Frequency Tripler using the CA3028

Here is a simple frequency tripler using a CA3028 differential amplifier. The CA3028 has internal bias resistors for setting the differential amplifier's current at about 7 mA when connected as shown. With this current, the output level is about 0 dBm at 30 MHz with a 1 V p-p, 10 MHz input. Other frequencies and multiplication factors are possible and the CA3028 may be replaced by discrete transistors. The amplifier's current may be increased by connecting a resistor from pin 4 to ground to achieve more output or for operation with lower power supply voltage. Amplitude modulation may be applied to the output frequency by capacitor coupling the audio to pin 2.

**Specification Limitations:**

- Amplifier current: 20 mA
- Collector voltage: 30 V
- Power dissipation: 750 mW (up to 55 C)