

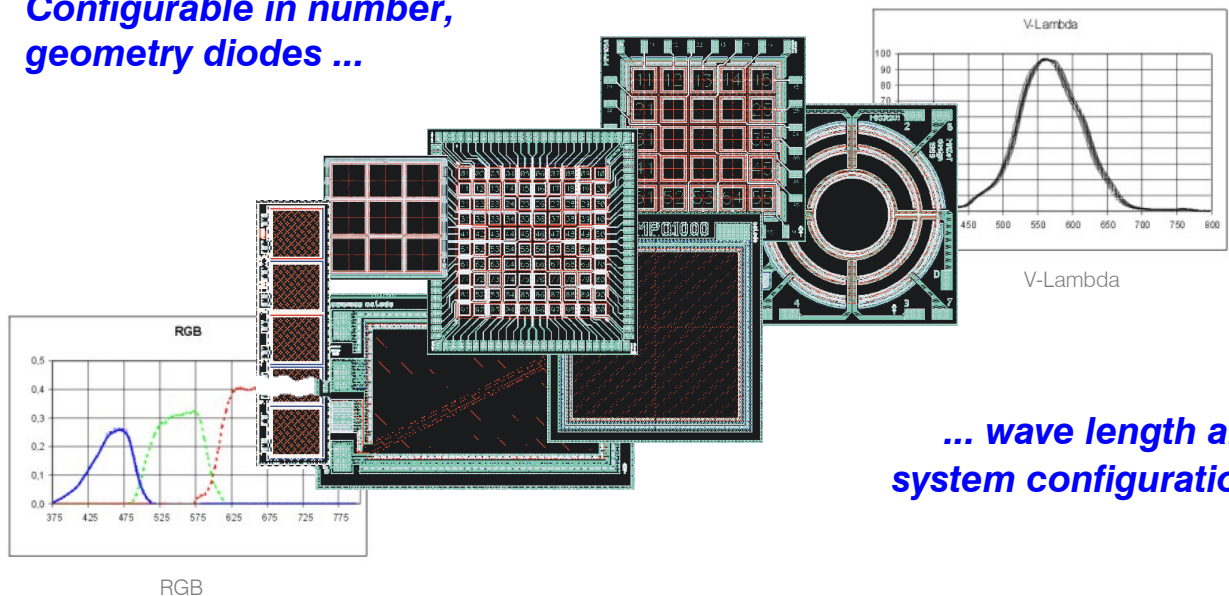
Custom specific Opto-ICs

CUSTOMER INFORMATION

Development of opto-electronical components based on specific silicon, filters and packaging

MAZeT offers custom-built developments of opto-electronical ICs with/without signal electronic on chip. These sensor systems are optimally adaptable to respective applications. Variable technologies, optional carrying out forms as well as bandpass filter and optics on chip are cause for it. The sensor ICs are suitable for most different fields of application - for example as light sensors and for the test of availability by means of light barrier and photo sensor, triangulation, geometry recording of light beams, measurement of the light emphasis and of measurement of light intensity, edge or position recognition, spectral measurements and color recording.

Configurable in number, geometry diodes ...



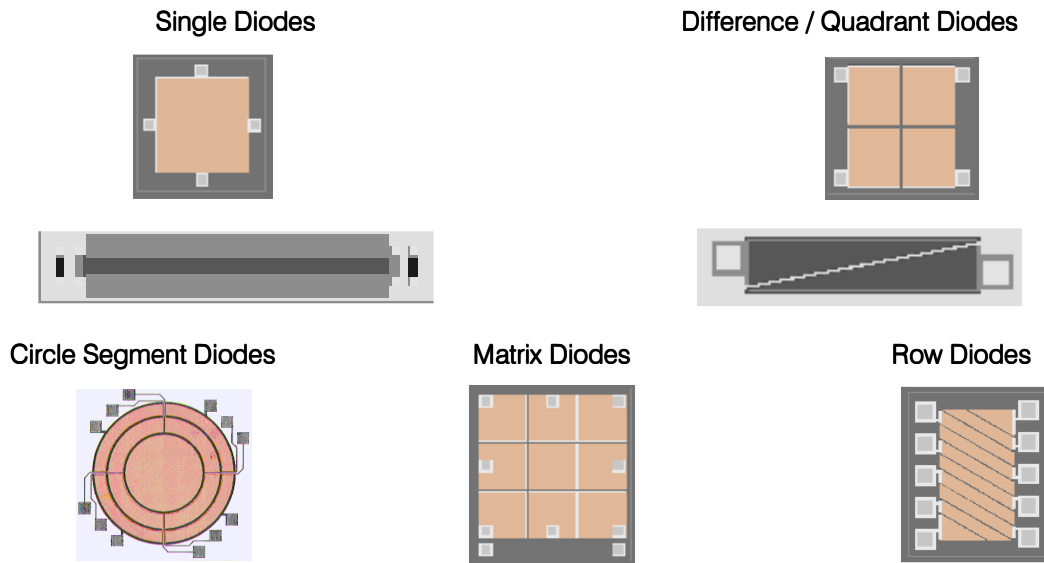
- Spectral width: 400 ... 1100 nm
- Max. sensitivity at: 800 nm
- Spectral sensitivity: $\leq 0,6 \text{ A/W}$
- Dark current: $\leq 50 \text{ pA/mm}^2$
- Min. filter width typically 5%-10% of wavelength
- High edge rates , after order and design
- High filter transmission in conducting state and high absorption in blocking state
- VIS/IR-transparent filter (also selective) for signal and band pass filter
- Diode number: Single Diode / Array
- Diode arrangement: specific
- on Chip assembling of glasses with optical and electric functions
- PIN-diodes and Sensor on CMOS
- Standard or specific packages

For signal processing of Opto-sensors MAZeT offers the multi-channel transimpedance amplifiers MTI with a maximum of 32 channels. The input current can be varied in three stages at these amplifiers and is in this way adapted to the photo current to be measured, also during any online measurement process.

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Custom specific detector geometry

The geometry and the arrangement of the photodiodes can be optimally adapted to the respective application. In this way, e.g. square, rectangular and circular arrangements are possible but also irregular ones, such as circle segments, can be implemented. Both, the geometry and the numbers of the photodiodes can almost be chosen as desired. Possible carrying out forms are:



- **Limit of cross-talking effects**

In order to avoid an influencing of the measured value by cross-talk from the subsidiary area of the photodiode it is reasonable to cover the optically not acting fields with an opaque shift. The possibility exists besides to minimize the charge carrier replacement between neighboring diodes by insertion of additional anodes.

- **Custom specific assembly, optic and filter**

In addition to a custom-built sensor geometry and arrangement, the opto-electronical sensor systems are offered as particular system design. Different assembling steps, custom-specific outlines and packaging systems can be chosen (Chip on board, Chip on Glass, Multi Chip Module, Flip-chip Arrangement on glass carrier). These can also integrate precision of mechanical / micro optical components (e.g. optics) and specific filter layers on chip or onto glass (bandpass filters, spectral filters RGB or V-Lambda, infrared blocking) into the sensor system.

The used All-In-One color filters are narrow bandpass filters and have been realized as individual dielectric shift systems. They achieve a very high continuous blocking in the blocking-state region. Further, the filters, characterized by a very high crust slope, are extremely long-lived without changes in the technical parameters and can be raised in a structured manner as arrays with different peaks at the wavelength.

- **Multi Project Wafer Service**

MAZeT offers a multi project wafer service for customers with demand for small numbers. As a result, the costs for underbatches can be strongly decreased for the manufacturing of samples or small series.