

## High Sensitivity 1.25 Gbps CMOS TIA

### 1. Introduction

#### 1.1 Description & Features

The i7611A is a high sensitivity transimpedance amplifier (TIA) with automatic gain control (AGC) that gives a wide dynamic range of 32.5 dBm. With a typical input overload of 6 mApp, it supports short-haul fiber optic systems. Additionally, a typical input sensitivity of -31dBm allows the detection of very small signals in a noisy environment making it ideal for high split ratio PON networks. With ultra-high sensitivity, the i7611A can accurately detect the optical data without requiring the use of APDs (Avalanche Photodiodes).

In order to satisfy such high sensitivity and optical overload requirements, the i7611A includes automatic gain control (AGC). The AGC monitors the output amplitude and automatically reduces the TIA gain when the photodiode current exceeds the AGC threshold, maintaining the output at a constant amplitude level for input signals exceeding the AGC threshold.

An accurate replica across the entire dynamic range of the i7611A of the average photodiode current is available at the MON pad for photo-alignment and RSSI average power monitoring.

#### 1.2 Applications

- GEAPON ONT/ONU Transceivers
- 1.25 Gbps 1x9/SFF/SFP Transceivers

### 2. Die Pin configuration and Definition

