OVERVIEW
ANADIGICS’ AWB72xx series of power amplifiers for small cell wireless infrastructure applications are high performance devices that deliver exceptional linearity and efficiency at high levels of output power. The devices are specified to operate over a voltage supply range from +3.6 V to +4.65 V, and their output power handling capability increases as the supply voltage is raised towards the high end of this range.

Using the application circuits detailed in the product data sheets, ANADIGICS recommends that the supply voltage not exceed +4.65 V under normal operation, to minimize electrical stress and to maintain a high level of reliability. This Application Note presents an alternate application circuit that allows these devices to operate from a +5 V supply, while maintaining required long-term reliability.

+5 V APPLICATION CIRCUIT
Each of the AWB72xx series products has two separate VCC power supply inputs (“pins”) that must be connected to a DC source. Pin 4 (VCC1) supplies power to the first amplifier stage(s) and Pin 11 (VCC2) supplies power to the output amplifier stage. In some cases it may be desirable to use a slightly higher VCC2 supply voltage, in order to operate directly from a standard voltage rail, or to increase the linear RF output power to a level beyond its normal rating condition of +27 dBm. The AWB72xx devices can accept a +5 V supply on only the VCC2 DC supply pin, although the VCC1 voltage at Pin 4 should not exceed the recommended +4.65 V maximum.

A straightforward way to enable operation of the device from a single +5 V supply is to add a series 5.2Ω voltage drop resistor from Pin 11 (VCC2 = +5 V) to Pin 4 (VCC1). This modest resistor value is sufficient to “protect” the Pin 4 circuitry from the higher supply voltage, and it still allows the device to deliver outstanding RF performance while providing required long-term reliability. (Average current consumption will be slightly higher than if both DC supply pins were being supplied by a nominal +4.5 V source.)

Figure 1: +5 V Application Circuit for AWB7223, AWB7227 or AWB7228
Using the AWB72xx Series Power Amplifiers with a +5 V Supply

**Figure 2: +5 V Application Circuit for AWB7224 or AWB7225**

**ADDITIONAL CONSIDERATIONS**
Note that voltage supplies higher than +5 V are not recommended for any of the DC supply pins for the AWB72xx series power amplifiers. For further information regarding these products and their applications, contact ANADIGICS directly at the address below.

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**WARNING**
ANADIGICS products are not intended for use in life support appliances, devices or systems. Use of an ANADIGICS product in any such application without written consent is prohibited.