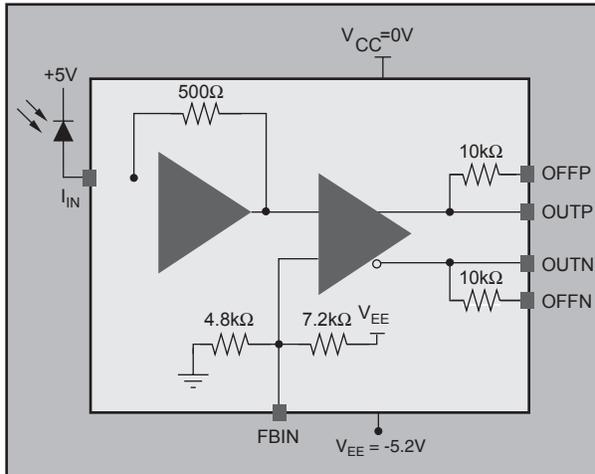


# VSC7997, VSC7998

# VITESSE

## 10.7 Gb/s Transimpedance Amplifier



### BENEFITS:

- ▶ High Gain with Low Power
- ▶ Direct Connection to a Demux without a Post Amplifier
- ▶ APD or PIN Diode Compatible

### APPLICATIONS:

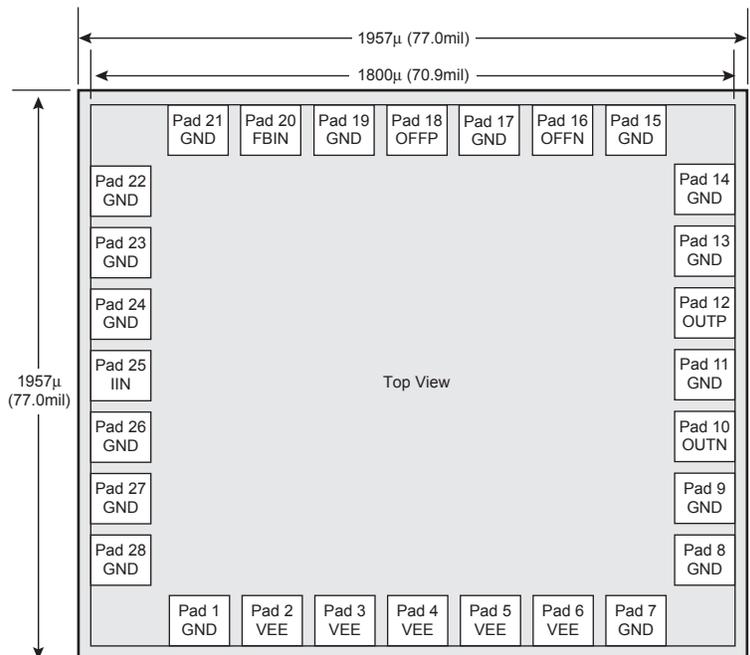
- ▶ SONET/SDH Networking
- ▶ Transponder Modules
- ▶ DWDM Systems
- ▶ G.975/709 Forward Error Correction (FEC)
- ▶ Gigabit Ethernet
- ▶ Telecommunications Transmission Systems
- ▶ Test Equipment

### FEATURES:

- ▶ 5KW Differential Transimpedance (VSC7997)
- ▶ 1.4KW Differential Transimpedance (VSC7998)
- ▶ 70mA Typical Supply Current
- ▶ 12pA/rtHz Typical Input Noise Current Density
- ▶ Adjustable Output Offset
- ▶ Low Group Delay

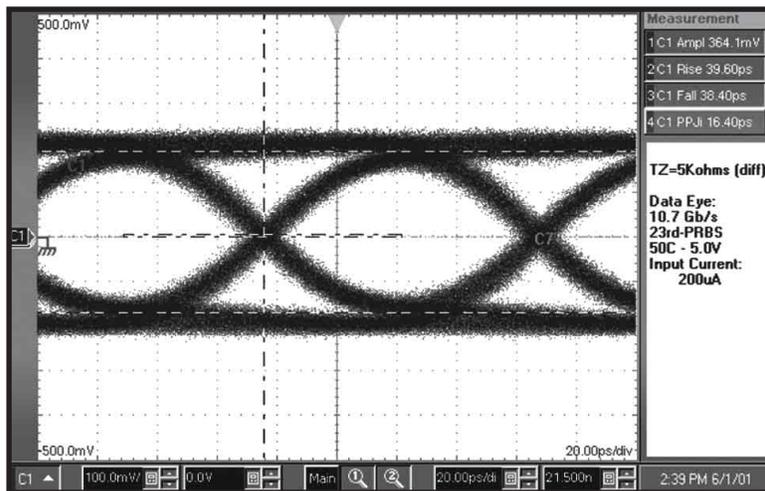
### PAD DIAGRAM:

The outputs of the VSC7997 and VSC7998 are linear for inputs up to 250mAp-p and 1000mAp-p respectively. For higher inputs, the output limits at typically 1000mV differential, increasing the dynamic range of the system by reducing the possibility of exceeding the input voltage range of the limiting amplifier or clock and data recovery circuit.



## 10.7 Gb/s Transimpedance Amplifier

### GENERAL DESCRIPTIONS



### SPECIFICATIONS:

- ▶ Single -5.2V Power Supply
- ▶ 2.2mA<sub>p-p</sub> Input Overload
- ▶ Operating Temperature: -20C to +100C Junction
- ▶ Die Size: 1.957 mm x 1.957 mm

The VSC7997 and VSC7998 are 10.7Gb/s high performance transimpedance amplifiers designed for use in optical communication networks including Sonet OC-192/SDH STM-64 and 10G Ethernet fiber links. The devices are intended for use with a photodetector and are capable of amplifying inputs currents of up to 2.2mA with low duty cycle distortion. The VSC7997 and VSC7998 are pin and functionally compatible. The designer has the flexibility to choose between the 5KW (VSC7997) and the 1.4KW (VSC7998) differential transimpedance as required by system architecture and performance.

The VSC7997 and VSC7998 amplifier consists of a transimpedance stage and a single-to-differential output stage with a gain of 20dB and 11.4dB respectively. An external photodetector is connected to the IIN input. Pins OUP and OUTN are the complementary data outputs. The high gain of the VSC7997 allows for a direct connection to the VSC8174 CRU/Demux without the need for a post amplifier.

To provide flexibility in setting the decision threshold of the limiting amplifier or clock and data recovery circuit, the VSC7997 and VSC7998 utilize output offset control and adjustment of the OUP and OUTN. Pins FBIN, OFFP, and OFFN are used for output offset control. The OFFP and OFFN outputs connected to ground through 100nF capacitors provide the user with the DC component of the OUP and OUTN data outputs. An external circuit can be used to sense the OFFP and OFFN outputs and then generate the appropriate DC voltage at the FBIN input to set the DC offset between OUP and OUTN.

For more information on Vitesse Products visit the Vitesse web site at [www.vitesse.com](http://www.vitesse.com) or contact Vitesse Sales at (800) VITESSE or [sales@vitesse.com](mailto:sales@vitesse.com)