

E-PA InGaAs PIN PIGTAIL

Features:

- High responsivity
- Low dark current
- Fast pulse response
- Low inter-modulation distortion
- Suitable for CATV application



Performance Specifications:

Absolute Maximum Ratings (Tc=25C)

PARAMETER	SYMBOL	UNIT	min	max	Conditions
Operating Temperature	Ta	°C	-40	85	
Storage Temperature	TSTG	°C	-40	85	
Lead Solder Temperature	Tsol	°C		260	10seconds
Forward Current	If	mA		3	
Reverse Voltage	Vr	V		20	

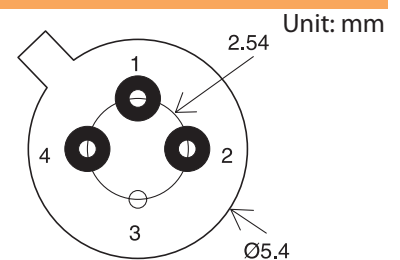
Electro-Optical Specifications (Operating at Vr =5V 9/125um SM fiber)

PARAMETER	SYMBOL	UNIT	MIN.	TYP.	MAX.	TEST CONDITIONS
Detection Range	λ	nm	1100	1310	1650	
Responsivity	R	A/W	0.8	0.9		$\lambda = 1310\text{nm}$
Dark Current	Id	nA			4	Ta=25°C
Breakdown Voltage	VBD	V	40			IR=10uA
Capacitance	C	pF		0.7		f=1 MHz
Second Order Inter Modulation Distortion	IMD2	dBc		-80	-75	$\lambda = 1310\text{nm}$, 2 laser 2 tone, OMD=70% each Pin=0dBm, (Note 1)
Band Width	BW	GHz	3			

Note: 1 modulation input light signal come from two independent laser source with a modulation

Outline Dimension:

TYPE	Description			
K	1	2	3	4
	Anode	Cathode	Case	NC



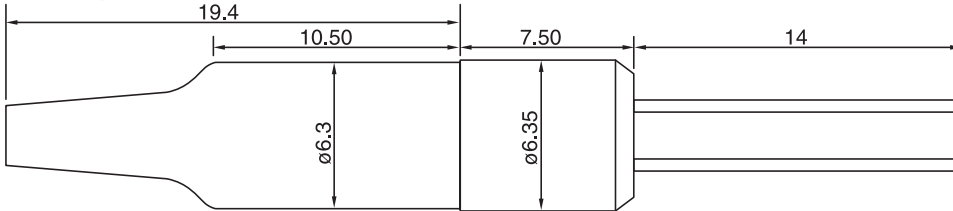
Bottom View

InGaAs PIN PIGTAIL

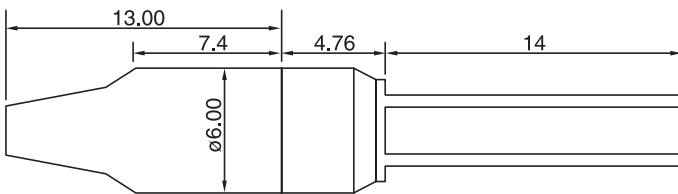
Outline Dimension:

Unit: mm

Drawing A:



Drawing B:



Ordering Information:

E - PA - 3G K X - 4A -

Bandwidth	3G 3 GHz					
PIN Type	I InGaAs PIN G GaAs PIN					
Connector Type	ST	ST/PC	LC	LC/PC	AL	LC/APC
	SC	SC/PC	AS	SC/APC	NC	Without Connector
	FC	FC/PC	AP	FC/APC		
Fiber Type	A Single-Mode 9/125μm					
Cable Type	B Bare fiber T Simplex, PVC tight buffer cable(0.9mm) H Simplex, Hytrel tight buffer cable(0.9mm) X Other, please specify					
Pin Assignment	K K Type					
Flanger	N Without Flange X Other, please specify					
Fiber Length	X050 50cm X100 100cm X200 200cm X300 300cm					
Mechanical Dimensions	0 Drawing A 1 Drawing B					

E-PR 155 Mbps PINTIA PIGTAIL

Features:

- Optimized for fiber optic application
- Suitable for 100/155 Mbps applications
- Support 3.3V and 5V applications
- SM/MM fiber pigtailed with optional FC/ST/SC connector



Performance Specifications:

Electro-Optical Specifications (Operating at Vcc =3.3V 9/125um SM fiber)

PARAMETER	SYMBOL	UNIT	MIN.	TYP.	MAX.	TEST CONDITIONS
Detection Range	λ	nm	1100	1310	1650	
Supply Voltage	Vcc	V	3.0		5.5	
Supply Current	Icc	mA			35	No load
Differential Output Voltage	V	mV			700	
Gain@10Mbps Single Ended	Gs	mV/uW	0.09		60	$\lambda=1310\text{nm}$, Rload=50 Ω
Gain@10Mbps Differential	Gd	mV/uW	0.18		120	$\lambda=1310\text{nm}$, Rload=100 Ω
Bandwidth	BW	MHz	115			R=50 Ω
Sensitivity	Sens	dBm			-36	$\lambda=1310\text{nm}$, 155Mbps BER=10 ⁻¹⁰ PRBS23
Saturation Power	Psat	dBm	-3			$\lambda=1310\text{nm}$
Output Resistance (Single Ended)	Rout	ohm		50		

Absolute Maximum Ratings (Tc=25C)

PARAMETER	SYMBOL	UNIT	min	max	Conditions
Operating Temperature	Ta	°C	-40	85	
Storage Temperature	T _{STG}	°C	-40	100	
Lead Solder Temperature	T _{SOL}	°C		260	10seconds

E-PR 622 Mbps PINTIA PIGTAIL

Features:

- SM/MM fiber pigtailed with optional FC/ST/SC connector
- Optimized for fiber optic application
- 622 Mbps applications
- Single power supply +3.3V applications



Performance Specifications:

Electro-Optical Specifications (Operating at Vcc =3.3V 9/125um SM fiber)

PARAMETER	SYMBOL	UNIT	MIN.	TYP.	MAX.	TEST CONDITIONS
Detection Range	λ	nm	1100	1310	1650	
Supply Voltage	Vcc	V	3.0	3.3	3.6	
Supply Current	Icc	mA		20	26	No load
Bandwidth	BW	MHz	435	580		R=50Ω
Sensitivity	Sens	dBm		-32	-29	$\lambda=1310\text{nm}$, 622 Mbps PRBS23 ER=10 BER=10 ⁻¹⁰
Saturation Power	Psat	dBm	0			$\lambda=1310\text{nm}$
Output Resistance (Single Ended)	Rout	ohm		50		

Absolute Maximum Ratings (Tc=25C)

PARAMETER	SYMBOL	UNIT	min	max	Conditions
Operating Temperature	Ta	°C	-40	85	
Storage Temperature	TSTG	°C	-40	100	
Lead Solder Temperature	Tsol	°C		260	10seconds
Supply Voltage	Vcc	V	0	4	

E-PR 1.25 Gbps PINTIA PIGTAIL

Features:

- SM/MM fiber pigtailed with optional FC/ST/SC connector
- Optimized for fiber optic application
- 1.25 Gbps applications
- Single power supply +3.3V applications



Performance Specifications:

Electro-Optical Specifications (Operating at Vcc =3.3V 9/125um SM fiber)

PARAMETER	SYMBOL	UNIT	MIN.	TYP.	MAX.	TEST CONDITIONS
Detection Range	λ	nm	1100	1310	1650	
Supply Voltage	Vcc	V	3.0	3.3	3.6	
Supply Current	Icc	mA	23	30	39	No load
Bandwidth	BW	MHz	700			R=50 Ω
Sensitivity	Sens	dBm		-29	-24	$\lambda=1310\text{nm}$, 1.25 Gbps PRBS7 ER=10 BER=10 ⁻¹⁰
Saturation Power	Psat	dBm	0			$\lambda=1310\text{nm}$
Output Resistance (Single Ended)	Rout	ohm		50		

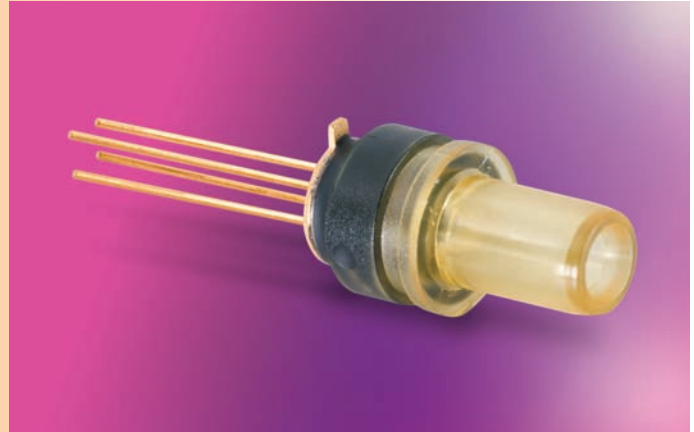
Absolute Maximum Ratings (Tc=25C)

PARAMETER	SYMBOL	UNIT	min	max	Conditions
Operating Temperature	Ta	°C	-40	85	
Storage Temperature	T _{STG}	°C	-40	100	
Lead Solder Temperature	T _{sol}			260	10seconds

E-RA InGaAs PIN PECEPTACLE

Features:

- High responsivity
- Low dark current
- Fast pulse response
- Low inter-modulation distortion
- Suitable for CATV application
- FC/ST/SC/LC receptacle package



Performance Specifications:

Absolute Maximum Ratings (Tc=25C)

PARAMETER	SYMBOL	UNIT	min	max	Conditions
Operating Temperature	Ta	°C	-40	85	
Storage Temperature	TSTG	°C	-40	85	
Lead Solder Temperature	Tsol	°C		260	10seconds
Forward Current	If	mA		3	
Reverse Voltage	Vr	V		20	

Electro-Optical Specifications (Operating at Vr =5V 9/125um SM fiber)

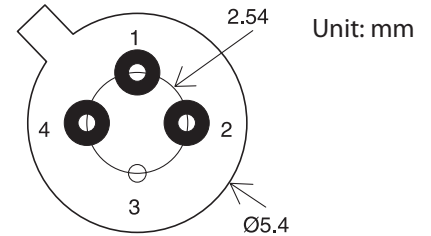
PARAMETER	SYMBOL	UNIT	MIN.	TYP.	MAX.	TEST CONDITIONS
Detection Range	λ	nm	1100	1310	1650	
Responsivity	R	A/W	0.8	0.9		$\lambda = 1310\text{nm}$
Dark Current	Id	nA			4	Ta=25°C
Capacitance	C	pF			0.7	f=1 MHz
Breakdown Voltage	VBD		40			IR=10uA
Second Order Inter Modulation Distortion	IMD2 BW	dBc GHz		-80	-75	$\lambda = 1310\text{nm}$, 2 laser 2 tone, OMD=70% each Pin=0dBm, (Note 1)
Band Width	BW	GHz	3			

Note: 1 modulation input light signal come from two independent laser source with a modulation frequency
f1=244MH,f2=250MHz repectively

InGaAs PIN RECEPTACLE

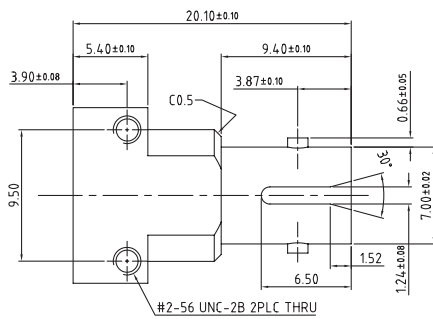
Outline Dimension:

TYPE	Description			
K	1	2	3	4
	Anode	Cathode	Case	NC

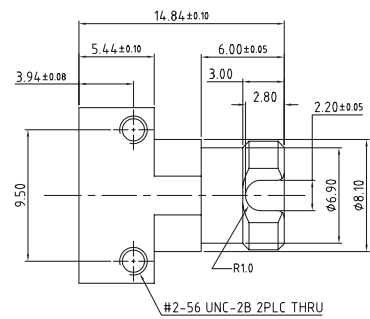


Bottom View

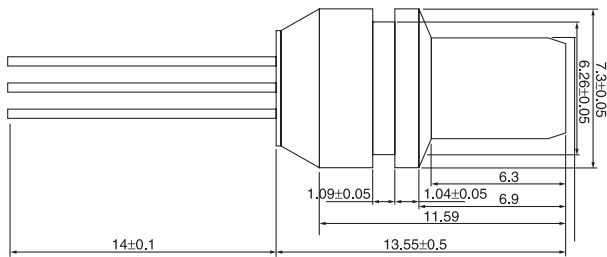
Mechanical Dimension:



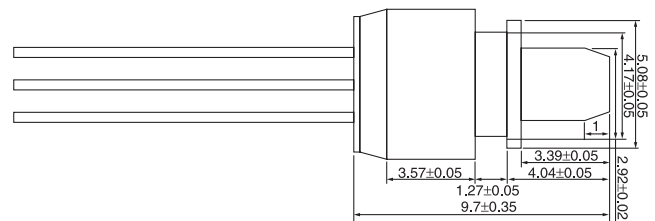
E-RA-3GISTKM1-4A-0



E-RA-3GIFCKM1-4A-0



E-RA-3GIOSKP1-4A-0



E-RA-3GIOLKP1-4A-0

Ordering Information:

E - RA - 3GI□□K□□ - 4A - 0

Bandwidth	3G	3 GHz
PIN Type	I	InGaAs PIN
Connector Type	ST	ST
	FC	FC
	OS	OSA SC
	OL	OSA LC
Pin Assignment	K	K Type
Exterior	M1	Metal Housing
	P1	Plastics Housing

E-RR 155 Mbps PIN-TIA RECEPTACLE

Features:

- Optimized for fiber optic application
- Suitable for 100/155 Mbps applications
- Support 3.3V and 5V applications
- SC, LC type Receptacle package



Performance Specifications:

Electro-Optical Specifications (typical value are at Vcc=3.3v)

PARAMETER	SYMBOL	UNIT	MIN.	TYP.	MAX.	TEST CONDITIONS
Detection Range	λ	nm	1100	1310	1650	
Supply Voltage	Vcc	V	3.0		5.5	
Supply Current	Icc	mA			35	No load
Differential Output Voltage	V	mV			700	
Gain@10Mbps Single Ended	Gs	mV/uW	0.09		60	$\lambda=1310\text{nm}$, Rload=50 Ω
Gain@10Mbps Differential	Gd	mV/uW	0.18		120	$\lambda=1310\text{nm}$, Rload=100 Ω
Bandwidth	BW	MHz	115			R=50 Ω
Sensitivity	Sens	dBm			-36	$\lambda=1310\text{nm}$, 155Mbps BER=10 ⁻¹⁰
Saturation Power	Psat	dBm	-3			$\lambda=1310\text{nm}$
Output Resistance (Single Ended)	Rout	ohm		50		

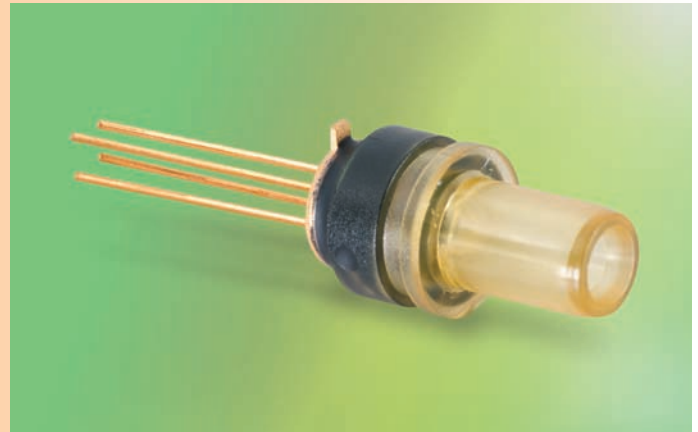
Absolute Maximum Ratings (Tc=25C)

PARAMETER	SYMBOL	UNIT	min	ma	Conditions
Operating Temperature	Ta	°C	-40	85	
Storage Temperature	TSTG	°C	-40	100	
Lead Solder Temperature	Tsol			260	10seconds

E-RR 622 Mbps PIN-TIA RECEPTACLE

Features:

- SC, LC type Receptacle package
- Optimized for fiber optic application
- 622 Mbps applications
- Single power supply +3.3V applications



Performance Specifications:

Electro-Optical Specifications (Typical value are at Vcc=3.3v)

PARAMETER	SYMBOL	UNIT	MIN.	TYP.	MAX.	TEST CONDITIONS
Detection Range	λ	nm	1100	1310	1650	
Supply Voltage	Vcc	V	3.0	3.3	3.6	
Supply Current	Icc	mA		20	26	No load
Bandwidth	BW	MHz	435	580		R=50 Ω
Sensitivity	Sens	dBm		-32	-29	$\lambda=1310\text{nm}$, 622 Mbps PRBS23 ER=10 BER=10 ⁻¹⁰
Saturation Power	Psat	dBm	-3			$\lambda=1310\text{nm}$
Output Resistance (Single Ended)	Rout	ohm		50		

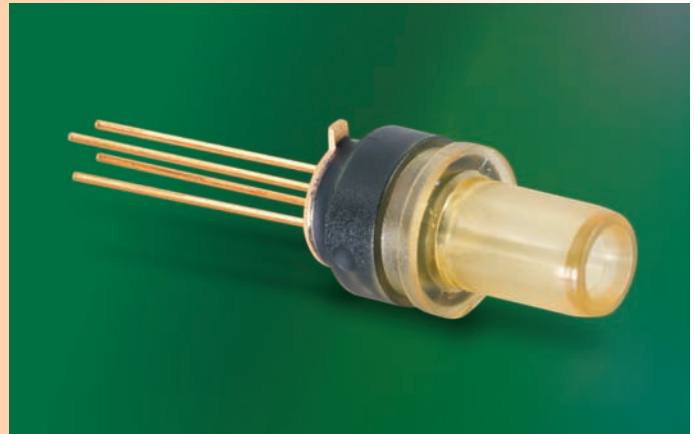
Absolute Maximum Ratings (Tc=25C)

PARAMETER	SYMBOL	UNIT	min	max	Conditions
Operating Temperature	Ta	°C	-40	85	
Storage Temperature	TSTG	°C	-40	100	
Lead Solder Temperature	Tsol	°C		260	10seconds
Supply Voltage	Vcc	V	0	4	

E-RR 1.25 Gbps PIN-TIA PECEPTACLE

Features:

- SC, LC type Receptacle package
- Optimized for fiber optic application.
- 1.25 Gbps applications
- Single power supply +3.3V applications



Performance Specifications:

Electro-Optical Specifications (Typical value are at Vcc=3.3v)

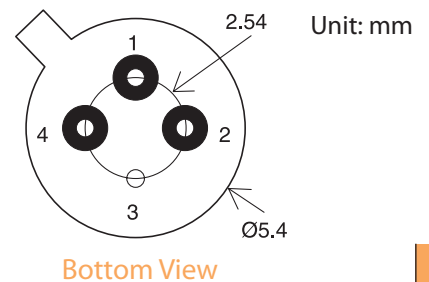
PARAMETER	SYMBOL	UNIT	MIN.	TYP.	MAX.	TEST CONDITIONS
Detection Range	λ	nm	1100	1310	1650	
Supply Voltage	Vcc	V	3.0	3.3	3.6	
Supply Current	Icc	mA	23	30	39	No load
Bandwidth	BW	MHz	700			R=50 Ω
Sensitivity	Sens	dBm		-29	-24	$\lambda=1310\text{nm}$, 1.25 Gbps PRBS7 ER=10 BER=10 ⁻¹⁰
Saturation Power	Psat	dBm	0			$\lambda=1310\text{nm}$
Output Resistance (Single Ended)	Rout	ohm		50		

Absolute Maximum Ratings (Tc=25C)

PARAMETER	SYMBOL	UNIT	min	max	Conditions
Operating Temperature	Ta	°C	-40	85	
Storage Temperature	T _{STG}	°C	-40	100	
Lead Solder Temperature	T _{sol}			260	10seconds

Outline Dimension:

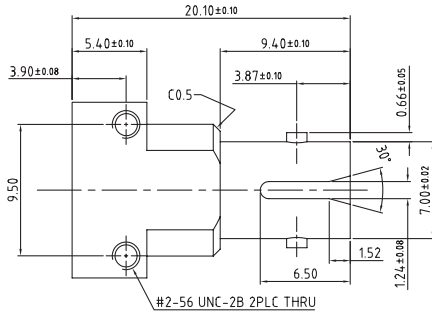
PIN Position	Function			
B	1	2	3	4
	Dout ⁻	Dout ⁺	GND	Vcc



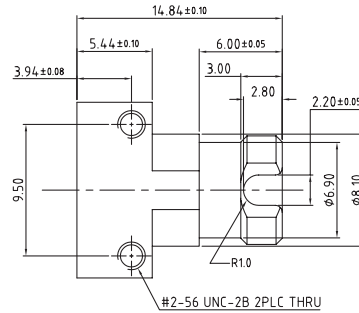
PIN-TIA RECEPTACLE

Mechanical Dimension:

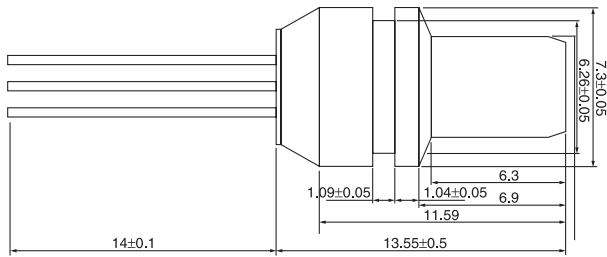
Unit: mm



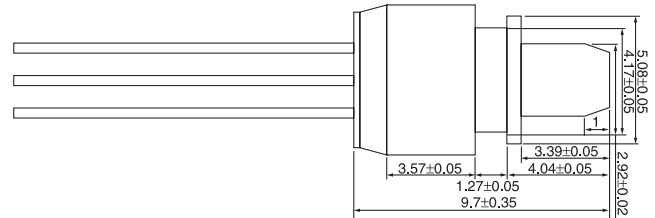
E-RR-XIXSTBM1-4A-0



E-RR-XIXFCBM1-4A-0



E-RR-XIXOSBP1-4A-0



E-RR-XIXOLBP1-4A-0

Ordering Information:

E - RR - I B - 4A - 0

Datarate

- 3 155 Mbps
- 4 622 Mbps
- 5 1.25 Gbps

PIN Type

- I InGaAs PIN
- G GaAs PIN

Power Supply

- D 5V
- V 3.3V
- O 3.3V/5V

Connector Type

- ST ST
- FC FC
- OS OSA SC
- OL OSA LC

PIN Assignment

- B B Type

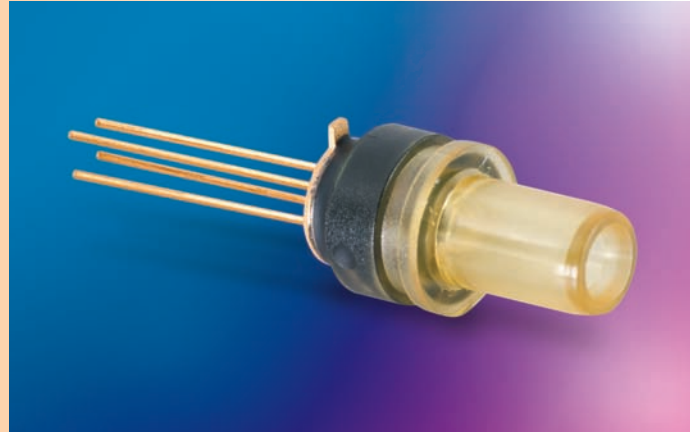
Exterior

- M1 Metal Housing
- P1 Plastics Housing

E-RT VCSEL RECEPTACLE

Features:

- FC, ST, SC and LC receptacle for Multi-mode fiber communication
- Package with Monitor PD
- Design for 1.25/2.5 Gbps data rate operation
- Common anode and Common cathode



Performance Specifications:

Electro-Optical Specifications

PARAMETER	SYMBOL	UNIT	MIN.	TYP.	MAX.	TEST CONDITIONS
Threshold Current	I_{th}	mA		1.5	3	CW
Slope Efficiency	η	mW/mA	0.04	0.1	0.16	$I_F=7mA$
Peak Wavelength	λ_P	nm	840	850	860	$I_F=7mA$
RMS Spectral Width	$\Delta \lambda_P$	nm			0.85	$I_F=7mA$
Forward Voltage	V_f	Volt		1.8	2.2	$I_F=7mA$
Series Resistance	R_s	Ω		50		$I_F=7mA$

Temperature Characteristics

PARAMETER	SYMBOL	UNIT	MIN.	TYP.	MAX.	TEST CONDITIONS
Threshold Current Temperature Variation	ΔI_{th}	mA		1.5		0°C to 85°C
Slope Efficiency Temperature Variation	$\Delta \eta / \Delta T$	% / °C		-0.4		$I_F=7mA$, 0°C to 85°C
Peak Wavelength Temperature Variation	$\Delta \lambda_P / \Delta T$	nm / °C		0.06		$I_F=7mA$, 0°C to 85°C

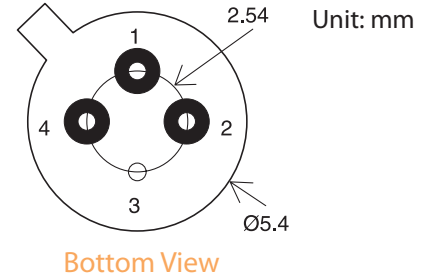
Absolute Maximum Ratings (T=25 °C unless otherwise stated)

PARAMETER	SYMBOL	UNIT	MIN.	MAX.
Storage Temperature	T_{stg}	°C	-40	100
Operating Temperature	T_{op}	°C	0	85
Lead Solder Temperature	T_{sold}	°C	260°C for 10 seconds	
Continuous Reverse Voltage	V_R	Volt		5 (@10uA)
Continuous Forward Current	I_F	mA		12
Laser Forward Current, Instantaneous	I_F	mA		17

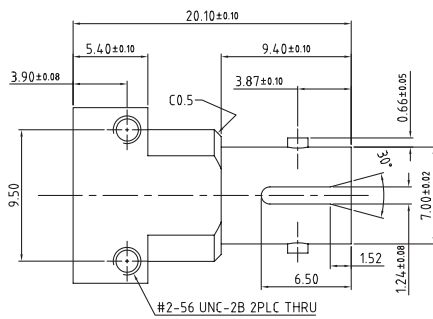
VCSEL RECEPTACLE

Outline Dimension:

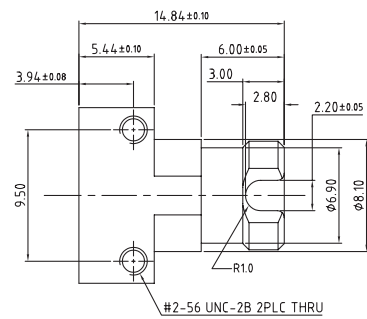
PIN Position	Description			
	1	2	3	4
A (Common Anode)	VCSEL Anode PD Cathode	PD Anode	Case	VCSEL Cathode
B (Common)	VCSEL Cathode PD Anode	PD Cathode	Case	VCSEL Anode



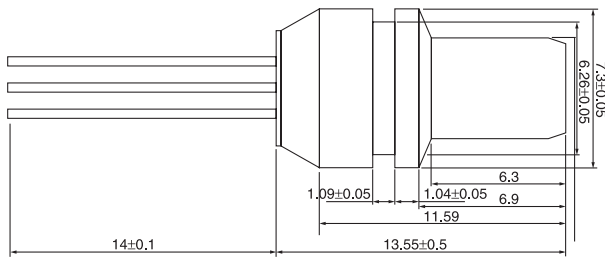
Mechanical Dimension:



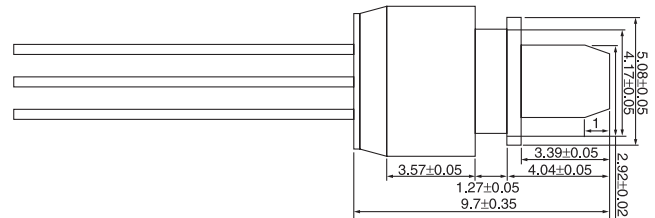
E-RT-5O0850STXM1-N4C-0



E-RT-5O0850FCXM1-N4C-0



E-RT-5O0850OSXP1-N4C-0



E-RT-5O0850OLXP1-N4C-0

Ordering Information:

E - RT - 5 O 0850 - N4B - 0

Data Rate	_____			
5	1.25 Gbps	6	2.5 Gbps	
Laser Type	_____			
O	Oxide VCSEL			
Wavelength	_____			
0850	850nm			
Connector Type	_____			
ST	ST	FC	FC	
OS	OSA SC	OL	OSA LC	
Pin Assignment	_____			
A	A Type	B	B Type	
Exterior	_____			
M1	Metal Housing	P1	Plastics Housing	

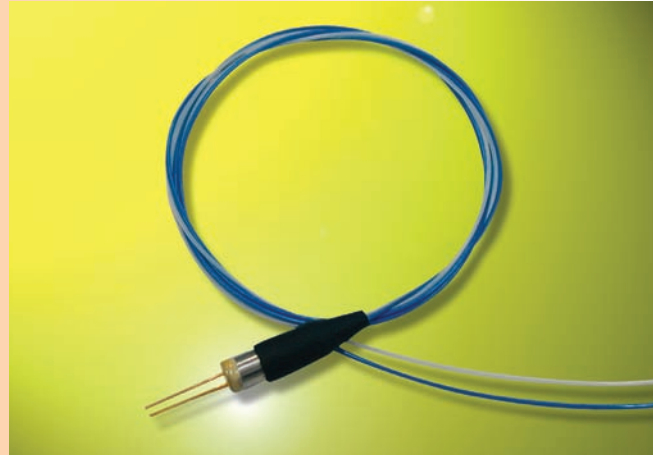
E-TD TAP MONITORING DETECTORS

Features:

- Custom tap ratio available
- Low dark current
- Compact size
- Ultra flat, broadband spectral response

Applications:

- Power monitoring in protecting switches
- Gain monitoring for fiber amplifier
- Power monitoring for OADM system



Performance Specifications:

PARAMETER	SYMBOL	MIN	MAX	UNIT	REMARK
Photodiode Bias Voltage	V _{bias}	-14	-2	V	
Operating Temperature	T _{OP}	0	70	°C	
Storage Temperature	T _{Stg}	-40	85	°C	
Soldering Temperature	T _{Sol}		350	°C	<3sec.

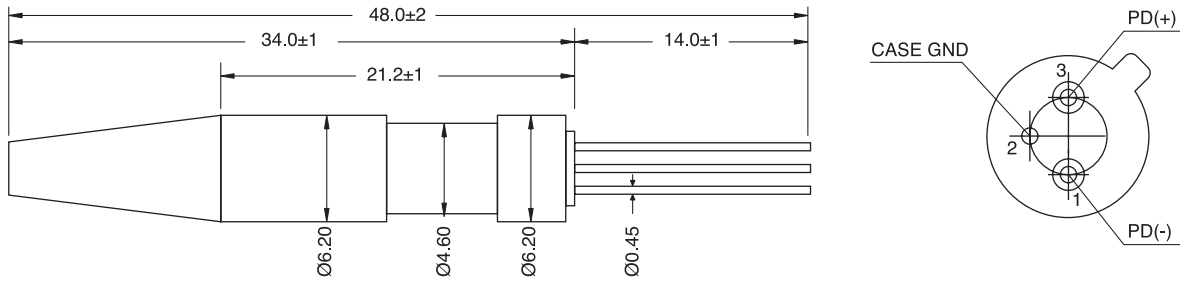
PARAMETER	SYMBOL	MIN	TYP.	MAX	UNIT	REMARK
Detection Range		1100	-	1650	nm	
Dark Current	I _{dark}	-	-	1	nA	
Capacitance	C	-	0.7	0.9	pF	
Bandwidth	BW	2	-	-	GHz	
Responsivity	R	0.8	0.9	-	A/W	λ =1310nm
Breakdown Voltage	V _{BD}	25	55			IR:10uA
Back-reflection	BR	45	-	-	dB	
PDL		-	-	0.1	dB	
PMD		-	-	0.1	ps	
Wavelength flatness				0.2	dB	
Tap Ratio		98:2		95:5		90:10
Optical insertion loss (dB)		0.6		0.8		1.0
Saturation optical power (dBm)		14		10		7
Photodiode tap responsivity (A/W)		0.01-0.04		0.04-0.06		0.08-0.12

Note: Excluding connectors.

TAP MONITORING DETECTORS

Diagram & Dimension:

Unit: mm



Ordering Information:

E - TD - 3PA - - - - - - BMF

Speed							
PIN Type							
Fiber Type							
A	SMF						
Wavelength							
13	1310 nm						
15	1550 nm						
35	1310 & 1550 nm						
Tap Ratio							
02	98 : 2						
05	95 : 5						
10	90 : 10						
Fiber Length							
0001	1 meter						
X150	150cm						
XXXX	Please specify						
Connector Type							
SC	SC type						
ST	ST type						
NC	None						
XX	Others						
Checking Number							

E-WD INTEGRATED WDM DETECTORS

Features:

- Environmentally stable
- Low dark current
- Low return loss
- Low insertion loss
- Wide wavelength range
- High isolation

Applications:

- PON system upgrade
- FTTP



Performance Specifications:

PARAMETER	SYMBOL	MIN	MAX	UNIT	REMARK
Operating Temperature	T _{OP}	0	70	°C	
Storage Temperature	T _{Stg}	-40	85	°C	
Soldering Temperature	T _{Sol}		350	°C	<3sec.

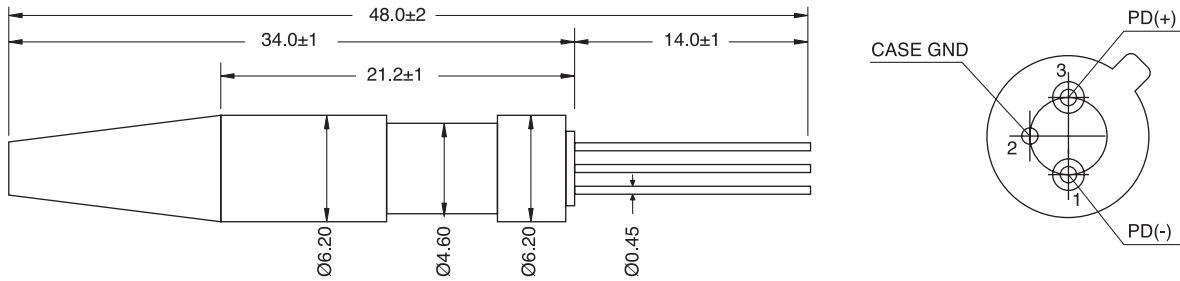
PARAMETER	SYMBOL	MIN	TYP.	MAX	UNIT	REMARK
Detection Range		1100	-	1650	nm	
Dark Current	I _{dark}	-	-	1	nA	
Capacitance	C	-	0.7	0.9	pF	f = 1MHz
Bandwidth	BW	2	-	-	GHz	
Responsivity	R	0.8	0.9	-	A/W	λ = 1310nm
Breakdown Voltage	VBD	25	-	55		IR:10μA

PARAMETER	13/15	15/13	14/15	15/14
Transmission(Com to PD port) Wavelength Range, nm	1260-1360	1460-1620	1260-1360 & 1480-1500	1540-1560
Reflection(Com to Express port) Wavelength Range, nm	1460-1620	1260-1360	1540-1560	1260-1360 & 1480-1500
Insertion Loss, dB			<0.6	
Reflection Ripple, dB			<0.3	
Reflection PDL, dB			<0.15	
PMD, ps			<0.1	
Transmission Isolation, dB	>40	>40	>40	>30
Reflection Isolation, dB			>15	
Return Loss			>45	
Reflection Max. Power, mW			300	

INTEGRATED WDM DETECTORS

Diagram & Dimension:

Unit: mm



Ordering Information:

E - WD - 3PA - L - - - - BMF

Speed				
PIN Type				
Fiber Type				
A	SMF			
Cable Type				
L	900µm Loose tube			
Wavelength (Detected / Expressed)				
13/15	1260-1360nm/1460-1620nm			
14/15	1460-1620nm/1540-1560nm			
XX	Others, Customer Specify			
Pigtail Length				
10	1 meter	05	0.5meter	
20	2 meter	15	1.5meter	
XX	Others, please specify			
Connector Type				
NC	None			
SC	SC type			
ST	ST type			
XX	Others, please specify			
Checking Number				

L-SD-UA USB 3.0 AOC (MM Fiber Optic USB 3.0 Extender)

Features:

- Extends USB 3.0 super speed devices up to 100 m over fiber optics
- Supports all USB 3.0 device types: control, interrupt, bulk and isochronous at up to 5 Gbps
- Operates with USB 3.0 super speed host controllers
- Supports all major operating systems including Windows, Mac OS, and Linux
- Number of devices can be increased using additional hubs
- Remote unit require standard power to USB AOC port
- Power adapter at host is not required
- Ideal for a wire variety of USB devices, from printer, scanners, hard drives, and audio devices, to touch screens, web cams, and game controllers

Applications:

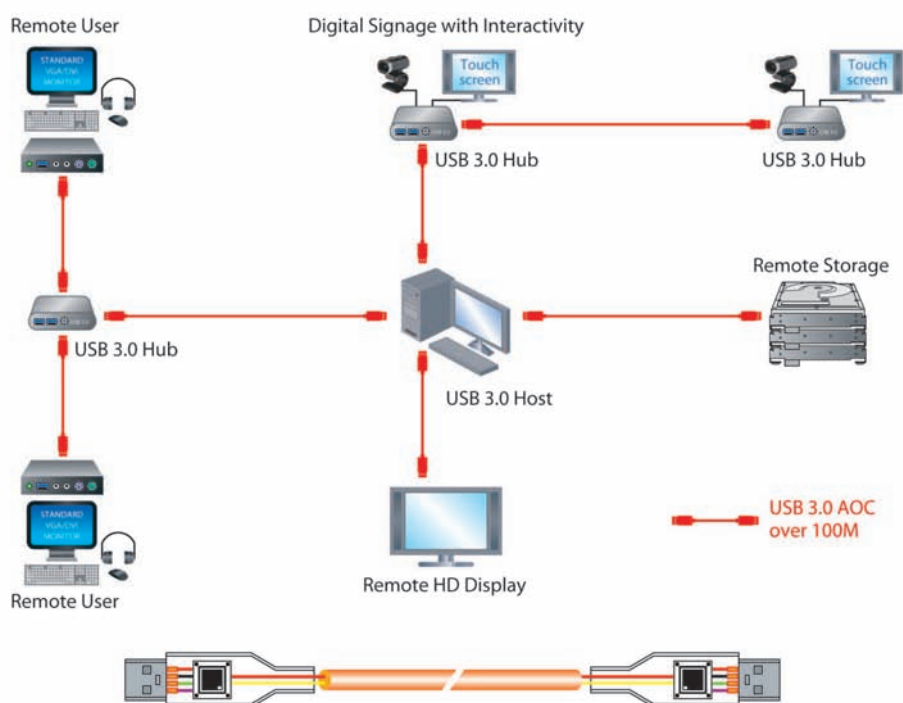
- Industrial Control
- Digital Signage
- Home Network Integration
- Medical Device Connectivity
- KVM Extension
- Remote Desktop USB 3.0 Connections
- Security: web camera, access control
- USB 3.0 Device Sharing: print, scan, storage



Product Specifications:

ITEM	USB 3.0 AOC
Range	330 ft (100 m) over multimode optical fiber
Optical Transceiver	850 nm VCSEL (multimode)
Operating temperature range	0° C to 50° C
Cable diameter	3.0 mm
Speed	5.0 Gbps

Applications Reference:



O/E module integrated active optical cable for high speed data link >100M @5Gbps

USB 3.0 AOC (MM Fiber Optic USB 3.0 Extender)

Ordering Information:

The FOCI USB 3.0 AOC cables come with standard 10m, 20m, 30m, 50m and 100m, or customized length with extra service charge.

Name	Part Number	Description
L-SD-UA	00-00010	10 meter Fiber Optic USB 3.0 Extender
L-SD-UA	00-00020	20 meter Fiber Optic USB 3.0 Extender
L-SD-UA	00-00030	30 meter Fiber Optic USB 3.0 Extender
L-SD-UA	00-00050	50 meter Fiber Optic USB 3.0 Extender
L-SD-UA	00-00100	100 meter Fiber Optic USB 3.0 Extender