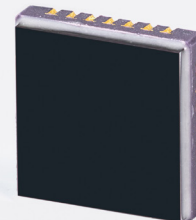


JSIR340-4-CB-0-S5.0-Air-A7

IR-emitter with high modulation frequency
for high volume markets in NDIR gas
analysis, transmission 2.5-15.5 μm



Applications

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

Target gases

- CO₂, CO, N₂O, NH₃, SO₂, SF₆ and ripening gases such as C₂H₄ (ethylene) and C₂H₂ (acetylene)

Features

- High modulation frequency with a time constant of 15 ms
- Active area 2.2 x 2.2 mm²
- Cost efficient components
- Standard MEMS technologies
- CMOS compatible manufacturing process
- Effective automatic assembly process with SMD package
- Hot-plate temperatures up to 640 °C

Additional product information

The cost-efficient infrared emitter JSIR340-4 is optimized for NDIR gas analysis and other infrared measurement applications such as DIR spectroscopy, ATR spectroscopy or PAS spectroscopy. The membrane of the CMOS based IR emitter reaches membrane temperatures of up to 800 °C. It provides long-term stable radiation output for industrial applications for control and monitoring of process gases, associated gases at ambient temperatures between -20 and 85 °C.

The MEMS chip used in our IR emitters consists of a multilayer hot plate diaphragm containing a high temperature stable metal C-MOSI layer. The emitter chip has an active area of 2.2 x 2.2 mm² and is based on a silicon substrate with a back-etched membrane. All thin film processes are performed using standard MEMS processes and CMOS compatible materials. The active C-MOSI resistive layer is protected against aging and environment.

Online shop for IR components and sensors

Filter products simply by selecting the desired properties and request your quotation.

 microhybrid.com/shop



Technical data

Technical parameter		Unit
Spectral output range	2 ... 15	μm
Active area	2.2 x 2.2	mm ²
Hot resistant ¹	17 ± 5	Ω
Temperature coefficient ²	typ. 1 000	ppm/K
Time constant _{0-63 %}	typ. 11.5	ms
Nominal power consumption ³	650	mW
Operation voltage ⁴	typ. 3.3	V
Operation current ⁴	typ. 200	mA
Recommended driving mode	Power mode	
Active area temperature ^{1,5,6}	500 ± 30	°C
Window	Silicon with anti reflective coating	
Housing	SMD	
Estimated lifetime ^{7,8}	> 5000 h at 640 °C	
	> 100000 h at 500 °C	
Absolute max. ratings		
Input power ^{3,5}	1 000	mW
Housing temperature ^{8,9}	85	°C
Active area temperature	640	°C

¹ At nominal power

² 25 °C - 540 °C

³ At power on-state

⁴ With 17 Ω hot resistant

⁵ At T_{amb} = 25 °C

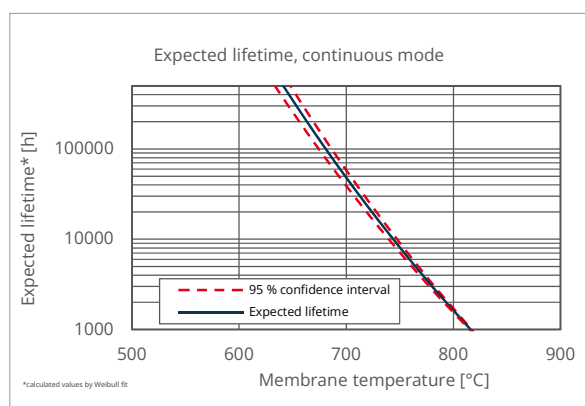
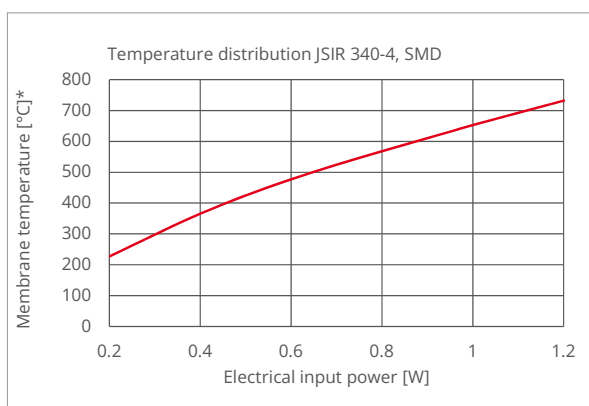
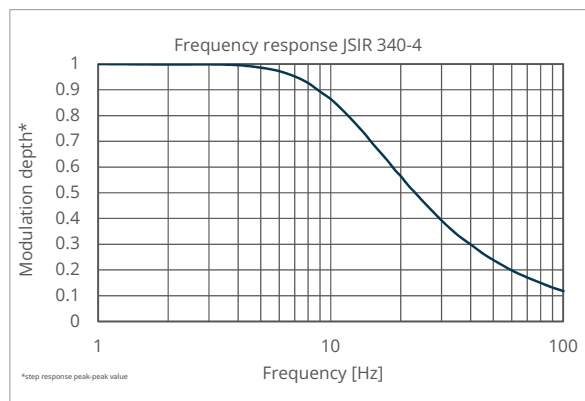
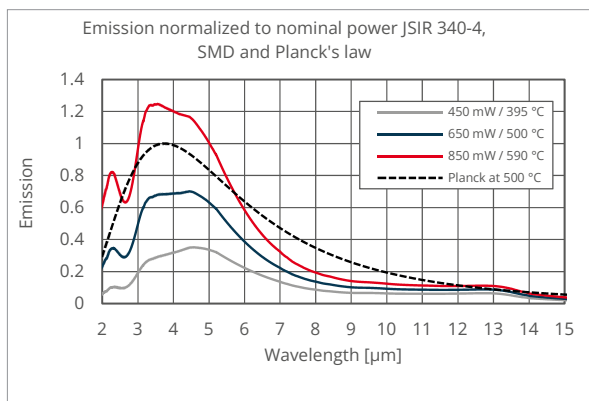
⁶ Mean of temperature distribution with 10 % decrease of hotspot temperature measured by IR camera (0.7-1.1μm)

⁷ Continuous mode, MTTF 63 % (membrane fracture, calculated values based on Arrhenius)

⁸ Including ambient temperature

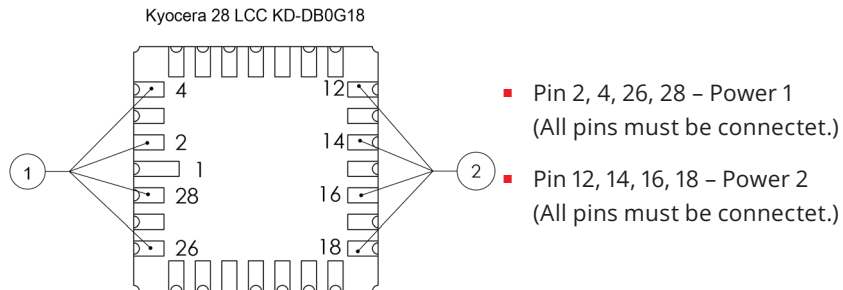
⁹ Maximum soldering temperature 260°C

Typical operating characteristics



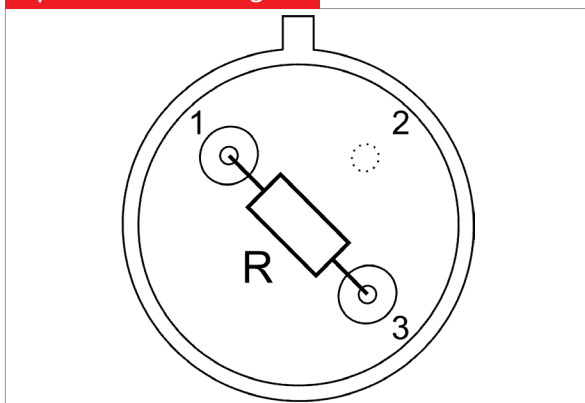
Electrical schemata

Pin out (bottom view)



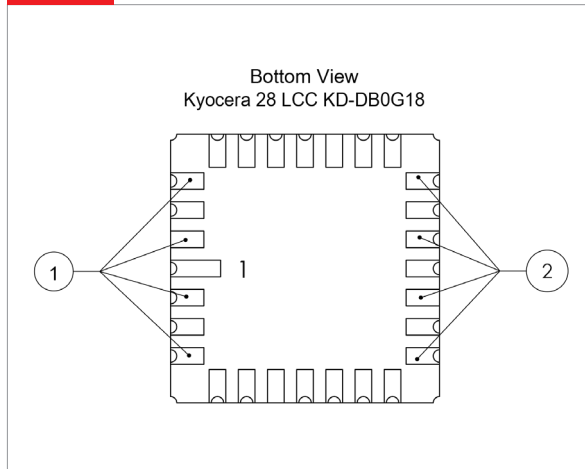
Circuits

Equivalent circuit diagram



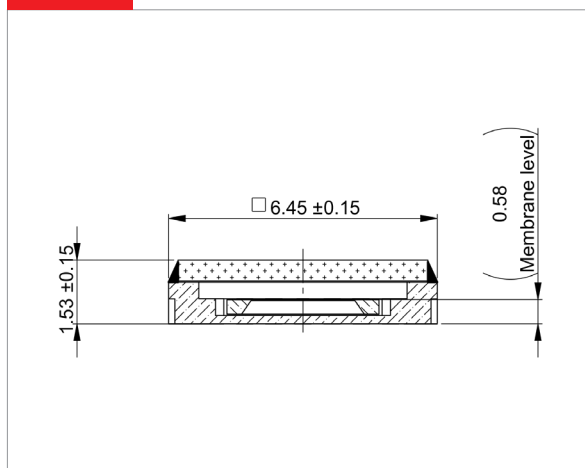
Mechanical drawings

Bottom



➔ All geometrical dimensions in mm

Sectional



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