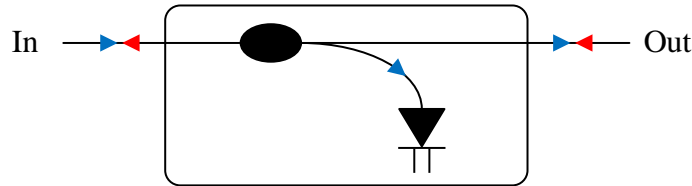


**Product: Ultra Mini Tap + PD Hybrid**

| Part Number      | Spec Number | Version | Date       |
|------------------|-------------|---------|------------|
| TAPDXXXXXXXXXXXX | S049        | Rev 03  | 08/07/2023 |

**1 Function Diagram**

This is an ultra mini tap coupler + PD hybrid.



**2 Specifications**

**2.1 Environment Conditions**

| Item | Parameters                  | Symbol | Min | Typ | Max | Units | Note |
|------|-----------------------------|--------|-----|-----|-----|-------|------|
| 1.   | Operating Temperature       | Top    | 0   |     | 70  | °C    |      |
| 2.   | Storage Temperature         | Tstor  | -40 |     | 85  | °C    |      |
| 3.   | Operating Relative Humidity | RHop   | 5   |     | 95  | %     | [1]  |
| 4.   | Storage Relative Humidity   | RHstor | 5   |     | 95  | %     | [1]  |

**Note:**

[1] Not to exceed industrial standard of 0.024 kg water per kg of dry air under non-condensing conditions.

**2.2 Optical Specifications**

| Item | Parameters                   | Symbol     | Min            | Typ                   | Max | Units | Note |
|------|------------------------------|------------|----------------|-----------------------|-----|-------|------|
| 5.   | Operation Wavelength         | O Band     | $\lambda_{op}$ | 1260~1360             |     | nm    |      |
|      |                              | C Band     | $\lambda_{op}$ | 1530~1570             |     | nm    |      |
|      |                              | L Band     | $\lambda_{op}$ | 1570~1610             |     | nm    |      |
|      |                              | C+L Band   | $\lambda_{op}$ | 1510~1610             |     | nm    |      |
|      |                              | O+C+L Band | $\lambda_{op}$ | 1260~1360 & 1510~1610 |     | nm    |      |
| 6.   | Insertion Loss               | 1%         | IL             |                       | 0.6 | dB    |      |
|      |                              | 2%         | IL             |                       | 0.7 | dB    |      |
|      |                              | 5%         | IL             |                       | 0.8 | dB    |      |
|      |                              | 10%        | IL             |                       | 1.2 | dB    |      |
| 7.   | Polarization Dependence Loss | PDL        |                |                       | 0.1 | dB    |      |
| 8.   | Return Loss                  | RL         | 45             |                       |     | dB    |      |
| 9.   | Optical Power                | 1%         | Pop            |                       | 27  | dBm   | G    |
|      |                              | 2%         | Pop            |                       | 24  | dBm   | G    |
|      |                              | 5%         | Pop            |                       | 20  | dBm   | G    |
|      |                              | 10%        | Pop            |                       | 17  | dBm   | G    |

**Note:**

\*Above specifications are for device without connector. IL is 0.3 dB higher, RL is 5 dB lower after connector added.

G: Guaranteed by design.

### 2.3 Electrical Specifications

| Item | Parameters                     | Symbol | Min | Typ | Max | Units | Note |
|------|--------------------------------|--------|-----|-----|-----|-------|------|
| 10.  | Responsivity<br>(O band)       | 1%     | Res | 2   |     | 15    | mA/W |
|      |                                | 2%     | Res | 5   |     | 25    | mA/W |
|      |                                | 5%     | Res | 10  |     | 60    | mA/W |
|      |                                | 10%    | Res | 30  |     | 110   | mA/W |
| 11.  | Responsivity<br>(C/L Band)     | 1%     | Res | 3   |     | 20    | mA/W |
|      |                                | 2%     | Res | 10  |     | 35    | mA/W |
|      |                                | 5%     | Res | 15  |     | 75    | mA/W |
|      |                                | 10%    | Res | 50  |     | 150   | mA/W |
| 12.  | PD Directivity                 | Dir    | 33  |     |     | dB    | [2]  |
|      |                                | Dir    | 25  |     |     | dB    |      |
| 13.  | Dark Current (-5V Bias)        | Id     |     |     | 5   | nA    |      |
| 14.  | Bias Voltage                   | V      |     | -5  |     | V     | G    |
| 15.  | Forward Current                | I      |     |     | 5   | mA    | G    |
| 16.  | Breakdown Voltage              | V      | 20  |     |     | V     | G    |
| 17.  | Capacitance (f=1MHZ, -5V Bias) | C      |     |     | 2   | pF    | G    |
| 18.  | PD Bandwidth                   | BW     |     | 2   |     | GHz   | G    |
| 19.  | ESD Threshold                  | ESD    |     |     | 200 | V     | G    |

**Note:**

[2] Directivity is defined as  $-10\log(R_{out \rightarrow PD} / R_{in \rightarrow PD})$  where R stands for responsivity.

G: Guaranteed by design.

### 2.4 Mechanical Specifications

#### 2.4.1 Specifications

| Item | Parameters        | Symbol | Min | Typ                   | Max | Units | Note |
|------|-------------------|--------|-----|-----------------------|-----|-------|------|
| 20.  | Fiber Type        |        |     | By PN                 |     |       |      |
| 21.  | Fiber Length      |        |     | By PN                 |     |       |      |
| 22.  | Fiber Jacket      |        |     | Bare fiber            |     |       |      |
| 23.  | Connector Type    |        |     | By PN                 |     |       |      |
| 24.  | Package Dimension |        |     | See below for details |     |       |      |
| 25.  | Fiber Color       | In     |     | Black                 |     |       | [3]  |
|      |                   | Out    |     | Natural               |     |       |      |

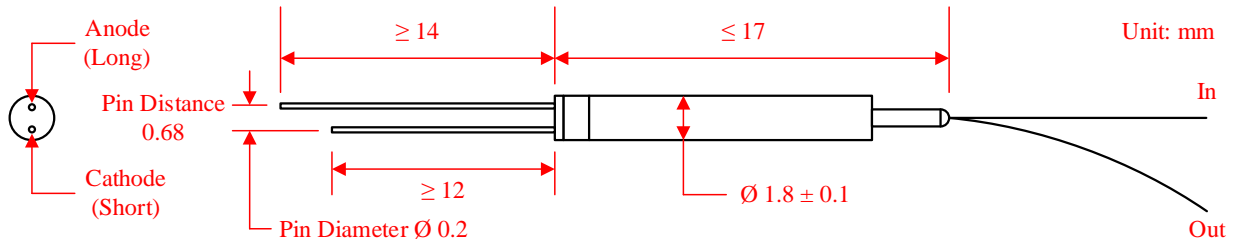
**Note:**

[3] Mark the bare fiber starting at 10~30cm away from the device body to fiber end.

#### 2.4.2 Package Type

|                       |                                 |
|-----------------------|---------------------------------|
| <b>P1</b>             | <b>P2</b>                       |
| Ø1.8×17mm bare device | Ø2.0×17mm with steel tube       |
| <b>P3</b>             | <b>P4</b>                       |
| Ø2.1×17mm with label  | Ø2.3×20mm with heat shrink tube |

### 2.4.3 Drawing



**Note:**

The diameter increases by 0.3mm after bare device wrapped by label.  
The diameter increases by 0.5mm after bare device wrapped by heat shrink tube.

### 3 Device Label, Delivery Data

Triple-Stone standard format.

### 4 RoHS Requirement

RoHS compliant.

### 5 Order Information

