



Press Release March 1, 2006

*Leading the Optical Link Technology*

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## **SIGMA-LINKS RELEASED MICRO-SIZE BOSA “ $\mu$ -BOSA “ for FTTH**

For Immediate Release

Tokyo, Japan – March 1, 2006 - Sigma-Links Inc., a leading company in high-speed optical components, announced it has developed new innovative product, “ $\mu$ -BOSA (Micro-BOSA)” for FTTH transceiver application.

This new product is the world smallest size BOSA (Bidirectional Optical Sub Assembly) for the optical transceiver used in FTTH-ONT which complies with IEEE802.3ah EPON standard.  $\mu$ -BOSA utilizes micro-size transceiver chip based on OKI’s silicon platform technology and has achieved single in line structure with SC-connector receptacle. Sample shipping of this product will start from April 2006.

This novel silicon platform architecture ensures high coupling efficiency and stable operation and saves number of components in assembling process.

“Sigma-Links is proud of releasing this product to the worldwide FTTH market. We will expand this product line to the various applications like BPON and GPON this year” said Okosu Watanabe, CEO and president of Sigma-Links Inc.

About Sigma-Links

Sigma-Links, Inc., a joint venture company between Fujikura Ltd. and Oki Electric Industry Co.,Ltd., which was established in April 2001. Utilizing the technologies and products from both companies, Sigma-Links is producing a variety of optical Link products to the telecommunication industry. Sigma-Links provides optical link products with the highest level quality and worldwide customer service. Visit Sigma-Links web site <http://www.sigma-links.com>.

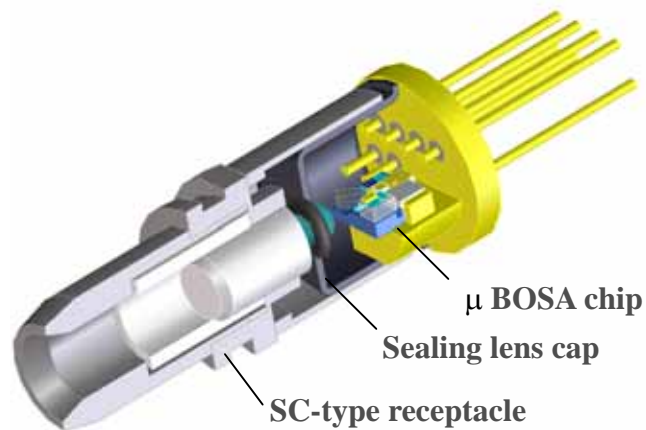
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# **SIGMA-LINKS INC.**

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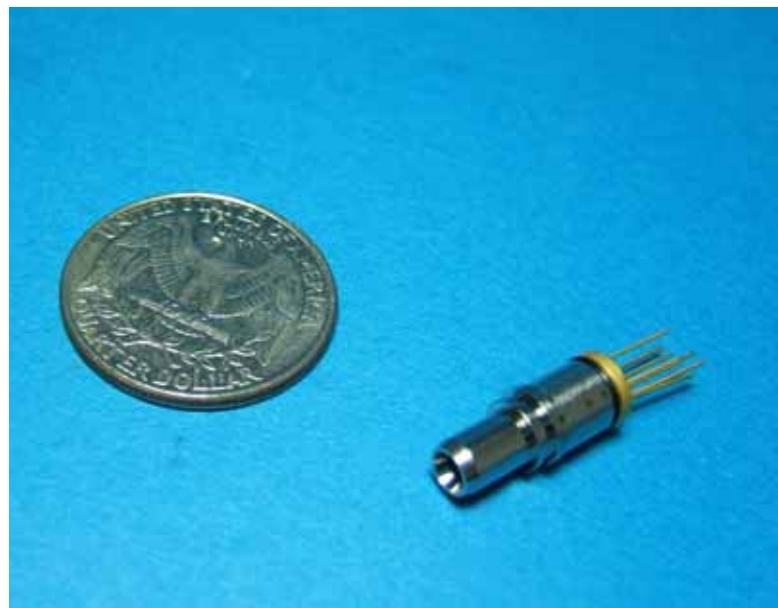
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**Fig.1 Internal structure of Micro-BOSA**



**μ-BOSA (Micro Bidirectional Optical Sub Assembly) SLM-0001**

**Fig.2 Photograph of μ-BOSA (6.75mm φ / 15.4mm L)**





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## Bi-directional optical module

### SLM-0001

**Preliminary**

#### Application

- FTTx (Compliant to IEEE 802.3ah PX10)

#### Features

- Coaxial structure
- Tx 1.31 $\mu$ m FP-LD / Rx 1.49 $\mu$ m PIN-TIA and blocking 1.55 $\mu$ m
- Data rate up to 1.25Gbps
- With singlemode SC receptacle
- 3.3V power supply
- Using Si micro lens integrated on Si optical bench ( $\mu$  BOSA chip)
- Low Cost

#### Absolute Maximum Ratings (Tc=25°C)

Item	Symbol	Spec	Unit	Note
BIDI Module				
Storage Temperature	Tstg	-40 to +85	°C	
Operating Temperature	Tc	0 to +75	°C	
Soldering Temperature	Ts	350	°C	3sec
LD				
Reverse Voltage	Vrmax	2	V	
Maximum Current	Ifmax	150	mA	
PD				
Optical Input Power	Pinmax	+3	dBm	Average
TIA				
Power Supply Voltage	Vcc	4	V	

**Transmitter specifications (Tc=0 to +75°C)**

Item	Symbol	Condition	Min	Typ	Max	Unit
Threshold Current	I <sub>th</sub>	CW	2	-	25	mA
Optical Output Power	P <sub>f</sub>	CW, I <sub>op</sub> =I <sub>th</sub> +20mA (T <sub>c</sub> =25°C)	1.8	2	-	mW
		CW, I <sub>op</sub> =I <sub>th</sub> +20mA (T <sub>c</sub> =75°C)	1.0	1.6	-	
Slope Efficiency	η	T <sub>c</sub> =25°C, P <sub>f</sub> =0.5 to 2mW	0.09	0.1	-	W/A
		T <sub>c</sub> =0°C,75°C, P <sub>f</sub> =0.5 to 2mW	0.05	0.08	-	
Operating Current	I <sub>op</sub>	CW, P <sub>f</sub> =1.4mW	10	-	70	mA
Center Wavelength	λ <sub>c</sub>	CW, P <sub>f</sub> =1.4mW	1281	1310	1349	nm
Spectrum Width(RMS)	Δλ	1.25Gbps, P <sub>f</sub> (ave.)=1.4mW	-	-	2.25	nm
Tracking Error	TE	CW, P <sub>f</sub> =1.4mW, APC	-1.5	-	+1.5	dB
Forward Voltage	V <sub>f</sub>	CW, P <sub>f</sub> =1.4mW	-	-	1.5	V
Monitor PD current	I <sub>m</sub>	CW, P <sub>f</sub> =1.4mW	100	-	1000	μA
Monitor PD dark current	I <sub>d</sub>	V <sub>r</sub> =3.3V	-	-	0.1	μA

**Receiver specifications (Tc=0 to +75°C, Vcc=3.13 to 3.47V)**

Item	Symbol	Condition	Min	Typ	Max	Unit
Minimum Sensitivity	R <sub>min</sub>	λ=1490nm	-	-28	-27.5	dBm
Overload	R <sub>max</sub>	λ=1490nm	0	-	-	dBm
Current Consumption	I <sub>cc</sub>		-	-	50	mA

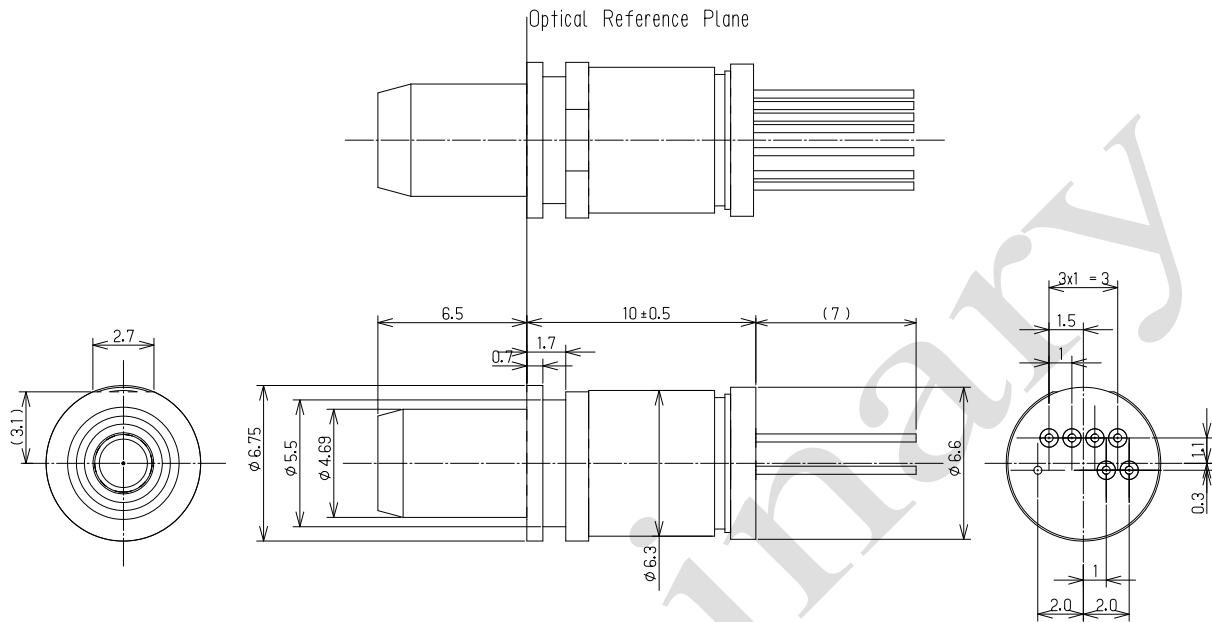
**Module characteristics (Tc=0 to +75°C)**

Item	Symbol	Condition	Min	Typ	Max	Unit
Optical Isolation	ISO	LD(1.31μm)→PD(Internally)	-	-	-47	dB
		SC(1.31μm)→PD	-	-	-35	dB
		SC(1.55μm)→PD	-	-	-35	dB
		SC(1.65μm)→PD	-	-	-35	dB
Optical Return Loss	ORL	1.49μm/1.55μm	20	-	-	dB
		1.31μm	6	-	-	dB

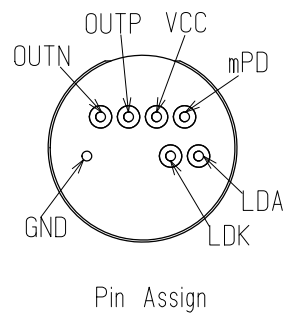
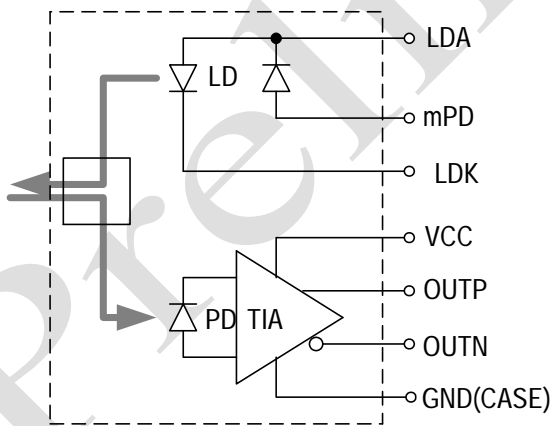
**Optical interface Specification**

Item	Min	Typ	Max	Unit
Mode Field Diameter	8	9	10	μm
Cladding Diameter	123	125	127	μm
Stub	SC/PC corresponding			-

### Package Outline (Unit : mm)



### Pin Descriptions



### **Qualification and Reliability**

To help ensure high product reliability and customer satisfaction, SIGMA-LINKS is committed to an intensive quality program that starts in the design phase and proceeds through the manufacturing process.

Optical modules are qualified to SIGMA-LINKS internal standards using MIL-STD-883 test methods and procedures and using sample techniques consistent with Telcordia requirements.

This qualification program fully meets the intent of Telcordia reliability practices GR-468-CORE.

Preliminary