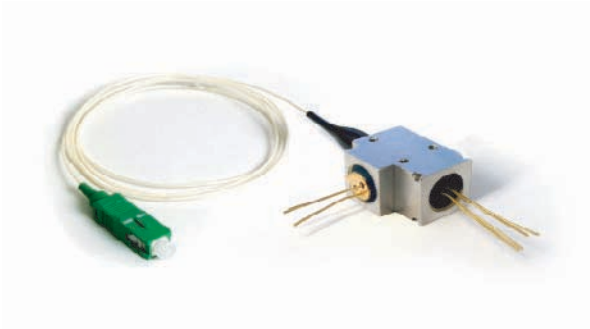


## ODP-34-PE



## Features

- Low cost 1310 FP TX design, 1490 nm receive
- High Isolation
- -40 to 85°C operation
- Multiple TIA versions for 155, 622, and 1250 Mbps applications
- Compliant to ITU-T G.GPON class c at 155Mbps and 622Mbps Tx
- Compliant to ITU-T G.GPON class B at 1250 Mbps

## Absolute Maximum Ratings

| Parameter                   | Min | Typical | Max | Units |
|-----------------------------|-----|---------|-----|-------|
| Operating Temperature(case) | -40 | -       | 85  | °C    |
| Storage Temperature         | -40 | -       | 85  | °C    |

## Module Requirements

| Parameter                                               | Min | Typical | Max | Units |
|---------------------------------------------------------|-----|---------|-----|-------|
| 1550 Enhancement Band to 1490 RX isolation <sup>a</sup> | 29  | -       | -   | dB    |
| 1310 TX to 1490 RX crosstalk                            | -   | -       | -47 | dB    |
| Back Reflection @ 1310 nm                               | -   | -       | -6  | dB    |
| Back Reflection @ 1550 nm                               | -   | -       | -20 | dB    |
| Back Reflection @ 1490 nm                               | -   | -       | -20 | dB    |

<sup>a</sup> With Enhancement Band block from 1535nm to 1565nm

## Transmitter Requirements

| Parameter                                     | Symbol                | Min  | Typical | Max  | Units |
|-----------------------------------------------|-----------------------|------|---------|------|-------|
| Wavelength                                    | $\lambda$             | 1260 | -       | 1360 | nm    |
| Spectral Width (RMS)                          | $\Delta\lambda$       | -    | 2       | 3    | nm    |
| 1/2 P <sub>peak</sub> set point @ 25°C (GPON) | P <sub>set</sub>      | -    | 2.5     | -    | dBm   |
| 1/2 P <sub>peak</sub> over temp and EOL(GPON) | P <sub>ave</sub>      | -1   | -       | 4    | dBm   |
| Bias Current                                  | I <sub>bias</sub>     | 6    | -       | 70   | mA    |
| Bias Current@EOL                              | I <sub>bias,EOL</sub> | -    | -       | 100  | mA    |
| Modulation Current <sup>c</sup>               | I <sub>mod</sub>      | 10   | -       | 60   | mA    |
| PD Monitor Current                            | I <sub>PD,mon</sub>   | 100  | -       | 1000 | μA    |
| Forward Voltage                               | V <sub>f</sub>        | -    | 1.2     | 1.8  | Volts |
| Rise/Fall Time <sup>b</sup>                   | tr/tf                 | -    | -       | 0.5  | ns    |
| PD Monitor Dark Current                       | I <sub>PD, dark</sub> | -    | -       | 1    | μA    |
| PD Monitor Capacitance                        | C <sub>PD</sub>       | -    | 10      | 20   | pF    |

<sup>b</sup> 10% to 90%

<sup>c</sup> Greater modulation current can be used for higher output powers

## ODP-34-PE

Digital Receiver Characteristics (155 Mbps)

| Parameter                                     | Symbol           | Min  | Typical | Max  | Units       |
|-----------------------------------------------|------------------|------|---------|------|-------------|
| Detection Wavelength                          | $\lambda$        | 1260 | -       | 1360 | nm          |
| Gain differential                             | G                | 20   | -       | -    | mV/ $\mu$ W |
| Supply Voltage                                | $V_{CC}$         | 3    | 5.0     | 5.5  | V           |
| Supply Current ( $V_{CC}=5V$ ) <sup>a</sup>   | $I_{CC}$         | 20   | 38      | 60   | mA          |
| Supply Current ( $V_{CC}=3.3V$ ) <sup>a</sup> | $I_{CC}$         | 20   | 35      | 50   | mA          |
| High Frequency -3 dB point <sup>b</sup>       | $f_{-3dB(h)}$    | 100  | 130     | -    | MHz         |
| Single-ended output voltage(p-p) <sup>c</sup> | $V_{o(se)(p-p)}$ | 40   | 110     | 200  | mV          |
| Single-ended output resistance <sup>d</sup>   | $R_{o(se)}$      | 36   | 44      | 57   | Ohm         |

a) AC Coupled;  $R_L = 50 \text{ Ohm}$ b) AC coupled; measured differentially;  $C_i = 0.7 \text{ pF}$ ;  $R_L = 50 \text{ Ohm}$ ;  $T_j = 100^\circ\text{C}$ c) AC coupled;  $R_L = 50 \text{ Ohm}$ ; input current =  $100 \mu\text{A}_{(p-p)}$ 

d) DC tested

Digital Receiver Characteristics (622 Mbps)

| Parameter                                                 | Symbol           | Min  | Typical | Max  | Units       |
|-----------------------------------------------------------|------------------|------|---------|------|-------------|
| Detection Wavelength                                      | $\lambda$        | 1260 | -       | 1360 | nm          |
| Gain differential                                         | G                | 10   | -       | -    | mV/ $\mu$ W |
| Supply Voltage                                            | $V_{CC}$         | 3    | 5.0     | 5.5  | V           |
| Supply Current ( $V_{CC}=5V$ ) <sup>a</sup>               | $I_{CC}$         | 23   | 28      | 45   | mA          |
| Supply Current ( $V_{CC}=3.3V$ ) <sup>a</sup>             | $I_{CC}$         | 20   | 28      | 42   | mA          |
| High Frequency -3 dB point ( $V_{CC}=5V$ ) <sup>b</sup>   | $f_{-3dB(h)}$    | 450  | 580     | 750  | MHz         |
| High Frequency -3 dB point ( $V_{CC}=3.3V$ ) <sup>b</sup> | $f_{-3dB(h)}$    | 440  | 520     | 600  | MHz         |
| Single -ended output voltage(p-p) <sup>c</sup>            | $V_{o(se)(p-p)}$ | 75   | 200     | 330  | mV          |
| Single-ended output resistance <sup>d</sup>               | $R_{o(se)}$      | 40   | 50      | 62   | Ohm         |

a) AC coupled;  $R_L = 50 \text{ Ohm}$ b)  $C_i = 0.7 \text{ pF}$ c) AC coupled;  $R_L = 50 \text{ Ohm}$ ; input current =  $100 \mu\text{A}_{(p-p)}$ 

d) DC tested

Digital Receiver Characteristics (1250 Mbps)

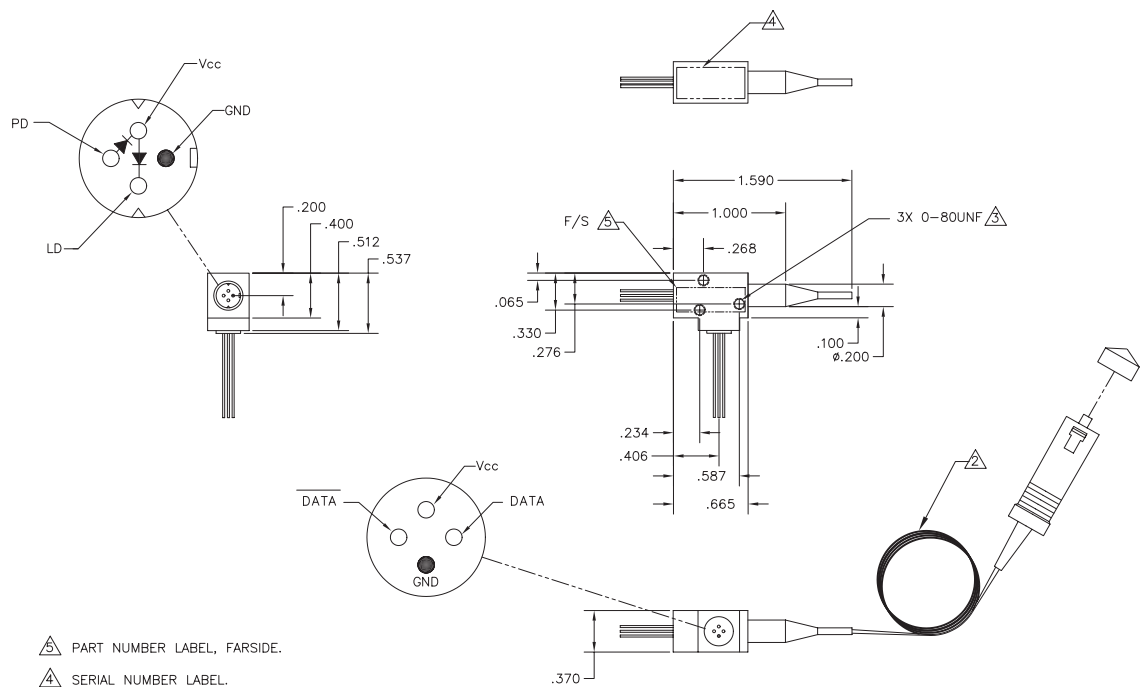
| Parameter                                                 | Symbol           | Min  | Typical | Max  | Units       |
|-----------------------------------------------------------|------------------|------|---------|------|-------------|
| Detection Wavelength                                      | $\lambda$        | 1260 | -       | 1360 | nm          |
| Gain differential                                         | G                | 4    | -       | -    | mV/ $\mu$ W |
| Supply Voltage                                            | $V_{CC}$         | 3    | 5.0     | 5.5  | V           |
| Supply Current <sup>a</sup>                               | $I_{CC}$         | -    | 34      | 47   | mA          |
| High Frequency -3 dB point ( $V_{CC}=5V$ ) <sup>b</sup>   | $f_{-3dB(h)}$    | 1000 | 1200    | -    | MHz         |
| High Frequency -3 dB point ( $V_{CC}=3.3V$ ) <sup>b</sup> | $f_{-3dB(h)}$    | 850  | 1100    | -    | MHz         |
| Single -ended output voltage(p-p) <sup>c</sup>            | $V_{o(se)(p-p)}$ | 75   | 200     | 330  | mV          |
| Single-ended output resistance <sup>d</sup>               | $R_{o(se)}$      | 40   | 50      | 62   | Ohm         |

a) AC coupled;  $R_L = 50 \text{ Ohm}$ b)  $C_i = 0.7 \text{ pF}$ c) AC coupled;  $R_L = 50 \text{ Ohm}$ ; input current =  $100 \mu\text{A}_{(p-p)}$ 

d) Single-ended; DC tested

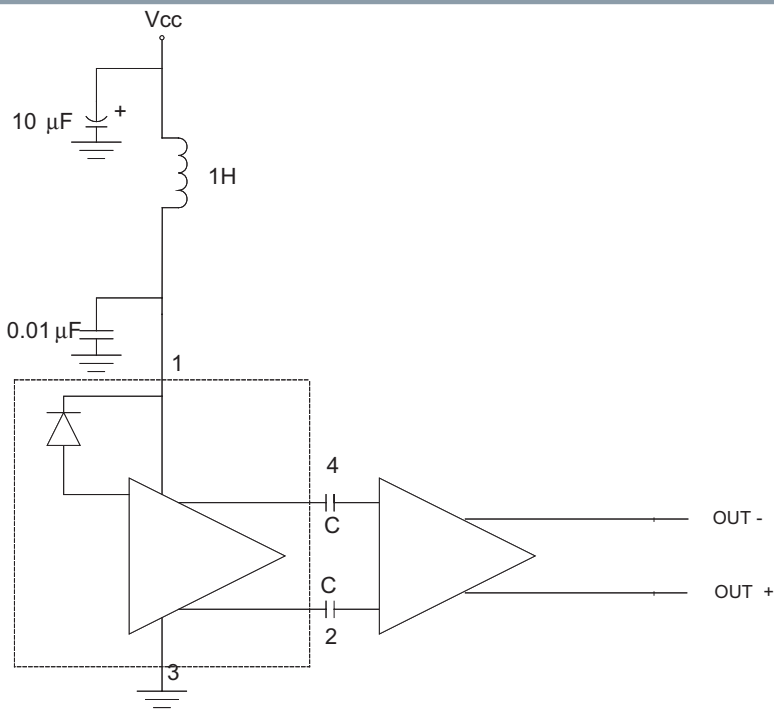
ODP-34-PE

Outline Drawing



- NOTES: UNLESS OTHERWISE SPECIFIED
- 1. CUSTOMER MAKES ALL EXTERNAL CONNECTIONS TO FIBER COMPONENTS AND WIRING.

Receiver Block Diagram



At 155 Mbps, C= 0.1 $\mu$ F  
At 622 Mbps, C= 0.1  $\mu$ F  
At 1250 Mbps, C= 0.022  $\mu$ F

Luminent Optical block

Customer Interface

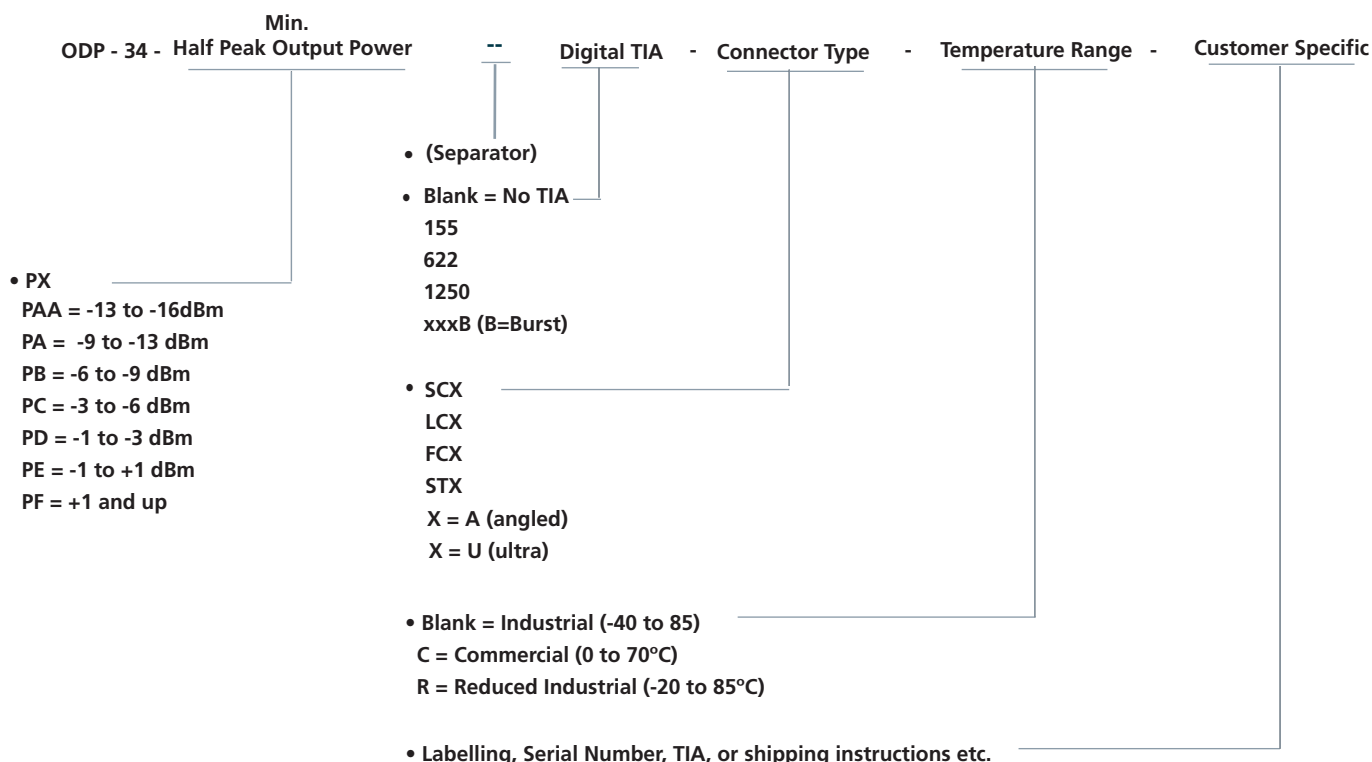
## ODP-34-PE

### Ordering Information

#### Available Options:

ODP-34-PE--155x  
ODP-34-PE--622x  
ODP-34-PE--1250x

#### Part numbering Definition:



### Warnings

**Handling Precautions:** This device is susceptible to damage as a result of electrostatic discharge (ESD). A static free environment is highly recommended. Follow guidelines according to proper ESD procedures.

**Laser Safety:** Radiation emitted by laser devices can be dangerous to human eyes. Avoid eye exposure to direct or indirect radiation.

### Legal Notice

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