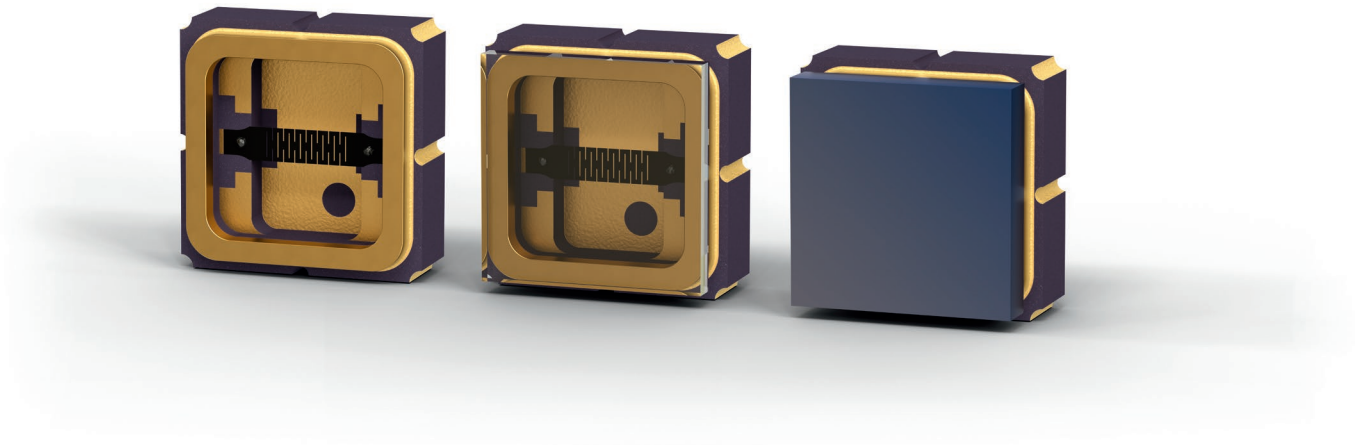
INFRASOLID®



Data Sheet HIS*smd*

HIS20smd

Thermal Infrared Emitter

HIS20smd

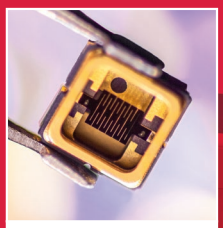
Thermal infrared emitter in standard 3x3 mm² SMD, gold plated

HIS*smd* 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_2 and breath alcohol, and in Smart Home and Smartphone applications.

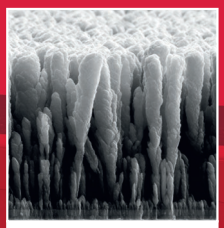
The pioneering SMD package enables a fully automated production in high-volume markets.

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.

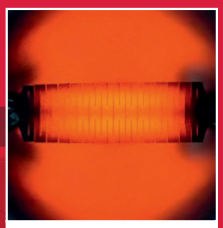
Key features



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.**

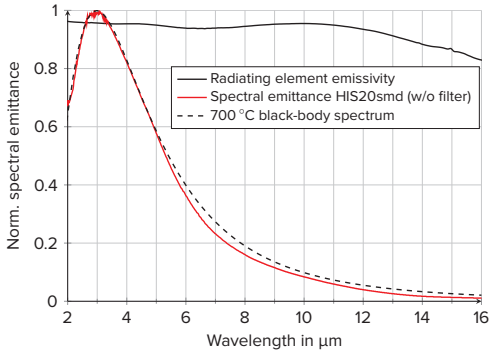
innovative infrared sources for gas detection & spectroscopy

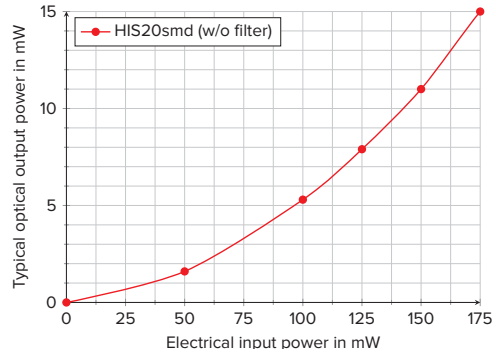
Main specifications

Parameter	HIS20smd
Package	SMD3
Radiating element area	0.32 mm²
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
Wavelength range**	2 to 20 µm

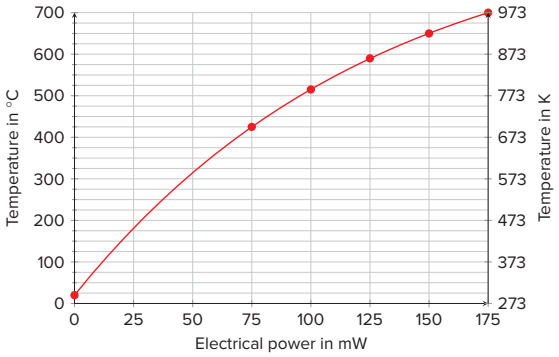
* 50 % modulation depth, square wave signal, 50 % duty cycle
** depending on filter transmissivity

Optical specifications

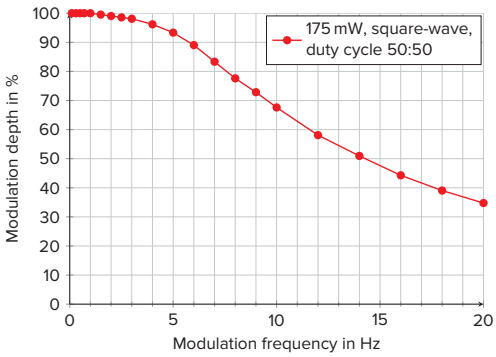




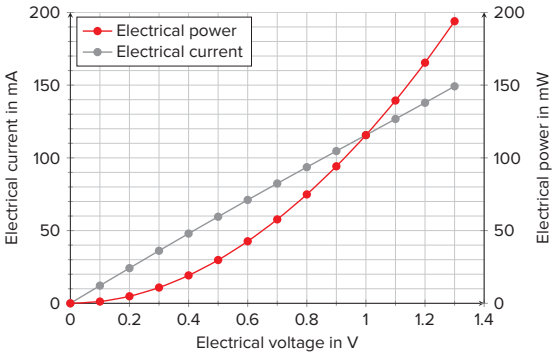
Radiating element temperature



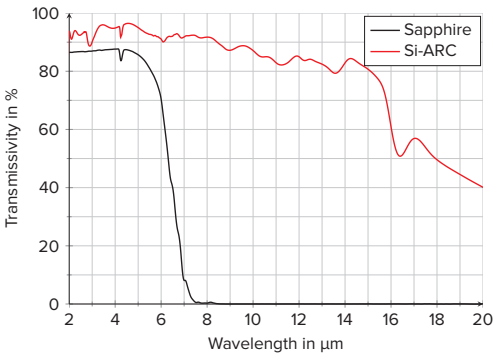
Modulation depth

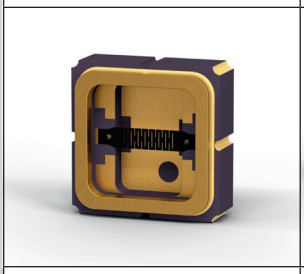
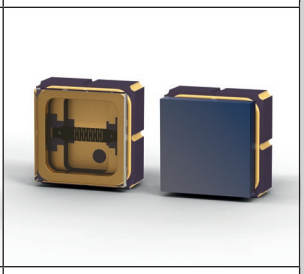


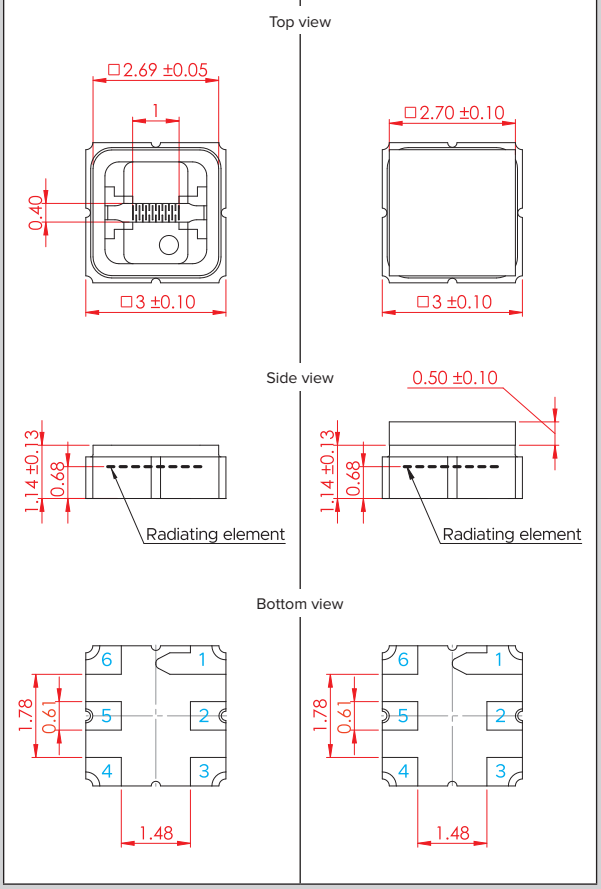
Electrical specifications



Window material transmissivity



HIS20smd	Window options
	
Without window	Si-ARC, Sapphire



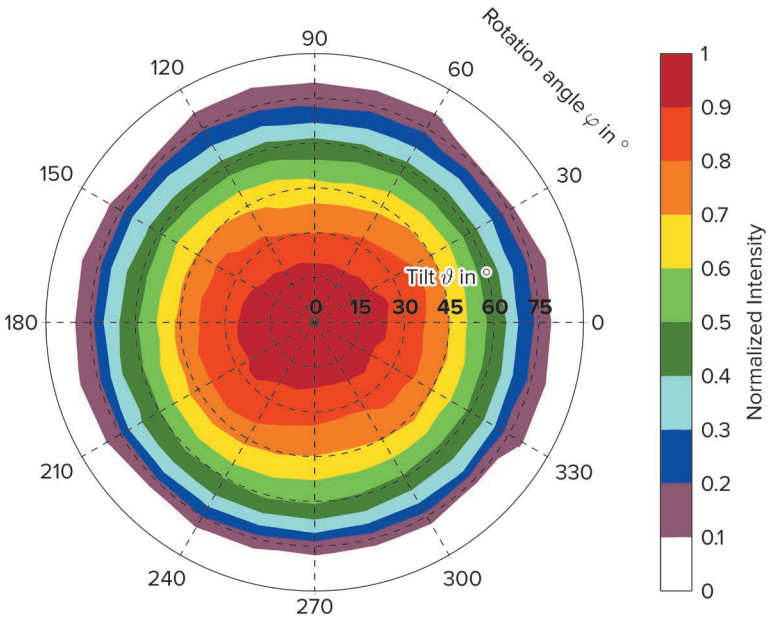
Connection table

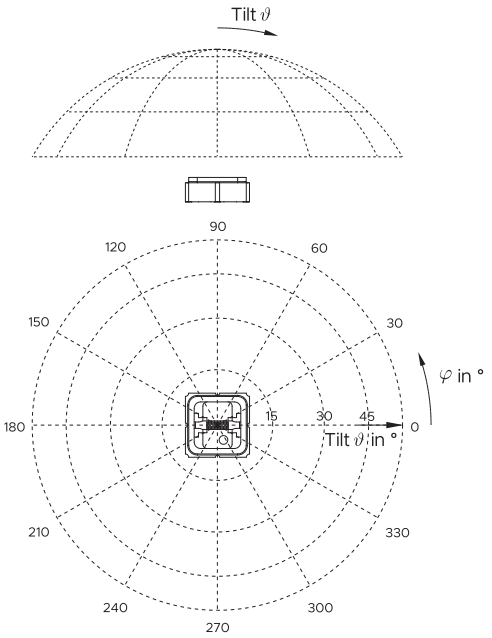
Lead	1	**2**	3	4	**5**	6
Connection	Case	**Power 1**	Case	Case	**Power 2**	Case

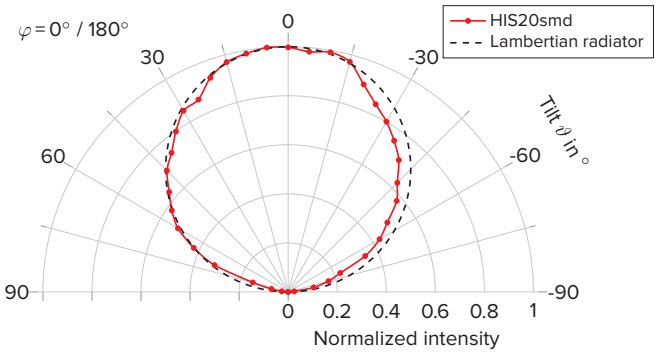
Ordering information

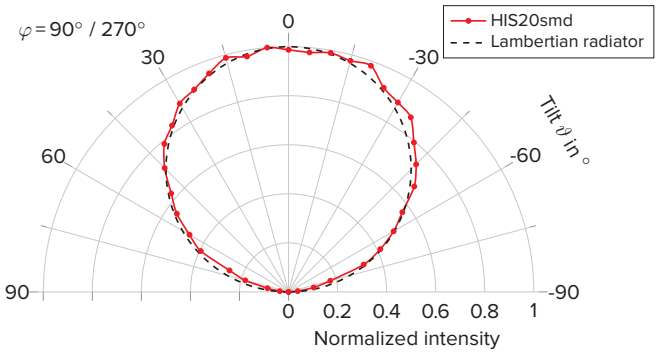
Type	**Infrared window**
HIS20smd-0	None
HIS20smd-A	Sapphire
HIS20smd-S	Silicon-ARC

Angular radiation distribution (without window)



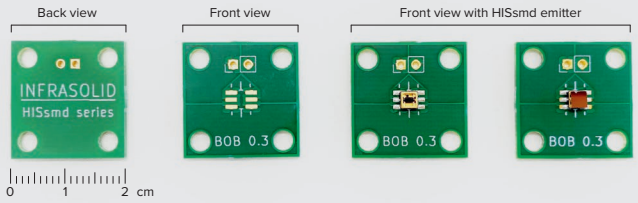






Breakout board:

For evaluation purposes we offer a breakout board (BOB) wich can be used to easy connect drivers and electronics for evaluation.



Operating mode recommendation:

All our IR sources can be driven in electrical voltage, current or power regulated mode. The application decides whether the operating mode is DC or AC (pulsed). Depending on the drive mode and the applied electrical power the electrical resistance of the IR emitter can change over time. For highest measurement accuracy a power regulated mode is always recommended for thermal IR emitters. However, it is the most complex operating mode and not suitable in all applications.

For applications that require a small and low-cost driving circuit with a maximum stability we have a technical note with an adjustable low dropout voltage (LDO) regulator.

For further information please refer to:
www.infrasolid.com/technicalnote

INFRASOLID®

Infrasolid GmbH · Gostritzer Str. 61 · 01217 Dresden · Germany
Phone: +49 (0) 351 / 8547 8031 · E-Mail: sales@infrasolid.com
www.infrasolid.com