RoHS

HALOGEN FREE

GREEN

(5-2008)

Vishay Dale Thin Film

ThermaWickTM Thermal Jumper Surface Mount Chip



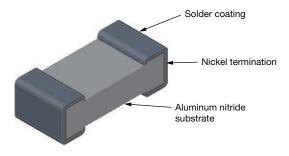
LINKS TO ADDITIONAL RESOURCES





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



FEATURES

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

APPLICATIONS

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

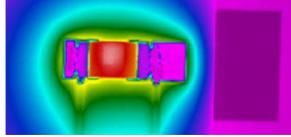
FUNCTIONAL APPLICATIONS / CONNECTION OPTIONS

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

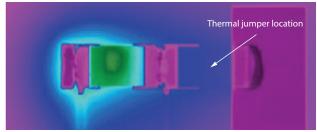
HEAT TRANSFER DEMONSTRATION

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 36 % Surface Temperature Reduction



Ceramic Resistor Chip Without Thermal Jumper (149.8 °C)

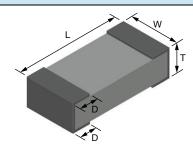


Ceramic Chip Resistor With Thermal Jumper (95.5 °C)

Revision: 18-Mar-2021 **1** Document Number: 60157 For technical questions, contact: thinfilm@vishay.com

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DIMENSIONS in inches



CASE SIZE	L	W	Т	D
0603	0.061 ± 0.005	0.033 ± 0.005	0.030 ± 0.005	0.015 ± 0.005
0612	0.063 ± 0.005	0.126 ± 0.005	0.030 ± 0.005	0.015 ± 0.005
0805	0.079 ± 0.005	0.047 ± 0.005	0.030 ± 0.005	0.020 ± 0.005
1206	0.126 ± 0.005	0.063 ± 0.005	0.030 ± 0.005	0.020 ± 0.005
1225	0.126 ± 0.005	0.252 ± 0.005	0.030 ± 0.005	0.020 ± 0.005
2512	0.252 ± 0.005	0.126 ± 0.005	0.030 ± 0.005	0.020 ± 0.005

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	> 1.5	> 1.5	> 1.5

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		
ТНЈР	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 	PACKAGING BS = BULK 100 min., 1 mult. TAPE AND REEL T0 = 100 min., 1000 mult. T1 = 1000 min., 1000 mult. T5 = 500 min., 300 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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