AT04N30MO

40V N-Channel MOSFET

Features

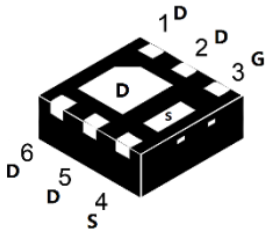
- Advanced high cell density Trench technology
- Super Low Gate Charge
- Excellent CdV/dt effect decline
- 100% EAS Guaranteed
- Green Device Available

Product Summary

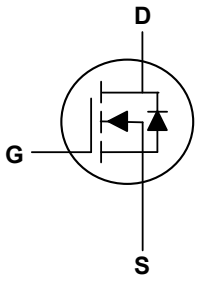
V_{DS}	40	V
I_D	30	A
$R_{DS(ON)}$ Typ (at V_{GS}=10V)	11	mΩ
$R_{DS(ON)}$ Typ (at V_{GS}=4.5V)	17	mΩ

Applications

- High Frequency Point-of-Load,Synchronous Buck Converter
- Networking DC-DC Power System
- Load Switch



DFN2X2-6L Top View



Absolute Maximum Ratings(T_C=25℃, unless otherwise noted)

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	40	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current[1]	I_D@T_A=25℃	30	A
Continuous Drain Current[1]	I_D@T_A=70℃	24	A
Pulsed Drain Current[2]	I_{DM}	120	A
Single Pulse Avalanche Energy[3]	E_{AS}	29	mJ
Total Power Dissipation[4]	P_D	26	W
Storage Temperature Range	T_{STG}	-55 to 150	℃
Operating Junction Temperature Range	T_J	-55 to 150	℃

Thermal Characteristics

Parameter	Symbol	Typ	Max	Unit
Thermal Resistance Junction-Case[1]	$R_{\theta JC}$	---	4.8	℃/W

Electrical Characteristics (T_J=25℃, unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V , I_D=250uA	40	---	---	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V , I_D=4A	---	11	13	mΩ
		V_{GS}=4.5V , I_D=3A	---	17	22	mΩ
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS}=V_{DS} , I_D =250uA	1.5	---	2.5	V
Drain-Source Leakage Current	I_{DSS}	V_{DS}=40V , V_{GS}=0V , T_J=25℃	---	---	1	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±20V , V_{DS}=0V	---	---	±100	nA
Total Gate Charge	Q_g	V_{DS}=20V , V_{GS}=10V , I_D=15A	---	7	---	nC
Gate-Source Charge	Q_{gs}		---	1.5	---	
Gate-Drain Charge	Q_{gd}		---	3	---	
Turn-On Delay Time	$T_{d(on)}$	V_{DS}=20V , V_{GS}=10V , R_G=3.3Ω, I_D=1A	---	7	---	ns
Rise Time	T_r		---	11	---	
Turn-Off Delay Time	$T_{d(off)}$		---	24	---	
Fall Time	T_f		---	17	---	
Input Capacitance	C_{iss}	V_{DS}=20V , V_{GS}=0V , f=1MHz	---	407	---	pF
Output Capacitance	C_{oss}		---	196	---	
Reverse Transfer Capacitance	C_{rss}		---	7.7	---	

Drain-Source Diode Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Diode Forward Voltage[2]	V_{SD}	V_{GS}=0V , I_S=40A , T_J=25℃	---	---	1.2	V

Note:

1.The data tested by surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.

2.The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%

Typical Characteristics

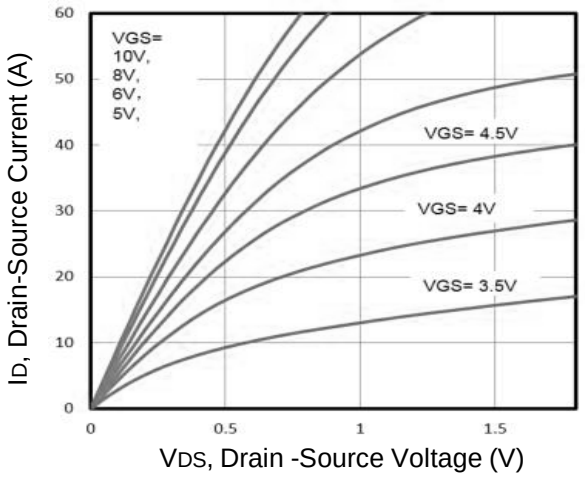


Fig1. Typical Output Characteristics

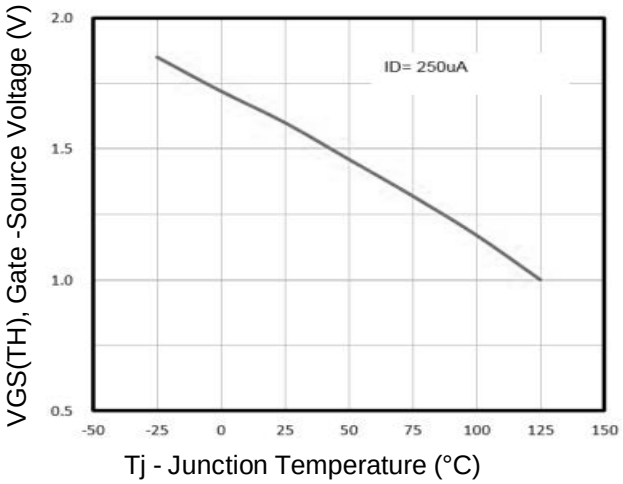


Fig2. Normalized Threshold Voltage Vs. Temperature

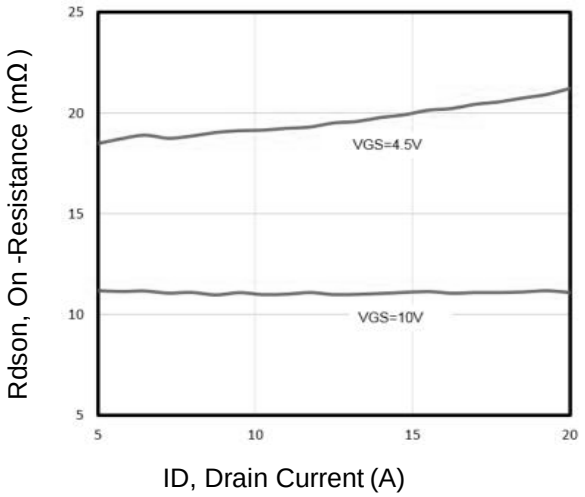


Fig3. On-Resistance vs. Drain Current and Gate

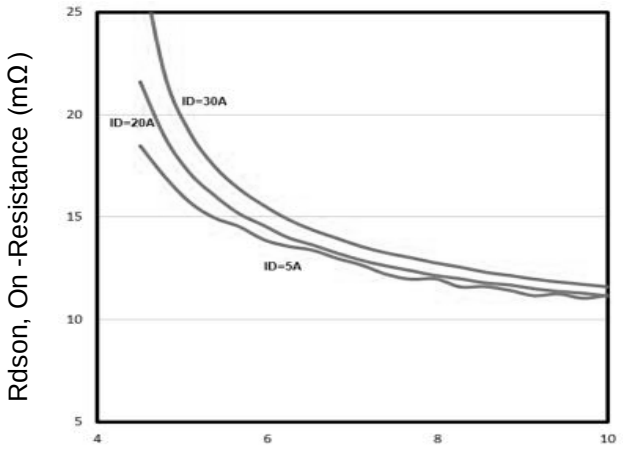


Fig4. On-Resistance vs. Gate Source Voltage

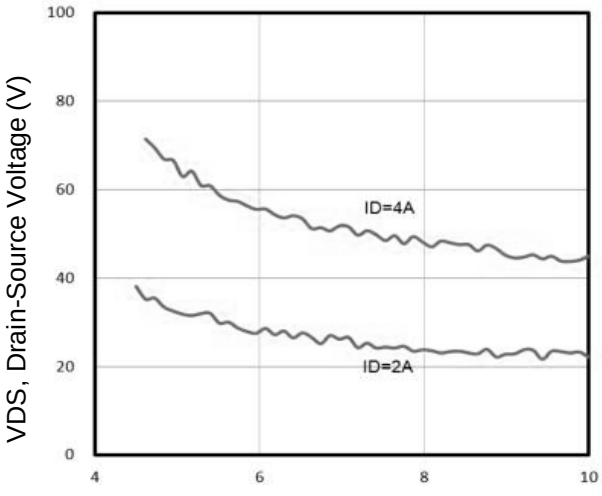


Fig5. Drain-Source Voltage vs Gate-Source Voltage

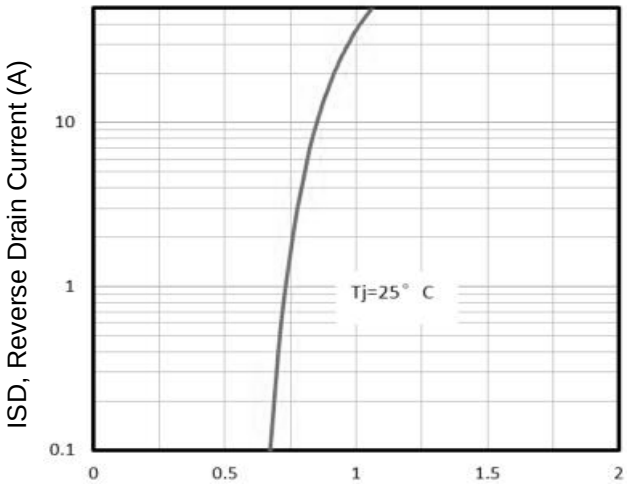


Fig6. Typical Source-Drain Diode Forward Voltage

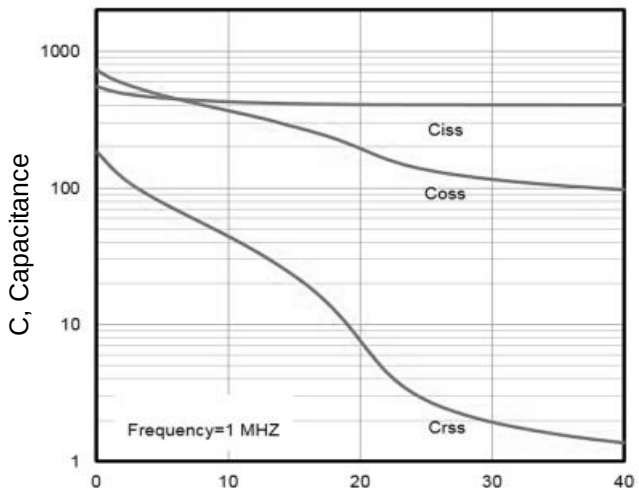


Fig7. Typical Capacitance Vs. Drain-Source Voltage

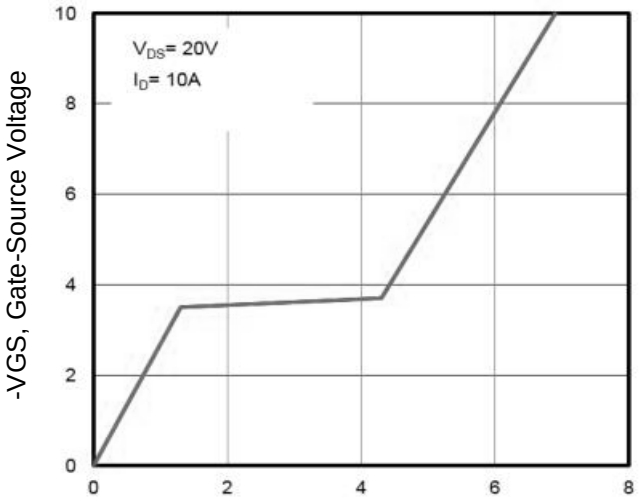
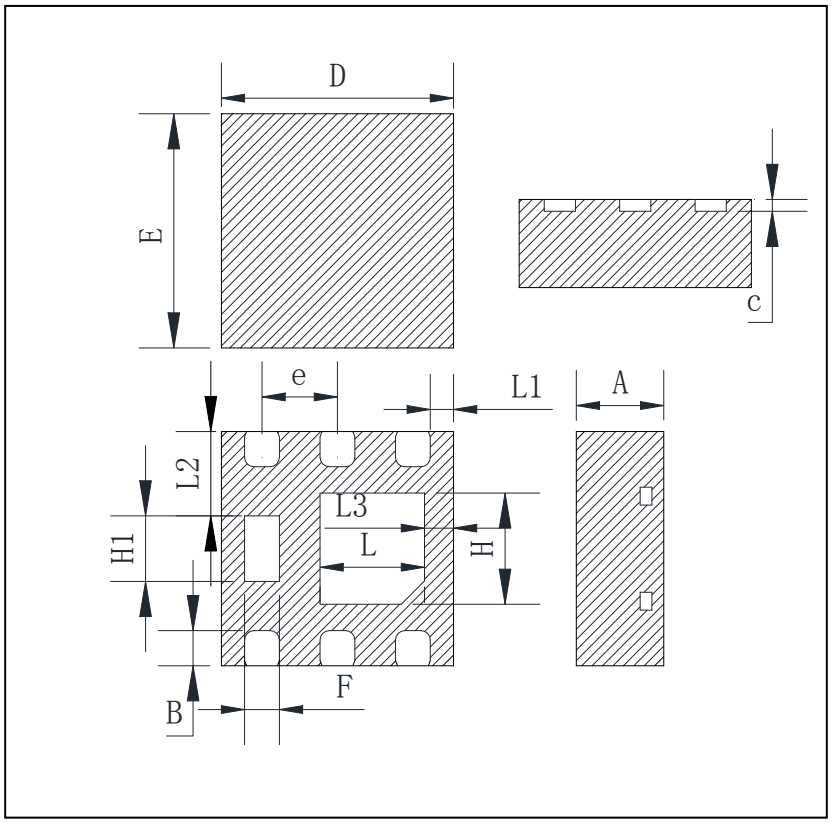


Fig8. Typical Gate Charge Vs. Gate-Source Voltage

DFN2X2-6L Package Outline Data



Symbol	Min	Typ	Max
A	0.70	0.75	0.80
B	0.25	0.30	0.35
C	0.153	0.203	0.253
D	1.90	2.00	2.10
E	1.90	2.00	2.10
e	0.60	0.65	0.70
F	0.25	0.30	0.35
H	0.90	1.00	1.10
H1	0.50	0.60	0.65
L	0.80	0.90	1.00
L1	0.15	0.20	0.25
L2	0.60	0.70	0.80
L3	0.25	0.30	0.35

UNIT: mm