ATT03300R

30V Dual N-Channel MOSFET

Features

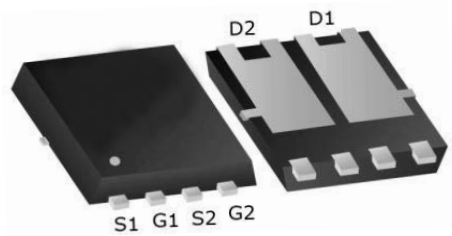
- Advanced high cell density Trench technology
- Super Low Gate Charge
- Excellent CdV/dt effect decline
- 100% EAS Guaranteed
- Green Device Available

Product Summary

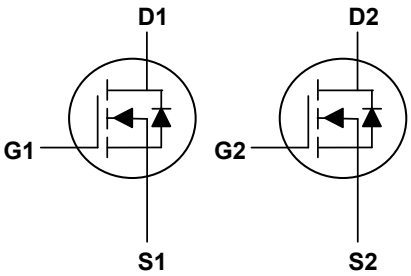
V_{DS}	30	V
I_D	30	A
$R_{DS(ON)}$ (at V_{GS}=10V)	13	mΩ
$R_{DS(ON)}$ (at V_{GS}=10V)	18	mΩ

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℃	30	A
Continuous Drain Current[1]	I_D@T_C=100℃	19	A
Pulsed Drain Current[2]	I_{DM}	120	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]	$R_{\theta JC}$	---	6.2	℃/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	---	10	13	mΩ
		V_{GS}=4.5V , I_D=10A	---	13	18	mΩ
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS}=V_{DS} , I_D =250uA	1.2	1.6	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=20A	---	20	---	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=20A	---	6	---	ns
Rise Time	T_r		---	52	---	
Turn-Off Delay Time	$T_{d(off)}$		---	23	---	
Fall Time	T_f		---	12	---	
Input Capacitance	C_{iss}	V_{DS}=15V , V_{GS}=0V , f=1MHz	---	830	---	pF
Output Capacitance	C_{oss}		---	110	---	
Reverse Transfer Capacitance	C_{rss}		---	102	---	

Drain-Source Diode Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Diode Forward Voltage[2]	V_{SD}	V_{GS}=0V , I_S=20A , T_J=25℃	---	0.8	1.2	V
Reverse Recovery Time	t_{rr}	I_F=20A ,V_{GS}=0V di/dt=100A/μs， T_J=25℃	---	7	---	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

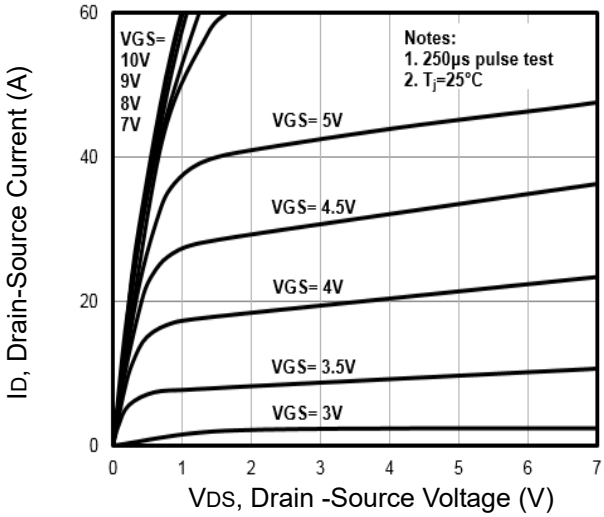


Fig1. Typical Output Characteristics

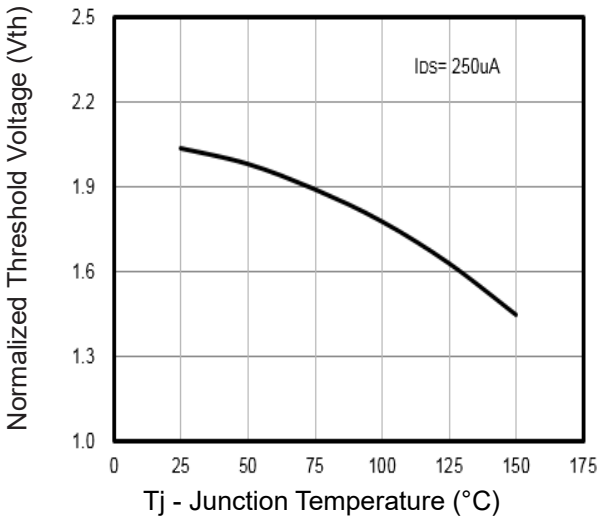


Fig2. Normalized Threshold Voltage Vs. Temperature

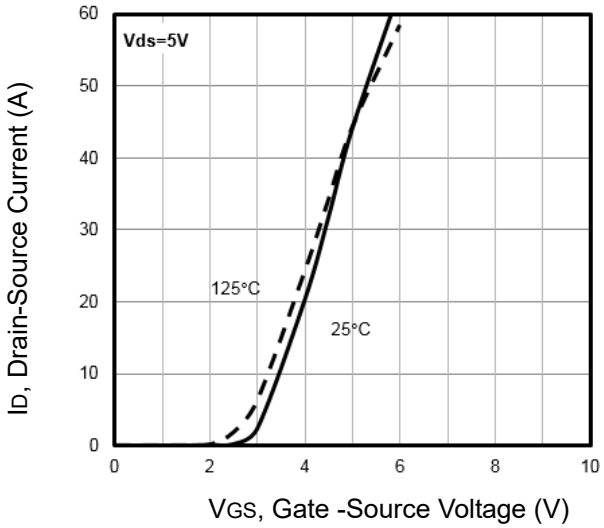


Fig3. Typical Transfer Characteristics

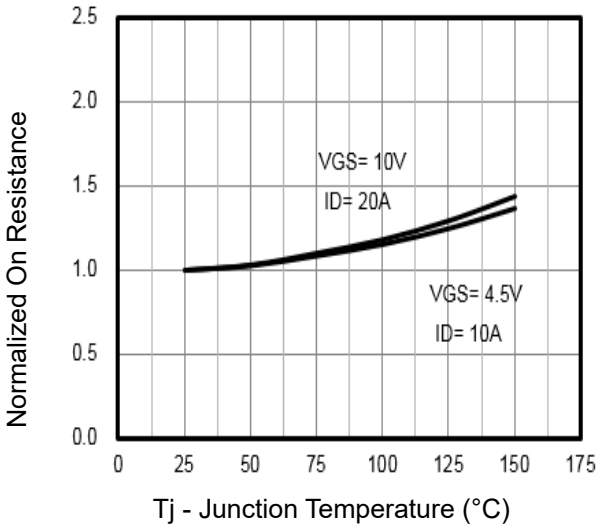


Fig4. Normalized On-Resistance Vs. Temperature

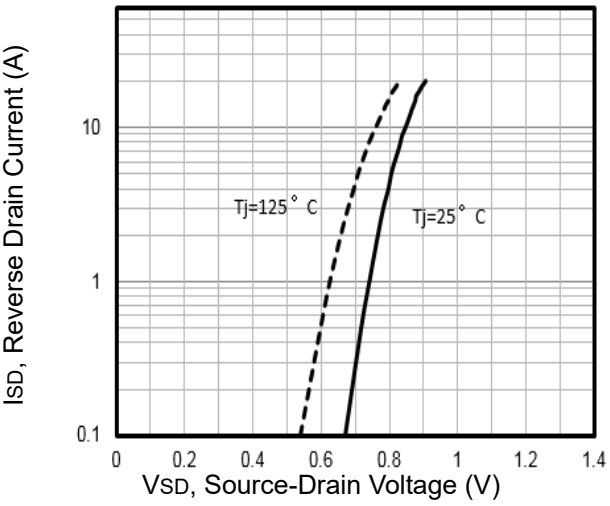


Fig5. Typical Source-Drain Diode Forward Voltage

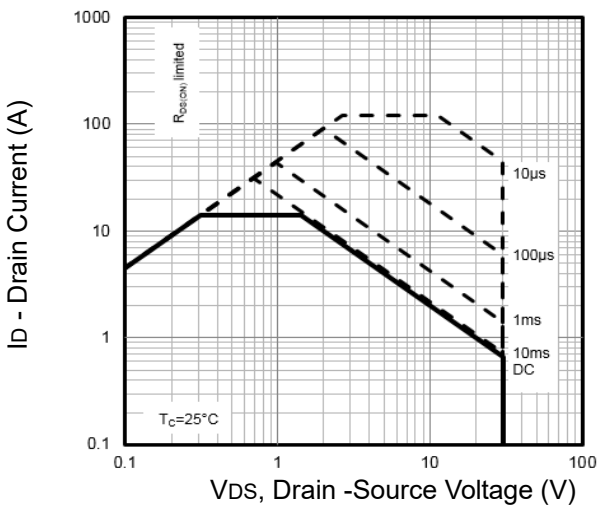


Fig6. Maximum Safe Operating Area

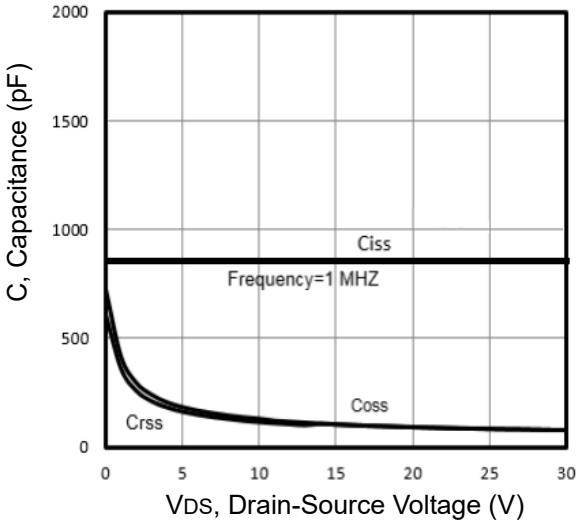


Fig7. Typical Capacitance Vs. Drain-Source Voltage

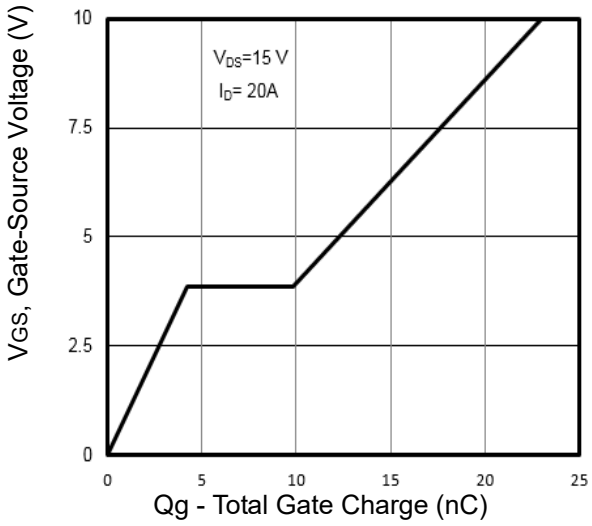


Fig8. Typical Gate Charge Vs. Gate-Source

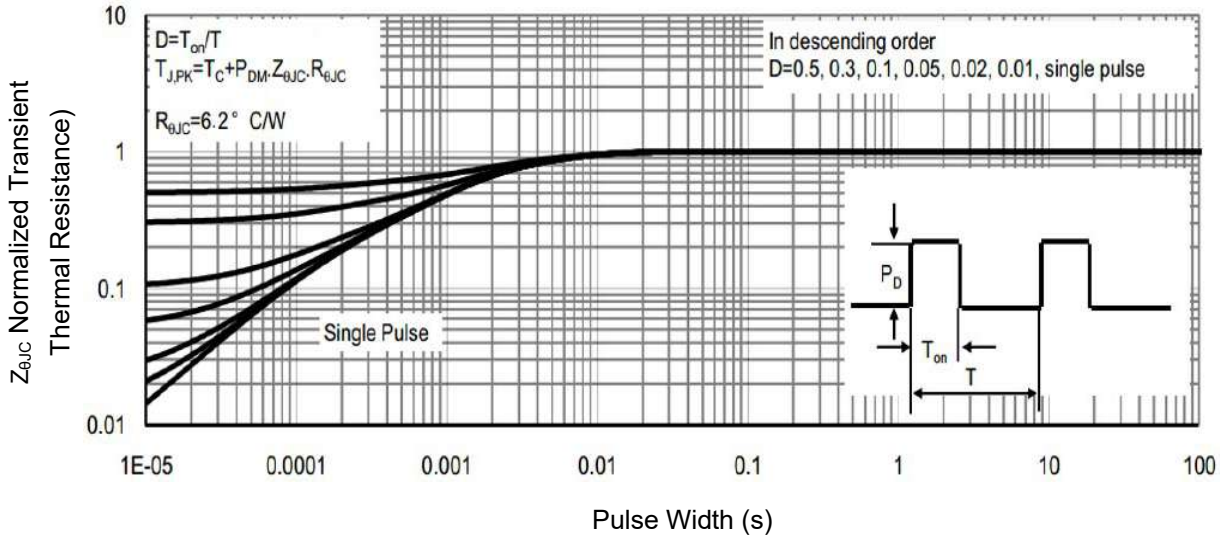
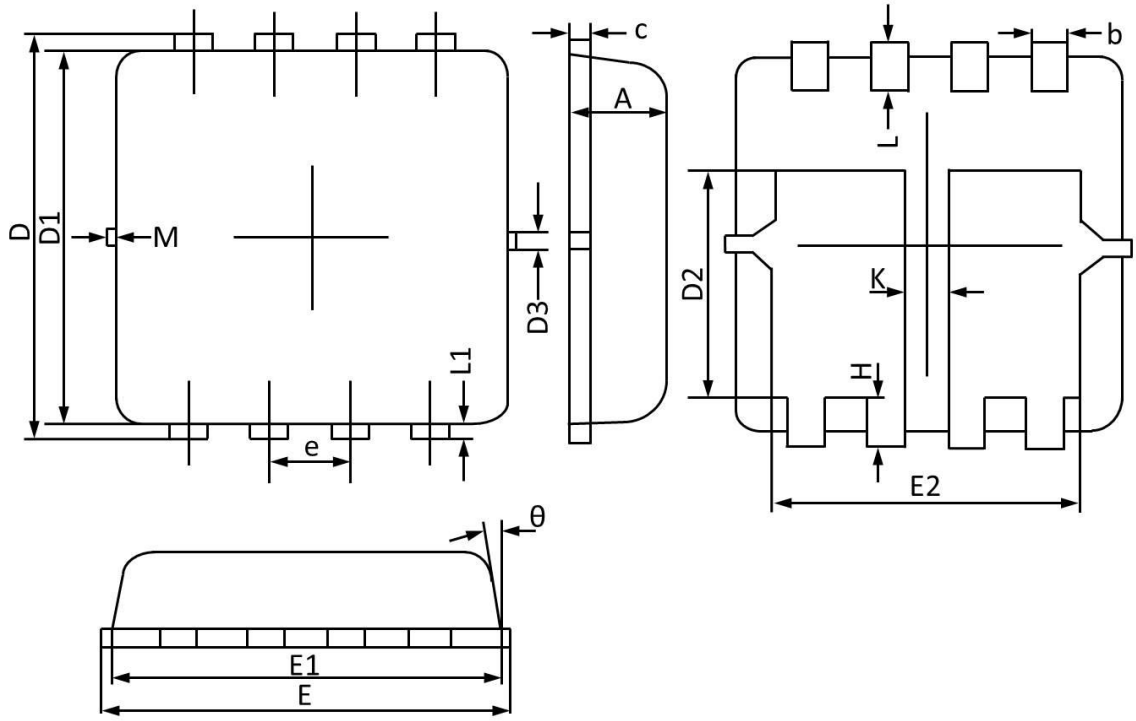


Fig9. Normalized Maximum Transient Thermal Impedance

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				