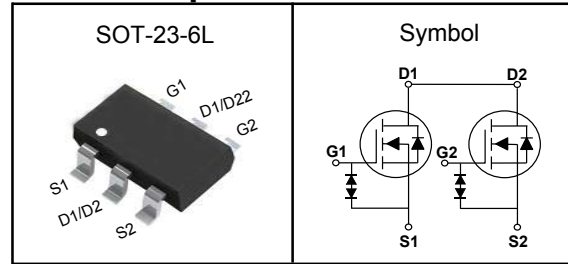# FSL02A16L

Common-Drain Dual N-Channel Enhancement Mode MOSFET

Features

- Advanced high cell density Trench technology
- Super Low Gate Charge
- Excellent CdV/dt effect decline
- ESD Protected 2KV Embedded
- Green Device Available

Applications

- High Frequency Point-of-Load,Synchronous Buck Converter for MB/NB/UMPC/VGA
- Networking DC-DC Power System
- Load Switch

Pin Description

SOT-23-6L	Symbol
G1, D1/D22, G2, S1, D1/D2, S2	D1, D2, G1, G2, S1, S2

V_{DSS}	20	V
$R_{DS(ON)-Typ}$	16.5	mΩ
I_D	6	A

Absolute Maximum Ratings (T$_A$=25℃, Unless Otherwise Noted)

Symbol	Parameter	N-Channel	Unit
V_{DSS}	Drain-Source Voltage	20	V
V_{GSS}	Gate-Source Voltage	±12	V
T_J	Maximum Junction Temperature	-55 to 150	℃
T_{STG}	Storage Temperature Range	-55 to 150	℃
I_{DM} ①	Pulse Drain Current Tested	25	A
I_D	Continuous Drain Current	6	A
P_D	Maximum Power Dissipation	1.25	W

Thermal Characteristics

Symbol	Parameter	Rating	Unit
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient（Max）	100	℃/W

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

Note ② : UIS tested and pulse width are limited by maximum junction temperature 150℃.
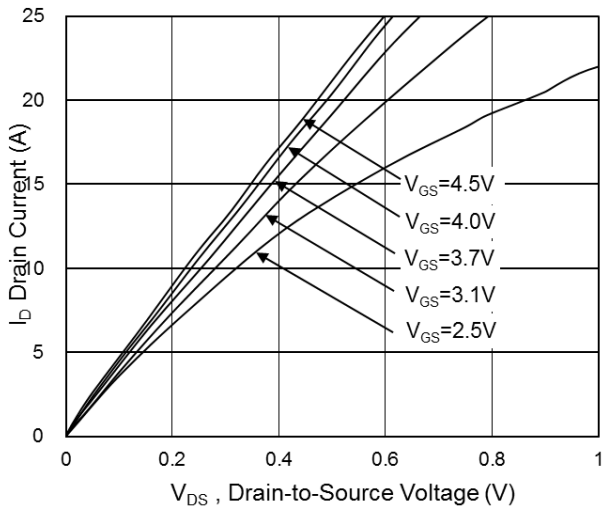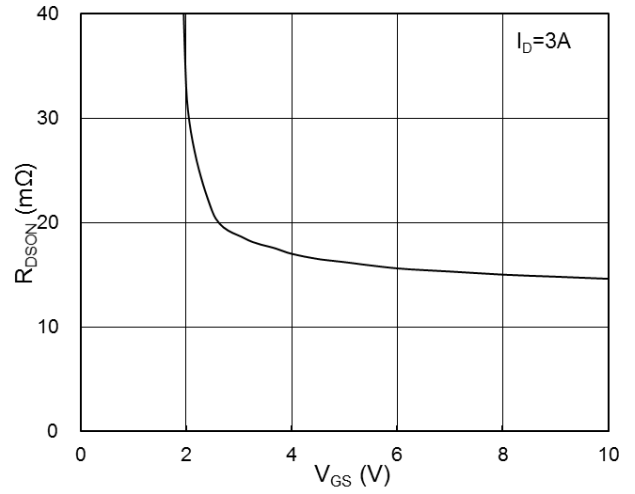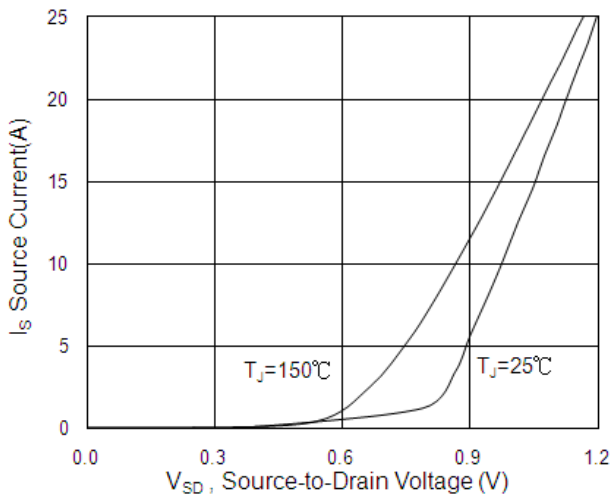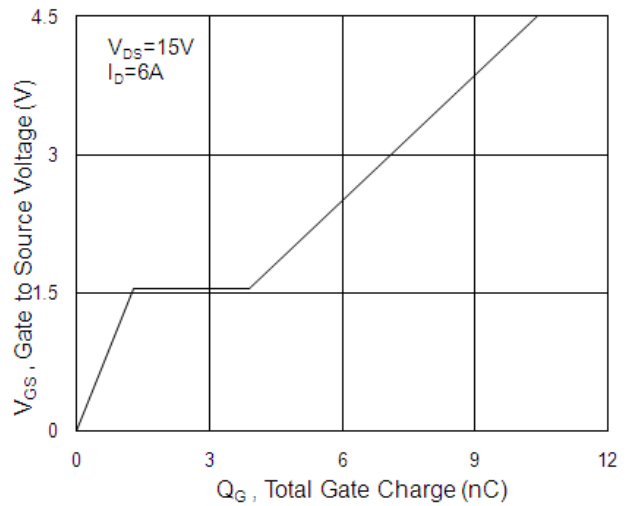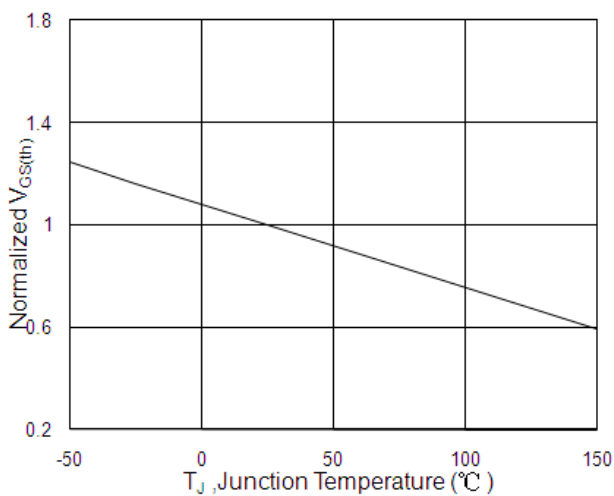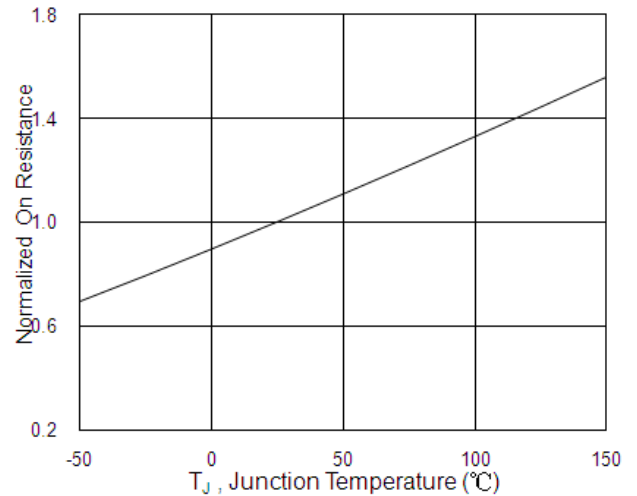
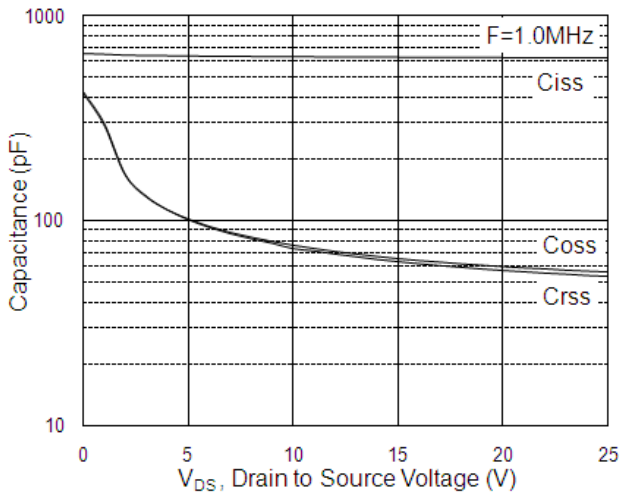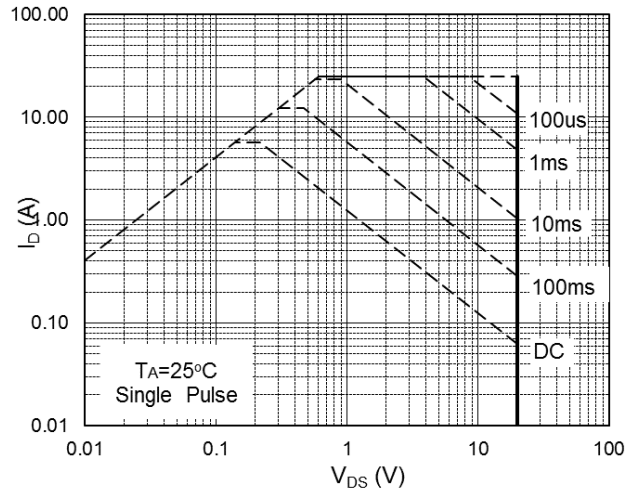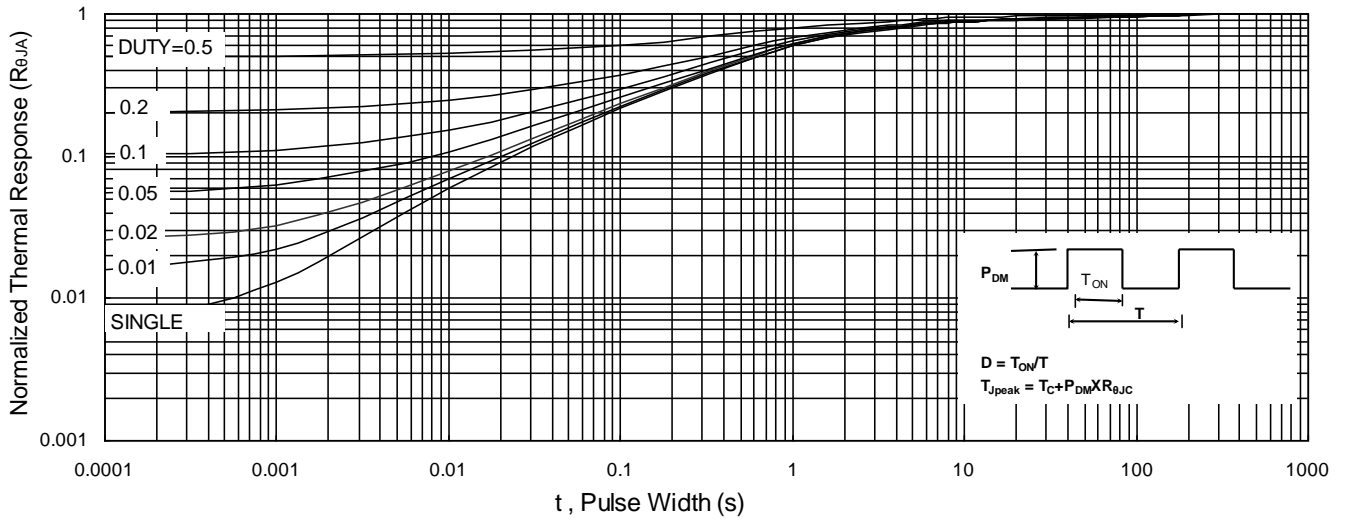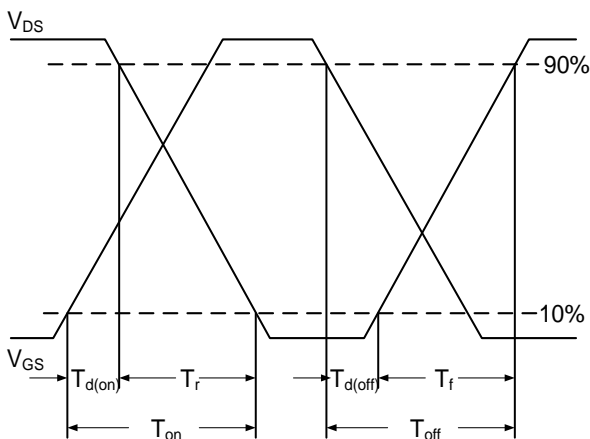Note ③ : Surface Mounted on 1in² FR-4 board with 1oz.

Common-Drain Dual N-Channel Enhancement Mode MOSFET

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	20	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=16V, V_{GS}=0V	---	---	1	uA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS} , I_D=250uA	0.5	---	1.2	V
I_{GSS}	Gate Leakage Current	V_{GS}=±8V, V_{DS}=0V	---	---	±100	nA
$R_{DS(ON)}$	Drain-Source On-state Resistance	V_{GS}=4.5V , I_D=3A	---	16.5	20.5	mΩ
		V_{GS}=2.5V , I_D=3A	---	21	26	mΩ
Dynamic Characteristics[5]						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=15V, Freq.=1MHz	---	630	---	pF
C_{oss}	Output Capacitance		---	66	---	
C_{rss}	Reverse Transfer Capacitance		---	63	---	
$T_{d(on)}$	Turn-on Delay Time	9'' 9 9₆ 9 5* Ω ; $	---	3.2	---	nS
T_r	Turn-on Rise Time		---	9.8		
$T_{d(off)}$	Turn-off Delay Time		---	31	---	
T_f	Turn-off Fall Time		---	3.6	---	
Q_g	Total Gate Charge	V_{DS}=15V , V_{GS}=4.5V , I_D=6A	---	10.4	---	nC
Q_{gs}	Gate-Source Charge		---	1.3	---	
Q_{gd}	Gate-Drain Charge		---	2.6	---	
Source-Drain Characteristics （T_J=25℃）						
V_{SD}[4]	Diode Forward Voltage	I_S=1A, V_{GS}=0V	---	0.78	1.2	V

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

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

Common-Drain Dual N-Channel Enhancement Mode MOSFET

Typical Characteristics

Fig.1 Typical Output Characteristics

Fig.2 On-Resistance vs. Gate-Source voltage

Fig.3 Forward Characteristics of Reverse

Fig.4 Gate-Charge Characteristics

Fig.5 Normalized $V_{GS(th)}$ vs. T_J

Fig.6 Normalized R_{DSON} vs. T_J

Common-Drain Dual N-Channel Enhancement Mode MOSFET

Fig.7 Capacitance

Fig.8 Safe Operating Area

Fig.9 Normalized Maximum Transient Thermal Impedance

Fig.10 Switching Time Waveform

Fig.11 Gate Charge Waveform

Common-Drain Dual N-Channel Enhancement Mode MOSFET

SOT23-6L Package Outline Dimensions

Symbol	Dimensions (unit:mm)			Symbol	Dimensions (unit:mm)		
	Min	Typ	Max		Min	Typ	Max
A	0.90	1.07	1.45	A₁	0.01	0.05	0.15
b_p	0.30	0.40	0.50	c	0.10	0.15	0.22
D	2.70	2.92	3.10	E	1.35	1.55	1.75
e	--	0.95	--	H_E	2.50	2.80	3.00
L_P	0.30	0.45	0.60	Q	0.23	0.29	0.33
v	--	0.20	--	W	--	0.20	--
y	--	0.10	--				