

NCN-P Series

Wire-wound Ferrite Chip Power Inductor



FEATURES

- FERRITE CORE, WIRE WOUND CHIP INDUCTOR
- SIZES C (1008) and A (1210)
- HIGH CURRENT AND LOW DCR
- REFLOW SOLDERING APPLICABLE
- TAPE & REEL PACKAGING FOR AUTOMATIC PICK-PLACE

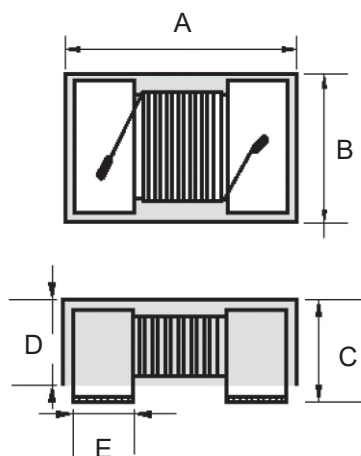
CHARACTERISTICS

Case Size	NCN-PC	NCN-PA
Inductance Range	1.0 μ H ~ 33 μ H	1.0 μ H ~ 330 μ H
Temperature Range	-40°C ~ +125°C (Ambient + Self Heating)	
Temperature Rise at Irms	+40°C max.	
Q & SRF	See Specifications Tables	
Inductance Tolerance	$\pm 10\%$ (K), $\pm 20\%$ (M)	
Resistance to Solder Heat	260°C for 10 seconds	



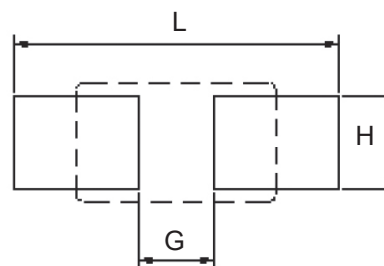
DIMENSIONS (mm)

Case Size	A	B	C	D	E
NCN-PC	2.5 $\pm$ 0.3	2.0 $\pm$ 0.3	1.8 $\pm$ 0.1	1.5 $\pm$ 0.1	0.45 ref.
NCN-PA	3.2 $\pm$ 0.3	2.5 $\pm$ 0.3	2.2 $\pm$ 0.2	1.8 $\pm$ 0.1	0.55 ref.



LAND PATTERN DIMENSIONS (mm)

Case Size	L	H	G
NCN-PC	3.5	1.5	1.5
NCN-PA	4.4	2.0	2.0



PART NUMBER SYSTEM

NCN-P C 150 M TR 175 F

Series | Size Code (see dimensions table for details) | Inductance Code (μ H): 1st two digits are significant, 3rd digit is multiplier. | Inductance Tolerance Code: K = $\pm 10\%$, M = $\pm 20\%$ | Packaging: TR = Tape & Reel | IDC Rating | F = RoHS Compliant

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Part Number	Standard Values - NCN-PC Size (2.5 x 2.0x 1.8mm)						
	Inductance Value (μH) @ 1MHz	Value Tolerance	DC Resistance (Ω) ±30%	DC Current (mA max)	Q (ref)	SRF (MHz ref.)	Test Freq. L/Q (MHz)
NCN-PC1R0_TR475F	1.0	K, M	0.14	1000	20	300	7.96
NCN-PC1R5_TR435F	1.5	K, M	0.18	890	20	250	7.96
NCN-PC2R2_TR390F	2.2	K, M	0.27	730	20	200	7.96
NCN-PC3R3_TR340F	3.3	K, M	0.44	570	20	100	7.96
NCN-PC4R7_TR285F	4.7	K, M	0.57	500	20	60	7.96
NCN-PC6R8_TR275F	6.8	K, M	0.92	390	20	55	7.96
NCN-PC100_TR210F	10	K, M	1.69	360	15	40	2.52
NCN-PC150_TR175F	15	K, M	2.20	250	20	35	2.52
NCN-PC220_TR160F	22	K, M	2.80	200	20	20	2.52
NCN-PC330_TR120F	33	K, M	4.20	150	20	18	2.52

IDC 1: $\Delta L \leq 10\%$ $\Delta T \leq 20^\circ\text{C}$, IDC 2: $\Delta L \leq 30\%$ $\Delta T \leq 40^\circ\text{C}$

Part Number	Standard Values - NCN-PA Size (3.2 x 2.5 x 2.2mm)						
	Inductance Value (μH) @ 1MHz	Value Tolerance	DC Resistance (Ω) ±30%	DC Current (mA max)	Q (ref)	SRF (MHz ref.)	Test Freq. L/Q (MHz)
NCN-PA1R0MTR1000F	1.0	M	0.055	1700	15	300	7.96
NCN-PA1R5MTR830F	1.5	M	0.095	1400	15	200	7.96
NCN-PA2R2MTR770F	2.2	M	0.115	1200	15	100	7.96
NCN-PA3R3MTR690F	3.3	M	0.16	1000	15	80	7.96
NCN-PA4R7MTR620F	4.7	M	0.20	900	15	70	7.96
NCN-PA6R8MTR530F	6.8	M	0.27	700	15	38	7.96
NCN-PA100KTR450F	10	K	0.36	600	15	30	2.52
NCN-PA150KTR390F	15	K	0.56	500	15	26	2.52
NCN-PA220KTR300F	22	K	0.77	400	15	21	2.52
NCN-PA330KTR240F	33	K	1.10	350	15	17	2.52
NCN-PA470KTR180F	47	K	1.64	250	15	14	2.52
NCN-PA680KTR140F	68	K	2.80	200	15	12	2.52
NCN-PA101KTR120F	100	K	3.70	150	20	10	7.96
NCN-PA151KTR100F	150	K	6.10	125	20	8	7.96
NCN-PA221KTR80F	220	K	8.40	100	20	7	7.96
NCN-PA331KTR70F	330	K	12.3	90	20	6	7.96

IDC 1: $\Delta L \leq 10\%$ $\Delta T \leq 20^\circ\text{C}$, IDC 2: $\Delta L \leq 30\%$ $\Delta T \leq 40^\circ\text{C}$

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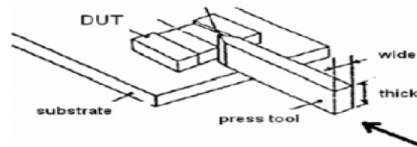


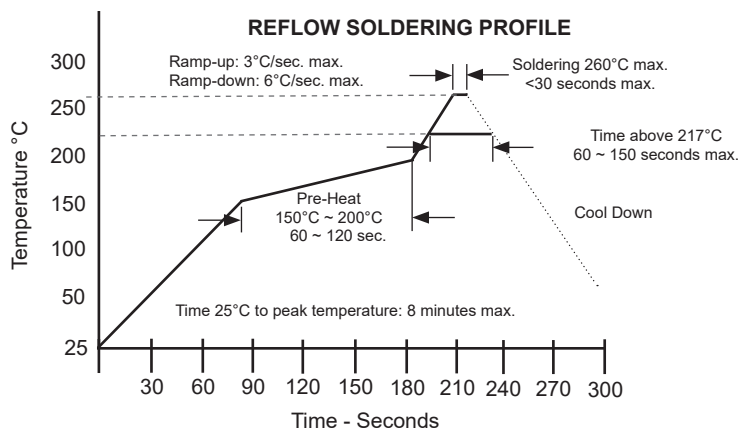
ENVIRONMENTAL CHARACTERISTICS

Item	Performance	Test Condition														
Life Test	Appearance: No damage. Inductance: within±10% of initial value Q: Shall not exceed the specification value. RDC: within ±15% of initial value and shall not exceed the specification value	Preconditioning: Run through IR reflow 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles) Temperature: 125±2°C Applied current: rated current Duration: 1000 ± 12hrs Measured at room temperature after placing for 24 hrs.														
Load Humidity		Preconditioning: Run through IR reflow for 3times. (IPC/JEDECJ-STD-020E Classification Reflow Profiles) Humidity: 85±2%R.H, Temperature: 85°C±3°C Duration: 1000hrs Min. Bead:with 100% rated current, Inductance: with 10% rated current Measured at room temperature after placing for 24±2 hrs.														
Moisture Resistance		Preconditioning: Run through IR reflow 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles) 1. Baked at 50°C for 25hrs, measured at room temperature after placing for 4 hrs. 2. Raise temperature to 65±2°C 90-100%RH in 2.5hrs, and keep 3 hours, cool down to 25°C in 2.5hrs. 3. Raise temperature to 65±2°C 90-100%RH in 2.5hrs, and keep 3 hours, cool down to 25°C in 2.5hrs, keep at 25°C for 2 hrs then keep at -10°C for 3 hrs. 4. Keep at 25 °C 80-100%RH for 15min and vibrate at the frequency of 10 to 55 Hz to 10 Hz, measure at room temperature after placing for 1~2 hrs.														
Thermal Shock		Preconditioning: Run through IR reflow 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles) Reflow Profiles Condition for 1 cycle Step1:-40±2°C 30±5min Step2:125±2°C <=0.5min Step3:125±2°C 30±5min Number of cycles: 500 Measured at room temperature after placing for 24±2 hrs.														
Vibration		Preconditioning: Run through IR reflow for 3 times. (IPC/JEDECJ-STD-020E Classification Reflow Profiles) Oscillation Frequency: 10Hz~2KHz~10Hz for 20 minutes Equipment: Vibration checker Total Amplitude: 10g Testing Time : 12 hours(20 minutes, 12 cycles each of 3 orientations).														
Bending		Shall be mounted on a FR4 substrate of the following dimensions: >=0805 inch(2012mm):40x100x1.2mm <0805 inch(2012mm):40x100x0.8mm Bending depth: >=0805 inch(2012mm):1.2mm <0805 inch(2012mm):0.8mm duration of 10 sec.														
Shock		<table><tr><td>Type</td><td>Peak value (g's)</td><td>Normal duration (D) (ms)</td><td>Wave form</td><td>Velocity change (V)ft/sec</td></tr><tr><td>SMD</td><td>50</td><td>11</td><td>Half-sine</td><td>11.3</td></tr><tr><td>Lead</td><td>50</td><td>11</td><td>Half-sine</td><td>11.3</td></tr></table> 3 Shocks in each direction along 3 perpendicular axes. (18 shocks)	Type	Peak value (g's)	Normal duration (D) (ms)	Wave form	Velocity change (V)ft/sec	SMD	50	11	Half-sine	11.3	Lead	50	11	Half-sine
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SMD	50	11	Half-sine	11.3												
Lead	50	11	Half-sine	11.3												

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ENVIRONMENTAL CHARACTERISTICS

Item	Performance	Test Condition								
Resistance to Soldering Heat		Depth: completely cover the termination <table><tr><th>Temperature(°C)</th><th>Time(s)</th><th>Temperature ramp/immersion and emersion rate</th><th>Number of heat cycles</th></tr><tr><td>260 ±5 (solder temp)</td><td>10 ±1</td><td>25mm/s ±6 mm/s</td><td>1</td></tr></table>	Temperature(°C)	Time(s)	Temperature ramp/immersion and emersion rate	Number of heat cycles	260 ±5 (solder temp)	10 ±1	25mm/s ±6 mm/s	1
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260 ±5 (solder temp)	10 ±1	25mm/s ±6 mm/s	1							
Terminal Strength	Appearance: No damage. Inductance: within±10% of initial value Q: Shall not exceed the specification value. RDC: within ±15% of initial value and shall not exceed the specification value	Preconditioning: Run through IR reflow 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles) With the component mounted on a PCB with the device to betested, apply a force(>0805:1kg , <=0805:0.3kg)to the side of a device being tested. This force shall be applied for 60 +1 seconds. Also the force shall be applied gradually as not to apply a shock to the component being tested. 								

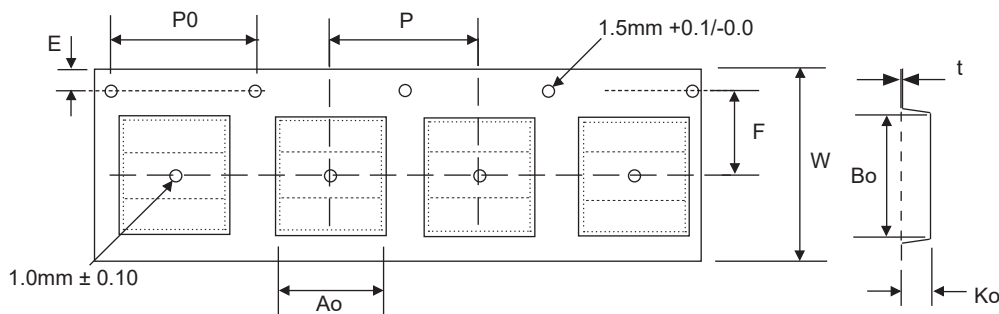


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Case Size	Reel Qty	CARRIER TAPE DIMENSIONS (mm)								
		W	A0	B0	E	F	K0	P	P0	t
NCN-PC	2,000	8.0±0.10	2.20±0.10	2.95±0.10	1.75±0.10	3.5±0.05	2.0±0.10	4.0±0.10	4.0±0.10	0.24±0.05
NCN-PA	2,000		2.88±0.10	3.72±0.10			2.5±0.10			0.26±0.05



Case Size	Tape Width	REEL DIMENSIONS (mm)			
		A(mm)	B(mm)	C(mm)	D(mm)
NCN-PC	8.0	9.0 ± 0.5	60 ± 2.0	13.5 ± 0.5	178 ± 0.2
NCN-PA					

