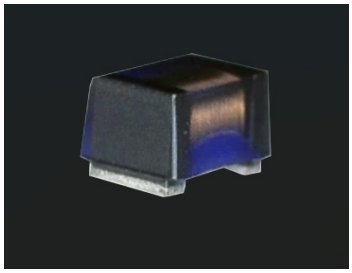
NCN-F Series
Wire-wound Ferrite Chip High Frequency Inductos

AEC-Q200 QUALIFIED | 9001:2015 CERTIFIED | ROHS/REACH COMPLIANT HALOGEN FREE

NIC Components Corp.



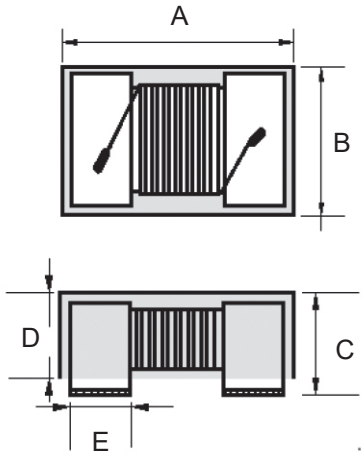
FEATURES
- FERRITE CORE, WIRE WOUND CHIP INDUCTOR
- SIZES C (1008) and A (1210)
- HIGH CURRENT AND LOW DCR
- REFLOW SOLDERING APPLICABLE
- TAPE & REEL PACKAGING FOR AUTOMATIC PICK-PLACE

CHARACTERISTICS

Case Size	NCN-FC	NCN-FA
Inductance Range	10nH ~ 100µH	10nH ~ 820µH
Temperature Range	-40°C ~ +125°C (Ambient + Self Heating)	
Temperatrue Rise at Irms	+40°C max.	
Q & SRF	See Specifications Tables	
Inductance Tolerance	±10% (K), ±20% (M)	
Resistance to Solder Heat	260°C for 10 seconds	

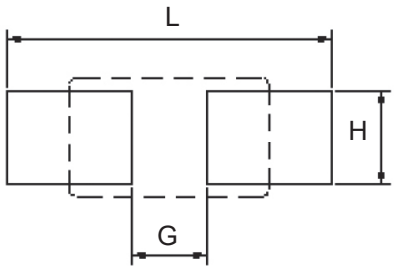
DIMENSIONS (mm)

Case Size	A	B	C	D	E
NCN-FC	2.5 ± 0.3	2.0 ± 0.3	1.8 ± 0.1	1.5 ± 0.1	0.45 ref.
NCN-FA	3.2 ± 0.3	2.5 ± 0.3	2.2 ± 0.2	1.8 ± 0.1	0.55 ref.



LAND PATTERN DIMENSIONS (mm)

Case Size	L	H	G
NCN-FC	3.5	1.5	1.5
NCN-FA	4.4	2.0	2.0



PART NUMBER SYSTEM

NCN-F C 150 J TR 140 Q Y F

- F = RoHS Compliant
- Q = AEC-Q200 Qualified
- IDC Rating
- Packaging: TR = Tape & Reel
- Inductance Tolerance Code: J = ±5, K = ±10
- Inductance Code (µH): 1st two digits are significant, 3rd digit is multiplier.
- Size Code (see dimensions table for details)
- Series

Optional: Suitable for automotive equipment, sourced to special production and inspection at IATF-16949 certified production site

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Part Number	Standard Values - NCN-FC 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)	AEC-Q200 Option
NCN-FC10N_TR530F	0.01	J, K	0.26	530	15	2150	100	NCN-FC10N_TR530QYF
NCN-FC12N_TR500F	0.012	J, K	0.27	500	15	2050	100	NCN-FC12N_TR500QYF
NCN-FC15N_TR480F	0.015	J, K	0.29	480	15	2000	100	NCN-FC15N_TR480QYF
NCN-FC18N_TR450F	0.018	J, K	0.31	450	15	1850	100	NCN-FC18N_TR450QYF
NCN-FC22N_TR420F	0.022	J, K	0.37	420	15	1650	100	NCN-FC22N_TR420QYF
NCN-FC27N_TR410F	0.027	J, K	0.40	410	15	1550	100	NCN-FC27N_TR410QYF
NCN-FC33N_TR400F	0.033	J, K	0.42	400	20	1450	100	NCN-FC33N_TR400QYF
NCN-FC39N_TR380F	0.039	J, K	0.45	380	20	1350	100	NCN-FC39N_TR380QYF
NCN-FC47N_TR360F	0.047	J, K	0.50	360	20	1200	100	NCN-FC47N_TR360QYF
NCN-FC56N_TR340F	0.056	J, K	0.60	340	20	1100	100	NCN-FC56N_TR340QYF
NCN-FC68N_TR320F	0.068	J, K	0.65	320	20	1050	100	NCN-FC68N_TR320QYF
NCN-FC82N_TR300F	0.082	J, K	0.75	300	20	900	100	NCN-FC82N_TR300QYF
NCN-FCR10_TR280F	0.10	J, K	0.80	280	20	800	100	NCN-FCR10_TR280QYF
NCN-FCR12_TR550F	0.12	J, K	0.30	550	30	700	25.2	NCN-FCR12_TR550QYF
NCN-FCR22_TR450F	0.22	J, K	0.50	450	30	450	25.2	NCN-FCR22_TR450QYF
NCN-FCR27_TR425F	0.27	J, K	0.55	425	30	425	25.2	NCN-FCR27_TR425QYF
NCN-FCR33_TR400F	0.33	J, K	0.60	400	30	400	25.2	NCN-FCR33_TR400QYF
NCN-FCR39_TR400F	0.39	J, K	0.65	400	30	375	25.2	NCN-FCR39_TR400QYF
NCN-FCR47_TR400F	0.47	J, K	0.68	400	30	350	25.2	NCN-FCR47_TR400QYF
NCN-FCR56_TR400F	0.56	J, K	0.75	400	30	325	25.2	NCN-FCR56_TR400QYF
NCN-FCR82_TR300F	0.82	J, K	1.00	300	30	260	25.2	NCN-FCR82_TR300QYF
NCN-FC1R0_TR245F	1.0	J, K	1.10	245	30	245	7.96	NCN-FC1R0_TR245QYF
NCN-FC1R2_TR230F	1.2	J, K	1.20	230	30	230	7.96	NCN-FC1R2_TR230QYF
NCN-FC2R2_TR200F	2.2	J, K	1.55	200	30	105	7.96	NCN-FC2R2_TR200QYF
NCN-FC2R7_TR195F	2.7	J, K	1.70	195	30	70	7.96	NCN-FC2R7_TR195QYF
NCN-FC3R3_TR185F	3.3	J, K	1.90	185	30	55	7.96	NCN-FC3R3_TR185QYF
NCN-FC4R7_TR175F	4.7	J, K	2.30	175	30	43	7.96	NCN-FC4R7_TR175QYF
NCN-FC5R6_TR170F	5.6	J, K	2.50	170	25	42	7.96	NCN-FC5R6_TR170QYF
NCN-FC6R8_TR165F	6.8	J, K	2.70	165	25	39	7.96	NCN-FC6R8_TR165QYF
NCN-FC8R2_TR160F	8.2	J, K	3.05	160	25	36	7.96	NCN-FC8R2_TR160QYF
NCN-FC100_TR155F	10	J, K	3.50	155	25	33	2.52	NCN-FC100_TR155QYF
NCN-FC120_TR150F	12	J, K	3.80	150	25	30	2.52	NCN-FC120_TR150QYF
NCN-FC150_TR140F	15	J, K	4.80	140	25	26	2.52	NCN-FC150_TR140QYF
NCN-FC220_TR125F	22	J, K	5.50	125	25	22	2.52	NCN-FC220_TR125QYF
NCN-FC270_TR115F	27	J, K	6.30	115	25	21	2.52	NCN-FC270_TR115QYF
NCN-FC330_TR110F	33	J, K	7.10	110	25	20	2.52	NCN-FC330_TR110QYF
NCN-FC470_TR80F	47	J, K	11.1	80	20	17	2.52	NCN-FC470_TR80QYF
NCN-FC560_TR75F	56	J, K	12.1	75	20	16	2.52	NCN-FC560_TR75QYF
NCN-FC680_TR70F	68	J, K	16.6	70	20	15	2.52	N/A
NCN-FC820_TR66F	82	J, K	19.0	66	20	13	2.52	N/A
NCN-FC101_TR60F	100	J, K	21.0	60	15	12	0.796	N/A

IDC 2: ΔL≤30% ΔT≤40°C

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Part Number	Standard Values - NCN-FA 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)	AEC-Q200 Option
NCN-FA10N_TR450F	0.01	J, K	0.13	450	15	2500	100	NCN-FA10N_TR450QYF
NCN-FA12N_TR450F	0.012	J, K	0.14	450	17	2300	100	NCN-FA12N_TR450QYF
NCN-FA15N_TR450F	0.015	J, K	0.16	450	19	2100	100	NCN-FA15N_TR450QYF
NCN-FA18N_TR450F	0.018	J, K	0.18	450	21	1900	100	NCN-FA18N_TR450QYF
NCN-FA22N_TR450F	0.022	J, K	0.22	450	23	1700	100	NCN-FA22N_TR450QYF
NCN-FA27N_TR450F	0.027	J, K	0.22	450	23	1500	100	NCN-FA27N_TR450QYF
NCN-FA33N_TR450F	0.033	J, K	0.24	450	25	1400	100	NCN-FA33N_TR450QYF
NCN-FA39N_TR450F	0.039	J, K	0.27	450	25	1300	100	NCN-FA39N_TR450QYF
NCN-FA47N_TR450F	0.047	J, K	0.30	450	26	1200	100	NCN-FA47N_TR450QYF
NCN-FA56N_TR450F	0.056	J, K	0.33	450	26	1100	100	NCN-FA56N_TR450QYF
NCN-FA68N_TR450F	0.068	J, K	0.36	450	27	1000	100	NCN-FA68N_TR450QYF
NCN-FA82N_TR450F	0.082	J, K	0.40	450	28	900	100	NCN-FA82N_TR450QYF
NCN-FAR10_TR450F	0.10	J, K	0.44	450	28	700	100	NCN-FAR10_TR450QYF
NCN-FAR12_TR450F	0.12	J, K	0.22	450	30	500	25.2	NCN-FAR12_TR450QYF
NCN-FAR15_TR450F	0.15	J, K	0.25	450	30	450	25.2	NCN-FAR15_TR450QYF
NCN-FAR22_TR450F	0.22	J, K	0.32	450	30	350	25.2	NCN-FAR22_TR450QYF
NCN-FAR27_TR450F	0.27	J, K	0.36	450	30	320	25.2	NCN-FAR27_TR450QYF
NCN-FAR33_TR450F	0.33	J, K	0.40	450	30	300	25.2	NCN-FAR33_TR450QYF
NCN-FAR47_TR450F	0.47	J, K	0.50	450	30	220	25.2	NCN-FAR47_TR450QYF
NCN-FAR56_TR450F	0.56	J, K	0.55	450	30	180	25.2	NCN-FAR56_TR450QYF
NCN-FAR68_TR450F	0.68	J, K	0.60	450	30	160	25.2	NCN-FAR68_TR450QYF
NCN-FAR82_TR450F	0.82	J, K	0.65	450	30	140	25.2	NCN-FAR82_TR450QYF
NCN-FA1R0_TR400F	1.0	J, K	0.70	400	30	120	7.96	NCN-FA1R0_TR400QYF
NCN-FA1R5_TR370F	1.5	J, K	0.85	370	30	85	7.96	NCN-FA1R5_TR370QYF
NCN-FA2R2_TR320F	2.2	J, K	1.0	320	30	75	7.96	NCN-FA2R2_TR320QYF
NCN-FA3R3_TR260F	3.3	J, K	1.2	260	30	60	7.96	NCN-FA3R3_TR260QYF
NCN-FA4R7_TR220F	4.7	J, K	1.5	220	30	50	7.96	NCN-FA4R7_TR220QYF
NCN-FA5R6_TR200F	5.6	J, K	1.6	200	30	45	7.96	NCN-FA5R6_TR200QYF
NCN-FA6R8_TR180F	6.8	J, K	1.8	180	30	40	7.96	NCN-FA6R8_TR180QYF
NCN-FA8R2_TR170F	8.2	J, K	2.0	170	30	30	7.96	NCN-FA8R2_TR170QYF
NCN-FA100_TR150F	10	J, K	2.1	150	25	30	2.52	NCN-FA100_TR150QYF
NCN-FA220_TR110F	22	J, K	3.7	110	25	20	2.52	NCN-FA220_TR110QYF
NCN-FA330_TR70F	33	J, K	5.6	70	25	17	2.52	NCN-FA330_TR70QYF
NCN-FA470_TR60F	47	J, K	7.0	60	25	15	2.52	NCN-FA470_TR60QYF
NCN-FA680_TR50F	68	J, K	9	50	25	12	2.52	NCN-FA680_TR50QYF
NCN-FA820_TR45F	82	J, K	10	45	25	11	2.52	NCN-FA820_TR45QYF
NCN-FA101_TR40F	100	J, K	10	40	20	10	0.796	NCN-FA101_TR40QYF
NCN-FA121_TR40F	120	J, K	11	40	20	10	0.796	NCN-FA121_TR40QYF
NCN-FA151_TR65F	150	J, K	11	65	20	10	0.796	NCN-FA151_TR65QYF
NCN-FA181_TR60F	180	J, K	17	60	20	7.0	0.796	NCN-FA181_TR60QYF
NCN-FA221_TR50F	220	J, K	21	50	20	7.0	0.796	NCN-FA221_TR50QYF
NCN-FA271_TR45F	270	J, K	28	45	20	6.0	0.796	NCN-FA271_TR45QYF
NCN-FA331_TR40F	330	J, K	34	40	20	5.0	0.796	NCN-FA331_TR40QYF
NCN-FA391_TR35F	390	J, K	38	35	20	5.0	0.796	NCN-FA391_TR35QYF
NCN-FA471_TR25F	470	J, K	40	25	20	4.0	0.796	NCN-FA471_TR25QYF
NCN-FA681_TR25F	680	J, K	45	25	20	2.5	0.796	N/A
NCN-FA821_TR20F	820	J, K	50	20	20	2.3	0.796	N/A

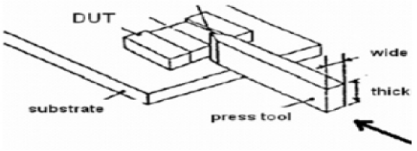
IDC: $\Delta L \leq 30\%$ $\Delta T \leq 40°C$

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><th>Type</th><th>Peak value (g's)</th><th>Normal duration (D) (ms)</th><th>Wave form</th><th>Velocity change (Vi)ft/sec</th></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)

CONTINUE ON NEXT PAGE

ENVIRONMENTAL CHARACTERISTICS

<table>
<tr><th>Item</th><th>Performance</th><th>Test Condition</th></tr>
<tr><td>Resistance to Soldering Heat</td><td rowspan="2">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</td><td>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></td></tr>
<tr><td>Terminal Strength</td><td>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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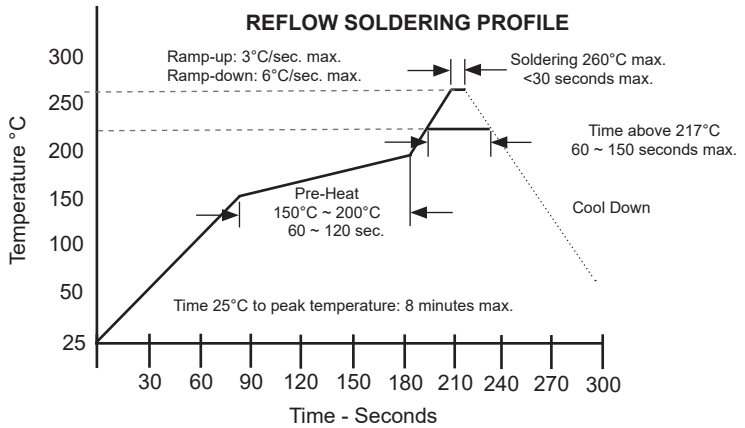
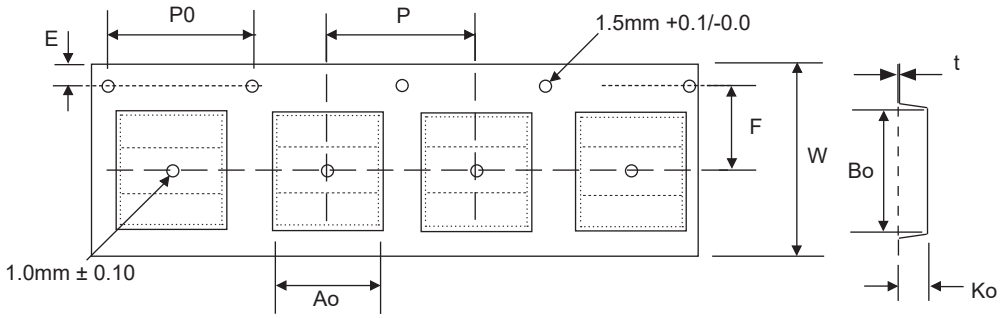


Case Size	Reel Qty	CARRIER TAPE DIMENSIONS (mm)								
		W	A0	B0	E	F	K0	P	P0	t
NCN-FC	2,000	8.0±0.10	2.20±0.10	2.95±0.10	1.75±0.10	3.5±0.05	2.0±0.10	4.0±0.10	4.0±0.10	0.24±0.05
NCN-FA	2,000		2.88±0.10	3.72±0.10			2.5±0.10			0.26±0.05



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