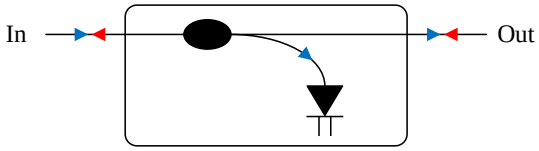
Product: Tap + PD Hybrid

Part Number	Spec Number	Version	Date
TAPDXXXXXXXXXX	S019	Rev 08	01/31/2024

1 Function Diagram

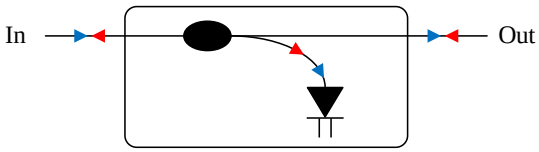
1.1 Un-directional Tap PD

Un-directional Tap PD allows power monitoring from input port only. There is no power monitoring from output port.



1.2 Bi-directional Tap PD

Bi-directional Tap PD allows power monitoring from both input and output port.



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	λop	1260		1360	nm	
		C+L Band	λop	1510		1610	nm	
		O+C+L Band	λop	1260		1610	nm	
6.	Insertion Loss	1%	IL			0.5	dB	
		2%	IL			0.6	dB	
		5%	IL			0.7	dB	
		10%	IL			1.0	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 (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 (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 (Un-directional Tap PD only)	L=22mm	Dir	25			dB	[2]
		L=17mm	Dir	10			dB	[2]
13.	Uniformity (Bi-directional Tap PD only)		Uni			0.5	dB	[3]
14.	Dark Current (-5V Bias)	Un-directional	Id			5	nA	
		Bi-directional	Id			10	nA	
15.	Bias Voltage		V		-5		V	G
16.	Forward Current		I			5	mA	G
17.	Breakdown Voltage		V	20			V	G
18.	Capacitance (f=1MHZ, -5V Bias)		C			2	pF	G
19.	PD Bandwidth	Un-directional	BW		2		GHz	G
		Bi-directional	BW		0.5		GHz	G
20.	ESD Threshold		ESD			200	V	G

Note:
[2] Directivity is defined as -10log(Rout→PD/Rin→PD) where R stands for responsivity.
[3] Uniformity is defined as -10log(Rout→PD/Rin→PD) where R stands for responsivity.

2.4 Mechanical Specifications

2.4.1 Specifications

Item	Parameters		Symbol	Min	Typ	Max	Units	Note
21.	Fiber Type				By PN			
22.	Fiber Length				By PN			
23.	Fiber Jacket				By PN			
24.	Connector Type				By PN			
25.	Package Dimension				See below for details			
26.	Fiber Color	In			Black			[4]
		Out			Natural			

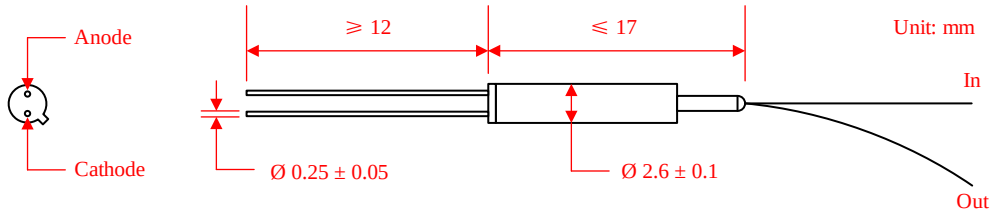
Note:
[4] Mark the fiber starting at 10~30cm away from the device body to fiber end.

2.4.2 Package Type

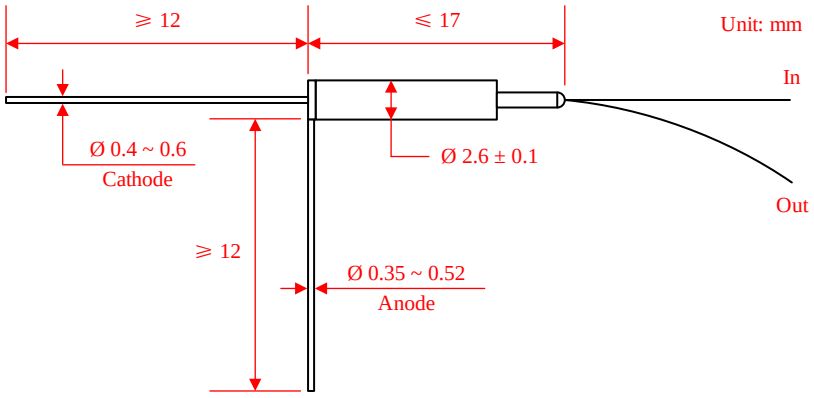
P1 (bare device)	P2 (bare device)
∅2.6×17mm + Paralleled Pin + 250μm bare fiber	∅2.6×17mm + Perpendicular Pin + 250μm bare fiber
P3 (bare device)	P4 (bare device)
∅2.6×22mm + Paralleled Pin + 250μm bare fiber	∅2.6×22mm + Perpendicular Pin + 250μm bare fiber
P5 (with label)	P6 (with label)
∅2.8×17mm + Paralleled Pin + 250μm bare fiber	∅2.8×17mm + Perpendicular Pin + 250μm bare fiber
P7 (with label)	P8 (with label)
∅2.8×22mm + Paralleled Pin + 250μm bare fiber	∅2.8×22mm + Perpendicular Pin + 250μm bare fiber
P9 (with heat shrink tube)	P10 (with heat shrink tube)
∅3.0×25mm + Paralleled Pin + 250μm bare fiber	∅3.0×25mm + Perpendicular Pin + 250μm bare fiber
P11 (with heat shrink tube)	P12 (with heat shrink tube)
∅3.0×30mm + Paralleled Pin + 900μm loose tube	∅3.0×30mm + Perpendicular Pin + 900μm loose tube

2.4.3 Drawings

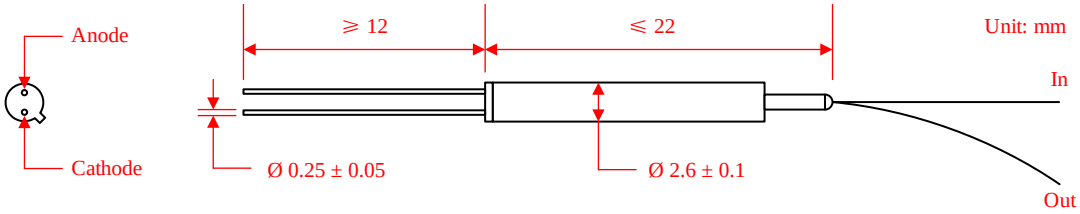
P1: ∅2.6×17mm + Paralleled Pin + 250μm bare fiber



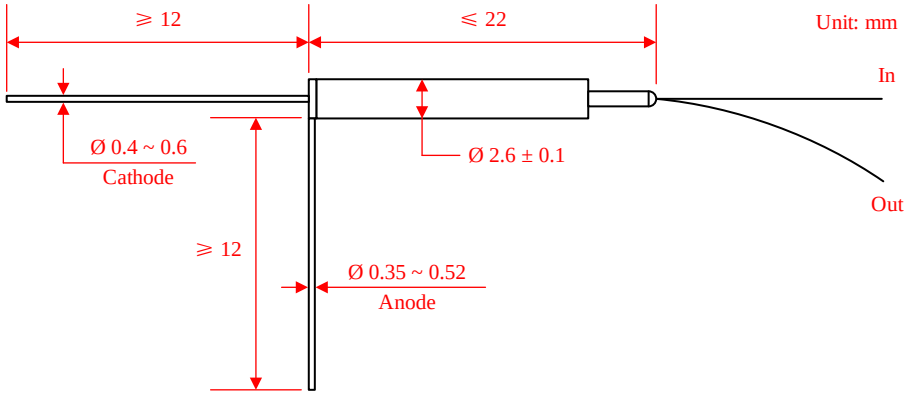
P2: ∅2.6×17mm + Perpendicular Pin + 250μm bare fiber



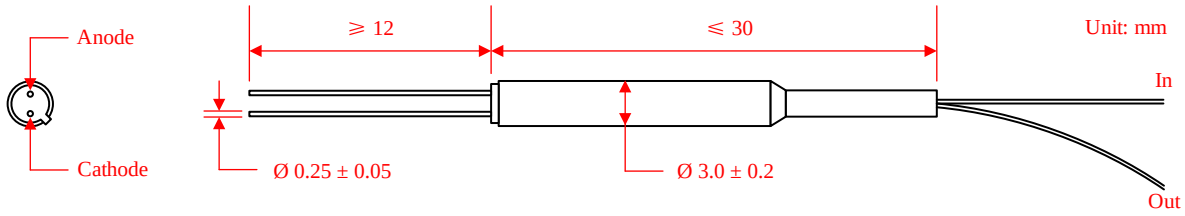
P3: ∅2.6×22mm + Paralleled Pin + 250μm bare fiber



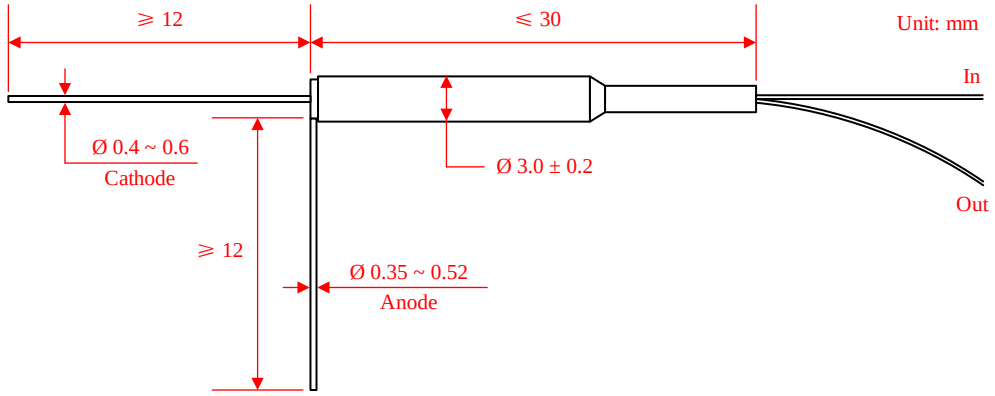
P4: ∅2.6×22mm + Perpendicular Pin + 250μm bare fiber



P11: ∅3.0×30mm + Paralleled Pin + 900μm loose tube



P12: ∅3.0×30mm + Perpendicular Pin + 900μm loose tube



Note:
Both Paralleled Pin and Perpendicular Pin are available.
The diameter increases by 0.2mm 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

TAPD 3 ☐ ☐☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Dimension
Ø≤3.0mm = 3

Directional
Un-directional = U
Bi-directional = B

Tap Ratio
1% = 01
2% = 02
5% = 05
10% = 10

Directivity
Dir ≥ 25dB = A
Dir ≥ 10dB = B

Wavelength
O band = O
C+L band = E
O+C+L band = F

Package Type
P1 = 01
P2 = 02
P3 = 03
.....

Fiber Type
G.657 B3
125μm = 1
G.657 A1
125μm = 2

Fiber Length
1.0 meter = 1
1.5 meters = 5
2.0 meters = 2
0.5 meter = H
Specify = S

Connector Type
None = 1
SC/APC = 2
SC/UPC = 3
FC/APC = 4
FC/UPC = 5
LC/APC = 6
LC/UPC = 7