BI-ALPHA

- Compact Power resistors (forced air cooled)

- Extreme compact design
- Cost effective
- Easy implementation
- Fully insulated; no external live parts
- Low thermal drift, 100ppm
Construction

The resistors are designed as follows:

The resistor elements are wire wound on a mica substrate. This substrate is insulated by two mica sheets to assure the minimum voltage breakdown. The housing is made from aluminium zinc alloy with good thermal properties. The standard cables are 300 mm AWG 18 600V. We can supply cables in specified lengths and mounted with cable shoes or connectors as required.

Simulations

The start for each resistor selection is a power-time graph from your application. Dantherm is able to predict the temperature of the resistor by using sophisticated models.

Pulse load

The ability to withstand pulse loads varies per resistor size, wire length and wire diameter. As such, it is impossible to create standard graphs that would apply for most customers applications.

At your request Dantherm performs the simulation for you based on your application.

The table shown is based on a resistor with a wire of 0.3mm. For different duty times the maximum power is noted with a repetition time of 120 seconds. The table is only valid for mentioned wire diameter. With each ohm value a different model and different pulse loads apply.

<table>
<thead>
<tr>
<th>Type</th>
<th>Bi-Alpha</th>
<th>$P_v \text{[W]} @40^\circ C$</th>
<th>Surface temp. $[C]$ @40°C</th>
<th>Pulse load during x each 120 seconds $[W] @40^\circ C$</th>
<th>$R[\Omega]$ standard ± 10% on request ± 5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>size 4</td>
<td>Bi-alpha 6</td>
<td>45 250</td>
<td>950 600 230 75</td>
<td>6 - 600</td>
<td></td>
</tr>
<tr>
<td>size 5</td>
<td>Bi-alpha 5</td>
<td>100 250</td>
<td>2500 700 260</td>
<td>40 - 1500</td>
<td></td>
</tr>
<tr>
<td>size 6</td>
<td>Bi-alpha 4</td>
<td>175 250</td>
<td>4000 1200 860</td>
<td>20 - 2500</td>
<td></td>
</tr>
</tbody>
</table>

General specifications

- Temperature Coefficient: $< ± 100 \text{ ppm}$
- Dielectric strength: standard
- Working voltage: standard
- Insulation Resistance: $> 20 \text{ MΩ}$
- Overload: @ 1 sec pulse / hour $20 - 25 \times$ (depending on resistance)
- Overload: @ 5 sec pulse / hour $5 - 7 \times$ (depending on resistance)
- Cooling: air 2m/s
- Environmental: ±40°C - 90°C
- De-rating: Linear: 40°C = Pn to 70°C = 0.65 × Pn

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