ATT0340AR

30V Dual N-Channel MOSFET

Features

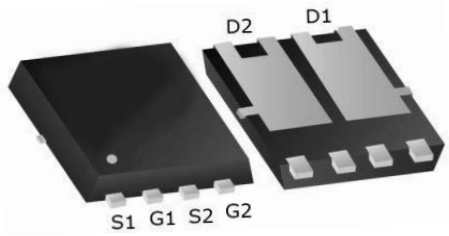
- Advanced high cell density Trench technology
- Super Low Gate Charge
- Excellent CdV/dt effect decline
- 100% EAS Guaranteed
- Green Device Available

Product Summary

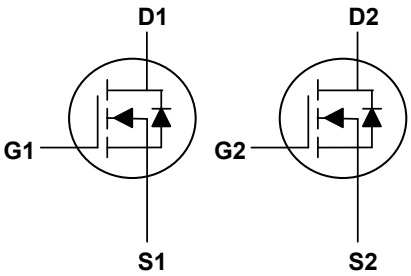
V_{DS}	30	V
I_D	40	A
$R_{DS(ON)}$ (at V_{GS}=10V)	10	mΩ
$R_{DS(ON)}$ (at V_{GS}=4.5V)	14	mΩ

Applications

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



DFN3X3A-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℃	19	A
Pulsed Drain Current[2]	I_{DM}	160	A
Single Pulse Avalanche Energy[3]	E_{AS}	16	mJ
Total Power Dissipation[4]	P_D@T_C=25℃	20	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]	$R_{\theta JA}$	---	45	℃/W
Thermal Resistance Junction-Case[1]	$R_{\theta JC}$	---	5.5	℃/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=20A	---	8.6	10	mΩ
		V_{GS}=4.5V , I_D=10A	---	10	14	mΩ
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS}=V_{DS} , I_D =250uA	1.3	---	2.4	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	---	2.4	---	Ω
Total Gate Charge	Q_g	V_{DS}=15V , V_{GS}=10V , I_D=20A	---	23	---	nC
Gate-Source Charge	Q_{gs}		---	4.2	---	
Gate-Drain Charge	Q_{gd}		---	5.6	---	
Turn-On Delay Time	$T_{d(on)}$	V_{DD}=15V , V_{GS}=10V , R_G=3Ω, I_D=20A	---	5.8	---	ns
Rise Time	T_r		---	55	---	
Turn-Off Delay Time	$T_{d(off)}$		---	25	---	
Fall Time	T_f		---	11	---	
Input Capacitance	C_{iss}	V_{DS}=15V , V_{GS}=0V , f=1MHz	---	1016	---	pF
Output Capacitance	C_{oss}		---	135	---	
Reverse Transfer Capacitance	C_{rss}		---	129	---	

Drain-Source Diode Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Diode Forward Voltage[2]	V_{SD}	V_{GS}=0V , I_S=3A , T_J=25℃	---	0.7	1.2	V
Reverse Recovery Time	t_{rr}	I_S=20A ,V_{GS}=0V di/dt=100A/μs， T_J=25℃	---	6.5	---	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

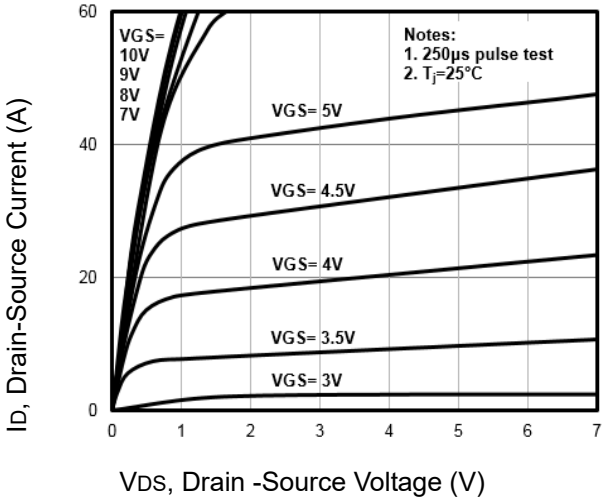


Fig1. Typical Output Characteristics

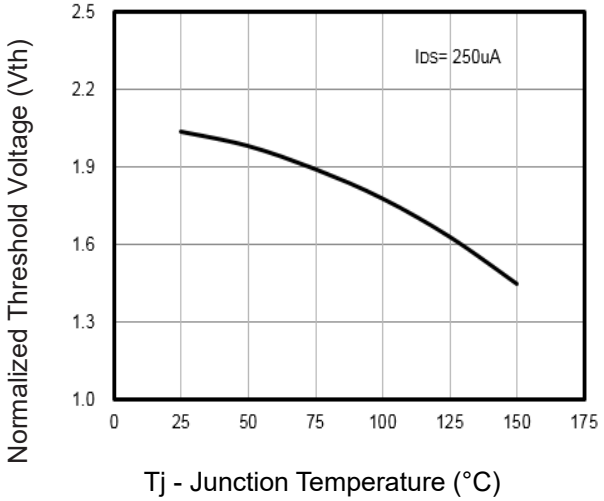


Fig2. Normalized Threshold Voltage Vs. Temperature

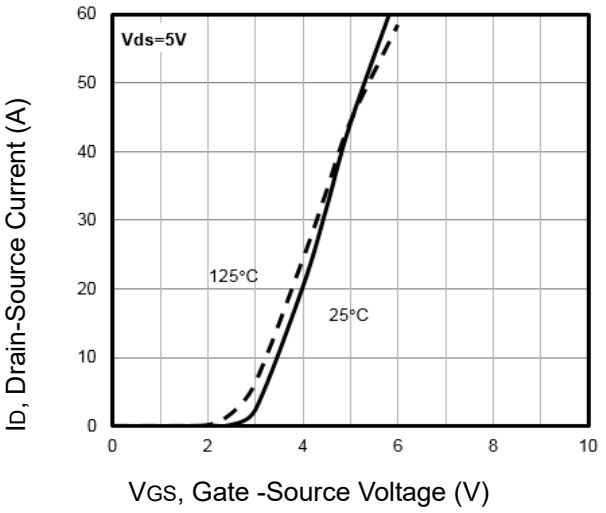


Fig3. Typical Transfer Characteristics

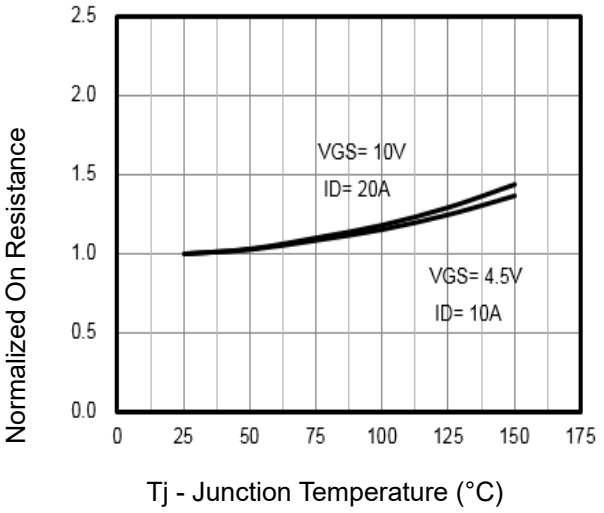


Fig4. Normalized On-Resistance Vs. Temperature

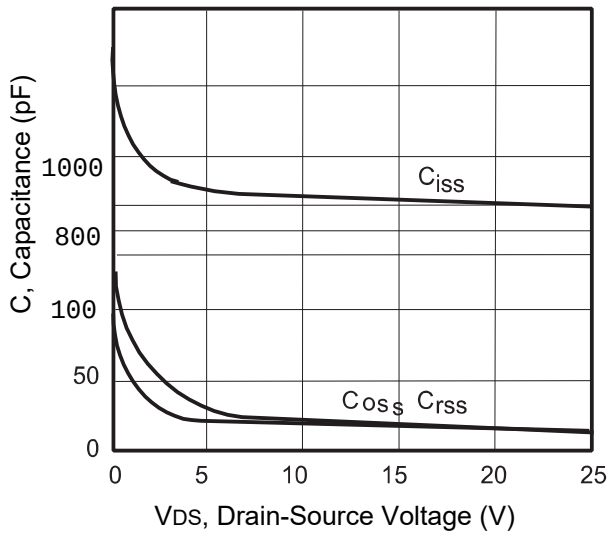


Fig 5. Typical Capacitance Vs. Drain-Source Voltage

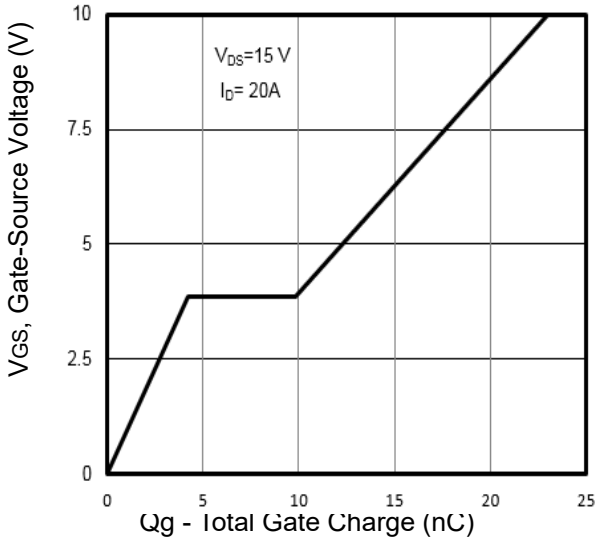


Fig 6. Typical Gate Charge Vs. Gate-Source

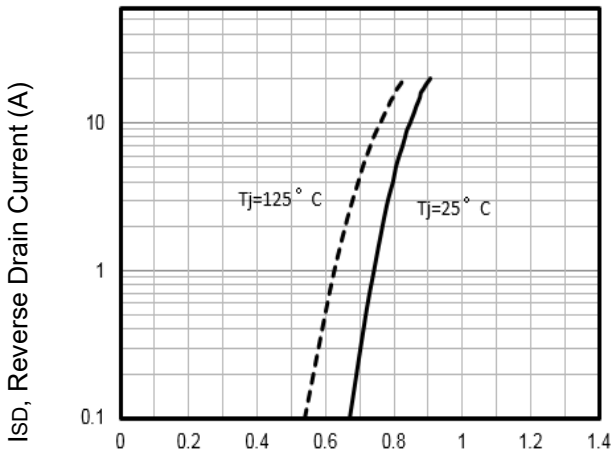


Fig 7. Typical Source-Drain Diode Forward Voltage

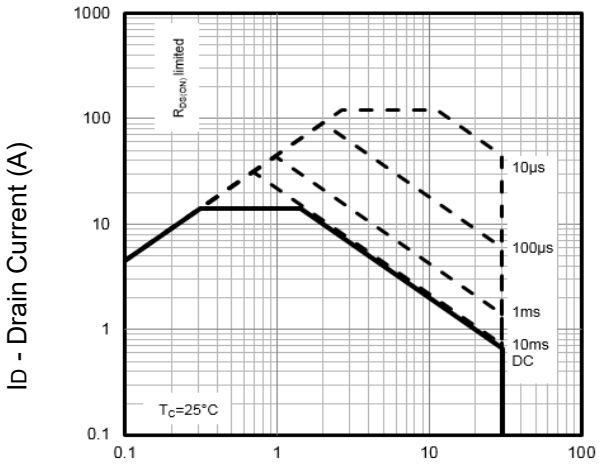


Fig 8. Maximum Safe Operating Area

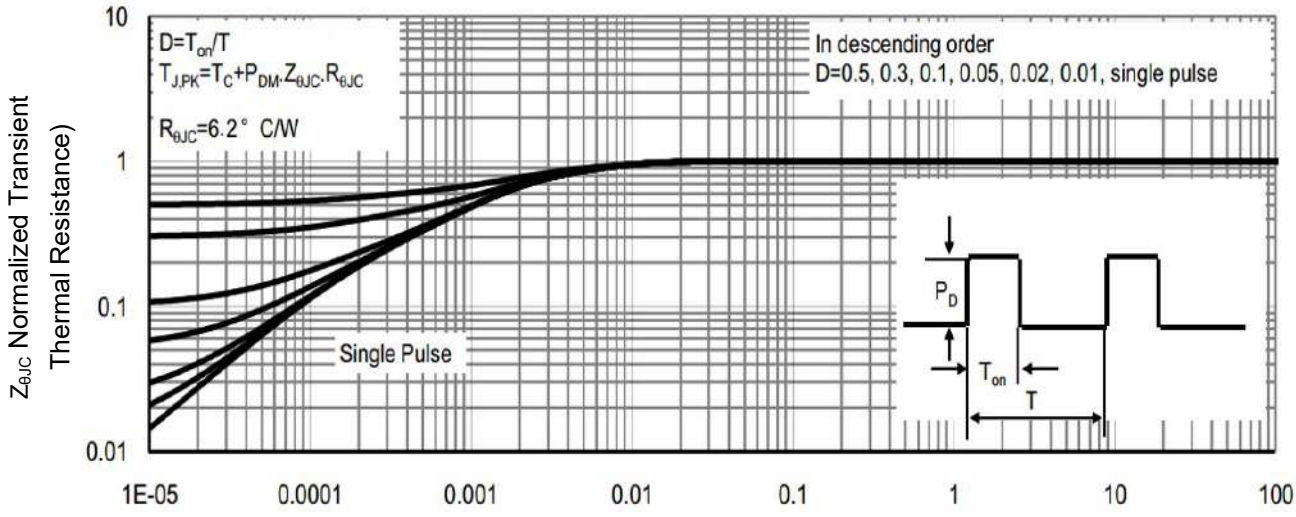


Fig9. Normalized Maximum Transient Thermal Impedance

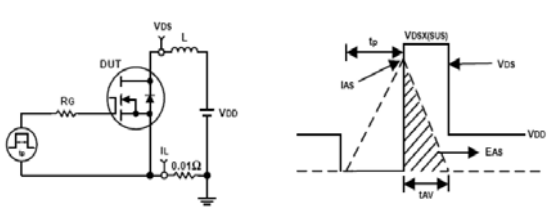


Fig10. Unclamped Inductive Test Circuit and waveforms

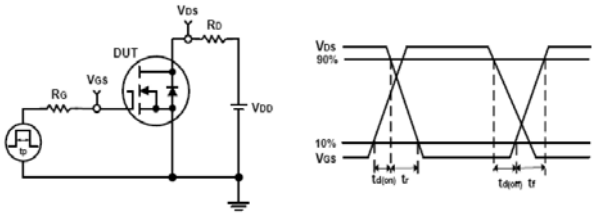
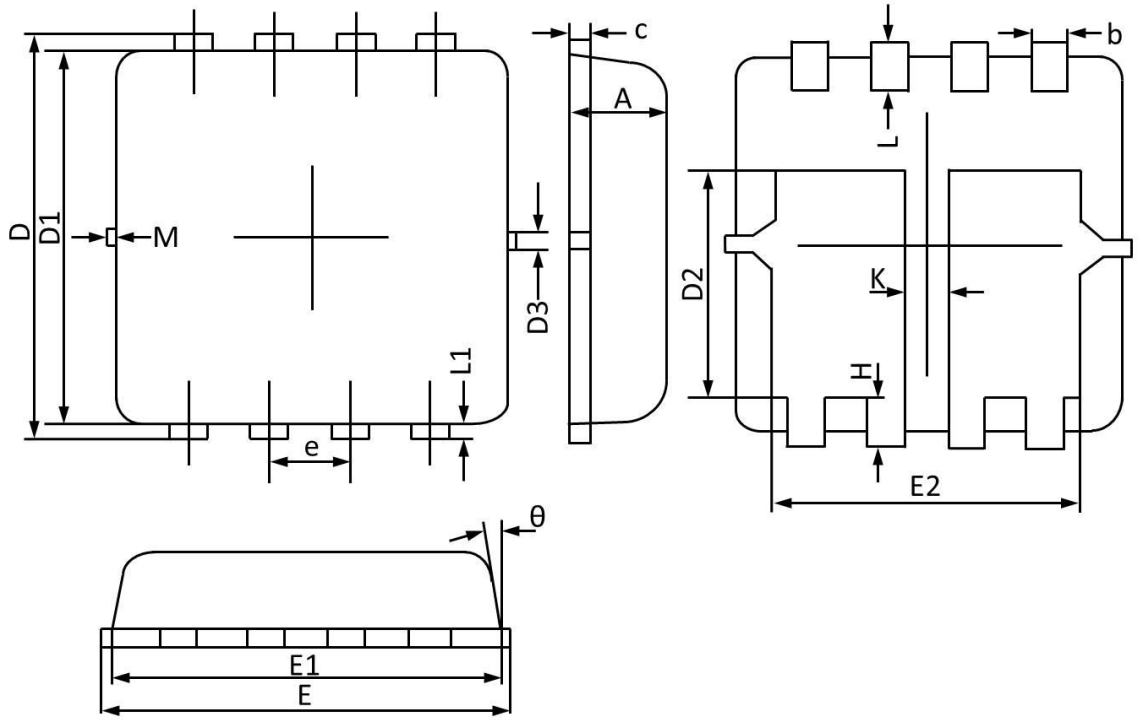


Fig11. Switching Time Test Circuit and waveforms

DFN3X3A-8L Package Outline Dimensions



Symbol	Dimensions (unit:mm)			Symbol	Dimensions (unit:mm)		
	Min	Typ	Max		Min	Typ	Max
A	0.70	0.75	0.85	E2	2.35	2.50	2.60
b	0.25	0.30	0.35	e	0.65 BSC		
c	0.10	0.17	0.25	H	0.30	0.40	0.50
D	3.10	3.30	3.45	L	0.30	0.40	0.50
D1	2.90	3.05	3.20	L1	0.13 REF		
D2	1.45	1.70	1.95	K	0.30 REF		
D3	0.13 REF			θ	0°		12°
E	3.05	3.25	3.40	M	0.15 REF		
E1	2.90	3.10	3.25				