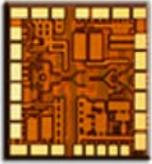


# HMC7590

## 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 data rates 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

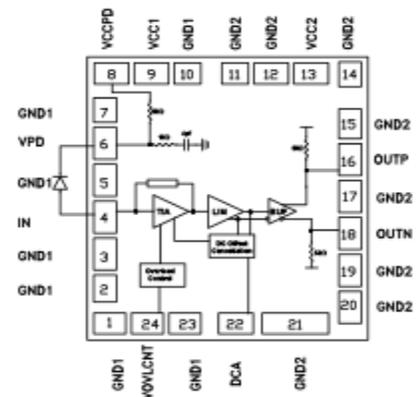
### General Description

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.

### Typical Applications

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

### Functional Diagram



Hittite Microwave (Chelmsford, MA USA) is an [ISO 9001:2008 and AS9100:2009](#) Certified Designer and Manufacturer  
© 2015 Analog Devices, Inc. All Rights Reserved | [Legal Notice](#) | [Privacy Policy](#)  
978-250-3343 | [sales@hittite.com](mailto:sales@hittite.com)

