

# 25 Watt Power Amplifier

1 to 50 MHz High Dynamic Range, Class AB Design for the HF Band



## Features

- 35 Watts Typical @ P1dB
- Power Feedback Technology
- 1.0 dB Noise Figure
- Exceptional Intermodulation Performance
  - 3<sup>rd</sup> Order Intercept: +59 dBm Typical
  - 2<sup>nd</sup> Order Intercept: +82 dBm Typical

API Technologies’ Model QBS-544 is a medium power class AB amplifier utilizing power feedback technology to deliver exceptional performance over the HF band for military communications, distribution networks, and medical equipment. The dual directional coupler feedback architecture provides low loss and superior isolation resulting in excellent gain stability, very repeatable unit-to-unit performance, and low VSWR in and out over the entire 1 – 50 MHz band. At a nominal DC input voltage of +28V, the QBS-544 offers 29 dB of gain, a very low noise figure of 1.0 dB typical, and a minimum 1 dB compression of +44 dBm; drawing 1.8 amps at this level. An optional heat sink and environmental screening are available upon request.

## Technical Specifications <sup>(1)</sup>

Parameter	Unit	Typical 25°C	Min/Max 0°C to +50°C
Frequency Range	MHz	1 - 50	1 – 30
Small Signal Gain	dB	29	28 min.
P <sub>OUT</sub> @ 1dB Compression	dBm	+45.5	+44.0 min.
Reverse Isolation	dB	42	38 min.
Input VSWR	—	1.2 :1	1.5 :1 max.
Output VSWR	—	1.4 :1	1.6 :1 max.
Noise Figure <sup>(2)</sup>	dB	1.0	2.0 max.
3 <sup>rd</sup> Order Output IP	dBm	+59	—
2 <sup>nd</sup> Order Output IP	dBm	+82	—
DC Voltage	Vdc	+28	+28
DC Current (Quiescent)	A	1.0	1.1 max.
DC Current @ P1dB	A	1.8	2.2 max.

## Absolute Maximum Ratings

Parameter	Specification
DC Voltage	+32.0 Vdc
RF Input Power	+23 dBm
Operating Case Temperature <sup>(3)</sup>	-20°C to +85°C
Storage Temperature	-45°C to +125°C

### Notes:

1. Specification ratings are based on measurements in a 50 ohm system with a DC supply voltage tolerance of ± 2%.

2. Noise figure performance guaranteed from 5 to 30 MHz.

3. Maximum Operating Case Temperature is defined as the baseplate temperature which, if exceeded for extended periods, could result in premature unit failure. This data is provided for user reliability information. This may or may not represent the maximum temperature for electrical parameter specifications.

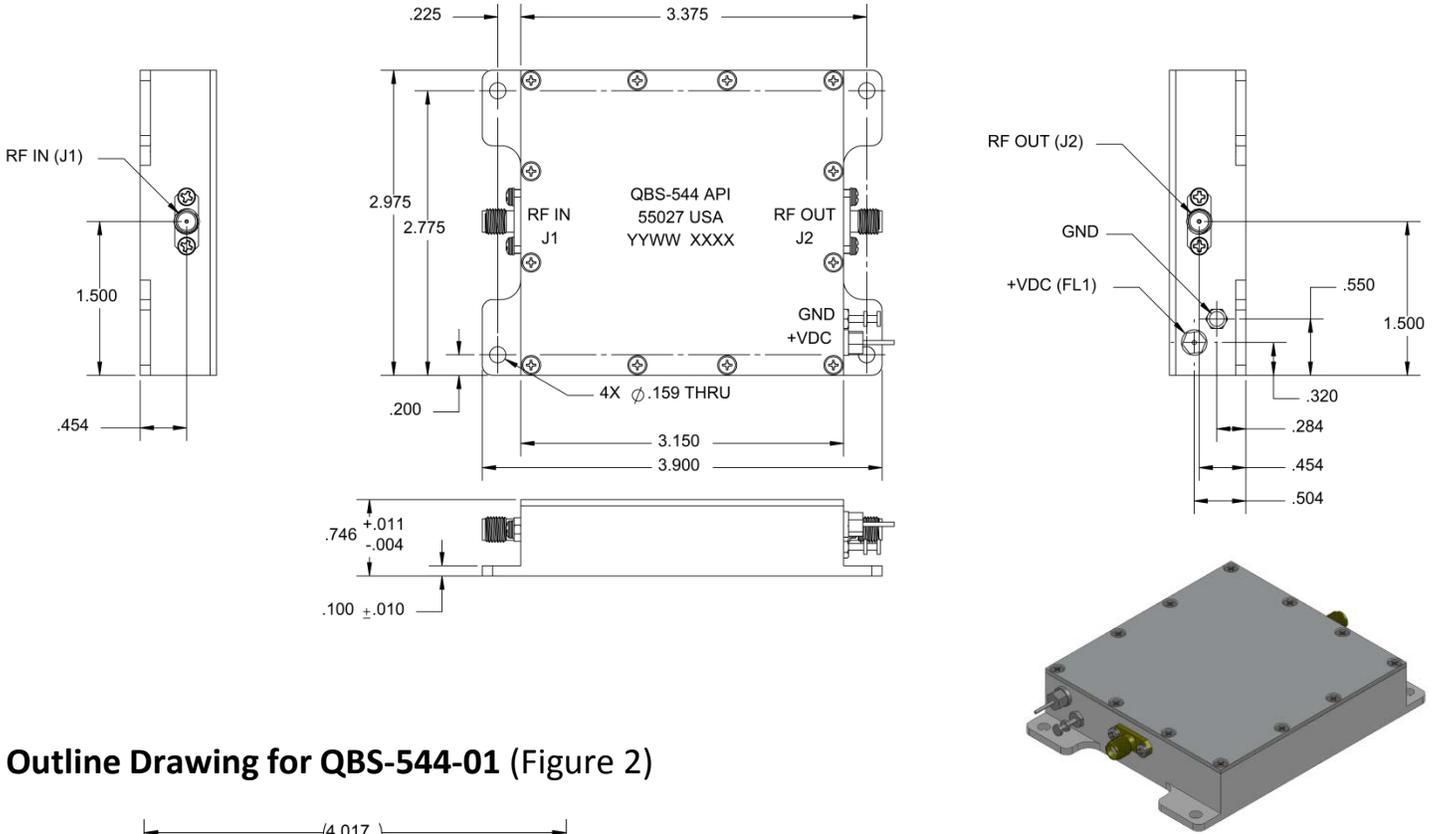
### 4. Package Configurations

- QBS-544: Standard Amplifier (Figure 1).
- QBS-544-01: Amplifier mounted on a heat sink (Figure 2).

## Mechanical Specifications

Parameter	Specification	Comments
Package (non-hermetic)	API Dwg: 080-23065	6061-T6 Al Alloy
Finish	Clear Iridite	MIL-DTL-5541F, Class 3
RF In/Out Connectors	Captivated SMA Female	2-Hole Flange Mount
DC Power (+VDC)	Filtered Feed Thru	Solderable
Ground Terminal	Threaded Turret	Solderable
Cooling	Adequate Heat Sink Required	Note 4

Outline Drawing for QBS-544 (Figure 1)



Outline Drawing for QBS-544-01 (Figure 2)

