

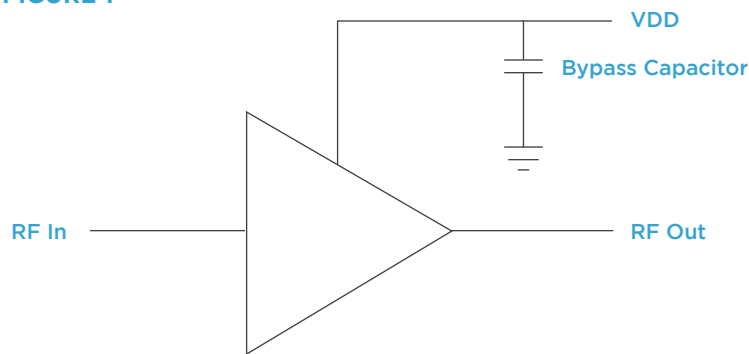
# Bypass Capacitor Kit for MMIC Amplifiers

## High Performance MMIC Amplifiers

High frequency MMIC amplifiers with broadband gain need to be protected from RF noise on the supply lines, particularly RF energy coupled back into the device from its output. Supply noise creates challenges in RF systems where it can mix with RF signals, impacting signal/noise ratios and potentially causing spurious output.

Avoiding this requires the use of a bypass capacitor that provides an efficient path to ground for RF energy on the supply line before it enters a gain stage. See Figure 1 for example.

**FIGURE 1**



High performance MMIC amplifiers contain multiple stages, each requiring their own bypassed supply.

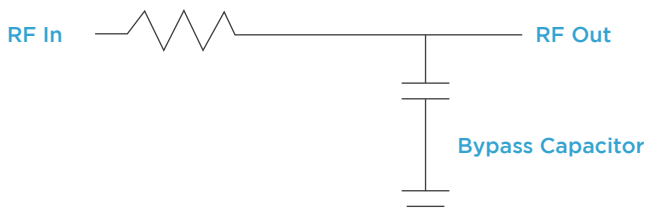


## V-Series

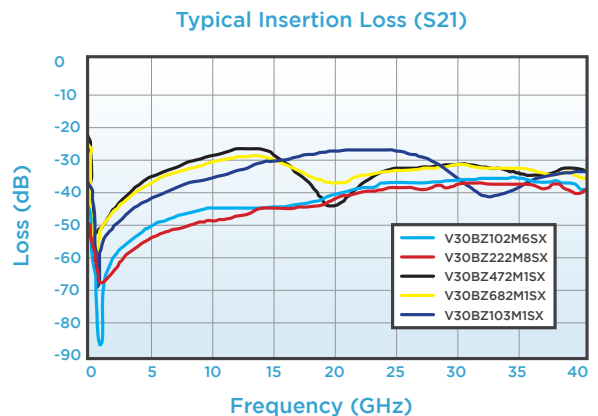
Our V-Series capacitors feature X7R characteristics up to 200V DC voltage rating, with a frequency range up to 40GHz and operating temperature of -55°C to 125°C.

Figure 2 shows that selecting the correct capacitor for this application involves finding a microwave capacitor that provides the required isolation when tested on a board in shunt. Figure 3 shows the RF isolation of our V-Series capacitor tested in such a configuration.

**FIGURE 2**



**FIGURE 3**



**Contents of the Amplifier Bypass Kit  
Vials with SLC - Border Cap®**

**SLC PART NUMBERS IN VIALS:**

**V SERIES KIT:**

D25BN121M1EX	V30BZ102M6SX
D25BN101M1EX	V30BZ222M8SX
D20BN101M1EX	V30BZ472M1SX
D25BJ680M1EX	V30BZ682M1SX
D50BD680K1EX	V30BZ103M1SX

**Key Factors**

Isolation performance at microwave frequencies, CV density (capacitance and voltage capability in a given footprint) and the quality of the wire bond and ground-facing surfaces of the device are key factors to consider.

- Voltage handling to 200V
- Typical GaN application requires x2 rated voltage
- X7R (-55°C to +125°C)

**BORDER CAP®:**

**V-SERIES:**

Frequency range up to 80GHz	Frequency range up to 40GHz
0.02pF to 2.4nF	1nF to 10nF
Up to 100V	Up to 200V
Superior Microwave Performance	
Wire Bond Optimized	

Request a  
**sample kit** to  
get your project  
off the ground.