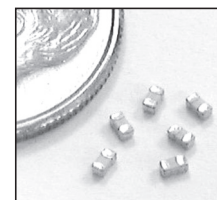


FEATURES

- Designed for High Frequency Applications
- Available in EIA 0201, 0402 and 0603 Case Sizes
- High Q and SRF Characteristics
- Tight Tolerance From B ($\pm 0.1\text{nH}$) to J ($\pm 5\%$)
- Tape and Reel Packaging for Automatic Pick & Place

SPECIFICATIONS

NML Multilayer High Frequency Inductors			
Specifications	0201	0402	0603
Inductance Range	0.6 ~ 10nH	0.6 ~ 270nH	1 ~ 470nH
Operating Temperature Range	-55°C ~ +125°C		-40°C ~ 85°C
Q-Factor, Self Resonant Frequency, DC Resistance, Rated DC Current and Inductance Tolerance	See Individual Product Listings		



ENVIRONMENTAL CHARACTERISTICS

Test	Specification	Test Method & Condition
Solderability	75% Min. Coverage	After 5 Sec. Dip in +230°C Solder Pot (Post Flux)
Humidity Resistance	(1) No Evidence of Damage (2) Inductance Shall Be Within $\pm 10\%$ of Initial Value (3) Q Factor Shall Be Within $\pm 20\%$ of Initial Value	After 500 Hrs at +40°C and 90~95% RH (No Load)
Soldering Effect		After 10 Sec. at +270°C (1 Minute, 150°C Pre-Heat)
Thermal Shock		After 5 Cycles 0201 & 0402: -55°C ~ +125°C within 3 minutes 0603: -40°C ~ +85°C within 3 minutes
High Temperature Load Life		After 500 hours at +85°C with Rated DC Current
Humidity Load Life		After 500 Hrs at +40°C with 90~95% RH at Rated DC Current

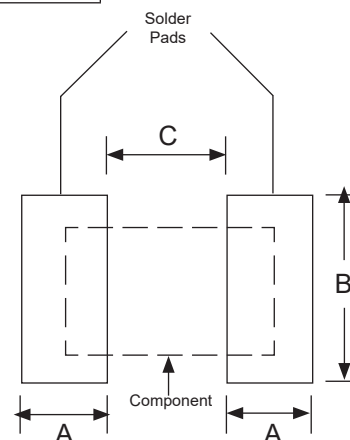
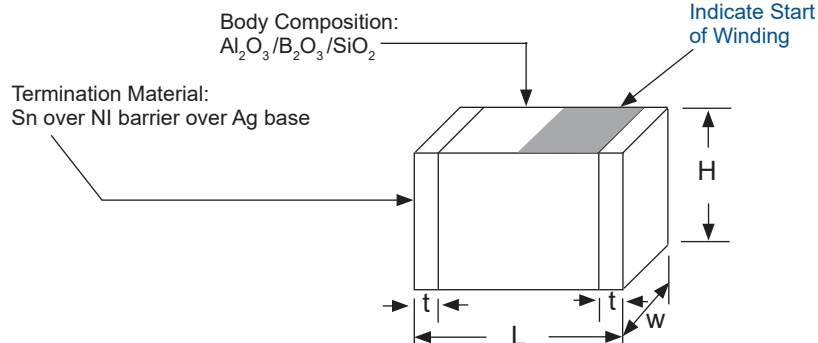
PART NUMBER SYSTEM

NML 04 J 22N TR F

- RoHS compliant
- Packaging: TR = Tape/Reel
- Inductance Code (N=decimal point) in nano-henries
(Ex. 2N2 = 2.2nH, 33N=33nH, R10=100nH)
- Tolerance Code (B= $\pm 0.1\text{nH}$, C= $\pm 0.2\text{nH}$, D= $\pm 0.3\text{nH}$, G= $\pm 2\%$, H= $\pm 3\%$, J= $\pm 5\%$)
- Size Code: 02=0201, 04=0402, 06=0603
- Series

COMPONENT AND LAND PATTERN DIMENSIONS

Series	L	W	H	t	A	B	C
NML02	0.6 $\pm$ 0.03	0.3 $\pm$ 0.03	0.33 max.	0.1 ~ 0.2	0.20 ~ 0.30	0.25 ~ 0.30	0.15 ~ 0.35
NML04	1.0 $\pm$ 0.05	0.5 $\pm$ 0.05	0.5 $\pm$ 0.05	0.1 ~ 0.3	0.35 ~ 0.45	0.40 ~ 0.50	0.30 ~ 0.50
NML06	1.6 $\pm$ 0.15	0.8 $\pm$ 0.15	0.8 $\pm$ 0.15	0.2 ~ 0.6	0.70 ~ 0.80	0.60 ~ 0.80	0.70 ~ 1.00



NML02 SERIES

VALUES AND SPECIFICATIONS

NIC P/N	'L' (nH)	Tolerance (std)*	'Q' Factor (min.)	L & Q Test Freq. (MHz)	SRF GHz (min.)	SRF GHz (typ.)	Typical Q Factor							DCR (ohms)		Rated DC Current (mA) Max.
							100 MHz	500 MHz	800 MHz	900 MHz	1.8 GHz	2.0 GHz	2.4 GHz	Typ.	Max.	
NML02_0N6TRF	0.6	C, B	4	100	10	>13	6	15	19	20	33	36	40	0.05	0.08	800
NML02_1N0TRF	1.0	D, C, B	4	100	10	>13	5	13	17	18	28	30	33	0.09	0.14	600
NML02_1N1TRF	1.1	D, C, B	4	100	10	>13	6	14	18	20	30	32	34	0.09	0.14	600
NML02_1N2TRF	1.2	D, C, B	4	100	10	>13	6	14	18	19	28	30	32	0.09	0.14	600
NML02_1N3TRF	1.3	D, C, B	4	100	10	>13	6	13	17	18	27	28	31	0.10	0.14	600
NML02_1N4TRF	1.4	D, C, B	4	100	10	>13	6	14	18	20	30	32	34	0.10	0.18	550
NML02_1N5TRF	1.5	D, C, B	4	100	10	>13	6	14	18	20	30	32	34	0.10	0.18	550
NML02_1N6TRF	1.6	D, C, B	4	100	10	>13	6	14	18	20	28	30	31	0.12	0.18	500
NML02_1N7TRF	1.7	D, C, B	4	100	10	>13	6	14	18	20	28	30	31	0.13	0.19	500
NML02_1N8TRF	1.8	D, C, B	4	100	10	>13	6	14	18	20	28	30	31	0.13	0.19	500
NML02_1N9TRF	1.9	D, C, B	4	100	10	>13	6	14	18	19	28	29	31	0.14	0.20	450
NML02_2N0TRF	2.0	D, C, B	4	100	10	>13	6	14	18	19	28	29	31	0.14	0.20	450
NML02_2N1TRF	2.1	D, C, B	4	100	10	>13	6	13	17	18	26	28	30	0.15	0.20	450
NML02_2N2TRF	2.2	D, C, B	4	100	10	>13	6	13	17	18	26	28	30	0.15	0.22	450
NML02_2N3TRF	2.3	D, C, B	4	100	10	>13	6	13	17	18	26	28	30	0.15	0.22	450
NML02_2N4TRF	2.4	D, C, B	4	100	10	11.70	6	14	18	20	28	29	31	0.15	0.24	450
NML02_2N5TRF	2.5	D, C, B	4	100	10	11.70	6	14	18	20	28	29	31	0.15	0.24	450
NML02_2N6TRF	2.6	D, C, B	4	100	10	11.34	6	14	18	19	28	29	31	0.17	0.25	450
NML02_2N7TRF	2.7	D, C, B	5	100	10	11.34	6	14	18	19	28	29	31	0.17	0.25	450
NML02_2N9TRF	2.9	D, C, B	5	100	9.5	11.00	6	14	18	19	28	29	31	0.20	0.28	450
NML02_3N0TRF	3.0	D, C, B	5	100	9.5	11.00	7	15	19	21	30	31	33	0.20	0.28	450
NML02_3N1TRF	3.1	D, C, B	5	100	9.5	11.00	7	15	19	21	30	31	33	0.20	0.28	450
NML02_3N2TRF	3.2	D, C, B	5	100	9.5	10.80	6	14	19	20	29	30	32	0.20	0.30	450
NML02_3N3TRF	3.3	D, C, B	5	100	9.5	10.40	6	14	19	20	29	30	32	0.20	0.30	450
NML02_3N4TRF	3.4	D, C, B	5	100	8.0	10.00	6	14	19	20	29	30	32	0.22	0.30	400
NML02_3N5TRF	3.5	D, C, B	5	100	8.0	9.00	6	14	18	20	28	29	31	0.23	0.30	400
NML02_3N6TRF	3.6	D, C, B	5	100	8.0	9.00	6	14	18	20	28	29	31	0.23	0.30	400
NML02_3N7TRF	3.7	D, C, B	5	100	8.0	9.00	6	14	18	20	28	29	31	0.23	0.30	400
NML02_3N8TRF	3.8	D, C, B	5	100	6.5	8.79	6	15	19	20	28	29	31	0.23	0.30	400
NML02_3N9TRF	3.9	D, C, B	5	100	6.5	8.79	6	15	19	20	28	29	31	0.23	0.30	400
NML02_4N3TRF	4.3	H, D, C	5	100	6.5	8.00	6	14	18	19	27	28	29	0.24	0.40	350
NML02_4N7TRF	4.7	H, D, C	5	100	6.5	7.75	6	14	19	19	26	27	29	0.26	0.40	350
NML02_5N1TRF	5.1	H, D, C	5	100	6.5	7.21	6	13	17	18	25	25	26	0.26	0.40	350
NML02_5N6TRF	5.6	H, D, C	5	100	6.0	6.68	7	14	18	19	26	27	27	0.32	0.40	350
NML02_6N2TRF	6.2	H, D, C	5	100	6.0	6.80	6	14	18	19	26	26	30	0.32	0.44	300
NML02_6N8TRF	6.8	J, H	5	100	5.4	6.80	7	14	18	19	26	26	26	0.34	0.50	300
NML02_7N5TRF	7.5	J, H	5	100	4.8	6.00	6	15	18	20	25	25	25	0.36	0.53	300
NML02_8N2TRF	8.2	J, H	5	100	4.8	5.80	7	15	18	19	19	24	24	0.38	0.55	250
NML02_9N1TRF	9.1	J, H	5	100	4.5	5.00	6	13	16	17	21	20	18	0.38	0.62	250
NML02_10NTRF	10	J, H	5	100	4.5	4.86	6	13	16	17	20	20	18	0.40	0.65	250

Tolerance Code (B=±0.1nH, C=±0.2nH, D=±0.3nH, G=±2%, H=±3%, J=±5%). Contact NIC for availability of other values and tolerances not shown.

NML04 SERIES

VALUES AND SPECIFICATIONS

NIC P/N	'L' (nH)	Tolerance (std)*	'Q' Factor (min.)	L & Q Test Freq. (MHz)	SRF GHz (min.)	SRF GHz (typ.)	Typical Q Factor							DCR (ohms)		Rated DC Current (mA) Max.
							100 MHz	500 MHz	800 MHz	900 MHz	1.8 GHz	2.0 GHz	2.4 GHz	Typ.	Max.	
NML04_0N6TRF	0.6	B	8	100	10.0	>13.0	12	40	60	65	100	120	140	0.02	0.08	380
NML04_1N0TRF	1.0	D, C, B	8	100	10.0	>13.0	12	29	38	41	63	71	75	0.02	0.08	380
NML04_1N1TRF	1.1	D, C, B	8	100	10.0	>13.0	11	29	37	40	60	67	72	0.03	0.08	380
NML04_1N2TRF	1.2	D, C, B	8	100	10.0	>13.0	11	29	38	41	61	68	73	0.03	0.09	380
NML04_1N3TRF	1.3	D, C, B	8	100	10.0	>13.0	11	30	38	41	61	67	72	0.04	0.09	380
NML04_1N5TRF	1.5	D, C, B	8	100	10.0	>13.0	11	27	35	38	57	63	68	0.05	0.10	380
NML04_1N6TRF	1.6	D, C, B	8	100	10.0	>13.0	11	28	35	38	57	64	68	0.05	0.10	380
NML04_1N8TRF	1.8	D, C, B	8	100	10.0	12.22	11	26	33	36	53	58	61	0.05	0.12	380
NML04_2N0TRF	2.0	D, C, B	8	100	10.0	12.89	10	23	29	31	45	49	52	0.06	0.12	380
NML04_2N2TRF	2.2	D, C, B	8	100	10.0	12.43	10	24	31	33	48	52	55	0.06	0.13	380
NML04_2N4TRF	2.4	D, C, B	8	100	10.0	12.32	10	25	31	34	49	53	57	0.07	0.13	380
NML04_2N7TRF	2.7	D, C, B	8	100	6.0	10.07	11	27	35	37	54	58	60	0.09	0.16	380
NML04_3N0TRF	3.0	D, C, B	8	100	6.0	8.76	10	25	32	34	49	53	55	0.09	0.16	380
NML04_3N3TRF	3.3	D, C, B	8	100	6.0	8.12	11	25	32	35	50	54	56	0.09	0.16	300
NML04_3N6TRF	3.6	D, C, B	8	100	6.0	8.20	10	24	31	33	46	49	49	0.10	0.20	300
NML04_3N9TRF	3.9	D, C, B	8	100	6.0	8.39	11	24	30	33	46	49	51	0.10	0.20	300
NML04_4N3TRF	4.3	D, C, B	8	100	6.0	7.50	11	26	33	35	50	53	54	0.11	0.20	300
NML04_4N7TRF	4.7	D, C, B	8	100	6.0	7.01	11	25	32	35	49	51	53	0.11	0.20	300
NML04_5N1TRF	5.1	D, C, B	8	100	5.3	6.34	11	25	32	35	46	48	49	0.13	0.23	300
NML04_5N6TRF	5.6	D, C, B	8	100	4.5	5.76	11	25	32	35	46	48	49	0.13	0.23	300
NML04_6N2TRF	6.2	D, C, B	8	100	4.5	5.49	11	26	32	34	46	48	49	0.15	0.25	300
NML04_6N8TRF	6.8	J, H, G	8	100	4.5	5.43	11	26	32	35	46	48	48	0.14	0.25	300
NML04_7N5TRF	7.5	J, H, G	8	100	4.2	5.00	11	26	32	35	46	48	48	0.16	0.28	300
NML04_8N2TRF	8.2	J, H, G	8	100	3.7	4.66	11	26	32	34	42	42	40	0.17	0.28	300
NML04_9N1TRF	9.1	J, H, G	8	100	3.4	4.40	11	25	31	34	42	42	40	0.22	0.30	300
NML04_10NTRF	10	J, H, G	8	100	3.4	4.12	11	23	29	31	37	37	34	0.24	0.31	300
NML04_12NTRF	12	J, H, G	8	100	3.0	3.82	11	24	31	33	37	36	30	0.30	0.45	300
NML04_13NTRF	13	J, H, G	8	100	3.0	3.82	11	24	31	33	37	36	30	0.35	0.50	300
NML04_15NTRF	15	J, H, G	8	100	2.5	3.35	11	23	30	32	35	33	28	0.38	0.55	300
NML04_18NTRF	18	J, H, G	8	100	2.2	2.97	11	23	28	29	30	28	22	0.37	0.65	300
NML04_22NTRF	22	J, H, G	8	100	1.9	2.64	11	22	27	28	22	18	6	0.45	0.70	300
NML04_24NTRF	24	J, H	8	100	1.7	2.64	11	22	27	28	22	18	6	0.45	0.70	300
NML04_27NTRF	27	J, H	8	100	1.7	2.37	11	22	26	27	16	11	4	0.49	0.80	300
NML04_33NTRF	33	J, H	8	100	1.6	2.04	11	22	25	26	12	5	-	0.63	0.90	200
NML04_39NTRF	39	J, H	8	100	1.2	1.80	11	20	22	22	-	-	-	0.70	1.00	200
NML04_47NTRF	47	J, H	8	100	1.1	1.66	11	20	21	21	-	-	-	0.82	1.10	200
NML04_56NTRF	56	J, H	8	100	1.0	1.56	11	19	19	18	-	-	-	0.84	1.10	200
NML04_68NTRF	68	J, H	8	100	0.80	1.33	11	18	17	15	-	-	-	0.99	1.20	200
NML04_82NTRF	82	J, H	8	100	0.60	1.16	11	18	15	12	-	-	-	1.09	1.30	200
NML04_R10TRF	100	J, H	8	100	0.60	1.02	11	17	12	9	-	-	-	1.19	1.60	200
NML04_R12TRF	120	J	8	100	0.50	0.86	11	16	7	-	-	-	-	1.31	1.60	150
NML04_R15TRF	150	J	8	100	0.55	0.80	11	14	-	-	-	-	-	2.00	3.20	140
NML04_R18TRF	180	J	8	100	0.50	0.81	12	-	-	-	-	-	-	2.97	3.70	130
NML04_R22TRF	220	J	8	100	0.45	0.70	12	-	-	-	-	-	-	3.29	4.20	120
NML04_R27TRF	270	J	8	100	0.40	0.60	12	-	-	-	-	-	-	3.92	4.80	110

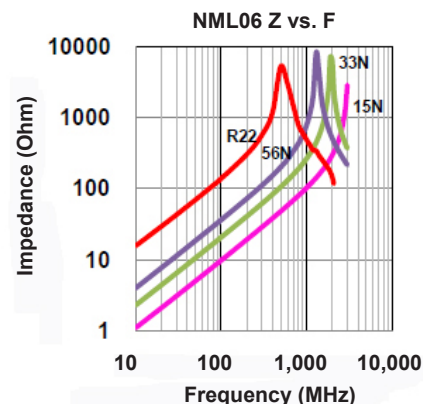
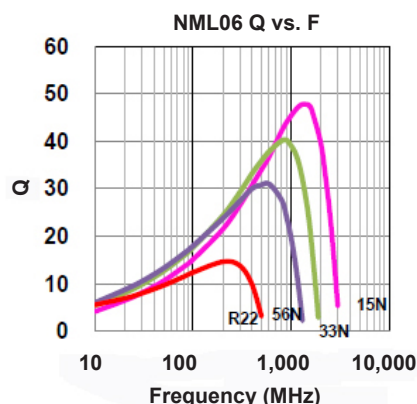
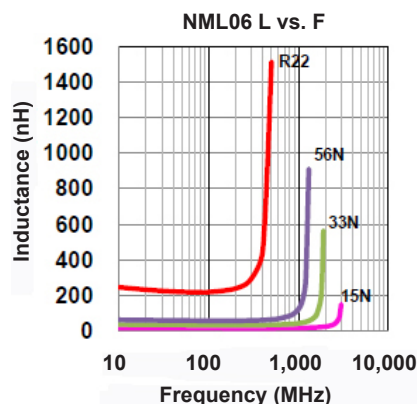
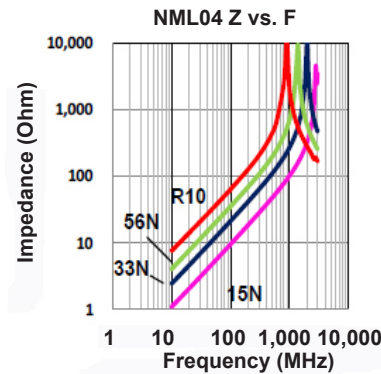
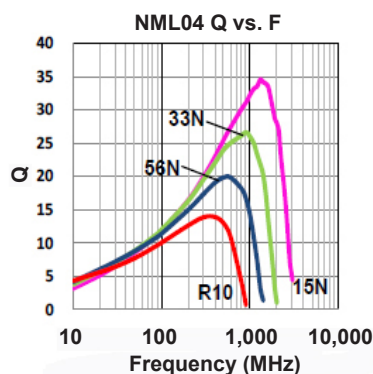
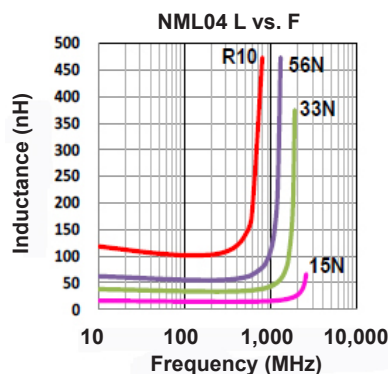
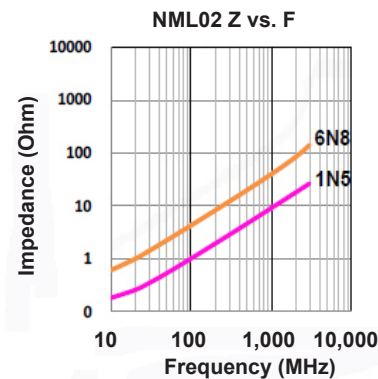
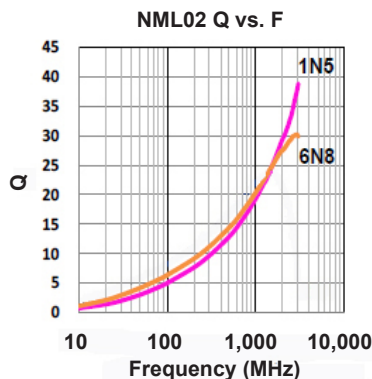
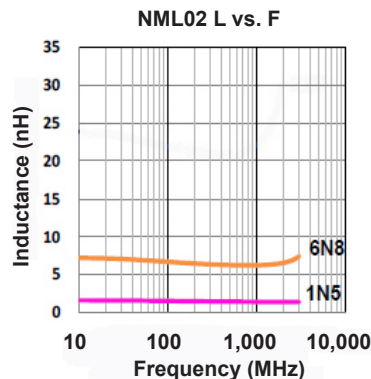
Tolerance Code (B=±0.1nH, C=±0.2nH, D=±0.3nH, G=±2%, H=±3%, J=±5%). Contact NIC for availability of other values and tolerances not shown.

NML06 SERIES VALUES AND SPECIFICATIONS

NIC P/N	'L' (nH)	Tolerance (std)*	'Q' Factor (min.)	L & Q Test Freq. (MHz)	SRF GHz (min.)	SRF GHz (typ.)	Typical Q Factor							DCR (ohms)		Rated DC Current (mA) Max.
							100 MHz	500 MHz	800 MHz	900 MHz	1.8 GHz	2.0 GHz	2.4 GHz	Typ.	Max.	
NML06_1N0TRF	1.0	D, B	8	100	10	>13.0	14	40	53	60	93	32	174	0.01	0.05	1000
NML06_1N2TRF	1.2	D, B	8	100	10	>13.0	14	38	49	54	84	32	143	0.02	0.05	1000
NML06_1N5TRF	1.5	D, B	8	100	10	>13.0	12	31	39	43	62	33	88	0.03	0.10	1000
NML06_1N8TRF	1.8	D, C, B	8	100	10	>13.0	13	34	42	46	68	37	97	0.04	0.10	1000
NML06_2N0TRF	2.0	D, B	8	100	8.0	11.69	14	36	46	50	73	42	101	0.05	0.10	1000
NML06_2N2TRF	2.2	D, C, B	8	100	8.0	11.69	14	36	46	50	73	42	101	0.05	0.10	1000
NML06_2N4TRF	2.4	D, B	8	100	7.0	9.00	14	36	47	45	72	45	94	0.06	0.13	1000
NML06_2N7TRF	2.7	D, B	10	100	7.0	8.93	14	36	47	45	72	45	94	0.06	0.13	1000
NML06_3N0TRF	3.0	D, B	10	100	6.0	6.44	14	37	47	50	67	47	77	0.07	0.13	1000
NML06_3N3TRF	3.3	D, B	10	100	6.0	6.44	14	37	47	50	67	47	77	0.07	0.13	1000
NML06_3N6TRF	3.6	D, B	10	100	6.0	6.88	14	36	45	49	66	48	80	0.08	0.15	1000
NML06_3N9TRF	3.9	D, B	10	100	6.0	7.28	15	36	46	49	66	48	81	0.08	0.15	1000
NML06_4N7TRF	4.7	D, B	10	100	5.0	6.47	15	39	50	53	70	53	80	0.09	0.20	1000
NML06_5N6TRF	5.6	D, B	10	100	4.0	5.23	15	39	50	54	67	52	69	0.10	0.23	600
NML06_6N8TRF	6.8	J, G	10	100	4.0	5.47	15	38	49	52	66	53	66	0.11	0.25	600
NML06_8N2TRF	8.2	J, G	10	100	4.0	4.46	16	37	48	50	59	49	54	0.14	0.28	600
NML06_10NTRF	10	J, G	12	100	3.0	4.36	16	39	49	52	60	50	52	0.15	0.30	600
NML06_12NTRF	12	J, G	12	100	3.0	3.48	16	36	46	48	47	39	31	0.17	0.35	600
NML06_15NTRF	15	J, G	12	100	2.0	3.31	17	40	50	52	49	41	31	0.19	0.40	600
NML06_18NTRF	18	J, G	12	100	2.0	3.08	17	39	48	50	43	35	21	0.21	0.45	600
NML06_22NTRF	22	J, G	12	100	2.0	2.67	17	39	46	47	29	19	1	0.29	0.50	600
NML06_27NTRF	27	J, G	12	100	1.0	2.27	18	39	45	46	19	8	-	0.27	0.55	600
NML06_33NTRF	33	J, G	12	100	1.0	1.97	18	39	43	43	-	-	-	0.36	0.60	600
NML06_39NTRF	39	J, G	12	100	1.0	1.83	19	36	39	37	-	-	-	0.37	0.65	500
NML06_47NTRF	47	J, G	12	100	0.90	1.67	17	34	36	34	-	-	-	0.47	0.70	500
NML06_56NTRF	56	J, G	12	100	0.90	1.53	19	35	34	31	-	-	-	0.46	0.75	500
NML06_68NTRF	68	J, G	12	100	0.70	1.36	18	33	29	25	-	-	-	0.51	0.85	400
NML06_82NTRF	82	J, G	12	100	0.60	1.29	19	32	25	20	-	-	-	0.57	0.95	300
NML06_R10TRF	100	J	12	100	0.60	1.09	18	30	19	12	-	-	-	0.69	1.0	300
NML06_R12TRF	120	J	8	50	0.50	1.03	19	28	14	-	-	-	-	0.74	1.2	300
NML06_R15TRF	150	J	8	50	0.50	0.82	18	21	-	-	-	-	-	0.78	1.2	300
NML06_R18TRF	180	J	8	50	0.40	0.69	17	17	-	-	-	-	-	0.92	1.3	300
NML06_R20TRF	200	J	8	50	0.40	0.63	16	13	-	-	-	-	-	1.19	1.5	300
NML06_R22TRF	220	J	8	50	0.40	0.63	16	13	-	-	-	-	-	1.19	1.5	300
NML06_R27TRF	270	J	8	50	0.40	0.52	16	-	-	-	-	-	-	1.19	1.9	200
NML06_R33TRF	330	J	8	50	0.35	0.45	14	-	-	-	-	-	-	1.50	2.1	200
NML06_R39TRF	390	J	8	50	0.35	0.40	14	-	-	-	-	-	-	1.80	2.3	150
NML06_R47TRF	470	J	8	50	0.30	0.36	13	-	-	-	-	-	-	2.04	2.6	150

Tolerance Code (B=±0.1nH, C=±0.2nH, D=±0.3nH, G=±2%, H=±3%, J=±5%). Contact NIC for availability of other values and tolerances not shown.

Performance Curves



TAPE AND REEL DIMENSIONS (mm)

TYPE	A	B	Reel Qty
NML02	0.38 ± 0.04	0.68 ± 0.04	15,000
NML04	0.7 ± 0.05	1.2 ± 0.05	10,000
NML06	1.0 ± 0.20	1.8 ± 0.20	4,000

TAPE AND REEL PACKAGING (mm)

