Your Source For InfraRed
HAWKEYE TECHNOLOGIES

IR-50 EMITTER

DATASHEET



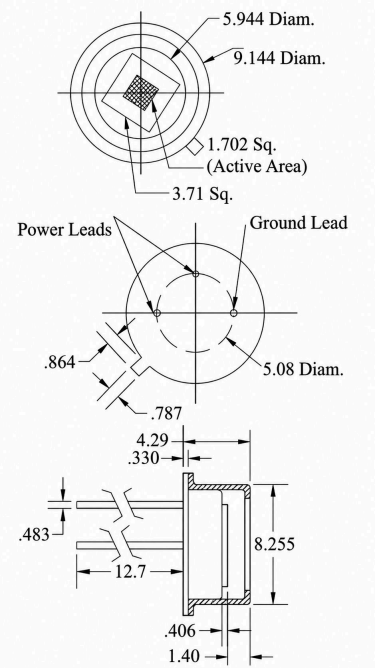
Infrared emitter designed for NDIR gas analysis and optical sensing, offering stable performance and long operational life

General Information

Key Features: Stable characteristics (bare minimum resistance drift over life)

Emitter Type	MEMS, Thin Film Radiating Membrane On Silicon Frame
Operation Mode	Steady Or Modulation
ROHS	Conformed
Active Area	1.7 × 1.7 mm
Recommended Voltage	5.2V
Operation Life At 0.7 W Power	≥ 50,000 H
Package Type	TO-5

*Max/Recommended. Higher input will impact emitter's life.



*All dimensions in mm

Application Notes

This emitter is designed to operate at elevated temperatures, with the radiating element reaching up to approximately 700 °C. Such high operating temperatures must be carefully considered in system design and thermal management.

During operation, the package temperature may rise to approximately 100 °C or higher, depending on operating conditions.

The emitter produces infrared radiation primarily within the wavelength range of 2 to 15 µm, with peak emission between 3.5 and 4.0 µm.

A parabolic reflector is recommended to increase the radiation flux reaching the detector. At a 6.75″ emitter–detector distance, the reflector increases the radiation intensity by approximately 8×. A refocusing elliptical reflector is also available. The reflector dimensions are OD = 0.5″ and OL = 0.640″.

This device is suitable for use in a wide range of infrared spectroscopic applications, including as a radiation source in IR spectrometers.

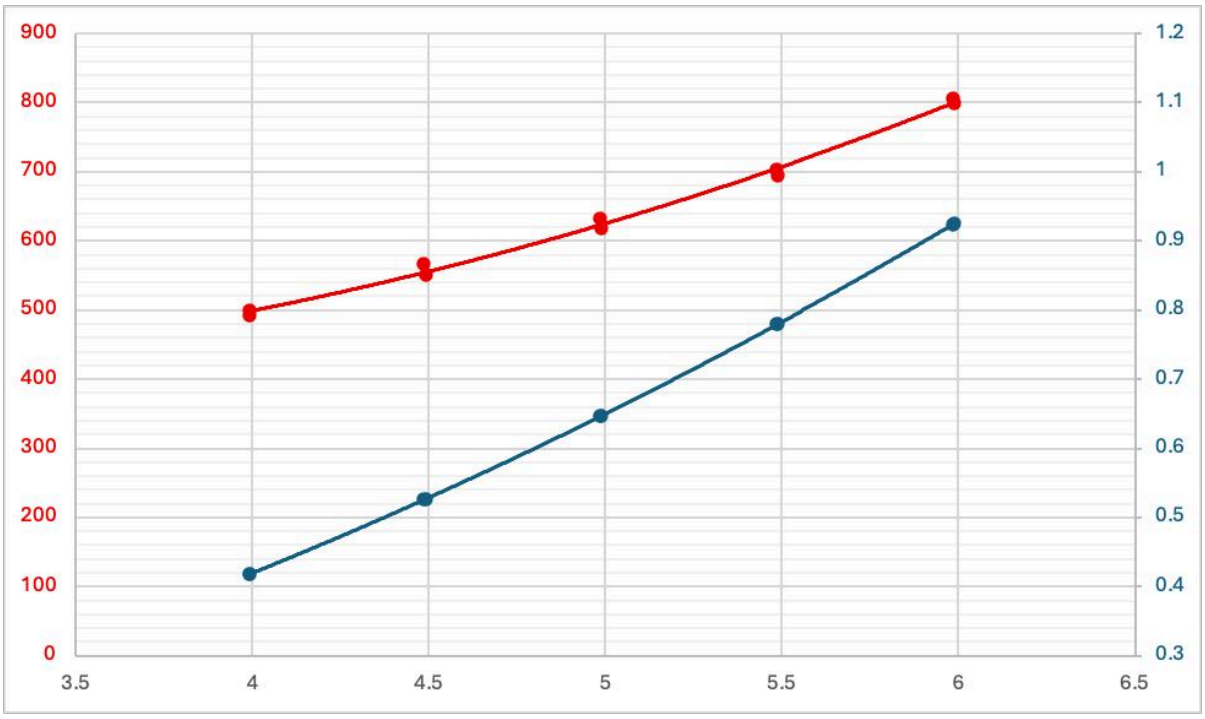
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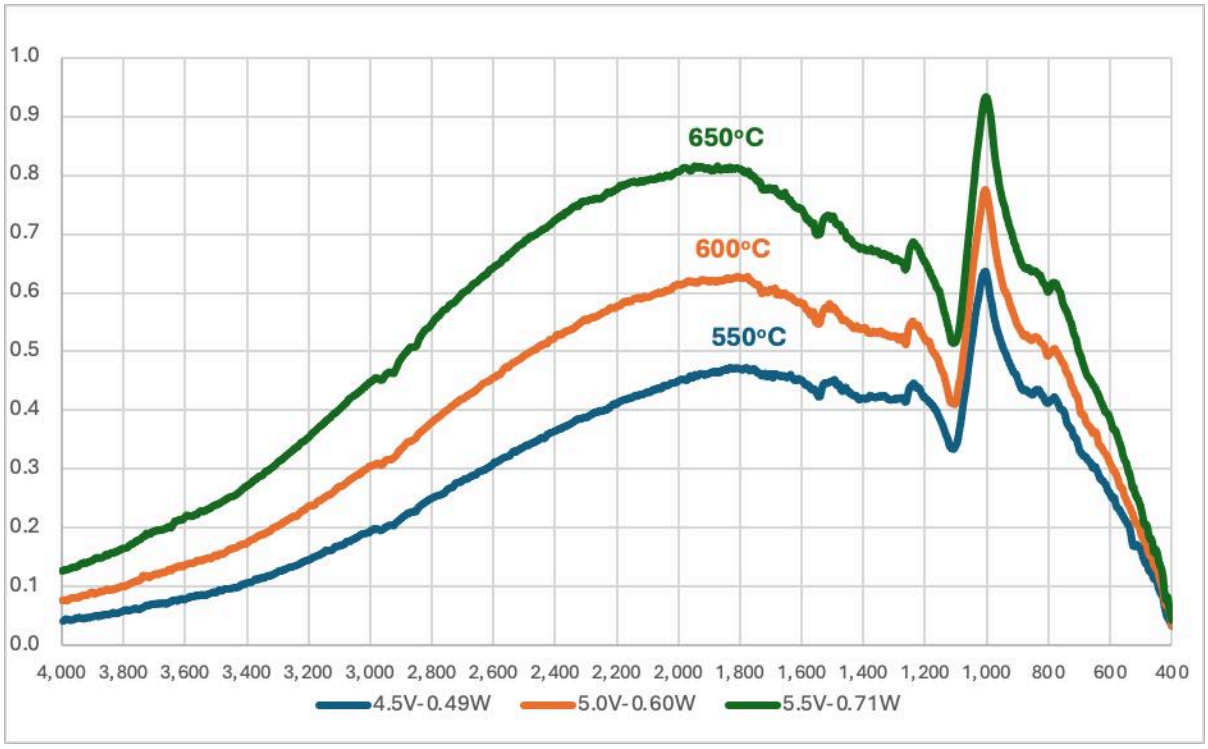
Emitter Ratings

Parameter	Symbol	Value, Typical	Unit	Notes
Cold Resistance	Rc	35	Ohm	At room temp
Input Power	P	0.7	W	-
Input Voltage	V	5.2	V	-
Input Current	I	0.14	A	-
Operating Resistance	Rop	37	Ohm	-
Active Area Temp	T	650	°C	Environment at 25°C

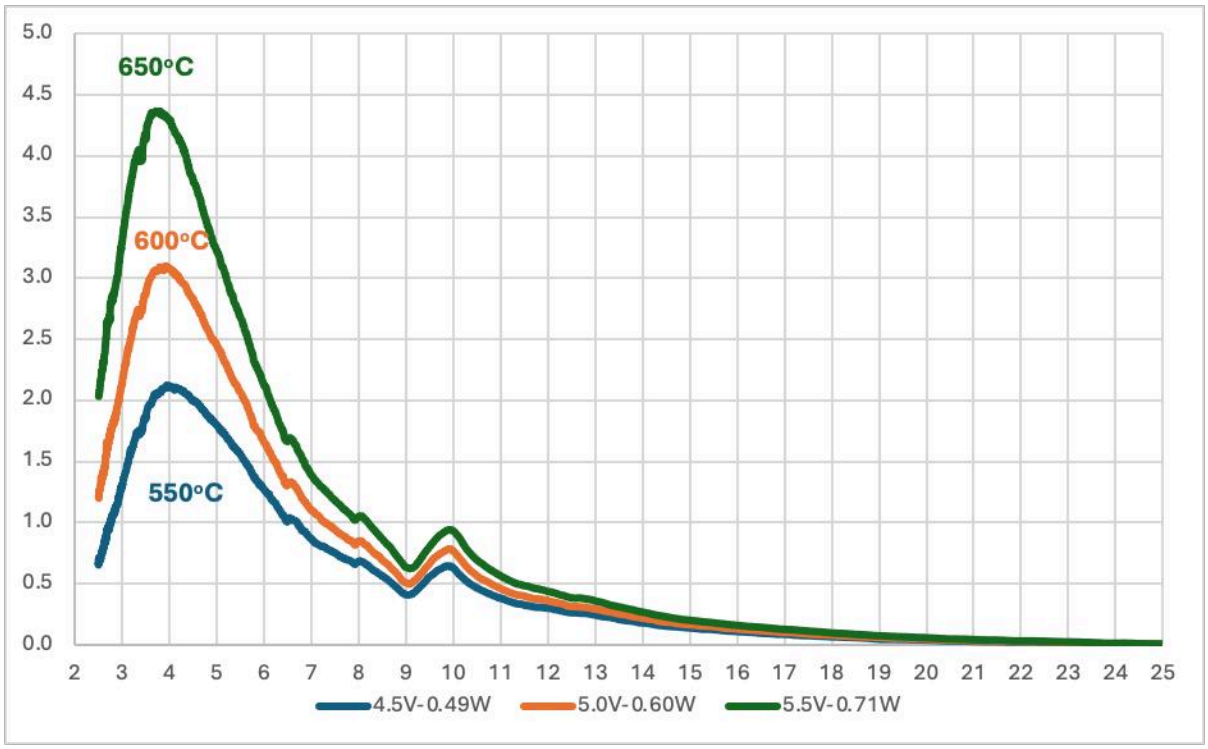
IR-50. Power (W) and Temperature (°C) vs Voltage (V)



IR-50. Emission (a.u.) vs Wavenumber (cm^-1)



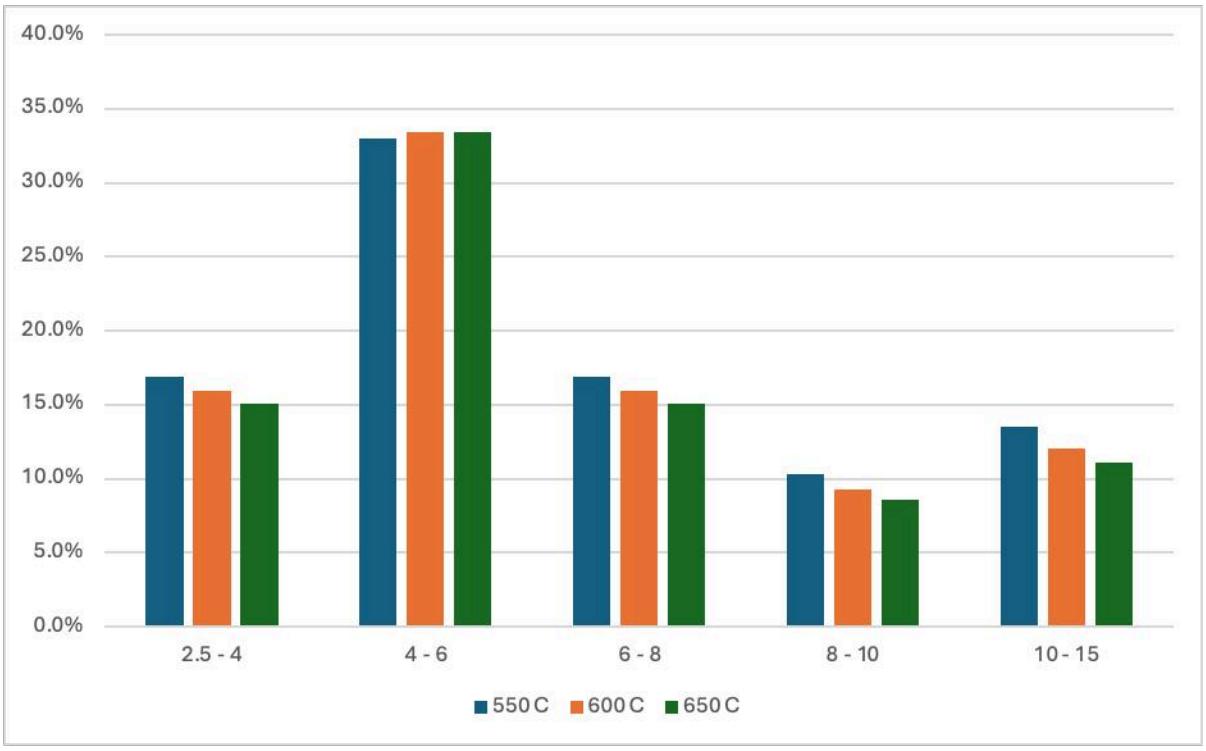
IR-50. Emission (a.u.) vs Wavelength (um).



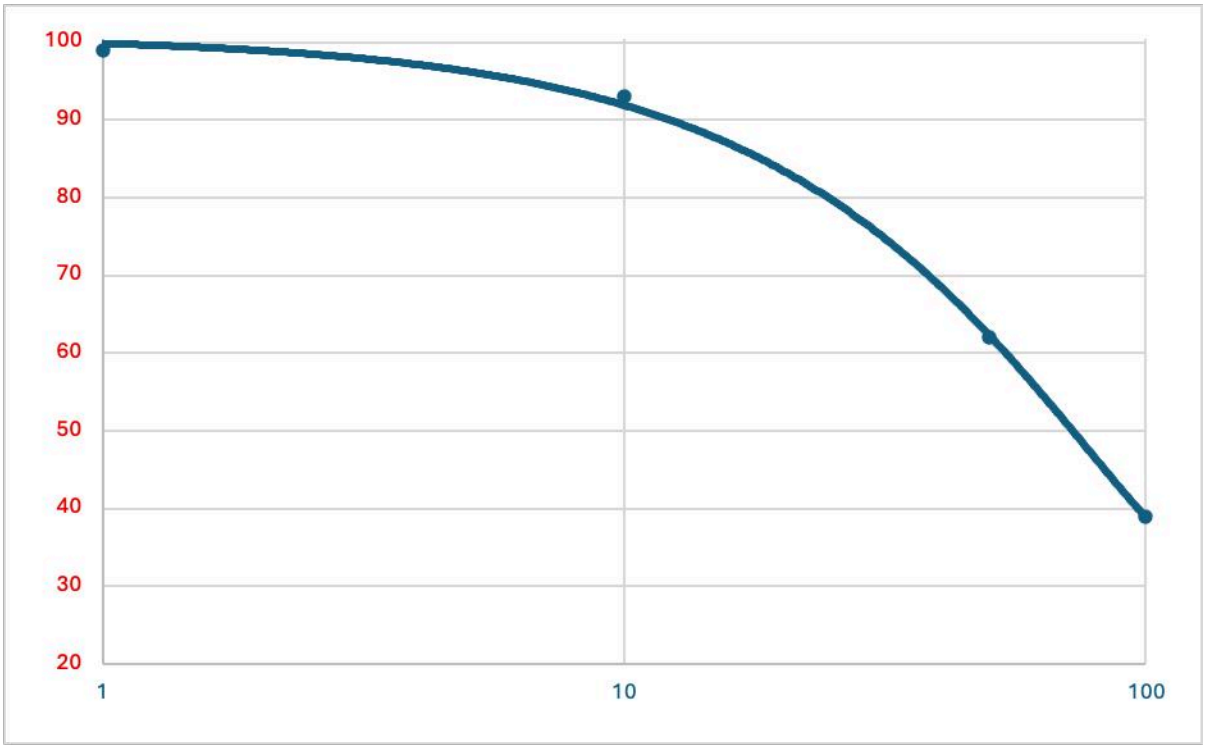
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IR-50. Radiance Distribution over Wavelengths.



IR-50. Modulation depth(%) vs Frequency(Hz).



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