Descriptions

N-Channel Enhancement Mode Field Effect Transistor in a DFN 3*3A-8L Plastic Package.

Features

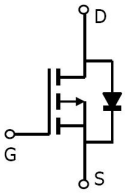
V_{DS} (V) = 30V

I = 34 A (V = ±20V)

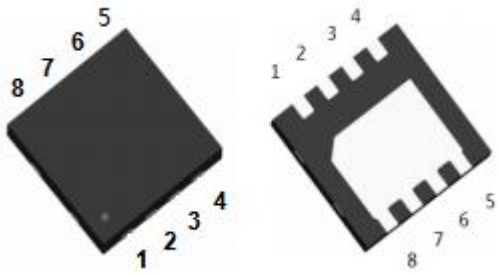
Applications

Suited for low voltage applications such as automotive, DC/DC Converters, and high efficiency switching for power management in portable and battery operated products.

Equivalent Circuit



Pinning



PIN	Description
Pin1	S
Pin2	S
Pin3	S
Pin4	G
Pin5	D
Pin6	D
Pin7	D
Pin8	D

Absolute Maximum Ratings(Ta=25℃)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DSS}	30	V
Drain Current		I_D(Tc=25℃)	34	A
Gate-Source Voltage		V_{GS}	±20	V
Avalanche Current		I_{AS}	12.9	A
Single Pulsed Avalanche Energy		E_{AS}	199	mJ
Power Dissipation		P_D(Tc=25℃)	23	W
Junction Temperature Range		T_j	150	℃
Storage Temperature Range		T_{stg}	-55～150	℃
Maximum Junction-to-Ambient	t≤10s	$R_{\theta JA}$	40	℃/W
	Steady-State	$R_{\theta JA}$	75	
Maximum Junction-to-Case	Steady-State	$R_{\theta JC}$	5.4	

Electrical Characteristics(Ta=25℃)

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V	I_D=250μA	30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V	V_{GS}=0V			1.0	μA
		V_{DS}=30V	T_J=150℃			50	
Gate-Body Leakage Current Forward	I_{GSS}	V_{GS}=±20V	V_{DS}=0V			±0.1	μA
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V	I_D=20.0A		11	13	mΩ
		V_{GS}=4.5V	I_D=10.0A		16	20	mΩ
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}	I_D=250μA	1	1.8	3	V
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS}=0V	I_F=1.0A		0.7	1.2	V
Signal Source Resistance	Rg	F=1MHz			1.67		Ω
Input Capacitance	C_{iss}	V_{DS}=25V f=1.0MHz	V_{GS}=0V		666		pF
Output Capacitance	C_{oss}				26		
Reverse Transfer Capacitance	C_{rss}				63		
Turn-On Delay Time	$t_{d(on)}$	V_{DS}=15V R_L=0.75Ω	V_{GS}=10V R_{GEN}=3.0Ω		4.4		ns
Turn-On Rise Time	t_r				9		
Turn-Off Delay Time	$t_{d(off)}$				17		
Turn-Off Fall Time	t_f				6		

Electrical Characteristics(Ta=25℃)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Total Gate Charge	$Q_{g(10V)}$	V_{DS}=15V V_{GS}=10V I_D=20.0A		14		nC
Total Gate Charge	$Q_{g(4.5V)}$			6.6		
Gate-Source Charge	Q_{gs}			2.4		
Gate-Drain Charge	Q_{gd}			3		

Electrical Characteristic Curve

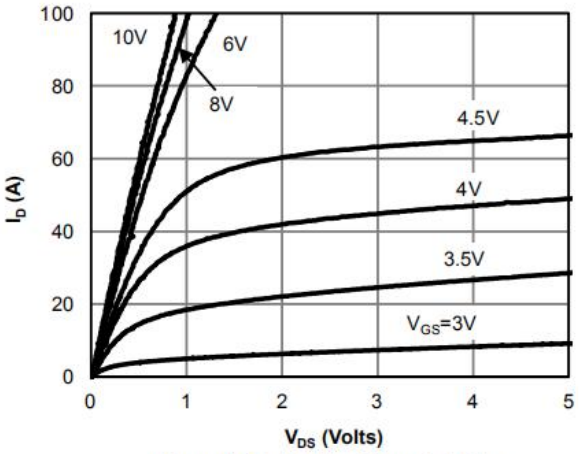


Figure 1: On-Region Characteristics

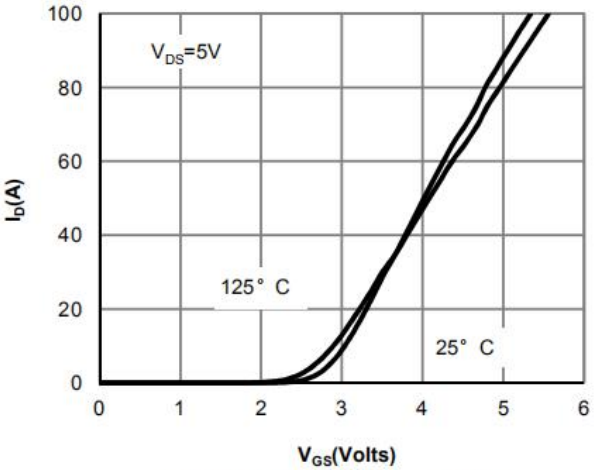


Figure 2: Transfer Characteristics

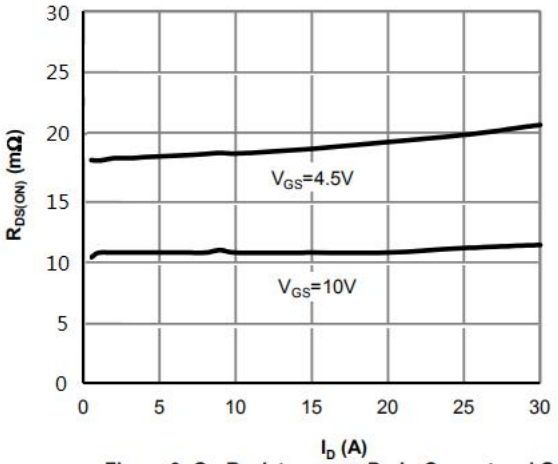


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

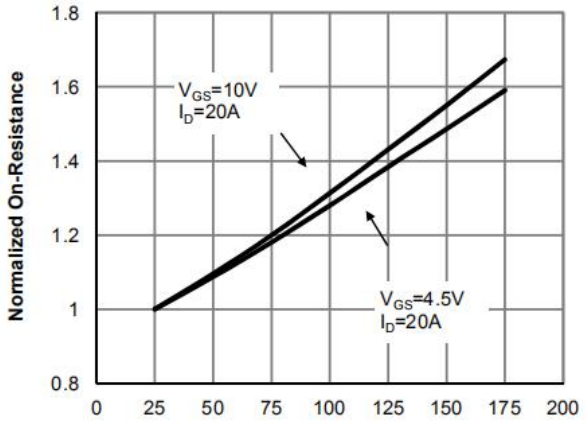


Figure 4: On-Resistance vs. Junction Temperature

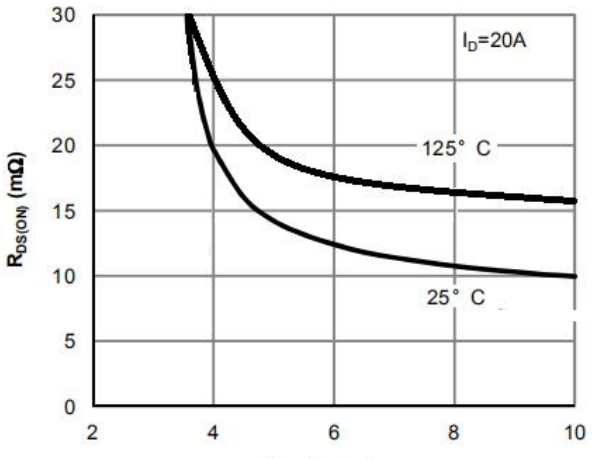


Figure 5: On-Resistance vs. Gate-Source Voltage

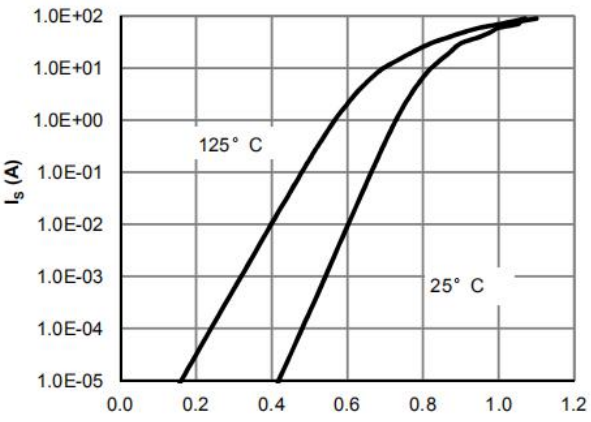


Figure 6: Body-Diode Characteristics

Electrical Characteristic Curve

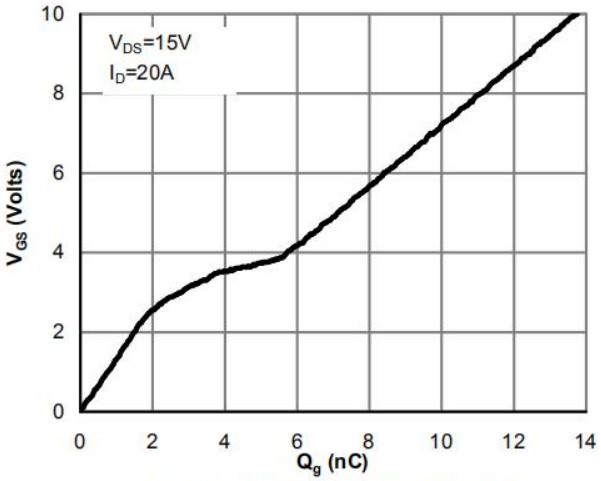


Figure 7: Gate-Charge Characteristics

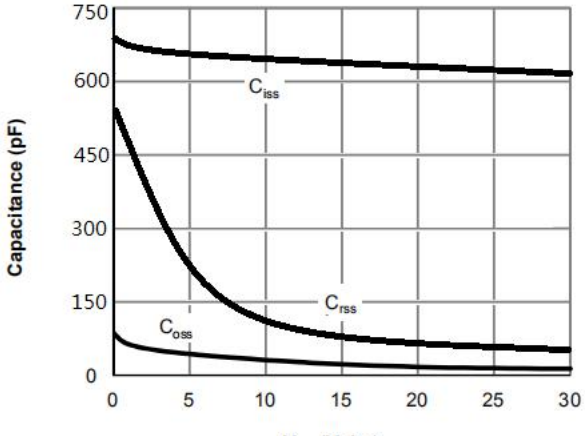


Figure 8: Capacitance Characteristics

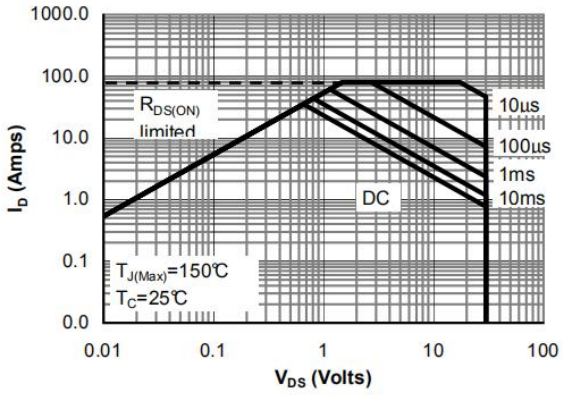


Figure 9: Maximum Forward Biased Safe Operating Area

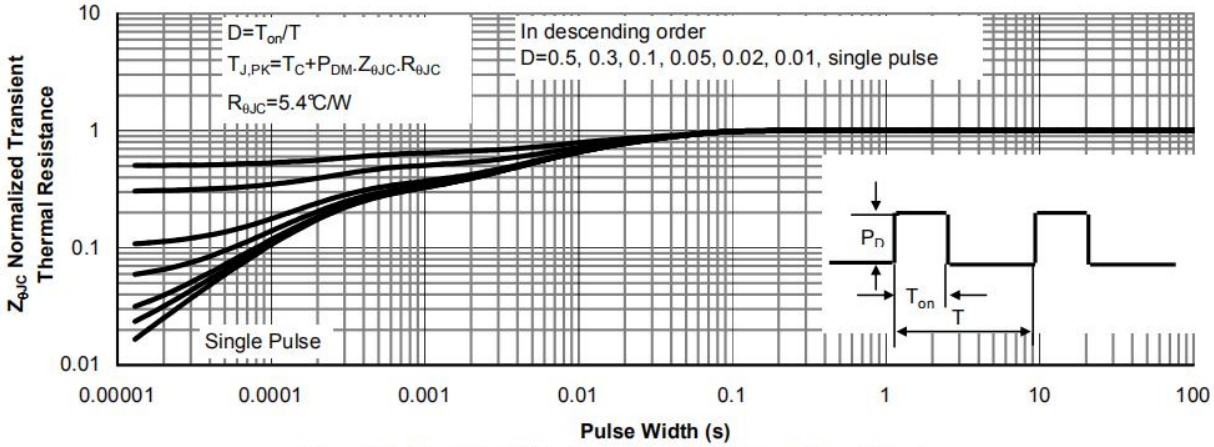
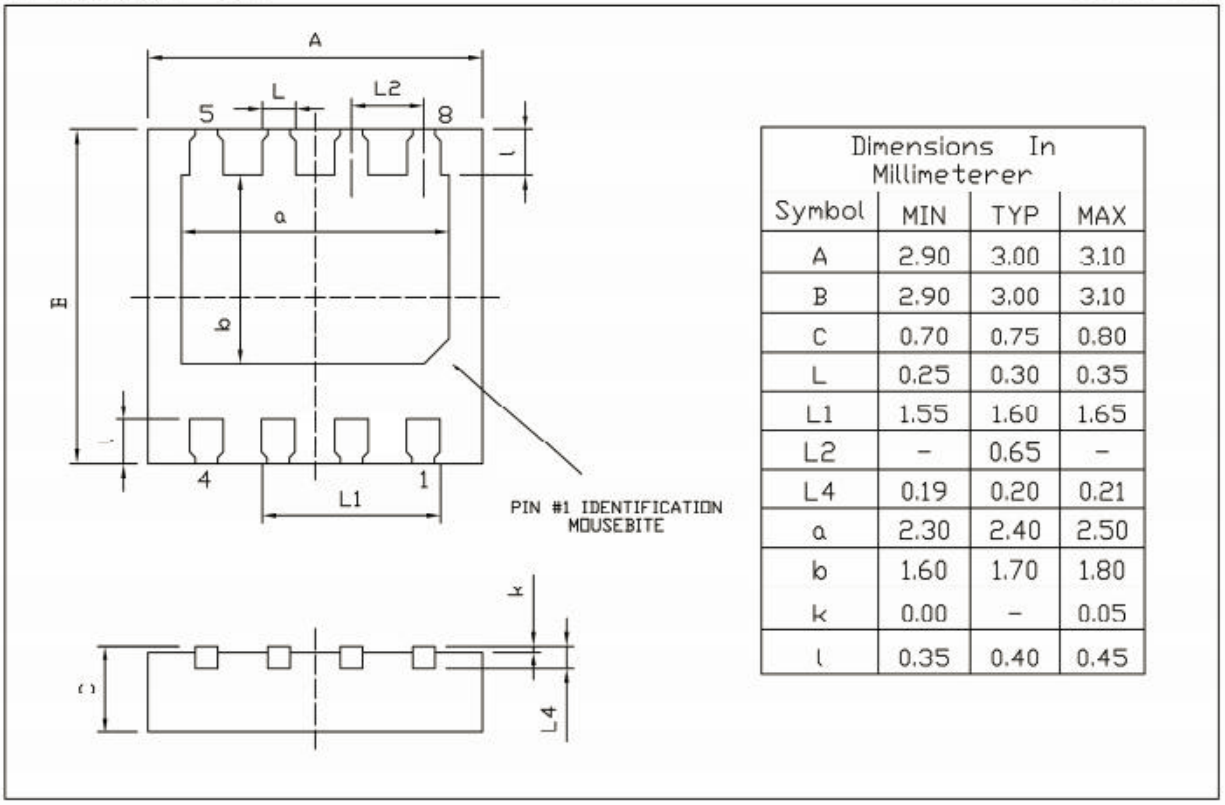


Figure 10: Normalized Maximum Transient Thermal Impedance

Package Dimensions

DFN3X3A-8L Unit:mm



Dimensions In Millimeterer			
Symbol	MIN	TYP	MAX
A	2.90	3.00	3.10
B	2.90	3.00	3.10
C	0.70	0.75	0.80
L	0.25	0.30	0.35
L1	1.55	1.60	1.65
L2	-	0.65	-
L4	0.19	0.20	0.21
a	2.30	2.40	2.50
b	1.60	1.70	1.80
k	0.00	-	0.05
l	0.35	0.40	0.45