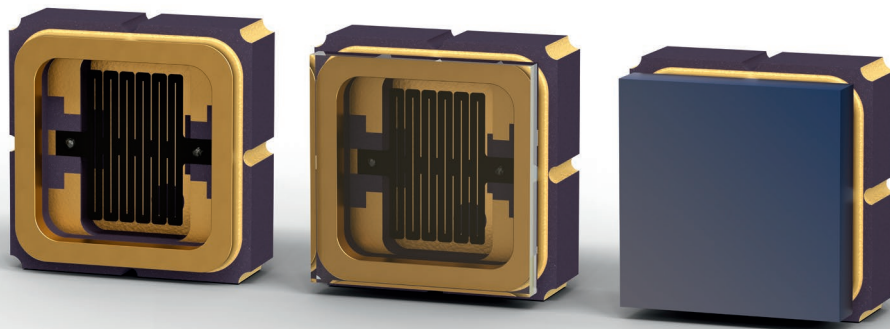


INFRA·SOLID[®]



Data Sheet *HISsmd*

HIS180smd-0/-A/-S

Thermal Infrared Emitter

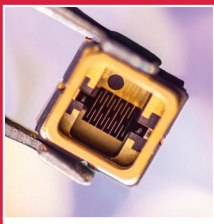
HIS180smd-0/-A/-S

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

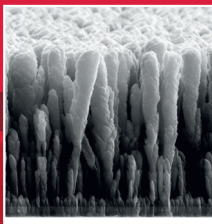
Our HIS180smd emitter makes full use of the installation space of the SMD housing and has an impressively large emitting area of 1.8 mm². Together with the black-body emittance, an optical output power comparable to that of thermal emitters in a TO-39/TO-5 housing is achieved. It is an pulsable emitter optimized for use in portable devices. This emitter is available in an open SMD housing, but also hermetically sealed with a filter window. Various window materials, e.g. sapphire, silicon and CaF₂, are available.

HISsmd series emitters are small, powerful and fast infrared radiation sources that meet the demands for reliable miniaturized gas sensors. The pioneering SMD package enables a fully automated, high-volume assembly on printed circuit boards and easy integration into small and flat devices. It offers a wide range of new application scenarios, particularly in portable, battery-powered, and mobile devices. These pulsable thermal IR sources impress with their high optical performance while consuming very little energy.

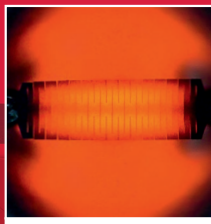
Key features



Very small size



High efficiency



High radiant power

- ✓ Pulsable thermal black-body infrared source mounted in a 3x3 mm² SMD package
- ✓ Patented nanostructured radiating element achieves up to 500% more detection signal
- ✓ Cost-effective due to fully automated assembly on printed circuit boards
- ✓ Optimized for high-volume applications, particularly in portable, battery-powered, and mobile devices

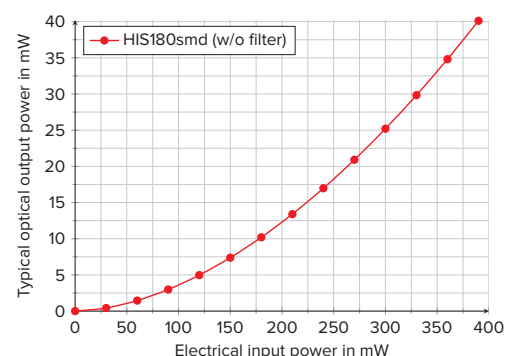
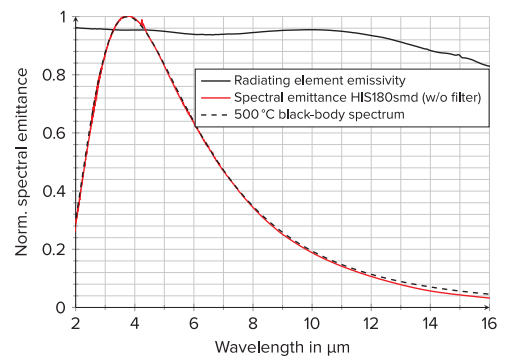
innovative infrared sources for gas detection & spectroscopy

Main specifications

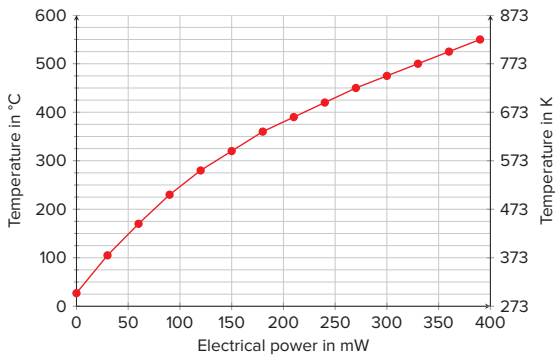
Parameter	HIS180smd-0/-A/-S
Package	SMD3
Radiating element area	1.8 mm ²
Radiating element emissivity	> 0.9
Radiating element temperature	up to 550 °C at 390 mW
Optical output power	up to 40 mW
Max. electrical power (DC)	390 mW*
Max. electrical voltage	2.8 V*
Max. electrical current	140 mA*
Electrical cold resistance	20 +/- 2 Ω
Electrical hot resistance	20 +/- 2 Ω
Filter/Window (glued)	None (-0) Sapphire (-A) Si-ARC (-S)
Wavelength range	2 to 20 μm
Filling gas	Air

* for open emitters we recommend 2,6 V / 125 mA / 330 mW, which corresponds to an emitter temperature of 500 °C

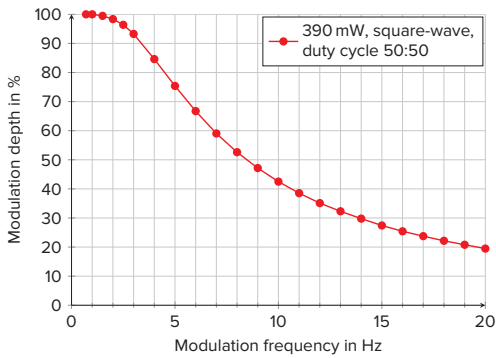
Optical specifications



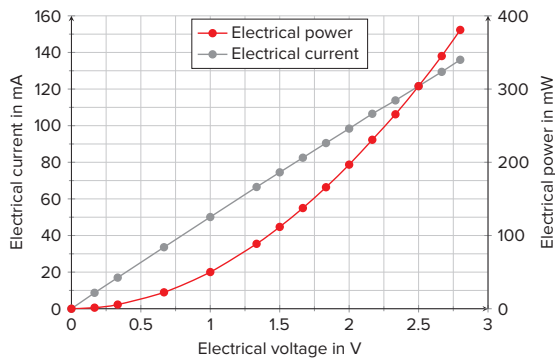
Radiating element temperature



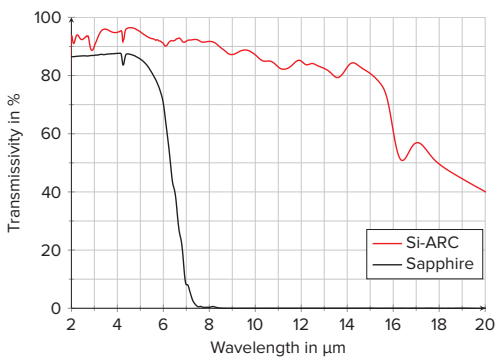
Modulation depth



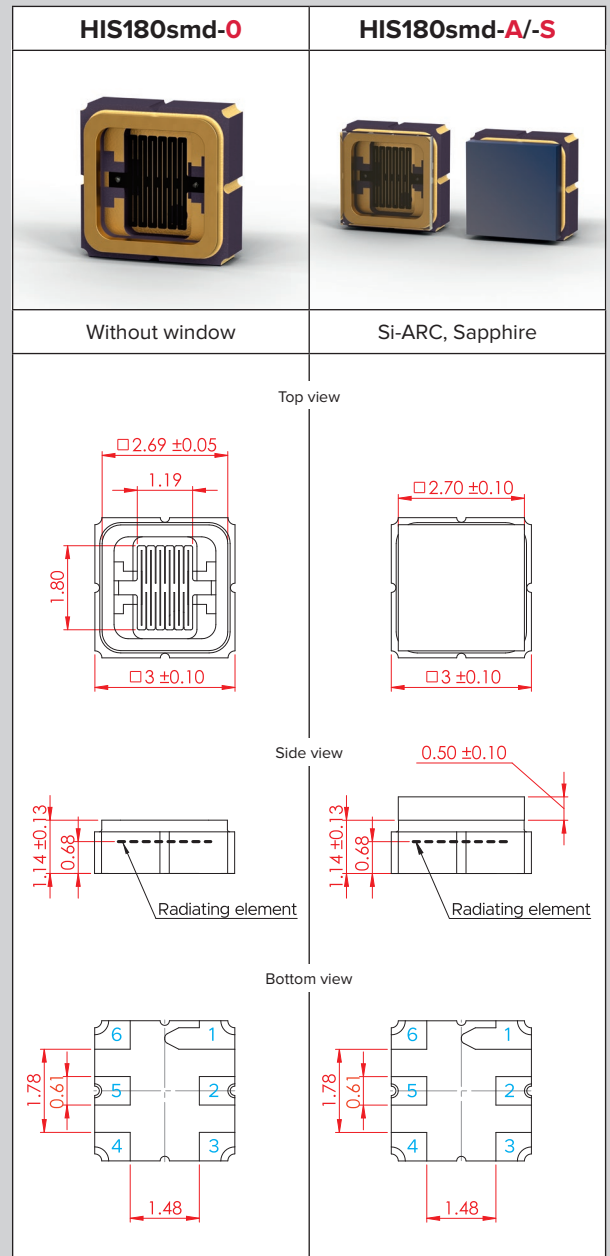
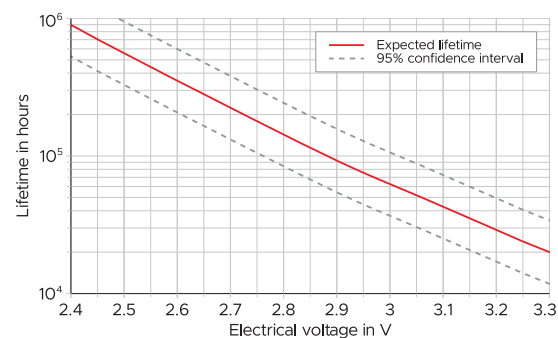
Electrical specifications



Window material transmissivity



Expected lifetime



Connection table

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

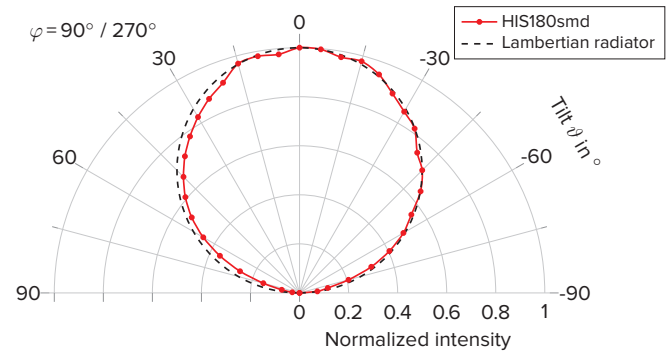
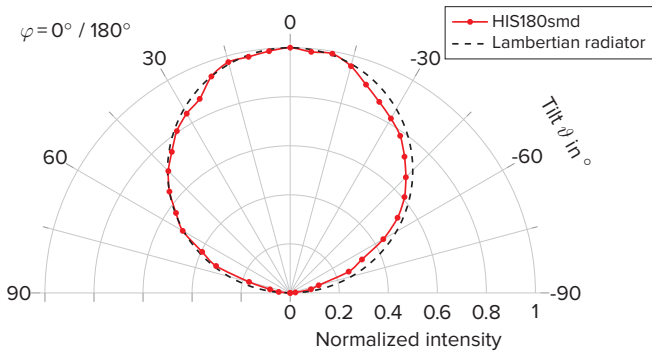
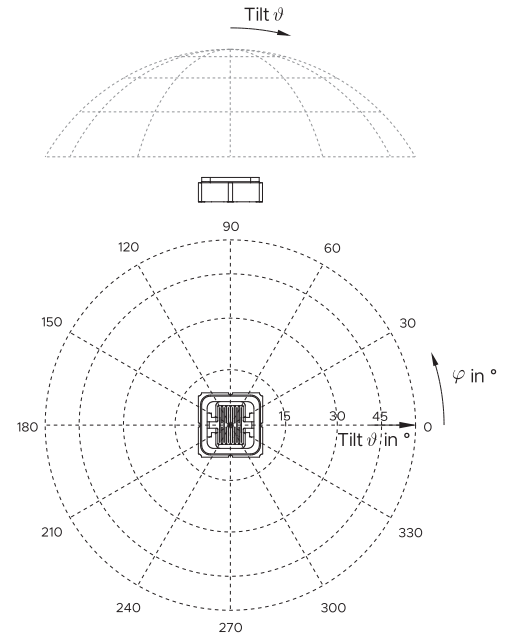
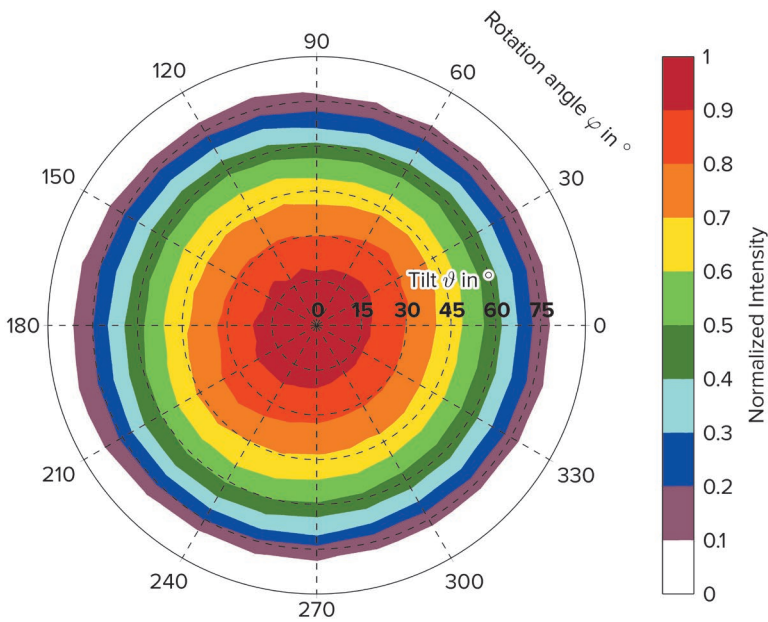
Ordering information

Type	Infrared window
HIS180smd-0	None
HIS180smd-A	Sapphire
HIS180smd-S	Silicon-ARC

All our emitters comply with the following JEDEC-standards:

- ⊗ **JESD22-A104**
(temperature cycling and shock test: -45 °C / + 90 °C, 100 cycles)
- ⊗ **JESD22-B103**
(vibration test: log. sweep 20 Hz...2000 Hz, peak 20 g, X/Y/Z direction)
- ⊗ **JESD22-B110**
(drop test: 5000 m/s², 6 directions)

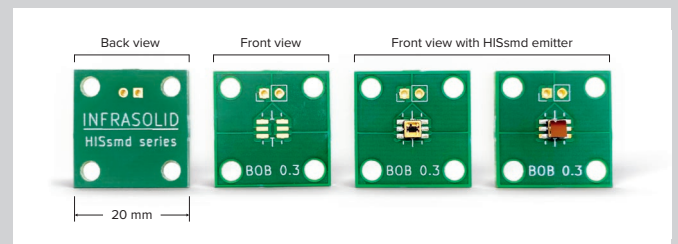
Angular radiation distribution (without window)



Breakout board:

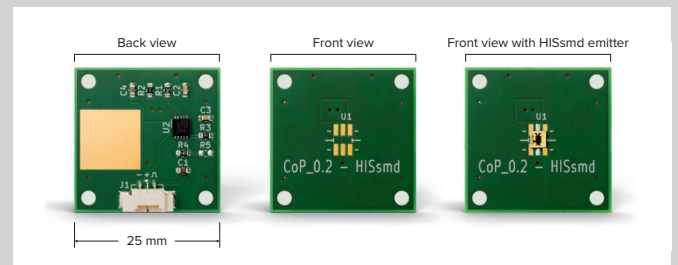
The Breakout Board (BoB) simplifies the use of the SMD emitters by „breaking out“ their pads into a more accessible and user-friendly arrangement.

These boards make it possible to prototype and test the SMD emitters without the need for complex soldering or custom printed circuit boards (PCBs).



Driver Circuit Board (DCB):

We provide several Driver Circuit Boards (DCBs) for our HISsmd, HISbasic and HISpower series emitters to support a quick evaluation in your applications. All DCBs are small and use a low-cost driving circuit with a maximum stability close to a power regulated mode. Only a supply voltage and a pulse signal have to be applied. For more information about its function, see our technical notes.



The boards are available at:

www.infrasolid.com/accessories