

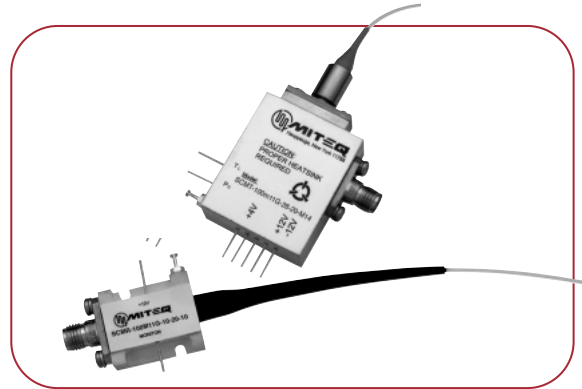
# 100 MHz - 11 GHz SCM FIBER OPTIC LINK

## FEATURES

- Bandwidth..... 100 MHz to 11 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	3 dB bandwidth	GHz	0.1	11	
Gain		dB	12	18	22
Noise figure		dB		18	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	-11	
Spurious-free dynamic range	1 Hz bandwidth	dB/Hz <sup>2/3</sup>	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

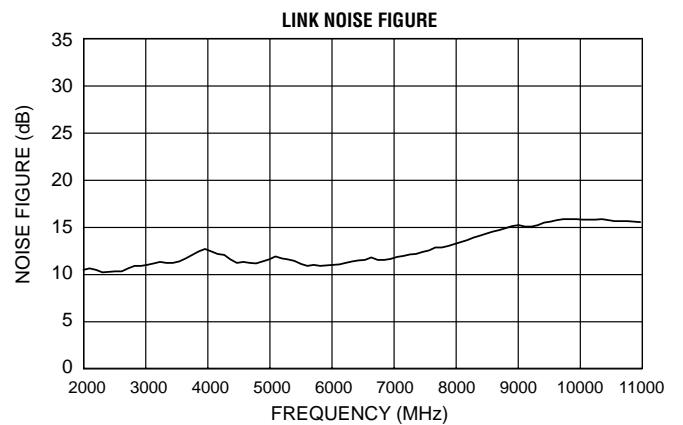
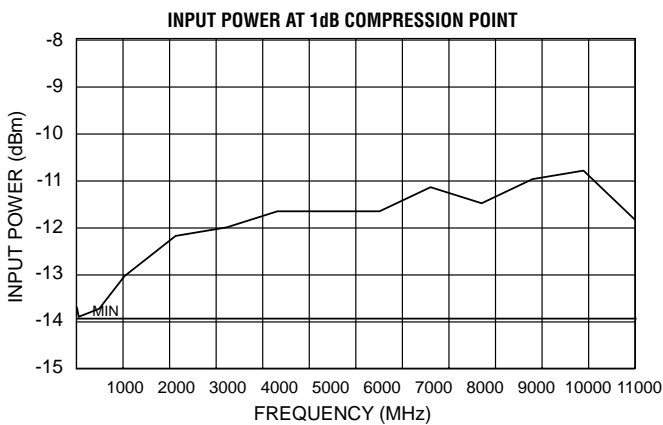
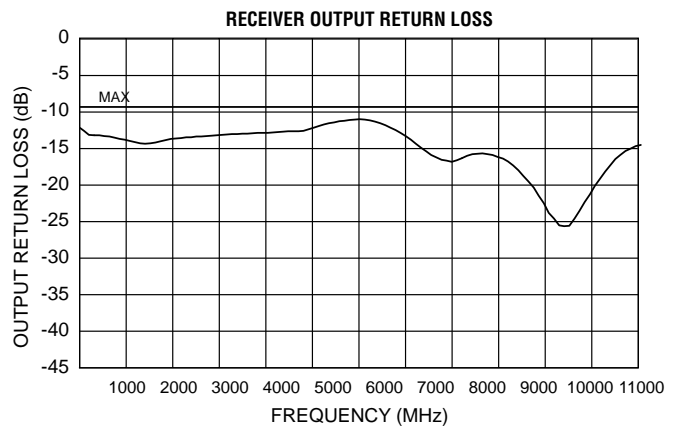
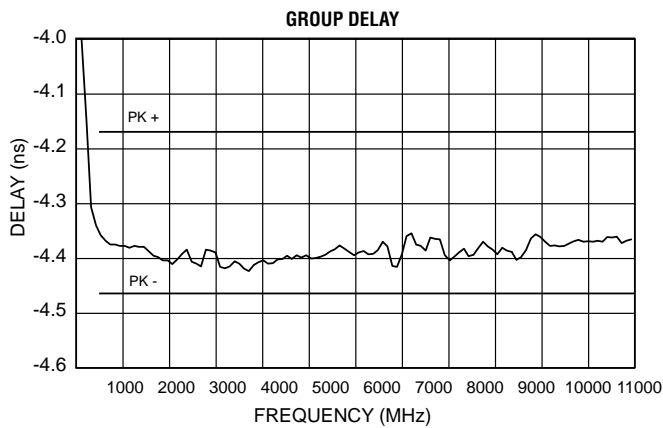
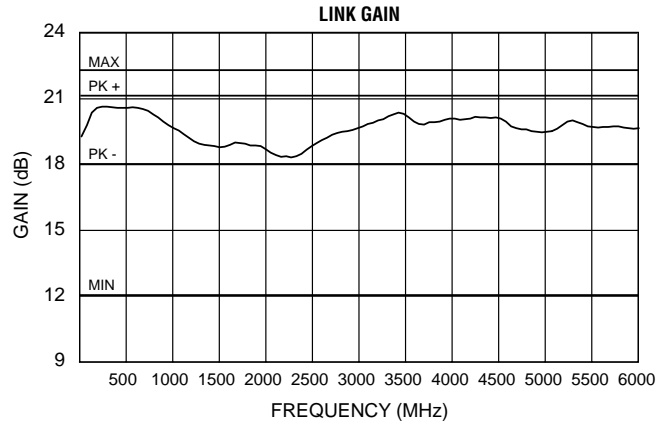
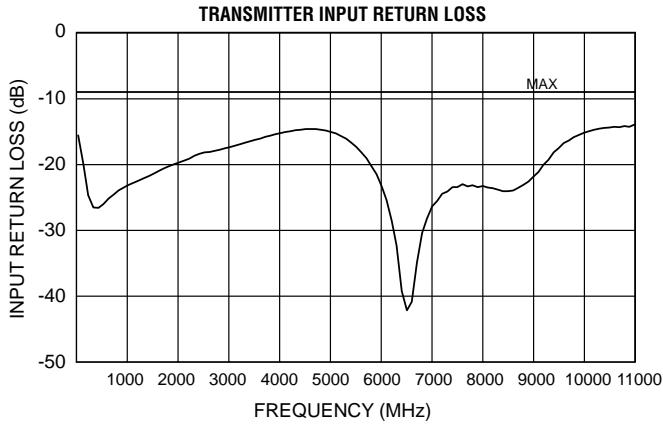
PARAMETERS	CURRENT @ 25°C BASE PLATE	PIN #	MIN. (VDC)	TYP. (VDC)	MAX. (VDC)
Transmitter	200 mA	4	+11	+12	+15
	115 mA, 300 mA (max.)*	5	-11	-12	-15
	325** mA	1	+3	+4	+6
Receiver	100 mA	4	+11	+12	+15

\* 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.

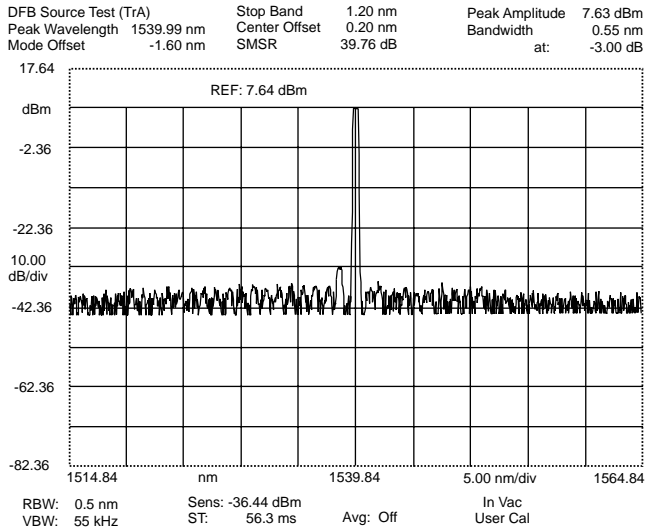


# TYPICAL TEST DATA

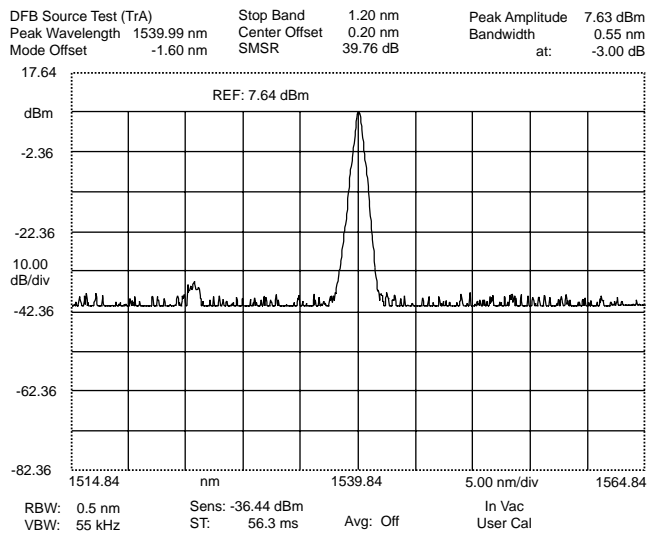


# TYPICAL TEST DATA (CONT.)

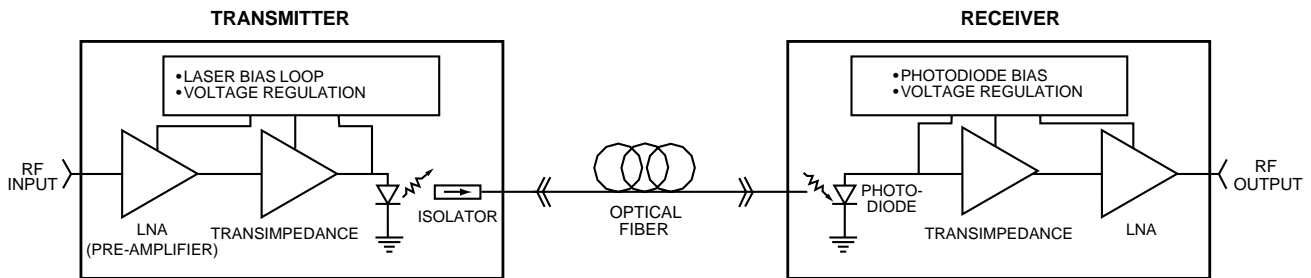
**TRANSMITTER SPECTRUM  
50 nM SPAN**



**TRANSMITTER SPECTRUM  
5 nM SPAN**



# BLOCK DIAGRAM



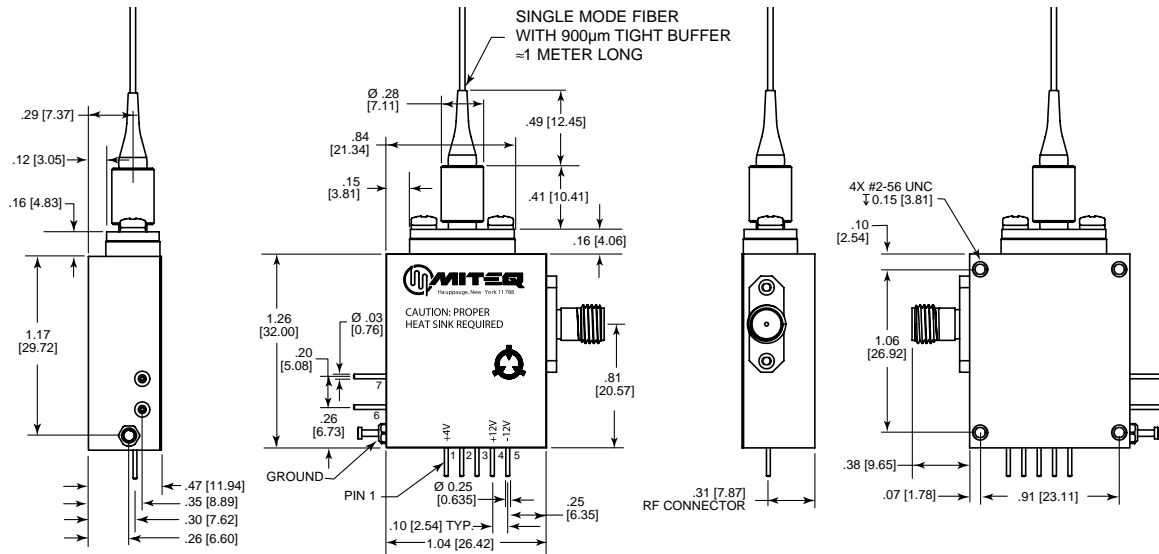
### ORDERING INFORMATION

Transmitter ..... Part number: SCMT-100M11G-28-20-M14  
 Receiver ..... Part number: SCMR-100M11G-10-20-10

### ENVIRONMENTAL CONDITIONS

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

# TRANSMITTER OUTLINE DRAWING



APPLY ALL VOLTAGES SIMULTANEOUSLY, OR IN THE FOLLOWING ORDER:

- +4V
- -12V
- +12V

TRANSMITTER POWER SUPPLY

PIN	VOLTAGE	CURRENT (AMPS)	NOTES
1	+4	0.325	@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	

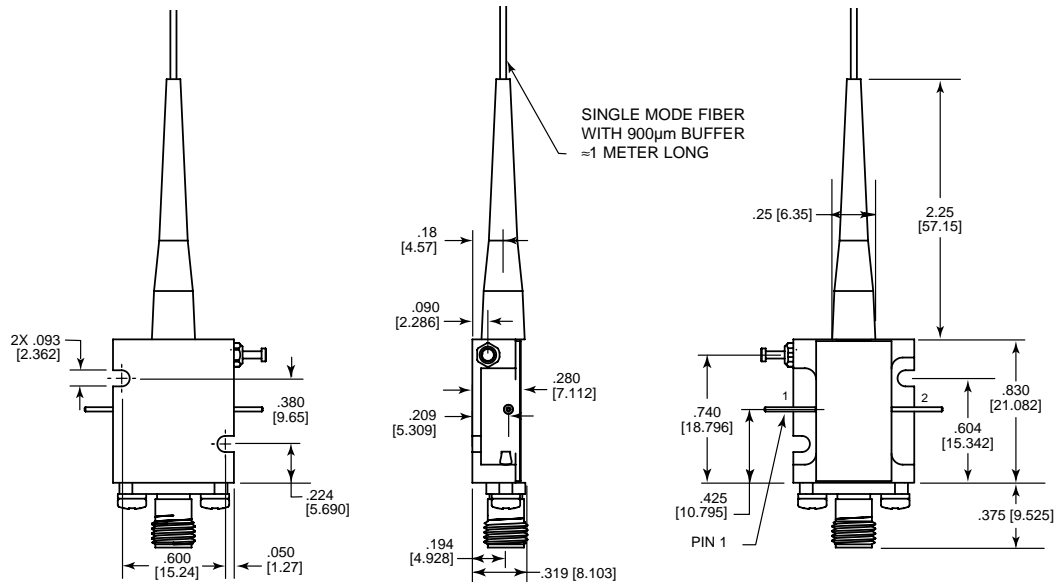
RF CONNECTOR: SMA (FEMALE STANDARD)  
 OPTICAL CONNECTOR: FC/APC STANDARD (OTHER STANDARDS AVAILABLE)  
 OPTICAL FIBER: 9/125 SINGLE MODE

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.

