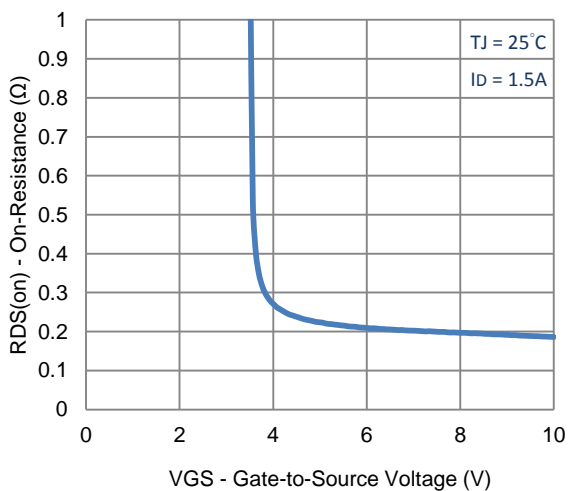
N-Channel Enhancement Mode MOSFET

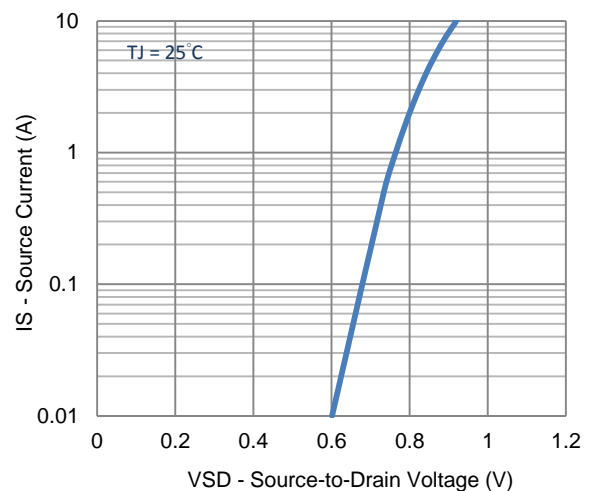### Typical Characteristics
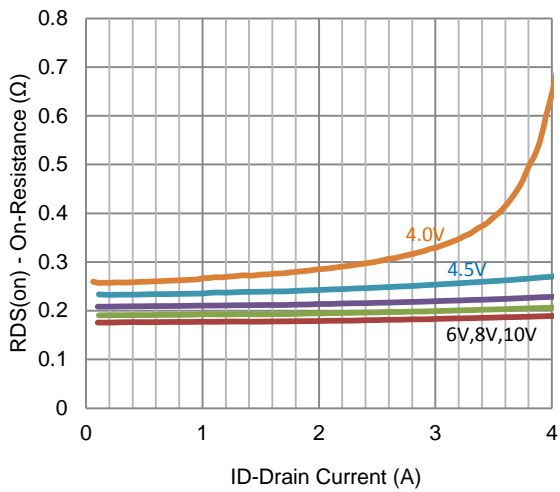
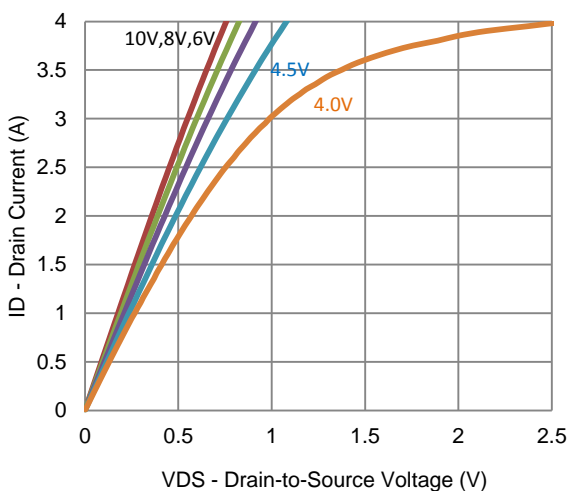**1. On-Resistance vs. Drain Current**
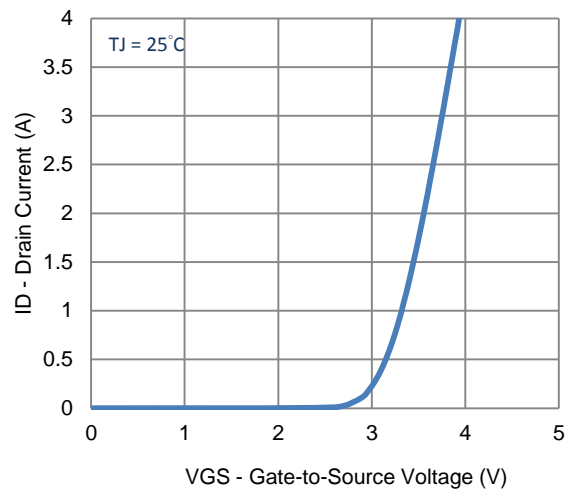
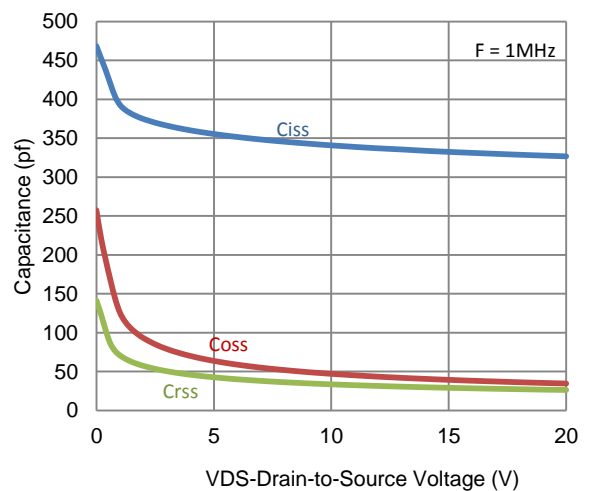**2. Transfer Characteristics**

3. On-Resistance vs. Gate-to-Source Voltage

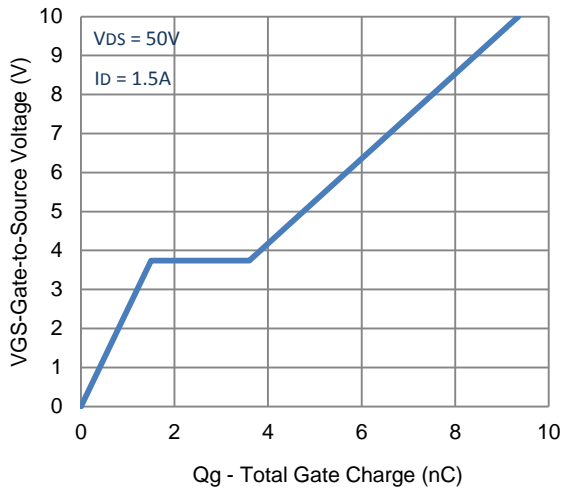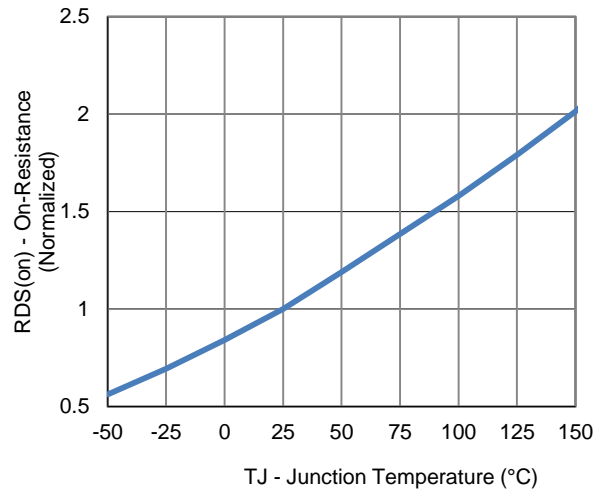**4. Drain-to-Source Forward Voltage**
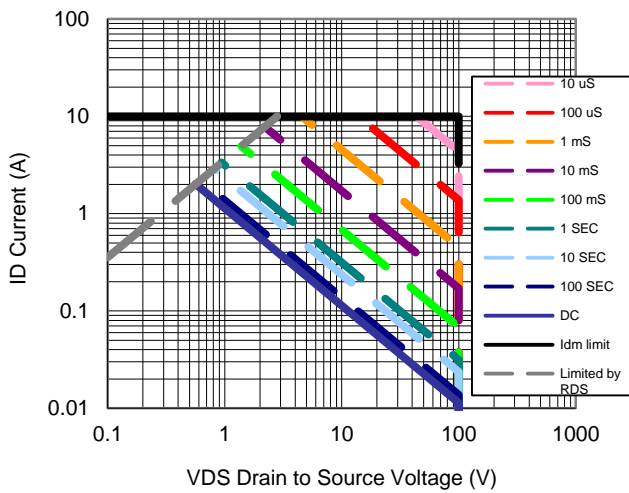

5. Output Characteristics

6. Capacitance

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VDS = 50V

ID = 1.5A

VGS-Gate-to-Source Voltage (V) / Qg - Total Gate Charge (nC)

7. Gate Charge

RDS(on) - On-Resistance (Normalized) / TJ - Junction Temperature (°C)

8. Normalized On-Resistance Vs Junction Temperature

ID Current (A) / VDS Drain to Source Voltage (V)

- 10 uS
- 100 uS
- 1 mS
- 10 mS
- 100 mS
- 1 SEC
- 10 SEC
- 100 SEC
- DC
- Idm limit
- Limited by RDS

9. Safe Operating Area

PEAK TRANSIENT POWER (W) / t1 TIME (SEC)
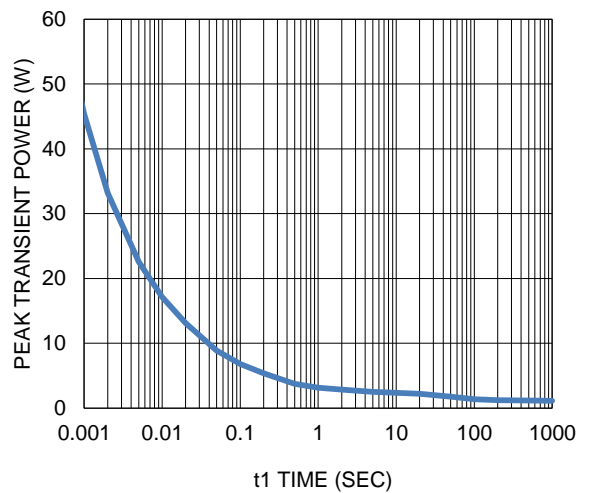
10. Single Pulse Maximum Power Dissipation

D = 0.5
0.2
0.1
0.05
0.02
Single Pulse

$R_{\theta JA}(t) = r \quad R_{\theta JA}$

$R_{\theta JA} = 110 °C /W$

P(pk)

t_1

t_2

$T_J - T_A = P * R_{\theta JA}(t)$

Duty Cycle, $D = t_1 / t_2$

t1 TIME (sec)
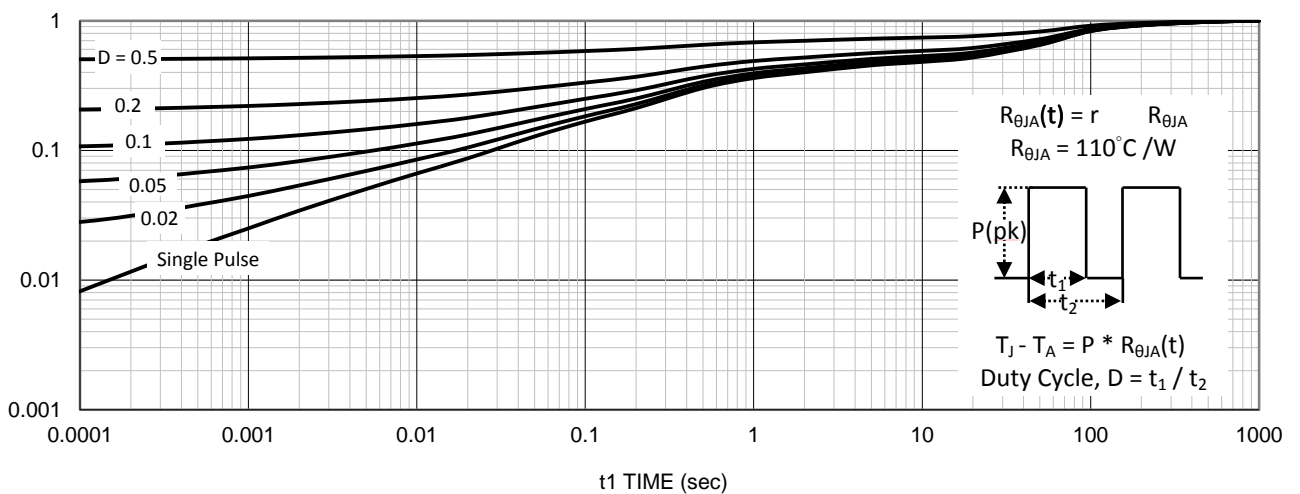
11. Normalized Thermal Transient Junction to Ambient

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SOT23-6L Package Outline Dimensions
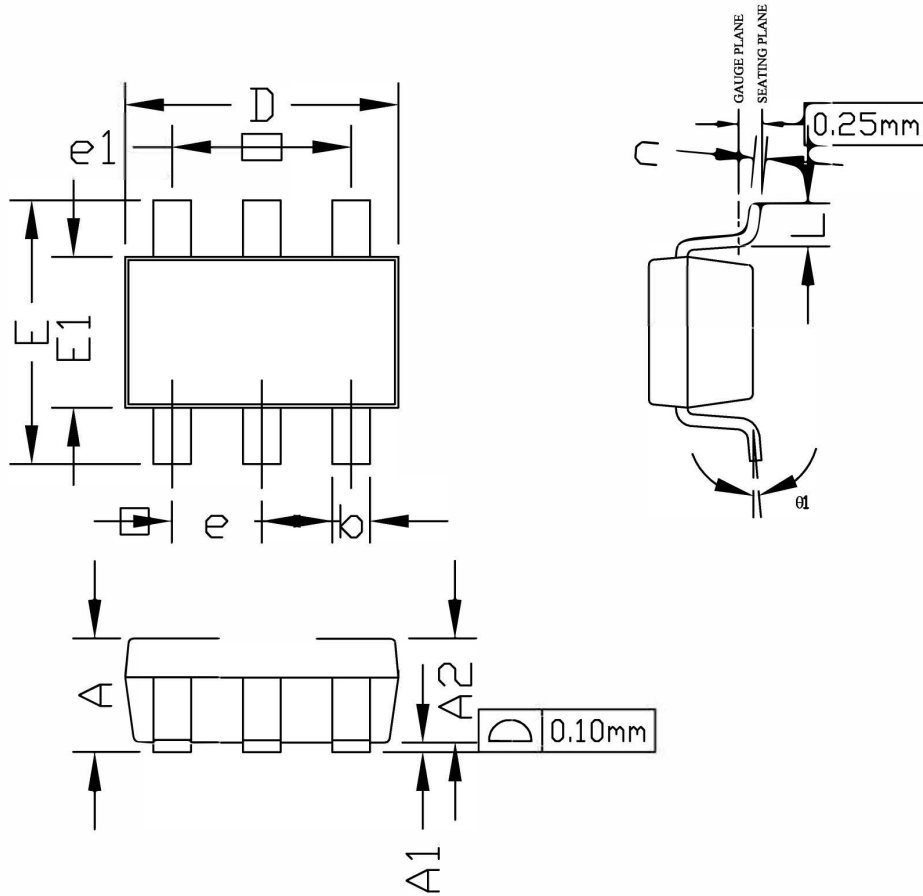
Symbol	Dimensions (unit:mm)			Symbol	Dimensions (unit:mm)		
	Min	**Typ**	**Max**		**Min**	**Typ**	**Max**
A	0.80	1.00	1.25	**E**	2.50	2.80	3.10
A1	0.00	---	0.15	**E1**	1.50	1.60	1.70
A2	0.80	1.10	1.20	**e**	0.95 REF		
b	0.25	0.35	0.45	**e1**	1.90 REF		
c	0.08	0.13	0.20	**L**	0.30	0.45	0.60
D	2.70	2.90	3.10	**θ1**	0°		8°