SPECIFICATION AND INSPECTION PROCEDURE

FOR PARALLEL OPTICAL LINK

Document No.: DOC-020901A-2

Transceiver Part Nr.: POX25B04SEJC

February 9, 2001

Customer: **CERN**

Revision	Date of Revision	Description of Change
1	August 21, 2001	Corrected pin assignment for Rx power supply
2	Mar 16, 2002	Maximum average launched power: –5.5dBm to –5dBm

NGK INSULATORS, LTD.:

Approved by: Masahiko Sugiyama, Signature:_____

CUSTOMER CONFIRMATION:

Name: _____ Signature: _____

Name: _____ Signature: _____

Name: _____ Signature: _____

Product applicable to this document

This document is applicable to 10pcs of the evaluation samples of parallel optical transceiver for CERN, which has been supplied by NGK INSULATORS,LTD in May of 2002. These specifications might have to be modified upon start of volume production.

Power Decrease to end-of-life	-	-	3	dB
Array Optical Power variation	-	3	5	dB
Optical Extinction Ratio	3	-	-	dB

Table 3B. Optical Specifications - Receiver

Parameter	Min	Typ	Max	Unit
Minimum Received Power (Sensitivity)	-	-19	-18	dBm
Maximum Received Power (Saturation)	-5	-	-	dBm

Table 3C. Optical Specifications - System

Parameter	Max	Units
Synchronous Distance[1]	200	m
Asynchronous Distance	2000	m
Fiber Type: 9um Singlemode		
Optical Connector: MTP		
Eye Safety: FDA Class 1, IEC 825 Class 1		

Table 4. Physical Specifications - System

Parameters	Min	Typ	Max	Unit
Storage Temperature	-40	-	85	^{o}C
Operating Temperature (Ambient)	0	-	70	^{o}C
Maximum Reflow Temperature[2]	-	-	260	^{o}C

Table 5. Electrical Specifications - System

Parameters	Min	Typ	Max	Unit
Data Rate	0.001	2.5	-	Gb/s/ch
Back to Back Skew - 1m Fiber	-	-	100	ps
Total Jitter[3] (Peak-to-Peak [6σ])	-	-	150	ps
BER (PRBS 2^{23}-1 NRZ pattern)	-	10^{-14}	10^{-12}	-

Table 6A. +3.3V PECL[7]- Electrical Interface - Transmitter Side

Parameter	Min	Typ	Max	Unit
Differential Input Swing	0.4	0.6	1.2	V
Input High	Vcc-1.25	-	Vcc-0.95	V
Input Low	Vcc-1.65	-	Vcc-1.35	V
Common Mode Voltage	-	Vcc-1.3	-	V
Termination Voltage (V_{TT}) [4]	-	2.0	-	V
Laser Disable (Vct) [6]	2.0	-	-	V
Laser Enable (Vct) [6]	-	-	0.8	V
Power Dissipation/ch (25 °C Ambient)	-	150	-	mW/ch
Power Dissipation/ch (70 °C Ambient)	-	180	-	mW/ch
Power Supply (V_{cc})	3.14	3.30	3.47	V
Differential Input Impedance[5]	80	100	120	Ohms

Table 6B. +3.3V CML-Compatible Electrical Interface - Receiver Side

Parameter	Min	Typ	Max	Unit
Differential Output Swing	400	-	800	mV
Ouput Voltage Range (50 Ohm Load)	Vcc-0.4	-	Vcc	V
Output CML Drive Current	7	9	11	mA
Power Dissipation/ch	-	150	-	mW/ch
Output Impedance	-	100	-	Ohms
Power Supply (V_{CC1} and V_{CC2})	3.14	3.3	3.46	V
Output Rise/Fall Time	-	100	-	ps

* The optical power does not include any connection loss other than module receptacle.

Note 1: Skew-matched fiber required for synchronous transmission.

Note 2: Temp for 30 sec. with 3 cycles

Note 3: Deterministic + Random.

Note 4: V_{tt} not equal to 2V Increases power consumption above specified level.

Note 5: Differential Impedance between complimentary inputs.

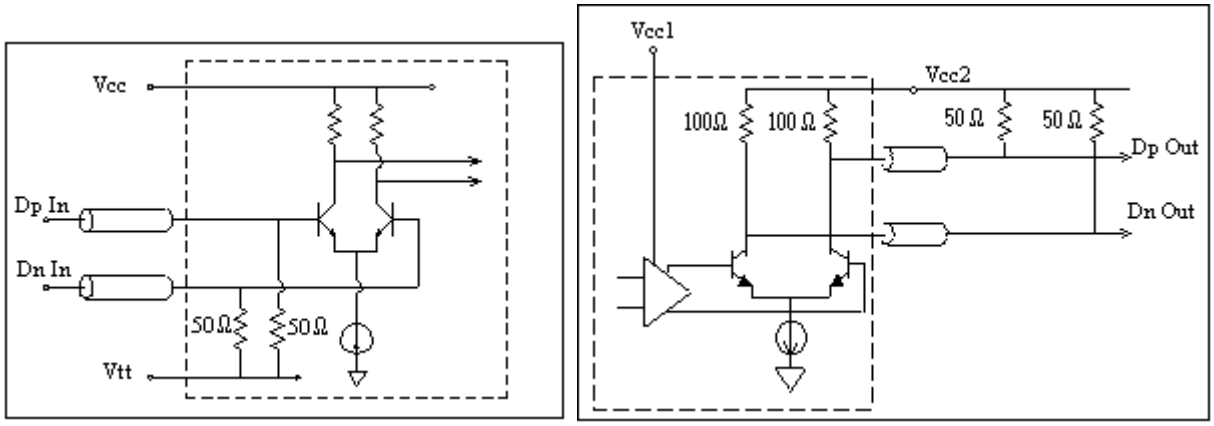
Note 6: Vct enables or disables all channels simultaneously

Note 7: This is a preliminary spec sheet. CML compatibility is planned

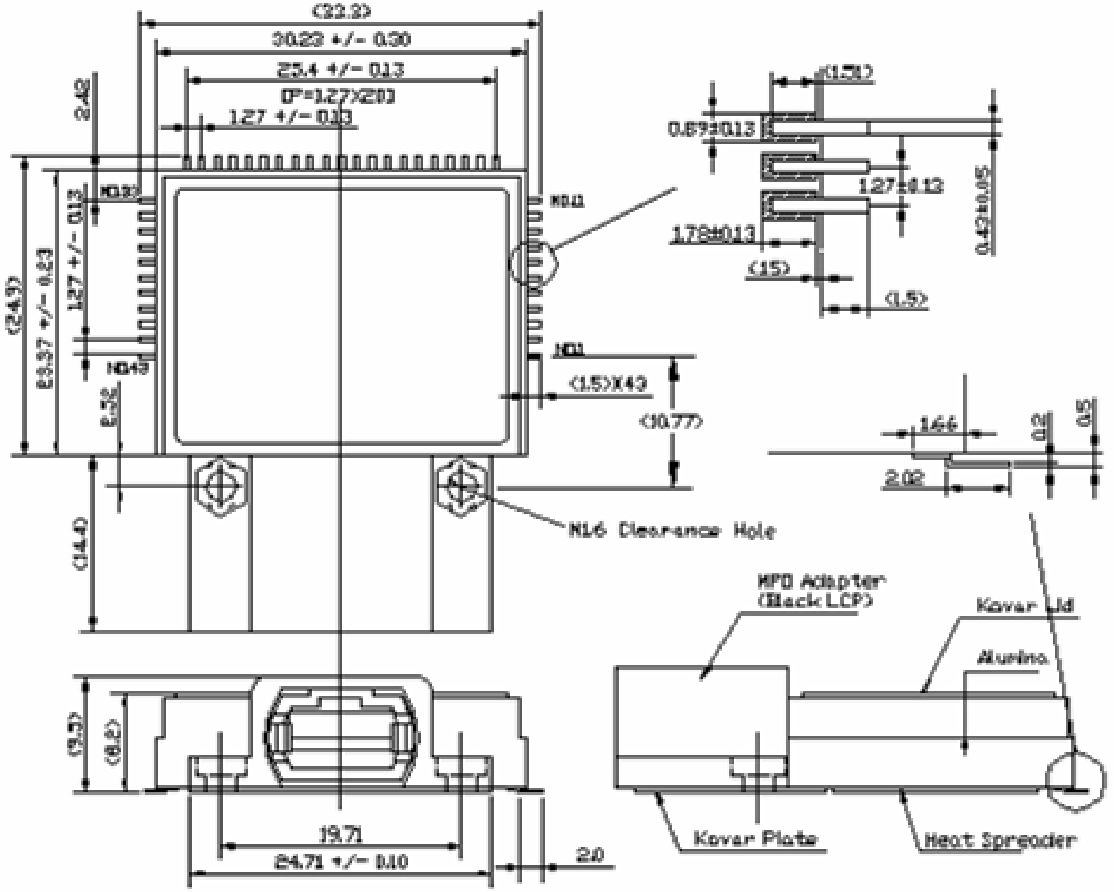
Note: All values are for 4 channels running simultaneously over 300m of Low Skew Multimode Fiber at 25°C unless otherwise noted.

Note: Preliminary part numbers are subject to change. Final part numbers will be given prior to order of samples

Note: Specifications subject to change without notice.



Representative Electrical Interface



Pin	Assign
1	Vcc1 (Tx)
2	Vcc2 (Tx)
3	Vtt
4	N/C
5	Vct
6	GND (Tx)
7	Data0n (Tx)
8	Data0p (Tx)
9	N/C
10	GND (Tx)
11	GND (Tx)
12	GND (Tx)
13	Data1n (Tx)
14	Data1p (Tx)
15	GND (Tx)
16	Data2n (Tx)
17	Data2p (Tx)
18	GND (Tx)
19	Data3n (Tx)
20	Data3p (Tx)
21	GND
22	N/C
23	GND (Rx)

Pin	Assign
24	Data3p (Rx)
25	Data3n (Rx)
26	GND (Rx)
27	Data2p (Rx)
28	Data2n (Rx)
29	GND (Rx)
30	Data1p (Rx)
31	Data1n (Rx)
32	GND (Rx)
33	GND (Rx)
34	GND (Rx)
35	N/C
36	Data0p (Rx)
37	Data0n (Rx)
38	GND (Rx)
39	LOS (Ch 0)
40	N/C
41	Vcc1 (Rx)
42	Vcc2 (Rx)
43	Vcc1 (Rx)
Kovar Lid	GND
Kov. Plate	GND
Heat Spr.	GND

LEAD CO-PLANARITY = .1mm

TOLERANCES UNLESS OTHERWISE SPECIFIED± 0.1

	DESCRIPTION OF CHANGE	DATE	DRN.	APPD.	ITEM	MATERIAL	COLOR	REMARKS
E								
D	Changed receptacle body and changed Rx Voltage pin assignment	8/21/01	JE	CK				
C	Changed Receptacle	3/1/01	CK	CK				
B	Moved D1, D2 Tx and D1, D2 Rx pins	3/27	CK	CK				
A	Added Vct and LOS	3/22	JE	CK				

CUSTOMER

TITLE: 4-channel Transceiver, 43 pin package

OPTOBAHN Corporation

NGK INSULATORS, LTD.

SCALE	None	APPD.	C. Keller
UNIT	mm	CKD.	C. Keller
DATE	March 16, 2000	DRN.	J. Eichenberger
DWG.No.	PKG-XD4025B04A-D	P/N	POX25B04SEJC