

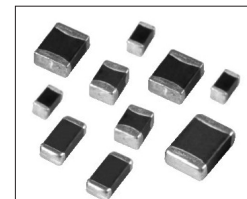
NFP Series

Surface Mount Multilayer Inductor



FEATURES

- 0603, 0805, 0806 AND 1008 CASE SIZES
- HIGH DC CURRENT AND LOW DC RESISTANCE
- NEW "S" VERSION FOR INCREASED SATURATION CURRENT
- UPGRADED "H" VERSION FOR HIGHEST CURRENT
- REFLOW SOLDERING APPLICABLE
- PACKAGE FOR AUTOMATIC PICK-PLACE



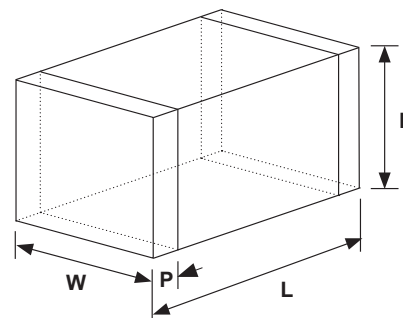
SPECIFICATIONS

Specifications	Case Size			
	0603	0805	0806	1008
Inductance Range	0.22 μ H ~ 10 μ H	0.22 μ H ~ 10 μ H	0.47 μ H ~ 10 μ H	0.47 μ H ~ 10 μ H
Inductance Tolerance	$\pm 20\%$ (M), $\pm 30\%$ (N)			
Operating Temperature Range	-55°C ~ +125°C (including self-heating)			
Self Resonant Frequency, DC Resistance, Rated DC Current and Inductance Tolerance	See Standard Values and Specifications Table			

Note: Extended values, tolerances, and enhanced versions are available please contact NIC for more details.

DIMENSIONS (mm)

Case Size	L	W	H	P
0603	1.6 $\pm$ 0.15	0.8 $\pm$ 0.15	0.50 $\pm$ 0.05	0.30 $\pm$ 0.20
			0.55 $\pm$ 0.10	0.35 $\pm$ 0.15
			0.80 $\pm$ 0.15	0.30 $\pm$ 0.20
0805	2.0 +0.3/-0.1	1.25 $\pm$ 0.2	0.5 $\pm$ 0.05	0.5 $\pm$ 0.3
			0.5 $\pm$ 0.10	
			0.8 $\pm$ 0.10	
			0.9 $\pm$ 0.10	
0806	2.0 +0.3/-0.1	1.6 $\pm$ 0.2	1.2 $\pm$ 0.20	0.5 $\pm$ 0.3
			0.9 $\pm$ 0.10	
			1.1 $\pm$ 0.10	
1008	2.5 $\pm$ 0.2	2.0 +0.3/-0.1	0.9 $\pm$ 0.10	0.5 $\pm$ 0.3
			1.1 $\pm$ 0.10	

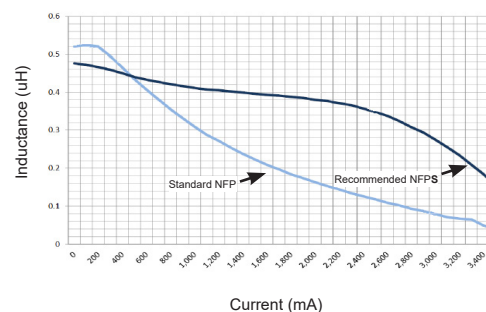


PART NUMBER SYSTEM

NFPS 0806 M 1R0 TR 160 E

- Series* (Recommended "S" for Upgraded Saturation Current)
- Case Size: 06 = 0603, 10 = 0805
- Inductance Tolerance Code:
M = $\pm 20\%$, N = $\pm 30\%$
- Rated inductance in μ H (R denotes decimal point)
- Packaging: TR = Tape & Reel
- Current rating code (120=1200mA)
- RoHS compliant

*NFP vs. NFPS Performance Comparison



NFP Series

Surface Mount Multilayer Inductor



NFP0603 SERIES

0603 CASE SIZE

NIC Partnumber	Inductance (μH)	Tolerance	Test Frequency	SRF MHz (min.)	DC Resistance (Ω)	I _{rms} (mA)	I _{sat} (mA)	Component Thickness (mm)
NFPS0603_R22TR120F	0.22	±20% (M), ±30% (N)	1MHz	180	0.12 ± 25%	1200	1450	0.5 ± 0.1
NFPS0603_R33TR110F	0.33	±20% (M), ±30% (N)		140	0.16 ± 25%	1100	1350	
NFP0603NR47TR90F	0.47	±30% (N)		105	0.19 ± 25%	900	400	
NFPS0603_R47TR115F	0.47	±20% (M), ±30% (N)		120	0.18 ± 25%	1150	1050	
NFPS0603_R68TR90F	0.68	±20% (M), ±30% (N)		100	0.22 ± 25%	900	800	
NFPS0603_1R0TR80F	1.0	±20% (M), ±30% (N)		90	0.33 ± 25%	800	700	
NFPS0603_1R5TR65F	1.5	±20% (M), ±30% (N)		80	0.38 ± 25%	650	400	
NFPS0603_2R2TR60F	2.2	±20% (M), ±30% (N)		60	0.42 ± 25%	600	250	
NFPS0603_1R0TR100F	1.0	±20% (M), ±30% (N)		90	0.22 ± 25%	1000	700	0.55 ± 0.1
NFPS0603_2R2TR65F	2.2	±20% (M), ±30% (N)		30	0.40 ± 25%	650	300	
NFPS0603_R22TR125F	0.22	±20% (M), ±30% (N)		200	0.10 ± 25%	1250	1600	0.8 ± 0.15
NFPS0603_R33TR120F	0.33	±20% (M), ±30% (N)		190	0.13 ± 25%	1200	1500	
NFP0603NR47TR120F	0.47	±30% (N)		105	0.12 ± 25%	1200	-	
NFPS0603_R47TR110F	0.47	±20% (M), ±30% (N)		180	0.15 ± 25%	1100	1200	
NFP0603NR68TR100F	0.68	±30% (N)		90	0.16 ± 25%	1000	-	
NFPS0603_R68TR115F	0.68	±20% (M), ±30% (N)		160	0.18 ± 25%	1150	1100	
NFP0603N1R0TR95F	1.0	±30% (N)		60	0.20 ± 25%	950	160	
NFPS0603_1R0TR100F	1.0	±20% (M), ±30% (N)		125	0.20 ± 25%	1000	800	
NFPS0603_1R5TR90F	1.5	±20% (M), ±30% (N)		100	0.23 ± 25%	900	500	
NFPS0603_1R8TR80F	1.8	±20% (M), ±30% (N)		100	0.26 ± 25%	800	500	
NFP0603N2R2TR75F	2.2	±30% (N)		40	0.30 ± 25%	750	100	
NFPS0603_2R2TR85F	2.2	±20% (M), ±30% (N)		80	0.30 ± 25%	850	300	
NFPS0603_2R7TR75F	2.7	±20% (M), ±30% (N)		90	0.34 ± 25%	750	220	
NFPS0603_3R3TR70F	3.3	±20% (M), ±30% (N)		100	0.40 ± 25%	700	150	
NFPS0603_4R7TR70F	4.7	±20% (M), ±30% (N)		65	0.40 ± 25%	700	80	
NFPS0603_6R8TR50F	6.8	±20% (M), ±30% (N)		45	0.56 ± 25%	500	150	
NFPS0603_100TR50F	10	±20% (M), ±30% (N)		35	0.36 ± 25%	500	80	

Maximum +40°C temperature rise at I_{rms}. Maximum -30% inductance drop from initial measured value at I_{sat}.

NFP Series

Surface Mount Multilayer Inductor



NFP0805 SERIES

0805 CASE SIZE

NIC Partnumber	Inductance (μH)	Tolerance	Test Frequency	SRF MHz (min.)	DC Resistance (Ω)	I _{rms} (mA)	I _{sat} (mA)	Component Thickness (mm)
NFPS0805_R54TR120F	0.54	±20% (M), ±30% (N)	1MHz	120	0.12 ± 25%	1200	1100	0.5 ± 0.05
NFPS0805_1R0TR90F	1.0	±20% (M), ±30% (N)		40	0.18 ± 25%	900	900	
NFP0805MR22TR150F	0.22	±20% (M)		100	0.09 ± 25%	1500	-	0.5 ± 0.1
NFPS0805_R22TR160F	0.22	±20% (M), ±30% (N)		100	0.07 ± 25%	1600	1500	
NFPS0805_R33TR120F	0.33	±20% (M), ±30% (N)		90	1.0 ± 25%	1200	1400	
NFP0805_R47TR110F	0.47	±20% (M), ±30% (N)		100	0.12 ± 25%	1100	550	
NFPS0805_R47TR110F	0.47	±20% (M), ±30% (N)		80			1300	
NFP0805_1R0TR80F	1.0	±20% (M), ±30% (N)		60	0.19 ± 25%	800	400	
NFPS0805_1R0TR80F	1.0	±20% (M), ±30% (N)		40			700	
NFP0805_1R5TR70F	1.5	±20% (M), ±30% (N)		50	0.26 ± 25%	700	280	
NFPS0805_1R5TR70F	1.5	±20% (M), ±30% (N)		35			500	
NFP0805_2R2TR60F	2.2	±20% (M), ±30% (N)		40	0.34 ± 25%	600	220	
NFPS0805_2R2TR60F	2.2	±20% (M), ±30% (N)		30			350	
NFPS0805_1R0TR130F	1.0	±20% (M), ±30% (N)		60	0.12 ± 25%	1300	1050	0.8 ± 0.1
NFPS0805_1R5TR110F	1.5	±20% (M), ±30% (N)		50	0.16 ± 25%	1100	700	
NFPS0805_2R2TR100F	2.2	±20% (M), ±30% (N)		40	0.18 ± 25%	1000	280	
NFPS0805_3R3TR900F	3.3	±20% (M), ±30% (N)		30	0.20 ± 25%	900	220	
NFPS0805_4R7TR750F	4.7	±20% (M), ±30% (N)		30	0.25 ± 25%	750	150	
NFP0805_R47TR120F	0.47	±20% (M), ±30% (N)		100	0.09 ± 25%	1200	950	0.9 ± 0.1
NFPS0805_R47TR150F		±20% (M), ±30% (N)		100	0.08 ± 25%	1500	1200	
NFPS0805_R56TR750F	0.56	±20% (M), ±30% (N)		70	0.11 ± 25%	1300	1500	
NFP0805_1R0TR100F	1.0	±20% (M), ±30% (N)		60	0.11 ± 25%	1000	700	
NFPS0805_1R0TR130F		±20% (M), ±30% (N)		60	0.11 ± 25%	1300	1150	
NFP0805_1R5TR90F	1.5	±20% (M), ±30% (N)		50	0.16 ± 25%	900	550	
NFPS0805_1R5TR110F		±20% (M), ±30% (N)		50	0.16 ± 25%	1100	800	
NFP0805_2R2TR80F	2.2	±20% (M), ±30% (N)		40	0.25 ± 25%	800	400	
NFPS0805_2R2TR90F		±20% (M), ±30% (N)		40	0.20 ± 25%	900	500	
NFPS0805_2R7TR90F	2.7	±20% (M), ±30% (N)		35	0.20 ± 25%	900	420	
NFP0805_3R3TR90F	3.3	±20% (M), ±30% (N)		30	0.19 ± 25%	900	200	
NFPS0805_3R3TR90F		±20% (M), ±30% (N)		30	0.20 ± 25%	900	350	
NFP0805_4R7TR80F	4.7	±20% (M), ±30% (N)		30	0.25 ± 25%	800	180	1.2 ± 0.2
NFPS0805_4R7TR80F		±20% (M), ±30% (N)		30	0.25 ± 25%	800	280	
NFPS0805_2R2TR80F	2.2	±20% (M), ±30% (N)		30	0.35 ± 25%	800	800	
NFPS0805_3R3TR75F	3.3	±20% (M), ±30% (N)		25	0.40 ± 25%	750	630	
NFPS0805_4R7TR75F	4.7	±20% (M), ±30% (N)		20	0.40 ± 25%	750	630	
NFPS0805_6R8TR100F	6.8	±20% (M), ±30% (N)		45	0.30 ± 25%	1000	250	
NFPS0805_100TR20F	10	±20% (M), ±30% (N)		20	0.56 ± 25%	200	230	
NFPS0805_100TR100F	10	±20% (M), ±30% (N)		35	0.30 ± 25%	1000	130	
NFP0805M100TR50F	10	±20% (M)		15	0.5 ± 30%	500	-	1.25 ± 0.2

Maximum +40°C temperature rise at I_{rms}. Maximum -30% inductance drop from initial measured value at I_{sat}.

NFP Series

Surface Mount Multilayer Inductor



NFP0806 SERIES

0806 CASE SIZE

NIC Partnumber	Inductance (μH)	Tolerance	Test Frequency	SRF MHz (min.)	DC Resistance (Ω)	Irms (mA)	Isat (mA)	Component Thickness (mm)
NFP0806_R47TR160F	0.47	±20% (M), ±30% (N)	1MHz	100	0.06 ± 25%	1600	1050	0.9 ± 0.1
NFPS0806_R47TR150F		±20% (M), ±30% (N)			0.08 ± 25%	1500	1600	
NFP0806_1R0TR140F	1.0	±20% (M), ±30% (N)		70	0.09 ± 25%	1400	700	
NFPS0806_1R0TR140F		±20% (M), ±30% (N)			0.09 ± 25%	1400	1200	
NFP0806_1R5TR120F	1.5	±20% (M), ±30% (N)		60	0.11 ± 25%	1200	550	
NFPS0806_1R5TR120F		±20% (M), ±30% (N)					700	
NFP0806_2R2TR120F	2.2	±20% (M), ±30% (N)		50	0.11 ± 25%	1200	350	
NFPS0806_2R2TR120F		±20% (M), ±30% (N)					500	
NFP0806_3R3TR120F	3.3	±20% (M), ±30% (N)		40	0.12 ± 25%	1200	200	
NFPS0806_3R3TR120F		±20% (M), ±30% (N)					330	
NFP0806_4R7TR110F	4.7	±20% (M), ±30% (N)		30	0.14 ± 25%	1100	150	
NFPS0806_4R7TR110F		±20% (M), ±30% (N)					220	
NFPS0806_6R8TR120F	6.8	±20% (M), ±30% (N)		40	0.17 ± 25%	1200	220	1.1 ± 0.1
NFP0806M100TR80F	10	±20% (M)		15	0.25 ± 25%	800	-	
NFPS0806_100TR110F	10	±20% (M), ±30% (N)		35	0.25 ± 25%	1100	200	

Maximum +40°C temperature rise at Irms. Maximum -30% inductance drop from initial measured value at Isat.

NFP1008 SERIES

1008 CASE SIZE

NIC Partnumber	Inductance (μH)	Tolerance	Test Frequency	SRF MHz (min.)	DC Resistance (Ω)	Irms (mA)	Isat (mA)	Component Thickness (mm)
NFP1008_R47TR180F	0.47	±20% (M), ±30% (N)	1MHz	100	0.04 ± 25%	1800	1100	0.9 ± 0.1
NFPS1008_R47TR180F		±20% (M), ±30% (N)		105	0.04 ± 25%	1800	1500	
NFP1008_1R0TR160F	1.0	±20% (M), ±30% (N)		60	0.06 ± 25%	1600	700	
NFPS1008_1R0TR160F		±20% (M), ±30% (N)		70	0.06 ± 25%	1600	1400	
NFP1008_1R5TR150F	1.5	±20% (M), ±30% (N)		50	0.07 ± 25%	1500	550	
NFPS1008_1R5TR150F		±20% (M), ±30% (N)		65	0.07 ± 25%	1500	1200	
NFPS1008_1R8TR130F	1.8	±20% (M), ±30% (N)		60	0.08 ± 25%	1300	950	
NFP1008_2R2TR130F	2.2	±20% (M), ±30% (N)		40	0.08 ± 25%	1300	450	
NFPS1008_2R2TR120F		±20% (M), ±30% (N)		60	0.20 ± 25%	1200	1500	
NFPS1008_2R2TR130F		±20% (M), ±30% (N)		55	0.08 ± 25%	1300	850	
NFP1008_3R3TR120F	3.3	±20% (M), ±30% (N)		30	0.10 ± 25%	1200	200	
NFPS1008_3R3TR110F		±20% (M), ±30% (N)		50	0.25 ± 25%	1100	1200	
NFPS1008_3R3TR120F		±20% (M), ±30% (N)		30	0.10 ± 25%	1200	450	
NFP1008_4R7TR110F	4.7	±20% (M), ±30% (N)		25	0.11 ± 25%	1100	160	
NFPS1008_4R7TR90F		±20% (M), ±30% (N)		35	0.38 ± 25%	900	750	
NFPS1008_4R7TR110F		±20% (M), ±30% (N)		25	0.11 ± 25%	1100	320	
NFPS1008_6R8TR75F	6.8	±20% (M), ±30% (N)		30	0.45 ± 25%	750	350	
NFPS1008_100TR70F	10	±20% (M), ±30% (N)		25	0.50 ± 25%	700	250	

Maximum +40°C temperature rise at Irms. Maximum -30% inductance drop from initial measured value at Isat.

1008 case size continues on next page

NFP Series

Surface Mount Multilayer Inductor

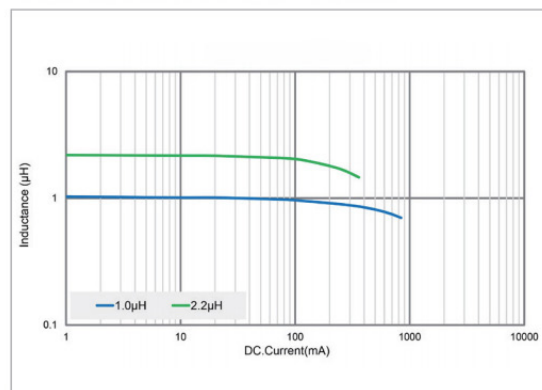
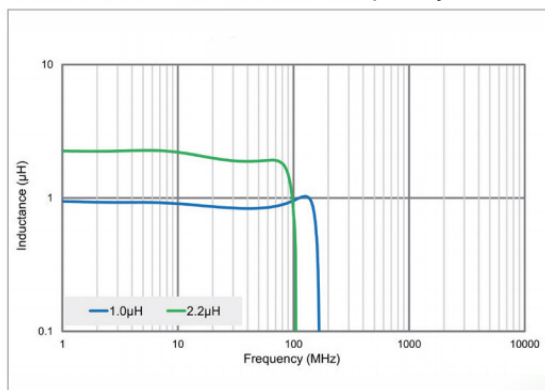


NIC Partnumber	Inductance (μH)	Tolerance	Test Frequency	SRF MHz (min.)	DC Resistance (Ω)	I _{rms} (mA)	I _{sat} (mA)	Component Thickness (mm)
NFP1008_1R0TR150F	1.0	±20% (M), ±30% (N)	1MHz	70	0.09 ± 25%	1500	1500	1.1 ± 0.1
NFPS1008_1R0TR210F	1.0	±20% (M), ±30% (N)		85	0.85 ± 25%	2100	2100	
NFP1008_2R2TR100F	2.2	±20% (M), ±30% (N)		40	0.12 ± 25%	1000	700	
NFPS1008_2R2TR110F	2.2	±20% (M), ±30% (N)		50	0.25 ± 25%	1100	1600	
NFP1008_3R3TR100F	3.3	±20% (M), ±30% (N)		30	0.12 ± 25%	1000	350	
NFPS1008_3R3TR110F	3.3	±20% (M), ±30% (N)		50	0.25 ± 25%	1100	1250	
NFP1008_4R7TR90F	4.7	±20% (M), ±30% (N)		25	0.14 ± 25%	900	280	
NFPS1008_4R7TR90F	4.7	±20% (M), ±30% (N)		40	0.40 ± 25%	900	800	
NFPS1008_4R7TR100F	4.7	±20% (M), ±30% (N)		30	0.18 ± 25%	1000	750	
NFPS1008_6R8TR80F	6.8	±20% (M), ±30% (N)		30	0.50 ± 25%	800	750	
NFP1008M100TR80F	10	±20% (M)		15	0.30 ± 30%	800	160	
NFPS1008M100TR80F	10	±20% (M)		25	0.50 ± 25%	800	500	

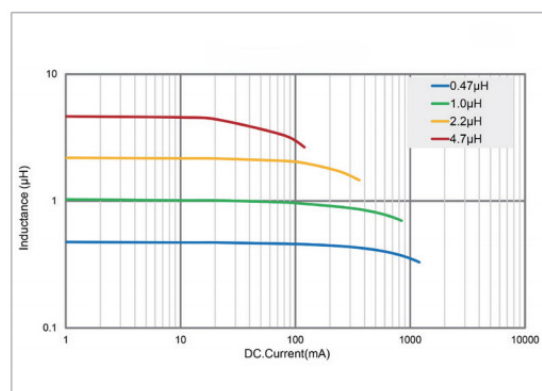
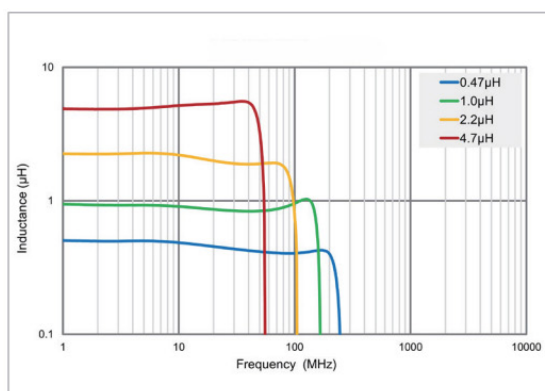
Inductance vs. Frequency

Inductance vs. DC Current

NFPS0603_1R0TR80F
NFPS0603_2R2TR60F



NFPS0603_R47TR110F
NFPS0603_1R0TR100F
NFPS0603_2R2TR85F
NFPS0603_4R7TR70F

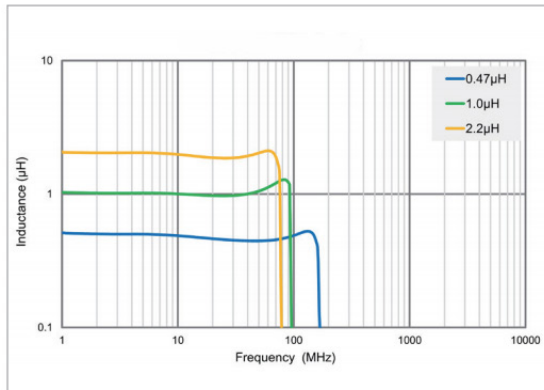


NFP Series

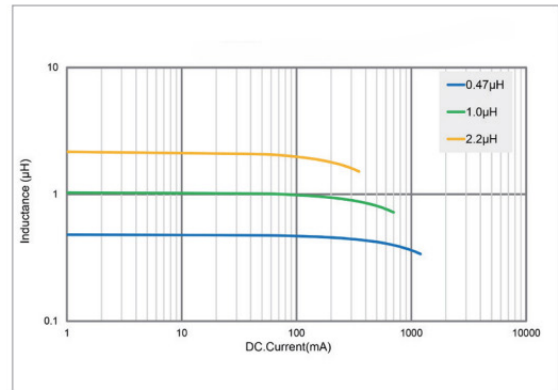
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Inductance vs. Frequency

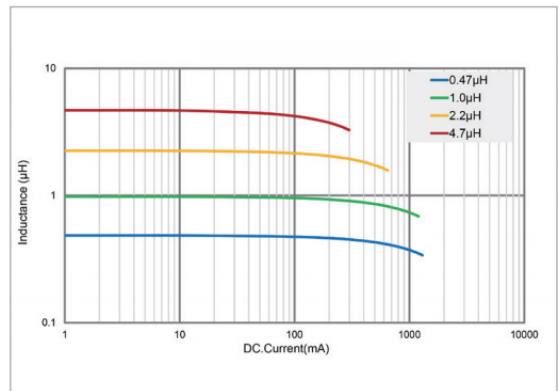
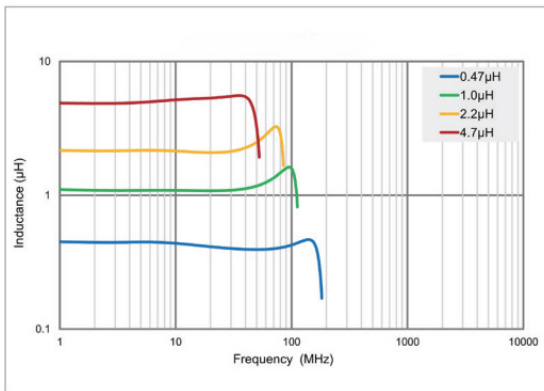


Inductance vs. DC Current

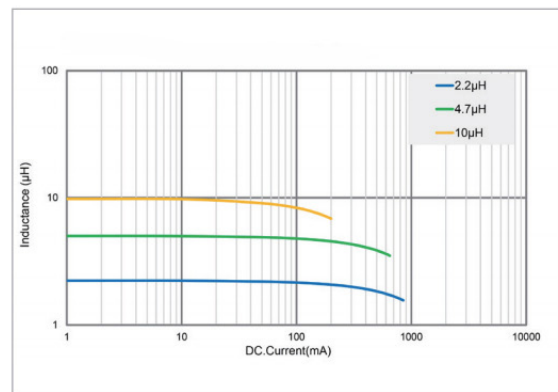
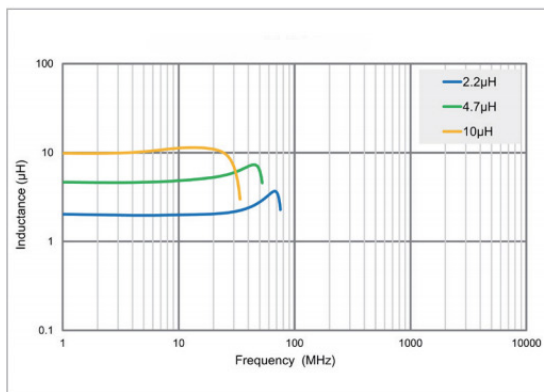


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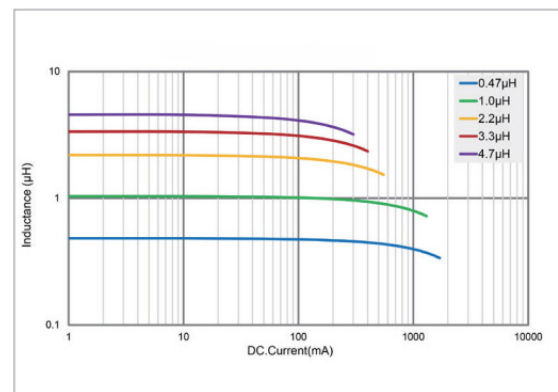
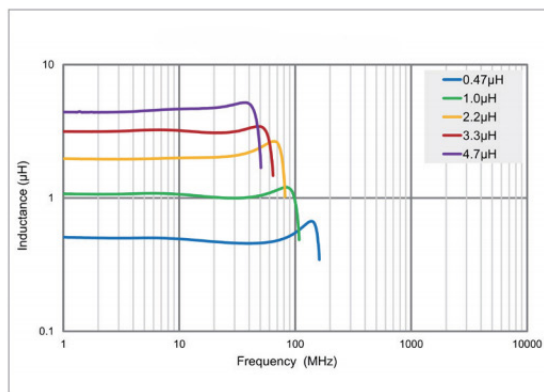
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NFPS0805_4R7TR75F
NFPS0805_100TR100F



NFPS0806_R47TR150F
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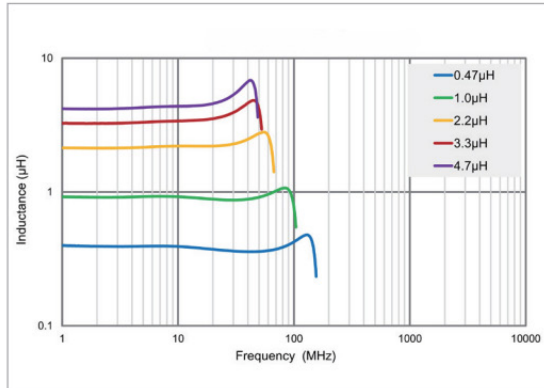


NFP Series

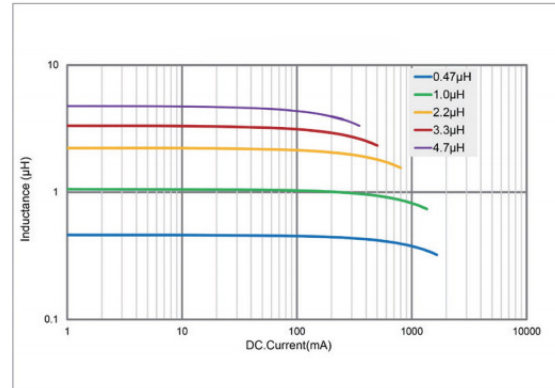
Surface Mount Multilayer Inductor



Inductance vs. Frequency

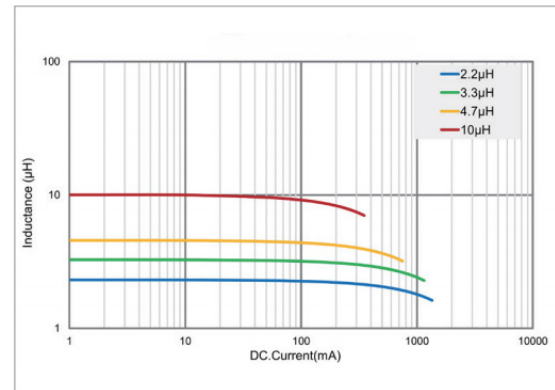
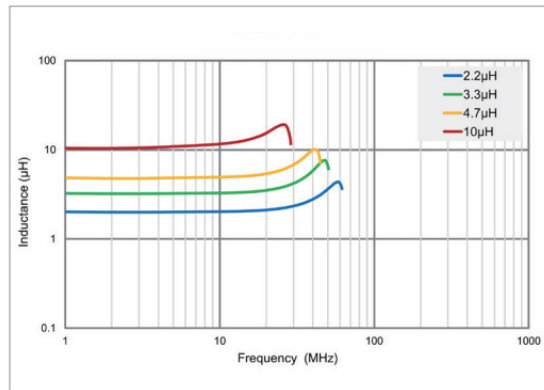


Inductance vs. DC Current

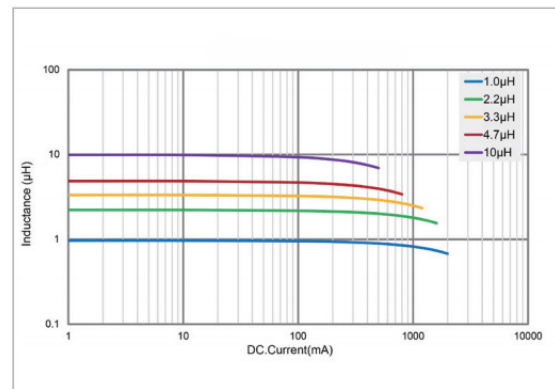
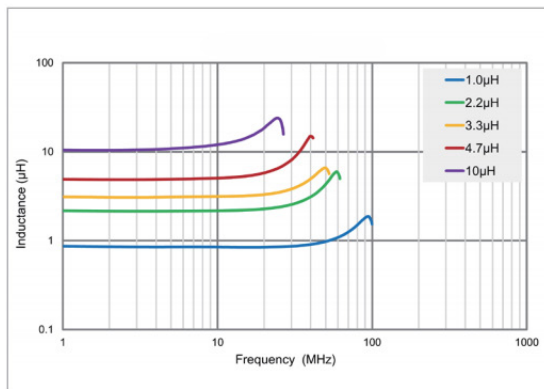


NFPS1008_R47TR180F
NFPS1008_1R0TR160F
NFPS1008_2R2TR130F
NFPS1008_3R3TR120F
NFPS1008_4R7TR110F

NFPS1008_2R2TR120F
NFPS1008_3R3TR110F
NFPS1008_4R7TR90F
NFPS1008_100TR70F



NFPS1008_1R0TR210F
NFPS1008_2R2TR110F
NFPS1008_3R3TR110F
NFPS1008_4R7TR90F
NFPS1008_100TR80F



NFP Series

Surface Mount Multilayer Inductor

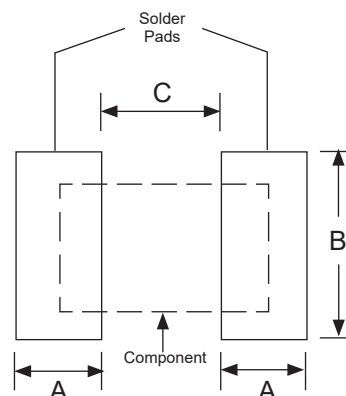


ENVIRONMENTAL CHARACTERISTICS

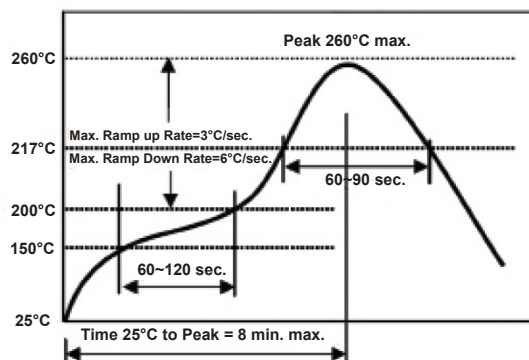
Test	Specification	Test Method & Condition
Resistance to Soldering Heat	No Mechanical Damage Inductance: $\pm 20\%$ of initial value (parts should be stabilized at room temperature for 2 hours prior to testing)	+260°C for 5 seconds
Low Frequency Vibration		Cycle 10Hz ~ 55Hz ~ 10Hz (1 minute), 2 hours each axis (X, Y, Z)
Thermal Shock		Cycle -40°C for 30 min. > +85°C 30 min., 100 cycles
Humidity		+60°C, 90% ~ 95%RH, 1,000 hours
Low Temperature Storage		-40°C for 1,000 hours
High Temperature Load Life		+85°C for 1,000 hours

LAND PATTERN DIMENSIONS

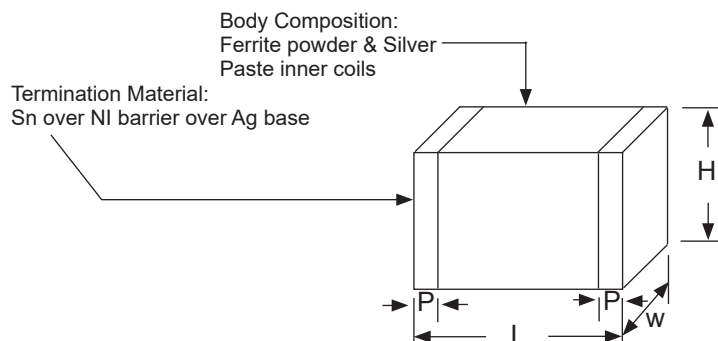
Series	A	B	C
NFP0603	0.6 ~ 0.8	0.6 ~ 0.8	0.6 ~ 0.8
NFP0805	0.8 ~ 1.2	0.9 ~ 1.6	0.8 ~ 1.2
NFP0806	0.8 ~ 1.2	1.2 ~ 2.0	0.8 ~ 1.2
NPF1008	0.6 ~ 1.0	1.8 ~ 2.2	1.0 ~ 1.4



REFLOW SOLDERING PROFILE



COMPOSITION



NFP Series

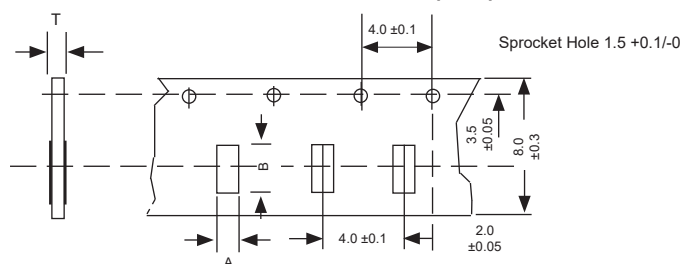
Surface Mount Multilayer Inductor



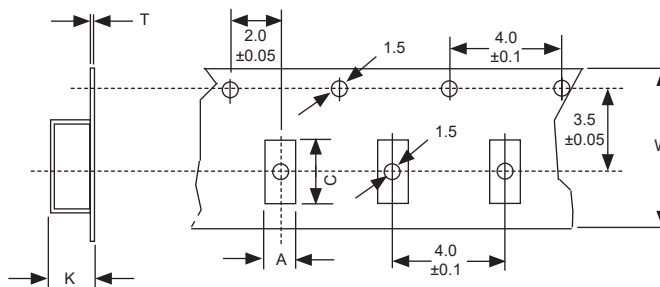
CARRIER DIMENSIONS & REEL QUANTITY (mm)

TYPE	Part Thickness	A	B	K max.	T max.	Carrier Material	Reel Qty
NFP0603	0.5 ± 0.05	1.0 ± 0.2	1.8 ± 0.2	N/A	0.8	Paper	5,000
	0.6 ± 0.10				0.8		5,000
	0.8 ± 0.15				1.1		4,000
NFP0805	0.5 ± 0.05	1.55 ± 0.10	2.30 ± 0.10	N/A	0.8	Paper	5,000
	0.5 ± 0.10				0.8		5,000
	0.8 ± 0.10				0.8		3,000
	0.9 ± 0.10				0.8		3,000
NFP0806	0.9 ± 0.10	1.90 ± 0.10	2.30 ± 0.10	N/A	0.3	Plastic	3,000
	1.1 ± 0.10						
	1.20 ± 0.0						
NFP1008	0.9 ± 0.10	2.30 ± 0.10	2.80 ± 0.10	N/A	0.3	Plastic	3,000
	1.1 ± 0.10						

PAPER CARRIER DIMENSIONS (mm)



EMBOSSED PLASTIC CARRIER DIMENSIONS (mm)



REEL DIMENSIONS (mm):

