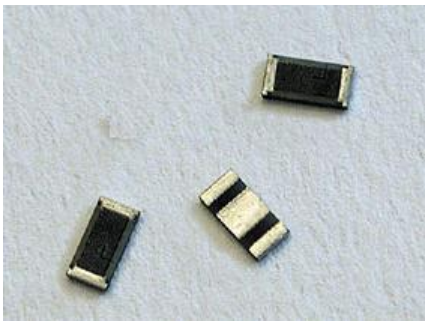
THICK FILM CHIP HIGH POWER CHIP RESISTORS and TERMINATIONS on AlN, 5W to 640W
NN0402, NN0505, NN0603, NN0805, NN1005 NN1206, NN2010, NN2512, NN2525, NN3725



Features and Applications

The NN thick film high power chip resistors and chip terminations on aluminum nitride (AlN) are ideal for most applications requiring high thermal conductivity in a small size package. AlN is an ideal replacement for BeO with it's high power dissipation and no environmental or health hazards. Thick film technology provides a stable resistive element at a very affordable price.

Applications include microwave termination, industrial measurement, control electronics and automatic test equipment.

Dimensional Specifications (mm)

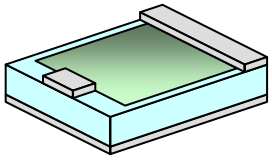
p/n	Length	Width	Height Option 'C'	Height Option 'D'	Height Option 'G'	Height Option 'T'	Termination style availability
NN0402	1.02	0.51"	0.38" Max	0.51" Max	0.89" Max	N/A	WA, SS, SB, SG, PW
NN0505	1.27"	1.27"	0.38" Max	N/A	N/A	N/A	WA, SS, SB, SG, PW
NN0603	1.52"	0.76"	0.38" Max	0.51" Max	0.89" Max	N/A	WA, SS, SB, SG, PW
NN0805	2.03"	1.27"	0.38" Max	0.51" Max	0.89" Max	N/A	WA, SS, SB, SG, CS, EW, PW
NN1005	2.54"	1.27"	N/A	0.51" Max	0.89" Max	N/A	WA, SS, SB, SG, CS, EW, DE
NN1206	3.2"	1.6"	N/A	0.51" Max	0.89" Max	N/A	WA, SS, SB, SG, CS, EW, DE
NN2010	5"	2.49"	N/A	0.51" Max	0.89" Max	1.27" Max	WA, SS, SB, SG, SZG, CS, EW, EZW, DE
NN2512	6.35"	3.05"	N/A	0.51" Max	0.89" Max	1.27" Max	WA, SS, SB, SG, SZG, CS, EW, EZW, DE
NN2525	6.35"	6.35"	N/A	N/A	0.89" Max	1.27" Max	WA, SS, SB, SG, SZG, CS, EW, EZW, DE
NN3725	9.53"	6.35"	N/A	N/A	0.89" Max	1.27" Max	WA, SS, SB, SG, SZG, CS, EW, EZW, DE

Ordering Information

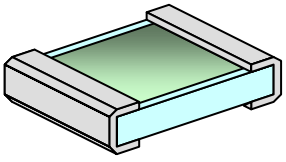
P/N	Base plate thickness	Termination Material (*1)	Trim Method	Termination Style	Resistance Ω	Resistance Tolerance(%)	RoHS & Packaging
NN0402	C (0.254)	3	S(Scrub cut)	WA	10 ohm	G(±2%)	Z00(Bulk)
NN0402	C (0.254)	3	Blank(normal)	SS	10~1M ohm	J(±5%)	
NN0505	D (0.381)	8	S (Scrub cut)	WA			
NN0603	G (0.635)	7					
NN0805	T (1.016)	P					
NN1005		R					
NN1206							
NN2010							
NN2512							
NN2525							
NN3725							

(*1) Terminal Material:
3 - PtAg for epoxy or solder joint.
8 - ULR PtAg for epoxy or solder joint
7 - Au over PtAu for bonding
P - PtAg with Sn96 solder joint
R - ULR PtAg withSn96 solder joint

Terminal Style



SG
Single wrap with ground plane,
various additional styles are available



WA
Full wraparound

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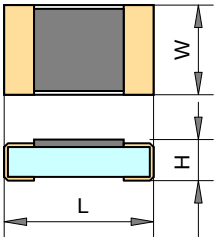
THICK FILM CHIP HIGH POWER CHIP RESISTORS and TERMINATIONS
NN0402, NN0505, NN0603, NN0805, NN1005
NN1206, NN2010, NN2512, NN2525, NN3725

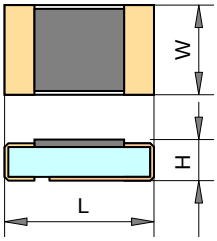
Wattage Performance

Thickness(mm)	0.254			0.381			0.635			1.016		
Base-plate temp	50ºC	70ºC	100ºC	50ºC	70ºC	100ºC	50ºC	70ºC	100ºC	50ºC	70ºC	100ºC
NN0402	13W	11W	7.1W	8.8W	7.3W	4.7W	N/A	N/A	N/A	N/A	N/A	N/A
NN0505	45W	37W	24W	30W	25W	16W	20W	16W	10W	N/A	N/A	N/A
NN0603	24W	20W	13W	16W	13W	8.7W	9.5W	7.7W	5.2W	N/A	N/A	N/A
NN0805	75W	55W	37W	50W	37W	25W	30W	25W	16W	N/A	N/A	N/A
NN1005	N/A	N/A	N/A	60W	48W	30W	40W	30W	20W	N/A	N/A	N/A
NN1206	N/A	N/A	N/A	105W	85W	55W	70W	55W	35W	N/A	N/A	N/A
NN2010	N/A	N/A	N/A	150W	120W	75W	90W	75W	48W	60W	48W	30W
NN2512	N/A	N/A	N/A	200W	150W	100W	120W	100W	60W	70W	60W	38W
NN2525	N/A	N/A	N/A	400W	300W	200W	240W	190W	120W	150W	120W	75W
NN3725	N/A	N/A	N/A	640W	500W	340W	380W	310W	250W	250W	200W	125W

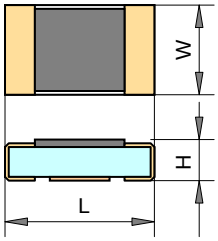
Dimensional Outline



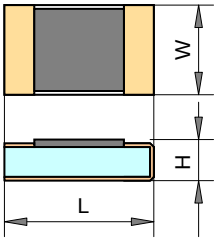
WA style



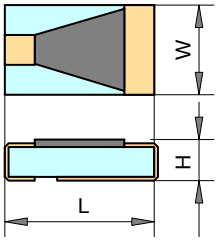
EW style



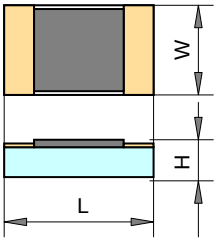
CS style



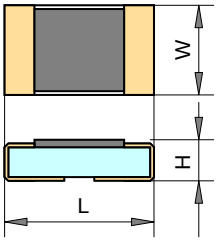
SG style



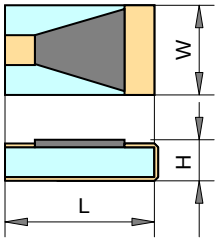
EZW style



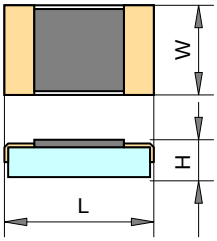
SS style
SB with
back plane



DE style



SZE style



PW style
0805 and
smaller

Remarks

A Word About Thermal Management

Tests of aluminum nitride “SG” 50Ω terminations demonstrate the above power capacities, assuming a thermally conductive application where the steady-state base plate temperature of the chip is maintained at or below the values identified in the above table and the maximum film temperature did not exceed 150°C. The data also shows that the ratio of temperature rise versus power applied increases with increasing chip size (for a given thickness) so the above criteria should be carefully considered when operating larger chips. As with any application, actual performance of these chips will depend on a host of circuit dependent parameters.

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