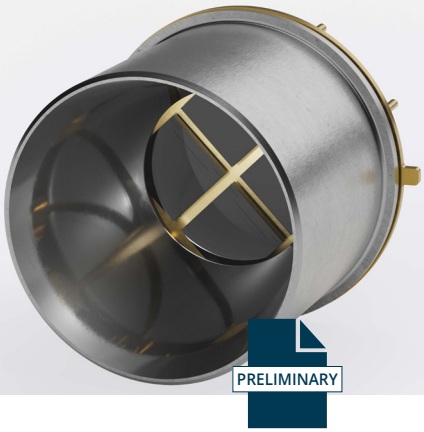
MICRO-HYBRID

JSIR 350-4 quad

Premium MEMS based high power infrared radiation sources on TO8 for NDIR gas analysis



Applications

- NDIR gas analysis
- DIR spectroscopy
- ATR spectroscopy
- PAS spectroscopy

Target gases

- CO_2, CO, N_2O, NH, SO_2, SF_6 and ripening gases such as C_2H_4 (ethylene) and C_2H_2 (acetylene)
- Other IR active gases, especially for low concentration or low absorption values

Features

- High membrane temperature up to 850 °C
- High radiation output due to quad pattern
- High modulation freqency
- Long lifetime (reliability due to high stability of the membrane)

Additional product information

By combining standard silicon material technology with NAC coatings, Micro-Hybrid offers MEMS products with exceptional performance.

The powerful IR emitters made by our MEMS fab NOVA IR consist of nanoamorphic carbon (NAC). They reach membrane temperatures of up to 850 °C for a high and long-term stable radiation performance.

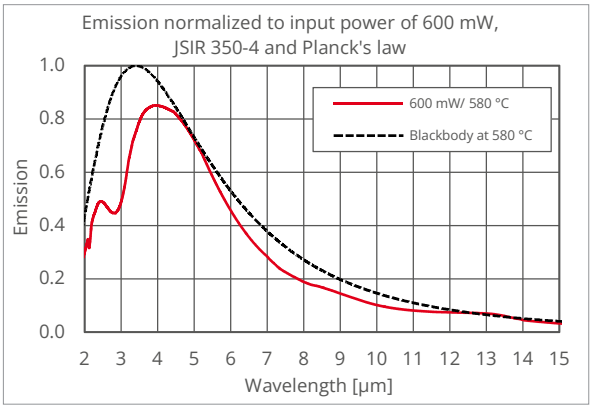
The quad version is used in applications with long distances to measure and gases with low absorbtion characteristics.

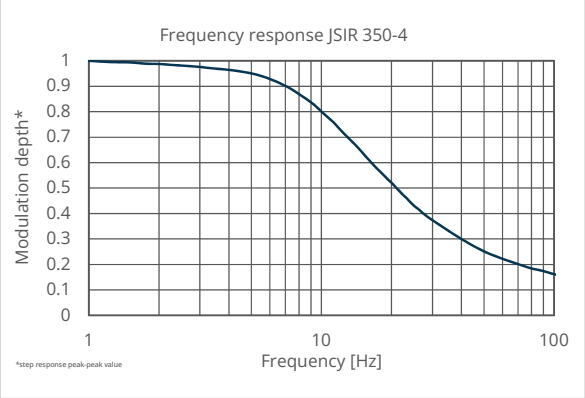
Technical data

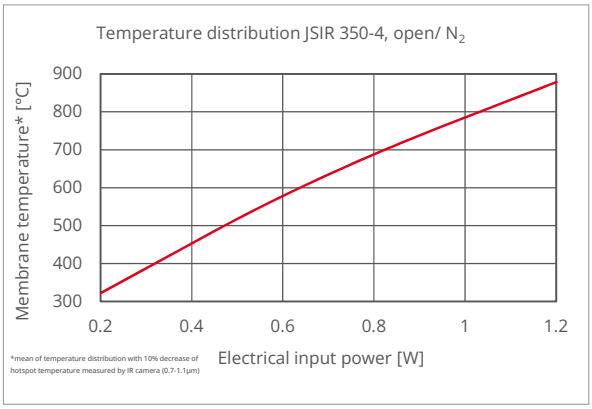
Technical parameter	Open	Unit
Spectral output range	2 ... 15	µm
Active area	2.2 x 2.2	mm^2
Hot resistant [1]	40 ± 20	Ω
Temperature coefficient [2]	typ. 500	ppm/K
Time constant $_{0\text{-}63\ \%}$	typ. 12.5	ms
Nominal power consumption [3]	650	mW
Operation voltage [4]	typ. 4.9	V
Operation current [4]	typ. 132	mA
Recommended driving mode	Power mode	
Active area temperature [1,5,6]	610 ± 30	°C
Window	None	
Housing	TO8	
Estimated lifetime [7,8]	> 5 000 h at 740 °C	
	> 100 000 h at 610 °C	
Absolute max. ratings		
Input power [3,5]	4 x 1 000	mW
Housing temperature [8]	120	°C
Active area temperature	850	°C

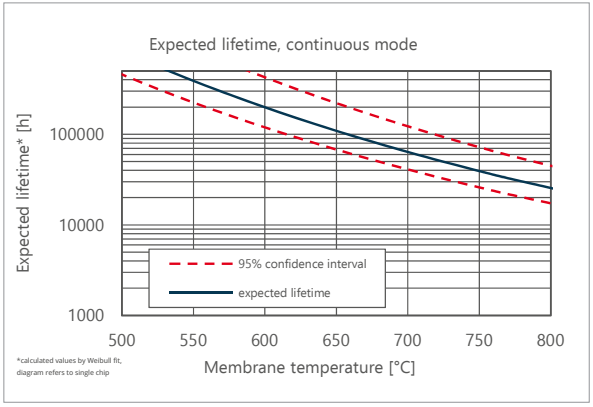
[1] At nominal power
[2] 25 °C - 800 °C
[3] At power on-state
[4] With 40 Ω hot restistant
[5] At T_{amb} = 25 °C
[6] Mean of temperature distribution with 10 % decrease of hotspot temperature measured by IR camera (0.7-1.1µm)
[7] Continuous mode, MTTF 63 % (membrane fracture, calculated values based on Arrhenius)
[8] Including ambient temperature

Typical operating characteristics



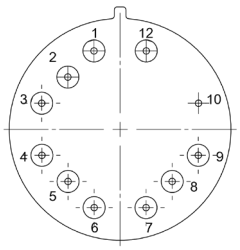






Electrical schemata

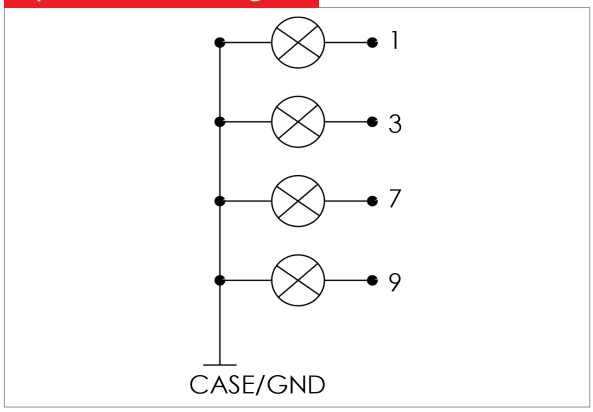
Pin out (bottom view)



- Pin 1 – Power 1
- Pin 3 – Power 2
- Pin 7 – Power 3
- Pin 9 – Power 4
- Pin 10 – Case/ GND

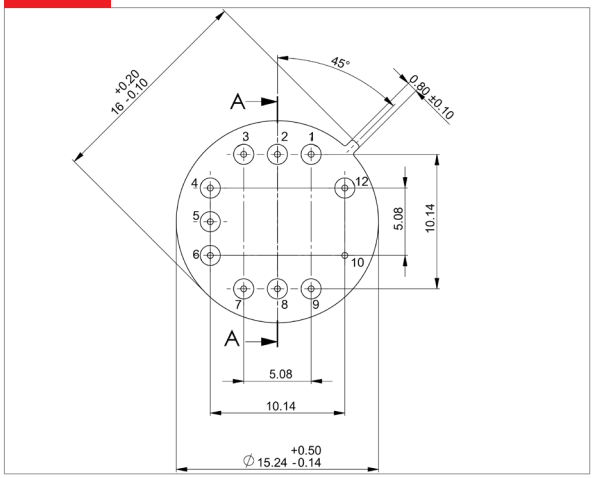
Recommented circuits

Equivalent circuit diagram



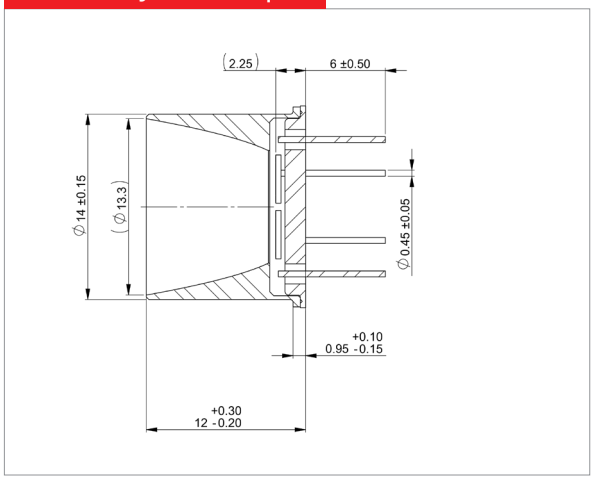
Mechanical drawings

Bottom



→ All geometrical dimensions in mm

Sectional – JSIR 350-4 quad



Product overview

Article	Type	Filling gas	Temp. min	Temp. max	Aperture	Window
4xJSIR350-4-C-R-D13.0-0-0	TO8 with reflector	None	-20 °C	120 °C	13 mm	None

Disclaimer