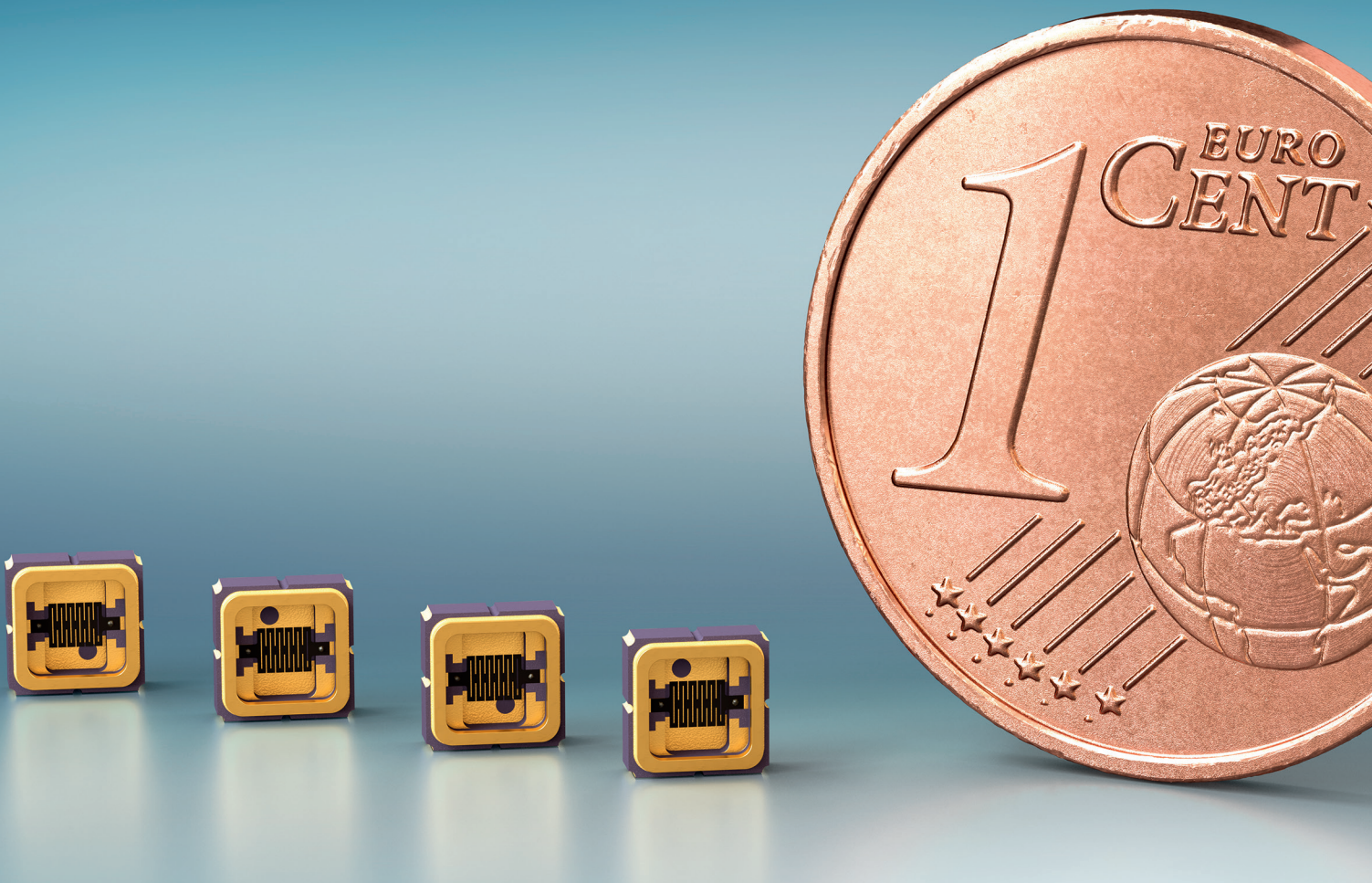


# INFRA·SOLID<sup>®</sup>



miniaturized · powerful · patented

## Thermal Infrared Emitters

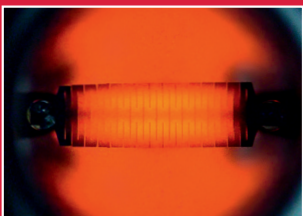
for gas analysis, material detection & spectroscopy  
overview and pictures for EPS Global



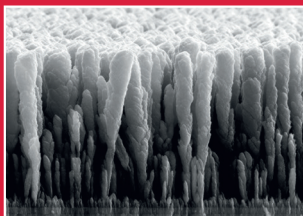
*innovative infrared sources for  
gas detection & spectroscopy*



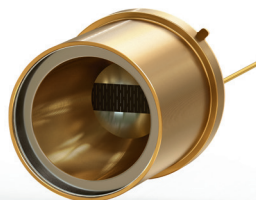
#### USP's & Benefits



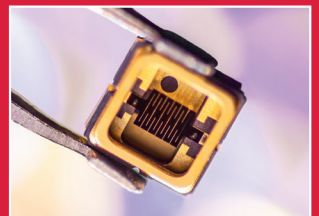
**High radiant  
power**



**High  
efficiency**



**Hermetic  
housing**



**Very small  
size**



# INFRASOLID® nanostructure technology

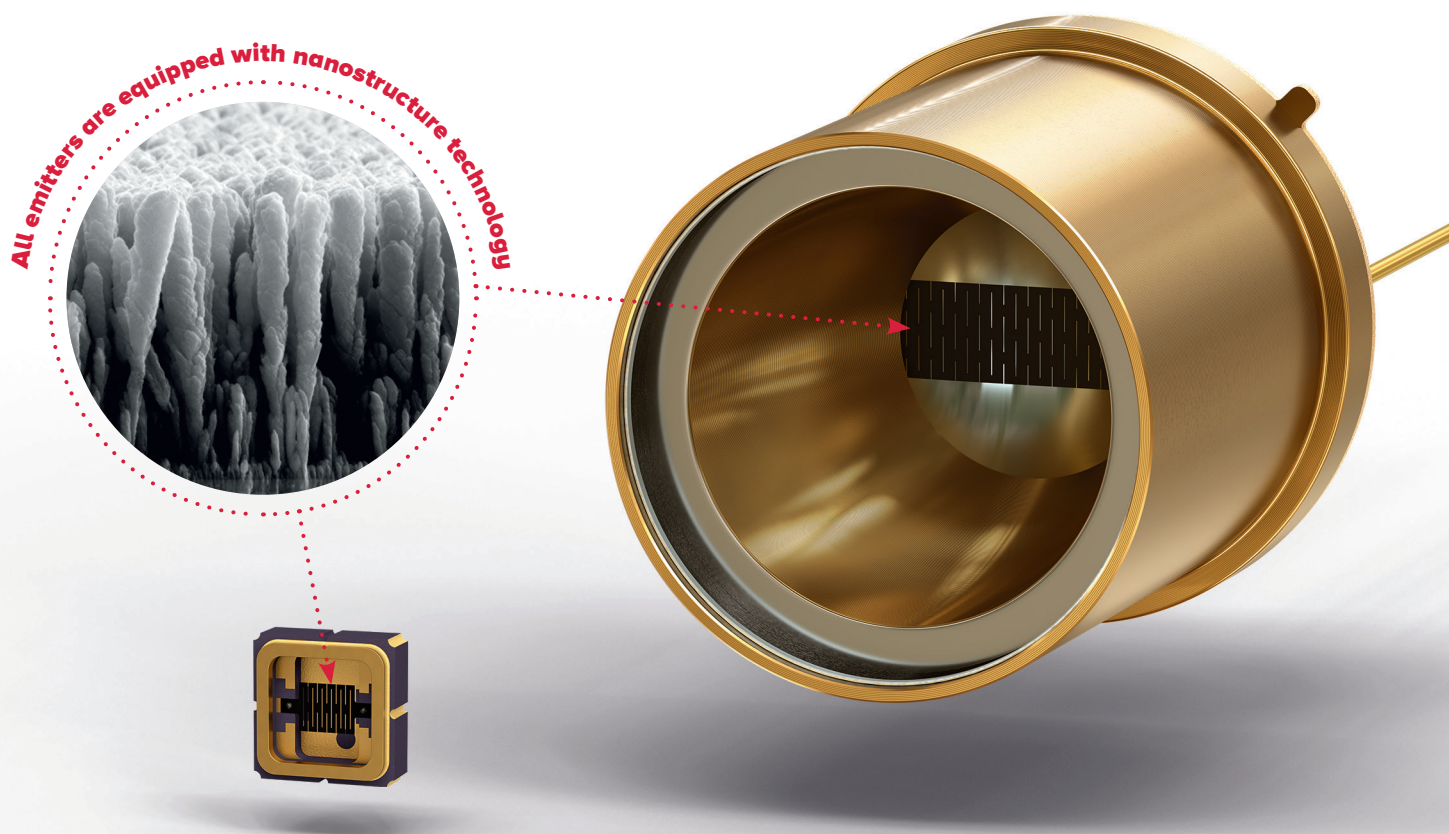
## Patented infrared emitter set-up

Infrasolid's infrared radiation sources are pulsable thermal emitters with a near black-body emittance. Based on a patented nanotechnology and a patented emitter set-up made of a high-melting metal, the free-standing monolithic radiating element and the nanostructured emitter surface offer numerous advantages in many applications.

The high, broadband emissivity results in a broadband and highly efficient emission of infrared radiation. By adapting the nanostructured surface, the emission spectrum can be influenced and adapted to specific applications. In this way, energy consumption can be reduced by not generating radiation in the unneeded wavelength ranges.

The unique and patented manufacturing process allows the flexible production of different emitter area geometries and, therefore, an easy adaptation to customer-specific applications. The infrared radiators are available in an open version and in a hermetic housing.

The outstanding properties and the high miniaturization potential enable smaller, more powerful, and more efficient analysis and gas measurement devices. Growing environmental and safety awareness as well as increasing automation are creating a growing demand for reliable gas sensors and offering a wide range of application scenarios for this new infrared emitter technology, also in the consumer sector.



- ✓ Smaller, more powerful measurement devices, e.g. spectrometers and gas sensors
- ✓ Cost reduction by miniaturization
- ✓ New application areas and markets

# HISsmd series

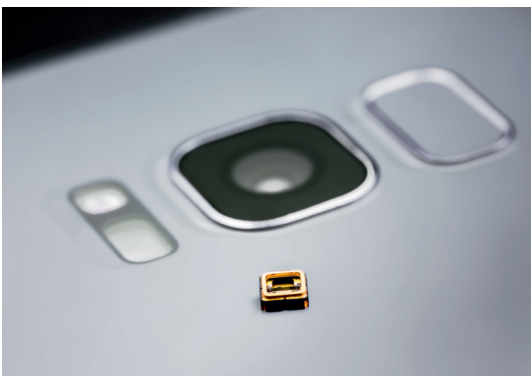
High-efficient infrared source in SMD housing (3 x 3 x 1.2) mm<sup>3</sup>

**HISsmd series** emitters are small, powerful infrared radiation sources that meet the demands for reliable miniaturized gas sensors and offer a wide range of new application scenarios. The low energy consumption, the high efficiency and the small size allow the use in portable, battery-powered, and mobile applications. These innovative infrared light sources are used, for instance, in respiratory gas analysis, e.g. for the detection of CO<sub>2</sub> and breath alcohol, and in Smart Home applications. The pioneering SMD package enables a fully automated production in high-volume markets.



MEDICINE / CONSUMER  
HEALTHCARE

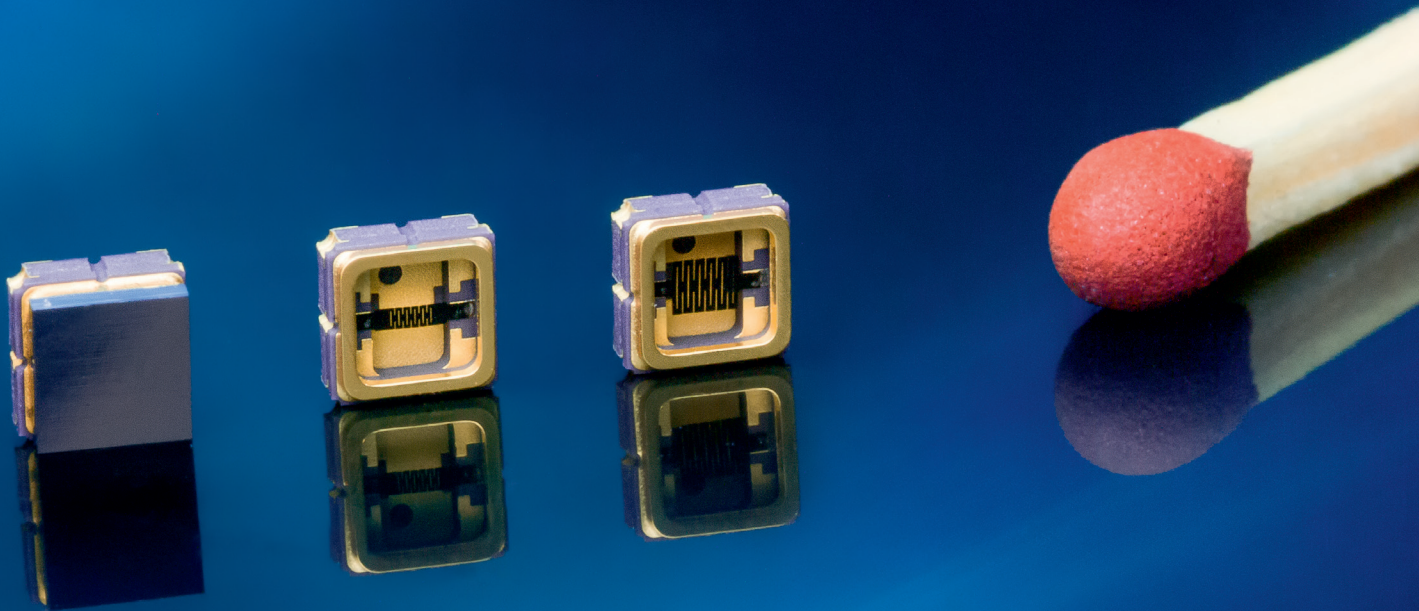
SAFETY ENGINEERING /  
ENVIRONMENTAL  
PROTECTION



MOBILE / SMART HOME  
APPLICATIONS



# *extreme miniaturization*





# HiSpower series

High-power infrared source in TO-8 housing

**HiSpower series** emitters have a very high radiant power in the entire infrared spectral range due to the large emitter area and the high emissivity. An integrated reflector directs the radiation emitted from the rear to the front through the housing window in order to achieve maximum efficiency. Infracor's advanced packaging technology allows hermetic housings with soldered sapphire,  $\text{CaF}_2$  and  $\text{BaF}_2$  windows for use in a wide temperature range of  $-25^\circ\text{C}$  up to  $+85^\circ\text{C}$ . It enables a broad range of applications. These powerful infrared sources are used in high-precision gas detection (e.g.  $\text{CO}$ ,  $\text{CO}_2$ ,  $\text{NO}$ ,  $\text{SO}_2$ , VOC, hydrocarbons), in infrared spectroscopy and as calibration source.



OIL, GAS AND  
CHEMICAL INDUSTRY

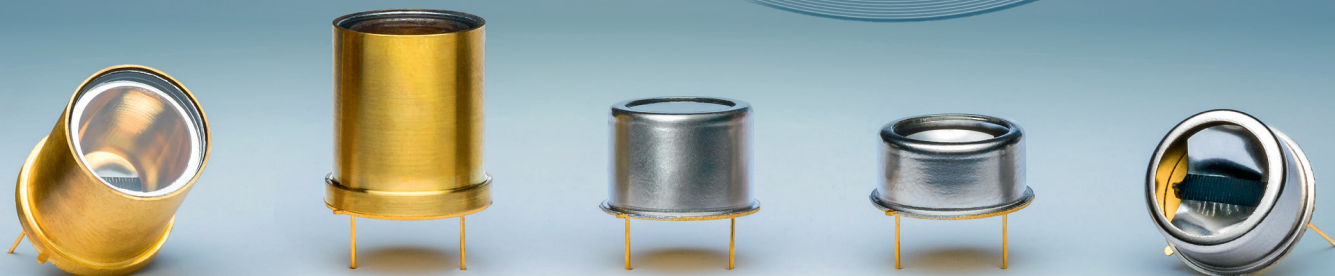
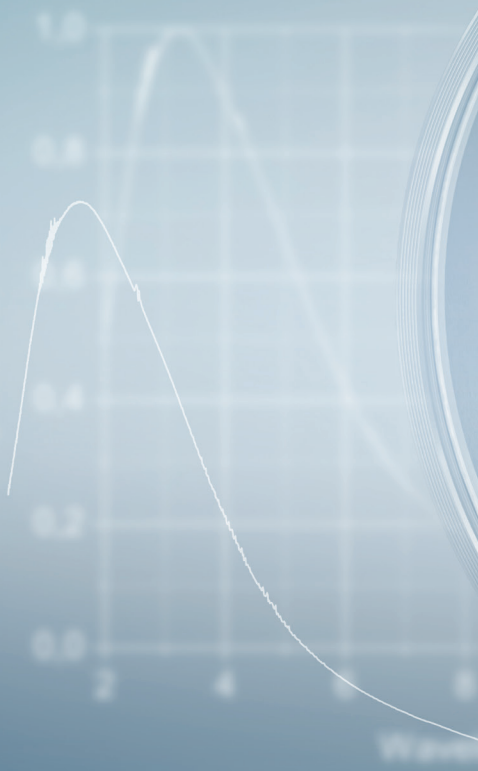
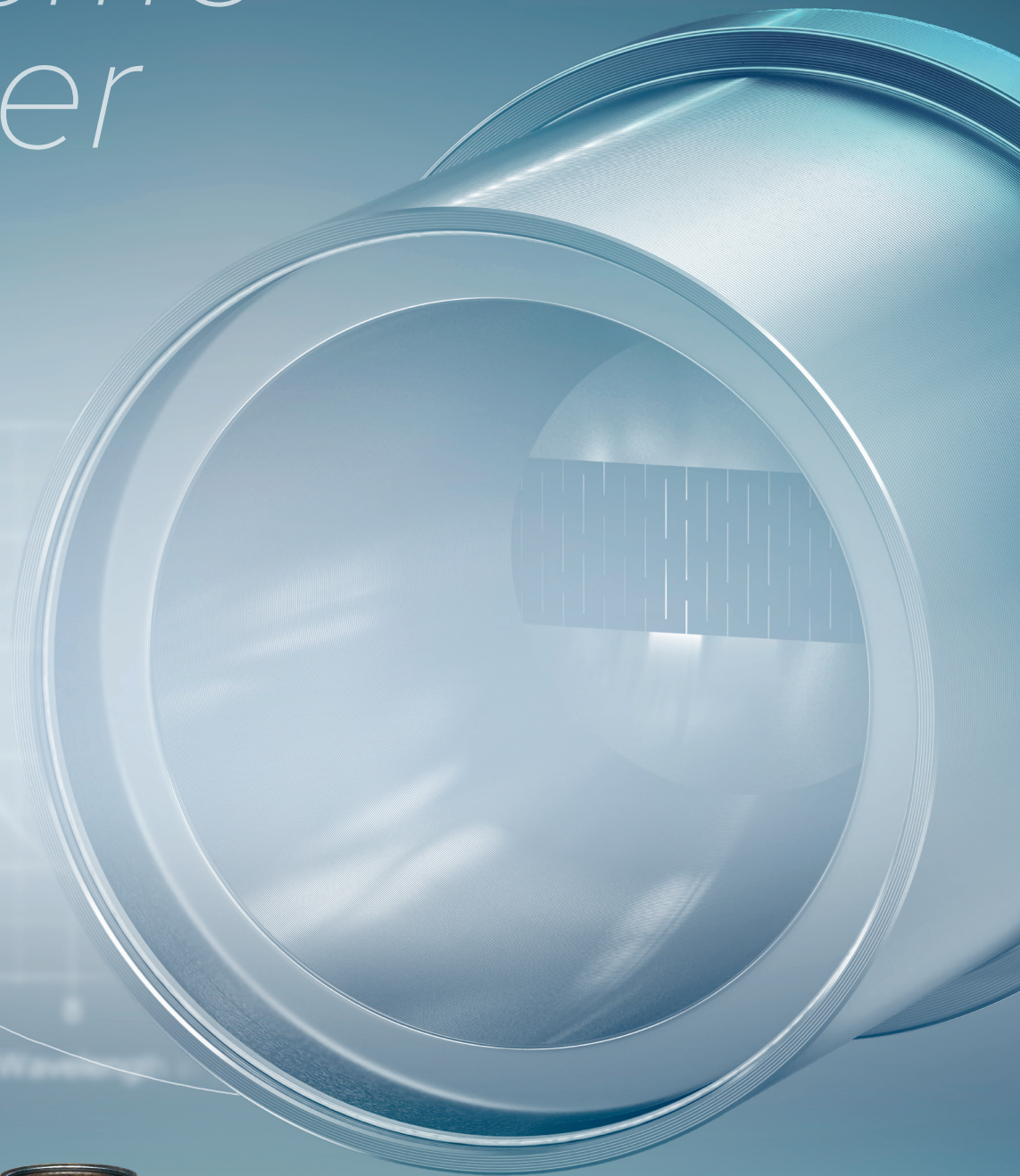
ELEMENTAL ANALYSIS



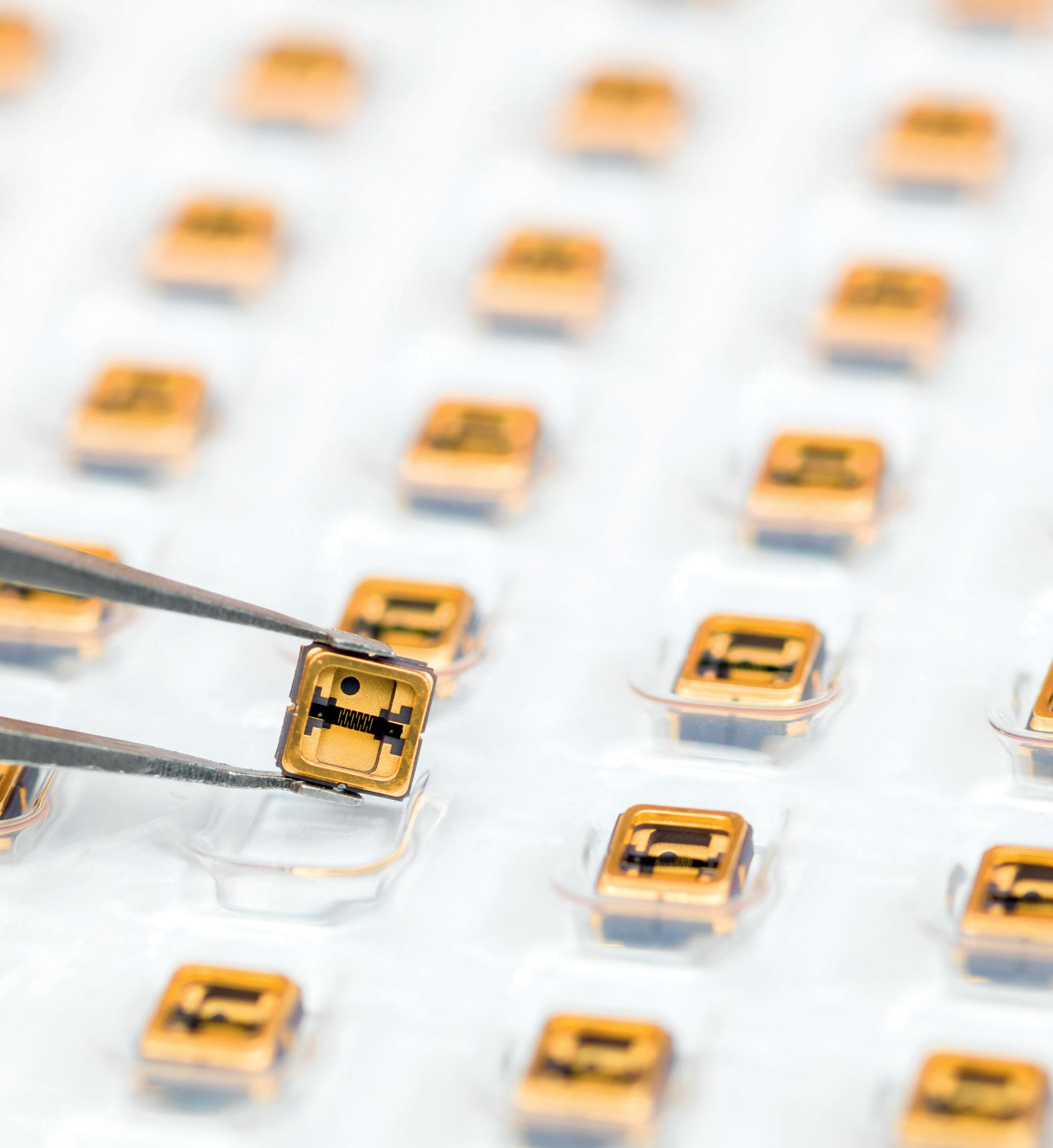
ENVIRONMENTAL /  
EMISSION MONITORING



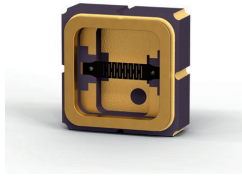
*extreme  
power*











### **HIS20smd-O**

Thermal infrared emitter, gold plated package

Package: SMD3

without window

Emitter area: (0.4 x 0.8) mm<sup>2</sup>



### **HIS20smd-A**

Thermal infrared emitter, gold plated package with sapphire-window

Package: SMD3

Sapphire-Window 2-6 μm

Emitter area: (0.4 x 0.8) mm<sup>2</sup>



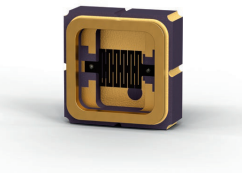
### **HIS20smd-S**

Thermal infrared emitter, gold plated package with Si-ARC-window

Package: SMD3

Si-ARC-Window 2-12 μm

Emitter area: (0.4 x 0.8) mm<sup>2</sup>



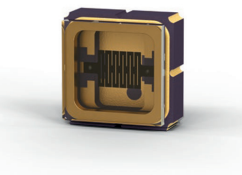
### **HIS100smd-O**

High power thermal infrared emitter, gold plated package

Package: SMD3

without window

Emitter area: (1 x 1) mm<sup>2</sup>



### **HIS100smd-A**

High power thermal infrared emitter, gold plated package with sapphire-window

Package: SMD3

Sapphire-Window 2-6 μm

Emitter area: (1 x 1) mm<sup>2</sup>



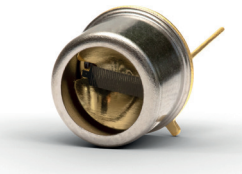
### **HIS100smd-S**

High power thermal infrared emitter, gold plated package with Si-ARC-window

Package: SMD3

Si-ARC-Window 2-12 μm

Emitter area: (1 x 1) mm<sup>2</sup>



### **HIS550R-O**

Thermal infrared emitter with gold plated reflector

Package: TO-39/TO-5 with integrated reflector

TO39-Cap without window

Emitter area 11 mm<sup>2</sup>



### **HIS550R-OWC**

Thermal infrared emitter with gold plated reflector and Winston cone collimator

Package: TO-39/TO-5 with integrated reflector

TO39-Cap with WinstonCone, without window

Emitter area 11 mm<sup>2</sup>



### **HIS550R-AA**

Thermal infrared emitter with sapphire window and Argon gas filling

Package: TO-39/TO-5 with integrated reflector

TO39-Cap with soldered sapphire window

Hermetically sealed: tested to 10<sup>-8</sup> mbar\*l/s

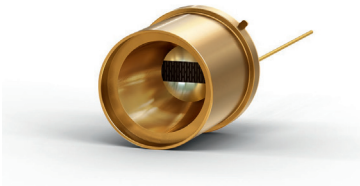
Filling: Argon

Emitter area 11 mm<sup>2</sup>



### **HIS2000R-O**

Thermal infrared emitter with gold plated reflector  
Package: TO8 with integrated reflector  
TO8-Cap without window  
Emitter area: 40 mm<sup>2</sup>



### **HIS2000R-OWC**

Thermal infrared emitter with gold plated reflector and Winston cone collimator  
Package: TO8 with integrated reflector  
TO8-Cap with Winston-Cone  
without window  
Emitter area: 40 mm<sup>2</sup>



### **HIS2000R-A300-6**

Thermal infrared emitter with sapphire window, hermetically sealed  
Package: TO8 with integrated reflector  
TO8-Cap with soldered sapphire window, cap height 6.375 mm  
Hermetically sealed: tested to 10<sup>-8</sup> mbar<sup>1</sup>/s  
Filling: Nitrogen  
Emitter area: 40 mm<sup>2</sup>



### **HIS2000R-A300-9**

Thermal infrared emitter with sapphire window, hermetically sealed  
Package: TO8 with integrated reflector  
TO8-Cap with soldered sapphire window, cap height 9.525 mm  
Hermetically sealed: tested to 10<sup>-8</sup> mbar<sup>1</sup>/s  
Filling: Nitrogen  
Emitter area: 40 mm<sup>2</sup>



### **HIS2000R-C300-6**

Thermal infrared emitter with CaF<sub>2</sub> window, hermetically sealed  
Package: TO8 with integrated reflector  
TO8-Cap with glued CaF<sub>2</sub>-window, cap height 6.375 mm  
Hermetically sealed: tested to 10<sup>-8</sup> mbar<sup>1</sup>/s  
Filling: Nitrogen  
Emitter area: 40 mm<sup>2</sup>



### **HIS2000R-C300-9**

Thermal infrared emitter with CaF<sub>2</sub> window, hermetically sealed  
Package: TO8 with integrated reflector  
TO8-Cap with glued CaF<sub>2</sub>-window, cap height 9.525 mm  
Hermetically sealed: tested to 10<sup>-8</sup> mbar<sup>1</sup>/s  
Filling: Nitrogen  
Emitter area: 40 mm<sup>2</sup>



### **HIS2000R-CWC300**

Thermal infrared emitter with Winston Cone and CaF<sub>2</sub> window, hermetically sealed  
Package: TO8 with integrated reflector  
TO8-Cap with Winston-Cone and soldered CaF<sub>2</sub>-Window  
Hermetically sealed: tested to 10<sup>-8</sup> mbar<sup>1</sup>/s  
Filling: Nitrogen  
Emitter area: 40 mm<sup>2</sup>



### **HIS2000R-BWC300**

Thermal infrared emitter with Winston Cone and BaF<sub>2</sub> window, hermetically sealed  
Package: TO8 with integrated reflector  
TO8-Cap with Winston-Cone and soldered BaF<sub>2</sub>-Window  
Hermetically sealed: tested to 10<sup>-8</sup> mbar<sup>1</sup>/s  
Filling: Nitrogen  
Emitter area: 40 mm<sup>2</sup>