

4xJSIR350-4-C-R-D13.0-0-0

Premium Quad-IR-emitter with high modulation frequency for NDIR gas analysis



Applications

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

Product benefits

- High radiation power
- High durability
- Optimal in combination with our IR-detectors for gas analysis

Features

- High modulation frequency with a time constant of 12.5 ms
- High and long-term stable radiation output
- Active area 4 x (2.2 x 2.2) mm²

Additional product information

This premium IR emitter, comprising four chips on a TO8 base, is particularly suitable for measuring gases in very low concentrations or gases with low absorption. In such cases, a longer measuring distance is often required.

This MEMS-based emitter, which is unique in the world, has a significantly longer lifetime and less drift than its filament counterpart. In contrast to filament infrared sources, the JSIR 350-4 quad emitter is capable of modulation and does not depend on an additional chopper. The high-performance membrane, composed of nanoamorphous carbon, attains membrane temperatures of up to 850 °C, thereby ensuring a high and long-term stable radiation output. The JSIR 350-4 Quad IR emitter is well-suited for a multitude of gas analysis applications in medical, industrial, aerospace, and other demanding contexts.

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Technical data

Technical parameter	Value	Unit
Spectral output min.	2	μm
Spectral output max.	15	μm
Active area ¹	2,2 x 2,2	mm²
Hot resistance ^{1,2}	40 ± 20	Ω
Temperature coefficient typ. ^{1,3}	500	ppm/K
Time constant 0-63 % typ. ¹	12.5	ms
Nominal power consumption 1,4	650	mW
Operation voltage typ. ^{1,5}	4.9	V
Operation current typ. ^{1,5}	132	mA
Recommended driving mode	Constant power mode	
Estimated lifetime ^{8,9}	> 5000 h at 740 °C; > 100000 h at 610 °C	2
Active area temperature ^{1,2,6,7}	610 ± 30	°C
Housing	TO8	
Input power max. ¹	1000	mW
Housing temperature max. ⁹	120	°C
Active area temperature max. ¹	850	°C
¹ Specified values refer to each chip		

² At nominal power

. ³ 25 °C - 800 °C

• ⁴ At power on-state

 5 With 40 Ω hot restistance

⁶ At T_{amb} = 25 °C

 7 Mean of temperature distribution with 10 % decrease of hotspot temperature measured by IR camera (0.7 - 1.1 μ m)

 $^{\circ}$ ° Continuous mode, MTTF 63 % (membrane fracture, calculated values based on Arrhenius)

⁹ Including ambient temperature



Typical operating characteristics

→ Diagrams refer to one chip











Electrical schemata



Recommented circuits





Mechanical drawings





→ All geometrical dimensions in mm

Disclaimer

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