

# High Dynamic Range IF Amplifier

Available as:  
QB-152LF (Lead-free Compliant)



## Features

- Ultra High Linearity
- 1.5W Typical @ P1dB
- Flat Gain Response
- Exceptional Unit-to-Unit Amplitude & Phase Repeatability
- Unconditionally Stable

## Technical Specifications

| Parameter   | Typical<br>T <sub>c</sub> = +25 °C | Min / Max<br>T <sub>c</sub> = 0°C to +50°C |
|---|------------------------------------|--|
| Frequency   | 0.5 – 35 MHz                       | 0.5 - 35 MHz                               |
| Gain (dB)   | 21.9 (± 0.7)                       | ---  |
| Gain vs. Temperature (dB)                             | ---                                | +0.2 / -0.5                                |
| Gain Flatness (dB)                                    | 0.2                                | 0.8 Max.                                   |
| P <sub>OUT</sub> @ 1dB<br>Compression (dBm)           | +33                                | +32 Min.                                   |
| 3 <sup>rd</sup> Order Output<br>Intercept Point (dBm) | +48                                | ---  |
| 2 <sup>nd</sup> Order Output<br>Intercept Point (dBm) | +95                                | ---  |
| Reverse Isolation (dB)                                | 32                                 | ---  |
| VSWR  | In                                 | 1.3:1                                      |
|   | Out                                | 1.2:1                                      |
| Noise Figure (dB)                                     | 4.5                                | 4.75 Max.                                  |
| Power   | Vdc                                | +24  |
|   | mA                                 | 600  |

## Absolute Maximum (NO DAMAGE) Ratings

| Parameter                                       | Specification                     |
|---|-----------------------------------|
| Operating Case<br>Temperature (T <sub>c</sub> ) | -20°C to +71°C                    |
| Storage Case<br>Temperature (T <sub>c</sub> )   | -55°C to +125°C                   |
| DC Voltage @ 25°C                               | +26 Volts                         |
| Continuous<br>RF Input Power                    | +13 dBm                           |
| Short Term<br>RF Input Power                    | 200 Milliwatts<br>(1 Minute Max.) |
| Maximum Peak Power                              | 0.5 Watt<br>(3 µsec Max.)         |

Rev Date: October 4, 2023

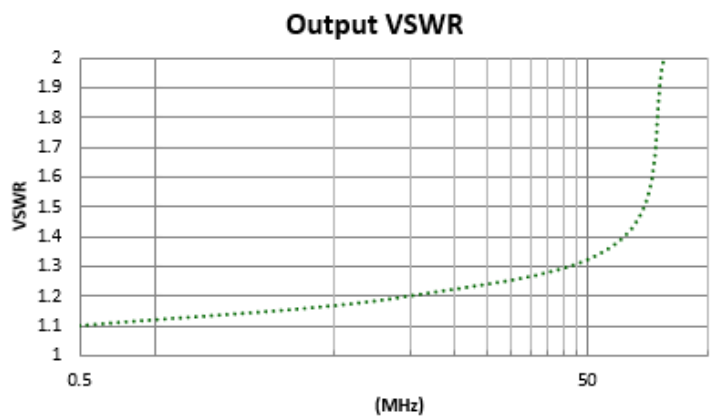
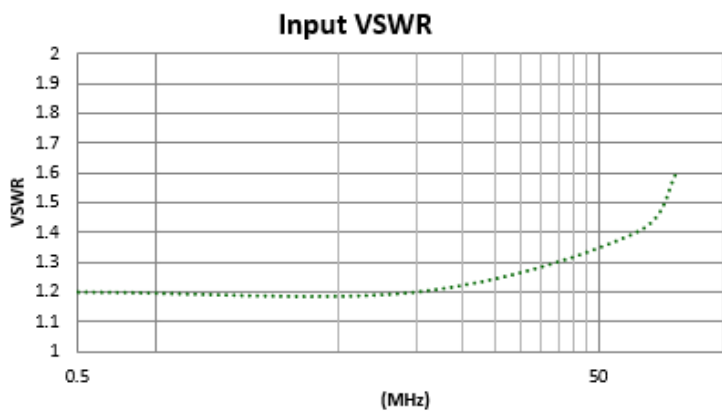
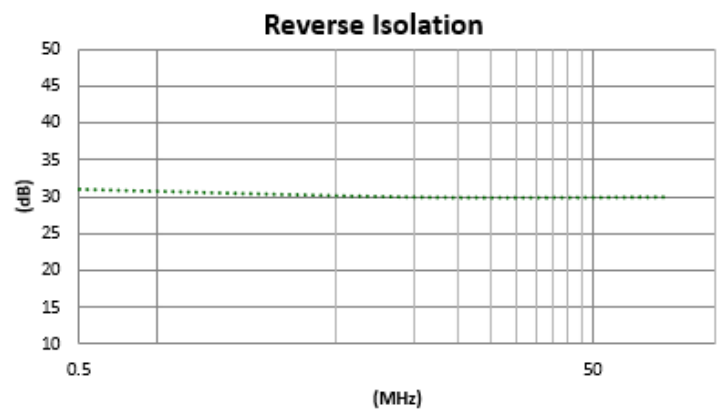
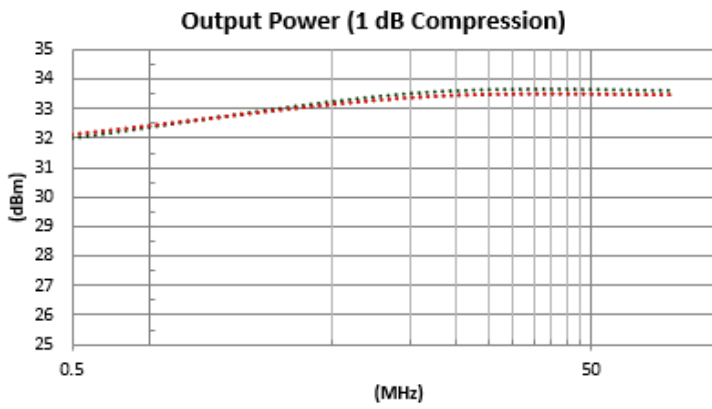
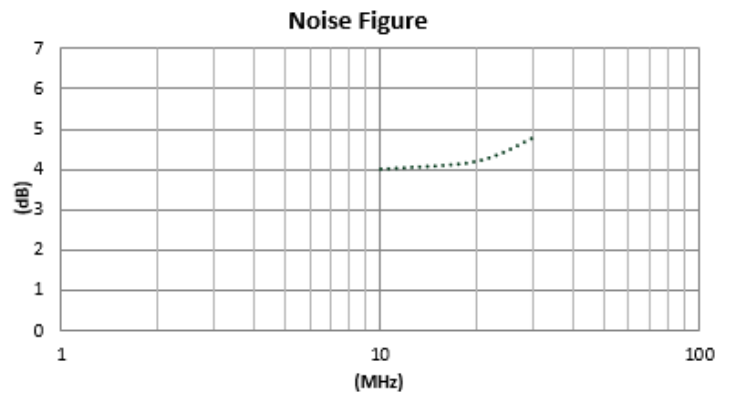
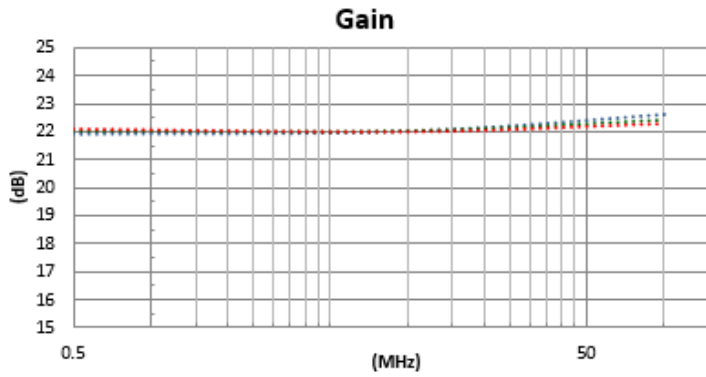
ECN: Supply current increased to 625 mA from 420 mA to meet current P1dB requirements. NF increased from 4.5 dB Max to 4.75 dB Max (5 dB at 30 MHz and above).

\* All Linearity measurements are conducted at 15 MHz

## General Notes

|                  |   |
|------------------|---|
| Cooling          | Adequate heat sink required to ensure the mounting surface does not exceed the maximum operating temperature. Standard and custom options available upon request. |
| Typical Values   | Data and graphs provided are an illustration of performance and not guaranteed.   |
| Min./Max. Values | Specifications are guaranteed when tested in a 50 Ω (ohm) system with a DC supply voltage tolerance of ± 2%.  |
| Revisions        | Spectrum reserves the right to make revisions to both the product and/or the information contained within their datasheets without advanced notice.               |

## Typical Performance Graphs



..... 0°C     
 ..... +25°C     
 ..... +50°C

Mechanical Specifications

| Parameter                              | Specification         | Comments   |
|--|-----------------------|--|
| Package (non-hermetic)                 | API Dwg: 080-23142    | 3.900 (L) x 2.975 (W) x 0.746 (H) inches nominal |
| Material                               | 6061-T6 Al Alloy      | Housing / Cover                                  |
| Finish                                 | Clear Iridite         | MIL-DTL-5541F, Class 3                           |
| RF Input (J1) / Output (J2) Connectors | Captivated SMA Female | 2-Hole Flange Mount                              |
| DC Power (+VDC)                        | Filtered Feed Thru    | Solderable                                       |
| Ground Terminal                        | Threaded Turret       | Solderable                                       |

Outline Drawing  
(For Reference Only)

