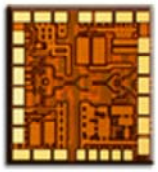
HMC7590

43 Gbps Transimpedance Amplifier



Product Details

Request Data Sheet
ECCN: EAR99

Quality & Reliability

Qualification Test Reports
Waffle-Pak & Gel-Pak

Press & Media

Product Press Release

Life Cycle Status

Production, Recommended for New Designs

Data Rate (Gbps)	Function	Transimpedance (kOhm)	Input Overload (mAp-p)	Small Signal Bandwidth (GHz)	Noise (pA/√Hz)	Package
43	Transimpedance Amplifier	3.5	4.5	32	20	Chip

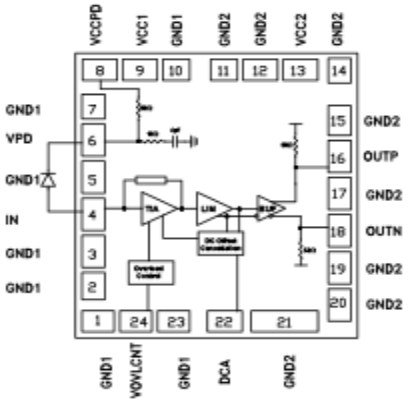
Features

- Supports datarates up to 43 Gbps
- Internal DCA feedback with external adjustment option
- 4 Kohm differential transimpedance gain
- Low-power dissipation < 300 mW
- -10.5 dBm optical input sensitivity
- +5 dBm optical overload
- Small die size: 1.25 mm x 1.15 mm x 0.15 mm

Typical Applications

- 40 GBase-FR4
- 40 GBps VSR / SFF
- Short, intermediate, and long-haul optical receivers

Functional Diagram



General Description

The HMC7590 is a high-speed, high gain, low-power limiting transimpedance amplifier (TIA) used in optical receivers with data rates up to 43 Gbps. It features low input referred noise, 36 GHz bandwidth, 4 kΩ differential small signal transimpedance and output cross point adjustment. HMC7590 exhibits an optical input dynamic range between -10 dBm and +5 dBm while maintaining 10e-12 BER at 43 Gbps operation.
The HMC7590 is available in die form, includes an on-chip VCC bypass capacitor. It requires only supply decoupling capacitor as external component.
The HMC7590 requires a single 3.3V ±5 % supply and it typically dissipates less than 300 mW. The device is characterized for operation from –5 °C to +85 °C case (IC back side) temperature.