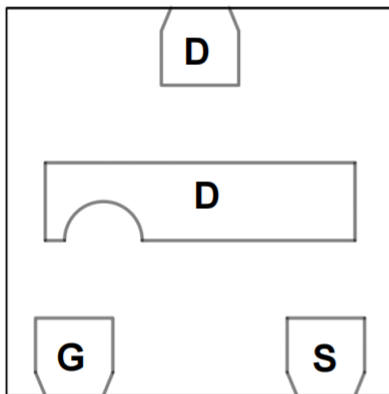


Product Summary

- V_{DS} 20 V
- I_{DS} ($V_{GS}=4.5V$) 3 A
- $R_{DS(ON)}$ ($V_{GS}=4.5V$) $\leq 65m\Omega$

Package and Pin Configuration

Transparent top view

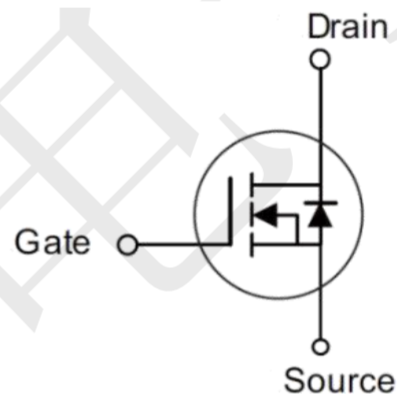


DFN1X1-3L

Application

- Interfacing Switching
- DC-DC Converters
- Power management functions

Circuit diagram



Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	LIMIT	UNIT
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current $T_A=25^\circ\text{C}$	I_D	3.0	A
Continuous Drain Current $T_A=70^\circ\text{C}$	I_D	2.2	A
Pulsed Drain Current ($t = 100 \mu\text{s}$)	I_{DM}	10	A
Maximum Power Dissipation $T_A=25^\circ\text{C}$	P_D	1.26	W
Operating Junction Temperature Range	T_J	-55 to +150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to +150	$^\circ\text{C}$

Thermal Characteristic

PARAMETER	Symbol	Value	Unit
Thermal Resistance from Junction to Ambient ($t \leq 10\text{s}$)	$R_{\theta JA}$	102	$^\circ\text{C/W}$

Note : Device mounted on 1" x 1" FR-4 PCB with high coverage 2oz. Copper, single sided.

Electrical Characteristics (T_A=25℃ unless otherwise noted)

PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNIT
Characteristics						
Drain-Source Breakdown Voltage	V _{GS} =0V, I _D = 10μA	BV _{DSS}	20	--	--	V
Gate-Source Threshold Voltage	V _{DS} =V _{GS} , I _D = 250μA	V _{GS(th)}	0.4	0.65	1.0	V
Gate-Source Leakage	V _{DS} =0V, V _{GS} = ±12V	I _{GSS}	--	--	±100	nA
Zero Gate Voltage Drain Current	V _{DS} = 20V, V _{GS} =0V	I _{DSS}	--	--	1.0	μA
Drain-Source On-State Resistance (Note 1)	V _{GS} = 4.5V, I _D =3.0A	R _{DS(on)}	--	50	65	mΩ
	V _{GS} = 2.5V, I _D =2.0A		--	70	90	
Forward Transconductance (Note 2)	V _{DS} = 5V, I _D =3A	g _{fs}	--	11	--	S
Dynamic (Note 2)						
Input Capacitance	V _{DS} = 10V, V _{GS} = 0V, F= 1.0MHz	C _{iss}	--	145	--	pF
Output Capacitance		C _{oss}	--	26	--	
Reverse Transfer Capacitance		C _{rss}	--	22	--	
Switching						
Turn-On Delay Time (Note 3)	V _{DS} = 10V, V _{GS} = 4.5V, I _D = 1A, R _G = 3.3Ω.	t _{d(on)}	--	2.3	--	nS
Rise Time (Note 3)		t _r	--	3.1	--	
Turn-Off Delay Time (Note 3)		t _{d(off)}	--	21	--	
Fall Time (Note 3)		t _f	--	2.6	--	
Total Gate Charge	V _{DS} = 10V, I _D = 3A, V _{GS} = 4.5V	Q _g	--	4.8	--	nC
Gate Source Charge		Q _{gs}	--	0.3	--	
Gate Drain Charge		Q _{gd}	--	0.6	--	
Source-Drain Diode Ratings and Characteristics (Note 2)						
Forward Voltage	V _{GS} = 0V, I _F = 1A	V _{SD}	--	0.8	1.2	V
Continuous Source Current	Integral reverse diode in the MOSFET	I _S	--	--	3.0	A
Pulsed Current (Note 1)		I _{SM}	--	--	10	A

Notes:

1. Pulse test; pulse width ≤ 300 μS, duty cycle ≤ 2%.
2. Guaranteed by design, not subject to production testing.
3. Independent of operating temperature

TYPICAL CHARACTERISTICS

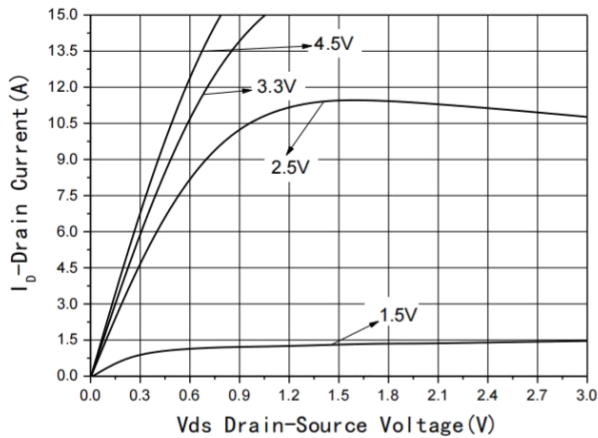


Fig1 Output Characteristics

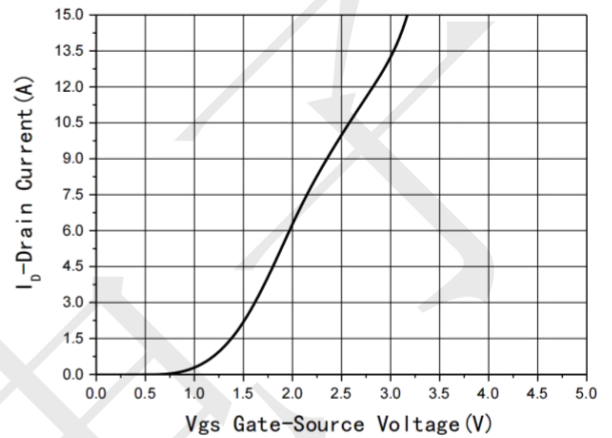


Fig2 Transfer Characteristics

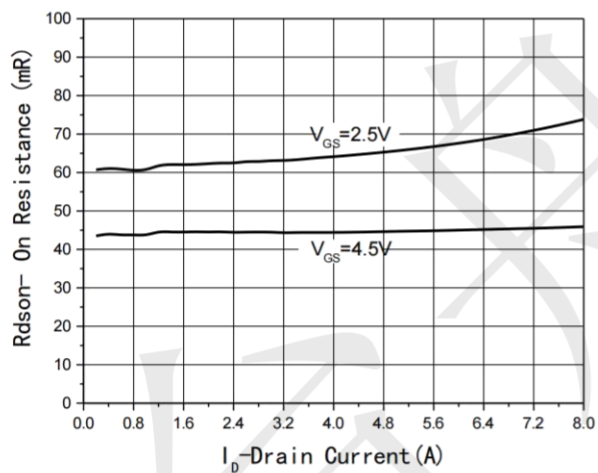


Fig3 $R_{DS(on)}$ -Drain current

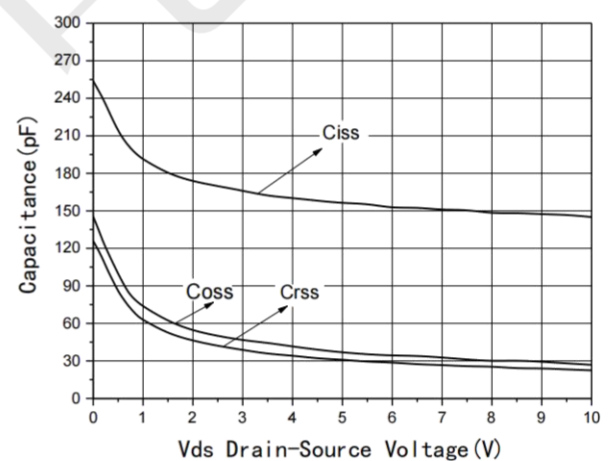


Fig4 Capacitance vs V_{DS}

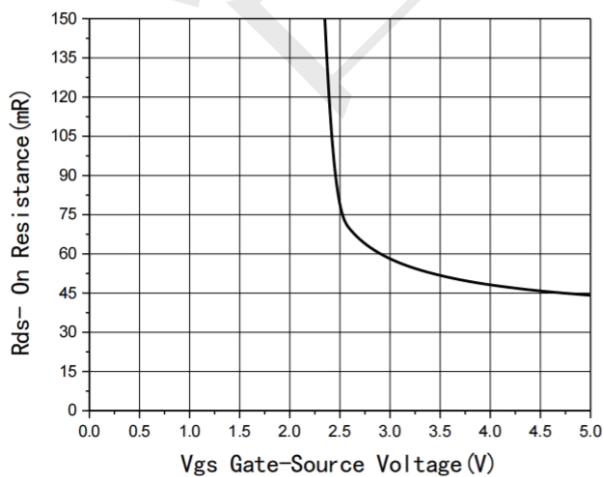


Fig5 $R_{DS(on)}$ -Gate Drain voltage

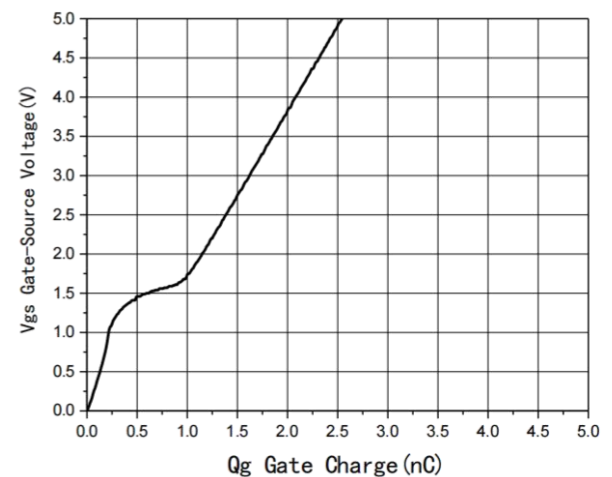
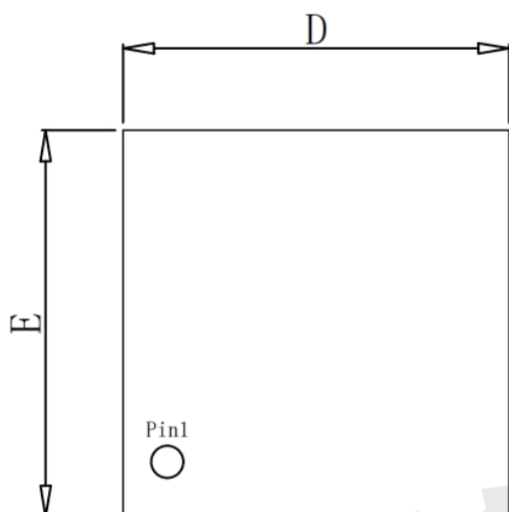


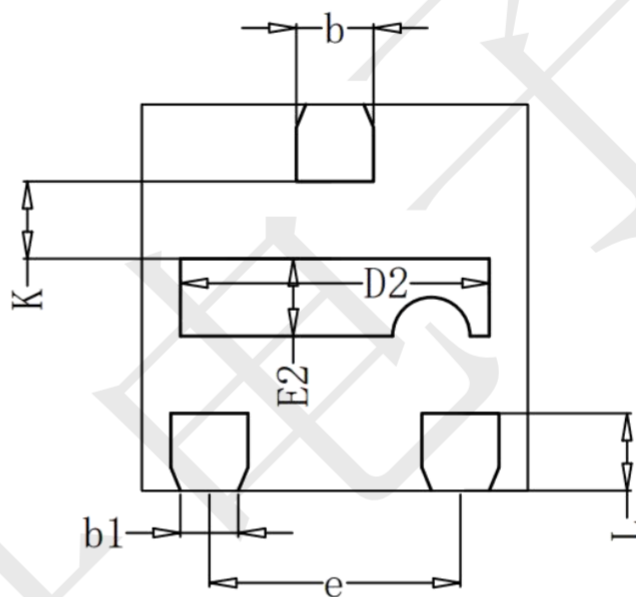
Fig6 Gate Charge

Package Outline Dimensions

DFN1X1-3L



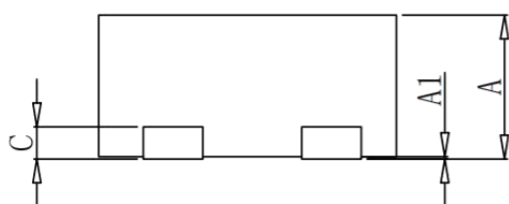
Top View



Bottom View



Side View



Side View

SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	0.45	0.50	0.55
A1	--	0.02	0.05
b	0.15	0.20	0.25
b1	0.150 REF.		
c	0.100 REF.		
D	0.95	1.00	1.05
D2	0.75	0.80	0.85
e	0.65 BSC		
E	0.95	1.00	1.05
E2	0.15	0.20	0.25
L	0.15	0.20	0.25
K	0.20 TYP		