Product Specification

QNM30ND15LX

30V Dual N-Channel MOSFET

FEATURES

- 30V, 10A

  $R_{DS(ON)}$ Typ= 17mΩ @ V_{GS} = 10V

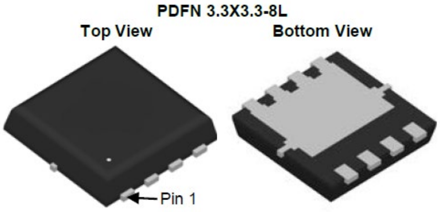
  $R_{DS(ON)}$ Typ = 19.5mΩ@ V_{GS} = 4.5V

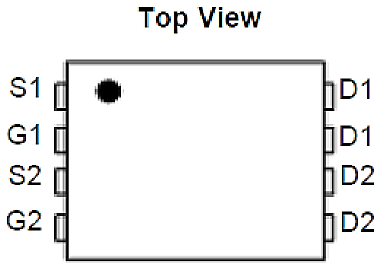
  $R_{DS(ON)}$ Typ = 25.5mΩ @ V_{GS} = 2.5V
- Advanced Trench Technology
- Excellent $R_{DS(ON)}$ and Low Gate Charge
- Lead Free
- 100% UIS TESTED!
- 100% ΔVds TESTED!

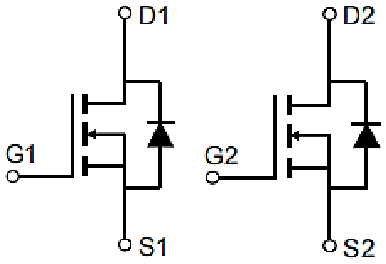
Applications

- Load Switch
- PWM Application
- Power Management

Pin Description







NO.	Symbol	Description
1	S1	SOURCE
2	G1	GATE
3	S2	SOURCE
4	G2	GATE
5	D1	DRAIN
6	D1	DRAIN
7	D2	DRAIN
8	D2	DRAIN

Absolute Maximum Ratings

(@ T_A = 25℃ unless otherwise specified)

Symbol	Parameter		Value	Units
V_{DS}	Drain-to-Source Voltage		30	V
V_{GS}	Gate-to-Source Voltage		±12	V
I_D	Continuous Drain Current	T_A = 25°C	10	A
		T_A = 100°C	7.2	
I_{DM}	Pulsed Drain Current (1)		48	A
E_{AS}	Single Pulsed Avalanche Energy (2)		12	mJ
P_D	Power Dissipation	T_A = 25°C	5.43	W
$R_{θJA}$	Thermal Resistance, Junction to Case		23	℃/W
T_J, T_{STG}	Junction & Storage Temperature Range		-55 to 150	℃

Electrical Characteristics

(T_A = 25℃ unless otherwise specified)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V I_D=250uA	30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V, V_{GS}=0V			1.0	uA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±12V, V_{DS}=0V			± 100	nA
On Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250uA	0.4	0.9	1.3	V
Static Drain-Source ON-Resistance[3]	$R_{DS(ON)}$	V_{GS}=10V, I_D=3A		17	24.2	mΩ
		V_{GS}=4.5V, I_D=2A		19.5	26.4	
		V_{GS} =2.5V, I_D = 1A		25.5	35.2	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=15V, V_{GS}=0V, F=1.0MHz		596		PF
Output Capacitance	C_{oss}			47		PF
Reverse Transfer Capacitance	C_{rss}			39		PF
Total Gate Charge	Q_g	V_{GS} = 0 to 10V V_{DS} =15V, I_D =3A		19		nC
Gate Source Charge	Q_{gs}			2		nC
Gate Drain("Miller") Charge	Q_{gd}			2.1		nC
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	V_{GS} = 10V, V_{DD} =15V I_D=3A , R_{GEN} = 3Ω		4		nS
Turn-on Rise Time	t_r			11		nS
Turn-Off Delay Time	$t_{d(off)}$			25		nS
Turn-Off Fall Time	t_f			2		nS
Drain-Source Diode Characteristics and Max Ratings						
Maximum Continuous Drain to Source Diode Forward Current	I_S				10	A
Maximum Pulsed Drain to Source Diode Forward Current	I_{SM}				48	
Drain to Source Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=3A			1.2	V
Body Diode Reverse Recovery Time	t_{rr}	I_F =3A, di/dt = 100A/us		8.5		nS
Body Diode Reverse Recovery Charge	Q_{rr}			4		nC

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.

2. E_{AS} condition: Starting T_J=25℃, V_{DD}=15V, V_G=10V, R_G=25ohm, L=0.5mH, I_{AS}=7A

3. Pulse Test: Pulse Width⩽300us, Duty Cycle⩽0.5%.

Test Circuit

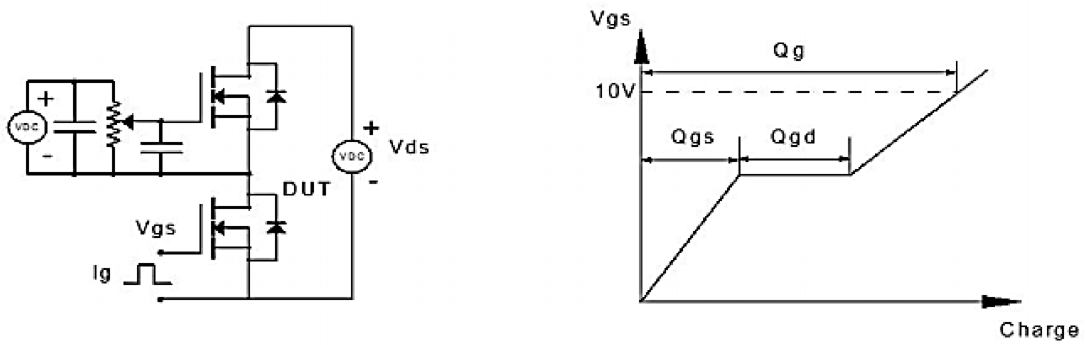


Figure 1: Gate Charge Test Circuit & Waveform

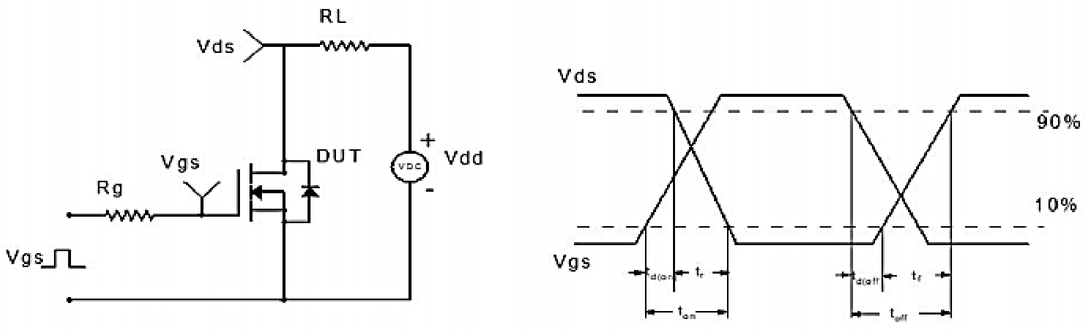


Figure 2: Resistive Switching Test Circuit & Waveform

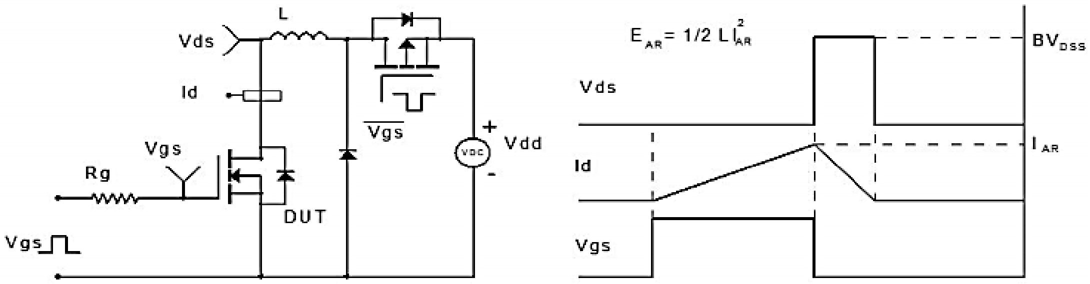


Figure 3: Unclamped Inductive Switching Test Circuit& Waveform

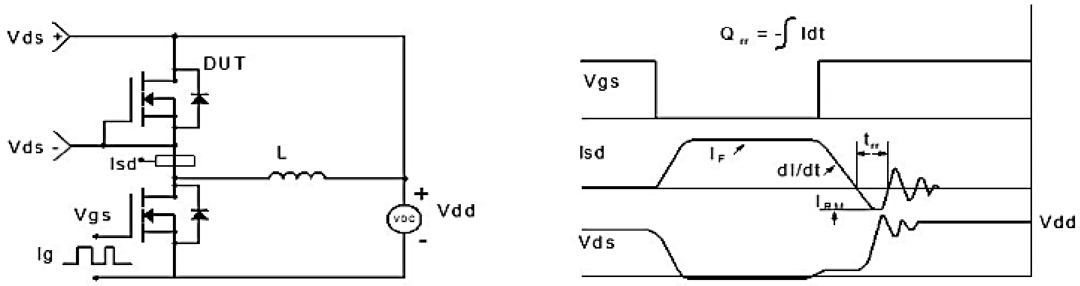
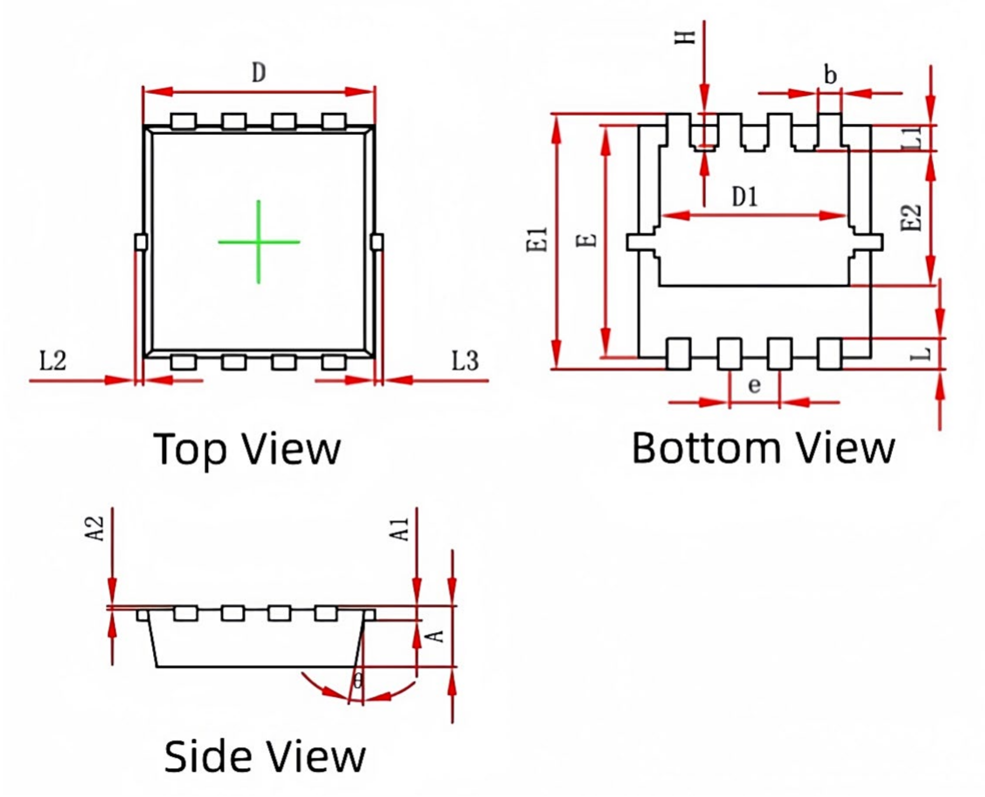
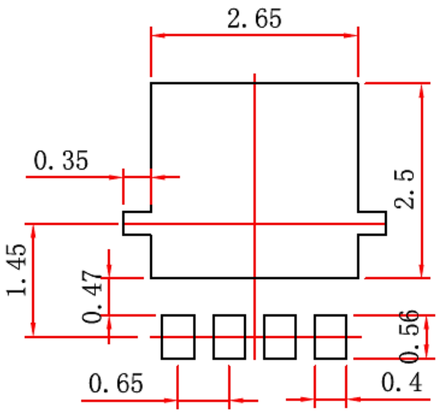


Figure 4: Diode Recovery Test Circuit & Waveform

Package Mechanical Data(PDFN 3.3x3.3-8)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.650	0.850	0.026	0.033
A1	0.152 REF.		0.006 REF.	
A2	0~0.05		0~0.002	
D	2.900	3.100	0.114	0.122
D1	2.300	2.600	0.091	0.102
E	2.900	3.100	0.114	0.122
E1	3.150	3.450	0.124	0.136
E2	1.535	1.935	0.060	0.076
b	0.200	0.400	0.008	0.016
e	0.550	0.750	0.022	0.030
L	0.300	0.500	0.012	0.020
L1	0.180	0.480	0.007	0.019
L2	0~0.100		0~0.004	
L3	0~0.100		0~0.004	
H	0.315	0.515	0.012	0.020
θ	9°	13°	9°	13°



Note:

1.Controlling dimension: in millimeters.

2.General tolerance: ±0.05mm.

3.The pad layout is for reference purposes only.

Ordering information

Order Code	Package	V_{DS}(V)	I_D(A)	$R_{DS(ON)}$(mΩ)	
QNM30ND15LX	PDFN 3.3x3.3-8	30	10	V_{GS}=10V	17
				V_{GS}=4.5V	19.5
				V_{GS}=2.5V	25.5