

TIA5652

56 Gb/s Transimpedance Amplifier

Type: Module	Technology: SiGe	f_T / f_{max} : 170/250 GHz	Metallization: 4	Ref.-No.: R1032
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Brief description

The TIA5652 is a versatile High-Speed Transimpedance Amplifier for data rates up to 56 Gb/s. Key features are:

- single-ended and differential I/O operation,
- very high small signal gain,
- small signal and limiting operation,
- high cut-off frequency,
- low noise,
- adjustable input offset,
- output sense for offset control,
- tunable frequency response,
- dc and ac coupled operation,
- adjustable output voltage swing,
- single supply voltage.

The TIA5652 consists of a fully symmetrical differential input buffer. This allows differential as well as single ended drive and is optimized for 50 Ω line termination.

For applications which require adjustable input bias or compensation of DC input currents (e.g. photodiodes) the TIA5652 allows to adjust the bias input current for each input independently. This feature can e.g. be used for offset cancellation, pulse shaping, duty cycle adjustment or vertical sampling point adjustment.

The TIA5652 exhibits a fully symmetrical differential output buffer which provides either one differential output signal or two single ended output signals. The nominal output amplitude is set to typ. 500 mV_{pp} (differential signal) and can be increased to about 1000mV_{pp} by using the output swing adjustment pin.

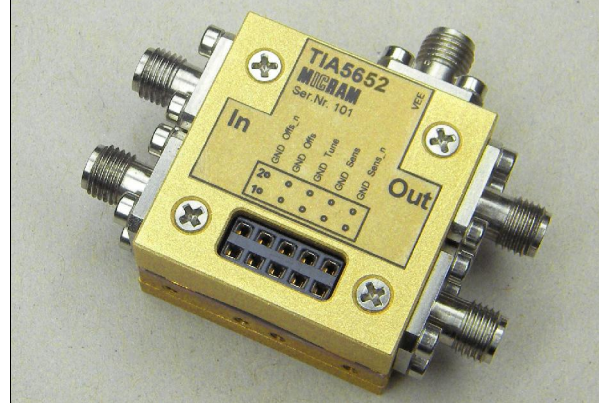
Main fields of application are:

- TIA for photoreceiver,
- single-ended to differential conversion,
- differential to single-ended conversion,
- amplitude regeneration,
- active power/signal splitter,
- 50 Ω line driver.

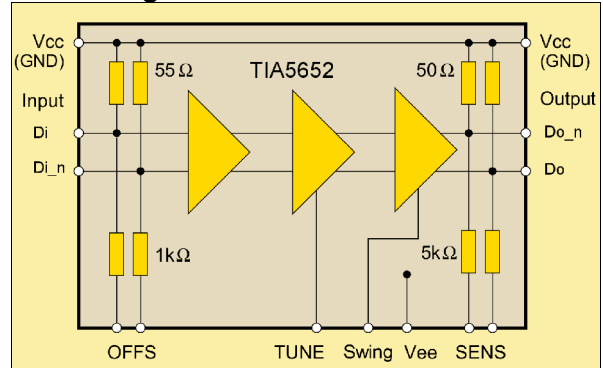
Package

The TIA5652 is available as bare die or as ruggedized module equipped with K-Connectors. Other connector types upon request.

TIA5652 Module with K-Connectors



Block diagram of the TIA5652



TIA5652 data

Power supply, (V_{ee})	-4.5 ... -5.5 V
Current consumption	85 mA @ -5.2 V
S11, S22 ($f < 20$) GHz	-12 dB
Input amplitude range	5 mV _{pp} - 1 V _{pp}
Output amplitude	0.5 V _{pp} typ., 1 V _{pp} max.
Gain / Transimpedance	~ 40 dB / 5 k Ω
Cut off frequency	~ 30 GHz (adjustable)
Input related noise	< 30 pA / $\sqrt{\text{Hz}}$

For further information on the TIA5652 please contact your MICRAM sales representative.

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