

JSIR 340-5

Economy MEMS C-MOSI® based infrared emitter for cost effective high volume NDIR gas sensing applications like home & building automation.



Applications

- NDIR gas detection
- ATR spectroscopy
- DIR spectroscopy
- PAS pectroscopy

Target gases

- CO₂
- CH₄
- C₃H₈
- C₂H₅OH
- Other infrared active gases

Features

- Cost efficient components
- Standard MEMS technologies
- CMOS compatible manufacturing process
- Hot-plate temperatures up to 740 °C
- Appropriate radiation output
- High modulation depth due to low thermal mass

Additional product information

The combination of MEMS standard hot-plate resistance layer technologies with CMOS compatible manufacturing processes enables the production at high qualified but ordinary MEMS fab production lines.

This is the opener for high volume and cost sensitive applications. The emitter's MEMS chips with focus of cost efficiency and low thermal time constant are developed by our supplier CMOS IR. Despite the focus on mass pro-

duction and mass production applications, the emitter impresses with its high radiant power at hot plate temperatures of up to 740 °C and short time constants.

Online shop for IR components and sensors

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Technical data

Technical parameter	Open	Unit
Spectral output range	2 ... 15	μm
Active area	1.0 x 1.0	mm ²
Hot resistant ¹	25 ± 5	Ω
Temperature coefficient ²	typ. 1 000	ppm/K
Time constant _{0-63 %}	typ. 7	ms
Nominal power consumption ³	300	mW
Operation voltage ⁴	typ. 2.5	V
Operation current ⁴	typ. 100	mA
Recommended driving mode	Power mode	
Active area temperature ^{1,5,6}	610 ± 30	°C
Window	w/o	
Housing	TO46	
Estimated lifetime ^{7,8}	> 5 000 h at 740 °C	
	> 100 000 h at 610 °C	
Absolute max. ratings		
Input power ^{3,5}	400	mW
Housing temperature ⁸	200	°C
Active area temperature	740	°C

¹ At nominal power

² 25 °C - 700 °C

³ At power on-state

⁴ With 25 Ω hot resistant

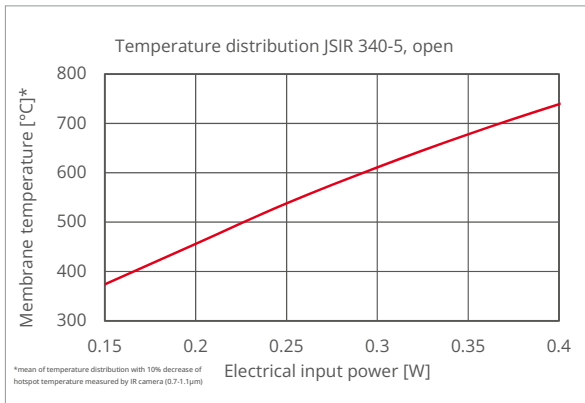
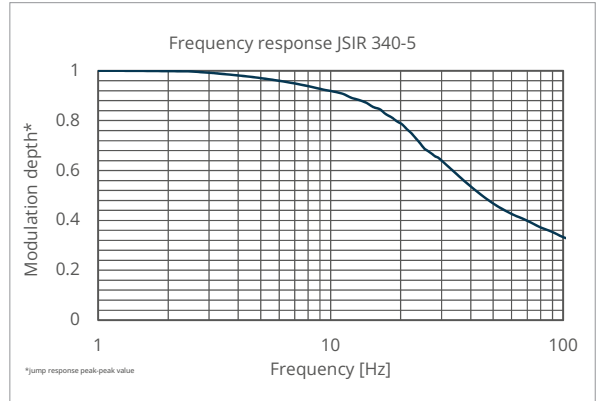
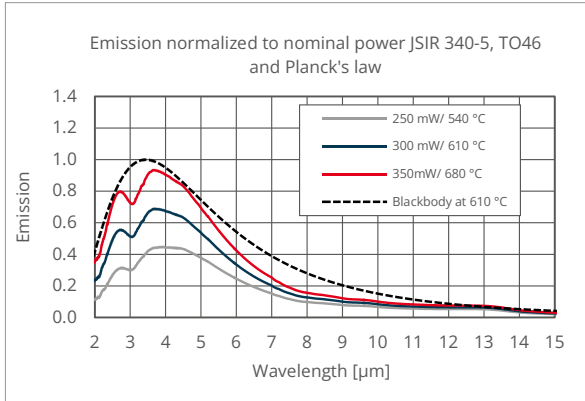
⁵ At T_{amb} = 25 °C

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)

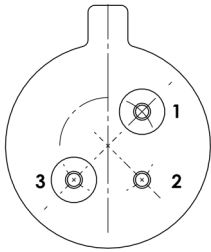
⁸ Including ambient temperature

Typical operating characteristics



Electrical schemata

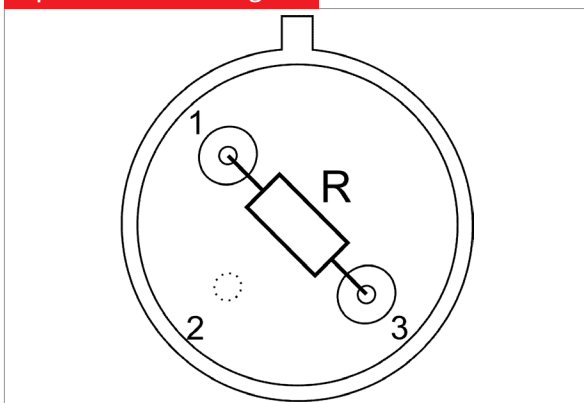
Pin out (bottom view)



- Pin 1 – Power 1
- Pin 2 – Case
- Pin 3 – Power 2

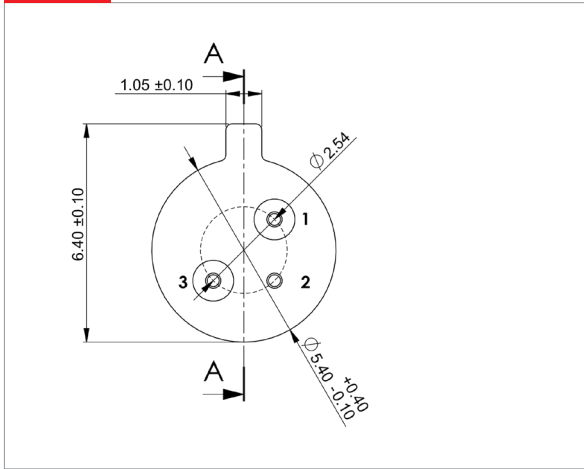
Circuits

Equivalent circuit diagram



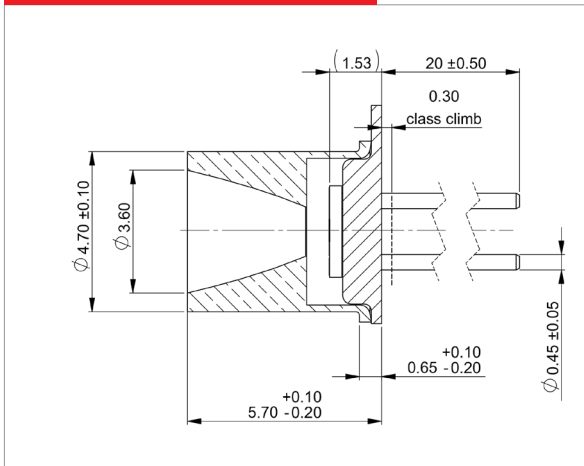
Mechanical drawings

Bottom



➔ All geometrical dimensions in mm

Sectional - TO46 reflector open



Product overview

Article	Type	Filling gas	Temp. min	Temp. max	Aperture	Window
JSIR340-5-BL-R-D3.6-0-0	TO46 with reflector	None	-20 °C	180 °C	2.55 mm	Open

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