Please read this data sheet before purchasing, and keep it on file for future reference. It contains important information on the product specifications.

Optocom

Optoelectronics Group

OPT1455-5.∅

OC-48 Optical Receiver

Data Sheet
2004/5

OPTOCOM CORPORATION
210 Andover Street, Wilmington, MA 01887

Contents

General

Description

The OPT1455-5.∅ is a 20-pin DIP fiber optic receiver module which converts lightwaves in the 1310/1550 nm band to electrical data signals at a data rate of 20 Mbps to 2.5 Gbps. The receiver has a hermetically sealed InGaAs photodiode aligned to a multimode fiber.

Applications

The device is designed for data communication systems and telecommunication transmission systems over singlemode or multimode fiber.

Standards Met

The specifications met are: the SONET/SDH STS-48/STM-16 interface, the Short Reach and Intermediate Reach OC-48 Optical Parameters (SR, IR-1 & IR-2) of Bellcore GR-253-CORE, the Short-haul Recommendation (S-16.1, S-16.2 & I-16) of ITU-T G.957, and the monitor alarm requirements of Bellcore GR-253-CORE & ITU-T G.783 and G.958.

Features

Operation

The OPT1455-5.∅ optical receiver operates using a single +5 V power supply. The device maintains electrical and optical stability over the specified temperature and voltage ratings.

User Options and Assurance

Operator can measure the photocurrent generated in response to the incoming optical signal. The photocurrent can be calculated based on the voltage drop across an external resistor connected between the monitoring pin 10 and +5 V. If photocurrent measurement is not required, pin 10 should be connected to a +5 V power supply directly.

Every device is optically and electrically tested to ensure highest performance and reliability.

Ratings

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Supply Voltage	V_{CC}	0	6.0	V
Operating Case Temperature Range	T_C	-40	85	°C
Operating Relative Humidity (non-condensing)	H_{OP}	---	85	%
Lead Soldering Temperature/Time	T/t	---	250/10	°C/s
Minimum Fiber Bend Radius	R_F	32/1.25	---	mm/in.
Storage Case Temperature Range	T_{STG}	-40	85	°C

Operating Characteristics

Optical

Parameter	Symbol	Min	Typ	Max	Unit
Input Wavelength	λ	1100	---	1600	nm
Measured Average Sensitivity[1]	P_{RL}	-18	---	---	dBm
Maximum Input Power	P_{RH}	-6	---	---	dBm
Signal Detect Threshold:					
Decreasing Light Input	SDT_D	-35	---	-18	dBm
Increasing Light Input	SDT_I	-35	---	-18	dBm
Photodiode Responsivity[2]	PD_R	0.6	0.8	1.0	A/W

1 At a BER of 1 x 10^{-10} and an extinction ratio of 8.2 dB or more.
2 Photocurrent 1 = Responsivity x Mean Power.

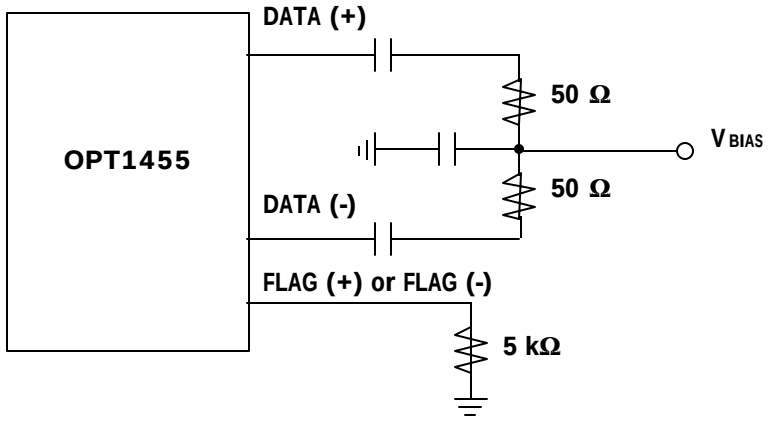
Electrical

Parameter	Symbol	Min	Typ	Max	Unit
dc Power Supply Voltage	V_{CC}	4.75	5.0	5.25	V
dc Power Supply Current	I_{CC}	---	110	160	mA
Output Flag Voltage:					
Low	V_{OL}	-1.84	---	-1.62	V
High	V_{OH}	-1.10	---	-0.90	V
Output Rise/Fall Time	t_R/t_F	---	100	150	ps
Output Flag Voltage:					
Low	V_{FL}	-1.84	---	-1.62	V
High	V_{FH}	-1.10	---	-0.90	V
Output Data Current:					
Low	I_{OL}	---	5	50	mA
High	I_{OH}	---	20	50	mA
Output Flag Current:					
Low	I_{FL}	---	10	15	mA
High	I_{FH}	---	10	15	mA

1 Output measured relative to V_{CC} with interface shown in Figure 1.

Operating Characteristics - continued

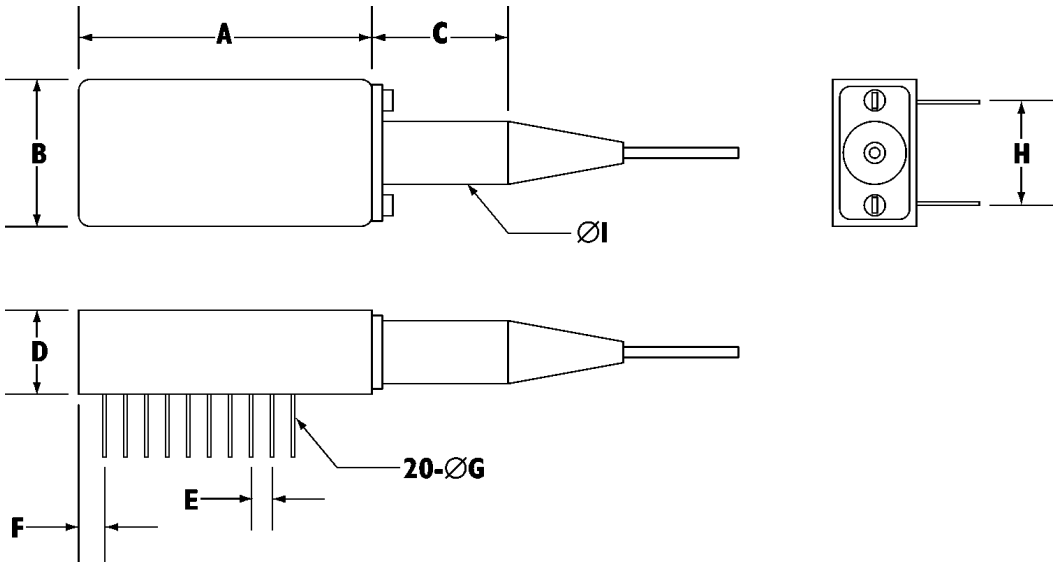
Figure 1. Interface Diagram



Physical

The device package conforms to the 20-pin DIP outline shown below.

Figure 2. Outline Diagram



Physical - continued

Dimensions

	Typ	
Dimension	Inches	Metric (mm)
A	1.300	33.0
B	0.635	16.13
C	1.22	30.99
D	0.365	9.27
E	0.100	2.54
F	0.110	2.79
∅G	0.018	0.46
H	0.400	10.16
∅I	0.236	6.00

An assigned serial number in both barcode and human readable formats appear on the device. All markings and labels are permanent and meet the requirements of MIL-STD-883C-2015.7.

Connections

The pigtail consists of a multimode (MM) fiber with a 50 μm core. The outer jacket has a nominal 900 μm diameter and is terminated with an ST®*, FC, or SC Connector. The minimal pigtail length is 1 meter (39.4 inches) long.

*ST® is a registered trademark of AT&T

Pin Designations

Pin	1	2	3	4	5	6	7	8	9	10
	GND	GND	GND	GND	NC	GND	DATA(+)	GND	DATA(-)	PD Bias
Pin	20	19	18	17	16	15	14	13	12	11
	NC	NC	NC	NC	GND	GND	FLAG(-)	GND	FLAG(+)	V_{cc}

Safety

Please embrace all customary precautions & discretion while handling this device.

Optical	• Avoid direct eye exposure to laser beam projection area or a broken fiber under operation.
Electrical	• Warning against excessive overvoltages or current surges as these may cause failure or electrical shock.
	• Solder leads to electronics entirely so as to eschew short circuits.
	• Solder or plug in device while power is turned off.
Other	• Avoid storage above maximum temperature rating & other extreme conditions.
	• Avoid device disassemblement as damages may be incurred.
	• Avoid excessive force to fiber pigtail and bending beyond a 30 mm radius.
	• Take normal handling precautions as for all electrostatic sensitive devices.

Appendix

Terms

BER: Bit Error Rate
SD: indicates the presence of an incoming signal level that has a workable BER
GND: Ground
NC: not connected

Additional Information

Contact

For additional information, product specifications, or information about Optocom:

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