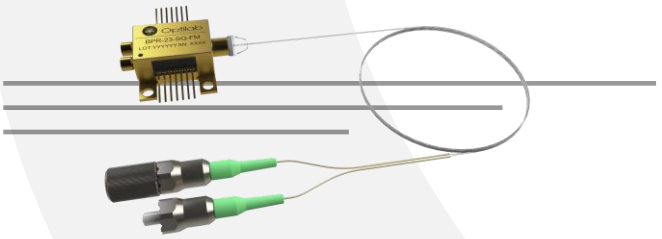
BPR-23-SQ-AVIM



DEVICE

23 GHz Linear Balanced Photo Receiver, SQ ver. w/MINI-AVIM Connector

INFO

The Optilab BPR-23-SQ-AVIM is a linear balanced photoreceiver with a configurable bandwidth up to 23 GHz. It is carefully designed, manufactured and tested to meet space application requirements. Compared to its commercial grade counter part, BPR-23-SQ-AVIM is more shock and vibration tolerant, withstands larger temperature range and shows an overall better reliability. BPR-23-Q-AVIM comes with space grade MINI-AVIM connectors.

FEATURES

- MINI-AVIM Connector
- MGC and AGC modes
- Adjustable bandwidth to 23 GHz
- Low skew, near ideal matching response
- Linear TIA with integrate VGA
- 14 pin mini-DIL package
- Dual GPPO for differential RF output

USE IN

- ≤ 23 GHz RFoF Link Systems
- Line card designs
- 48 Gbit/s DQPSK systems
- Transponder designs
- Low-noise analog heterodyne detection
- Satellite Communication

TESTS
(partial)

- Stabilization Bake
- Thermal Cycling
- Constant Acceleration
- PIND
- Burn-in Screening
- Electro-Optical Measurement
- Radiographic Inspection
- Fine and Gross Seal Tests
- SAM
- SEM
- Bond Pull Test
- Die Shear Attache Strength
- Vibration Test
- Life Test
- Humidity Test
- ESD (HBM) Test
- Temperature Step-Stress Test
- Proton Displacement Damage

STANDARDS
(partial)

- ECSS_Q-ST-60-5C
- ESCC (various)
- MIL-STD-883
- IEC 60749-29
- MIL-PRF-38534
- FOTP-13

BPR-23-SQ-AVIM

SPECIFICATIONS

GENERAL

Optimized Operating Wavelength	950 nm to 1650 nm
Optical Input Level	+4 dBm max.
S21 3 dB Bandwidth	23 GHz typ.
Dark Current @ 25° C, 3.3V	5 nA typ.
Conversion Gain	1500 V/W typ., 1300 V/W min
Imbalance of Conversion Gain	0.3 dB typ.
Optical Return Loss	30 dB typ.
Optical PDL @1550 nm	0.25 dB max.
PD Reverse Bias Voltage	3.3 V ± 0.2V
TIA Supply Voltage	3.3 V ± 0.2V
Output Return Loss	8 dB @ 20 GHz
Differential Output Voltage	Up to 1200 mVpp
Impedance	50 Ω
Output Coupling	DC (external AC coupling required)
Impulse Response	22 ps typ.
Skew	5 ps typ. , 20 ps max.
Noise Equivalent Power Density	70 pW/ √ Hz max.

MECHANICAL

Operating Temperature	-15 °C to +75 °C
Storage Temperature	-40 °C to +85 °C
Operating Humidity	85% max
Supply Current	77 mA typ., 93 mA max.
Housing Dimension	18 mm x 22 mm x 8.5 mm
Fiber Connector	Diamond MINI-AVIM
Optical Fiber	SMF-28
Package Type	14 pin butterfly min-DIL
RF Connector	Dual GPPO

MAX RATINGS

PD Reverse Bias Voltage	4.5 V
Input Optical Power	6 mW
Maxium Current	93 mA
Continuous Input Current	-1.5 mA to 5 mA
ESD, Input and Output Pins	1000 V min.
ESD, All Other Pins	2000 V min.
Latch up	JESD78 Class 2
Humidity	85%

BPR-23-SQ-AVIM

PIN-OUT

PIN 1, 5, 10, 14	Vcc	2.8 to 3.3 V, abs max current is 93 mA
PIN 2	BWM	Bandwidth Adjust, Sign.
PIN 3	BWA	Bandwidth Adjust, Magnitude
PIN 4	OA	Output Amplitude Adjust. 0-3.3 VDC adjustment for AGC mode.
PIN 6, 9	GND	Ground
PIN 7	VPD1	PD1 Cathode Connection
PIN 8	VPD2	PD2 Cathode Connection
PIN 11	GC	Gail Contorl. 0-3.3 VDC adjustment for MGC mode. Set to FLT in AGC mode.
PIN 12	MC	Mode Control. GND: MGC mode; FLT: AGC mode; Vcc: Shutdown.
PIN 13	PKD	Peak Detector Output
	OUTP	Positive RF Output, DC coupled out
	OUTN	Negative RF Output, DC coupled out

FUNCTION DIAGRAM