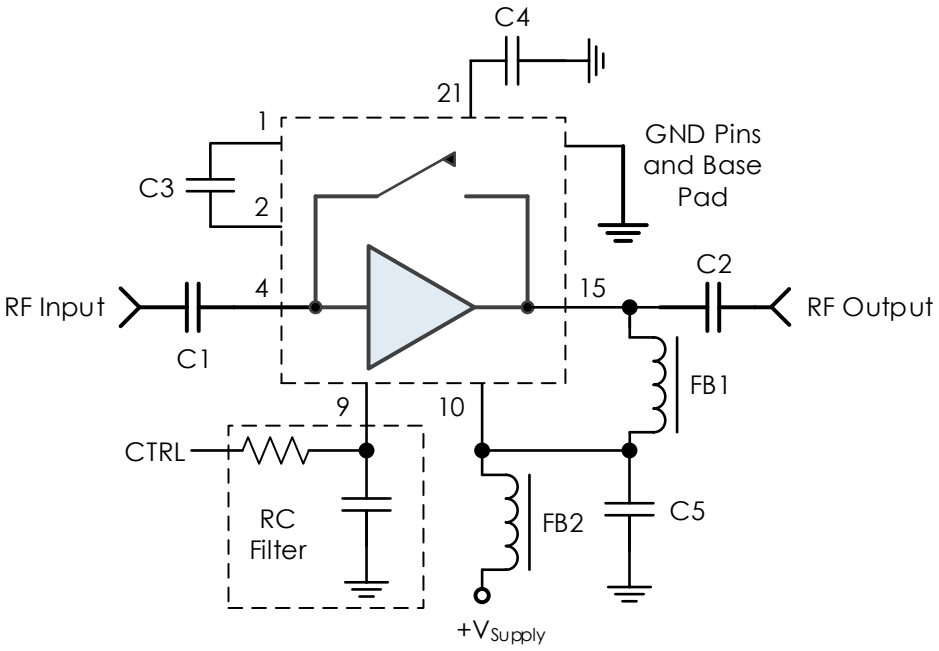
4mm Bypassable Amplifier Application Note

VDD on RF Out

Typical Application



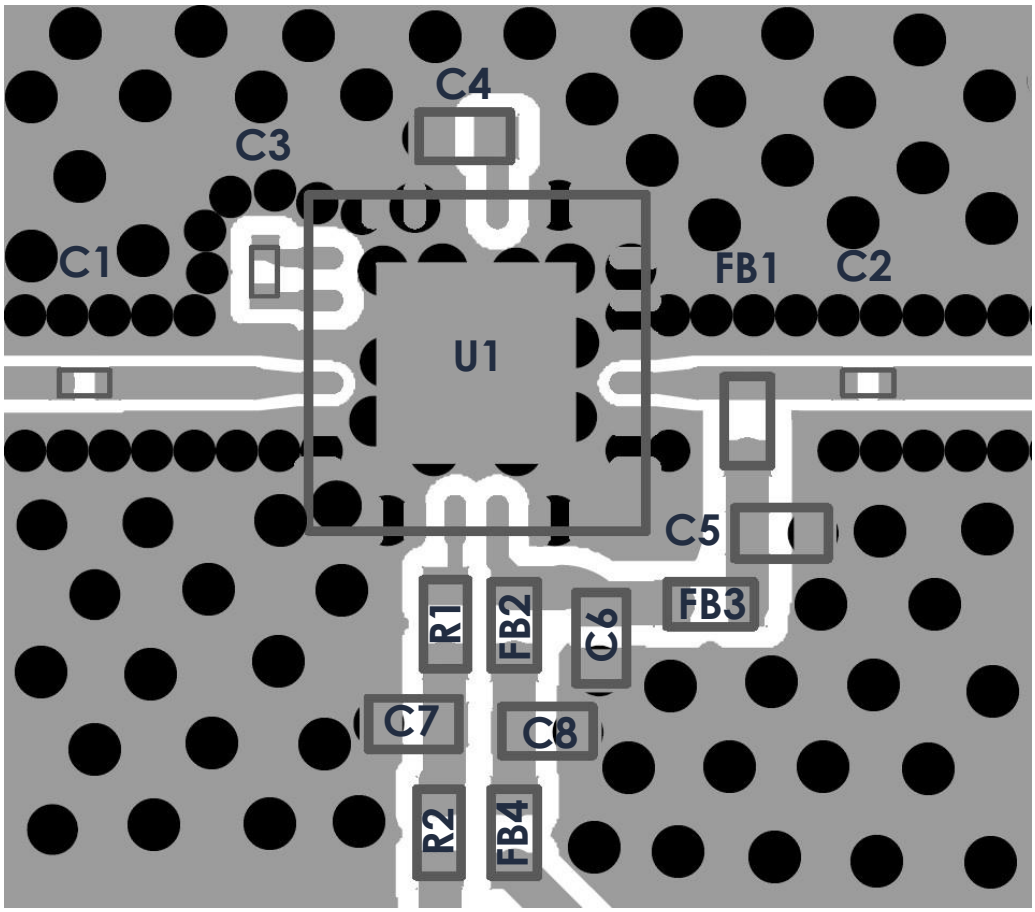
Recommended Component List (or equivalent):

Part	Value	Part Number	Manufacturer
C1, C2, C3	0.1 µF	0201BB104KW250	Passive Plus
C4	10,000 pF	GRM033R61E103KA12D	Murata
C5	0.1 µF	GCM155R71H104KE02J	Murata
FB1, FB2	-	MMZ1005A222E	TDK

Notes:

1. Application shown above is the minimum needed for an operational circuit.
2. The circuit shown in the recommended layout on the next page is representative of the data shown in the datasheet and the s-parameters available on the website.
3. DC blocking capacitors C1 – C3 should be high performance, low-loss, broadband capacitors for optimum performance.
4. Select control line RC filter values based on desired logic source decoupling and switching speed
5. C3 and C4 should be placed as close to the IC as possible to minimize PCB trace lengths. An 0201 package size is recommended to minimize stray PCB pad capacitance to ground.

Recommended Layout



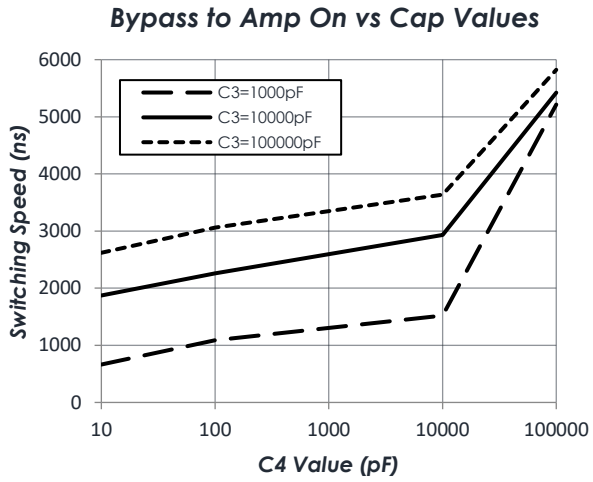
Notes:

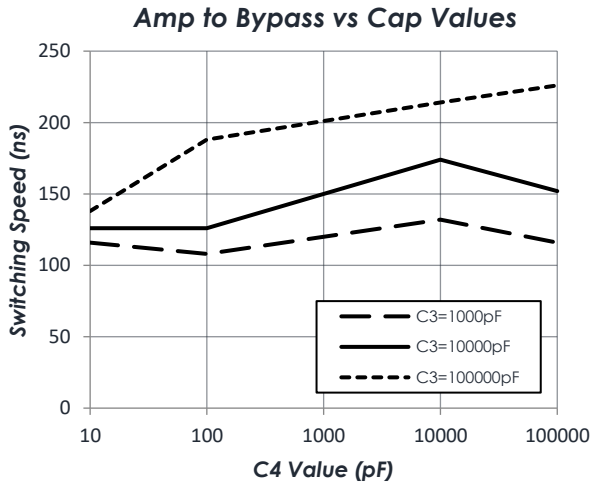
6. FB3 = FB1, FB4 = FB2 for symmetry and improved power line isolation.
7. FBx = MMZ1005A222E
8. R1 = R2 = 100 ohms.
9. C8 = C7 = C6 = C5 = 0.1 µF
10. Components R1, R2, and C7 may be altered to achieve desired logic source decoupling and switching speed.
11. Components C3 and C4 must be placed as close as possible to IC to prevent unwanted parasitics from negatively affecting performance.
12. Traces to C3 should be a 50 ohm trace, prefer a smaller trace width.
13. Recommended RF input/output trace is grounded coplanar waveguide, 50 ohms.
14. IC and RF input / output should be via fenced.
15. Vias should be placed under IC and GND pads.

Component Choice and Effects on Timing

(T = 25 °C, VDD = +3.3V, CTL = 0.0V / +3.3V)

Switching Time	Minimum	Typical[2]	Maximum
Amp On → Amp Bypass	125 ns	175 ns	300 ns
Amp Bypass → Amp On	700 ns	3.8 µs	7.0 µs





*__Notes__:

1. Switching speeds measured as 50% trigger to 10%/90% RF respectively.
2. Typical measurements reflect switching speeds of amp as configured in Typical Application section.
    a. Measurements are made with no RC filtering on control lines
3. To change times, alter value of C3 and C4 as defined in Typical Application section.

Revision History

Date	Revision Number	Notes
January 27, 2021	1	Initial Release