



# ELECTRO-FLEX HEAT

a Division of MCF, LLC

## Product Data Sheet for Silicone Rubber Heaters

### FEATURES

- Rectangular, tape and round standard heaters in the most frequently requested dimensions for immediate delivery
- 115V standard
- Power densities of 2.5W/in.<sup>2</sup>, 5W/in.<sup>2</sup> and 10W/in.<sup>2</sup> cover a wide range of applications
- Operating temperature range of -70°F to 450°F
- Resistant to many chemical substances
- Heaters are UL Recognized and CSA Certified
- Custom configurations available

### APPLICATIONS

- De-icing and anti-icing equipment
- Freeze protection for drains in refrigeration equipment
- Electric motor dehumidifying
- Consumer appliances
- Vending equipment
- Food service equipment
- Security cameras

Please contact the engineering department at Electro-Flex Heat, a Division of MCF, LLC, for assistance with specific applications.



### GENERAL INFORMATION

Silicone Rubber heaters have wire-wound or etched foil heating circuits laminated between thin layers of fiberglass-reinforced, high temperature insulation, silicone rubber.

The thin profile transfers heat quickly because the actual resistance element is so close to the heated part. A common application of Silicone Rubber Heaters is wrap-around drum heating to provide freeze protection/viscosity control for a variety of materials. (See our separate Drum Heaters and Insulating Blankets product sheet, EFN-1001.)

Silicone Rubber heaters are resistant to temperature extremes, moisture, weathering, radiation, fungus and chemical attack. They also have a high dielectric strength, flexibility, provide a cost effective heating solution and are easily bonded or cemented to heat sinks or other parts to be heated.

Silicone Rubber Heaters can be virtually any size, shape and configuration and are the ideal solution for many low and medium temperature applications which do not conform to standard heater shapes, sizes and dimensions. Although Electro-Flex Heat offers three off-the-shelf configurations (rectangular, tape and round) available for immediate delivery, we can also customize heaters in a wide variety of shapes, contours, three-dimensional patterns and heat concentrations to fit the requirements of your specific application.

Three power densities at 115V are available for most stock heaters: 2.5W/in.<sup>2</sup>, 5W/in.<sup>2</sup> and 10W/in.<sup>2</sup>. Gentle warming is best done with 2.5W/in.<sup>2</sup>, while the 5W/in.<sup>2</sup> are used for all-purpose heaters. Rapid warm up and high temperature are achieved with the 10W/in.<sup>2</sup> heaters; however, temperature should be controlled to ensure as a safe limit of 450°F is not exceeded.

### How to order:

1. Determine specifications desired (see Figure 1 and Tables 1, 2, 3).
2. Determine power density desired (see Figure 2 and Tables 2, 3).
3. Specify model number (see Figure 3).
4. Contact factory or representative (see back page for contact information).

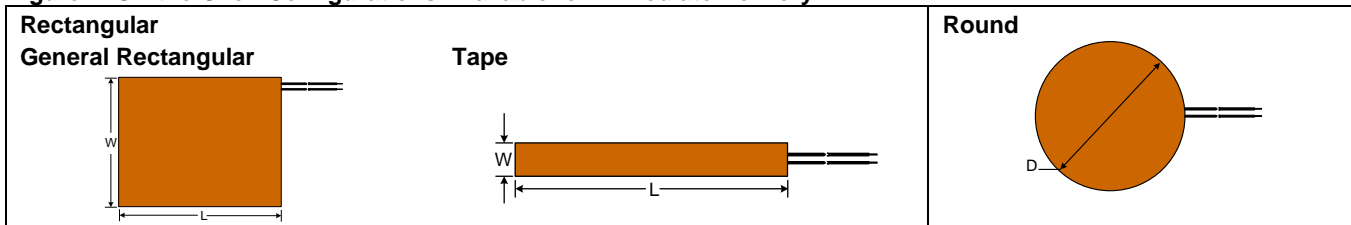
# Silicone Rubber Heaters



**Table 1. General Specifications**

| Characteristic                               | Value  |
|--|--|
| Material and construction                    | fully vulcanized fiberglass-reinforced silicone rubber encapsulating a nickel alloy or thin foil heating element |
| Voltage                                      | 115V   |
| Power densities available (at 115 V)         | 2.5W/in. <sup>2</sup> , 5W/in. <sup>2</sup> , 10W/in. <sup>2</sup>   |
| Operating temperature range                  | -70°F to 450°F   |
| Exposure temperature range                   | -70°F to 450°F   |
| Resistance tolerance                         | ±10%   |
| Thickness                                    | 0.030in. to 0.070in. (except at lead exit)   |
| Leads:<br>gage<br>insulation<br>length       | varies according heater wattage and voltage<br>Teflon <sup>®</sup> unless specified<br>12.0in. min.              |
| Component approvals                          | UL, CSA  |
| High-potential dielectric testing (at 115 V) | 1250V  |
| Serviceable parts                            | none   |

**Figure 1. Off-the-Shelf Configurations Available for Immediate Delivery**



**Table 2. Rectangular Configuration at 115V (Power Density in W/in.<sup>2</sup>)**

| Width (in.) | Length (in.) |     |     |     |     |     |     |     |     |     |     |     |     |
|-------------|--------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|             | 1            | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  |     |
| 1           | -            | -   | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
|             | 10*          | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   |
|             |              | 10  | 10  | 10  | 10  | 10  | 10  | 10  | 10  | 10  | 10  | 10  | 10  |
| 2           | -            | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
|             |              | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   |
|             |              | 10  | 10  | 10  | 10  | 10  | 10  | 10  | 10  | 10  | 10  | 10  | 10  |
| 3           | -            | -   | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
|             |              |     | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   |
|             |              |     | 10  | 10  | 10  | 10  | 10  | 10  | 10  | 10  | 10  | 10  | 10  |
| 4           | -            | -   | -   | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
|             |              |     |     | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   |
|             |              |     |     | 10  | 10  | 10  | 10  | 10  | 10  | 10  | 10  | 10  | 10  |
| 5           | -            | -   | -   | -   | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
|             |              |     |     |     | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   |
|             |              |     |     |     | 10  | 10  | 10  | 10  | 10  | 10  | 10  | 10  | 10  |
| 6           | -            | -   | -   | -   | -   | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
|             |              |     |     |     |     | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   |
|             |              |     |     |     |     | 10  | 10  | 10  | 10  | 10  | 10  | 10  | 10  |
| 7           | -            | -   | -   | -   | -   | -   | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
|             |              |     |     |     |     |     | 5   | 5   | 5   | 5   | 5   | 5   | 5   |
|             |              |     |     |     |     |     | 10  | 10  | 10  | 10  | 10  | 10  | 10  |
| 8           | -            | -   | -   | -   | -   | -   | -   | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
|             |              |     |     |     |     |     |     | 5   | 5   | 5   | 5   | 5   | 5   |
|             |              |     |     |     |     |     |     | 10  | 10  | 10  | 10  | 10  | 10  |
| 9           | -            | -   | -   | -   | -   | -   | -   | -   | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
|             |              |     |     |     |     |     |     |     | 5   | 5   | 5   | 5   | 5   |
|             |              |     |     |     |     |     |     |     | 10  | 10  | 10  | 10  | 10  |
| 10          | -            | -   | -   | -   | -   | -   | -   | -   | -   | 2.5 | 2.5 | 2.5 | 2.5 |
|             |              |     |     |     |     |     |     |     |     | 5   | 5   | 5   | 5   |
|             |              |     |     |     |     |     |     |     |     | 10  | 10  | 10  | 10  |
| 11          | -            | -   | -   | -   | -   | -   | -   | -   | -   | -   | 2.5 | 2.5 | 2.5 |
|             |              |     |     |     |     |     |     |     |     |     | 5   | 5   | 5   |
|             |              |     |     |     |     |     |     |     |     |     | 10  | 10  | 10  |
| 12          | -            | -   | -   | -   | -   | -   | -   | -   | -   | -   | -   | 2.5 | 2.5 |
|             |              |     |     |     |     |     |     |     |     |     |     | 5   | 5   |
|             |              |     |     |     |     |     |     |     |     |     |     | 10  | 10  |

Note: \* 1in. x 1in. available as 350 Ohm only.

# Silicone Rubber Heaters



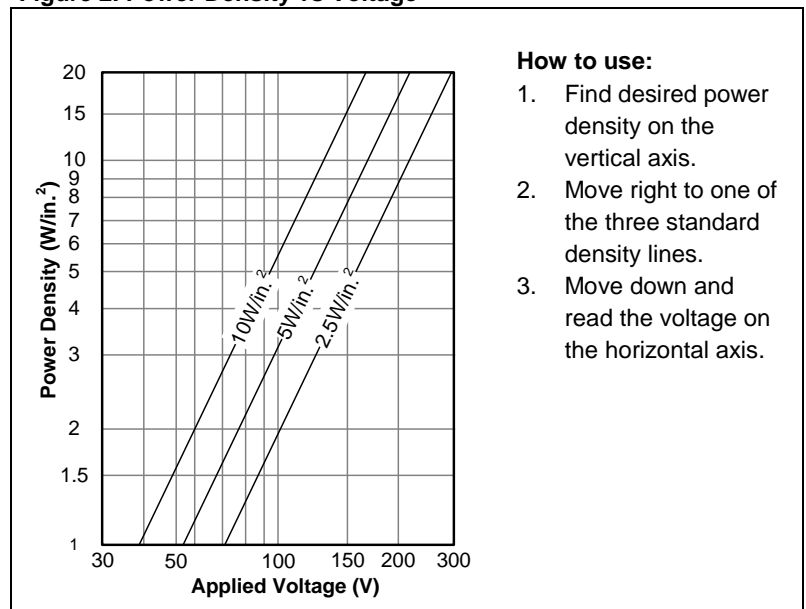
**Table 2. Rectangular Configuration at 115V (Power Density in W/in.<sup>2</sup>) (continued)**

| Length (in.) | Width (in.) |     |     |     |   |     |   |     |   |     |    |     |
|--------------|-------------|-----|-----|-----|---|-----|---|-----|---|-----|----|-----|
|              | 1           | 2   | 3   | 4   | 5 | 6   | 7 | 8   | 9 | 10  | 11 | 12  |
| 18           | 2.5         | 2.5 | 2.5 | 2.5 | - | 2.5 | - | 2.5 | - | 2.5 | -  | 2.5 |
|              | 5           | 5   | 5   | 5   | - | 5   | - | 5   | - | 5   | -  | 5   |
|              | 10          | 10  | 10  | 10  | - | 10  | - | 10  | - | 10  | -  | 10  |
| 24           | 2.5         | 2.5 | 2.5 | 2.5 | - | 2.5 | - | 2.5 | - | 2.5 | -  | 2.5 |
|              | 5           | 5   | 5   | 5   | - | 5   | - | 5   | - | 5   | -  | 5   |
|              | 10          | 10  | 10  | 10  | - | 10  | - | 10  | - | 10  | -  | 10  |
| 30           | 2.5         | 2.5 | 2.5 | 2.5 | - | 2.5 | - | 2.5 | - | 2.5 | -  | 2.5 |
|              | 5           | 5   | 5   | 5   | - | 5   | - | 5   | - | 5   | -  | 5   |
|              | 10          | 10  | 10  | 10  | - | 10  | - | 10  | - | 10  | -  | 10  |
| 36           | 2.5         | 2.5 | 2.5 | 2.5 | - | 2.5 | - | 2.5 | - | 2.5 | -  | 2.5 |
|              | 5           | 5   | 5   | 5   | - | 5   | - | 5   | - | 5   | -  | 5   |
|              | 10          | 10  | 10  | 10  | - | 10  | - | 10  | - | 10  | -  | 10  |
| 42           | 2.5         | 2.5 | 2.5 | 2.5 | - | 2.5 | - | 2.5 | - | 2.5 | -  | 2.5 |
|              | 5           | 5   | 5   | 5   | - | 5   | - | 5   | - | 5   | -  | 5   |
|              | 10          | 10  | 10  | 10  | - | 10  | - | 10  | - | 10  | -  | 10  |
| 48           | 2.5         | 2.5 | 2.5 | 2.5 | - | 2.5 | - | 2.5 | - | 2.5 | -  | 2.5 |
|              | 5           | 5   | 5   | 5   | - | 5   | - | 5   | - | 5   | -  | 5   |
|              | 10          | 10  | 10  | 10  | - | 10  | - | 10  | - | 10  | -  | 10  |

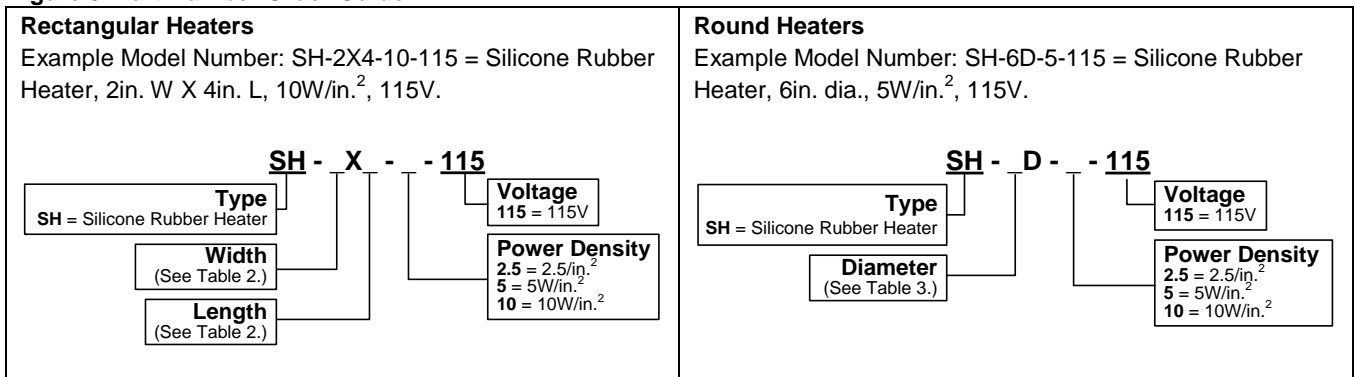
**Table 3. Round Configuration at 115V**

| Diameter (in.) | Power Density (W/in. <sup>2</sup> ) | Diameter (in.) | Power Density (W/in. <sup>2</sup> ) |
|----------------|-------------------------------------|----------------|-------------------------------------|
| 3              | 2.5                                 | 8              | 2.5                                 |
|                | 5                                   |                | 5                                   |
|                | 10                                  |                | 10                                  |
| 4              | 2.5                                 | 9              | 2.5                                 |
|                | 5                                   |                | 5                                   |
|                | 10                                  |                | 10                                  |
| 5              | 2.5                                 | 10             | 2.5                                 |
|                | 5                                   |                | 5                                   |
|                | 10                                  |                | 10                                  |
| 6              | 2.5                                 | 11             | 2.5                                 |
|                | 5                                   |                | 5                                   |
|                | 10                                  |                | 10                                  |
| 7              | 2.5                                 | 12             | 2.5                                 |
|                | 5                                   |                | 5                                   |
|                | 10                                  |                | 10                                  |

**Figure 2. Power Density vs Voltage**



**Figure 3. Part Number Order Guide**





## WARRANTY AND LIMITATION OF REMEDY AND LIABILITY

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**USERS ARE RESPONSIBLE FOR THE SUITABILITY OF THE PRODUCTS TO THEIR APPLICATION. PRICING IS F.O.B.**



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EFH1007 Issue 7  
November 2017  
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