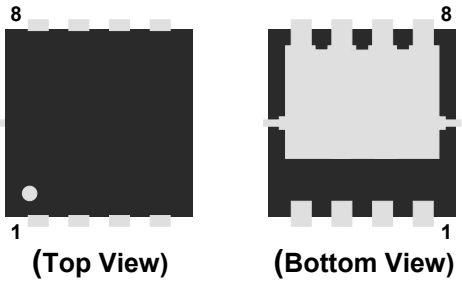
TN60N40DL

N-Channel Enhancement Mode Power MOSFET

PDFN3x3-8L

Product Summary

- V_{DS}= 40V,I_D= 60A
- $R_{DS(on)}$< 15.5mΩ @V_{GS}= 10V



Features

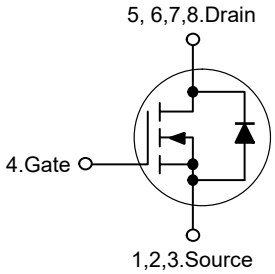
- Advanced Trench Technology
- 100% Avalanche Tested
- RoHS Compliant
- Halogen and Antimony Free
- Moisture Sensitivity Level 3

Pin	Description
1,2,3	Source
4	Gate
5,6,7,8	Drain

Application

- Boost driver
- Brushless motor
- Wireless charging

Schematic Diagram



Marking Code

Absolute Maximum Ratings

Ratings at 25℃ case temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	40	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous	I_D	60	A
Drain Current-Pulsed Note1	I_{DM}	240	A
Maximum Power Dissipation	P_D	46	W
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Thermal Characteristics

Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	3.6	°C/W

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Electrical Characteristics

(T_C=25℃ unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=250μA	40	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=40V,V_{GS}=0V	--	--	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V	--	--	±100	nA
Gate Threshold Voltage Note2	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	1	1.6	2.5	V
Drain-Source On-Resistance Note2	$R_{DS(on)}$	V_{GS}=10V,I_D=30A	--	--	7	mΩ
		V_{GS}=4.5V,I_D=20A	--	--	10	mΩ
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=20V,V_{GS}=0V,f=1MHz	--	3031	--	pF
Output Capacitance	C_{oss}		--	213	--	pF
Reverse Transfer Capacitance	C_{rss}		--	179	--	pF
Total Gate Charge	Q_g	V_{DS}=20V,I_D=30A , V_{GS}=10V	--	59	--	nC
Gate-Source Charge	Q_{gs}		--	12	--	nC
Gate-Drain Charge	Q_{gd}		--	12	--	nC
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=20V, I_D=30A, V_{GS}=10V, R_{GEN}=3Ω	--	11	--	nS
Turn-on Rise Time	t_r		--	32	--	nS
Turn-off Delay Time	$t_{d(off)}$		--	52	--	nS
Turn-off Fall Time	t_f		--	13	--	nS
Source-Drain Diode Characteristics						
Diode Forward Voltage	V_{SD}	V_{GS}=0V,I_S=30A	--	--	1.2	V
Diode Forward Current	I_S		--	--	60	A

Note :
1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. The data tested by pulsed , pulse width≤ 300us , duty cycle ≤ 2%

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Test Circuit

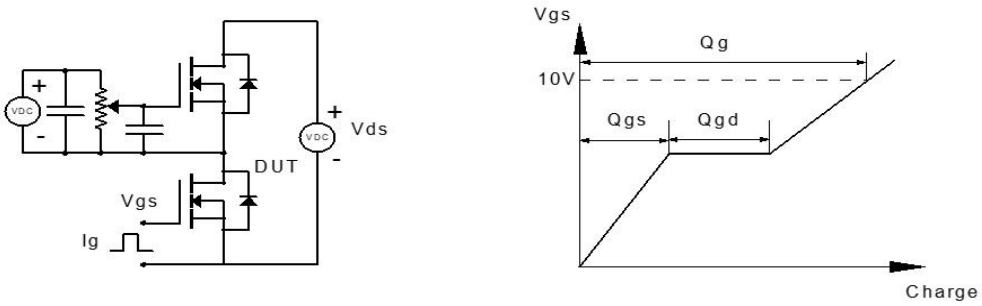

Figure 1: Gate Charge Test Circuit & Waveform

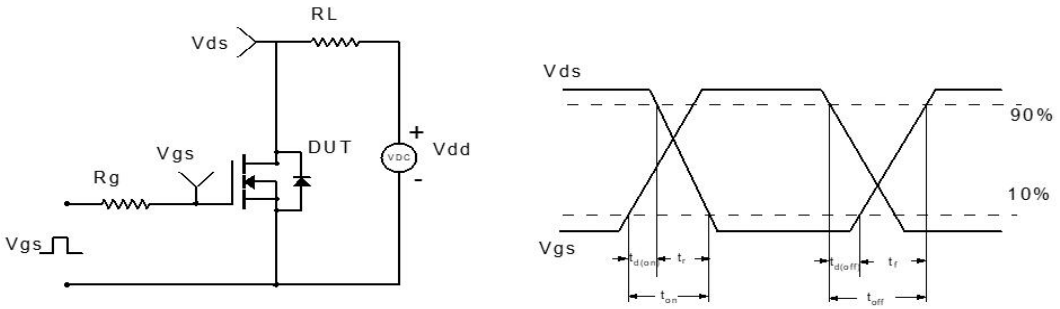

Figure 2: Resistive Switching Test Circuit & Waveform

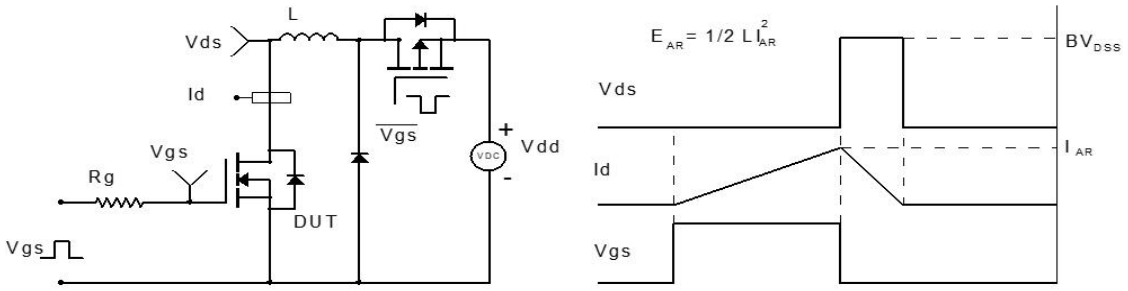

Figure 3: Unclamped Inductive Switching Test Circuit& Waveform

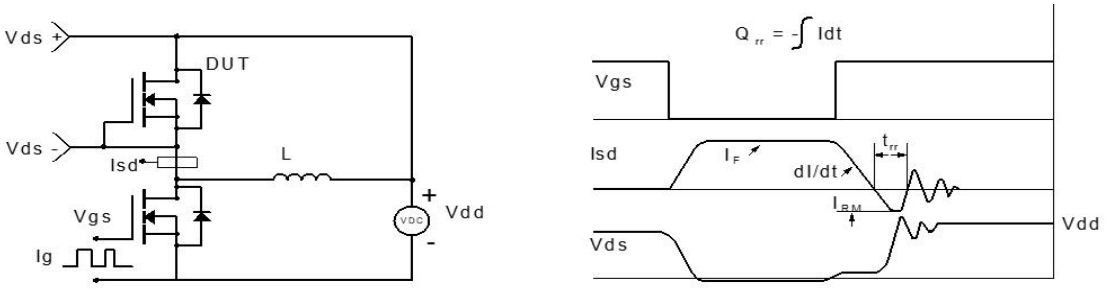

Figure 4: Diode Recovery Test Circuit & Waveform

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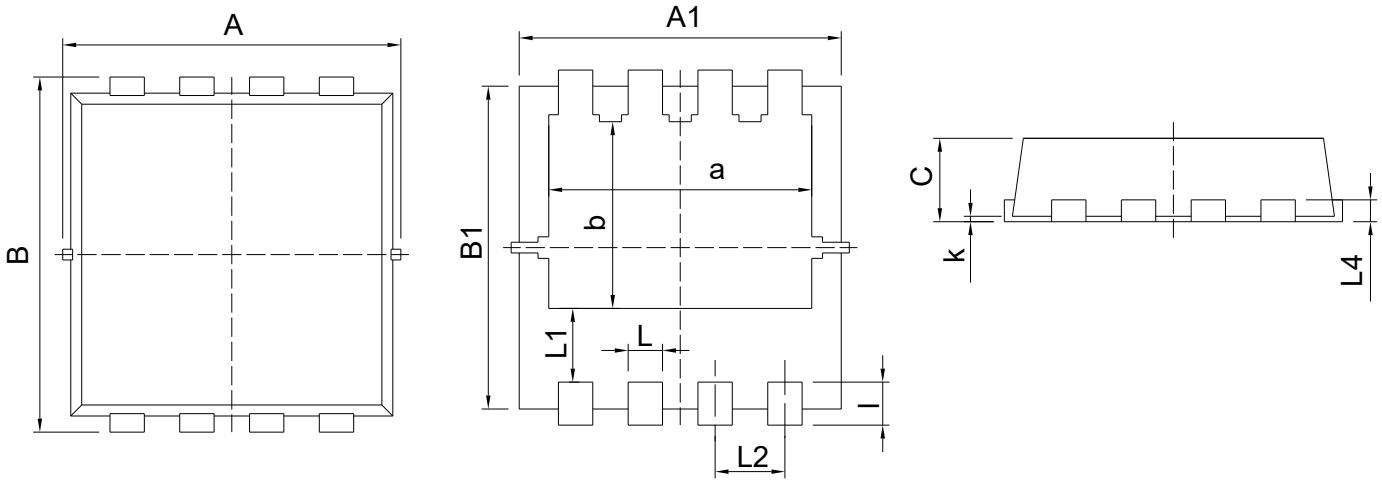
Package Outline

PDFN3x3-8L Dimensions in mm



Symbol	Dimensions		Symbol	Dimensions	
	Min.	Max.		Min.	Max.
A	3.2	3.4	L2	0.55	0.75
A1	3.1	3.2	L4	0.14	0.20
B	3.2	3.4	a	2.35	2.55
B1	2.95	3.05	b	1.635	1.835
C	0.75	0.85	k	0.0	0.05
L	0.25	0.35	l	0.3	0.5
L1	-	0.75			

Contact Information

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For additional information, please contact your local Sales Representative.

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