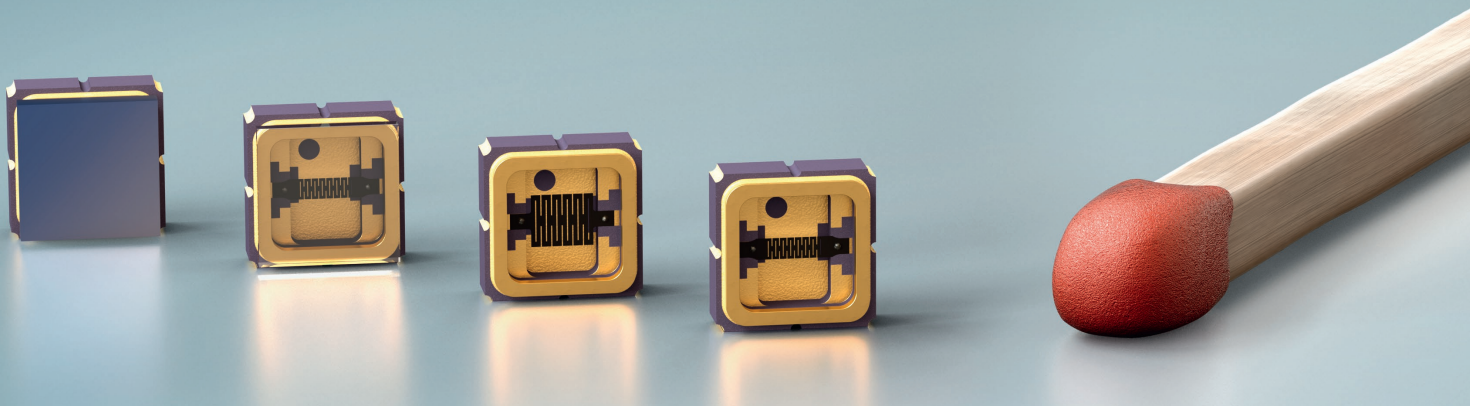


# INFRA·SOLID<sup>®</sup>

Highest efficiency · Most powerful · Nanostructured NiCr emitters

## Thermal Infrared Emitters

Performance comparison of SMD IR emitters



### HISsmd series

- ✓ Wide wavelength range from 2  $\mu\text{m}$  up to 20  $\mu\text{m}$  enables a broad range of applications
- ✓ Pulsable thermal black-body infrared source in an industry standard SMD package
- ✓ Patented nanostructured radiating element generates black-body spectrum with up to 1000% more detection signal compared to MEMS emitters
- ✓ Ideal for portable and battery powered devices
- ✓ SMD package enables low-cost mass assembly on PCB with pick-and-place machines

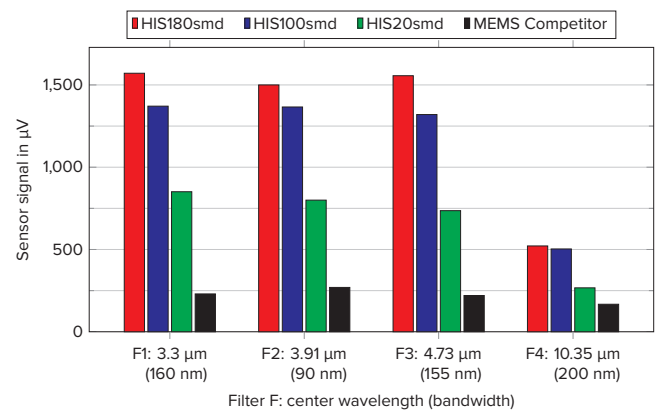


Fig. 1: Performance comparison of SMD IR emitters in a typical NDIR gas sensor set-up (4-channel detector, 100 mm optical path length, 5 Hz modulation frequency)

## Wide application range



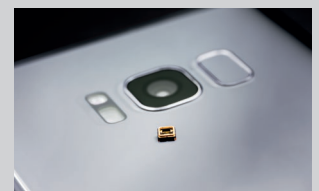
**SAFETY  
ENGINEERING**



**EMISSION  
MONITORING**

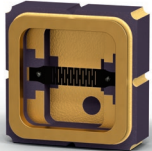
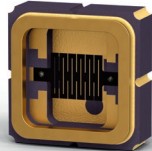
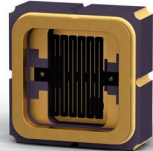





**BREATH  
ANALYSIS**



**INTERNET  
OF THINGS**

# Highest performance in smallest packages

Parameter	HIS20smd	HIS100smd	HIS180smd
			
Package	SMD (3 x 3) mm <sup>2</sup>	SMD (3 x 3) mm <sup>2</sup>	SMD (3 x 3) mm <sup>2</sup>
Radiating element area	0.32 mm <sup>2</sup>	1 mm <sup>2</sup>	1.8 mm <sup>2</sup>
Radiating element emissivity	> 0.9	> 0.9	> 0.9
Radiating element temperature	700 °C at 175 mW	600 °C at 290 mW	500 °C at 330 mW
Optical output power	up to 15 mW	up to 30 mW	up to 40 mW
Max. electrical power (DC)	175 mW	290 mW	330 mW
Max. voltage	1.25 V	1.7 V	2.6 V
Max. electrical current	140 mA	170 mA	125 mA
Modulation frequency*	14 Hz	10 Hz	8 Hz
Wavelength range**	2 to 20 μm		
Filling gas	None (open) / Air (with window)		
Product name / window options	<b>HIS20smd-0</b> (open) <b>HIS20smd-A</b> (glued sapphire) <b>HIS20smd-S</b> (glued Si-ARC)	<b>HIS100smd-0</b> (open) <b>HIS100smd-A</b> (glued sapphire) <b>HIS100smd-S</b> (glued Si-ARC)	<b>HIS180smd-0</b> (open) <b>HIS180smd-A</b> (glued sapphire) <b>HIS180smd-S</b> (glued Si-ARC)
			

\* 50 % modulation depth, square wave signal, 50 % duty cycle  
\*\* depending on filter transmissivity

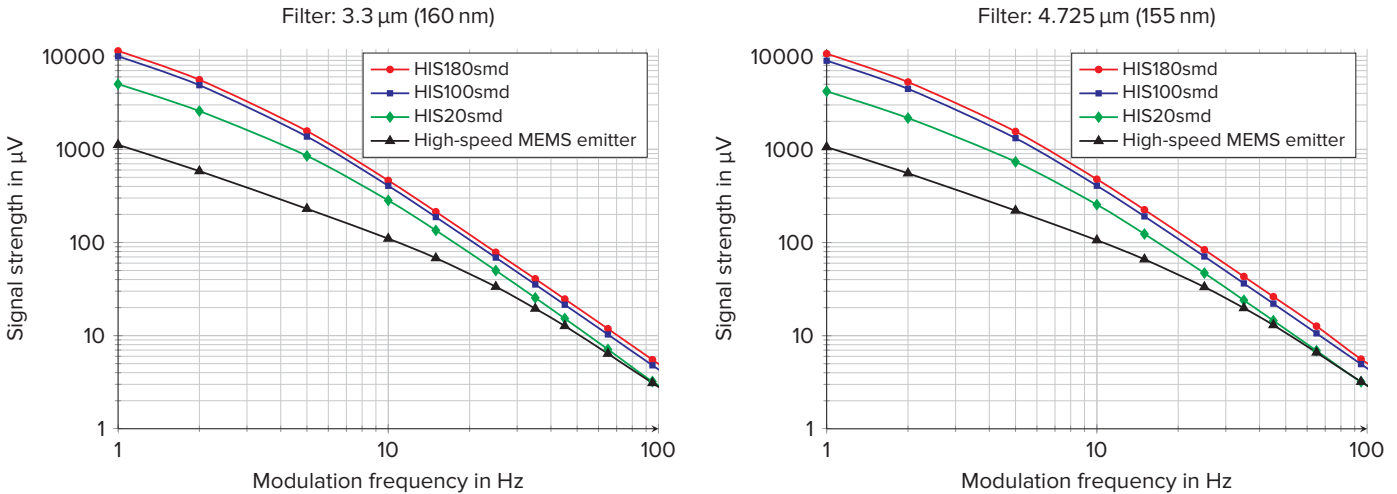


Fig. 2: Sensor signal vs. modulation frequency of SMD IR emitters in a typical NDIR gas sensor set-up (4-channel detector, 100 mm optical path length).  
Left: filter with center wavelength of 3.3 μm and bandwidth of 160 nm; right: filter with center wavelength of 4.725 μm and bandwidth of 155 nm

Are you looking for further emitters, detailed technical specifications or would you like to have an individual development?  
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