Section 4 Principles of Operation

4-1 Introduction

This section contains functional descriptions for the SPA9329-35N Two-Channel Power Booster Amplifier module.

4-2 RF Input Signal

The maximum input power should not exceed the limits specified in table 1-2.

4-3 RF Output Load

The load impedance should be as good as possible (VSWR ≤1.5:1) in the operating band for good power transfer to the load.

4-4 Amplifier Functional Description

The SPA9329-35N power booster amplifier, shown in figure 4-1, operates in the 1930 MHz to 1990 MHz range. The operating band is determined by the operating frequency selection(s) of the base station (refer to tables 1-2 and 1-3). The amplifier module consists of two single-carrier amplifier pallets with necessary combining and filtering to produce up to 35 watts (45.5 dBm) of output power with a typical gain of 21 dB. The amplifier employs class AB bias for maximum efficiency. The amplifier operates from a -48 Vdc power source.

The amplifier is compliant to requirements of FCC rules with respect to spurious emissions (see tables 1-2 and 1-3). Most of the amplifier gain vs temperature variations are due to LDMOS transistor characteristics.

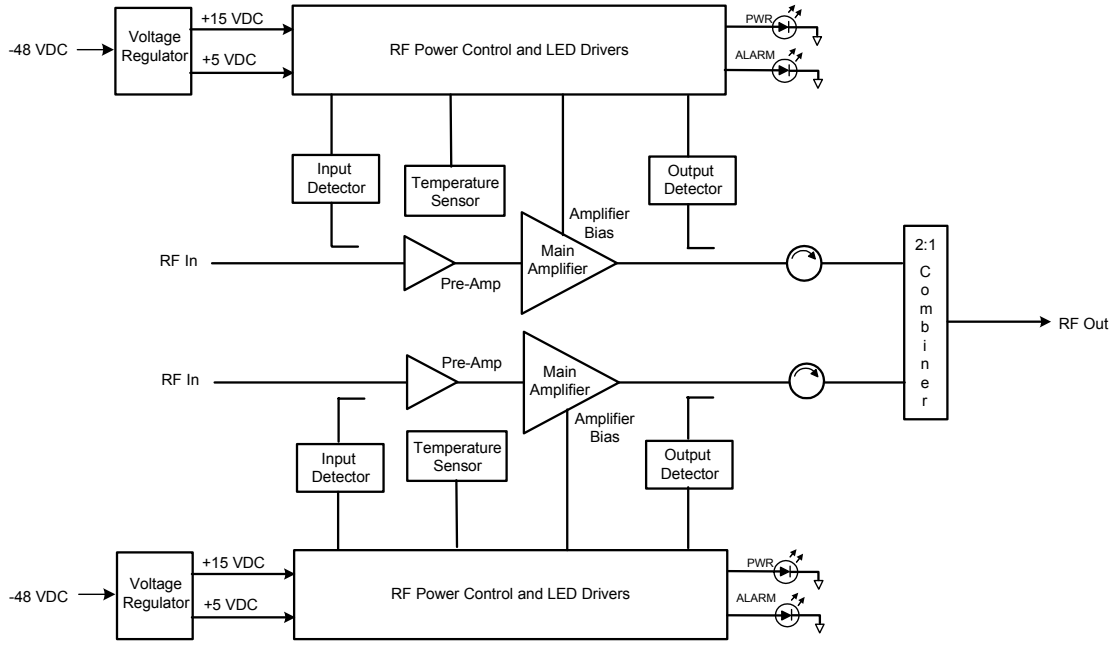

Figure 4-1 SPA9329-35N Booster Amplifier Block Diagram

4-5 Amplifier Module Cooling

Each amplifier module is cooled using an enclosed rear-mounted fan circulating airflow across the amplifier heat sinks. Air is pulled from the front of the module and exits at the rear. This provides sufficient cooling to maintain the amplifier within its safe operating temperature range.

4-6 Power Distribution

Primary DC power for the amplifier is provided by the host system. The amplifier generates all the required voltages internally from the main source.