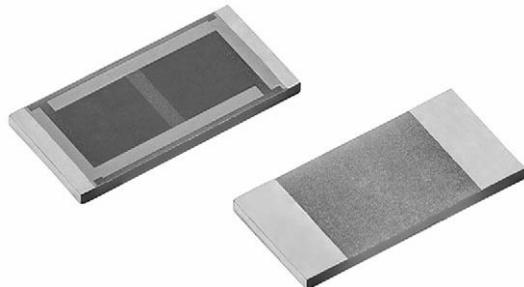


High Power Aluminum Nitride, Wraparound Surface Mount, Precision Thin Film Non-Magnetic Chip Resistor (up to 6 W)



PCNM series chip resistors are designed on aluminum nitride ceramic substrates with enlarged backside terminations to reduce the thermal resistance between the topside resistor layer and the solder joint on the end users circuit assembly.

Actual power handling capability is limited by the end user mounting process. As with any high power chip resistor the ability to remove the heat is critical to the overall performance of the device.

FEATURES

- High thermal conductivity aluminum nitride substrate
- Power rating up to 6.0 W
- Resistance range 2 Ω to 30.1 k Ω
- Resistor tolerance to $\pm 0.1\%$
- TCR to ± 25 ppm/ $^{\circ}$ C
- Flame resistant UL 94 V-0

APPLICATIONS

- Power supplies
- Power switching
- Braking system

TYPICAL PERFORMANCE

	ABSOLUTE
TCR	25
TOL.	0.1

STANDARD ELECTRICAL SPECIFICATIONS

TEST	SPECIFICATIONS	CONDITIONS
Material	Nichrome	-
Resistance Range	2 Ω to 30.1 k Ω	-
TCR: Absolute	25 ppm/ $^{\circ}$ C (standard) and 100 ppm/ $^{\circ}$ C	-
Tolerance: Absolute	0.1 %, 0.25 %, 0.5 %, 1.0 % and 5.0 %	-55 $^{\circ}$ C to +150 $^{\circ}$ C
Power Rating: Resistor	0.5 W to 6.0 W ⁽¹⁾	Maximum at +70 $^{\circ}$ C
Stability: Absolute	ΔR 1.0 %	1000 h at +70 $^{\circ}$ C
Voltage Coefficient	< 0.1 ppm/V	-
Working Voltage	75 V to 200 V	-
Operating Temperature Range	-55 $^{\circ}$ C to +155 $^{\circ}$ C	-
Storage Temperature Range	-55 $^{\circ}$ C to +155 $^{\circ}$ C	-
Noise	< -30 dB	-
Shelf Life Stability: Absolute	$\pm 0.01\%$	1 year at +25 $^{\circ}$ C

Note

⁽¹⁾ Dependant on component mounting by user.

COMPONENT RATINGS

CASE SIZE	POWER RATING (mW)	WORKING VOLTAGE (V)	RESISTANCE RANGE (Ω)
1206	2000 ⁽²⁾	200	2 to 30.1K
2512	6000 ⁽²⁾	200	2 to 30.1K

Notes

• 0603 and 0805 case size under engineering qualification.

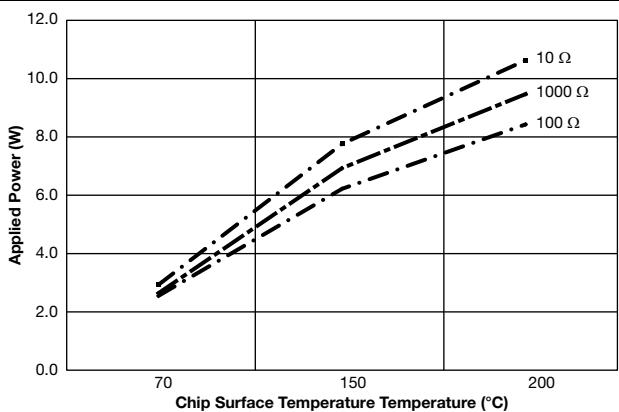
⁽²⁾ Dependant on component mounting by user.

ENVIRONMENTAL TESTS		
ENVIRONMENTAL TEST	LIMITS MIL-PRF-55342 CHARACTERISTIC "H"	TYPICAL VISHAY PERFORMANCE
Resistance temperature characteristic	± 50 ppm/ $^{\circ}\text{C}$	± 25 ppm/ $^{\circ}\text{C}$
Maximum ambient temperature at rated wattage	+70 $^{\circ}\text{C}$	+70 $^{\circ}\text{C}$
Maximum ambient temperature at power derating	+150 $^{\circ}\text{C}$	+150 $^{\circ}\text{C}$
Thermal shock	± 0.25 %	± 0.10 %
Low temperature operation	± 0.25 %	± 0.10 %
Short time overload	± 0.1 %	± 0.10 %
High temperature exposure	± 0.2 %	± 0.10 %
Resistance to soldering heat	± 0.25 %	± 0.10 %
Moisture resistance	± 0.4 %	± 0.50 %
Life at +70 $^{\circ}\text{C}$ for 1000 h	± 0.5 %	± 1.00 %

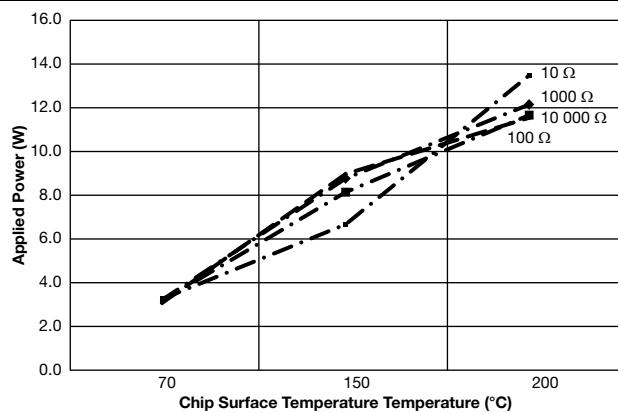
DIMENSIONS in inches					
CASE SIZE	LENGTH L	WIDTH W	THICKNESS T MIN./MAX.	TOP PAD D	BOTTOM PAD E
1206	0.126 \pm 0.008	0.063 \pm 0.005	0.015 \pm 0.003	0.020 + 0.005 / - 0.010	0.040 \pm 0.005
2512	0.259 + 0.009 / - 0.015	0.124 \pm 0.005	0.015 \pm 0.003	0.020 \pm 0.005	0.050 \pm 0.005

LAND PATTERN DIMENSIONS in inches					
1206 Land Pattern			2512 Land Pattern		
0.1730	0.0710	0.0755	0.2910	0.1260	0.0910
0.0220			0.1090		

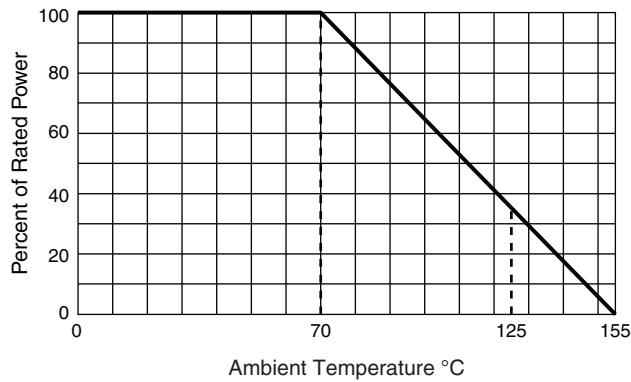
STANDARD MATERIAL SPECIFICATIONS	
Resistive element	Nichrome
Substrate material	Aluminum nitride
Terminations (tin / lead)	Tin / lead solder over nickel barrier
Terminations (lead (Pb)-free)	Tin / silver / copper (Sn96.5 / Ag3.0 / Cu0.5) solder over nickel barrier

PCAN1206 CHIP TEMP VS. APPLIED POWER

Note

- Chip surface temperature measured using FLIR SC645 thermal imaging system with an approximate test card surface temperature of 75 °C.

PCNM2512 CHIP TEMP VS. APPLIED POWER

Note

- Chip surface temperature measured using FLIR SC645 thermal imaging system with an approximate test card surface temperature of 75 °C.

DERATING CURVE


GLOBAL PART NUMBER INFORMATION													
New Global Part Numbering: PCNM1206H1000BBT1													
P	C	N	M	1	2	0	6	H	1	0	0	B	B
GLOBAL MODEL		CASE SIZE		TCR CHARACTERISTIC		RESISTANCE		TOLERANCE		TERMINATION		PACKAGING	
PCNM		1206		2512		E = \pm 25 ppm/ $^{\circ}$ C		The first 3 digits are significant figures and the last digit specifies the number of zeros to follow.		B = \pm 0.1 % (2)		BS = BULK	
				H = \pm 50 ppm/ $^{\circ}$ C		"R" designates the decimal point.		C = \pm 0.25 %		100 min., 1 mult		WS = WAFFLE	
				K = \pm 100 ppm/ $^{\circ}$ C (1)				D = \pm 0.5 %		100 min., 1 mult		WO = 100 pc min. waffle, 1 mult	
								F = \pm 1.0 % (1)		WI = 100 min., 1 mult		(package unit single lot date code)	
								G = \pm 2.0 %					

Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Vishay:

[PCNM1206E1002BST5](#) [PCNM1206E75R0BST5](#) [PCNM1206E2002BST5](#) [PCNM1206K7R50FST5](#)
[PCNM1206K3R00FST5](#) [PCNM2512E1001BST5](#) [PCNM2512E49R9BST5](#) [PCNM1206K4R70FST5](#)
[PCNM2512K2R00FST5](#) [PCNM2512K8R20FST5](#) [PCNM2512E3012BST5](#) [PCNM1206E10R0BST5](#)
[PCNM2512E1502BST5](#) [PCNM2512E10R0BST5](#) [PCNM1206K8R20FST5](#) [PCNM2512E1000BST5](#)
[PCNM2512K4R70FST5](#) [PCNM1206E3012BST5](#) [PCNM1206E49R9BST5](#) [PCNM2512E2501BST5](#)
[PCNM1206K2R00FST5](#) [PCNM1206E1001BST5](#) [PCNM2512K3R00FST5](#) [PCNM2512K7R50FST5](#)
[PCNM1206E1000BST5](#) [PCNM2512E2002BST5](#) [PCNM2512E75R0BST5](#)