



## Application Note 002/09 technical description of JSIR450

The JSIR450 is a wide band and powerful Infrared-Source. It has a big radiation power in the IR-band up to 15µm. In contrast to glow spiral emitters a circular homogeneous temperature distribution is reached. The JSIR450 has a broad spectral range output with high intensity. A high electric power consumption is possible within long lifetime. The JSIR450 works e.g. in infrared spectroscopy, gas detection systems, air quality and environment monitoring and in medical gas monitoring.

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Type	JSIR450	
Spectral Output Range	typ 0.8 ... 15	µm
Active Area	3,8	mm <sup>2</sup>
Resistant	12 (11 ... 13)	Ω
Critical Modulation Frequency	0,3 (0,25 ... 0,4)	Hz
Power Consumption	0,7	W
Operation Voltage	2,9	V
Operation Current	240	mA
Area Temperature	650	°C
Case Temperature at Air	106	°C
Operation Temperature	-40 ... +80	°C
Mass	2	G
Housing	TO5 modified	

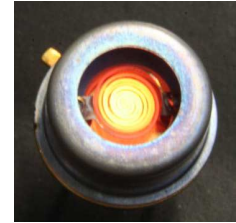


Connection:  
Pin 1 Power  
Pin 2 GND

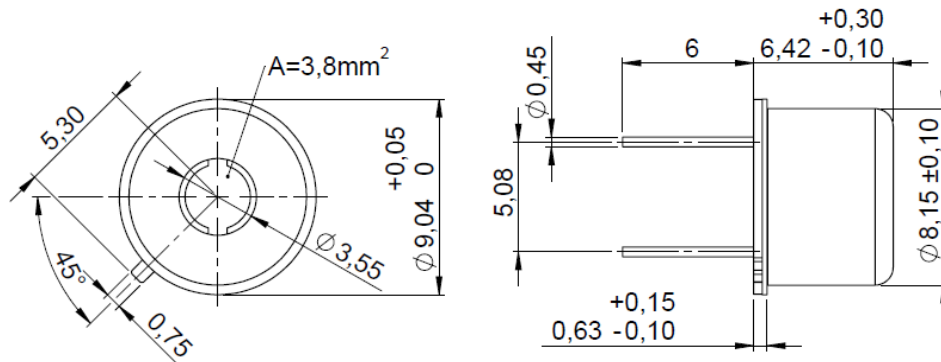
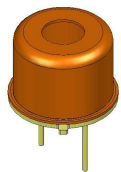
Absolute Max. Ratings	Value	Unit
Voltage	4,5	V
Current	375	mA
Power	1,7	W

## Variations and Accessories:

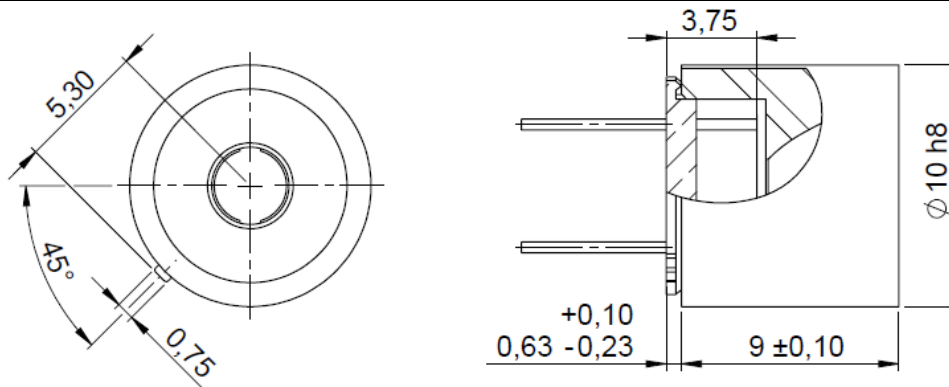
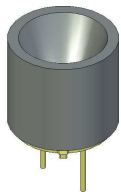
The JSIR450 is offered in two versions. With a TO39 cap as a handling protection or with a parabolic reflector cap. In addition, a puttable on cap reflector can be ordered for the TO39 cap. The ray density could be raised by using a reflector around the 6-fold.



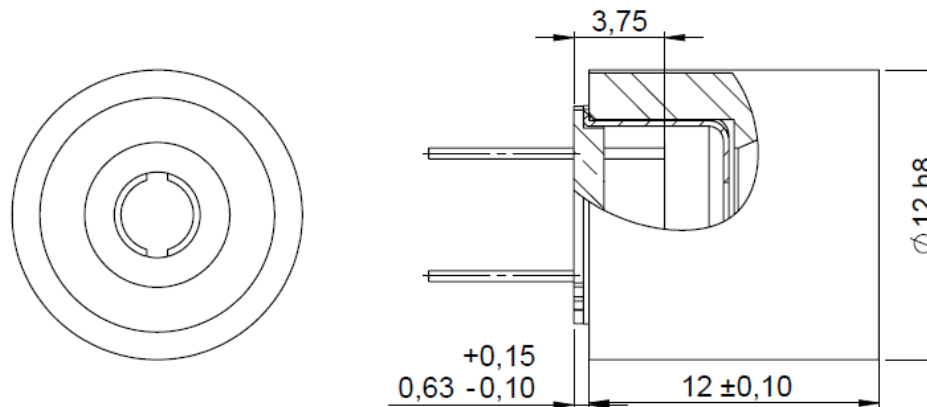
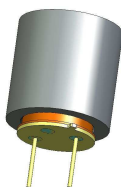
### JSIR450 with TO39 Cap



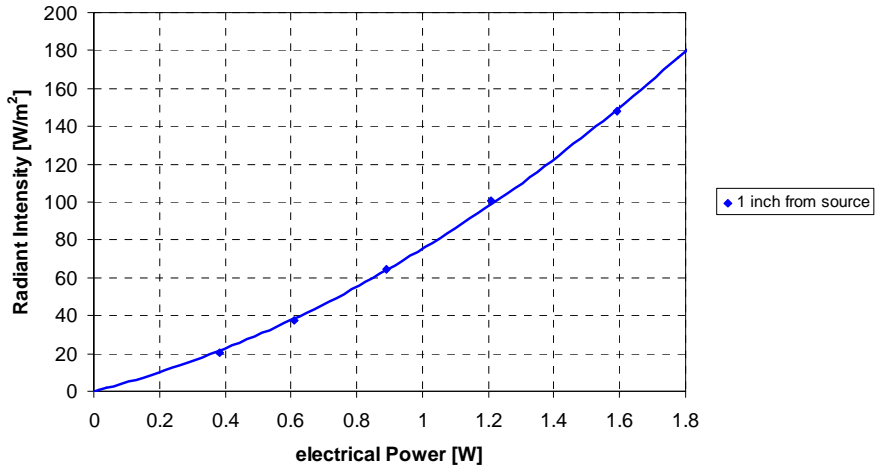
### JSIR450 with Reflector



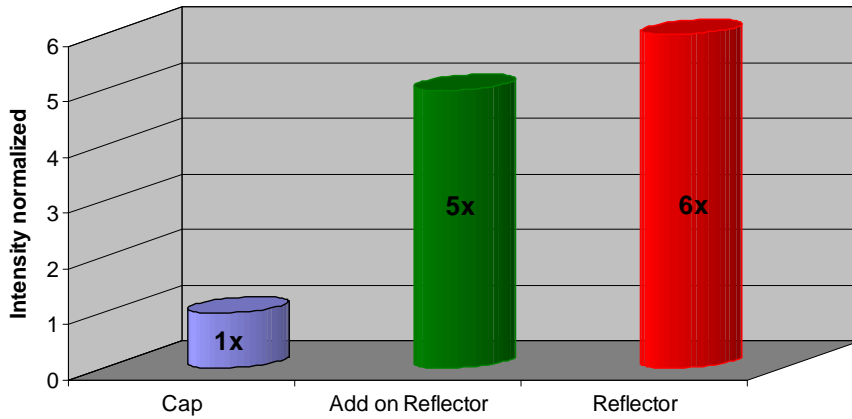
### Add on Reflector



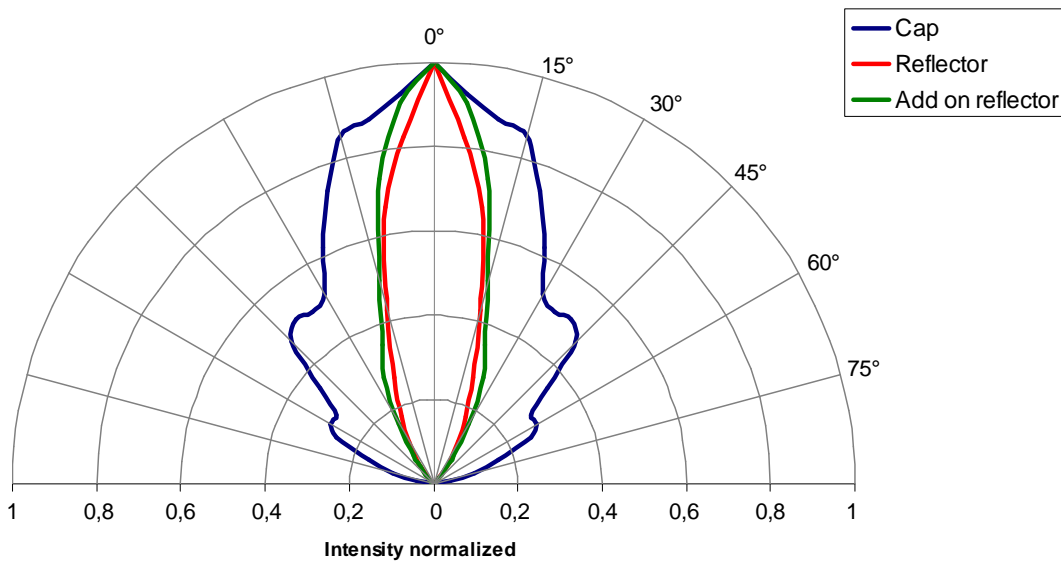
**Radiant Intensity JSIR450 with TO39 Cap**



You can increase the radiant intensity by using a Reflector

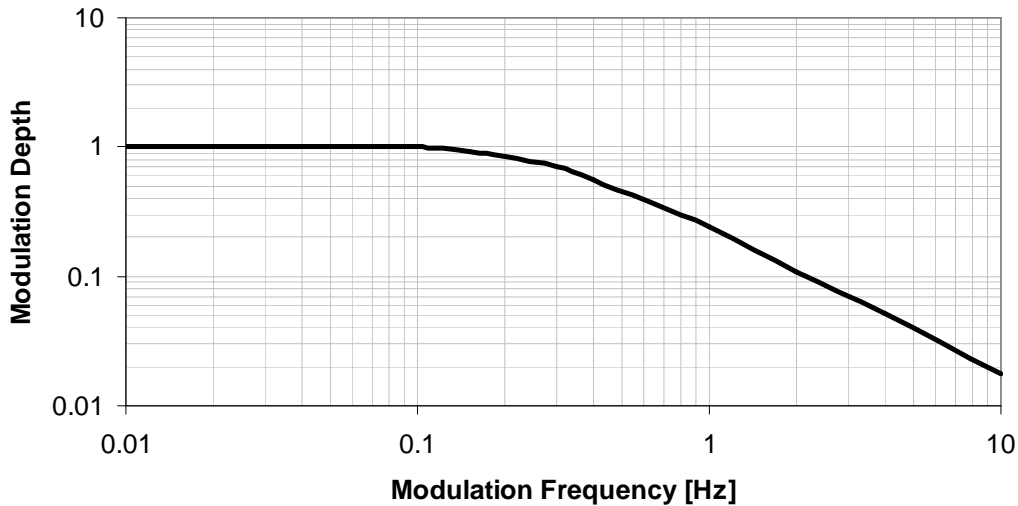


**Intensity normalized vs. Angle**



## Additional information about the JSIR450

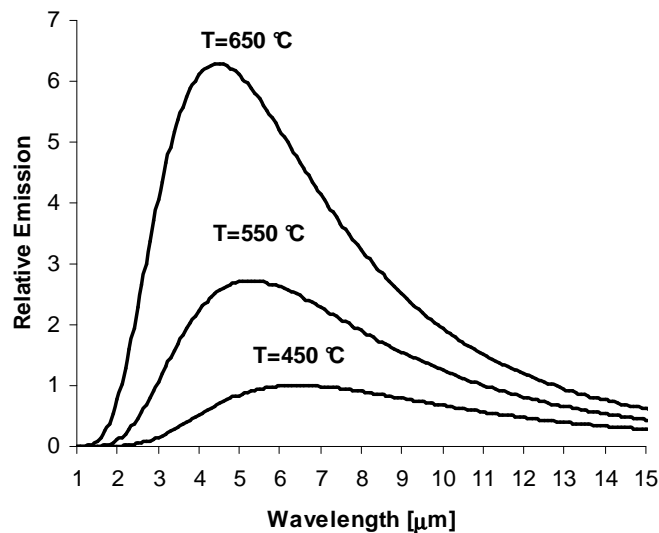
### Frequency-responce: Modulation Depth vs. Frequency



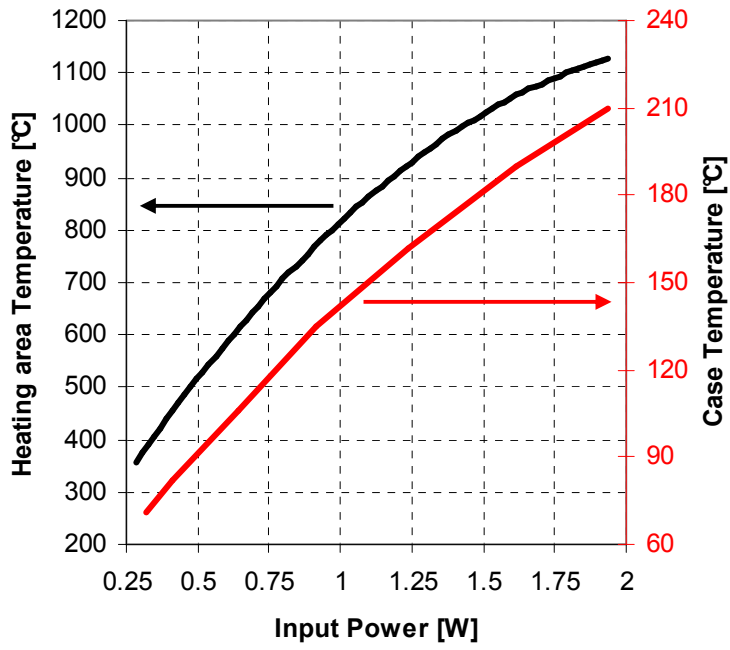
### Temperature

The JSIR450 has the typical spectrum of a black emitter. The spectral intensity distribution depends on the temperature of the heating element which can be adjusted by the electric input power. A regular circular temperature distribution on the heating element is reached by special structuralisation.

### Emission Spectrum vs. Wavelength



## Heating Area- / Case-Temperature



## Temperature Distribution of Heating Area

