ATT0340Q

30V Dual N-Channel MOSFET

Features

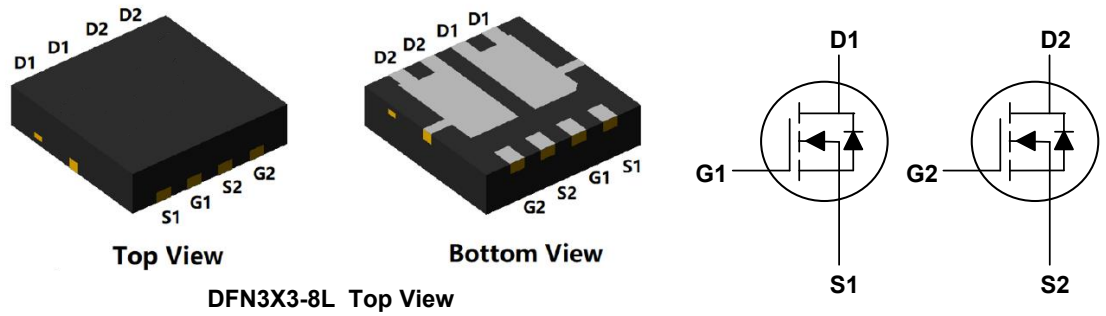
- Advanced high cell density Trench technology
- Super Low Gate Charge
- Excellent CdV/dt effect decline
- 100% EAS Guaranteed
- Green Device Available

Product Summary

V_{DS}	30	V
I_D	40	A
$R_{DS(ON)}$ (at V_{GS}=10V)	6.5	mΩ
$R_{DS(ON)}$ (at V_{GS}=4.5V)	8.5	mΩ

Applications

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



DFN3X3-8L Top View

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

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current[1]	I_D@T_C=25℃	40	A
Continuous Drain Current[1]	I_D@T_C=100℃	18	A
Pulsed Drain Current[2]	I_{DM}	80	A
Single Pulse Avalanche Energy[3]	E_{AS}	16	mJ
Total Power Dissipation[4]	P_D@T_C=25℃	16	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-Ambient[1]	$R_{\theta JA}$	---	55	℃/W
Thermal Resistance Junction-Case[1]	$R_{\theta JC}$	---	6.8	℃/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	30	---	---	V
Static Drain-Source On-Resistance[2]	$R_{DS(ON)}$	V_{GS}=10V , I_D=15A	---	5.5	6.5	mΩ
		V_{GS}=4.5V , I_D=15A	---	7.0	8.5	mΩ
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS}=V_{DS} , I_D =250uA	1.4	---	2.5	V
Drain-Source Leakage Current	I_{DSS}	V_{DS}=30V , V_{GS}=0V , T_J=25℃	---	---	1	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±20V , V_{DS}=0V	---	---	±100	nA
Gate Resistance	R_g	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	4.7	---	Ω
Total Gate Charge	Q_g	V_{DS}=15V , V_{GS}=10V , I_D=40A	---	23	---	nC
Gate-Source Charge	Q_{gs}		---	4.2	---	
Gate-Drain Charge	Q_{gd}		---	5.5	---	
Turn-On Delay Time	$T_{d(on)}$	V_{DD}=15V , V_{GS}=10V , R_G=3Ω, I_D=40A	---	5.8	---	ns
Rise Time	T_r		---	56	---	
Turn-Off Delay Time	$T_{d(off)}$		---	26	---	
Fall Time	T_f		---	12	---	
Input Capacitance	C_{iss}	V_{DS}=15V , V_{GS}=0V , f=1MHz	---	2030	---	pF
Output Capacitance	C_{oss}		---	122	---	
Reverse Transfer Capacitance	C_{rss}		---	116	---	

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℃	---	0.8	1.2	V
Reverse Recovery Time	t_{rr}	I_S=40A ,V_{GS}=0V di/dt=100A/μs，T_J=25℃	---	6.8	---	nS
Reverse Recovery Charge	Q_{rr}		---	2	---	nC

Note:

1.The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.

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

3.The EAS data shows Max. rating . The test condition is V_{DD}=15V,V_{GS}=10V,L=0.5mH

4.The power dissipation is limited by 150℃ junction temperature

Typical Characteristics

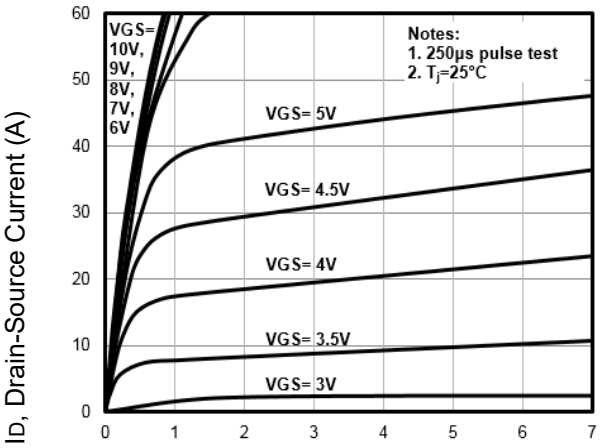


Fig1. Typical Output Characteristics

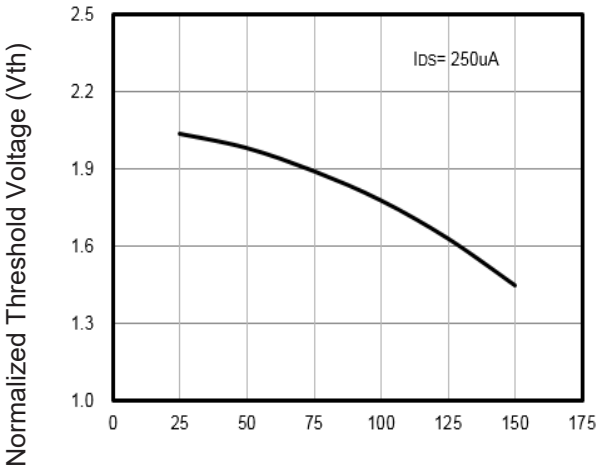


Fig2. Normalized Threshold Voltage Vs. Temperature

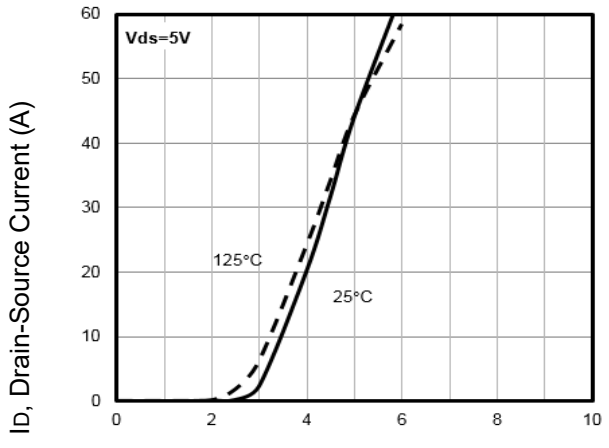


Fig3. Typical Transfer Characteristics

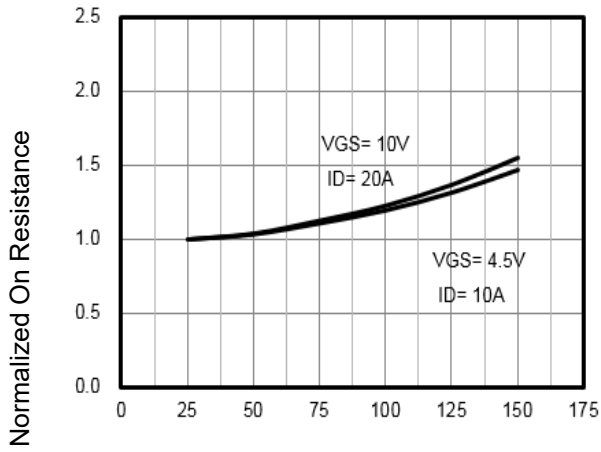


Fig4. Normalized On-Resistance Vs. Temperature

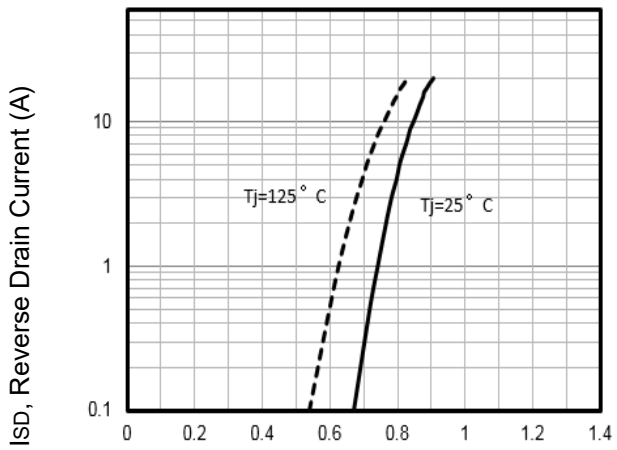


Fig5. Typical Source-Drain Diode Forward Voltage

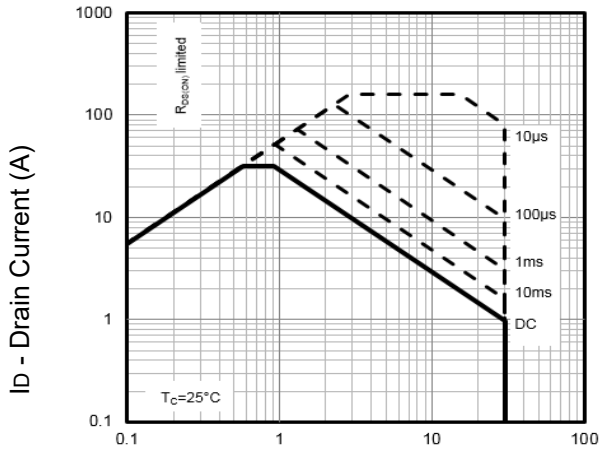


Fig6. Maximum Safe Operating Area

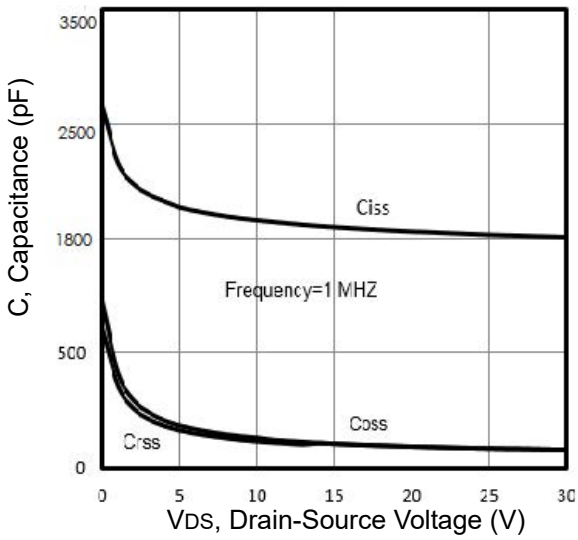


Fig7. Typical Capacitance Vs. Drain-Source Voltage

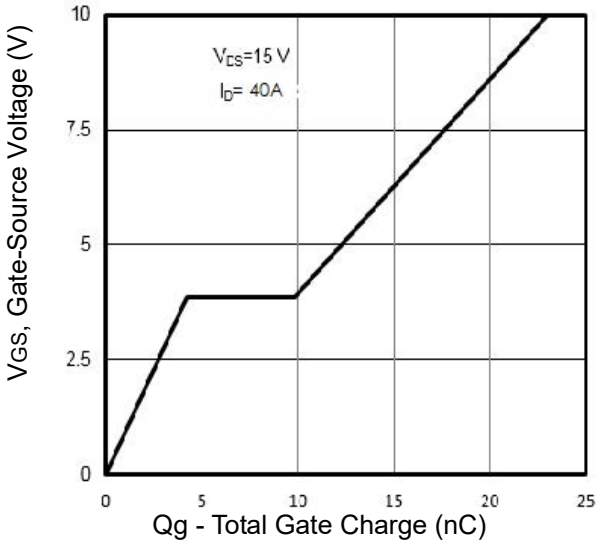


Fig8. Typical Gate Charge Vs. Gate-Source

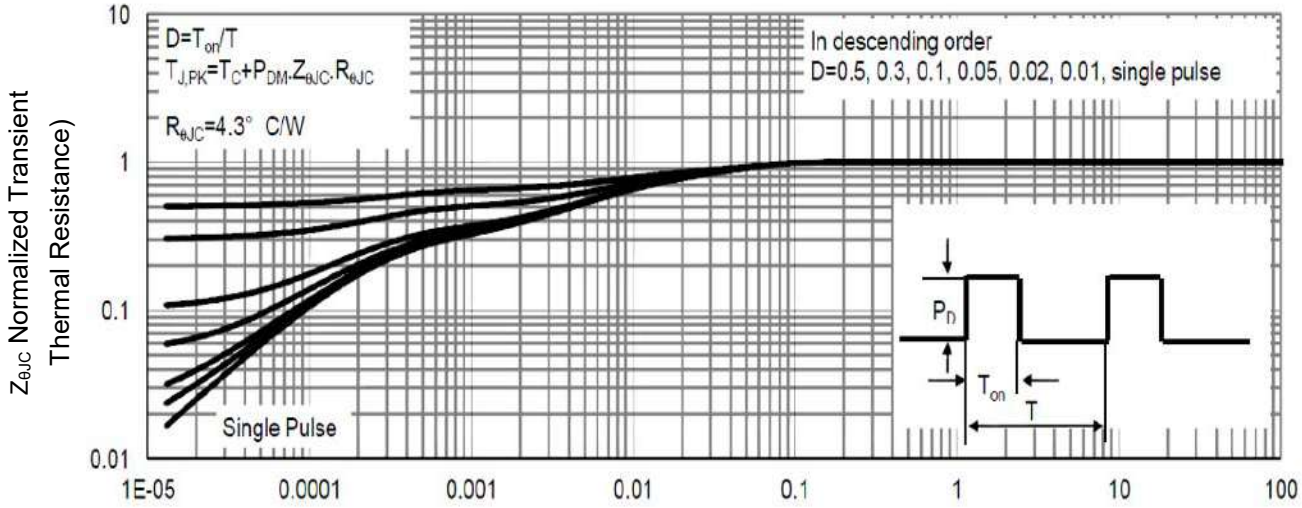
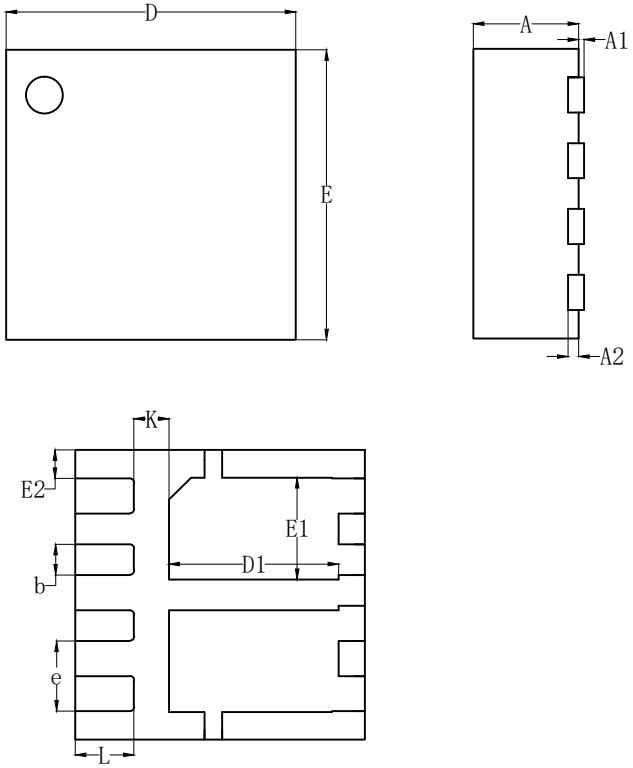


Fig9. Normalized Maximum Transient Thermal Impedance

DFN3X3-8L Package Outline Dimensions



SYMBOL	MILLMETER		
	MIN	NOM	MAX
A	—	0.75	0.80
A1	0.00	—	0.05
A2	0.203 TIY		
b	0.30	—	0.45
D	3.25	3.30	3.35
D1	1.80	1.90	2.00
E	3.25	3.30	3.35
E1	1.06	1.16	1.26
E2	0.325 TIY		
e	0.75 BSC		
K	0.40 BSC		
L	0.57	0.67	0.77