30V N-Channel Enhancement Mode MOSFET

VDS= 30V

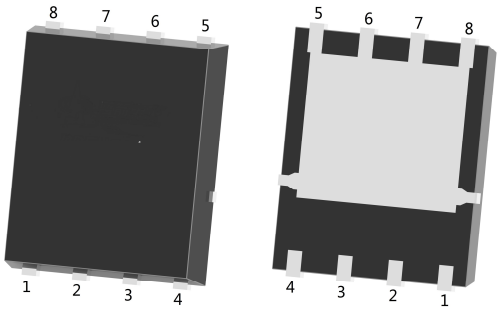
RDS(ON), Vgs@ 10.0V, Ids@20.0A＜9.0m**Ω**

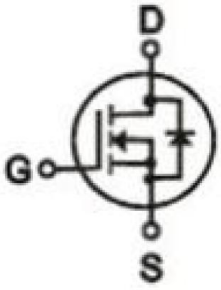
RDS(ON), Vgs@ 4.5V, Ids@ 10.0A＜15m**Ω**

Features

Advanced trench process technology

High Density Cell Design For Ultra Low On-Resistance





S:PIN1、2、3
G:PIN4
D:PIN5、6、7、8

DFN3*3 (Top View)

Maximum Ratings and Thermal Characteristics (TA = 25oC unless otherwise noted)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DSS}	30	V
Drain Current		I_D(Tc=25℃)	30	A
Drain Current - Pulsed		I_{DM}	90	A
Gate-Source Voltage		V_{GSS}	±20	V
Single Pulsed Avalanche Energy		E_{AS}	48	mJ
Avalanche Current		I_{AS}	8	A
Power Dissipation		P_D(Tc=25℃)	20.5	W
Operating and Storage Temperature Range		T_J,T_{stg}	-55 to 150	℃
Junction-to-Ambient	t≤10	$R_{\theta JA}$	30	℃/W
Junction-to-Ambient	Steady-State		60	
Junction-to-Case	Steady-State	$R_{\theta JC}$	5.2	

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	μA
Gate-Body Leakage Current Forward	I_{GSS}	V_{GS}=±20V	V_{DS}=0V			±0.1	μA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}	I_D=250μA	1.0	1.9	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V	I_D=20A		8	9	mΩ
		V_{GS}=4.5V	I_D=10A		12	15	mΩ
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS}=0V	I_S=1A			1.2	V
Input Capacitance	C_{iss}	V_{DS}=15V f=1.0MHz	V_{GS}=0V		845		pF
Output Capacitance	C_{oss}				135		
Reverse Transfer Capacitance	C_{rss}				105		
Gate resistance	R_g	V_{GS}=0V f=1MHz	V_{DS}=0V		2.9		Ω
Total Gate Charge	$Q_{g(10V)}$	V_{GS}=10V I_D=17A	V_{DS}=15V		22		nC
Total Gate Charge	$Q_{g(4.5V)}$				10		
Gate Source Charge	Q_{gs}				4.7		
Gate Drain Charge	Q_{gd}				4		
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=10V R_L=0.75Ω	V_{DS}=15V R_{GEN}=3Ω		6.5		ns
Turn-On Rise Time	t_r				2.5		
Turn-Off Delay Time	$t_{d(off)}$				22.5		
Turn-Off Fall Time	t_f				3		

Electrical Characteristic Curve

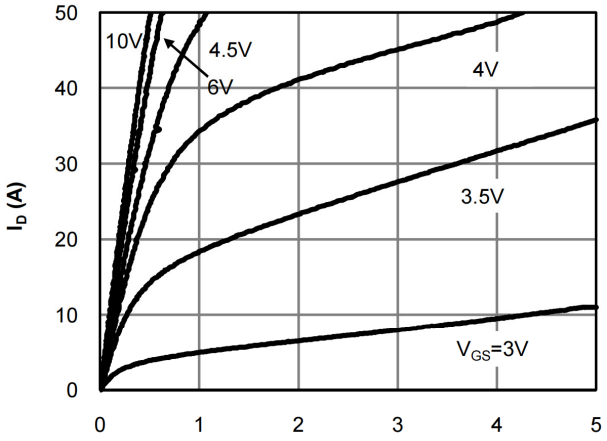


Fig 1: On-Region Characteristics

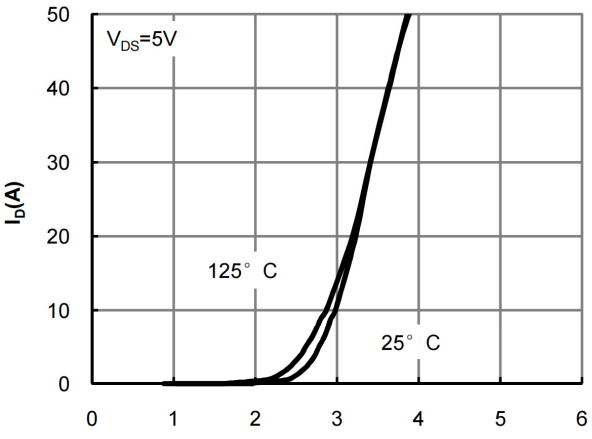


Figure 2: Transfer Characteristics

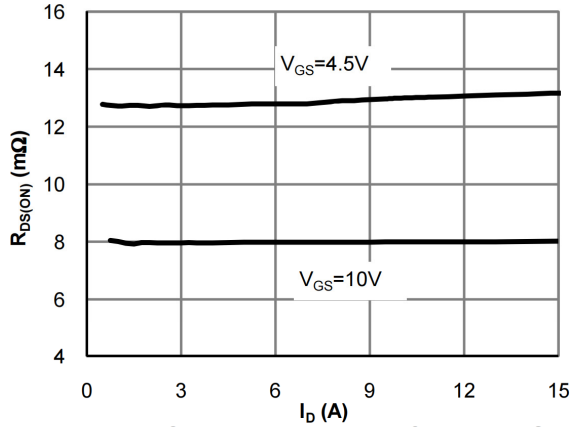


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

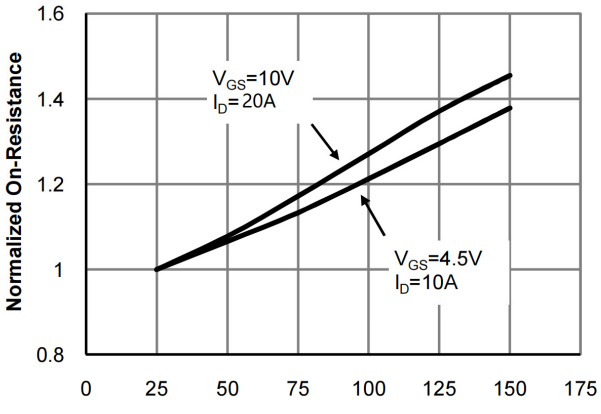


Figure 4: On-Resistance vs. Junction Temperature

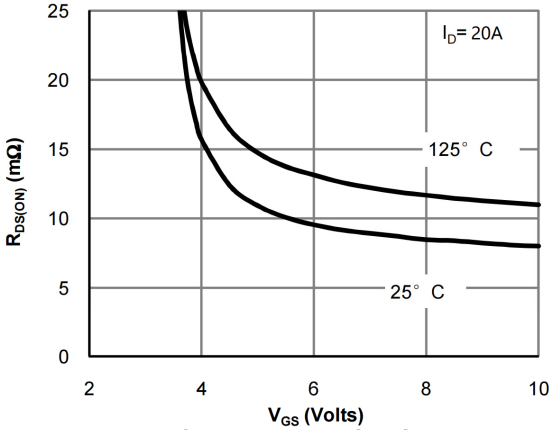


Figure 5: On-Resistance vs. Gate-Source Voltage

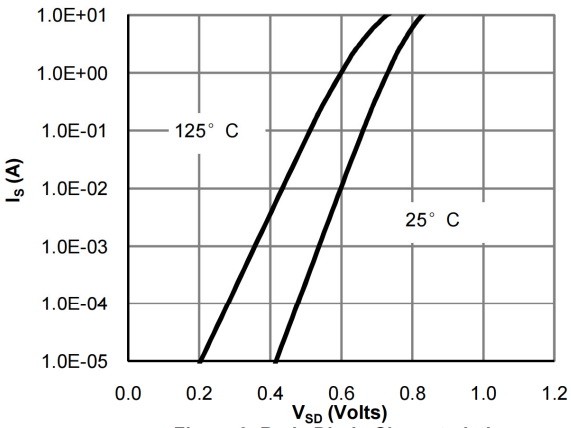


Figure 6: Body-Diode Characteristics

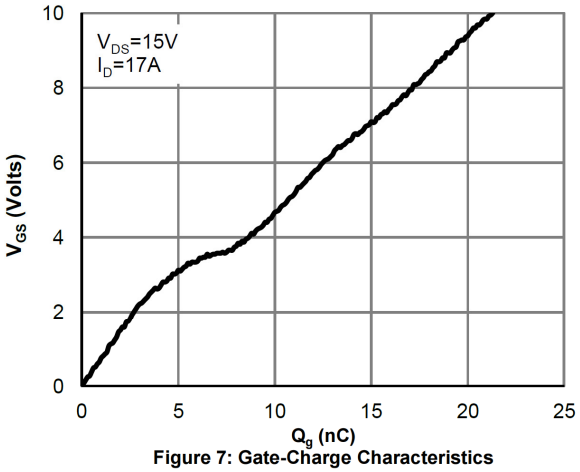


Figure 7: Gate-Charge Characteristics

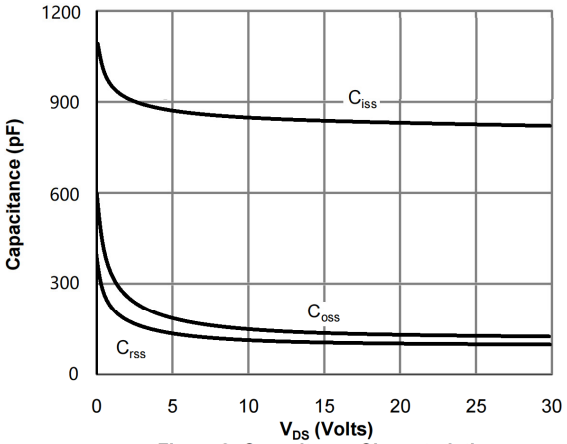


Figure 8: Capacitance Characteristics

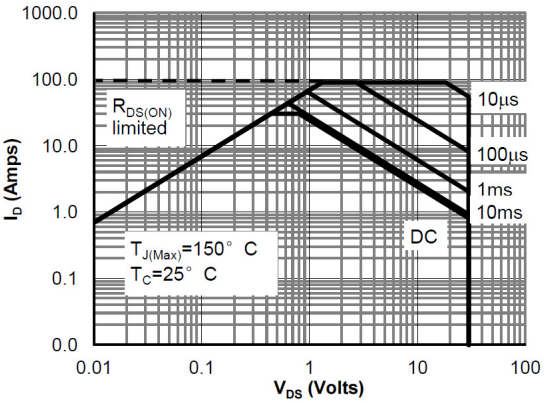


Figure 9: Maximum Forward Biased Safe Operating Area

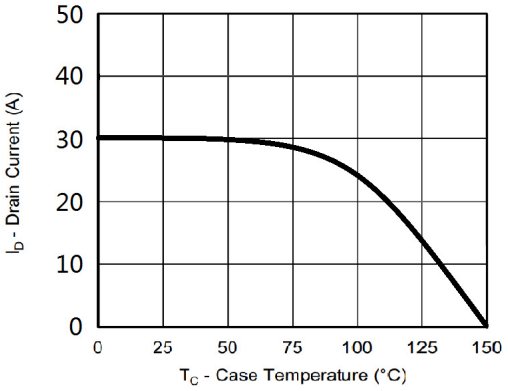


Figure10. Maximum Continuous Drain Current vs Case Temperature

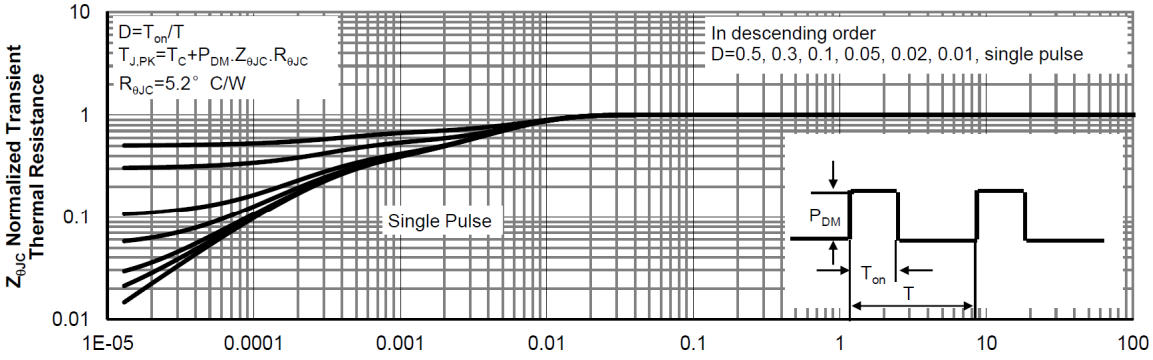
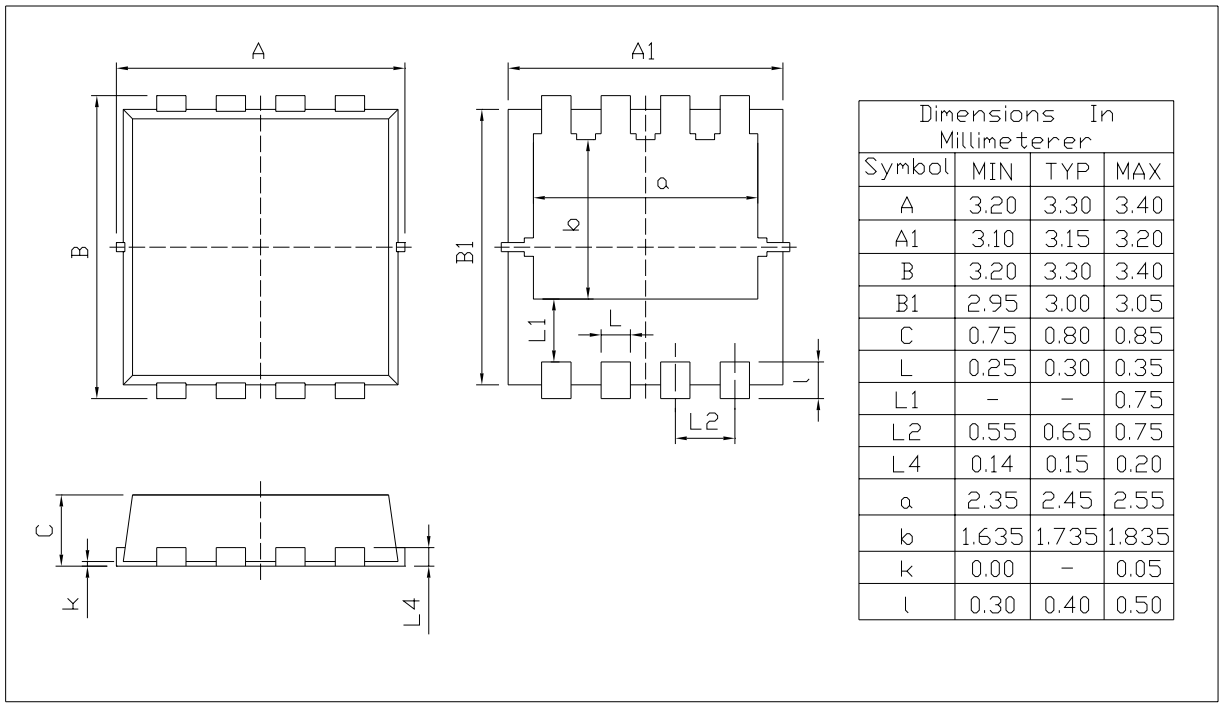


Figure 11: Normalized Maximum Transient Thermal Impedance

Dimension outline Unit:mm

PDFN3X3A-8L Unit:mm



Dimensions In Millimeterer			
Symbol	MIN	TYP	MAX
A	3.20	3.30	3.40
A1	3.10	3.15	3.20
B	3.20	3.30	3.40
B1	2.95	3.00	3.05
C	0.75	0.80	0.85
L	0.25	0.30	0.35
L1	-	-	0.75
L2	0.55	0.65	0.75
L4	0.14	0.15	0.20
a	2.35	2.45	2.55
b	1.635	1.735	1.835
K	0.00	-	0.05
l	0.30	0.40	0.50

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Suggested Pad Layout