

## Multi-channel transimpedance amplifier MTI04CS/MTI04CQ

With the MTI series, MAZeT provides a family of multi-channel amplifier ICs (current-to-voltage conversion transimpedance amplifiers) for sensors with current output. These are distinguished, among other things, by a programmable bandwidth and high amplification.

The ICs are offered in different RoHS compliant housings or - within the scope of customer projects - are also available as 'naked' chips (die) for Chip-On-Board (COB) assembly.

The MTI series is currently available in two types, which differ in amplification, noise, bandwidth and operating voltage.

With the **MTI04CS/CQ**, MAZeT now presents the second-generation multi-channel transimpedance amplifier. **The MTI04CS/CQ now offers the ability to adapt the compensation of the transimpedance amplifier) to the input capacitance of the sensors, such as photodiodes. This is done digitally in two stages, 5 and 80pF.**

Programming of the transimpedance gain is carried out via three input pins to any of eight levels; and takes effect for all channels simultaneously.

parameter	min.	typ.	max.	unit	condition
Input current		0,025		$\mu\text{A}$	Stage 1
		0,05		$\mu\text{A}$	Stage 2
		...		...	...
		20		$\mu\text{A}$	Stage 8
Feedback resistor	14000	20000	26700	kOhm	Stage 1
	7000	10000	13350	kOhm	Stage 2
	...	...	...	...	...
	17	25	34	kOhm	Stage 8
Signal frequency at input	4	6	16	kHz	Stage 1
	7	11	28	kHz	Stage 2
(CPHOTODIODE < 5pF)	...	...	...	...	...
	500	800	1700	kHz	Stage 8

### Additional technical characteristics

- Switchable frequency response compensation for input photodiodes (< 5pF and < 80pF)
- Good synchronization of the amplification and the temperature coefficients by the transfer function
- Settable power-save mode
- Supply voltage from 2.7 to 5.5V
- Extended temperature range from -40 to +125°C

### Use and Typical Applications

The sensor ICs are particularly suited as amplifiers for sensors with current output in the nA and  $\mu\text{A}$  range, such as opto arrays and rows in the UV, VIS, NIR and IR spectra.

This applies typically to applications in the area of industrial sensors (light grid, length, filling level, position, thickness and distance measurement), equipment for surface analysis and temperature measurement (thermal imaging, combustion supervision), detectors for alpha, beta, gamma and x-rays and ions as well as applications for measurement, regulation and control of light and laser sources.