

Infrared Source EMIRS50

For Gas Detection and Monitoring

Samples available now

All Axetris IR sources are micro-machined thermal infrared emitters. The patented design provides a true black body radiation characteristic from 2 to 14 μm , high emissivity and a long lifetime. It has a low power consumption and the source can be modulated extremely fast.

EMIRS50 are packaged in compact TO-46 cans and are available with protective cap or with reflector; Sapphire or BaF2 windows are optional.

Axetris IR sources are ideally suited for compact gas detection modules. Typical measurement methods are:

- Non-dispersive infrared spectroscopy (NDIR)
- Photo acoustic infrared spectroscopy (PAS)
- Attenuated-total-reflectance spectroscopy (ATR)

Axetris IR sources have been successfully integrated for many years in various medical, industrial and safety applications. Typical target gases are CO_2 , refrigerants, CH_4 , NO_x , alcohol and many more.



EMIRS50 on TO46: with cap, reflectors and windows.

Key features for all Axetris infrared sources

- True black body radiation (2 to 14 μm)
- High emissivity
- Fast electrical modulation (no chopper wheel required)
- High modulation depth
- Energy efficient (excellent optical output)
- Superior lifetime

Special EMIRS50 features (compared to EMIRS200)

- 3x smaller
- 2x more efficient
- 3x faster
- Excellent signal-to-noise ratio (due to higher frequency)

EMIRS50 versions	Article numbers
EMIR50 / TO46 basic version (chip on header only)	603.410
EMIR50 / TO46 with cap	603.429
EMIR50 / TO46 with reflector	603.431
EMIR50 / TO46 with reflector and sapphire window	603.381
EMIR50 / TO46 with reflector and BaF2 window	603.377

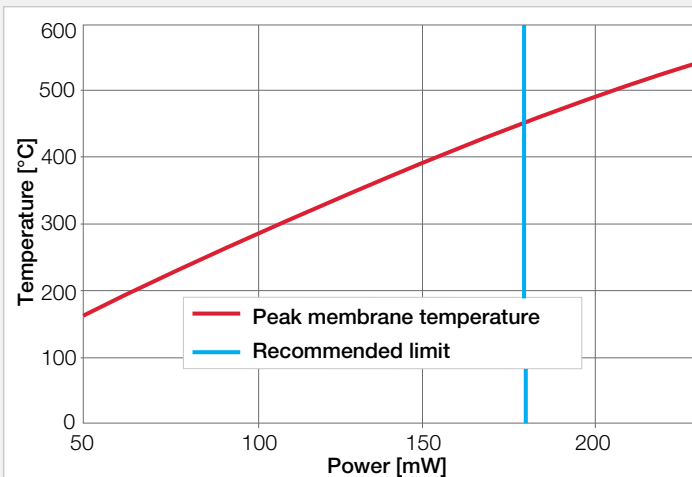
Electrical / optical characteristics (Tc = 25°C)

Parameter	Unit	Value ¹⁾	Conditions / remarks
Cold resistance	Ω	29	Typical cold resistance at 25°C Range of cold resistance 22 – 36 Ω
Hot resistance	Ω	42	Typical hot resistance at 175 mW Typical range of hot resistance 34 – 56 Ω
Electrical input power for working temperature	mW	175	For 450°C
Operating voltage	V	2.7	For IRS with R _{cold} = 29 Ω / to achieve 175 mW
Operating current	mA	64	For IRS with R _{cold} = 29 Ω / to achieve 175 mW
Heating time constant	ms	11	Emission rise time to 63%
Cooling time constant	ms	6	Emission fall time to 37%
Emissivity		0.95	Emissivity of black platinum heater from 2 μm to 14 μm
Case temperature ²⁾	°C	70 60	DC, 175 mW, cap version 603.429 DC, 175 mW, reflector version 603.431

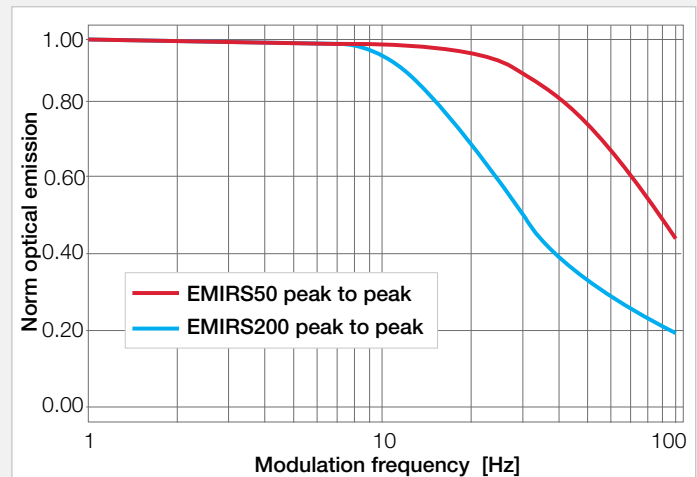
¹⁾ Values are considered as typical.

²⁾ Case temperature of a free standing T046 source (approx. 12 mm distance to PCB).

Max. membrane temperature vs. el. power
DC – steady state



Relative emission vs. frequency
EMIRS50 – EMIRS200



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