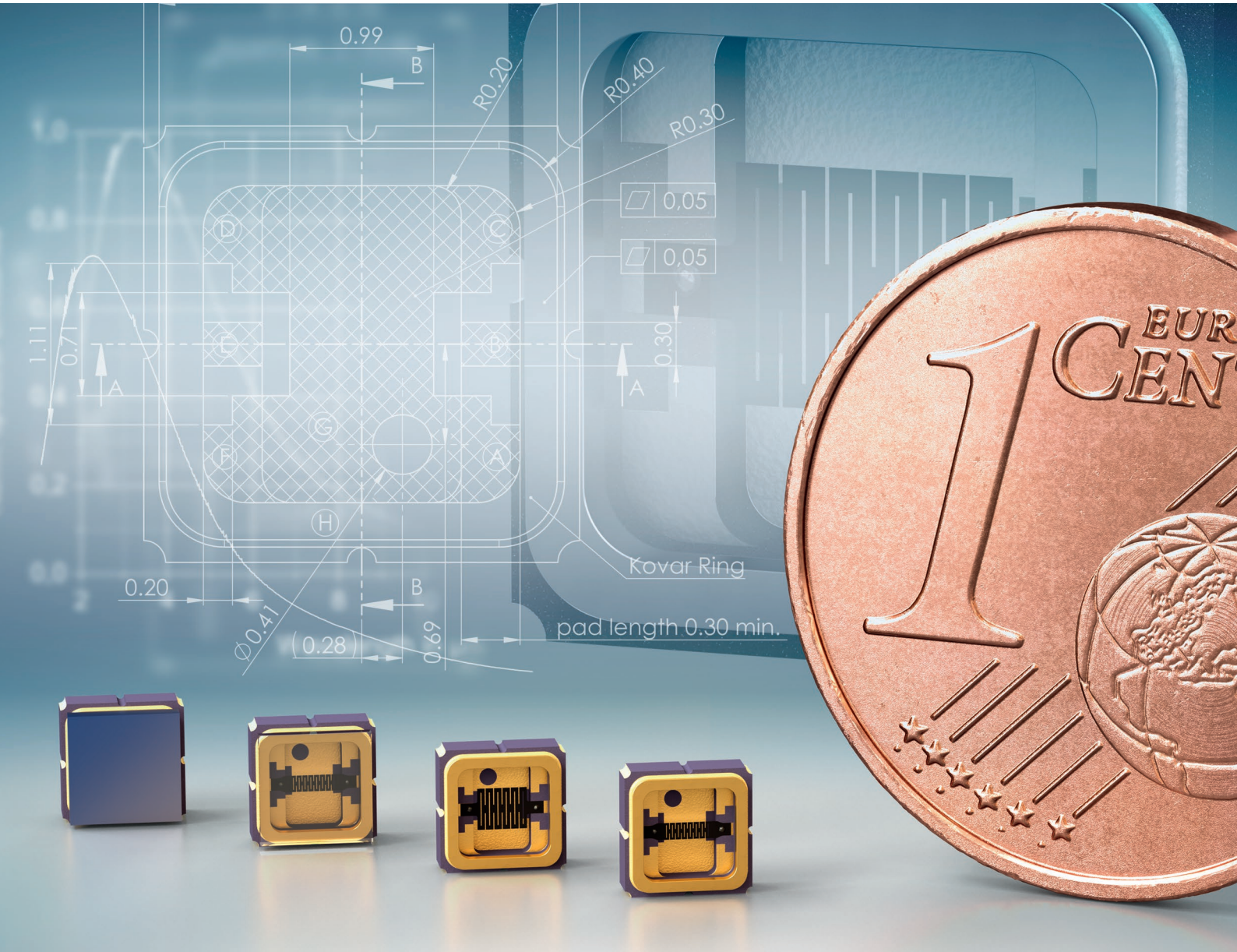


INFRA·SOLID[®]



Data Sheet

HIS20smd

Thermal Infrared Emitters

HISsmd series

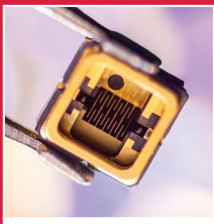
Thermal Infrared Emitters

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 CO₂ and breath alcohol, and in Smart Home and Smartphone applications.

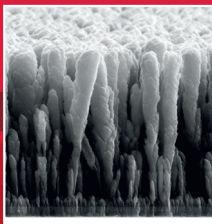
The pioneering SMD package enables a fully automated production in high-volume markets.

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.

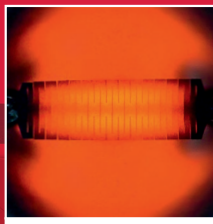
Key features



Very small size



High efficiency



High radiant power

- ✓ Pulsable thermal black-body infrared source mounted in a SMD package with a size of 3x3 mm².
- ✓ Patented nanostructured radiating element achieves up to 500% more detection signal!
- ✓ Innovative surface technology for customized SMD products.
- ✓ Wide wavelength range enables applications in mobile, portable devices and various wearables, for miniaturized gas measurement sensors and hand-held spectrometers.

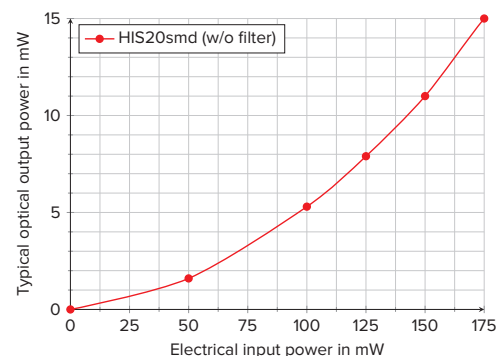
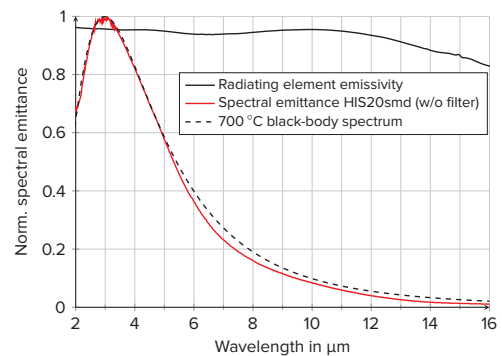
innovative infrared sources for gas detection & spectroscopy

Main specifications

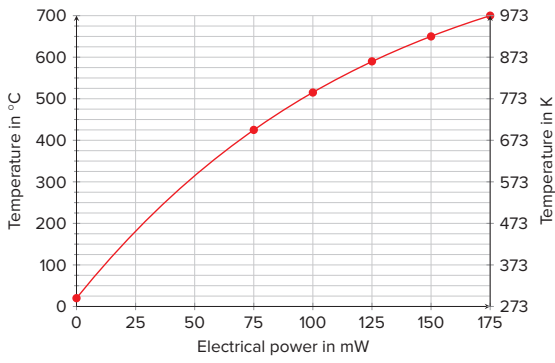
Parameter	HIS20smd
Package	SMD3
Radiating element area	0.32 mm ²
Radiating element emissivity	> 0.9
Radiating element temperature	700 °C at 175 mW
Optical output power	up to 15 mW
Max. electrical power (DC)	175 mW
Max. electrical voltage	1.25 V
Max. electrical current	140 mA
Electrical resistance	8...9 Ω
Modulation frequency*	14 Hz
Filter (glued window)	Si-ARC, Sapphire, ZnSe
Wavelength range**	2 to 20 μm

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

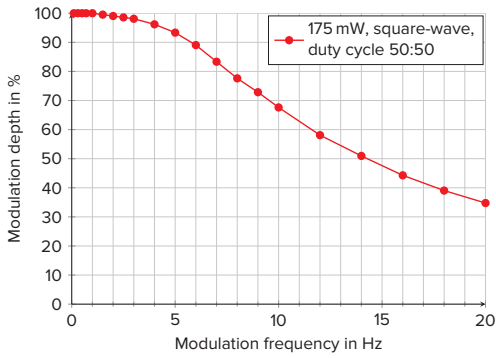
Optical specifications



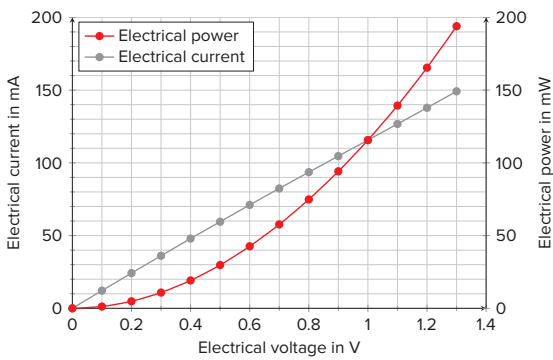
Radiating element temperature



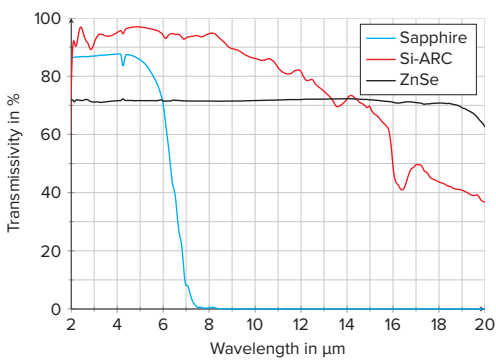
Modulation depth



Electrical specifications

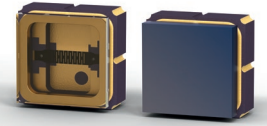


Window material transmissivity



HIS20smd

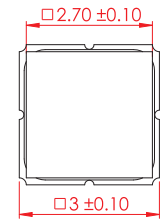
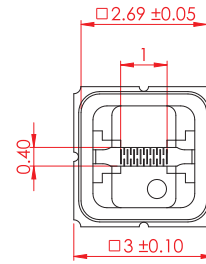
Window options



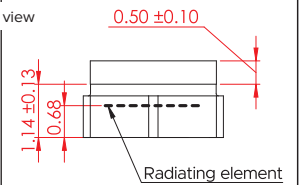
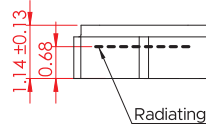
Without window

Si-ARC, Sapphire, ZnSe

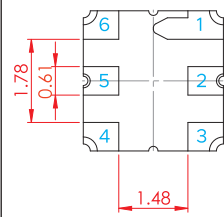
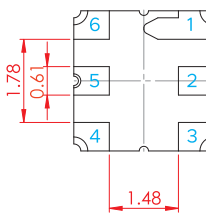
Top view



Side view



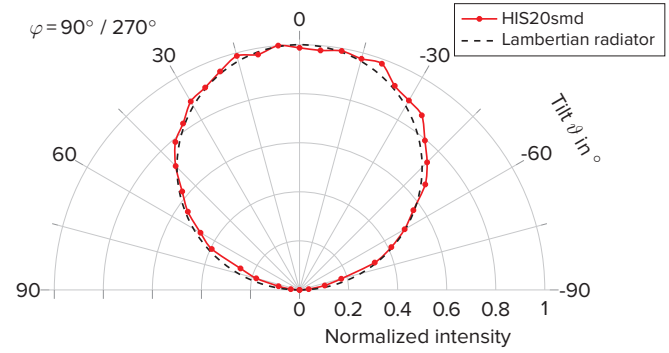
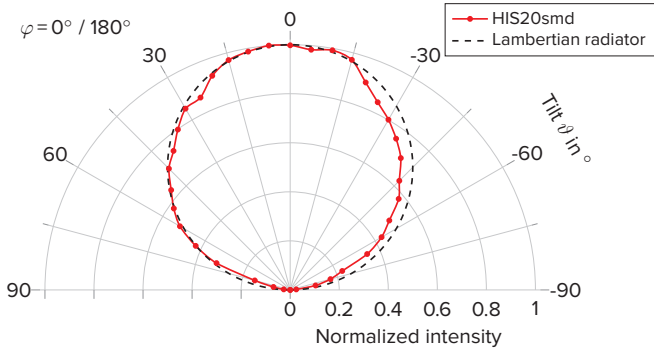
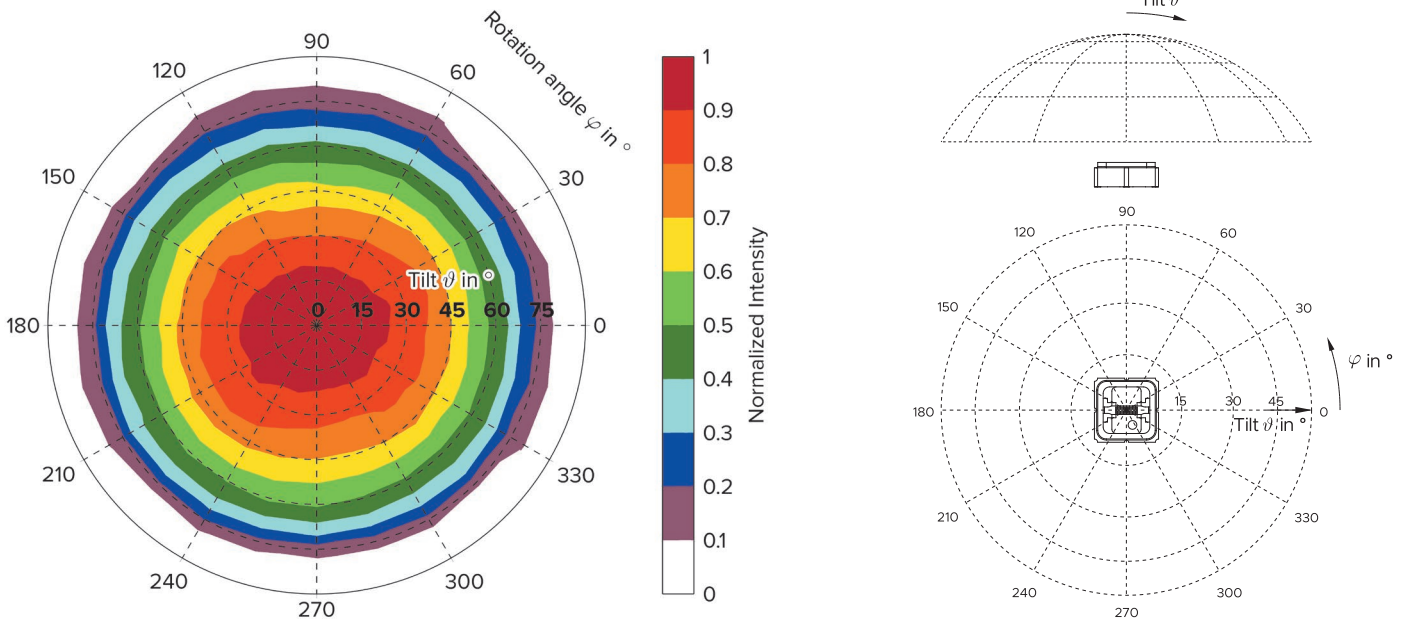
Bottom view



Connection table

Lead	1	2	3	4	5	6
Connection	Case	Power 1	Case	Case	Power 2	Case

Angular radiation distribution (without window)



Operating mode recommendation: www.infrasolid.com/technicalnote