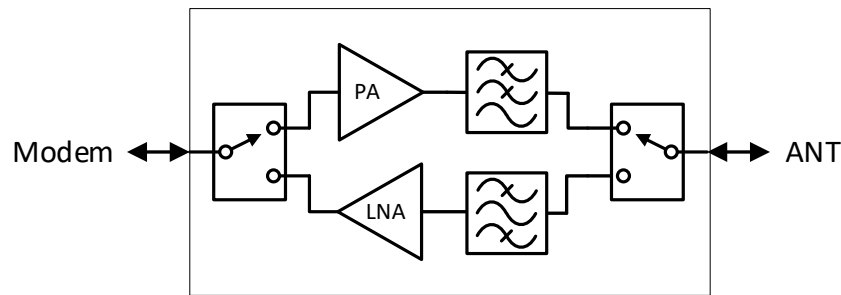


# BDALS-1

Bi-Directional Power Amplifier, L&S-Band



Rev B



## Product Overview

The BDALS-1 is a highly efficient bidirectional amplifier ideal for boosting the range of MANET, mesh networks, and other TDMA systems. The BDALS-1 features automatic TX detection to switch between TX and RX modes, making it modem agnostic and compatible with all modulation schemes including OFDM. The BDALS-1 switches between TX and RX in less than 750 ns and boosts TX signals as high as 50W.

The BDALS-1 is designed for operation in harsh environments and has been ruggedized to withstand high vibration and shock profiles associated with military air and ground applications. The transmitter will withstand operation into an infinite VSWR condition with no degradation to the unit. The amplifier can be powered either via the input SMA coax or the power connector. When powered via the coax, Pin C and Pin D must be shorted together at the J3 connector for operation. The BDALS-1 can be configured for either high efficiency or high linearity operation simply by providing a short or an open on a single pin. The BDALS-1 can also provide power to an external fan via the J4 connector.

# BDALS-1



## Technical Specifications

### General

<b>Operating Frequency</b>	1755-2527 MHz
<b>RF Input Level (J1)</b>	+37 dBm (no damage)
<b>ANT Input Level (J2)</b>	+20 dBm (no damage)
<b>TX Enable</b>	+25 dBm max
<b>TX to RX Switching Time</b>	750 ns max
<b>RX to TX Switching Time</b>	750 ns max
<b>DC Power</b>	+19 V-36 V, 28 V nom

*\*If overdriven in Linear Mode, unit can draw up to 160 W.*

### High Efficiency Mode, TX

<b>TX P<sub>SAT</sub></b>	25 W typ, 10 W min
<b>Power Draw at P<sub>SAT</sub></b>	60 W typ
<b>TX Gain</b>	9 dB ± 1 dB
<b>Gain Change Over Temp</b>	±2 dB

### High Efficiency Mode, RX

<b>RX Gain</b>	15 dB typ
<b>RX IP<sub>1dB</sub></b>	+0 dBm typ
<b>RX P<sub>SAT</sub></b>	+18 dBm max
<b>RX Noise Figure</b>	2.5 dB typ, 5.0 dB max

### High Linearity Mode, TX

<b>TX P<sub>SAT</sub></b>	50 W typ
<b>TX P<sub>1dB</sub></b>	20 W typ
<b>Power Draw at P<sub>AVG</sub> 8W</b>	60 W typ
<b>TX Gain</b>	10.5 dB ± 1 dB
<b>Gain Change Over Temp</b>	±2 dB

### High Linearity Mode, RX

<b>RX Gain</b>	6 dB typ
<b>RX IP<sub>1dB</sub></b>	+0 dBm typ
<b>RX P<sub>SAT</sub></b>	+10 dBm
<b>RX Noise Figure</b>	3.0 dB typ, 5.0 dB max

### Physical

<b>Dimensions</b>	4.0" x 6.0" x 1.0"
<b>Weight</b>	1.6 lbs.

### Connectors

<b>RF/DC Input</b>	SMA Female
<b>ANT</b>	SMA Female
<b>Fan Power</b>	PT02E-8-3S
<b>DC Power/Logic*</b>	PT02H-8-4P

*\*Unit can be powered either via RF input coax or DC/Logic connector. Power supply is isolated when powered via DC/Logic connector.*

### Environmental

<b>Operational Alt</b>	35 kft
<b>Operating Temp</b>	-40°C to +60°C

*Amplifier is ruggedized for vibration and shock associated with both airborne and ground installs.*

### DC Power/Logic Connector Pinout

Pin A	+28V
Pin B	HE_EN, leave open for high efficiency mode, short to GND to enable high linearity mode
Pin C	+28V_RTN
Pin D	GND

### Fan Power Connector Pinout

Pin A	+28V
Pin B	N/C
Pin C	+28V_RTN

### Install Instructions

The amplifier must be mounted to a heatsink capable of dissipating 100 W of heat. Compatible with CK-052 – CK-055.