

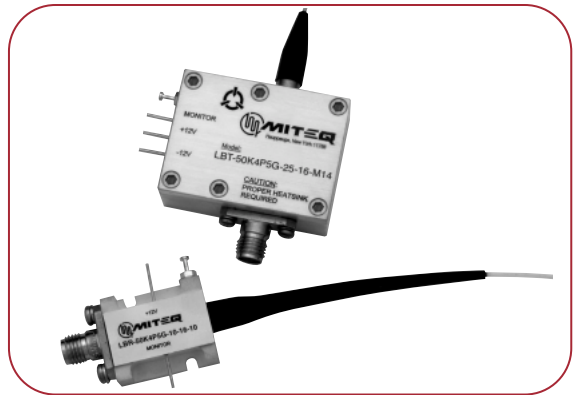
# 50 kHz - 4.5 GHz LBL FIBER OPTIC LINK

## FEATURES

- Bandwidth ..... 50 kHz to 4.5 GHz
- Small size
- Un-cooled DFB laser
- No external control circuits required
- Transimpedance amplifier in both transmitter and receiver
- Operational status monitor pins

## APPLICATIONS

- Antenna remoting
- Local oscillator remoting
- Interfacility communication links



## ELECTRICAL SPECIFICATIONS

PARAMETERS	CONDITION	UNITS	MIN.	TYP.	MAX.
Operating frequency	3 dB bandwidth		50 kHz		4.5 GHz
Gain		dB	12	17	25
Noise figure	Above 50 MHz	dB		10	15
Group delay	Peak-to-peak	ns		0.1	0.2
VSWR	Input/output				2:1
Phase noise	100 Hz offset	dBc	100		
Input power at 1 dB compression	Option A	dBm	-14		
Spurious-free dynamic range	1 Hz bandwidth	dB/Hz <sup>2/3</sup>	100	106	
Maximum input power	No damage	dBm			+10
Maximum output power	Saturated	dBm			+10
Impedance	Input/output	Ohms		50	
RF connectors	SMA female (male optional)				

NOTE: -30 dBm input power.

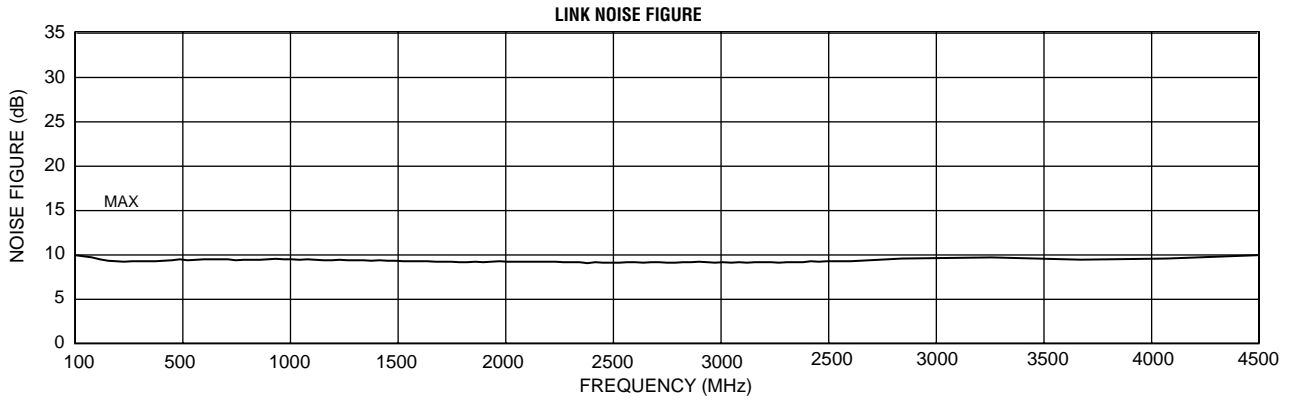
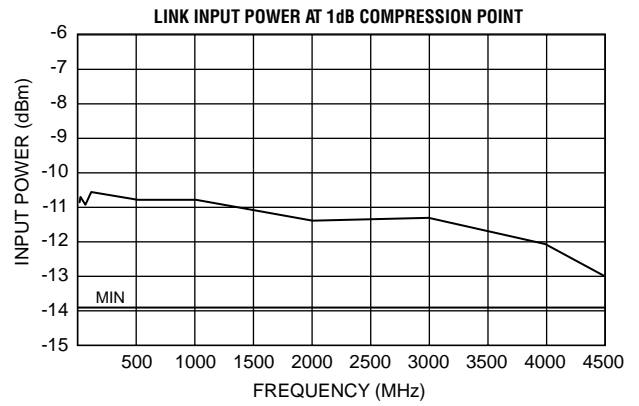
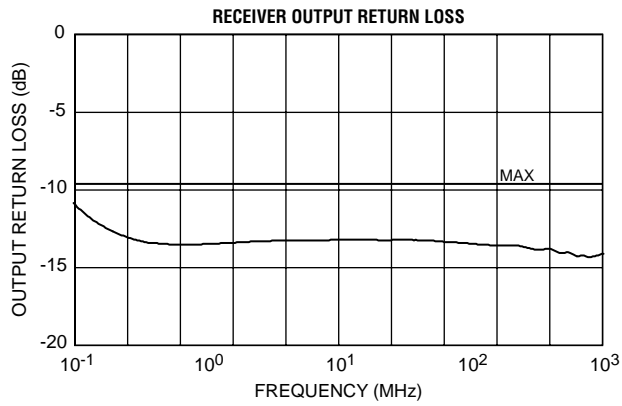
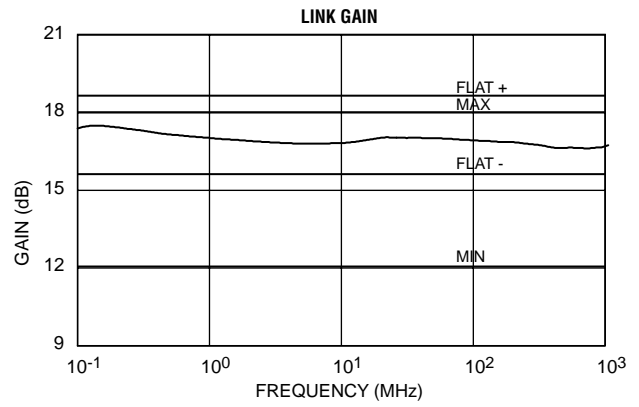
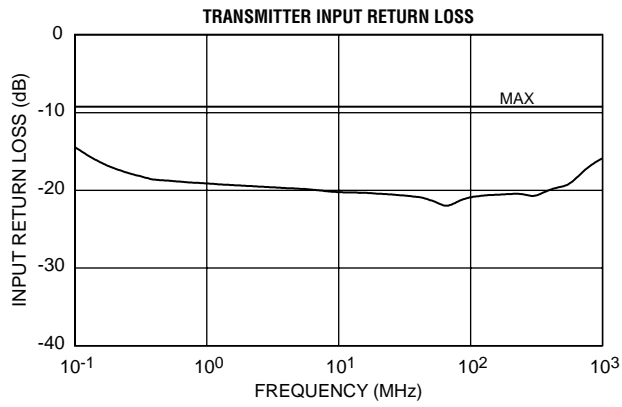
## OPTICAL PERFORMANCE SPECIFICATIONS

PARAMETERS	CONDITION	UNITS	MIN.	TYP.	MAX.
Fiber optic connectors	FC/APC (Other standard available)				
Fiber	Single mode fiber (9/125μm)				
Wavelength		nm	1540	1550	1560
Spectral width	FWHM	nm			0.1
Optical power in fiber	Reference only	mW	3	4	
Side mode suppression ratio		dB	30	40	

## POWER REQUIREMENTS

PARAMETERS	CURRENT @ 25°C BASE PLATE	UNITS	MIN.	TYP.	MAX.
			(VDC)	(VDC)	(VDC)
Transmitter	200 mA	2	+11	+12	+20
	100 mA	1	-11	-12	-20
Receiver	100 mA	4	+11	+12	+20

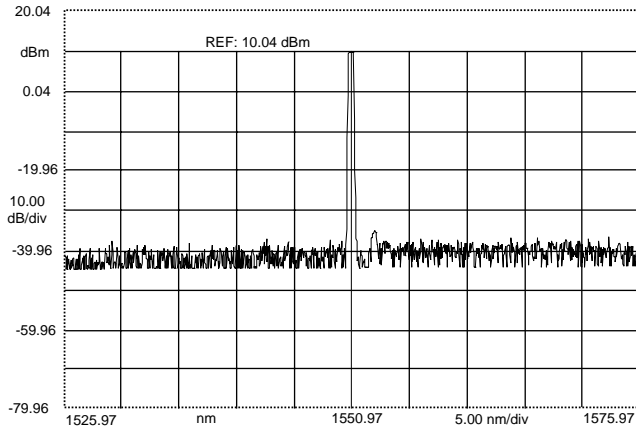
# TYPICAL TEST DATA



# TYPICAL TEST DATA (CONT.)

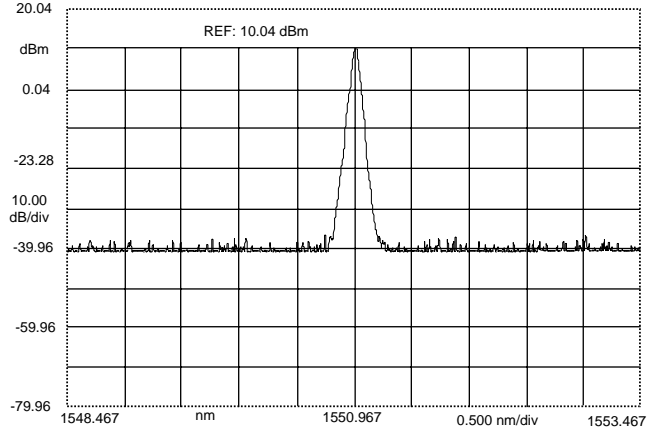
**TRANSMITTER SPECTRUM  
50 nM SPAN**

DFB Source Test (TrA)	Stop Band	1.55 nm	Peak Amplitude	9.86 dBm
Peak Wavelength	Center Offset	0.07 nm	Bandwidth	0.55 nm
Mode Offset	SMSR	44.69 dB	at:	-3.00 dB

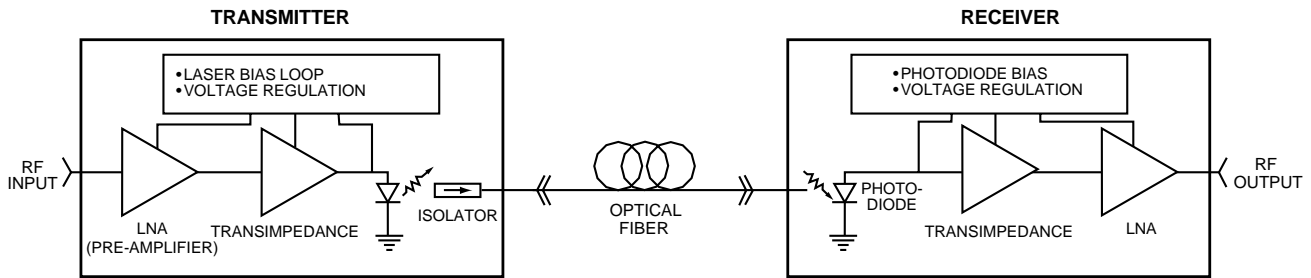


**TRANSMITTER SPECTRUM  
5 nM SPAN**

DFB Source Test (TrA)	Stop Band	0.990 nm	Peak Amplitude	9.96 dBm
Peak Wavelength	Center Offset	-0.230 nm	Bandwidth	0.050 nm
Mode Offset	SMSR	46.53 dB	at:	-3.00 dB



# BLOCK DIAGRAM



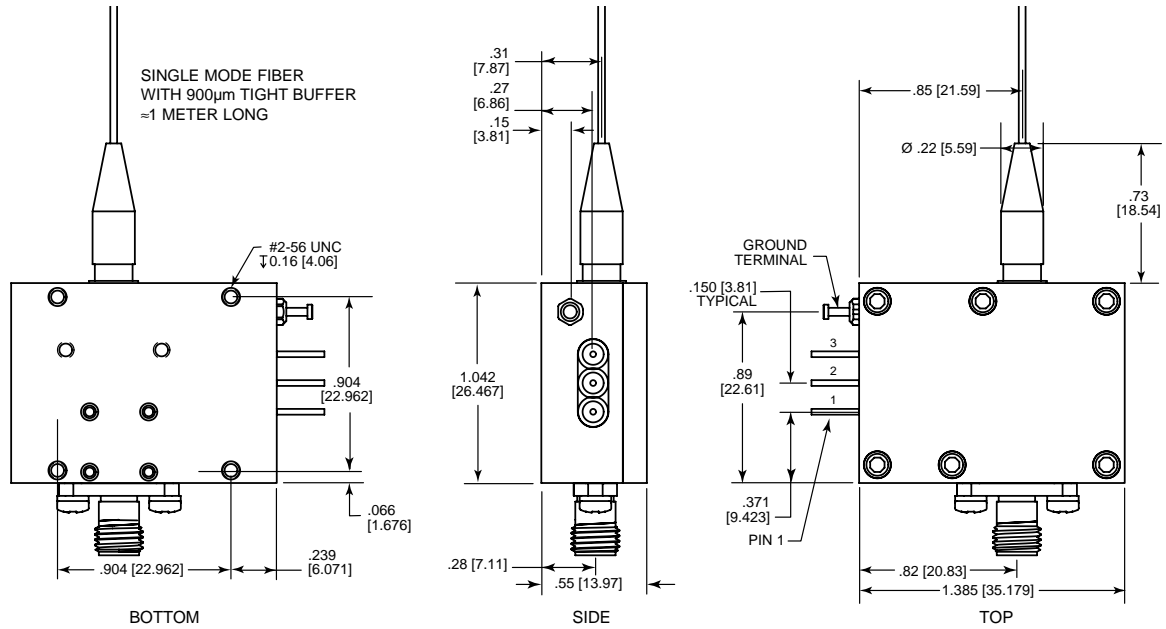
**ORDERING INFORMATION**

Transmitter..... Part number: LBT-50K4P5G-25-15-M14  
 Receiver..... Part number: LBR-50K4P5G-10-15-10

**ENVIRONMENTAL CONDITIONS**

Operating temperature ..... -20 to +70°C  
 Storage temperature ..... -40 to +85°C  
 Humidity ..... 95% relative humidity, noncondensing

# TRANSMITTER OUTLINE DRAWING



## TRANSMITTER POWER SUPPLY

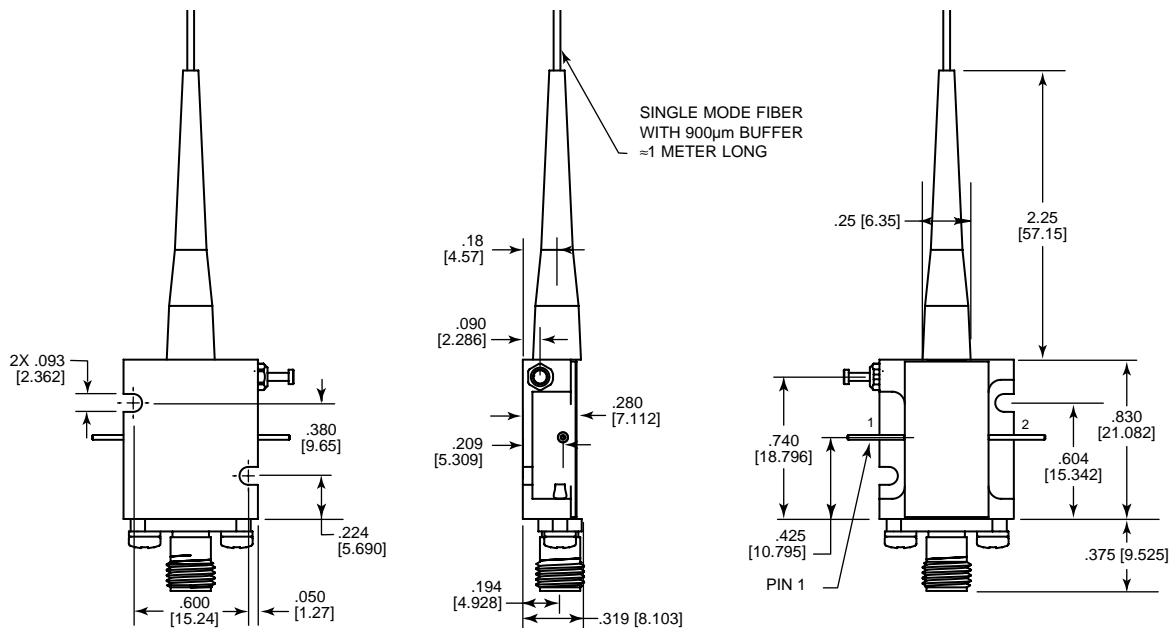
PIN	VOLTAGE	CURRENT (AMPS)	NOTES
1	-12	0.1	
2	+12	0.2	
3			PHOTOCURRENT MONITOR REFER TO "OPERATIONAL STATUS"

## TRANSMITTER OPERATIONAL STATUS

PIN	DESCRIPTION	NORMAL VOLTAGE	NOTES
3	OPTICAL POWER MONITOR	-2.5 V TO -1.5 V	0 VOLTS INDICATES NO LASER LIGHT

RF CONNECTOR: SMA (FEMALE STANDARD)  
 OPTICAL CONNECTOR: FC/APC STANDARD (OTHER STANDARDS AVAILABLE)  
 OPTICAL FIBER: 9/125 SINGLE MODE

# RECEIVER OUTLINE DRAWING



## RECEIVER POWER SUPPLY

PIN	VOLTAGE	CURRENT (AMPS)	NOTES
1			PHOTOCURRENT MONITOR REFER TO "OPERATIONAL STATUS"
2	+12	0.1	

## RECEIVER OPERATIONAL STATUS

PIN	DESCRIPTION	NORMAL VOLTAGE	NOTES
1	OPTICAL CARRIER DETECT	> 1.0 UP TO +8	0 VOLTS INDICATES NO CARRIER PRESENT. VOLTAGE INCREASES APPROXIMATELY 1.3 V/mW WITH DETECTED OPTICAL POWER.

RF CONNECTOR: SMA (FEMALE STANDARD)  
 OPTICAL CONNECTOR: FC/APC STANDARD (OTHER STANDARDS AVAILABLE)  
 OPTICAL FIBER: 9/125 SINGLE MODE

NOTE: DIMENSIONS SHOWN IN BRACKETS [ ] ARE IN MILLIMETERS.

