CERmaJump™

Ceramic surface mount thermal jumpers

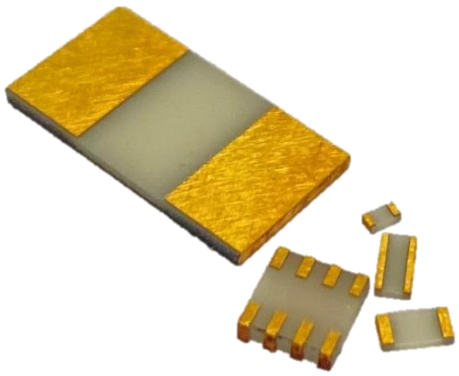
Abstract

Elevate the thermal potential of your signal layers! Spread heat from or transfer a cold stream to your component using a thermal path with your signal layer combined with surface mount jumpers.

Our ***CER****maJump*™ electrically isolated thermal bridges feature a highly thermally conductive ceramic core made from Aluminum Nitride (>170 W/mK) with minimal capacitance.

The copper terminals are finished with a nickel gold layer to ensure easy solderability and resistance to oxidation.

We can supply custom sizes & footprints upon request.



Typical applications

- High power LED and laser modules
- Power electronics
- High density circuits

Typical Characteristics

Part Number	Footprint	Thermal Resistance (*)	Thermal Conductivity (*)	Capacity (*)	Material
CEXH-R2/XA-0603-01	0603	30.95	32.31	0.0	Core: Aluminum nitride (>170 W/mK) Terminals: Nickel-gold over copper
CEXH-R2/XA-0612-01	0612	7.74	129.2	0.0	
CEXH-R2/XA-1206-01	1206	30.96	32.3	0.0	
CDXH-R8/FA-SOIC8-01	SOIC8	11.38	87.83	0.0	
CEXH-R2/XA-5930-01	5930	6.35	157.48	0.0	

(*) Calculated values based on typical specification. Actual measurements may vary.

Thermal resistance: C/W

Thermal conductivity: mW/C

Capacity: nF

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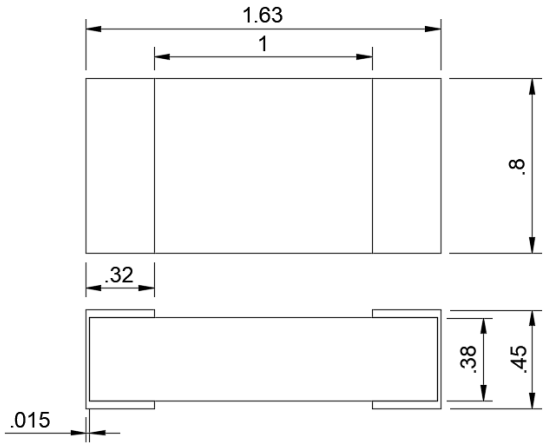
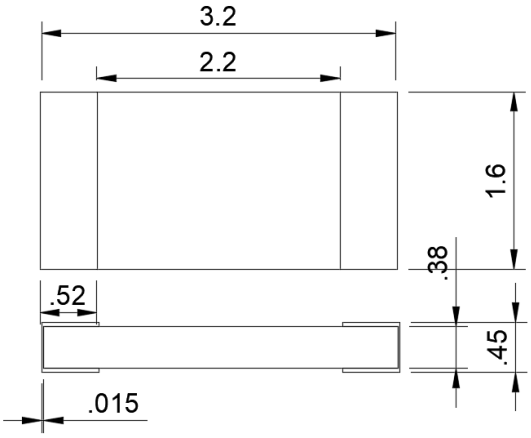
Physical Data

Dimensional tolerances: Length x Width +/- 0.1mm – Thickness +/- 0.1mm

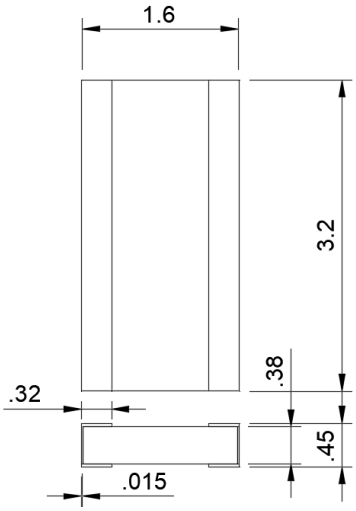
CEXH-R2/XA-0603-01- *0603*



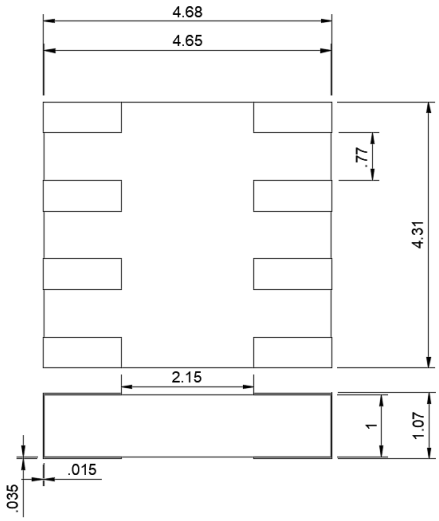
CEXH-R2/XA-1206-01– *1206*



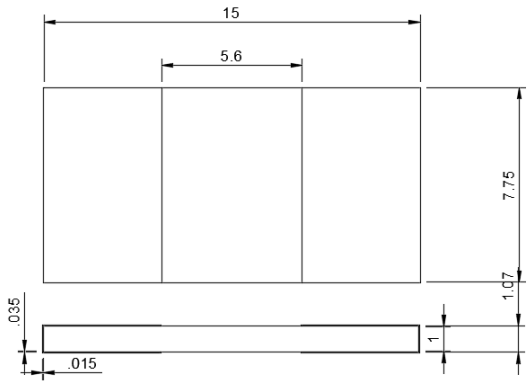
CEXH-R2/XA-0612-01– *0612*



CDXH-R8/FA-SOIC8-01– *SOIC8-01*



CEXH-R2/XA-5930-01– *5930*



Installation and packaging

- Easy solderable
- Individual & custom packaging
- Tape & reel on request

Demonstrator

Intro

In this demonstrator we will illustrate the effectiveness of our ***CER**maJump*^{TM} surface mount thermal jumpers.

These tests are done on a 1.6mm FR4 PCB with a 1oz Copper signal layer using a 22 Ohm resistor and 3 zones illustrating different ground planes having an area of 19,8mm * 60mm surface.

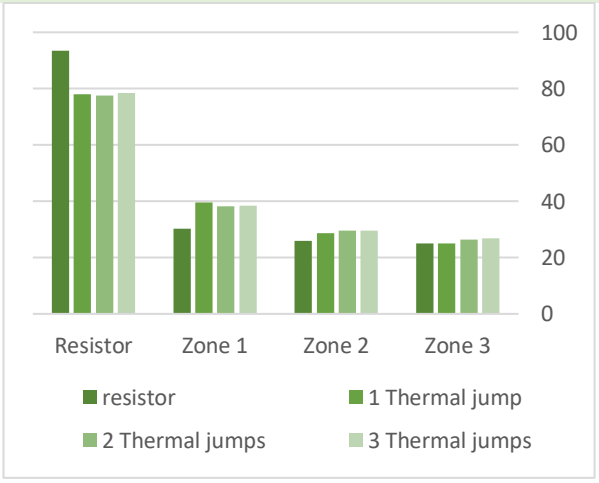
We measured the equilibrium temperature on each zone in 4 instances, with zero, one, two and three thermal jumpers connecting the different zones from left to right.

The resistor had 0.66W power flowing through it and all measurements were taken with TP-202 thermal couples and Artic silver 5 thermal paste to make the heat transfer more efficient.

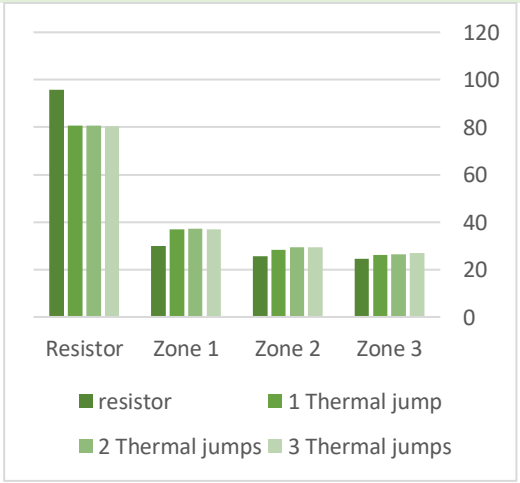
Results

The temperatures below are measured in degrees Celsius.

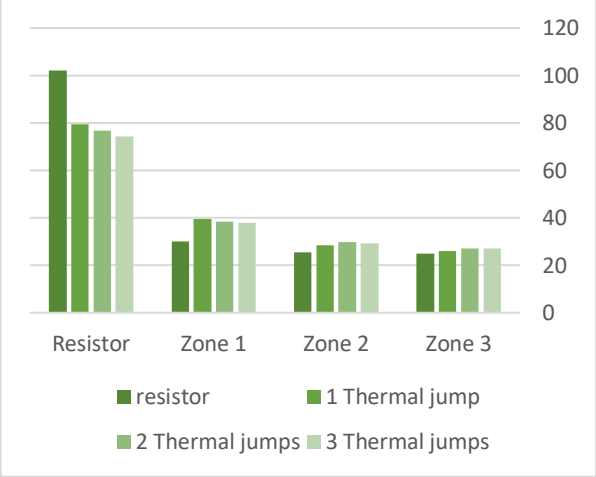
CEXH-R2/XA-0603-01- *0603*



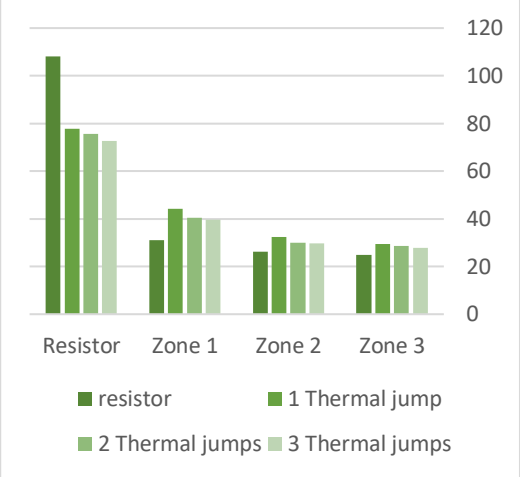
CEXH-R2/XA-1206-01- *1206*



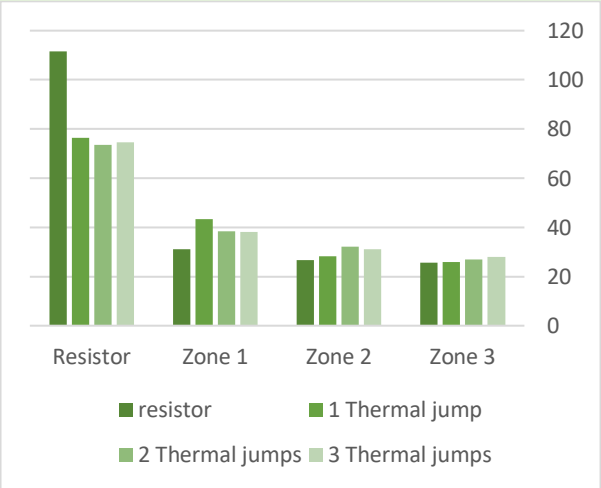
CEXH-R2/XA-0612-01- *0612*



CDXH-R8/FA-SOIC8-01- *SOIC8*



CEXH-R2/XA-5930-01- *5930*



Conclusion

The results show CERmaJump™ thermal jumpers reduce are working well, reducing the temperature at the resistor by as much as 28~% (CDXH-R8/FA-SOIC8-01).

We observed that the CEXH-R2/XA-5930-01 thermal jumper is overperformed Its calculated outcome, this is most likely because the large thermal jumper is acting like a small heatsink.

We also noticed that having multiple ‘jumps’ with large copper planes in between has a lower effect.

In general, our demonstrator shows the CERmaJump™ thermal jumpers are behaving as expected reducing the resistor significantly by thermally connecting larger copper surface areas making it an excellent low-cost solution for components that cannot be connected directly to ground planes or heatsinks.

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