

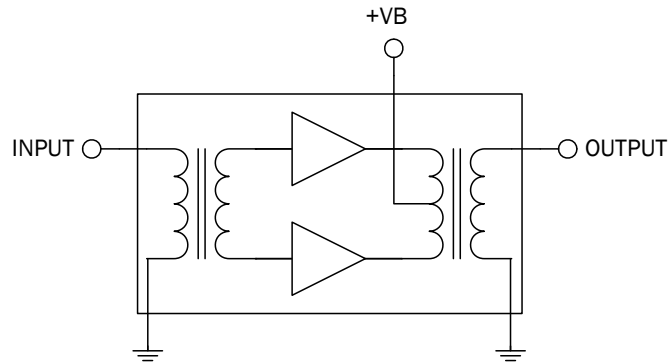


Features

- Excellent Linearity
- Superior Return Loss Performance
- Extremely Low Distortion
- Optimal Reliability
- Low Noise
- Unconditionally Stable Under All Terminations
- Extremely High Output Capability
- 22.5 dB Min. Gain at 1200 MHz
- 450 mA Max. at 24V_{DC}

Applications

- 45 MHz to 1200 MHz CATV Amplifier Systems



Functional Block Diagram

Product Description

The RFPD2580 is a Hybrid Power Doubler amplifier module. The part employs GaAs pHEMT die and GaN HEMT die, has high output capability, and operates from 45 MHz to 1200 MHz. It provides excellent linearity and superior return loss performance with low noise and optimal reliability.

Ordering Information

RFPD2580 45 MHz to 1200 MHz GaAs/GaN Power Doubler Hybrid

Optimum Technology Matching® Applied

- | | | | |
|--------------------------------------|--------------------------------------|--|--|
| <input type="checkbox"/> GaAs HBT | <input type="checkbox"/> SiGe BiCMOS | <input checked="" type="checkbox"/> GaAs pHEMT | <input checked="" type="checkbox"/> GaN HEMT |
| <input type="checkbox"/> GaAs MESFET | <input type="checkbox"/> Si BiCMOS | <input type="checkbox"/> Si CMOS | <input type="checkbox"/> BiFET HBT |
| <input type="checkbox"/> InGaP HBT | <input type="checkbox"/> SiGe HBT | <input type="checkbox"/> Si BJT | <input type="checkbox"/> LDMOS |

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Absolute Maximum Ratings

| Parameter | Rating | Unit |
|-------------------------------------|-------------|------|
| RF Input Voltage (single tone) | 55 | dBmV |
| DC Supply Over-Voltage (5 minutes) | 30 | V |
| Storage Temperature | -40 to +100 | °C |
| Operating Mounting Base Temperature | -30 to +100 | °C |



Caution! ESD sensitive device.

Exceeding any one or a combination of the Absolute Maximum Rating conditions may cause permanent damage to the device. Extended application of Absolute Maximum Rating conditions to the device may reduce device reliability. Specified typical performance or functional operation of the device under Absolute Maximum Rating conditions is not implied.

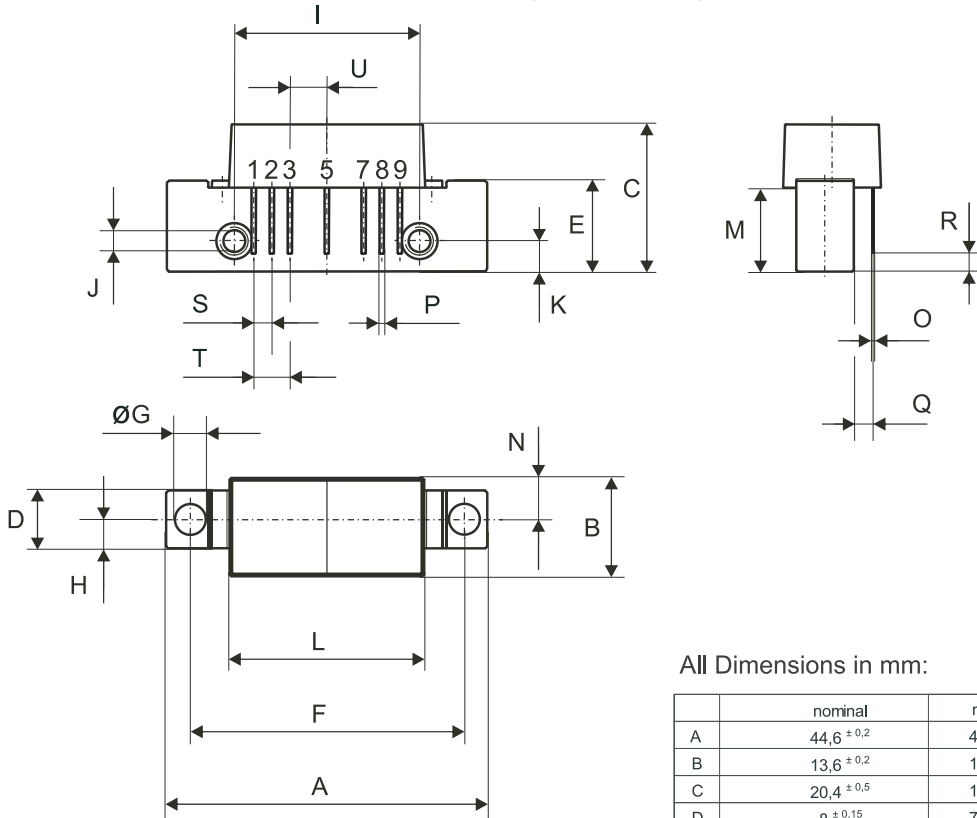
RoHS status based on EU Directive 2002/95/EC (at time of this document revision).

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| Parameter | Specification | | | Unit | Condition |
|--|---------------|-------|-------|------|---|
| | Min. | Typ. | Max. | | |
| Overall | | | | | $V_B = 24V, T_{MB} = 30^\circ C, Z_S = Z_L = 75\Omega$ |
| Power Gain | 21.0 | 21.5 | 22.0 | dB | f = 45MHz |
| | 22.5 | 23.0 | 24.0 | dB | f = 1200MHz |
| Slope [1] | 1.0 | 1.5 | 2.5 | dB | f = 45 MHz to 1200MHz |
| Flatness of Frequency Response | | | 0.8 | dB | f = 45 MHz to 1200 MHz |
| Input Return Loss | -20 | | | dB | f = 45 MHz to 320 MHz |
| | -19 | | | dB | f = 320 MHz to 640 MHz |
| | -17 | | | dB | f = 640 MHz to 870 MHz |
| | -16 | | | dB | f = 870 MHz to 1000 MHz |
| | -15 | | | dB | f = 1000 MHz to 1200 MHz |
| Output Return Loss | -20 | | | dB | f = 45 MHz to 320 MHz |
| | -19 | | | dB | f = 320 MHz to 640 MHz |
| | -18 | | | dB | f = 640 MHz to 870 MHz |
| | -17 | | | dB | f = 870 MHz to 1000 MHz |
| | -16 | | | dB | f = 1000 MHz to 1200 MHz |
| Noise Figure | | 3.5 | 4.5 | dB | f = 50 MHz to 1200 MHz |
| Total Current Consumption (DC) | | 420.0 | 450.0 | mA | |
| Distortion Data 40MHz to 550MHz | | | | | $V_B = 24V, T_{MB} = 30^\circ C, Z_S = Z_L = 75\Omega,$ $V_o = 56.4dBmV$ at 1000MHz, 13.4 dB extrapolated tilt, 79 analog channels plus 75 digital channels (-6dB offset) ^[2] |
| CTB | | -77 | -74 | dBc | |
| XMOD | | -71 | -68 | dBc | |
| CSO | | -71 | -68 | dBc | |
| CIN | 63 | 66 | | dB | |

1. The slope is defined as the difference between the gain at the start frequency and the gain at the stop frequency.
 2. 79 analog channels, NTSC frequency raster: 55.25MHz to 547.25MHz, +43dBmV to +50dBmV tilted output level, plus 75 digital channels, -6dB offset relative to the equivalent analog carrier. Composite Second Order (CSO) - The CSO parameter (both sum and difference products) is defined by the NCTA. Composite Triple Beat (CTB) - The CTB parameter is defined by the NCTA. Cross Modulation (XMOD) - Cross modulation (XMOD) is measured at baseband (selective voltmeter method), referenced to 100% modulation of the carrier being tested. Carrier to Intermodulation Noise (CIN) - The CIN parameter is defined by ANSI/SCTE 17 (Test procedure for carrier to noise).

Package Drawing

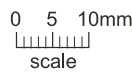


All Dimensions in mm:

| | nominal | min | max |
|---|----------------|-------|-------|
| A | 44,6 ± 0,2 | 44,4 | 44,8 |
| B | 13,6 ± 0,2 | 13,4 | 13,8 |
| C | 20,4 ± 0,5 | 19,9 | 20,9 |
| D | 8 ± 0,15 | 7,85 | 8,15 |
| E | 12,6 ± 0,15 | 12,45 | 12,75 |
| F | 38,1 ± 0,2 | 37,9 | 38,3 |
| G | 4 +0,2 / -0,05 | 3,95 | 4,2 |
| H | 4 ± 0,2 | 3,8 | 4,2 |
| I | 25,4 ± 0,2 | 25,2 | 25,6 |
| J | UNC 6-32 | - | - |
| K | 4,2 ± 0,2 | 4,0 | 4,4 |
| L | 27,2 ± 0,2 | 27,0 | 27,4 |
| M | 11,6 ± 0,5 | 11,1 | 12,1 |
| N | 5,8 ± 0,4 | 5,4 | 6,2 |
| O | 0,25 ± 0,02 | 0,23 | 0,27 |
| P | 0,45 ± 0,03 | 0,42 | 0,48 |
| Q | 2,54 ± 0,3 | 2,24 | 2,84 |
| R | 2,54 ± 0,5 | 2,04 | 3,04 |
| S | 2,54 ± 0,25 | 2,29 | 2,79 |
| T | 5,08 ± 0,25 | 4,83 | 5,33 |
| U | 5,08 ± 0,25 | 4,83 | 5,33 |

Pinning:

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|--|-------|-----|-----|---|-----|---|-----|-----|--------|
| | INPUT | GND | GND | | +VB | | GND | GND | OUTPUT |



Notes:

