



九齊科技股份有限公司
Nyquest Technology Co., Ltd.

DATA SHEET

NY9A109A

Low Frequency RF Amplifier

Version 1.0

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Revision History

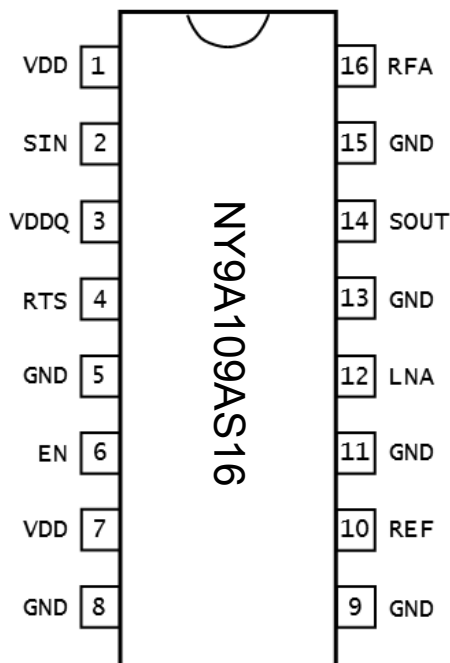
<i>Version</i>	<i>Date</i>	<i>Description</i>	<i>Modified Page</i>
1.0	2014/12/25	New release.	-

1. 概述

NY9A109A 為射頻前端電路整合線圈驅動 IC，可應用於低頻線圈發射和接收通訊。晶片利用大型積體電路 (LSI) 製造技術，具有低電源及低成本的特性，可應用於低電壓工作模式。

2. 功能

- (1). 寬廣的驅動工作電壓：1.8V ~ 9.0V。
- (2). 寬廣的邏輯工作電壓：1.8V ~ 6.8V。
- (3). 單晶片高度整合線圈驅動和類比前端電路。
- (4). 低待機電流 (Typ.=0.1uA)。
- (5). NY7 專用的 2 pin 串流通信介面。
- (6). 內建訊號放大及轉換線路。
- (7). 高達 5KV 的人體靜電模式 (HBM) 的 ESD 保護。
- (8). 提供 SOP-16 封裝。

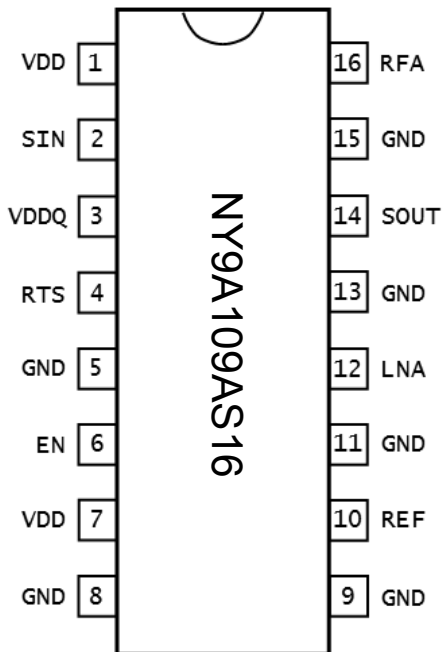


1. GENERAL DESCRIPTION

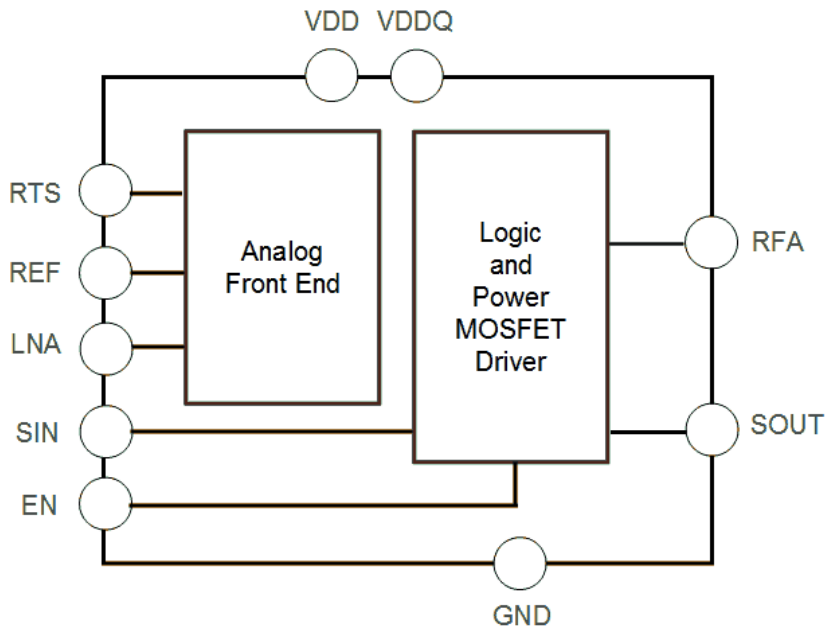
NY9A109A is RF coil driver with analog front end for low frequency coil reader and sender applications. It is designed by LSI high technology with a low-power and low-cost process.

2. FEATURES

- (1). Wide VDDQ operating voltage: 1.8V ~ 9.0V.
- (2). Wide VDD operating voltage: 1.8V ~ 6.8V.
- (3). High integrated large current coil driver and analog front end in single chip.
- (4). Low standby current. (Typ.=0.1uA)
- (5). Dedicate 2 pin serial interface for NY7 series.
- (6). Built-in signal amplifier and converting circuit.
- (7). High 5KV Human Body Mode (HBM) ESD protection.
- (8). SOP-16 package type is available.



3. BLOCK DIAGRAM



4. PIN DESCRIPTION

<i>Pin Name</i>	<i>Pin No.</i>	<i>ATTR.</i>	<i>Description</i>
VDD	1	Power	Digital power.
SIN	2	I	Carrier Signal from MCU.
VDDQ	3	Power	Coil Driving power.
RTS	4	O	Reference output.
GND	5	Power	Negative power.
EN	6	I	NY9A109A enable input. High to enable, Low to disable/standby.
VDD	7	Power	Positive power of logic control circuit.
GND	8	Power	Negative power.
GND	9	Power	Negative power.
REF	10	I	Reference input.
GND	11	Power	Negative power.
LNA	12	I	Coil Feedback input.
GND	13	Power	Negative power.
SOUT	14	O	Signal output to MCU.
GND	15	Power	Negative power.
RFA	16	O	Coil Driving output.

5. ELECTRICAL CHARACTERISTICS

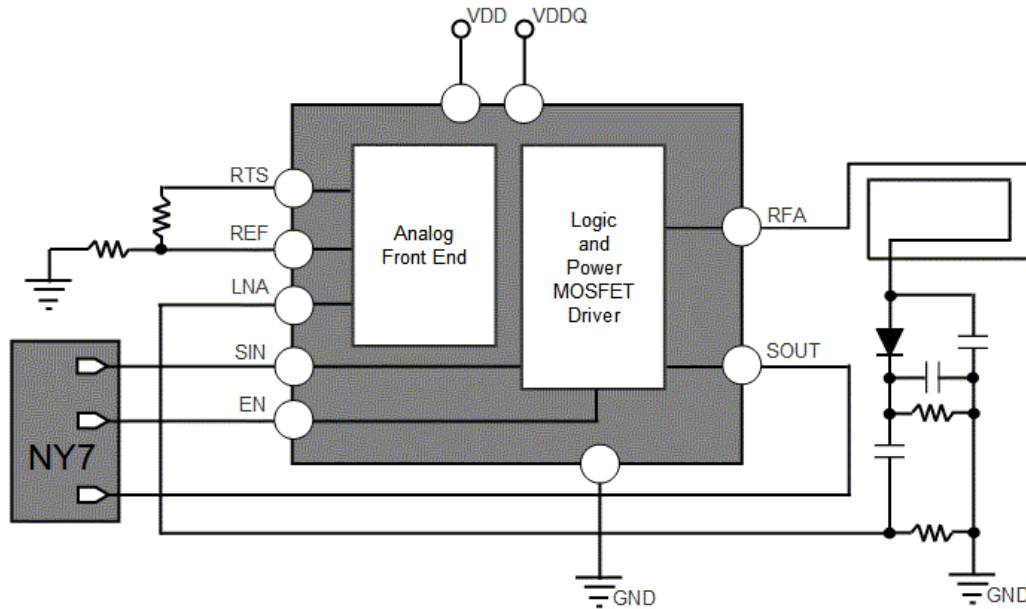
5.1 Absolute Maximum Rating

Symbol	Parameter		Rating	Unit
$V_{DD} - V_{SS}$	Supply voltage of logic control circuit		-0.5 ~ +7.5	V
V_{DDQ}	Supply voltage of output Driver		9.6	V
$I_{OUT-PEAK}$	Output peak current		1.0	A
θ_{JA}	Thermal resistance (Junction to Ambient)	SOP-16	123	°C/W
P_D	Power dissipation	SOP-16	1.1	W
T_A	Operating ambient temperature		-40 ~ +85	°C
T_J	Operating junction temperature		+160	°C
T_{ST}	Storage temperature		-55 ~ +160	°C

5.2 DC Characteristics ($V_{DD}=3.0V$, $V_{DDQ}=6.0V$, $T_A=25^\circ C$, unless otherwise specified)

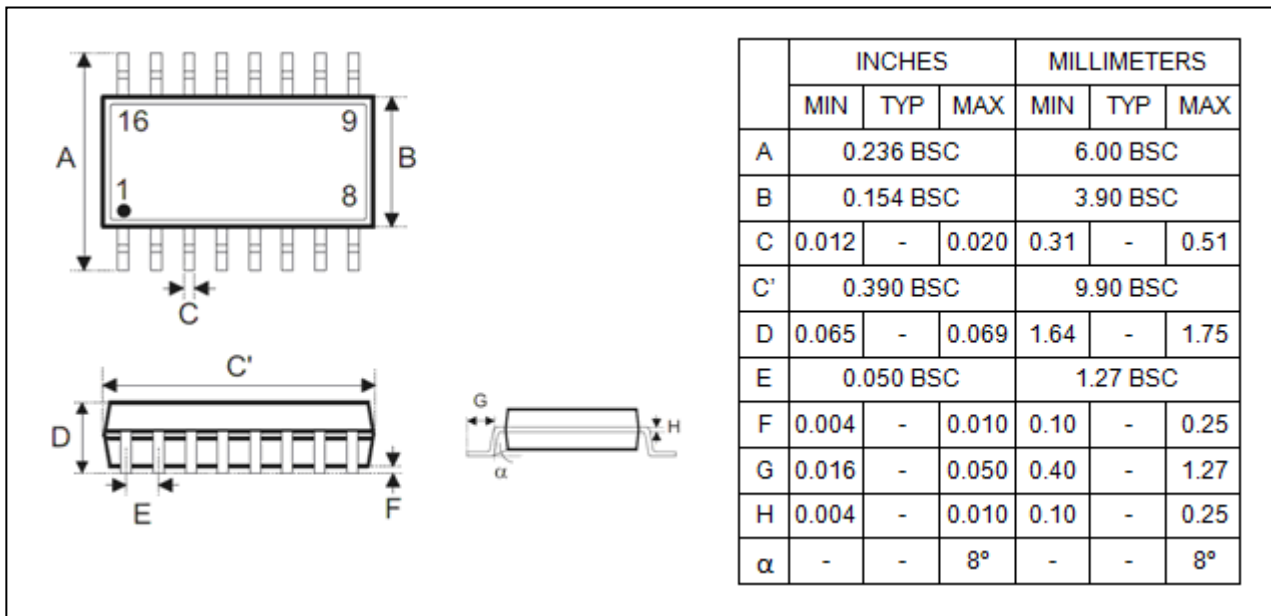
Symbol	Parameter		Min.	Typ.	Max.	Unit	Condition
V_{DD}	Operating voltage (Logic)		1.8		6.8	V	
V_{DDQ}	Operating voltage (Driver)		1.8		9.0	V	
I_{SB}	Standby current			0.1	1	uA	EN=0
I_{OP}	Operating current	$V_{DD} = 3.0V$		1.6		mA	No Load
		$V_{DD} = 5.0V$		2.0		mA	
I_{IH}	Input high current (12k Ω pull-low resistance)			260		uA	$V_{IH} = 3.0V$
				510		uA	$V_{IH} = 6.0V$
V_{IH}	Input high voltage		$0.7V_{DD}$			V	
V_{IL}	Input low voltage				$0.3V_{DD}$	V	
I_{OUT}	Output continuous current			800	1000	mA	SOP-16
T_{ON}	Enable time			63		ms	
T_{OFF}	Disable time			5		ms	
T_{RISE}	Output rise time			46		ns	SIN=125KHz, Duty=50% Junction temperature
T_{FALL}	Output fall time			35		ns	
T_{RP}	Input-to-Output response time			65		ns	
T_{TSD}	Thermal shutdown (TSD)			160		°C	Junction temperature
T_{TSDH}	Thermal shutdown hysteresis			35		°C	

6. APPLICATION CIRCUIT



7. PACKAGE DIMENSION

16-Pin Plastic SOP (150 mil)



8. ORDERING INFORMATION

P/N	Package Type	Package Width	Shipping
NY9A109AS16	SOP-16	150 mil	Tape & Reel: 2.5K pcs per Reel Tube: 50 pcs per Tube