CEL

NEC's Ø50 μm InGaAs PIN-PD ROSA WITH INTERNAL PRE-AMPLIFIER FOR 2.5 GB/s APPLICATIONS

NR3510UR

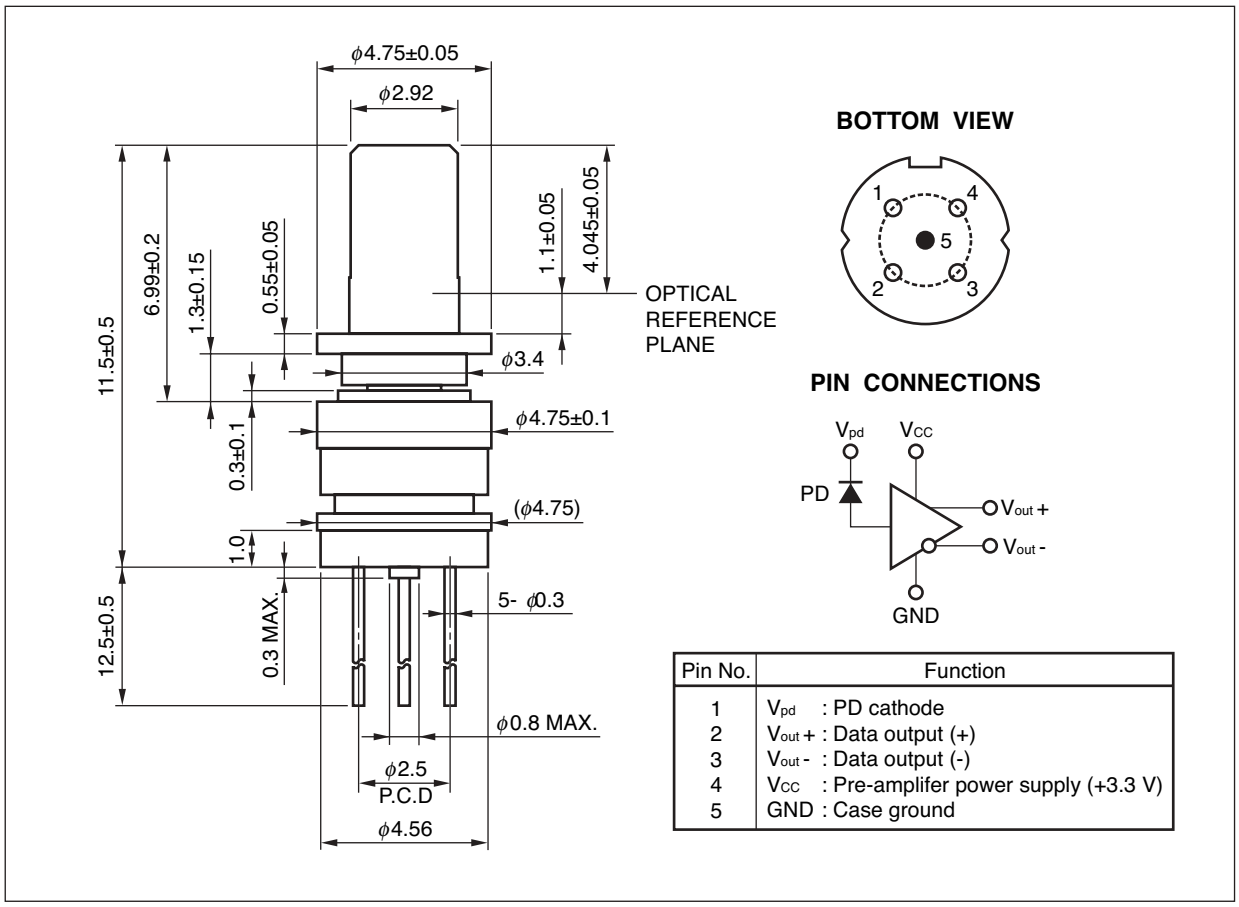
FEATURES

- **INTERNAL PRE-AMPLIFIER**
- **HIGH SENSITIVITY**
  S = 0.80 A/W MIN. @ λ = 1.31 μm
  S = 0.85 A/W MIN. @ λ = 1.55 μm
- **LOW OPERATING VOLTAGE**
  V_{pd} = 3.3 V
- **MINIMUM RECEIVER SENSITIVITY**
  $\overline{P}_r$ = –22 dBm
- **WIDE OPERATING TEMPERATURE RANGE**
  T_C = –40 to +85°C
- **50 Ω DIFFERENTIAL OUTPUT**
- **SMALL PACKAGE**
  ϕ 4.6 mm ROSA (Total length 12.0 mm MAX.)
- **BASED ON TELCORDIA RELIABILITY**

DESCRIPTION

NEC's NR3510UR is a InGaAs PIN PD ROSA with an internal pre-amplifier in a receptacle type package designed for SFF/SFP transceiver with LC duplex receptacle. This device is ideal as a receiver for Synchronous Digital Hierarchy (SDH) system, STM-16, ITU-T recommendations.

PACKAGE DIMENSIONS (UNIT:mm)



Pin No.	Function
1	V_{pd} : PD cathode
2	V_{out} + : Data output (+)
3	V_{out} - : Data output (-)
4	V_{CC} : Pre-amplifer power supply (+3.3 V)
5	GND : Case ground

ORDERING INFORMATION

PART NUMBER	PACKAGE
NR3510UR	φ 4.6 mm ROSA

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
Reverse Current	I_R	1.0	mA
Pre-amplifier Supply Voltage	V_{CC}	–0.5 to +4.5	V
Reverse Voltage	V_R	20	V
Forward Current	I_F	10	mA
Optical Input Power	P_{in}	8	mW
Operating Case Temperature	T_C	–40 to +85	°C
Storage Temperature	T_{stg}	–40 to +85	°C
Lead Soldering Temperature	T_{sld}	350 (3 sec.)	°C
Relative Humidity (noncondensing)	RH	85	%

ELECTRO-OPTICAL CHARACTERISTICS

(T_C = –40 to +85°C, V_{CC} = 3.3 V, λ = 1.31 μm, 1.55 μm, unless otherwise specified)

PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Dark Current	I_D	V_R = 3.3 V, T_C = 25°C		0.1	1.0	nA
		V_R = 3.3 V			50	
Minimum Receiver Sensitivity	$\overline{P}_r$	2.48832 Gb/s, BER = 10^{-10}, PRBS = 2^{23}–1, ER = 10 dB, λ = 1.31 μm, NRZ, AC-coupled		–22	–21	dBm
Maximum Optical Input Power	P_{ovl}	2.48832 Gb/s, BER = 10^{-10}, PRBS = 2^{23}–1, ER = 10 dB, λ = 1.31 μm, NRZ, AC-coupled	0.5	1.0		dBm
Sensitivity	S	V_R = 3.3 V, λ = 1.31 μm	0.80			A/W
		V_R = 3.3 V, λ = 1.55 μm	0.85			
Cut-off Frequency	f_C	V_R = 3.3 V, AC-coupled , R_L = 50 Ω, –3 dB Ref to 100 MHz	1.8	1.9		GHz
Optical Return Loss	ORL	SMF	27			dB
Transimpedance	Z_t	f = 100 MHz, 50 Ω single-ended, AC-coupled 50 Ω load	1.05	1.4		kΩ
Power Supply Voltage	V_{pd}		3.15	3.3	3.45	V
Pre-amplifier Supply Voltage	V_{CC}		3.15	3.3	3.45	V
Pre-amplifier Supply Current	I_{CC}	V_{CC} = 3.15 to 3.45 V		35	65	mA