

TDLNA0840SEP

0.3 – 4 GHz UHF Wideband Ultra Low Power LNA

Product Overview

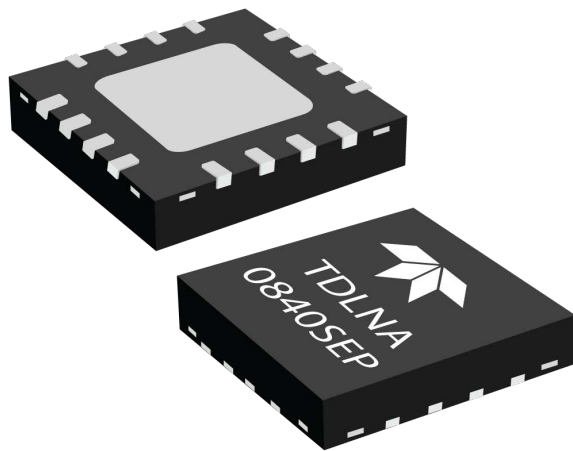
The TDLNA0840SEP is a UHF wideband low power LNA MMIC. The MMIC provides a nominal gain of 29 dB and a NF of 1.5 dB across the operating frequency range, with a power consumption of 25 mW. The RF ports are dc blocked, and matched to 50 ohms nominal. The TDLNA0840SEP will be available packaged in a 3 x 3 mm, 16-pin, plastic QFN.

Typical application environments include terrestrial military, avionics, and space applications. Typical use being in phased antenna arrays for communication systems.

Features

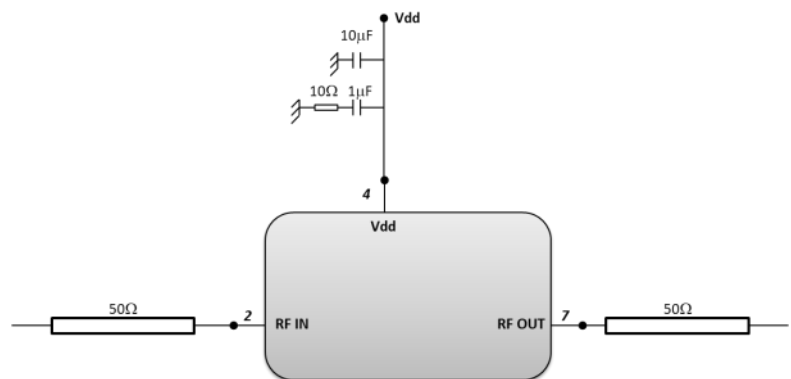
- Frequency range: 0.3 GHz to 4 GHz
- Power consumption: 25 mW
- Gain: 29 dB
- NF: 1.5 dB
- Die dimensions: 1.8 x 1.8 mm
- 3 x 3 mm plastic QFN
- Radiation Performance: 100 krad (Si)

Package Top side/Bottom side^{1/}



1/ Preliminary Drawing

Suggested Application Circuit



Absolute Maximum Ratings ⁽¹⁾

T_{amb.} = +25 °C

Parameter	Symbol	Value
Drain bias voltage	V _d	4 V
Junction Temperature	T _j	175 °C
Maximum Power Dissipation	P _{diss}	TBD
RF input power	RFin	TBD
Storage Temperature	T _{storage}	-55 to 150 °C

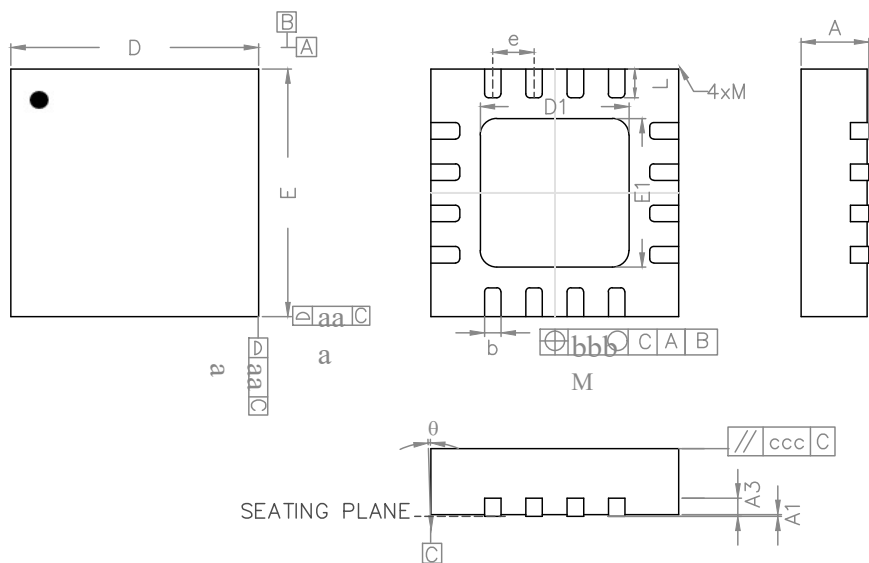
(1) Operation outside these conditions may cause permanent damage to the device. Combination of maximum rating conditions may reduce the values. Device performance at these ratings is not implied.

Electrical Specifications

T_{amb.} = +25 °C

Parameter	Condition	Preliminary Value			Unit
		Min.	Typ.	Max.	
Supply voltage		0.85		3	V
Power consumption	T _a = 25 °C Small signal			25	mW
Frequency range		0.3/0.8		4	GHz
Gain	T _a = 25 °C Small signal		29		dB
P1dB Input Power	T _a = 25 °C		-35		dBm
Noise Figure	T _a = 25 °C Small signal			1.5	dB
I/P Return Loss	T _a = 25 °C Small signal		-6		dB
O/P Return Loss	T _a = 25 °C Small signal		-10		dB
Stability factor		Unconditionally stable			
Operating temperature		-40		85	°C
ESD	HBM	500			V

Package Outline



SYMBOLS	DIMENSIONS IN MILLIMETERS		
	MIN	NOM	MAX
A	0.80	0.90	1.00
A1	0	0.02	0.05
A3	---	0.25REF.	---
b	0.18	0.23	0.30
D	2.85	3.00	3.15
D1	---	1.8BSC	---
E	2.85	3.00	3.15
E1	---	1.8BSC	---
e	---	0.50BSC	---
L	0.30	0.35	0.45
theta	0	---	12
aaa	---	0.25	---
bbb	---	0.10	---
ccc	---	0.10	---
M	---	---	0.05

1. ALL DIMENSIONS ARE IN MILLIMETERS, θ IS IN DEGREES.
2. M : THE MAXIMUM ALLOWABLE CORNER ON THE MOLDED PLASTIC BODY CORNERS.
3. DIMENSION 'D' DOES NOT INCLUDE MOLD PROTRUSIONS OR GATE BURRS. MOLD PROTRUSIONS AND GATE BURRS SHALL NOT EXCEED 0.15mm PER SIDE.
4. DIMENSION 'E' DOES NOT INCLUDE INTERTERMINAL MOLD PROTRUSIONS OR TERMINAL PROTRUSIONS. INTERTERMINAL MOLD PROTRUSIONS AND/OR TERMINAL PROTRUSIONS SHALL NOT EXCEED 0.20mm PER SIDE.
5. DIMENSION 'b' APPLIES TO PLATED TERMINALS. DIMENSION A1 IS PRIMARILY Y TERMINAL PLATING, BUT MAY OR MAY NOT INCLUDE A SMALL PROTRUSION OF TERMINAL BELOW THE BOTTOM SURFACE OF THE PACKAGE.
6. DIE PAD SIZE 2.0X2.0mm HAS 1.8X1.8mm(BSC) EXPOSED PAD SIZE.
7. JEDEC MO-220

- Pin 1 = No Connect
- Pin 2 = GND
- Pin 3 = RF IN
- Pin 4 = GND
- Pin 5 = No Connect
- Pin 6 = No Connect
- Pin 7 = No Connect
- Pin 8 = No Connect
- Pin 9 = GND
- Pin 10 = RF OUT
- Pin 11 = GND
- Pin 12 = No Connect
- Pin 13 = No Connect
- Pin 14 = No Connect
- Pin 15 = Vd
- Pin 16 = No Connect
- PAD = GND

Ordering Information

Order Code	Description	Package	Shipping Method
TDLNA0840SEP	0.3 to 4 GHz UHF Wideband LNA	16-pin, 3 x 3 mm Plastic QFN	Tray

Revision Information

Document	Description / Date	Change/Revision Details
TDLNA0840SEP_Adv_Info_06_2024	TDLNA0840SEP / June 2024	Initial Release: Advanced Information

Document Categories and Definitions:

Advance Information

The product is in a formative or design stage. The data sheet contains design target specifications for product development. Specifications and features may change in any manner without notice.

Preliminary Specification

The data sheet contains preliminary data. Additional data may be added at a later date. Teledyne e2v HiRel Electronics reserves the right to change specifications at any time without notice in order to supply the best possible product.

Product Specification

The data sheet contains final data. In the event Teledyne e2v HiRel Electronics decides to change the specifications, Teledyne e2v HiRel Electronics will notify customers of the intended changes by issuing a CNF (Customer Notification Form).

Sales Contact

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