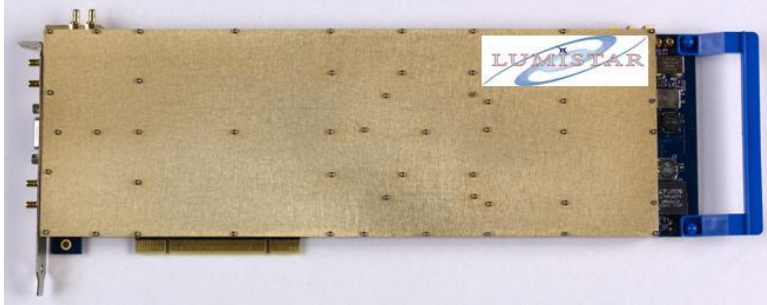


LUMISTAR

LS-27-D3 Two-Channel Quad-Band PCI Down-Converter Board Data Sheet

Description:



LS-27-D3 Series Downconverter

The Lumistar LS-27-D3 Two-Channel Quad Band PCI Down Converter product is a 3rd generation high-density, high performance down converter designed using the same advanced technology as in the industry leading LS-25 PCI Receiver. The down-converter

converts one or two independent channels of up to four RF frequency bands down to a 70 MHz IF output. The LS-27-D3 is typically used in conjunction with the Lumistar LS-35 Series Digital IF Receiver/Combiner to provide one or two independent telemetry receivers, or a dual diversity combining receiver, with up to two multi-mode demodulators and bit synchronizers in a two-slot PCI interface. The number of channels and frequency band designations can be specified at the time of order. Please see the data sheet for the LS-35-R Digital IF Receiver/Combiner for more information.

Key Features:

- One or two channels of up to four band down conversion on a single PCI board
- Compatible with LS-35 series IF Receiver/Combiner
 - Provides for a high performance two-card multi-mode Receiver/Combiner
- Supports data rates up to 33 Mbps for FM; 40 Mbps for QPSK and SOQPSK
- Each channel down converts from RF to a 70 MHz second IF
- Linear Programmable Digital AGC and AM Outputs
 - Programmable AGC output slope (Positive or Negative, with AGC Freeze)
- Thirty-two AM Continuous Time Low Pass Filters, with “Bypass mode”
- Excellent Sensitivity, Intermodulation and Spurious, Noise Figure = 5dB (typical)
- Compliant to ARTM Tier 0, I & II Phase Noise Specification
- Eight SAW “Anti-alias” filters per channel (.25, .5, 1, 2, 5, 10, 20, 40MHz)
- 70MHz pass-through mode allows AM/AGC control of block down converters
- Allows for Internal (In-Chassis) or External Cabling of RF/IF In/Out
- External clock input, software selectable (5, 10, or 20MHz)
- Self protection circuit prevents possible damage on Startup (> 28 dBm)
- Support for external LNA power via Bias “T” coupling with RF input

Tuner Specs:

| | |
|------------------------------|---|
| Input Bands | Specify up to four bands on each channel at time of order: 2185 – 2485 MHz (E-Band) 2200 – 2400 MHz (S-Band) 1710 – 1850 MHz (U-Band) 1435 – 1540 MHz (L-Band) 830-1130 MHz (N-Band) 680 - 760 MHz (K-Band) 215-320 MHz (P-Band) 70 MHz pass-through (STD) Custom Bands are Available |
| 2 nd IF Bandwidth | Eight SAW filters (anti-alias when used with the LS-35) 0.25, 0.50, .0, 2.0, 5.0, 10, 20 and 40 MHz (3 dB BW). |
| Tuner Resolution | 50 KHz |
| Frequency Accuracy | 0.001% (typ), 0.002% (max) |
| Phase Noise: | -110 dBm typ at 100 kHz |
| AGC Time Constants | Selectable .1, 1, 10, 100, 1000 ms plus user programmable (.1ms - 6.5 sec) |
| AGC Slope and Range: | Programmable (-4 to +4V) |
| Noise Figure | 5 dB (Typical at Threshold) |
| Input Level Range | +10 dBm to threshold |
| RF Input AGC Range: | +10 dBm to -100 dBm |
| 1dB Compression: | +10 dBm, Input (typ) |
| IIP3: | +15 dBm, Output (typ) |
| Maximum Input Level | +28 dBm without damage |
| Bias "T" Supply Power | 25VDC, 500ma Max |

AM Demodulation:

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|-----------------------|---|
| AM Freq Response | DC to 50 KHz |
| Am Lowpass Filtering: | 32 selectable lowpass filters, plus "Bypass mode" |
| AM Filter Values | See User Manual |

| | |
|--|---|
| Board Form Factor | Full Length PCI 12.4" L x 4.0" W x 0.6" H |
| Rear Panel Connectors: (for external chassis I/O) | SMB for RF in (CH 1-2) SMB for IF out (CH 1-2) HD15 for AM/AGC outputs |
| Board Edge Connectors: (for internal chassis I/O) | SMB for RF in (CH 1-2) SMB for IF out (CH 1-2) SMB for Ref I/O SMB for Ref Out |
| D-Series to BNC cable: (provided with card) | BNC for AM Out 1/2 BNC for AGC Out 1/2 |
| Reference Connector | MMCX on top for Ref I/O |
| Power: | 20.6 Watts Typical 90 mA at +3.3V 3990 mA at +5V 30 mA at +12V |
| Weight | 24 oz (0.68 kg) |

Environmental:

| | |
|---------------------------|---|
| Operating Temperature | 0° to +70° C |
| Non-Operating Temperature | -20° to +70° C |
| Operating Humidity | 0 to 90% (Non-condensing) |
| Non-Operating Humidity | Protect from moisture and contamination |

Part Number Examples:

Single Channel Part Number Examples

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|------------|---------------------------------|
| LS-27-DLS | 1 Channel, Lower L & S-Band |
| LS-27-DPU | 1 Channel, P & Upper L-Band |
| LS-27-DPLS | 1 Channel, P, L & S-Band |
| LS-27-DLU | 1 Channel, Lower & Upper L-Band |

Dual Channel Part Number Examples

| | |
|--------------|---|
| LS-27-DDLSLS | Both Lower L & S-Band |
| LS-27-DDSPSP | Both Lower L & P-band |
| LS-27-DDSPUL | Ch 1: S and P; Ch 2 Upper and Lower L-bands |

Physical, Power and I/O: