

## FEATURES

- High spur free dynamic range of 110 dB/Hz<sup>2/3</sup> typical
- Operates with tens of kilometers of single mode fiber
- Small size, self contained, plug and play
- LED status light
- Industry standard connector for DC power and remote status reporting

L3 Narda-MITEQ's new SBL series of fiber optic link components continue the company's tradition of supplying high performance, "plug & play" fiber optic link components for linear and some digital applications. The SBT-4000 fiber optic transmitter and the SBR-4000 fiber optic receiver can transport RF signals within the frequency range of 10 MHz to 4 GHz, over tens of kilometers of standard single mode optical fiber. The SBL fiber optic link components are fully self-contained, requiring no external circuits to operate. Both the transmitter and receiver components have status reporting connections, making them ideal for integration into higher-level assemblies and SATCOM systems. Some common applications are: Satcom and RF antenna remoting, optical delay lines, inter-facility RF links and electrically isolated RF links.

# SBL-4000 FIBER OPTIC LINK

## SPECIFICATIONS

### ELECTRICAL SPECIFICATIONS at 23 °C

PARAMETER	CONDITION	UNITS	MIN	TYP.	MAX.	
Operating frequency		10 MHz to 4 GHz				
Gain dB		dB	10	13	18	
Gain flatness		dB				±2
Noise figure		dB		10	18	
Group delay	Peak to peak	ns		0.1	0.2	
Return loss	Tx input/Rx output	dB			-9.54	
Phase noise	100 Hz offset	dBc	100			
Input power at 1 dB compression P1 dB		dBm	-14	-11		
Spurious-free dynamic range		dB/Hz <sup>2/3</sup>		111		
Maximum input power	No damage	dBm	+10			
RF connectors	Input/output	SMA/F				
DC and monitor connector	PHR-7, manufactured by J.S.T. Mfg. Co. Ltd.					
Impedance	Input/output	Ohms		50		
DC voltage		Vdc		+12		
DC current (Transmitter / Receiver)		mA		250 / 150		
Operating temperature		°C		-20 to +50		

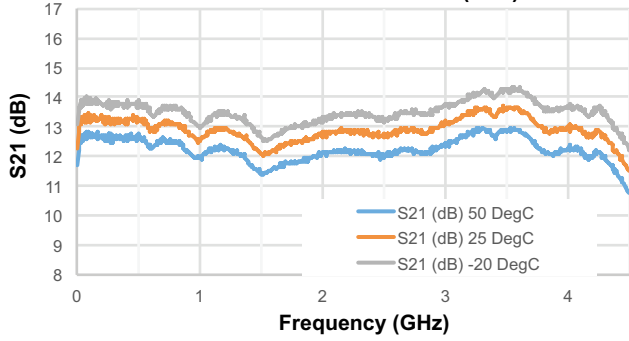
- NOTES: 1. Specifications are stated with no additional optical fiber between transmitter and receiver.  
 2. Test condition at -30 dBm input power, 1 meter of fiber.  
 3. Noise figure and other specifications may be degraded at frequencies below 50 MHz.

### OPTICAL SPECIFICATIONS (at 23 °C)

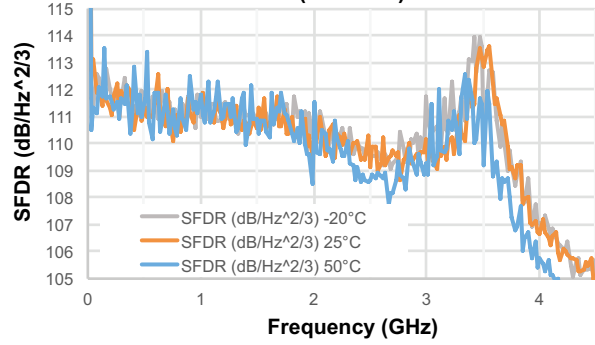
PARAMETER	CONDITION	UNITS	MIN	TYP.	MAX.
Optical fiber		Single mode fiber, tight buffer (9/125/900)			
Fiber optic connectors		SC/APC			
Fiber pigtail length	For reference	m	1		
Center wavelength	at -20 dB	nm	1540	1550	1560
Spectral width		nm		0.01	0.1
Optical power in fiber		mW		4	
Side mode suppression ratio		dB	30	40	
Wavelength temperature coefficient		nm/ °C	0.1		0.12

# PHASE NOISE SPECIFICATIONS

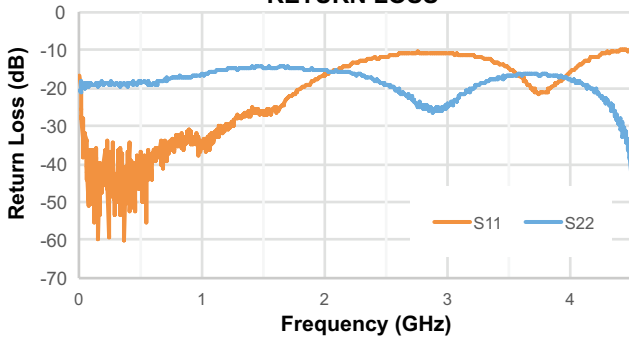
FIBER OPTIC LINK GAIN (S21)



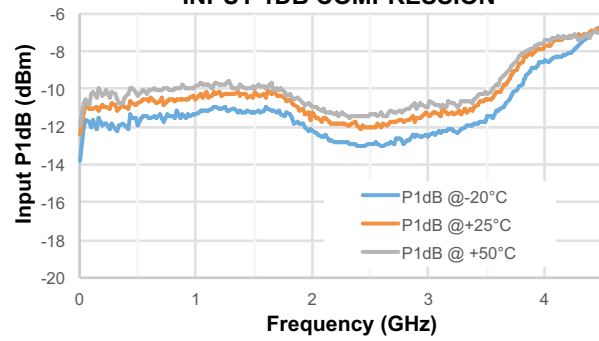
SFDR (1HZ BW)



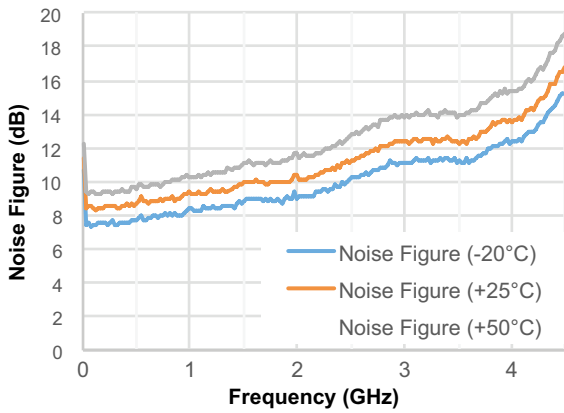
RETURN LOSS



INPUT 1DB COMPRESSION



NOISE FIGURE



# SBL-4000 FIBER OPTIC LINK

## ORDERING INFORMATION

SBT-4000.....Transmitter  
 SBR-4000.....Receiver

## ENVIRONMENTAL SPECIFICATIONS

### Temperature

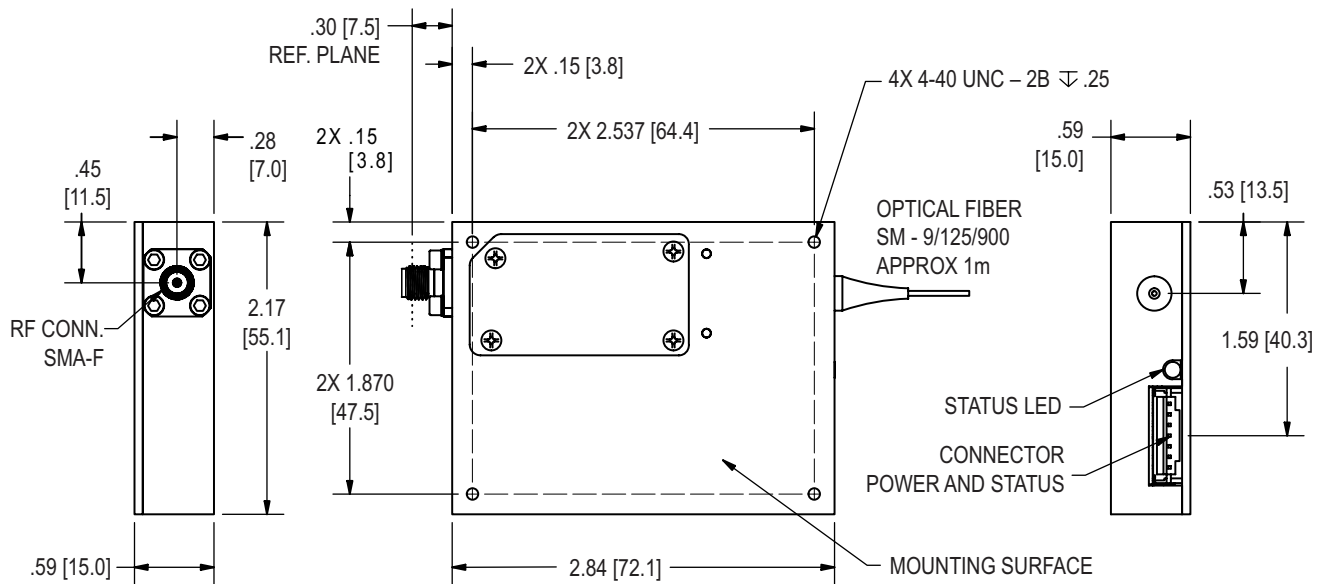
Operating..... -20 °C to +50 °C  
 Storage..... -40 °C to +85 °C

Humidity ..... 95% relative humidity, noncondensing

Vibration ..... 7.3 g's rms, 20-20000 CPS  
 Per MIL-STD-8108B,  
 Method 514, Procedure 5

## OUTLINE DRAWING

218063



Note: Dimensions shown are in inches and those shown in brackets [ ] are in millimeters.



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