

**Low Cost 3.3 V Fast Ethernet Single-Chip Receiver IC  
with High-Sensitivity for applications over Plastic Optical  
Fiber**

**Main Features**

- -29 dBm sensitivity, +4 dBm overload at 125 Mbps (BER  $10^{-12}$ , 0.3 A/W PD).
- Fabricated in standard high-volume 'Logic' CMOS process.
- Less than 40 mA total current consumption.
- Differential output with extended output swing.
- 3.3 V supply voltage.
- High temperature operation (125 °C junction temperature).
- No external components required within FOT.
- Average Photocurrent monitor output available (IMON pad).

**Application**

- Fast Ethernet

**General Description**

The signal path of the NT22010 consists of a state-of-the-art, high sensitivity AGC (automatic gain control) trans-impedance amplifier followed by a Limiting Amplifier. Combined with an external Photodiode, a complete light-to-logic solution is provided.

In addition the NT22010 has a squelch mode and input-signal signal detect.

All passive components are integrated on-chip and the NT22010 is manufactured in a standard deep-sub-micron 'Logic' CMOS process, giving an ultra low-cost, high performance and rugged solution.

**Chip Padout**

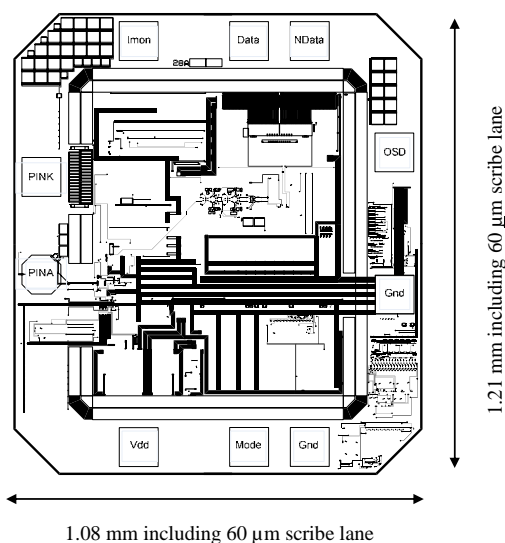


Figure 1 - Bare die – 1.08 mm x 1.21 mm (including 60 µm scribe)  
Pad pitch 150 µm, pads 96 µm (86 µm passivation opening)

For full datasheet, pricing, ordering and delivery information, please email Nanotech Semiconductor at [sales@nanosemi.co.uk](mailto:sales@nanosemi.co.uk) or visit our website at [www.nanosemi.co.uk](http://www.nanosemi.co.uk).

### Pad Descriptions

Pad No.	Name	Function
1	PINK <sup>(1)</sup>	PIN cathode Input. Connect to no other nodes (including capacitively).
2	PINA <sup>(1)</sup>	PIN anode Input. Connect to no other nodes (including capacitively).
3	V <sub>DD</sub>	Power pad. Connect to most positive supply.
4	MODE	Multifunction Squelch mode selection pad. 'Low' – Enable squelch <sup>(2)</sup> mode, 'Floating' – 1394 mode (not covered in this datasheet), 'High' – Disable squelch mode.
5	Gnd	Ground connection. Connect to most negative supply. <sup>(3)</sup>
6	Gnd	Ground connection. Connect to the most negative supply. <sup>(3)</sup>
7	OSD	Signal-detect, high when input signal detected.
8	NData	Complimentary Data Output.
9	Data	Data Output. High for maximum PD illumination.
10	I <sub>MON</sub>	Average photocurrent (current sink). Never allow more than 2V on node. Connect to Gnd if not required.

(1) These inputs do not have full ESD protection in order to minimize capacitance. However, normal earthing procedures will be sufficient during assembly.

(2) Squelch mode involves Data and NData outputs both being forced to common mode levels.

(3) Both Grounds should always be connected.