Product Specification

RS3262 Low Current Low Voltage LNA

General Description

The RS3262 is an advanced Low Voltage, Low Current, Low Noise wideband Bypass amplifier.
The RS3262 is enclosed in a 8-lead 2 x 2 mm MCLP package for good thermal performance.

Applications

- Wireless Base Station Systems
- Repeater/DAS
- Test and Measurement Systems
- Multi-Band Receivers
- General purpose RF

Features

- Wideband
  - 0.03 – 1 GHz operational frequency
- Balanced performance in small package
  - 15dB Gain
  - 26.4dBm OIP3
  - 1.2 dB Noise Figure
  - 7.7mA current consumption under 2.7 V
  - 2 x 2 mm QFN package

Functional Diagram/Application Circuit

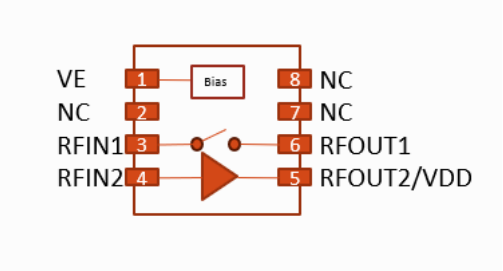


Figure 1

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Absolute Maximum Ratings

Table 1

Parameter	Min	Max	Units
VDD to GND	-0.3	6	V
SD pin to GND	-0.3	6	V
Input Power, CW		23	dBm
Maximum Junction Temperature		175	°C
Storage Temperature Range	-65	150	°C
ESD Voltage– HBM (Per JESD22-A114)		TBD	
ESD Voltage – CDM (Per JESD22-C101)		TBD	

Stresses above those listed above may cause permanent damage to the device. Functional operation of the device at these or any other conditions above those indicated in the operational section of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

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Recommended Operating Conditions

Table 2

Parameter	Min	Typical	Max	Unit
Supply Voltage (All VDD)	2.5	2.7	2.9	V
Operating Temp Range	-40	25	85	℃
Control Logic High Voltage	2.5	2.7	2.9	V
Control Logic Low Voltage	0	0	0	V
Input Power, cw signal			20	dBm

Operation should be restricted to the limits in the Recommended Operating Conditions table. Operation between operating range maximum and absolute maximum for extended periods may reduce reliability.

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LNA Mode Specification

Typical Application Circuit, V_{DD}=2.7V, T_C = +25°C, PCB board trace and connector losses are de-embedded unless otherwise noted.
Table 3

Parameters	Conditions	Min	Typ	Max	Units
Operational Frequency Range		30		1000	MHz
Gain	30MHz		16		dB
	300MHz		15		
	500MHz		15		
	800MHz		15		
	1000MHz		14		
Input Return Loss	30MHz		-10		dB
	300MHz		-19		
	500MHz		-17		
	800MHz		-14		
	1000MHz		-12		
Output Return Loss	30MHz		-11		dB
	300MHz		-22		
	500MHz		-24		
	800MHz		-25		
	1000MHz		-19		
Output P1dB ,LNA mode	30MHz		10		dBm
	300MHz-1000MHZ		14		
Output IP3 , LNA mode Pout = 6 dBm/tone, Spacing = 1 MHz	30MHz		20		
	300MHz-1000MHz		25		dBm
Noise Figure	30MHz		2.0		dB
	300MHz-1000MHz		1.5		
Device Operating Current(ID+IE)			7.7	10.6	mA
Device ON to Bypass	OFF TIME(50% Control to 10% RF)		6		µS
	FALL TIME(90% to 10% RF)		7		
Thermal Resistance, θ_{jc}	Junction to case		TBD		°C/W

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Bypass Mode Specification

Typical Application Circuit, V_{DD}=0V, T_C = +25°C, PCB board trace and connector losses are de-embedded unless otherwise noted.
Table 4

Parameters	Conditions	Min	Typ	Max	Units
Operational Frequency Range		30		1000	MHz
Gain	30MHz		-1.1		dB
	300MHz		-0.6		
	500MHz		-0.8		
	800MHz		-1.5		
	1000MHz		-1.9		
Input Return Loss	30MHz		-11		dB
	300MHz		-17		
	500MHz		-12		
	800MHz		-8		
	1000MHz		-7		
Output Return Loss	30MHz		-11		dB
	300MHz		-17		
	500MHz		-12		
	800MHz		-9		
	1000MHz		-7		
Output P1dB ,Bypass mode	30MHz		3.5		dBm
	300MHz		2.7		
	500MHz		1.8		
	800MHz		2.9		
	1000MHz		3.8		
Output IP3 , Bypass mode Pout = 6 dBm/tone, Spacing = 1 MHz	30MHz		18		dBm
	300MHz		16		
	500MHz		17		
	800MHz		16		
	1000MHz		15		
Device Bypass to ON	ON TIME(50% Control to 10% RF)		59		µS
	RISE TIME(10% to 90% RF)		20		
Thermal Resistance, θ_{jc}	Junction to case		TBD		°C/W

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Pin Diagram

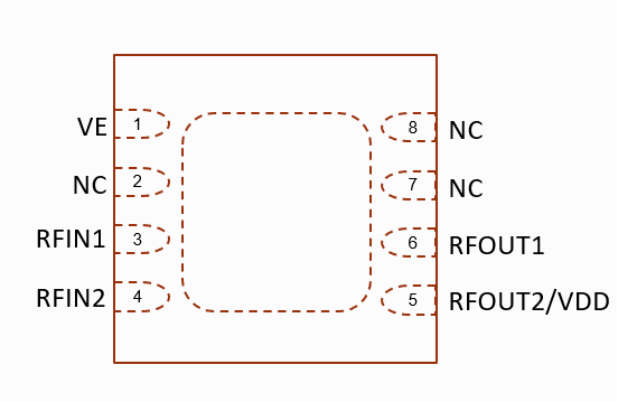


Figure 2

Pin Description

Table 5

Pad No	Label	Description
1	Voltage Enable (VE)	Enable Voltage pad. Ve is always connected to VDD, For amplifier bypass, VDD & VE should be turned OFF simultaneously.
3, 4	RFIN1&RFIN2	RFInput pads. Pad 4 is connected to Pad 3 via two 0.1uF Capacitors
5, 6	RFOUT1&RFOUT2 /VDD	RFOutput pads.Pad 6 is connected to Pad 5 via 0.1μF Capacitor.
2, 7, 8	NC	No connection

Control Logic

Table 6

Mode	**VDD Pin**	**VE Pin**
Amplifier-ON	1	1
Amplifier-Bypass	0	0

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Application Circuit

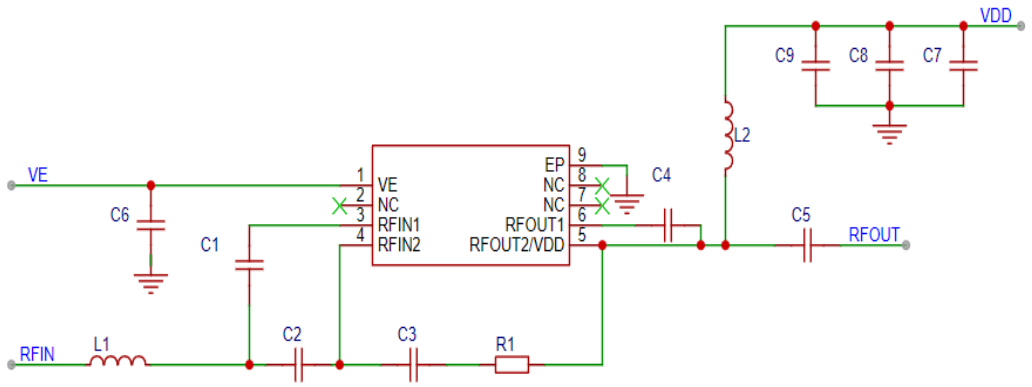


Figure 3

Table 7

Reference Designator	Value	Description
L1	1.7nH	0402
L2	390nH	0805
C1 to C8	0.1uF	0402
C9	1000pF	0402
R1	510 Ω	0402

Typical Performance Characteristics(Amplifier-ON)

Figure 4. Gain

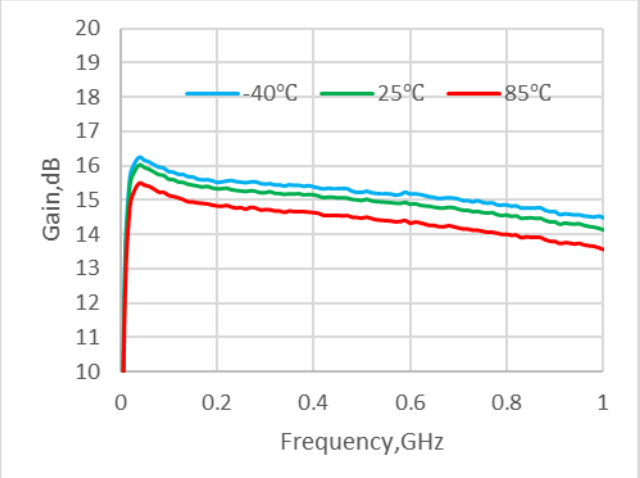


Figure 5. Input Return Loss

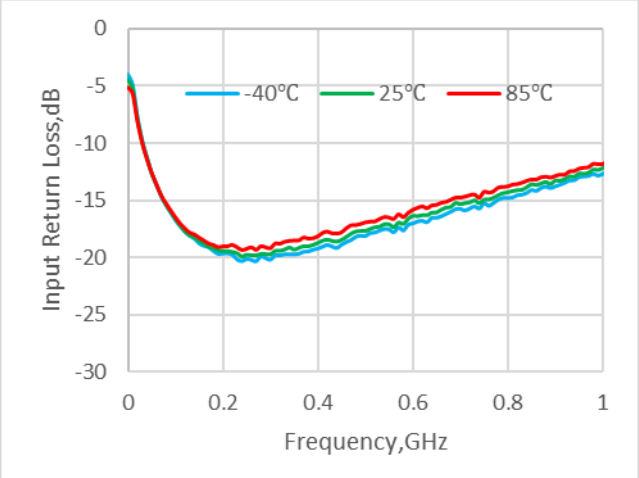


Figure 6. Output Return Loss

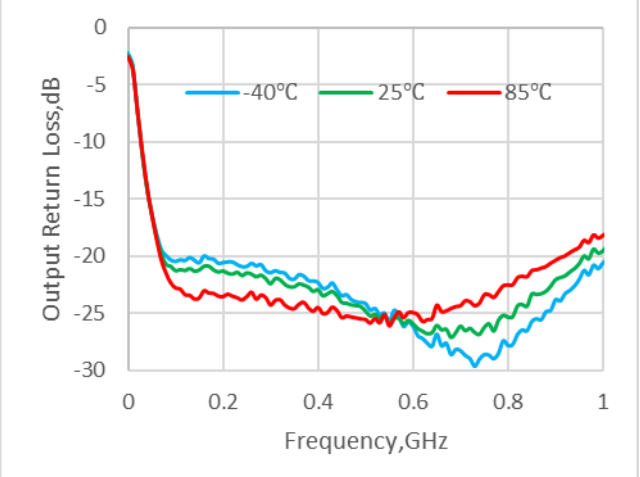


Figure 7. Noise Figure

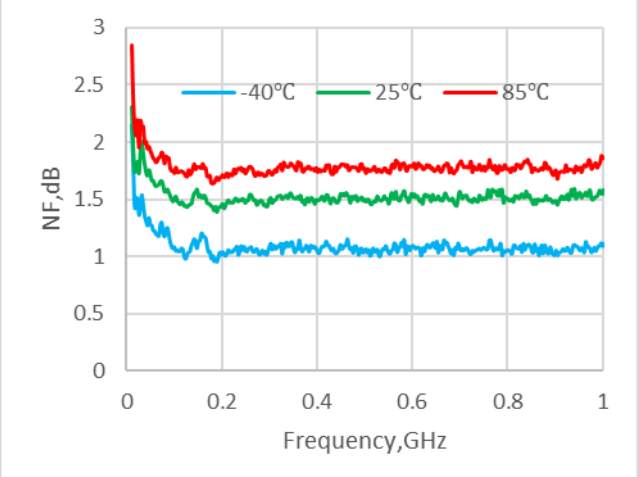


Figure 8. P1dB

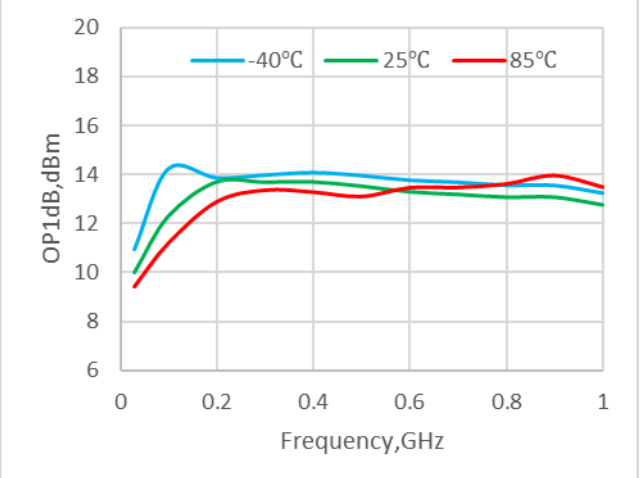
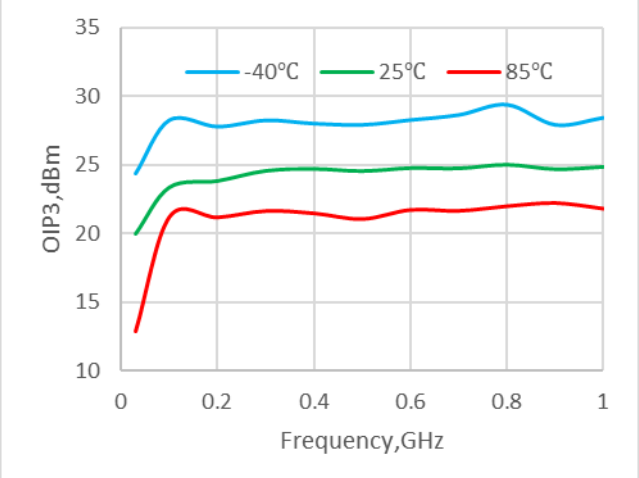


Figure 9. OIP3



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Typical Performance Characteristics(Amplifier-OFF Bypass)

Figure 10. Insertion Loss

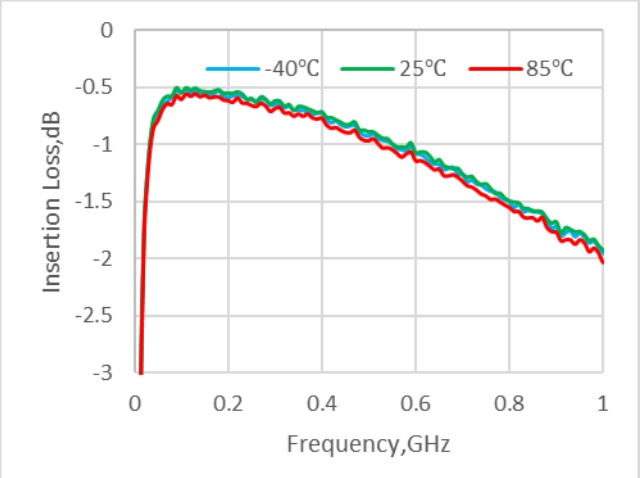


Figure 11. Input Return Loss

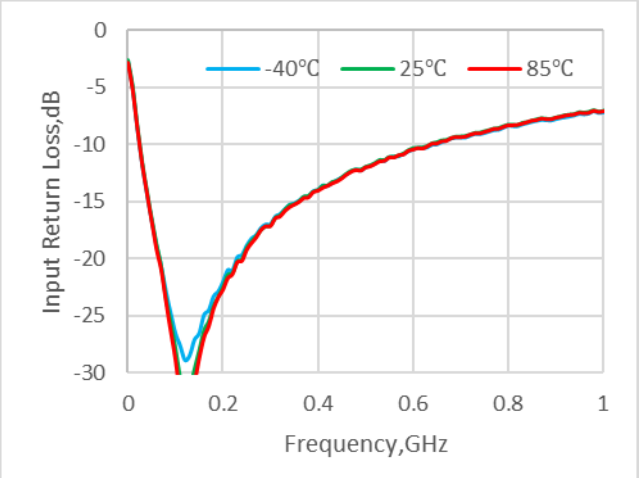


Figure 12. Output Return Loss

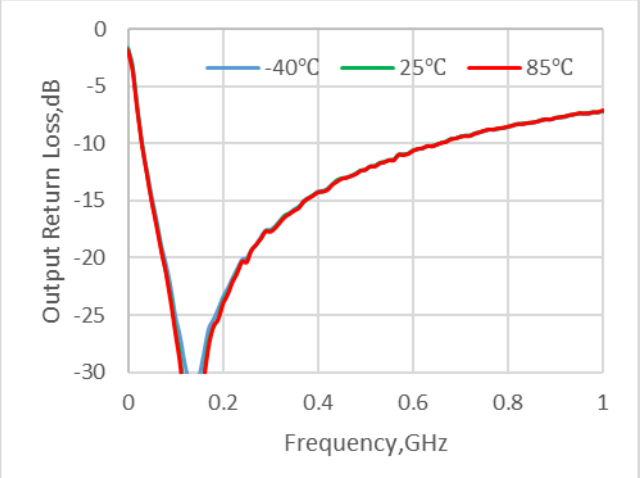


Figure 13. P1dB

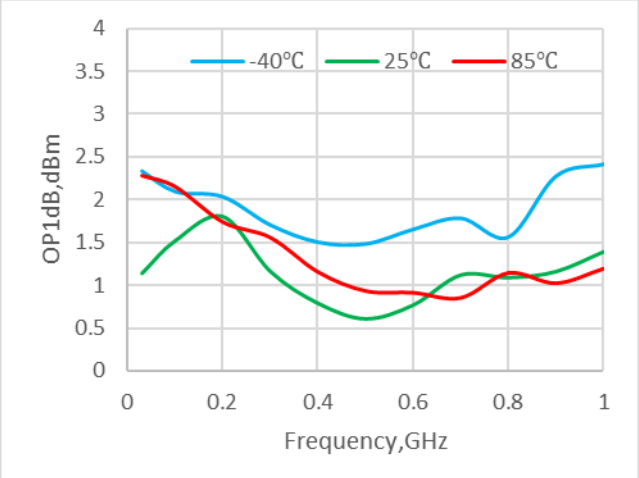
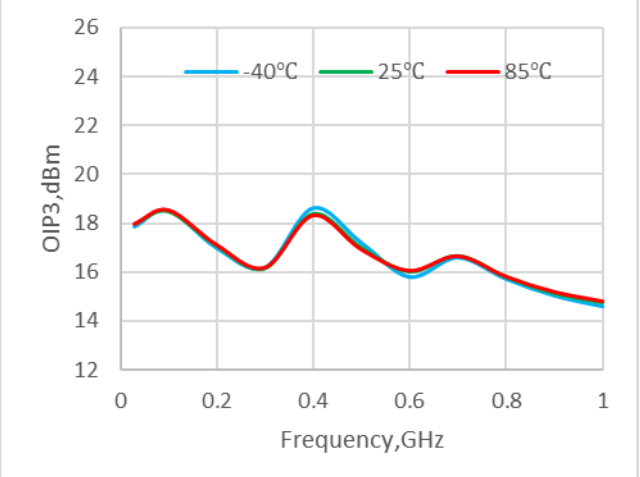
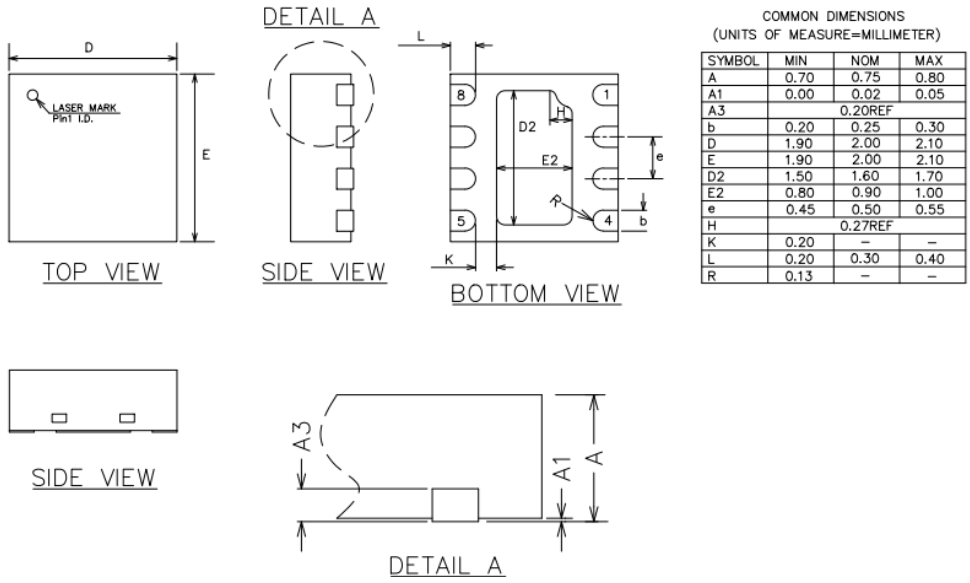


Figure 14. OIP3



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Package Drawing



COMMON DIMENSIONS
(UNITS OF MEASURE=MILLIMETER)

SYMBOL	MIN	NOM	MAX
A	0.70	0.75	0.80
A1	0.00	0.02	0.05
A3		0.20REF	
b	0.20	0.25	0.30
D	1.90	2.00	2.10
E	1.90	2.00	2.10
D2	1.50	1.60	1.70
E2	0.80	0.90	1.00
e	0.45	0.50	0.55
H		0.27REF	
K	0.20	–	–
L	0.20	0.30	0.40
R	0.13	–	–

Figure 15

Revision History

Table 8

Revision Number	Revision Date	Description	Modifications
0.1	2022/7/25	Draft	—
0.2	2025/1/2		
0.3	2025/5/29	Update General Description/Features/Specification/Pin Diagram/Typical Performance Characteristics/Application Circuit/Package Drawing	

Document Categories

Advance Information

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

Preliminary Specification

The datasheet contains preliminary data. Additional data may be added at a later date. RFone Technology reserves the right to change specifications at any time without notice in order to supply the best possible product.

Product Specification

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