

Maximum Watt Density

Calculate maximum allowable power

Overview

The watt density tables on the following page show the maximum allowable power for each heater type, expressed in watts per square inch, or centimeter, of effective area. The rating depends upon the heater's insulation/internal adhesive, heat sink control temperature, and the mounting method.

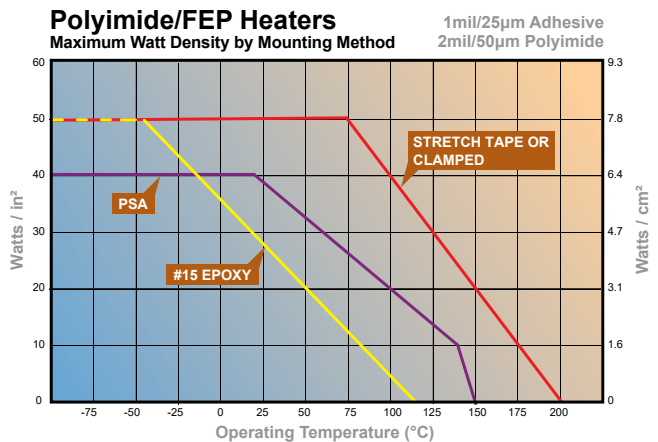
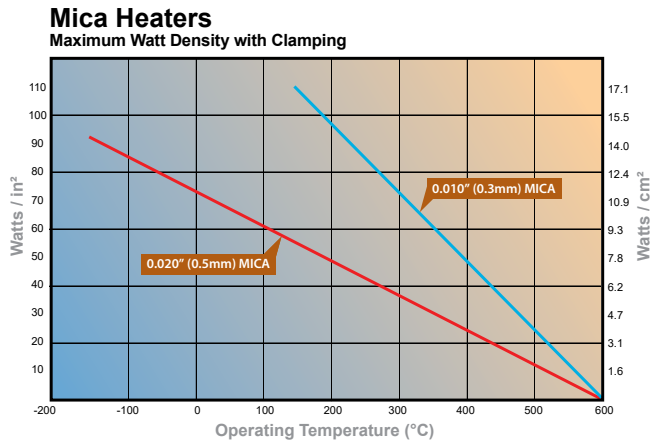
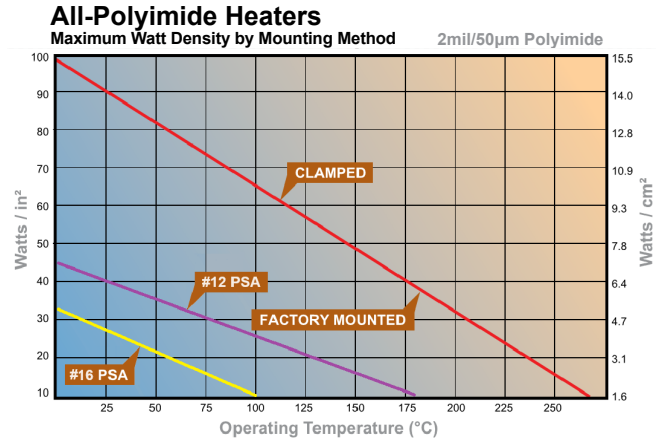
If watt density exceeds the maximum rating, the heater is in danger of overheating and premature failure. To obtain more power:

- Select a larger size heater
- Consider other heater insulation materials, e.g. mica
- Change the mounting method
- Use proportional control to reduce power as the heat sink temperature rises
- Contact Minco for product and design assistance

In addition to wattage, you should calculate the current (I) through the heater leadwires to keep it within the maximum rating for the AWG wire size used.

Using watt density charts

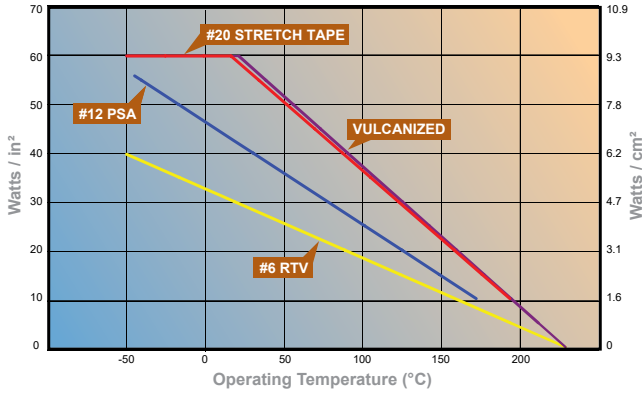
1. Look up the effective area for the heater model in question. This is total heater area minus borders and lead attachment space (calculated by Minco).
2. Divide the power requirement in watts by this area to obtain watt density.
3. Draw a line from the heat sink temperature (at the bottom of the chart) to the line labeled with the mounting method and/or insulation you have chosen.
4. The maximum watt density is indicated by the value on the left or right axis that corresponds with that intersection.



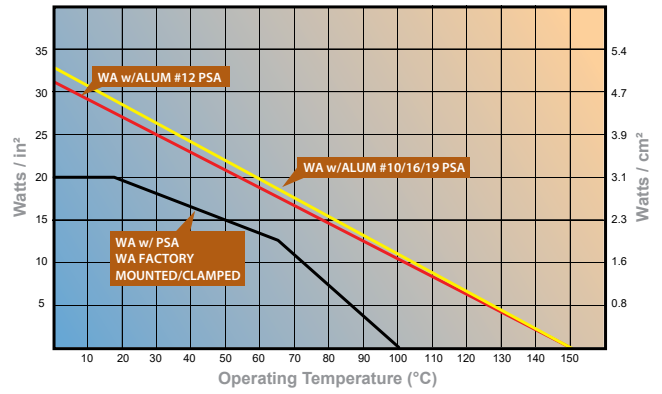
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Refer to these parts when computing watt density

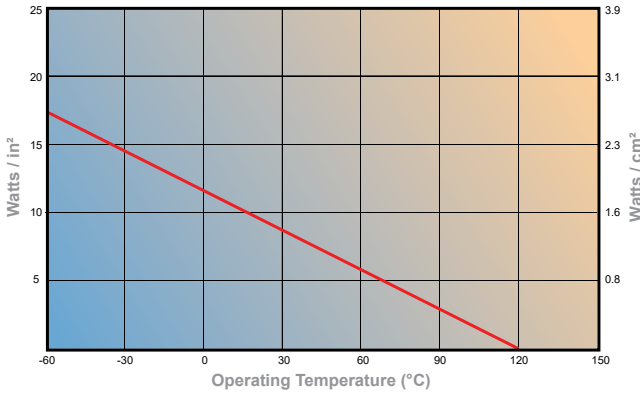
Silicone Rubber Thermofoil Heaters .008"/0.2mm Silicone Rubber
Maximum Watt Density by Mounting Method



WA Heaters 1mil/25µm WA 2mil/50µm Polyimide
Maximum Watt Density by Mounting Method



Thermal-Clear™ Heaters 2mil/50µm Polyester 2mil/50µm Adhesive
Maximum Watt Density with Acrylic PSA



Wire-Wound Rubber Heaters 0.025"/.63mm Silicone Rubber
Maximum Watt Density by Mounting Method

