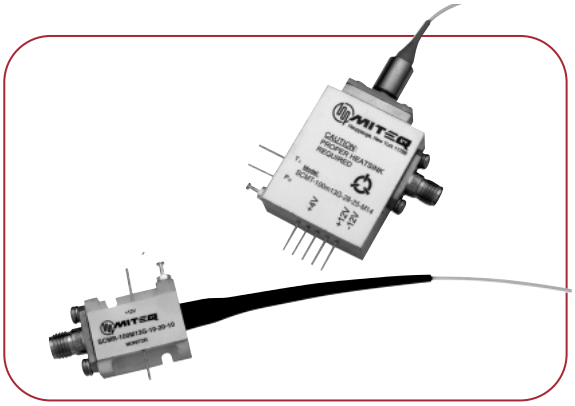
100 MHz - 13 GHz SCM FIBER OPTIC LINK

FEATURES

- **Bandwidth..... 100 MHz to 13 GHz**
- **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			100 MHz		13 GHz
Gain		dB	12	18	24
Gain flatness		dB			±2
Noise figure		dB		19	25
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	35	40	

POWER REQUIREMENTS

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

C40-1107-23

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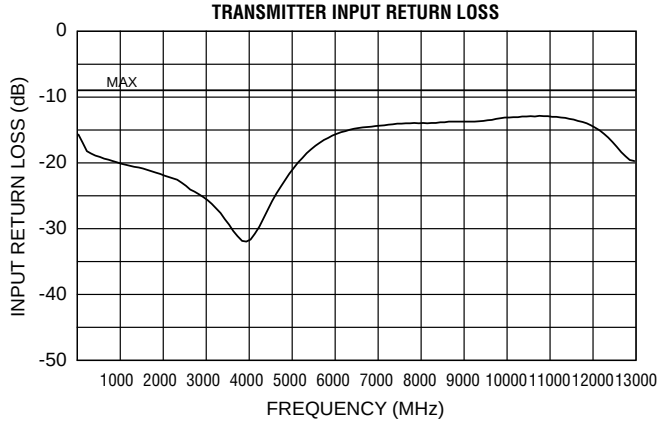
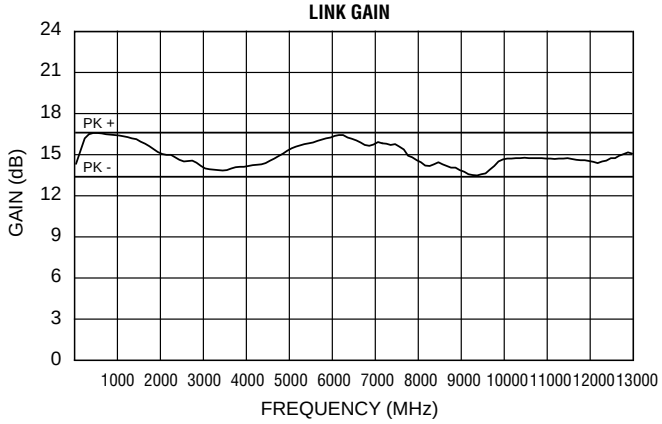
TYPICAL TEST DATA

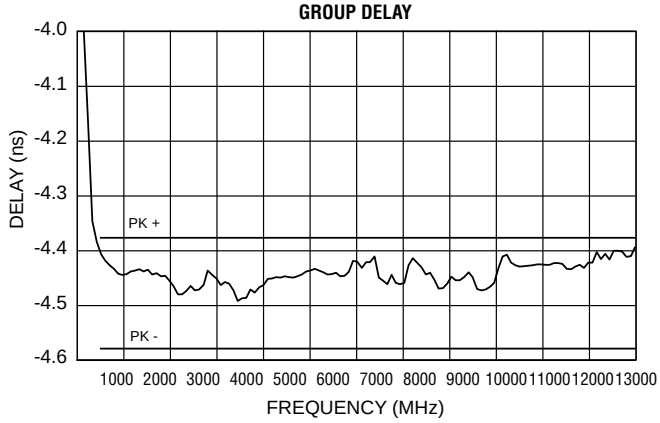
TRANSMITTER INPUT RETURN LOSS



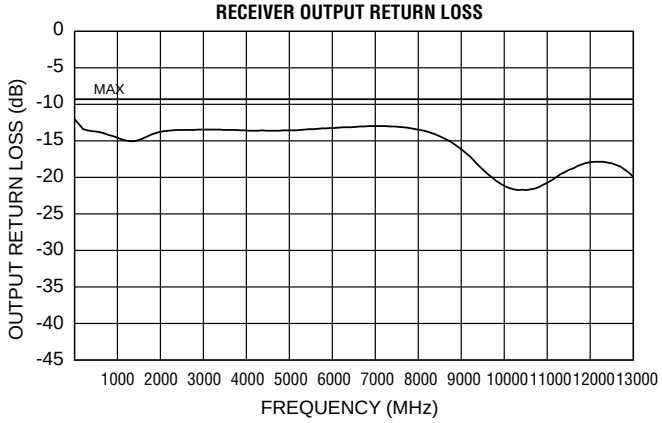
LINK GAIN



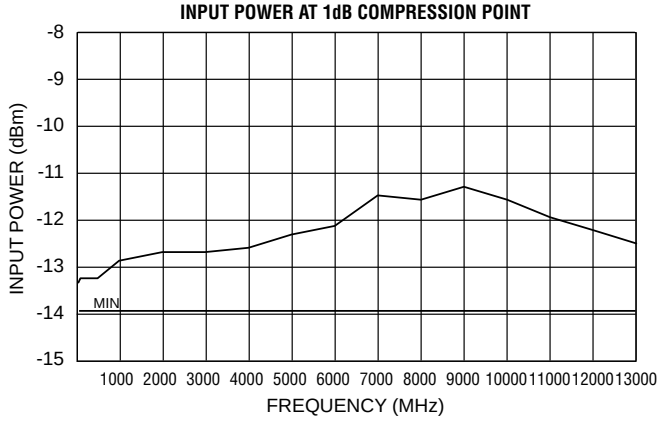
GROUP DELAY



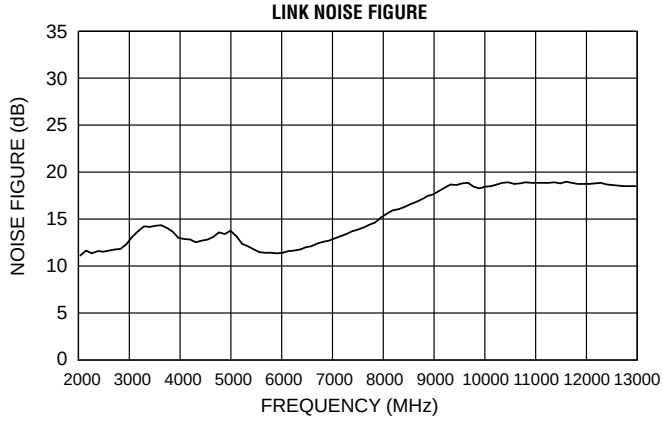
RECEIVER OUTPUT RETURN LOSS



INPUT POWER AT 1dB COMPRESSION POINT



LINK NOISE FIGURE



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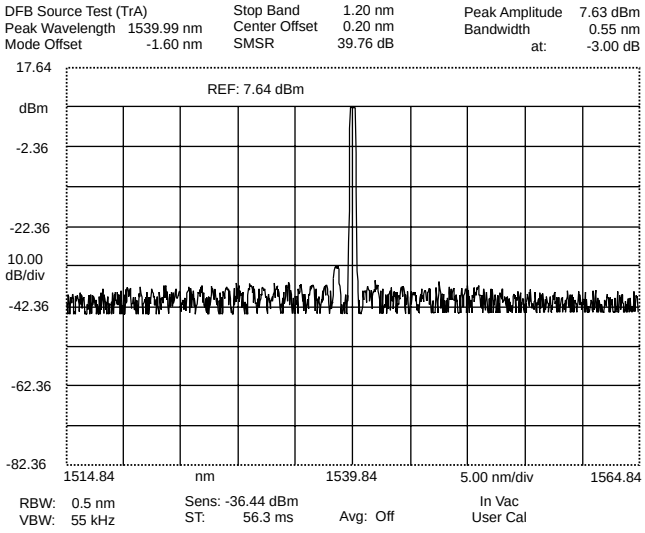
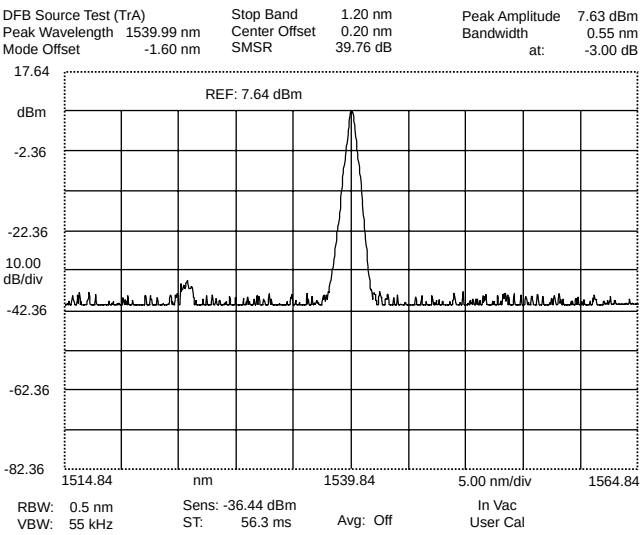
TYPICAL TEST DATA (CONT.)

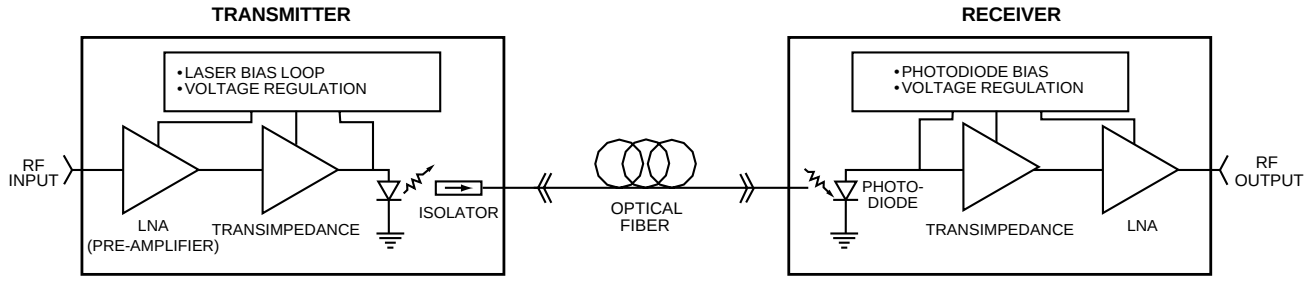
TRANSMITTER SPECTRUM
50 nM SPAN



TRANSMITTER SPECTRUM
5 nM SPAN



BLOCK DIAGRAM



ORDERING INFORMATION

Transmitter ..... Part number: SCMT-100M13G-28-25-M14
Receiver ..... Part number: SCMR-100M13G-10-25-10

ENVIRONMENTAL CONDITIONS

Operating temperature .... -20 to +50°C
Storage temperature ..... -40 to +85°C
Humidity..... 95% relative humidity, noncondensing

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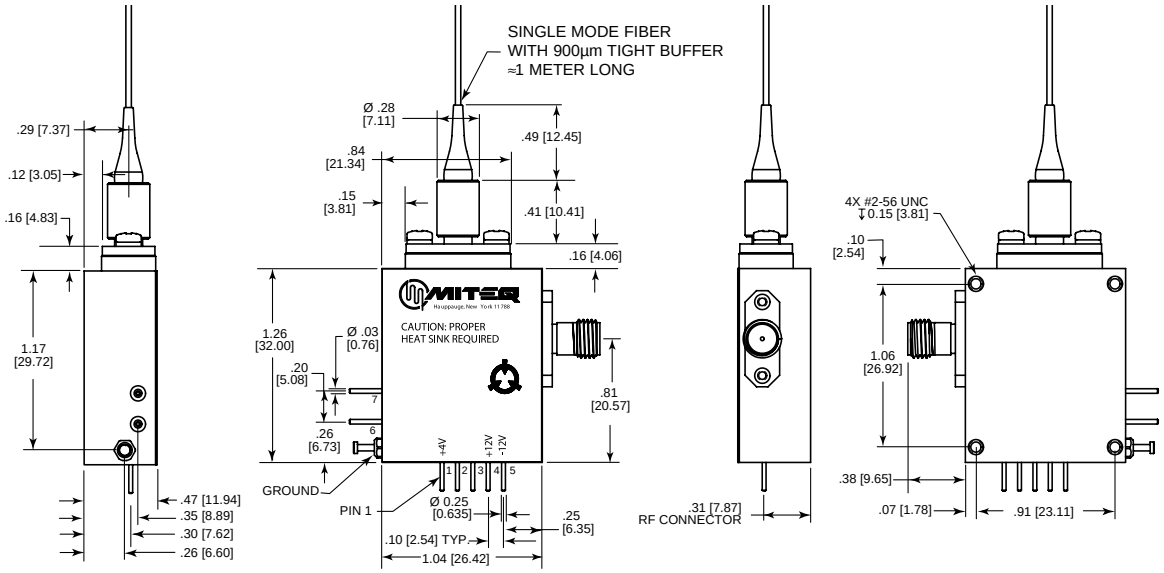
TRANSMITTER OUTLINE DRAWING



APPLY ALL VOLTAGES SIMULATEOUSLY, OR IN THE FOLLOWING ORDER:
- +4V
- -12V
- +12V

TRANSMITTER POWER SUPPLY

PIN	VOLTAGE	CURRENT (AMPS)	NOTES
1	+4	0.325 1.2	@25°C BASE PLATE TEMP FOR MAXIMUM COOLING
2	-4	1	OPTIONAL (LASER HEATER)
3	N/C		
4	+12	0.2	
5	-12	0.12	

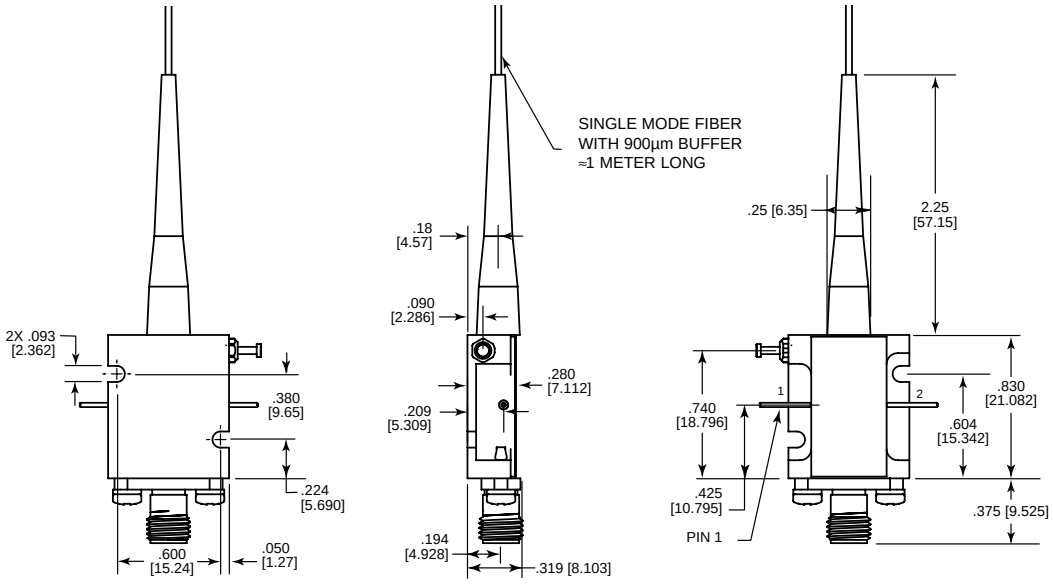
RF CONNECTOR: SMA (FEMALE STANDARD)
OPTICAL CONNECTOR: FC/APC STANDARD (OTHER STANDARDS AVAILABLE)
OPTICAL FIBER: 9/125 SINGLE MODE

TRANSMITTER OPERATIONAL STATUS

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

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.

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