

# 5087B

## Wideband Distribution Amplifier

The 5087B was discontinued September 2017.  
Front View



### Features

- 12 channel wideband sine wave distribution
- 13 dBm to 22.5 dBm adjustable output power
- Accepts 3 dBm to 22.5 dBm inputs
- Input AGC maintains output level with varying input level
- High isolation/low cross-talk between outputs
- Low additive phase noise
- Front panel status indicators for health monitoring at a glance
- Ethernet port for remote control and monitoring
- Fault alarm output

### Applications

- Standards lab – simultaneous calibration of multiple test equipment.
- Manufacturing and R&D – connecting all test equipment in a rack to the same frequency source.
- Intra-building distribution – distributing frequency standards from the cal lab to manufacturing and R&D.

The 5087B Wideband Distribution amplifier is an economical solution for distributing signals from various frequency standards such as Cesium, Rubidium, Quartz, or GPS instruments.

Frequency standards typically have few outputs, each of which drives one load over short distances. When you have many devices requiring frequency reference inputs, or you need to deliver the frequency standard output from one building to another, the 5087B is the right choice.

High output-to-output isolation and output-to-input isolation keeps the effects of accidents from propagating to other channels or upstream to the frequency standard. For example, if an output is accidentally shorted or someone connects an active signal to the output of the distribution amplifier, the effect is minimized on any other output.

### Fault Monitoring

Front panel lights allow to check status of the amplifier at a glance. Indicators are provided for power, alarm, input, and all 12 outputs.

An alarm occurs whenever there is loss of input signal or loss of any of the 12 outputs. The alarm signal can be connected to audible or visible alarms, or logically ORed to other alarms.

Full remote control and monitoring of the amplifier can be done through the Ethernet port, including checking status and alarm conditions.

### Rear View



# 5087B

## Wideband Distribution Amplifier

### Specifications

#### Electrical

- Inputs
  - Number of inputs 1
  - Frequency range 1 MHz to 10 MHz
  - Signal type Sine wave
  - Connector Rear panel BNC (female)
- Shield is chassis (earth) ground
  - Amplitude 0.3 Vrms to 3 Vrms automatic level control
  - Impedance 50 Ω nominal
  - Input status<sup>1</sup> Front panel indicator
  - Damage level 24 dBm
  - VSWR <1.5:1
- Frequency outputs<sup>2</sup> (into 50 Ω)
  - Number of outputs 12
  - Frequency range 1 MHz to 10 MHz
  - Signal type Sine wave
  - Connector type Rear panel BNC (female)
- Shield is chassis (earth) ground
  - Amplitude<sup>3</sup> 1 Vrms to 3 Vrms adjustable
  - Impedance 50 Ω nominal
  - Harmonics<sup>4</sup> <-40 dBc
  - Spurious 10 Hz - 50 kHz <-80 dBc
  - Channel status<sup>5</sup> Front panel indicator
  - Single sideband additive phase noise (1 Hz bandwidth) 10 MHz carrier
  - Isolation<sup>6</sup>
  - Output to output <-104 dBc (typical)
  - Output to input <-100 dBc
  - VSWR <1.5:1

Offset Frequency	Phase Noise (dBc/Hz)
1 Hz	-110
10 Hz	-123
100 Hz	-128
1 kHz	-144
10 kHz	-150

- Alarm port
  - Connector type BNC
  - Normal state TTL high
  - Alarm state TTL low
  - Output configuration Open-collector, 10k Ω pull-up to 5 Vdc
  - Alarm conditions Loss of input signal, activation of input
  - Alarm, loss of any of 12 frequency outputs.
  - Status Front panel LED
- Remote interface
  - Data communications Ethernet (10 Base-T)
  - Connector type RJ-45

#### Environmental

- Temperature
  - Operating 0 °C to 50 °C
  - Non-operating -62 °C to 75 °C
- Humidity
  - Operating 95% non-condensing, 40 °C
- Altitude
  - Operating 15,000 feet
- Shock Meets IEC 60068-2-27 requirements
- Vibration Meets IEC 60068-2-6 for sinusoidal vibration and IEC 60068-2-64 for random vibration requirements.
- EMC Meets EN61326-1:2001 Electrical Requirements for Electrical Equipment for Measurement, Control and Laboratory use- Part 1: General Requirements EN 55011 Class A, Radiated Emissions.
- Safety Meets EN61010-1:2001 Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory use- Part 1: General Requirements. UL/CSA Certified product

# 5087B

## Wideband Distribution Amplifier

### Supplemental Characteristics

- Mechanical characteristics
  - Net weight: 6.2 kg
  - Shipping weight: 10 kg
- Dimensions
  - Height: 90 mm (2U rack)
  - Width: 450 mm (standard 19-inch rack)
  - Depth: 364 mm (excluding connectors)
- Power requirements
  - AC input<sup>7</sup>: 100 VAC-240 VAC;  
50 to 60 Hz
- Warranty: 1 year

### Notes:

1. Input status indicates if input amplitude drops below 0.3 Vrms. It does not indicate signal quality (frequency accuracy or stability) nor wave shape.
2. All outputs are always active. To reduce noise, connect a 50 Ω terminator (not supplied with unit) on unused outputs.
3. An ALC circuit on the input amplifier assures output amplitude consistent with desired setting in the range 1 Vrms to 3 Vrms, into 50 Ω.

4. Assumes harmonic distortion of  $<-50$ dBc of input signal.
5. Output channel status indicates if output drops below 0.3 Vrms (+2.6 dBm) at the output BNC connector, not at the end of the attached cable.
6. Output isolation is measured by injecting 900 Hz signal (0.5 Vpp about 20 μs wide) into an output port and measuring the associated phase noise spur at 900 Hz offset on adjacent output ports and input port.
7. Auto sensing AC mains supply. A power on LED is located on the front panel.

### Ordering Information

Part Number 5087B-C001 — 5087B Wide Band Distribution Amplifier



**Microsemi Corporate Headquarters**  
One Enterprise, Aliso Viejo, CA 92656 USA  
Within the USA: +1 (800) 713-4113  
Outside the USA: +1 (949) 380-6100  
Fax: +1 (949) 215-4996  
Email: [sales.support@microsemi.com](mailto:sales.support@microsemi.com)  
[www.microsemi.com](http://www.microsemi.com)

©2017 Microsemi Corporation. All rights reserved. Microsemi and the Microsemi logo are registered trademarks of Microsemi Corporation. All other trademarks and service marks are the property of their respective owners.

Microsemi Corporation (Nasdaq: MSCC) offers a comprehensive portfolio of semiconductor and system solutions for aerospace & defense, communications, data center and industrial markets. Products include high-performance and radiation-hardened analog mixed-signal integrated circuits, FPGAs, SoCs and ASICs; power management products; timing and synchronization devices and precise time solutions, setting the world's standard for time; voice processing devices; RF solutions; discrete components; enterprise storage and communication solutions, security technologies and scalable anti-tamper products; Ethernet solutions; Power-over-Ethernet ICs and midspans; as well as custom design capabilities and services. Microsemi is headquartered in Aliso Viejo, California and has approximately 4,800 employees globally. Learn more at [www.microsemi.com](http://www.microsemi.com).

Microsemi makes no warranty, representation, or guarantee regarding the information contained herein or the suitability of its products and services for any particular purpose, nor does Microsemi assume any liability whatsoever arising out of the application or use of any product or circuit. The products sold hereunder and any other products sold by Microsemi have been subject to limited testing and should not be used in conjunction with mission-critical equipment or applications. Any performance specifications are believed to be reliable but are not verified, and Buyer must conduct and complete all performance and other testing of the products, alone and together with, or installed in, any end-products. Buyer shall not rely on any data and performance specifications or parameters provided by Microsemi. It is the Buyer's responsibility to independently determine suitability of any products and to test and verify the same. The information provided by Microsemi hereunder is provided "as is, where is" and with all faults, and the entire risk associated with such information is entirely with the Buyer. Microsemi does not grant, explicitly or implicitly, to any party any patent rights, licenses, or any other IP rights, whether with regard to such information itself or anything described by such information. Information provided in this document is proprietary to Microsemi, and Microsemi reserves the right to make any changes to the information in this document or to any products and services at any time without notice.