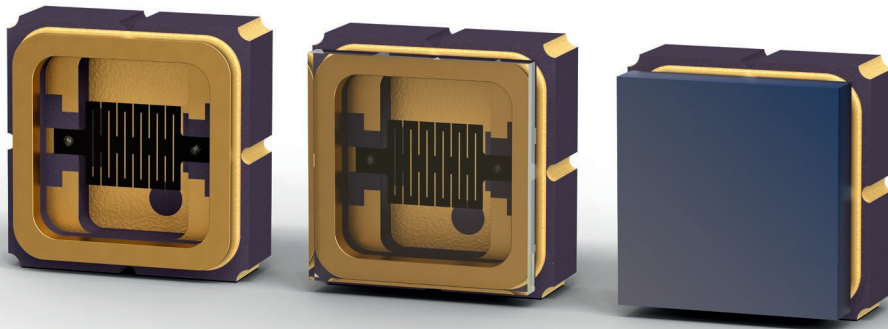


INFRA·SOLID[®]



Data Sheet HISsmd

HIS100smd-0/-A/-S

Thermal Infrared Emitter

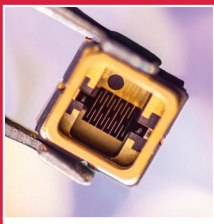
HIS100smd-0/-A/-S

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

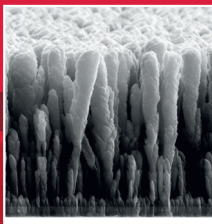
Our HIS100smd emitter features the best fit between optical output power and energy consumption. It is optimized for use in portable and battery-powered devices. This emitter is available in an open SMD housing, but also hermetically sealed with a filter window. Various window materials, e.g. sapphire, silicon and CaF₂, are available. When arranged as a line or matrix, a homogeneous image pattern with square pixels is produced.

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.

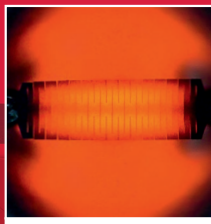
Key features



Very small size



High efficiency



High radiant power

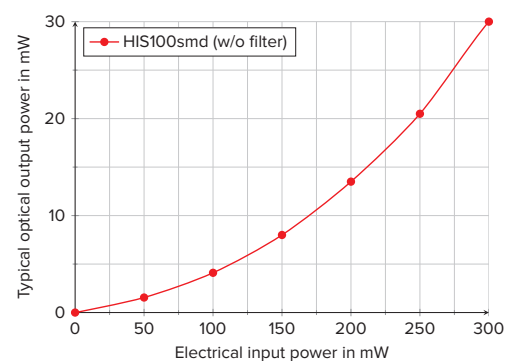
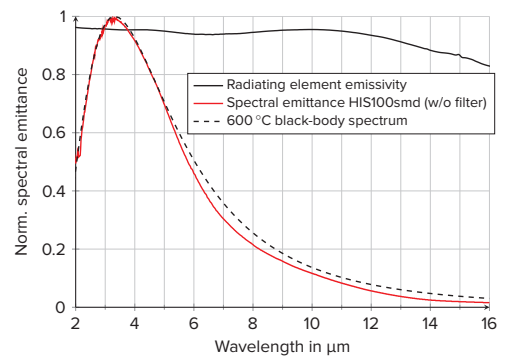
- ✓ Pulsable thermal black-body infrared source mounted in a 3x3 mm² SMD package
- ✓ Patented nanostructured radiating element achieves up to 500% more detection signal
- ✓ Cost-effective due to fully automated assembly on printed circuit boards
- ✓ Optimized for high-volume applications, particularly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

innovative infrared sources for gas detection & spectroscopy

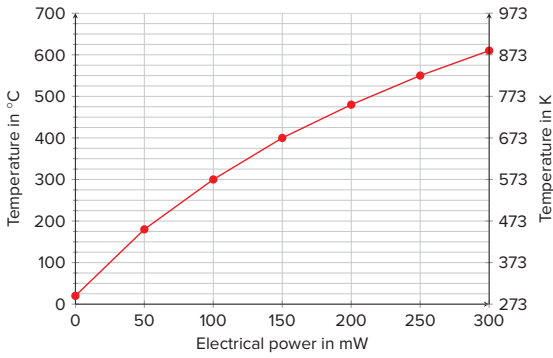
Main specifications

Parameter	HIS100smd-0/-A/-S
Package	SMD3
Radiating element area	1 mm ²
Radiating element emissivity	> 0.9
Radiating element temperature	600 °C at 290 mW
Optical output power	up to 30 mW
Max. electrical power (DC)	290 mW
Max. electrical voltage	1.7 V
Max. electrical current	170 mA
Electrical cold resistance	9.5 +/- 1 Ω
Electrical hot resistance	9.5 +/- 1 Ω
Filter/Window (glued)	None (-0) Sapphire (-A) Si-ARC (-S)
Wavelength range	2 to 20 μm
Filling gas	Air

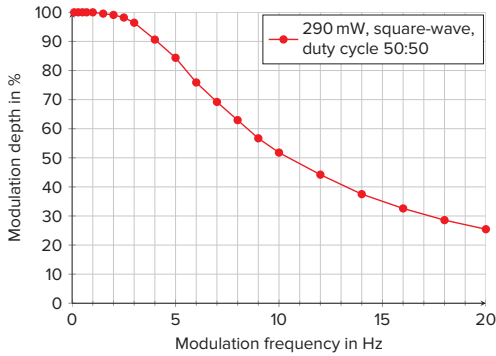
Optical specifications



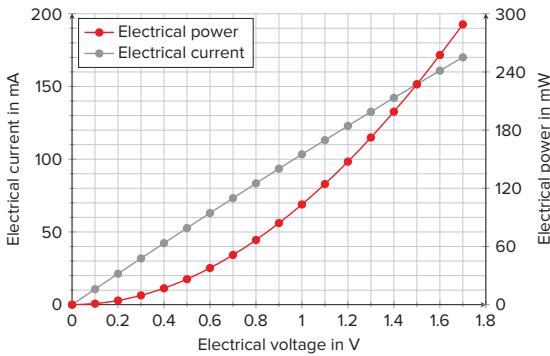
Radiating element temperature



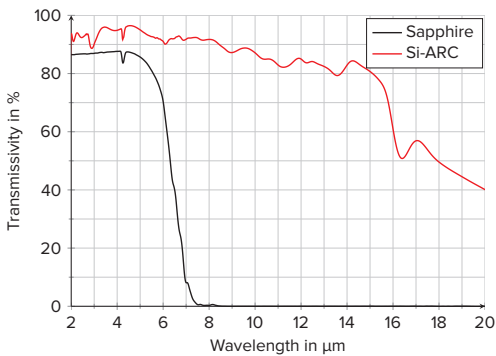
Modulation depth



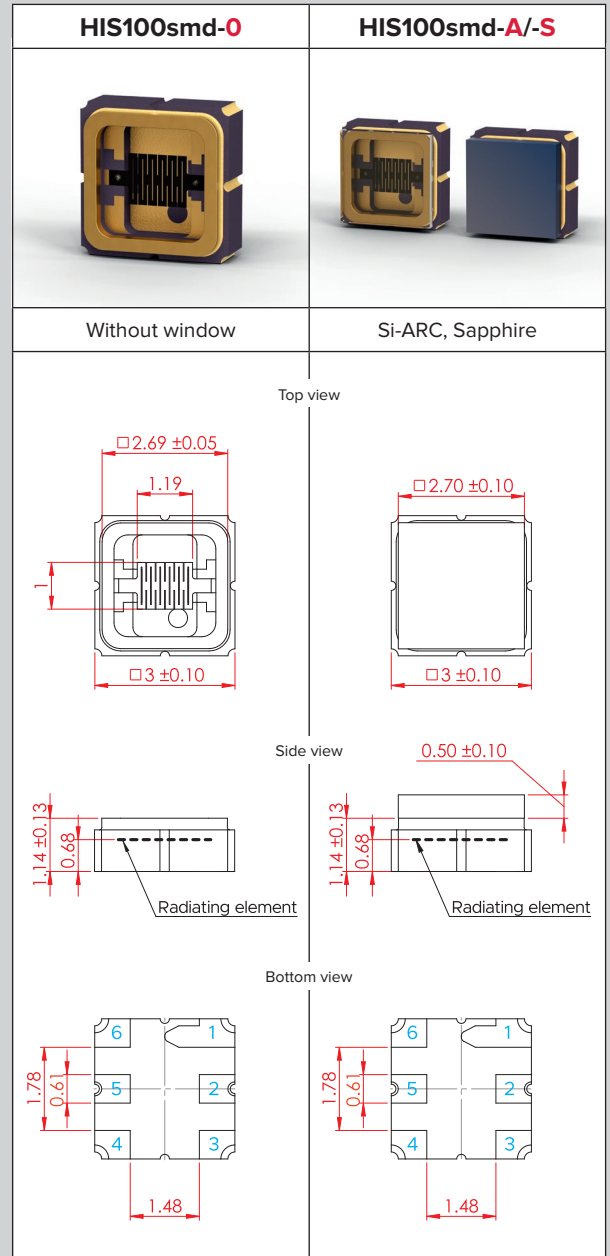
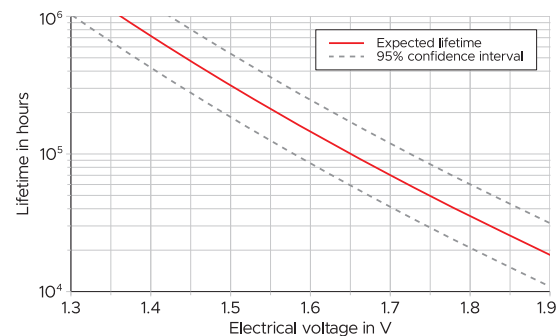
Electrical specifications



Window material transmissivity



Expected lifetime



Connection table

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

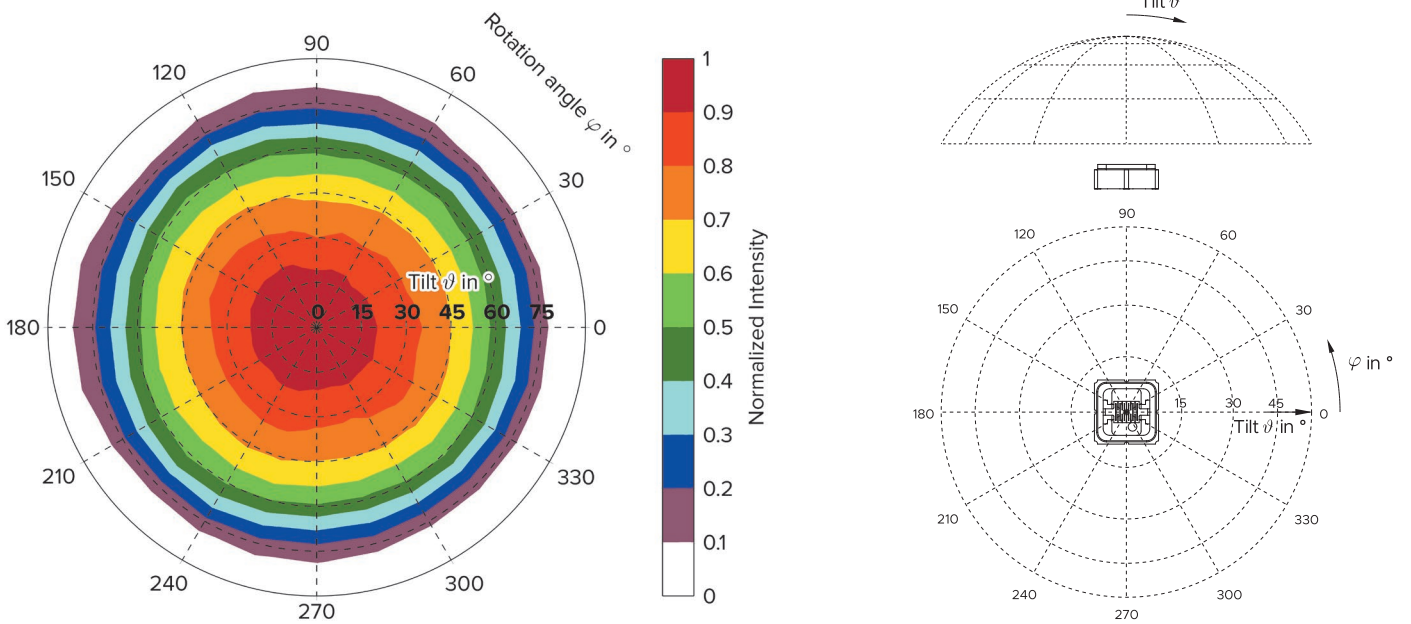
Ordering information

Type	Infrared window
HIS100smd-0	None
HIS100smd-A	Sapphire
HIS100smd-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)

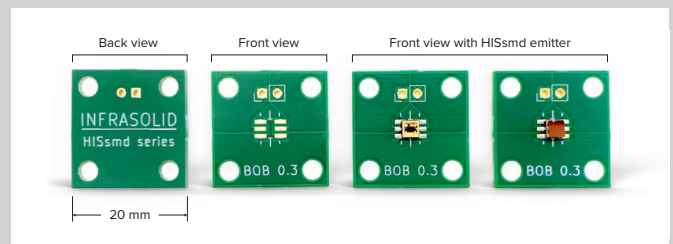
Angular radiation distribution (without window)



Breakout board:

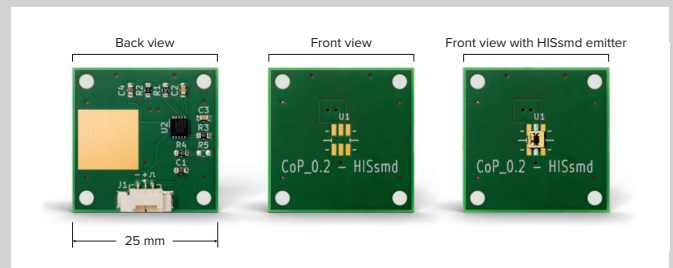
The Breakout Board (BoB) simplifies the use of the SMD emitters by „breaking out“ their pads into a more accessible and user-friendly arrangement.

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