

# TIA4C-5652

## 56 Gb/s Quad TIA

MICRAM

Type: Module	Technology: SiGe	$f_T / f_{max}$ : 170/250 GHz	Metallization: 4	Ref.-No.: R1035
--------------	------------------	-------------------------------	------------------	-----------------

### Brief description

The TIA4C-5652 is a versatile High-Speed 4 channel Transimpedance Amplifier for data rates up to 56 Gb/s to match new 100GbE applications. Key features are:

- 4 independent ampl. Channels,
- 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.

Each channel of the TIA4C-5652 consists of a fully symmetrical differential input buffer. This allows differential as well as single ended drive and is optimized for 50  $\Omega$  line termination.

For applications which require adjustable input bias or compensation of DC input currents (e.g. photodiodes) the TIA4C-5652 allows to adjust the bias input current for each channel independently. This feature can e.g. be used for offset cancellation, pulse shaping, duty cycle adjustment or vertical sampling-point adjustment.

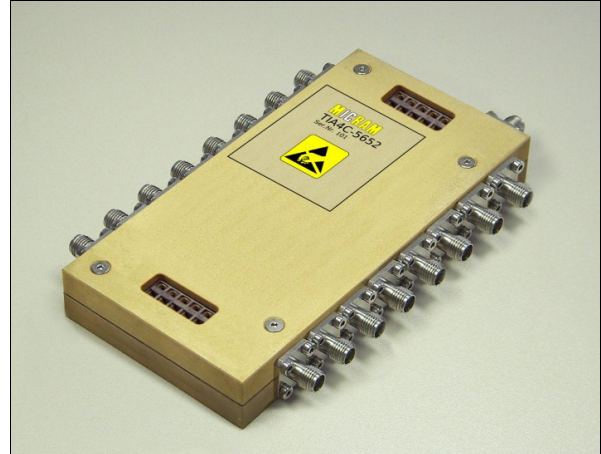
Each channel exhibits a fully symmetrical differential output buffer which provides either one differential output signal or two single ended output signals. The output amplitude is set to typ. 500 mV<sub>pp</sub> (differential signal) and can be increased to about 1000mV<sub>pp</sub> by using the output swing adjustment pin.

Main fields of application are multi-channel optical receivers for data-rates >100Gbit/s (e.g. Pol-MUX QPSK). By using the TIA4C-5652 together with a photo diode array, a small form factor 4 channel optical receiver module can be assembled.

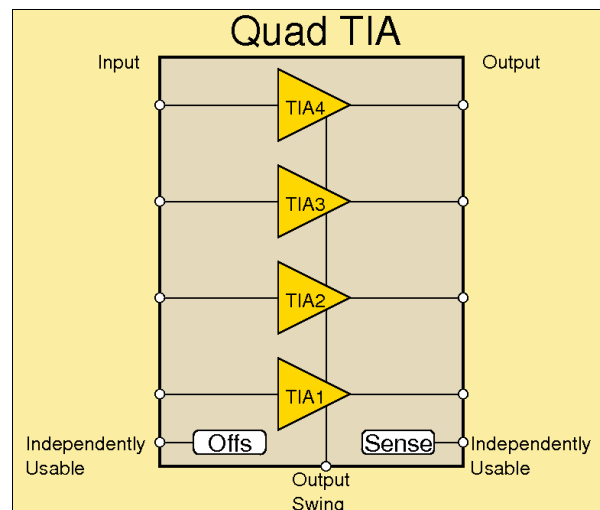
### Package

The TIA4C-5652 is available as bare die or as ruggedized module equipped with K-Connectors. Other connector types upon request.

### TIA4C-5652 Module with K-Connectors



### Block diagram of the TIA4C-5652



### TIA4C-5652 data

Power supply, ( $V_{ee}$ )	-4.5 ... -5.5 V
Current consumption	325 mA @ -5.2 V
S11, S22 ( $f < 20$ ) GHz	-12 dB
Input amplitude range	5 mV <sub>pp</sub> - 1 V <sub>pp</sub>
Output amplitude	0.5 V <sub>pp</sub> , 1 V <sub>pp</sub> max.
Gain / Transimpedance	~ 40 dB / 5 k $\Omega$
Cutoff frequency	~ 30 GHz (adjustable)
Input related noise	< 30 pA / $\sqrt{\text{Hz}}$

For further information on the TIA4C-5652 please contact your MICRAM sales representative.