



QNHCHIP

QNC30PD19AY

Product Specification

QNC30PD19AY

30V Dual P-Channel MOSFET



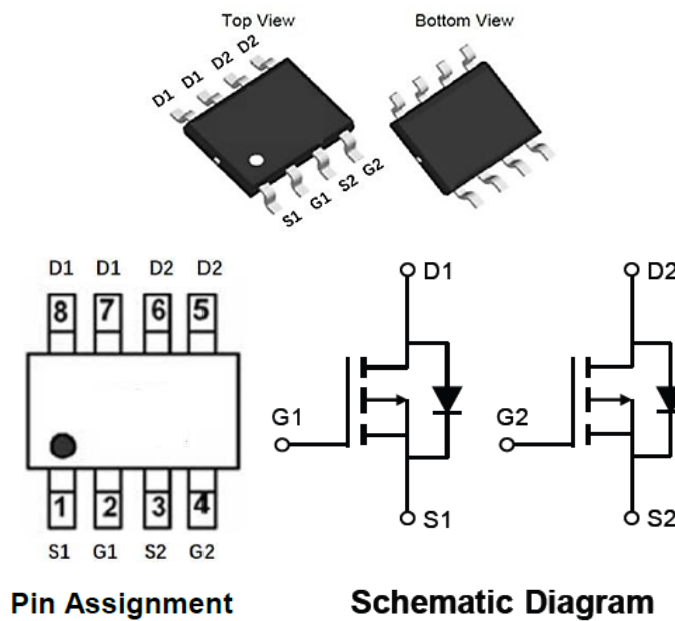
FEATURES

- -30V, -8A
- $R_{DS(ON)}$ Typ = 19m Ω @ $V_{GS} = -10V$
- $R_{DS(ON)}$ Typ = 32m Ω @ $V_{GS} = -4.5V$
- Advanced Trench Technology
- Excellent $R_{DS(ON)}$ and Low Gate Charge
- Lead Free
- 100% UIS TESTED

Applications

- Load Switch
- PWM Application
- Power Management

Pin Description



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



Absolute Maximum Ratings

(@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Value	Units	
V_{DS}	Drain-to-Source Voltage	-30	V	
V_{GS}	Gate-to-Source Voltage	± 20	V	
I_D	Continuous Drain Current	$T_A=25^\circ\text{C}$	-8	A
		$T_A=100^\circ\text{C}$	-4.8	
I_{DM}	Pulsed Drain Current ⁽¹⁾	-32	A	
E_{AS}	Single Pulsed Avalanche Energy ⁽²⁾	20	mJ	
P_D	Power Dissipation	$T_A=25^\circ\text{C}$	2.84	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient ⁽³⁾	44	$^\circ\text{C}/\text{W}$	
T_J, T_{STG}	Junction & Storage Temperature Range	-55 to 150	$^\circ\text{C}$	



Electrical Characteristics

(T_J = 25°C unless otherwise specified)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
Off Characteristics						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	I _D =-250uA, V _{GS} =0V	-30	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-30V, V _{GS} =0V	-	-	-1.0	uA
I _{GSS}	Gate-Body Leakage Current	V _{DS} =0V, V _{GS} =±20V	-	-	±100	nA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250uA	-1.1	-1.6	-2.2	V
R _{DS(ON)}	Static Drain-Source ON-Resistance ⁽⁴⁾	V _{GS} =-10V, I _D =-5A	-	19	25	mΩ
		V _{GS} =-4.5V, I _D =-3A	-	32	40	
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =-15V, f=1MHz	-	670	-	pF
C _{oss}	Output Capacitance		-	116	-	pF
C _{rss}	Reverse Transfer Capacitance		-	95	-	pF
Q _g	Total Gate Charge	V _{GS} = 0~-10V V _{DS} =-15V, I _D =-8A	-	51	-	nC
Q _{gs}	Gate Source Charge		-	9.8	-	nC
Q _{gd}	Gate Drain("Miller") Charge		-	8.2	-	nC
Switching Characteristics						
t _{d(on)}	Turn-On DelayTime	V _{GS} =-10V, V _{DD} =-15V, I _D =-1A, R _{GEN} =6Ω	-	13	-	ns
t _r	Turn-On Rise Time		-	15	-	ns
t _{d(off)}	Turn-Off DelayTime		-	198	-	ns
t _f	Turn-Off Fall Time		-	98	-	ns
Drain-Source Diode Characteristics and Max Ratings						
I _S	Maximum Continuous Drain to Source Diode Forward Current		-	-	-8	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	-32	A
V _{SD}	Drain to Source Diode Forward Voltage	V _{GS} =0V, I _S = -5A	-	-	1.2	V
t _{rr}	Body Diode Reverse Recovery Time	I _F =-2A, di/dt=100A/us	-	37	-	ns
Q _{rr}	Body Diode Reverse Recovery Charge		-	36	-	nC

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
2. E_{AS} condition: Starting T_J=25°C, V_{DD}=-15V, V_G=-10V, R_G=25Ω, L=0.5mH, I_{AS}=-9A
3. R_{θJA} is measured with the device mounted on a 1 inch² pad of 2oz copper FR4 PCB
4. Pulse Test: Pulse Width ≤ 300us, Duty Cycle ≤ 0.5%



Test Circuit

Figure 1: Gate Charge Test Circuit & Waveform

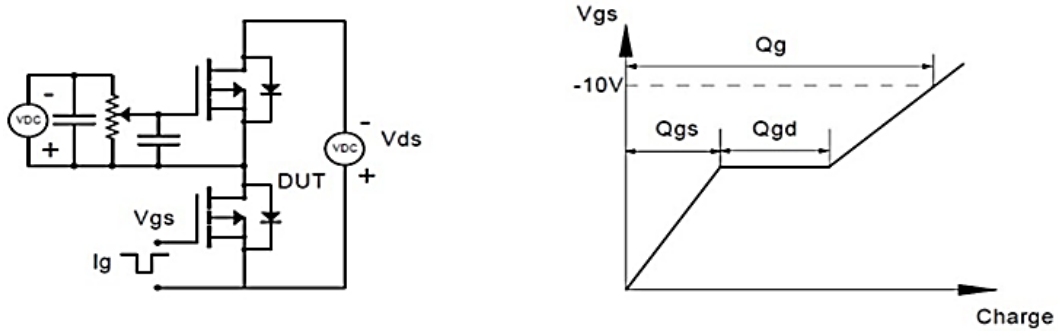


Figure 2: Resistive Switching Test Circuit & Waveform

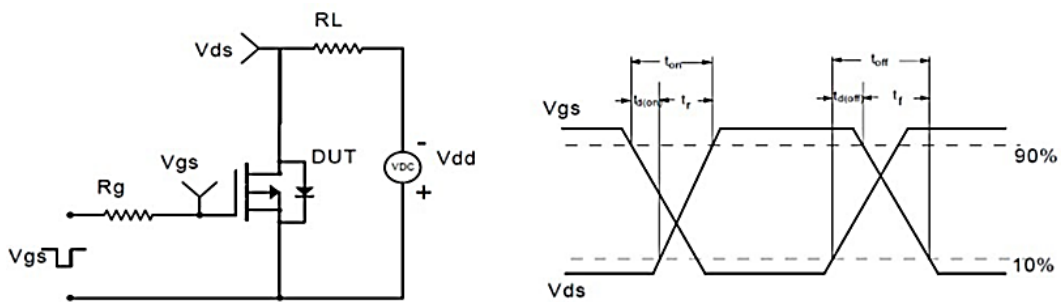


Figure 3: Unclamped Inductive Switching Test Circuit & Waveform

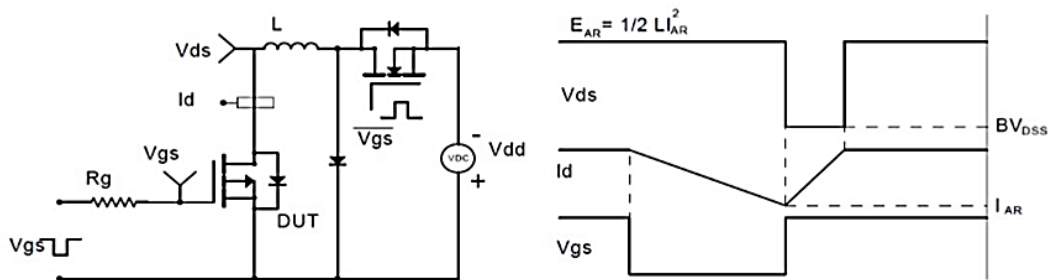
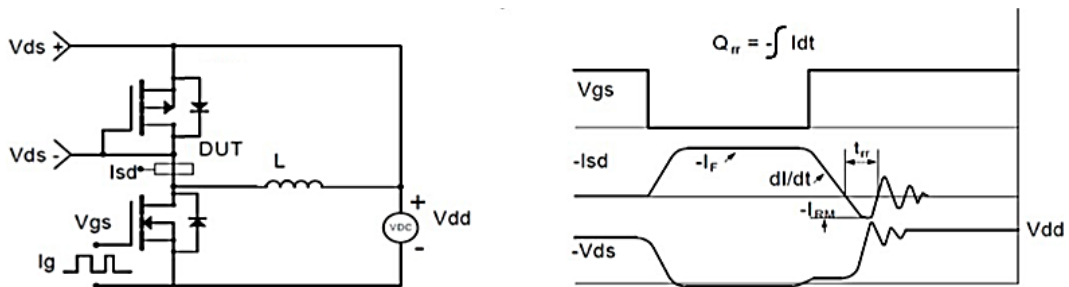


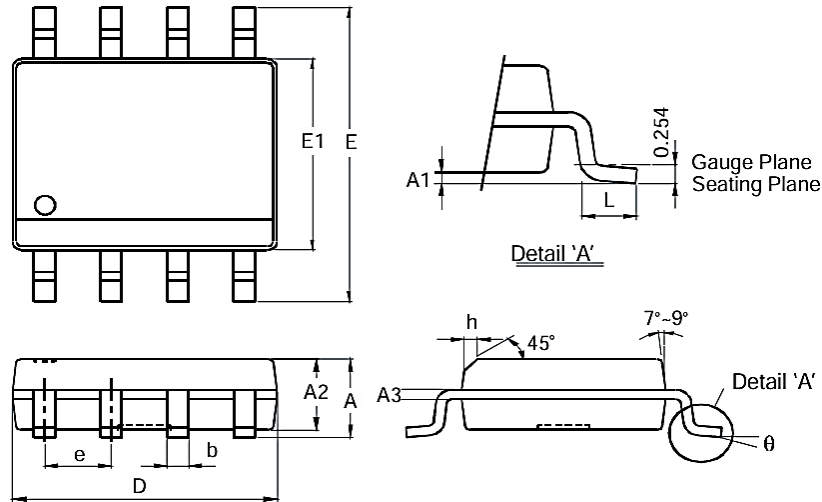
Figure 4: Diode Recovery Test Circuit & Waveform





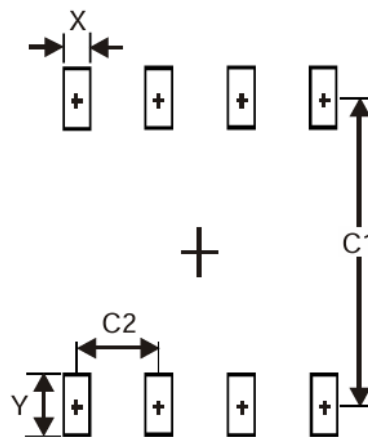
Package Mechanical Data

SOP-8



Dim	Min(mm)	Max(mm)
A	-	1.75
A1	0.10	0.20
A2	1.30	1.50
A3	0.15	0.25
b	0.3	0.5
D	4.85	4.95
E	5.90	6.10
E1	3.85	3.95
e	1.27 Typ	
h	-	0.35
L	0.62	0.82
θ	0°	8°

suggested Pad Layout



Dimensions	Value(mm)
X	0.60
Y	1.55
C1	5.4
C2	1.27



Ordering information

Order Code	Package	V _{DS} (V)	I _D (A)	R _{DS(ON)} (mΩ)	
QNC30PD19AY	SOP-8	-30	-8	V _{GS} =-10V	19
				V _{GS} =-4.5V	32