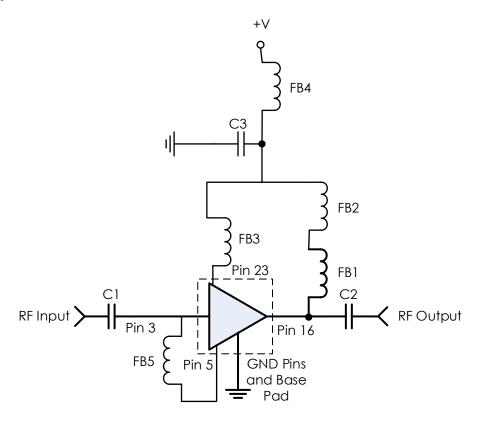


## High Linearity 20 MHz to 6.0 GHz Gain Block

# **Typical Application**



#### Recommended Component List (or equivalent):

Part	Value	Part Number	Manufacturer
C1, C2	0.1 μF	0402BB104KW106	Passive Plus
C3	0.1 μF	GRM155R71C104KA88	Murata
FB1, FB2, FB3	-	MMZ1005A182ET000	TDK
FB4	-	MMZ1005\$102HT000	TDK
FB5	-	MMZ0603\$102ET000	TDK

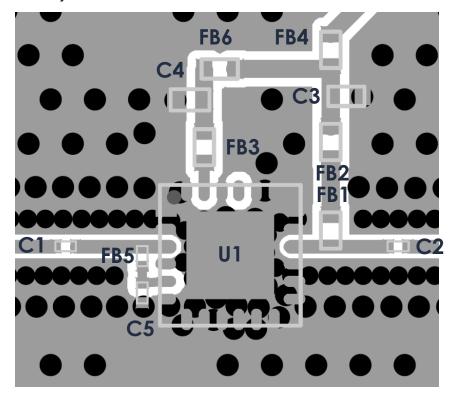
#### Notes:

- 1. NC pins may be grounded or left open
- 2. DC blocking capacitors should be high performance, low-loss, broadband capacitors for optimum performance
- 3. FB1 and FB2 choke gives best low frequency performance extension without a capacitor to ground
  - a. Low frequency performance may be improved with a conical bias inductor such as BCR-162JL from Coilcraft in replacement of FB1 and FB2



## High Linearity 20 MHz to 6.0 GHz Gain Block

### **Recommended Layout**



#### Notes:

- 1. FB6 = FB3 = MMZ1005A182E and C4 = C3 = GRM155R71C104KA88 for additional power supply rejection. C4 and FB6 are not required for part operation though they are recommended if space allows.
- 2.  $C5 = 0.1 \mu F = GRM033R61E104KE14J$ . Addition of C5 optimizes noise figure for 20 MHz to 50 MHz. C5 is not needed if operating outside of this range.
- 3. FB5 may be an 0402 ferrite bead if desired. In layout above, an 0201 ferrite bead is used to allow for the addition of C5.
- 4. Recommended input trace is grounded coplanar waveguide, 50 ohms.
- 5. IC and RF input / output should be via fenced.
- 6. Vias must be placed under IC and GND pads.
  - a. Atlanta Micro recommends a minimum of a 4 x 4 via array to ensure proper heat dissipation into the PCB.

# **Revision History**

Date	Revision Number	Notes
June 25, 2020	1	Initial Release