

# Flexible Heaters



## Polyimide Heaters

Polyimide is a thin, lightweight organic polymer film that provides excellent tensile strength, tear and solvent resistance and dimensional stability. The polyimide heater is ideal for applications requiring low outgassing in a vacuum or resistance to radiation, fungus and chemicals.

### Performance Capabilities

- For operating environments as low as -319°F (-195°C), heater temperature as high as 392°F (200°C)
- Watt densities up to 50 W/in<sup>2</sup> (7.75 W/cm<sup>2</sup>)<sup>①</sup>
- UR® and C-UR® recognitions

### Features and Benefits

#### Excellent physical and electrical properties

- Results in thermal stability over a wide temperature range

#### Transparent polyimide material

- Allows inspection of internal details

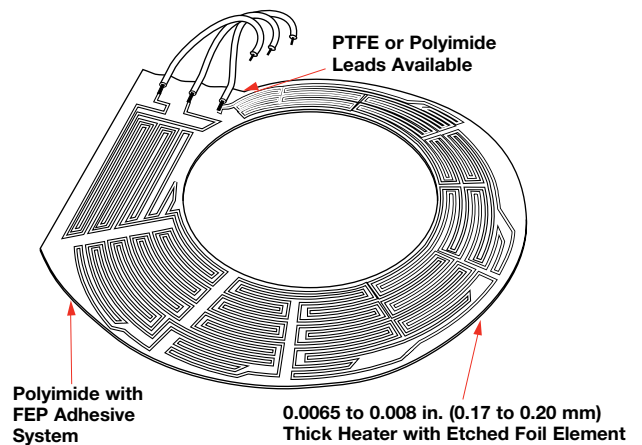
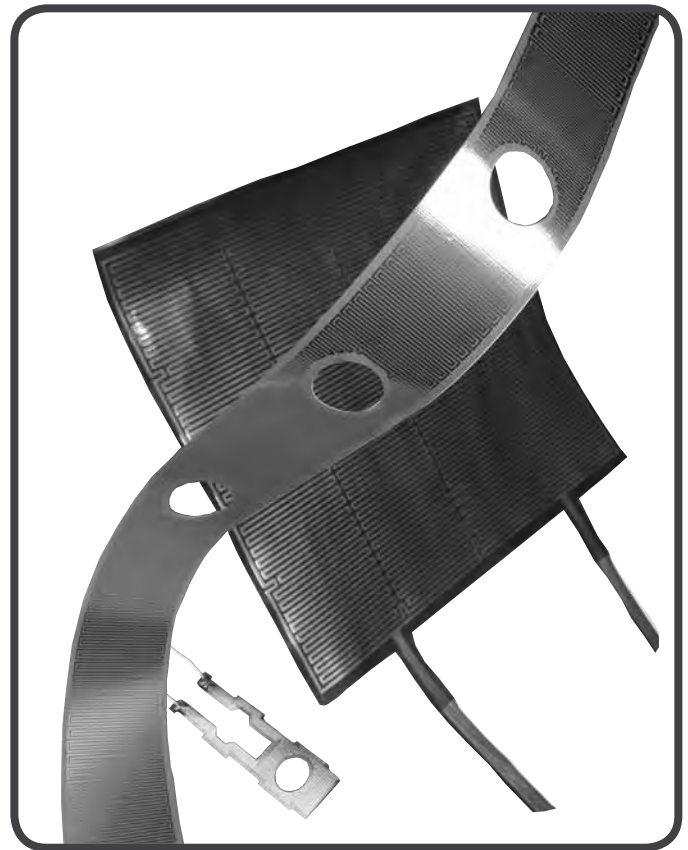
#### Resistance to radiation and fungus

- Allows it to be used in a wide range of applications

### Typical Applications

- Medical applications that require a clean, sterile environment
- Laboratory research
- Semiconductor processing equipment
- Optical equipment
- LCD displays
- Computer equipment
- Photographic equipment
- Aerospace/defense, where low outgassing properties are required

① Watt density limits are application dependent (operating temperatures, bonding method and heat sink).



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### Technical Data

#### Specifications

##### Thickness

- 0.007 in. (0.2 mm)

##### Flexibility (min. radius)

- $1/32$  in. (0.8 mm)

##### Weight

- 1.5 oz/ft<sup>2</sup> (0.05 g/cm<sup>2</sup>)

##### Operating temperature

- Max.: 392°F (200°C)
- Min.: -319°F (-195°C)

##### Watt density rating on stock units

- 5 W/in<sup>2</sup> (0.8 W/cm<sup>2</sup>)

##### Dielectric strength

- Min. VAC: 1000

##### Flammability rating

- Self-extinguishing

##### Heater size limitations

- 18 x 26 in. (457 mm x 660 mm)

##### Weight loss (outgassing)

- 0.51%

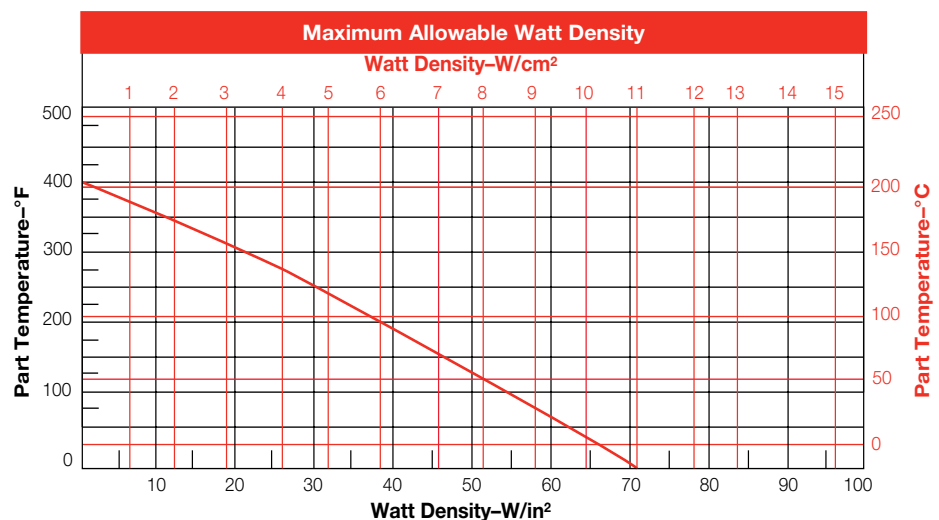
##### Lead length

- 12 in. (305 mm) PTFE E

## Maximum Allowable Watt Density Versus Temperature

To achieve optimum performance with your Watlow polyimide heater, use a proper watt density on the surface of the heater.

The graph recommends watt densities for temperatures using a temperature controller. It does not indicate the watt density needed to achieve a given part temperature.



**Note:** The maximum watt density (W/in<sup>2</sup>) in open air is 5 W/in<sup>2</sup>. The chart above assumes bonding the polyimide heater to a part.