

# TGA4861

## 13 Gb/s Linear Transimpedance Amplifier with AGC



### Applications

- 40G DP-QPSK (Dual Polarization QPSK)
- TIA with AGC for long-haul or metro optical receiver modules
- Coherent systems with a baud rate of up to 44.6Gbps

### Product Features

- Excellent linearity and low total harmonic distortion of <1% for  $V_{out,se} < 350mV_{pp}$
- Able to handle large DC input currents
- Tunable frequency response of 8.5-13.5 GHz
- Large dynamic range of 26dB typical
- Manual gain or AGC mode selectable
- Multiple amplifier stages to achieve high gain
- Output shutdown function
- Peak level detection
- Input signal strength indicator (optional)
- Dual TIA die with +3.3V single supply voltage
- Compliant with OIF intradyne receiver MSA
- SiGe technology with  $f_T/f_{max}$  of 170/250 GHz

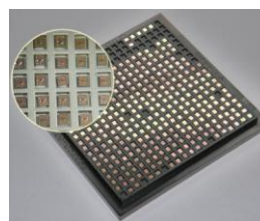
### General Description

The TGA4861 is a state of the art TIA with integrated AGC designed for coherent DP-QPSK receivers with baud rates up to 44.6Gbps. It features a very low total harmonic distortion which is not only crucial for DP-QPSK, but also enables higher-level QAM applications.

In addition, the TGA4861 features two compensating circuits that allow it to handle large DC input currents as well as large offsets between these currents. This is, among others, important for colorless applications.

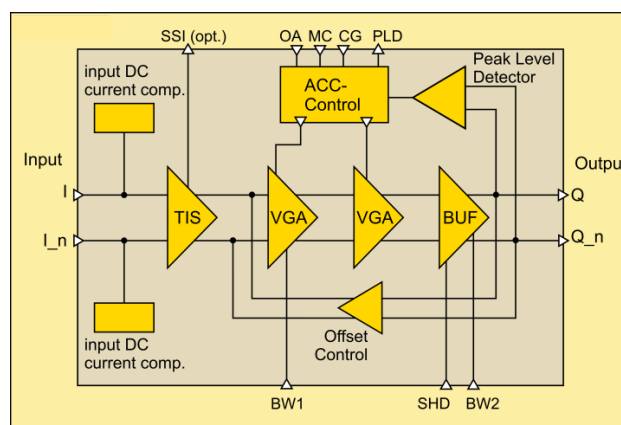
The TGA4861 is manufactured in a reliable high-speed SiGe process that combines excellent performance together with cost-effectiveness.

The TGA4861 complies with the OIF intradyne receiver MSA. The TGA4861 is a dual TIA and thus contains two TIA/AGC circuits on each die. In addition to the many features defined in the OIF MSA, the TGA4861, for example, also includes a versatile bandwidth tuning function.

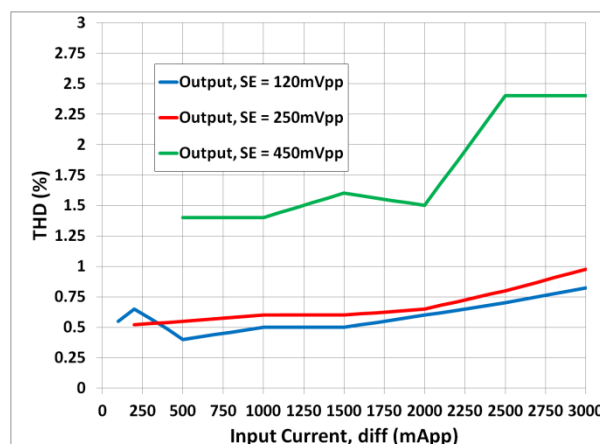


1.4 x 1.6 mm<sup>2</sup> die

### Block Diagram (one channel)



### THD



THD vs. Input Current

### Ordering Information

Part No.	ECCN	Description
TGA4861	EAR99	13Gb/s Transimpedance Amplifier w/AGC