

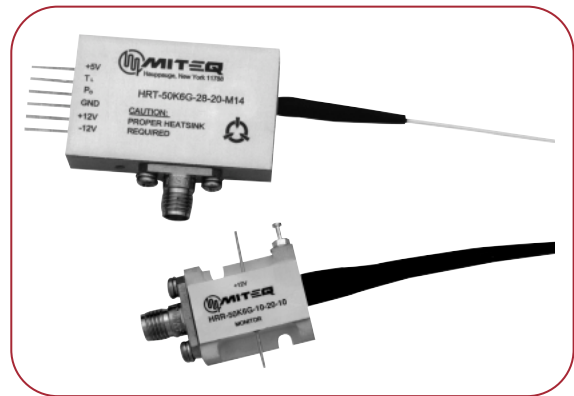
50 kHz - 6 GHz HRL FIBER OPTIC LINK

FEATURES

- Bandwidth 50 kHz to 6 GHz
- Wide operating temperature -40 to +85°C
- Small size
- No external control circuits required
- Transimpedance amplifier in both transmitter and receiver

APPLICATIONS

- Antenna remoting
- Local oscillator remoting
- Interfacility communication links



ELECTRICAL SPECIFICATIONS

PARAMETERS	CONDITION	UNITS	MIN.	TYP.	MAX.
Operating frequency	3 dB bandwidth		50 kHz		6 GHz
Gain		dB	10	20	25
Noise figure		dB		12	20
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		dBm	-14	-13	
Spurious-free dynamic range	1 Hz bandwidth	dB/Hz ^{2/3}	100	103	
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, 1m of fiber.

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	1530	1550	1560
Spectral width	FWHM	nm		0.06	0.1
Optical power in fiber	Reference only	mW	3	5	9
Side mode suppression ratio		dB	30	40	

POWER REQUIREMENTS

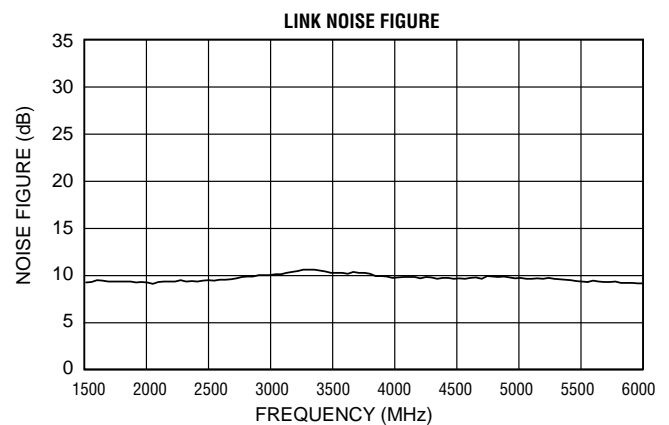
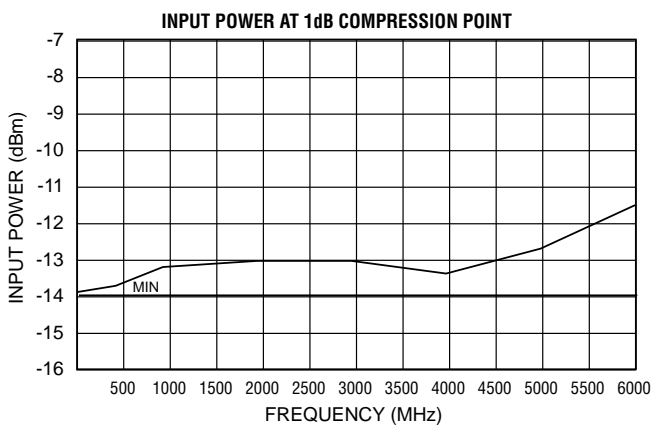
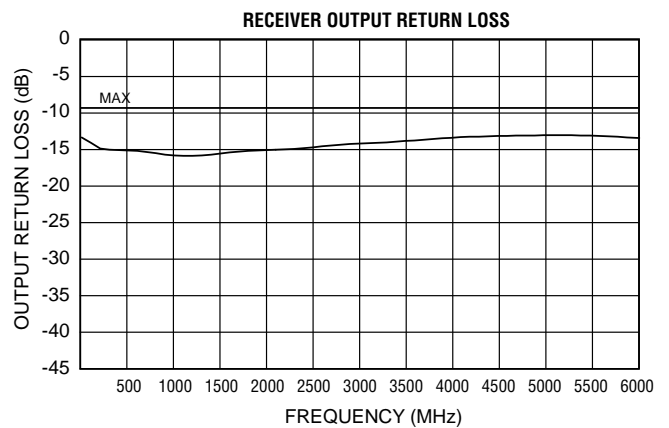
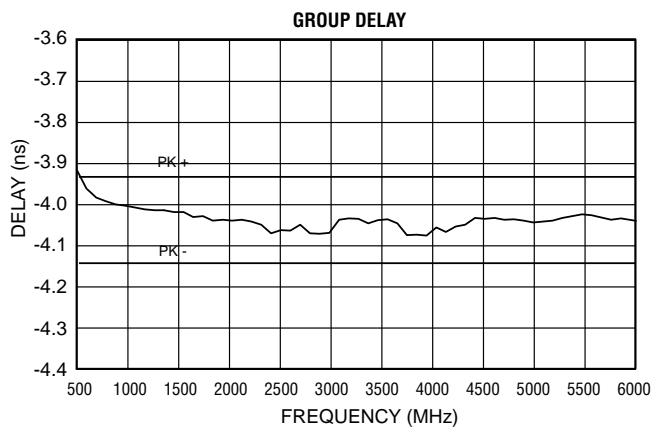
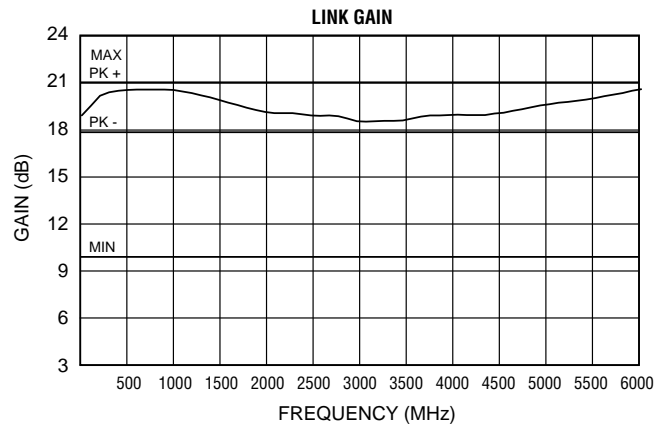
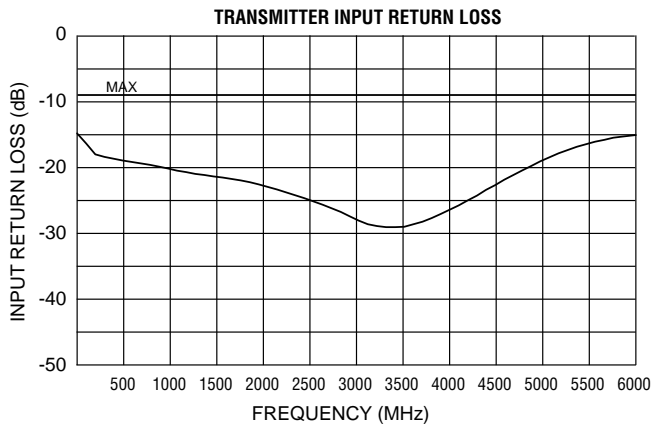
PARAMETERS	CURRENT @ 25°C BASE PLATE	PIN #	MIN. (VDC)	TYP. (VDC)	MAX. (VDC)
Transmitter	200 mA	4	+11	+12	+15
	115 mA, 300 mA (max.)*	5	-11	-12	-15
	325** mA	1	+3	+4	+6
Receiver	100 mA	4	+11	+12	+15

* At low case temperatures, < 5°C, the laser cooler switches to heat mode and will exceed 105 mA typical current.

** 1.2 A at maximum laser cooling.

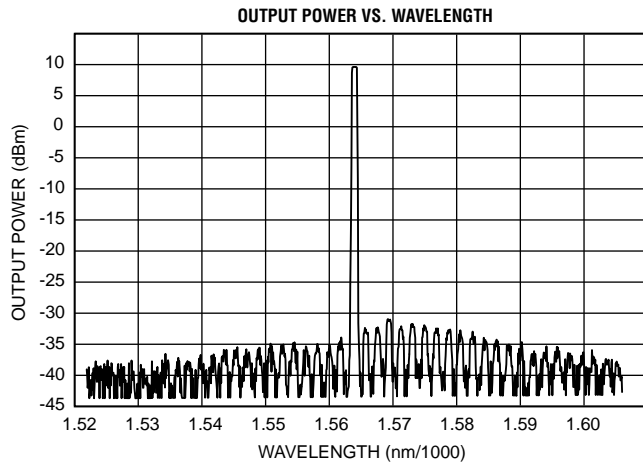


TYPICAL TEST DATA

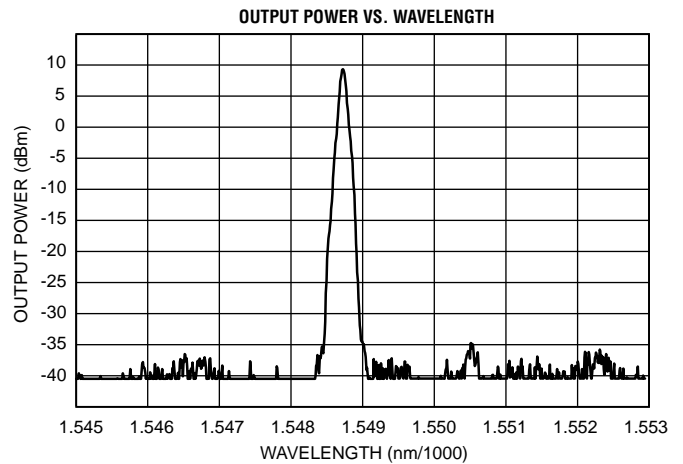


TYPICAL TEST DATA (CONT.)

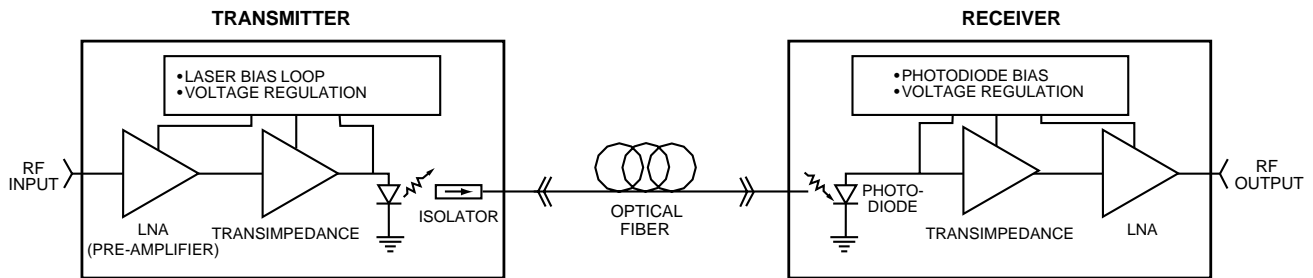
**TRANSMITTER SPECTRUM
50 nM SPAN**



**TRANSMITTER SPECTRUM
5 nM SPAN**



BLOCK DIAGRAM



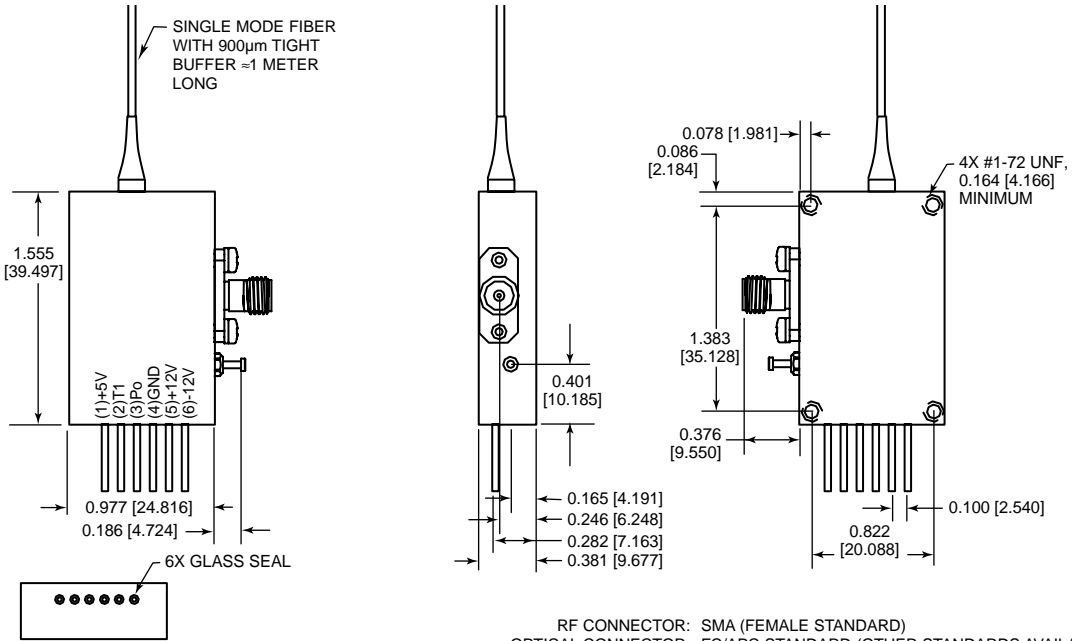
ORDERING INFORMATION

Transmitter Part number: HRT-50K6G-28-20-M14
 Receiver Part number: HRR-50K6G-10-20-10

ENVIRONMENTAL CONDITIONS

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

TRANSMITTER OUTLINE DRAWING



APPLY ALL VOLTAGES SIMULTANEOUSLY, OR IN THE FOLLOWING ORDER:

- +5V
- -12V
- +12V

TRANSMITTER POWER SUPPLY

PIN	VOLTAGE	CURRENT (AMPS)	NOTES
1	+5	0.325	@25°C BASE PLATE TEMP FOR MAXIMUM COOLING
4	GROUND	1.2	
5	+12V	0.31	
6	-12V	0.12	

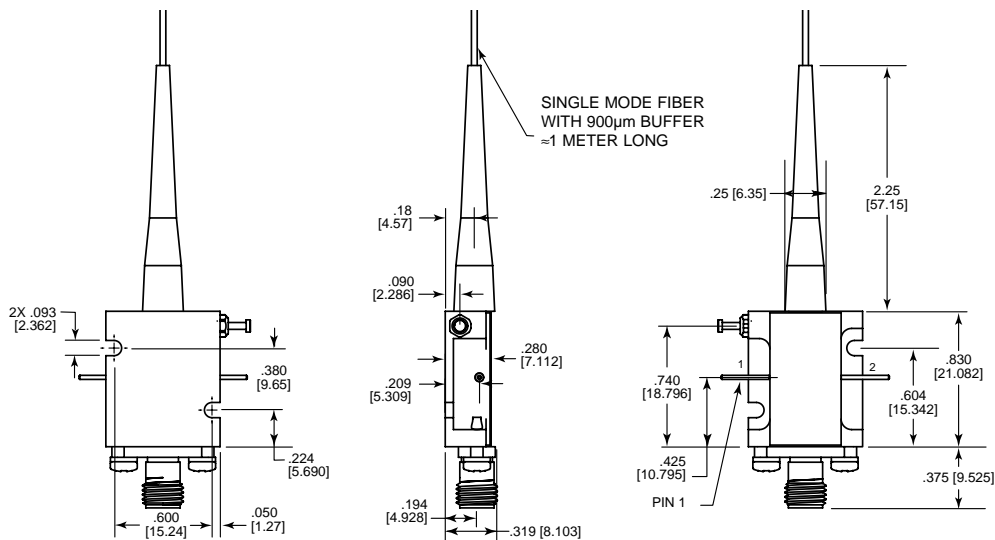
RF CONNECTOR: SMA (FEMALE STANDARD)
OPTICAL CONNECTOR: FC/APC STANDARD (OTHER STANDARDS AVAILABLE)
OPTICAL FIBER: 9/125 SINGLE MODE

TRANSMITTER OPERATIONAL STATUS

PIN	DESCRIPTION	NORMAL VOLTAGE	NOTES
2	OPTICAL POWER MONITOR	-2.5 V TO -1.5 V	0 VOLTS INDICATES NO LASER LIGHT
3	LASER TEMP MONITOR	-0.5 V TO +0.5 V	<-0.5 INDICATES HIGH LASER LIGHT >+0.5 INDICATES LOW LASER LIGHT

NOTE: ALLOW 2 MINUTES FOR LASER TEMP STABILIZATION AFTER APPLYING POWER.

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.