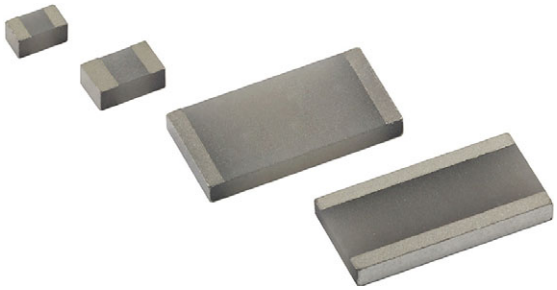
ThermaWick® Thermal Jumper Surface Mount Chip

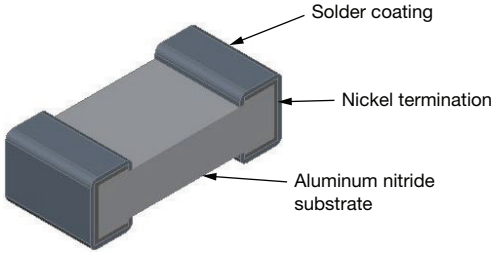


LINKS TO ADDITIONAL RESOURCES

3D Models | Product Page | Infographics | Videos | Packages | Footprints | Order Samples

THJP surface-mount chips are designed to provide an electrically isolated thermal conductive pathway to a ground plane or heat sink while maintaining the electrical isolation of the device. The devices are constructed with aluminum nitride substrates in both SnPb and Pb-free wraparound termination styles. The low capacitance of the device makes them an excellent choice for high frequency and thermal ladder applications. Custom sizes available.

CONSTRUCTION



ATTENTION!
Observe Precautions for
Handling Electrostatic Sensitive Devices!

FEATURES

- Electrically isolated thermal conductor
- High thermal conductivity AlN substrate (170 W/mK)
- Electrically isolated terminations (> 999 MΩ)
- Low capacitance
- Available with SnPb or lead (Pb)-free wrap terminations
- AEC-Q200 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free Available

RoHS* Available

HALOGEN FREE GREEN (5-2008) Available

APPLICATIONS

- Power supplies and converters
- RF amplifiers
- Synthesizers
- Switch mode power supplies
- Pin and laser diodes
- Filters

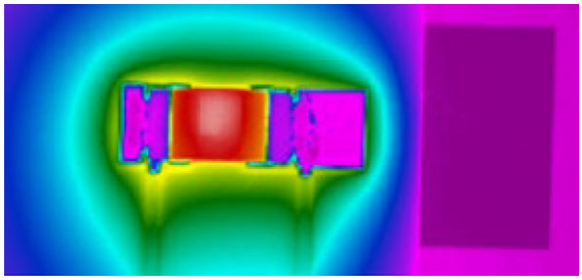
FUNCTIONAL APPLICATIONS / CONNECTION OPTIONS

- Component to heat sink
- Component to case
- Component to ground plane
- Pad to pad
- Pad to via
- Pad to trace

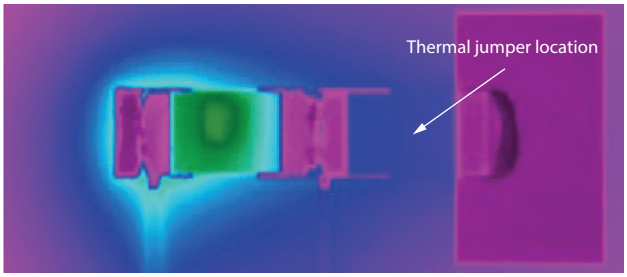
HEAT TRANSFER DEMONSTRATION

Chip surface temperature was measured using a FLIR SC645 thermal imaging system under ambient conditions. The devices were mounted to an FR4 test card designed with a 25 mm x 19 mm copper heat sink. Power was supplied to device to cause the surface temperature to stabilize at 150 °C. The device was then retested at the same power level with the thermal jumper connecting the device to the heat sink.

Example THJP 1206 Thermal Jumper Showing 54.3 °C Surface Temperature Reduction



Ceramic Resistor Chip Without Thermal Jumper (149.8 °C)



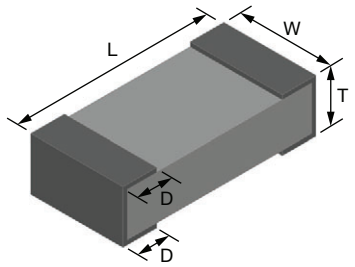
Ceramic Chip Resistor With Thermal Jumper (95.5 °C)

For technical questions, contact: thinfilm@vishay.com

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DIMENSIONS in inches



CASE SIZE	L	W	T	D	WEIGHT (g)
0603	0.061 ± 0.005	0.033 ± 0.005	0.030 ± 0.005	0.015 ± 0.005	0.003
0612	0.063 ± 0.005	0.126 ± 0.005	0.030 ± 0.005	0.015 ± 0.005	0.013
0805	0.079 ± 0.005	0.047 ± 0.005	0.030 ± 0.005	0.020 ± 0.005	0.006
1206	0.126 ± 0.005	0.063 ± 0.005	0.030 ± 0.005	0.020 ± 0.005	0.013
1225	0.126 ± 0.005	0.252 ± 0.005	0.030 ± 0.005	0.020 ± 0.005	0.052
2512	0.252 ± 0.005	0.126 ± 0.005	0.030 ± 0.005	0.020 ± 0.005	0.052

TYPICAL CHARACTERISTICS

CASE SIZE	0603	0612	0805	1206	1225	2512
Thermal resistance (°C/W), T_R	14	4	13	15	4	15
Thermal conductance (mW/°C), T_C	70	259	77	65	259	65
Capacitance (pF)	0.07	0.26	0.15	0.07	0.26	0.07
Dielectric withstanding voltage kV_{AC}, RMS (60 Hz)	> 1.5	> 1.5	> 1.5	> 2.5	> 1.5	> 3.5

Note

- $T_R = \frac{L}{k\ (T \bullet W)}$

  where k is the thermal conductivity of AIN, 170 W/mK

  $T_C = \frac{1}{T_R}$

STANDARD ELECTRICAL SPECIFICATIONS

TEST	SPECIFICATIONS
Operating temperature range	-65 °C to +150 °C
Storage temperature range	-65 °C to +150 °C

STANDARD MATERIAL SPECIFICATIONS

Substrate material	Aluminum nitride (170 W/mK)
Termination (tin / lead)	Electroplate tin / lead over electroplate nickel
Termination (lead (Pb)-free)	Electroplate tin (e3) over electroplate nickel

ENVIRONMENTAL TESTS (Vishay Performance vs. MIL-PRF-55342 / AEC-Q200 Requirements)

ENVIRONMENTAL TEST		CONDITIONS	LIMITS	TYPICAL VISHAY PERFORMANCE
Solderability	Visual	J-STD-002, method B and B1	95 %	Acceptable
Solder mounting integrity	Visual	MIL-PRF-55342, method par. 4.8.13.1	Pass / fail	Pass
Board flex	Visual	AEC-Q200, method 005	Pass / fail	Pass

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GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: THJP1206AST1

T	H	J	P	1	2	0	6	A	S	T	1

GLOBAL MODEL	CASE SIZE	THICKNESS	TERMINATION	PACKAGING
THJP	**0603** **0805** **0612** **1206** **1225** **2512**	**A** = 0.030"	**B** = wraparound Sn/Pb solder with nickel termination **S** = wraparound Sn (e3) solder with nickel termination RoHS compliant	**BS** = BULK 100 min., 1 mult. TAPE AND REEL **T0** = 100 min., 100 mult. **T1** = 1000 min., 1000 mult. **T3** = 300 min., 300 mult. **T5** = 500 min., 500 mult. **TF** = full reel **TS** = 100 min., 1 mult. **TI** = 100 min., 1 mult. (item single lot date code) **TP** = 100 min., 1 mult. (package unit single lot date code)

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