Preliminary Specification

RS4751 3600 - 3900MHz 41dBm GaN Amplifier

General Description

The RS4751 is a wideband, high gain, and high peak power driver amplifier. This amplifier provides 41dBm Psat with 28dB gain at 3.6GHz. With a quiescent current of 100mA the part is well suited as a driver in a Tx path DPD loop, for m-MIMO applications.

The RS4751 is internally match to 50Ω over the entire operating frequency band of 3.6 – 3.9 GHz and incorporates a shut-down function through the VPD pin. The amplifier has been proven to provide excellent DPD correction with 5G signals as wide as 160MHz.

Applications

- 5G massive MIMO
- Small Cell / Picocell
- General purpose wireless

Features

- Designed for 5G base station
  - 3.6 – 3.9 GHz Frequency Range
  - 28 dB Gain
  - 41dBm P1dB
  - +28V power supply, 100mA current

Functional Diagram/Application Circuit

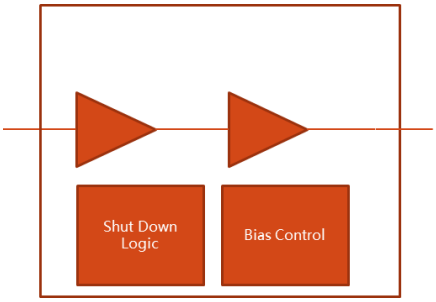

Figure 1

Absolute Maximum Ratings

Table 1

Parameter	Min	Max	Units
V_{DS}		32	V
VGS		-5	V
Input Power		25	dBm
Maximum Junction Temperature		TBD	°C
Storage Temperature Range	-65	150	°C
ESD Voltage– HBM (Per JESD22-A114)		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.

Recommended Operating Conditions

Table 2

Parameter	Min	Typical	Max	Unit
V_{DS}		**28**		V
VGS		**-3**		V
Operating Temp Range, Tcase	-40	25	105	°C
Input Power			TBD	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.

Specification

Typical Application Circuit, V_{DD}=28V, T_C = +25°C, PCB board trace and connector losses are de-embedded unless otherwise noted.
Table 3

Parameter	Test Condition	Min	Typ	Max	Units
Operational Frequency Range		3600		3900	MHz
Gain, Small signal			28		dB
Gain Flatness	Over 3.6-3.9GHz band		0.5		dB
Psat			41		dBm
2nd Harmonic	At 3.6GHz , Pout = 41dBm, Vg = -2.9V, Idsq = 0.1A		-21		dBc
EVM	At 3.6GHz , Pout = 38dBm, Vg = -2.9V, Idsq = 0.1A. QPSK, 15Mbps, 0.35		4		%
OIP3	At 3.6GHz , Pout = 36dBm, Vg = -2.9V, Idsq = 0.1A.Spacing 5MHz		-23		dBc
PAE	At 3.6GHz , Pout = 41dBm, Vg = -2.9V, Idsq = 0.1A		53		%
IDS	At 3.6GHz , Pout = 41dBm, Vg = -2.9V, Idsq = 0.1A		0.94		A

Package Drawing

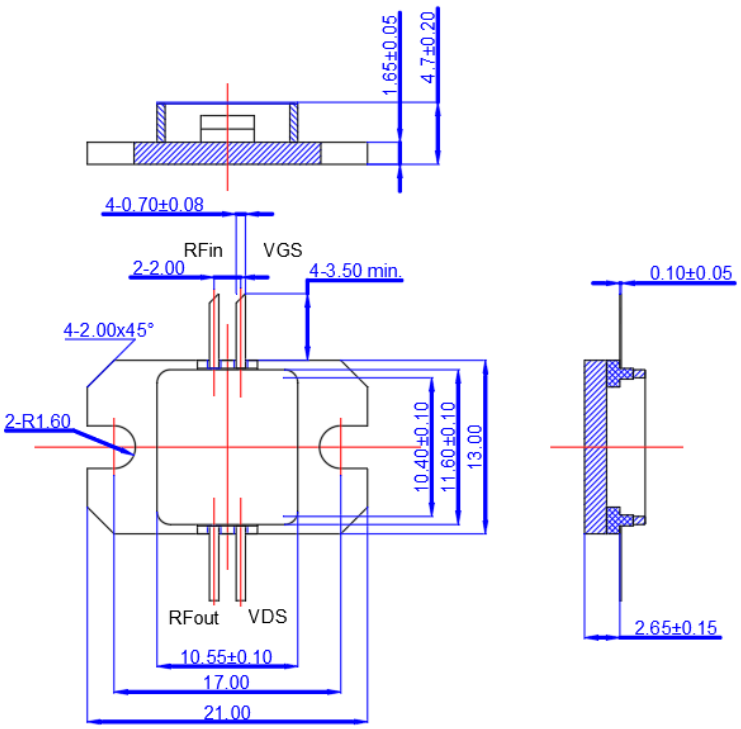

Figure 2

Revision History

Table 4

Revision Number	Revision Date	Description	Modifications
0	2024/3/25	Draft	—

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

The datasheet contains final data. In the event RFone Technology decides to change the specifications, RFone Technology will notify customers of the intended changes by issuing a CNF (Customer Notification Form).

Sales Contact

For additional information, contact Sales at sales@rfonetech.com.

Disclaimers

The information in this document is believed to be reliable. However, RFone Technology assumes no liability for the use of this information. Use shall be entirely at the user's own risk. No patent rights or licenses to any circuits described in this document are implied or granted to any third party. RFone Technology 's products are not designed or intended for use in devices or systems intended for surgical implant, or in other applications intended to support or sustain life, or in any application in which the failure of the RFone Technology product could create a situation in which personal injury or death might occur. RFone Technology assumes no liability for damages, including consequential or incidental damages, arising out of the use of its products in such applications.

Patent Statement

RFone Technology products are protected under one or more of the following China patents: patents.rfonetech.com

Copyright and Trademark