PTC Heaters

Positive temperature co-efficient - PTC heating elements are small ceramic stones with self temperature limiting characteristics. PTC stones have fast heating response times and plateau once the pre-defined reference temperature is reached. The shape of these stones can be be designed to be square, rectangular, round, ring or doughnut style. Above the reference temperature, the semiconducting and ferro-electrical properties of the ceramic are utilized to produce a rise in resistance of several orders of magnitude, and hence produce its self limiting properties.

This resistance rise can be experienced over a temperature range of a few degrees Celsius. This PTC attribute results in a heating element that self-regulates at a pre-set temperature and automatically varies its wattage in order to maintain that pre-set temperature. Hence, a greater degree of thermal dissipation (cooling) will result in higher power.

The materials used are doped polycrystalline ceramics based on barium titanate. Once the ceramic body has been formed through processes including blending, milling, drying and sintering, metallized contacts are applied to the surface to facilitate electrical connection.

PTC Design Guidelines/Considerations

Listed below are some items that should be taken into consideration when a PTC heater is specified:

- Specify target temperature to be maintained
- Specify maximum allowable temperature
- Specify the time required to heat the media to target temperature
- Identify the type of medium to be heated
- Identify any potential thermal barriers between heater and media
- Specify maximum allowable inrush current at startup of element
- Voltage
- Inlet air temperature/CFM rating
- Space/size constraints for heater

PTC Features & Benefits

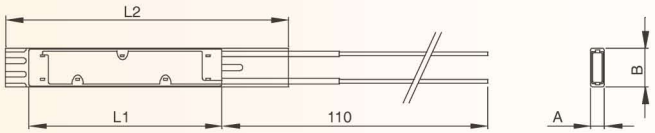
- Safe through temperature limiting characteristics
- Dynamic, self regulating, and therefore energy efficient
- All voltages from 12 V to 240 V; special voltage applications up to 800 V
- Dual voltages 12-24 V, 100-240 V
- PTC surface temperatures can be set from 40° C to 280° C
- Temperature tolerances ± 5° C
- Compact design
- High power densitity
- Long lifetime
- Reliable
- UL, CSA and VDE recognised
- Custom configurations available in regards to size, inrush current, temperature, voltage, and power output

BUILT-IN PTC HEATERS, EA and EB RANGES

Basic heating element for installation in sites where sufficient clamping contact must be guaranteed. This is necessary in order to continuously maintain optimum heat transfer.

General characteristics

- Combination of heating and control in one element.
- Automatic control function.
- Protection: Class II (3750 V - 1 min)
- Virtually constant power input within a wide range of voltage: 100 - 240 V.
- Safety and longterm stability by self-regulating effect.



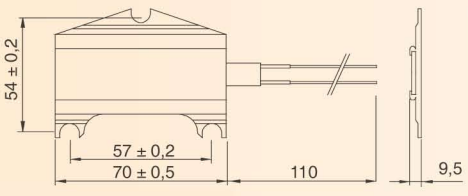
Code	Max. power	Reference temperature PTC	Nº PTC	Dimensions in mm			
				L1	L2	A	B
EA01-4/06	110 W	60 °C	4	73	120 ± 2	3,5 ± 0,1	18,5 ± 0,2
EA01-4/12	210 W	120 °C	4	73	120 ± 2	3,5 ± 0,1	18,5 ± 0,2
EA01-4/18	150 W	180 °C	4	73	120 ± 2	3,5 ± 0,1	18,5 ± 0,2
EA01-4/23	180 W	230 °C	4	73	120 ± 2	3,5 ± 0,1	18,5 ± 0,2
EB04-1/07	15 W	70 °C	1	32	55 ± 2	3,5 ± 0,1	9,5 ± 0,2
EB04-1/09	17 W	90 °C	1	32	55 ± 2	3,5 ± 0,1	9,5 ± 0,2
EB04-1/13	23 W	130 °C	1	32	55 ± 2	3,5 ± 0,1	9,5 ± 0,2
EB05-1/09	45 W	90 °C	1	40	62 ± 2	2,7 ± 0,15	14,2 ± 0,2
EB05-1/13	50 W	130 °C	1	40	62 ± 2	2,7 ± 0,15	14,2 ± 0,2
EB05-1/18	90 W	180 °C	1	40	62 ± 2	2,7 ± 0,15	14,2 ± 0,2
EB06-2/18	160 W	180 °C	2	75	97 ± 2	2,7 ± 0,15	14,2 ± 0,2
EB06-2/24	200 W	240 °C	2	75	97 ± 2	2,7 ± 0,15	14,2 ± 0,2

PTC HEATERS WITH ALUMINIUM PROFILE, HP02 RANGE

The HP series features a compact design and high power density. The flat aluminium hosing can be easily installed and ensures optimum heat transfer. The ready-to-use heating element can be fixed using fixing holes on the profiles (e.g. drilled or punched mounting holes).

General characteristics

- Combination of heating and control in one element.
- Automatic control function.
- Protection: Class II (3750 V - 1 min)
- Virtually constant power input within a wide range of voltage: 100 - 240 V.
- Safety and longterm stability by self-regulating effect.



Code	Max. power	Reference temperature PTC	Nº PTC
HP02-4/06	110 W	60 °C	4
HP02-4/12	210 W	120 °C	4
HP02-4/18	150 W	180 °C	4
HP02-4/23	180 W	230 °C	4
HP02-4/27	275 W	270 °C	4

Santiago Escoin Homs.
Apartado / P.Q. Box / B.P. / Potsfach / Postbus: 10.142
E-08080-Barcelona-Spain.

Tels: 934290345-626150219-609301969. Fax: 933570049
emails: santiescoin@gmail.com - santiagoescoin@gmail.com
santiescoin@seker.es
web: www.santiescoin.com