

SMDインダクタ

SMD INDUCTORS



OPERATING TEMP	03, 04, 05, 06タイプ	-25~+105°C	(製品自己発熱を含む)
	08タイプ	-25~+85°C	(Including self-generated heat)

特長 FEATURES

- ・省スペース及び低背化
- ・大電流対応
- ・SMT対応

- ・ Small surface area and low profile.
- ・ Designed for high current applications where a surface mount component is required.
- ・ Available in embossed tape and reel.

用途 APPLICATIONS

- ・ HDD、デジタルビデオカメラ、ノート型パソコンなど各種機器の電源回路、DC / DCコンバータ等

- ・ Power supply circuits/DC-DC converters in a variety of applications where compact size is vital, such as digital camcorders, HDD, notebook PCs, etc.

形名表記法 ORDERING CODE

1	3	5	7																		
形式 N△ チョークコイル(非シールドタイプ) NP チョークコイル(シールドタイプ) △=スペース	形状 DP ドラム形(台座付き) DZ ドラム形(台座なし) S△, SZ ドラム応用形 △=スペース	公称インダクタンス[μH] 例 1R0 1.0 100 10 102 1000 ※R=小数点	当社管理記号 △△ 標準品 △=スペース																		
2	4	6																			
コア寸法(mm) 03 3.8 04 4.7 05 5.6 06 6.8 08 9.0	高さ寸法(mm) <table border="1"> <tr> <td></td> <td>03タイプ</td> <td>04タイプ</td> <td>05タイプ</td> <td>06タイプ</td> <td>08タイプ</td> </tr> <tr> <td>A</td> <td>—</td> <td>3.0max.</td> <td>—</td> <td>—</td> <td>6.0max.</td> </tr> <tr> <td>B</td> <td>1.8max.</td> <td>2.0max.</td> <td>2.8max.</td> <td>3.2max.</td> <td>5.0max.</td> </tr> </table>		03タイプ	04タイプ	05タイプ	06タイプ	08タイプ	A	—	3.0max.	—	—	6.0max.	B	1.8max.	2.0max.	2.8max.	3.2max.	5.0max.	インダクタンス許容差 J ±5% K ±10% M ±20% N ±30%	
	03タイプ	04タイプ	05タイプ	06タイプ	08タイプ																
A	—	3.0max.	—	—	6.0max.																
B	1.8max.	2.0max.	2.8max.	3.2max.	5.0max.																



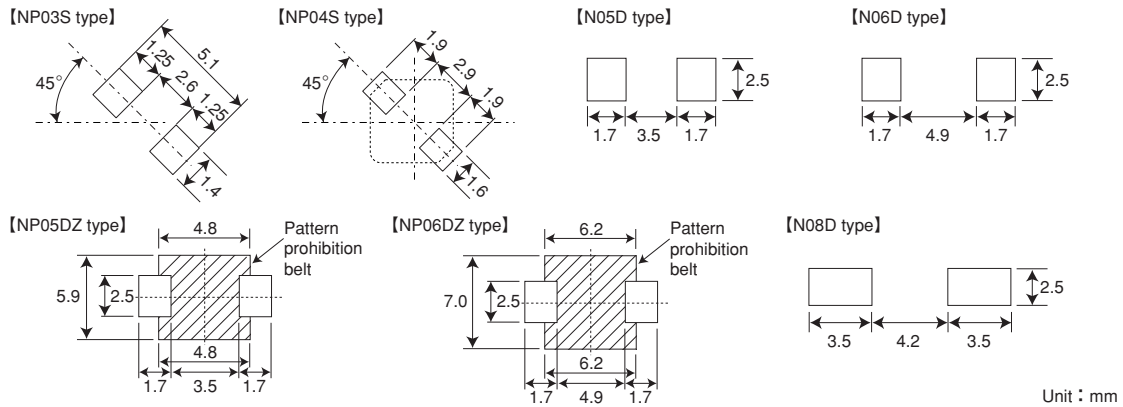
1	3	5	7																		
Type N△ Choke coil (non-shielded type) NP Choke coil (shielded type) △=Blank space	Shape DP Drum type (With base) DZ Drum type (Without base) S△, SZ Applied drum type △=Blank space	Nominal inductance[μH] example 1R0 1.0 100 10 102 1000 ※R=Decimal point	Internal code △△ Standard product △=Blank space																		
2	4	6																			
Core dimension(mm) 03 3.8 04 4.7 05 5.6 06 6.8 08 9.0	Height(mm) <table border="1"> <tr> <td></td> <td>03 type</td> <td>04 type</td> <td>05 type</td> <td>06 type</td> <td>08 type</td> </tr> <tr> <td>A</td> <td>—</td> <td>3.0max.</td> <td>—</td> <td>—</td> <td>6.0max.</td> </tr> <tr> <td>B</td> <td>1.8max.</td> <td>2.0max.</td> <td>2.8max.</td> <td>3.2max.</td> <td>5.0max.</td> </tr> </table>		03 type	04 type	05 type	06 type	08 type	A	—	3.0max.	—	—	6.0max.	B	1.8max.	2.0max.	2.8max.	3.2max.	5.0max.	Inductance tolerance J ±5% K ±10% M ±20% N ±30%	
	03 type	04 type	05 type	06 type	08 type																
A	—	3.0max.	—	—	6.0max.																
B	1.8max.	2.0max.	2.8max.	3.2max.	5.0max.																

外形寸法 EXTERNAL DIMENSIONS

Type	非シールド Non-Shielded type		磁気シールド Shielded type				非シールド Non-Shielded type			
	N05D	N06D	NP03S	NP04S		NP05DZ	NP06DZ	N08DP		
Fig.										
高さ記号 Height code	B	B	B	A	B, ZB	B	B	A	B	
L	5.9±0.3 (0.232±0.012)	7.3±0.3 (0.287±0.012)	4.0±0.2 (0.157±0.008)	5.0±0.2 (0.197±0.008)	5.0±0.2 (0.197±0.008)	5.9±0.3 (0.232±0.012)	7.0±0.3 (0.276±0.012)	9.0±0.2 (0.354±0.008)		
W	6.1±0.3 (0.240±0.012)	7.5±0.3 (0.295±0.012)	4.0±0.2 (0.157±0.008)	5.0±0.2 (0.197±0.008)	5.0±0.2 (0.197±0.008)	6.1±0.3 (0.240±0.012)	7.5±0.3 (0.295±0.012)	10.6±0.2 (0.417±0.008)		
H(max.)	2.8 (0.110)	3.2 (0.126)	1.8 (0.071)	3.0 (0.118)	2.0 (0.079)	2.8 (0.110)	3.2 (0.126)	6.0 (0.236)	5.0 (0.197)	
a	2.0±0.3 (0.079±0.012)	2.0±0.3 (0.079±0.012)	1.1±0.1 (0.043±0.004)	1.3±0.1 (0.051±0.004)	1.3±0.1 (0.051±0.004)	2.0±0.3 (0.079±0.012)	2.0±0.3 (0.079±0.012)	1.6±0.2 (0.063±0.008)		
b	4.2±0.3 (0.165±0.012)	5.7±0.3 (0.224±0.012)	4.5±0.2 (0.177±0.008)	5.8±0.3 (0.228±0.012)	5.8±0.3 (0.228±0.012)	4.2±0.3 (0.165±0.012)	5.7±0.3 (0.224±0.012)	5.1±0.2 (0.201±0.008)		

Unit : mm (inch)

推奨ランドパターン Recommended Land Patterns



概略バリエーション AVAILABLE INDUCTANCE RANGE

Type	N05D		N06D		NP03S		NP04S		NP04SZ	NP05DZ		NP06DZ		N08DP						
高さ記号 (min.)	B (2.8max.)		B (3.2max.)		B (1.8max.)		A (3.0max.)	B (2.0max.)	B (2.0max.)	B (2.8max.)		B (3.2max.)		A (6.0max.)	B (5.0max.)					
Inductance (H)	Rdc (Ω)	I _{max} (A)	Rdc (Ω)	I _{max} (A)	Rdc (Ω)	I _{max} (A)	Rdc (Ω)	I _{max} (A)	Rdc (Ω)	I _{max} (A)	Rdc (Ω)	I _{max} (A)	Rdc (Ω)	I _{max} (A)	Rdc (Ω)	I _{max} (A)				
1μ	0.021	3.7	0.021	3.9	0.023	2.5	0.036	1.3	0.030	3.0	0.019	4.2	0.019	4.6	0.028	3.9	0.023	4.0		
10μ	0.1	1.6	0.079	1.7	0.12	0.8	0.052	0.9	0.13	1.2	0.062	1.4	0.075	2.0	0.066	2.2	0.069	2.2		
100μ	0.83	0.55	0.68	0.6	0.43	0.45	0.16	0.44	0.32	0.38	0.37	0.64	0.84	0.45	0.70	0.64	0.35	1.05	0.49	0.82
1000μ			8.2	0.16									7.1	0.18	3.1	0.34	4.4	0.27		

セレクションガイド
Selection Guide

アイテム一覧
Part Numbers

特性図
Electrical Characteristics

梱包
Packaging

信頼性
Reliability Data

使用上の注意
Precautions



etc

NP03SBシールドタイプ Shielded type

形名 Ordering code	EHS (Environmental Hazardous Substances)	公称 インダクタンス Inductance [μH]	インダクタンス 許容差 Inductance Tolerance	自己共振 周波数 Self-resonant frequency [MHz] (min.)	直流抵抗 DC Resistance [mΩ]		定格電流 ※) Rated current [A]		測定 周波数 Measuring frequency
					(max.)	(typ.)	直流重畳許容電流 Saturation current Idc1	温度上昇許容電流 Temperature rise current Idc2	
NP03SB 1R0M	RoHS	1.0	±20%	60	27	23	2.60	2.50	1kHz
NP03SB 1R5M	RoHS	1.5		52	32	27	2.20	2.30	
NP03SB 2R0M	RoHS	2.0		45	38	32	1.90	2.00	
NP03SB 2R7M	RoHS	2.7		39	44	37	1.60	1.80	
NP03SB 3R3M	RoHS	3.3		33	50	42	1.30	1.60	
NP03SB 4R7M	RoHS	4.7		30	56	47	1.20	1.50	
NP03SB 6R8M	RoHS	6.8		24	100	84	1.00	1.10	
NP03SB 100M	RoHS	10		20	120	100	0.80	1.00	
NP03SB 150M	RoHS	15		19	270	230	0.66	0.70	
NP03SB 220M	RoHS	22		14	340	290	0.54	0.60	
NP03SB 330M	RoHS	33	10	430	360	0.45	0.50		

NP04SAシールドタイプ Shielded type

形名 Ordering code	EHS (Environmental Hazardous Substances)	公称 インダクタンス Inductance [μH]	インダクタンス 許容差 Inductance Tolerance	自己共振 周波数 Self-resonant frequency [MHz] (min.)	直流抵抗 DC Resistance [mΩ]		定格電流 ※) Rated current [A]		測定 周波数 Measuring frequency
					(max.)	(typ.)	直流重畳許容電流 Saturation current Idc1	温度上昇許容電流 Temperature rise current Idc2	
NP04SA 100M	RoHS	10	±20%	20	52	45	0.90	2.20	1kHz
NP04SA 220M	RoHS	22		13	110	90	0.53	1.50	
NP04SA 330M	RoHS	33		12	160	130	0.44	1.20	

NP04SBシールドタイプ Shielded type

形名 Ordering code	EHS (Environmental Hazardous Substances)	公称 インダクタンス Inductance [μH]	インダクタンス 許容差 Inductance Tolerance	自己共振 周波数 Self-resonant frequency [MHz] (min.)	直流抵抗 DC Resistance [mΩ]		定格電流 ※) Rated current [A]		測定 周波数 Measuring frequency
					(max.)	(typ.)	直流重畳許容電流 Saturation current Idc1	温度上昇許容電流 Temperature rise current Idc2	
NP04SB 3R3N	RoHS	3.3	±30%	40	36	30	1.30	2.60	1kHz
NP04SB 4R7N	RoHS	4.7		30	50	33	1.20	2.30	
NP04SB 6R8N	RoHS	6.8		27	53	43	1.05	2.00	
NP04SB 100M	RoHS	10	±20%	19	66	54	0.90	1.90	
NP04SB 150M	RoHS	15		15	120	100	0.62	1.40	
NP04SB 220M	RoHS	22		12	150	120	0.51	1.20	
NP04SB 330M	RoHS	33		10	260	210	0.42	1.10	
NP04SB 470M	RoHS	47		8	320	270	0.38	0.80	

NP04SZシールドタイプ Shielded type

形名 Ordering code	EHS (Environmental Hazardous Substances)	公称 インダクタンス Inductance [μH]	インダクタンス 許容差 Inductance Tolerance	自己共振 周波数 Self-resonant frequency [MHz] (min.)	直流抵抗 DC Resistance [mΩ]		定格電流 ※) Rated current [A]		測定 周波数 Measuring frequency
					(max.)	(typ.)	直流重畳許容電流 Saturation current Idc1	温度上昇許容電流 Temperature rise current Idc2	
NP04SZB 1R0N	RoHS	1.0	±30%	96	30	21	4.00	3.20	1kHz
NP04SZB 1R5N	RoHS	1.5		72	35	25	3.30	2.80	
NP04SZB 2R2N	RoHS	2.2		60	42	30	2.70	2.50	
NP04SZB 2R7N	RoHS	2.7		52	46	33	2.50	2.30	
NP04SZB 3R3N	RoHS	3.3		30	60	40	2.20	2.00	
NP04SZB 4R7N	RoHS	4.7		27	100	75	1.80	1.60	
NP04SZB 6R8N	RoHS	6.8		19	120	90	1.50	1.40	
NP04SZB 100M	RoHS	10	±20%	15	130	100	1.30	1.20	
NP04SZB 150M	RoHS	15		12	250	180	0.95	0.95	
NP04SZB 220M	RoHS	22		10	300	210	0.77	0.77	
NP04SZB 300M	RoHS	30		8.5	370	270	0.64	0.68	

※) 直流重畳許容電流(Idc1)は、直流重畳によるインダクタンス低下が30%以内となる直流電流値 (at 20°C)
The saturation current value(Idc1) is the DC current value having inductance decrease down to 30%. (at 20°C)

※) 温度上昇許容電流(Idc2)は、温度上昇が40°Cとなる直流電流値 (at 20°C)
The temperature rise current value(Idc2) is the DC current value having temperature increase up to 40°C. (at 20°C)

※) 定格電流値は直流重畳許容電流、または温度上昇許容電流をいずれも満足する直流電流値
The rated current is the DC current value that satisfies both of current value saturation current value and temperature rise current value.

N05DB 非シールドタイプ Non-Shielded type

形名 Ordering code	EHS (Environmental Hazardous Substances)	公称 インダクタンス Inductance [μH]	インダクタンス 許容差 Inductance Tolerance	自己共振 周波数 Self-resonant frequency [MHz] (min.)	直流抵抗 DC Resistance [Ω] (max.)	定格電流 Rated current [A] (max.)	測定 周波数 Measuring frequency
N 05DB 1R0M	RoHS	1.0	±20%	85	0.021	3.7	1kHz
N 05DB 1R5M	RoHS	1.5		69	0.025	3.2	
N 05DB 2R2M	RoHS	2.2		51	0.032	2.9	
N 05DB 3R3M	RoHS	3.3		45	0.040	2.5	
N 05DB 4R7M	RoHS	4.7		35	0.049	2.2	
N 05DB 6R8M	RoHS	6.8		30	0.070	2.1	
N 05DB 100K	RoHS	10	±10%	25	0.10	1.6	
N 05DB 150K	RoHS	15		24	0.16	1.40	
N 05DB 220K	RoHS	22		18	0.22	1.20	
N 05DB 330K	RoHS	33		14	0.35	0.80	
N 05DB 470K	RoHS	47		12	0.43	0.75	
N 05DB 680K	RoHS	68		9.7	0.66	0.65	
N 05DB 101K	RoHS	100		8.3	0.83	0.55	

NP05DZBシールドタイプ Shielded type

形名 Ordering code	EHS (Environmental Hazardous Substances)	公称 インダクタンス Inductance [μH]	インダクタンス 許容差 Inductance Tolerance	自己共振 周波数 Self-resonant frequency [MHz] (min.)	直流抵抗 DC Resistance [mΩ] (max.)	定格電流 ※) Rated current [A]		測定 周波数 Measuring frequency
						直流重畳許容電流 Saturation current Idc1	温度上昇許容電流 Temperature rise current Idc2	
NP05DZB 1R0M	RoHS	1.0	±20%	86	19	4.20	4.50	1kHz
NP05DZB 1R5M	RoHS	1.5		68	23	3.70	4.20	
NP05DZB 2R2M	RoHS	2.2		54	26	3.00	3.70	
NP05DZB 3R3M	RoHS	3.3		41	31	2.40	3.20	
NP05DZB 4R7M	RoHS	4.7		34	38	2.00	3.00	
NP05DZB 6R8M	RoHS	6.8		26	53	1.70	2.40	
NP05DZB 100M	RoHS	10		25	62	1.40	2.10	
NP05DZB 150M	RoHS	15		20	97	1.10	1.70	
NP05DZB 220M	RoHS	22		16	150	0.90	1.26	
NP05DZB 330M	RoHS	33		13	240	0.76	1.08	
NP05DZB 470M	RoHS	47		11	400	0.66	0.77	
NP05DZB 680M	RoHS	68		9.5	460	0.54	0.68	
NP05DZB 101M	RoHS	100		7.7	840	0.45	0.49	

※) 直流重畳許容電流(Idc1)は、直流重畳によるインダクタンス低下が30%以内となる直流電流値 (at 20℃)

The saturation current value(Idc1) is the DC current value having inductance decrease down to 30%. (at 20℃)

※) 温度上昇許容電流(Idc2)は、温度上昇が40℃となる直流電流値 (at 20℃)

The temperature rise current value(Idc2) is the DC current value having temperature increase up to 40℃. (at 20℃)

※) 定格電流値は直流重畳許容電流、または温度上昇許容電流をいずれも満足する直流電流値

The rated current is the DC current value that satisfies both of current value saturation current value and temperature rise current value.

N06DB 非シールドタイプ Non-Shielded type

形名 Ordering code	EHS (Environmental Hazardous Substances)	公称 インダクタンス Inductance [μH]	インダクタンス 許容差 Inductance Tolerance	自己共振 周波数 Self-resonant frequency [MHz] (min.)	直流抵抗 DC Resistance [Ω] (max.)	定格電流 Rated current [A] (max.)	測定 周波数 Measuring frequency
N 06D B1R0M	RoHS	1.0	±20%	87	0.021	3.9	1kHz
N 06D B2R2M	RoHS	2.2		53	0.029	3.2	
N 06D B4R7M	RoHS	4.7		33	0.046	2.5	
N 06D B100K	RoHS	10	±10%	22	0.079	1.7	
N 06D B150K	RoHS	15		18	0.12	1.3	
N 06D B220K	RoHS	22		13	0.17	1.1	
N 06D B330K	RoHS	33		9.8	0.25	0.95	
N 06D B470K	RoHS	47		8.8	0.32	0.80	
N 06D B680K	RoHS	68		8.1	0.45	0.70	
N 06D B101K	RoHS	100		7.9	0.68	0.60	
N 06D B151K	RoHS	150		6.0	1.0	0.48	
N 06D B221K	RoHS	220		5.2	1.4	0.40	
N 06D B331K	RoHS	330		4.4	2.3	0.32	
N 06D B471K	RoHS	470	3.4	3.6	0.25		
N 06D B681K	RoHS	680	2.6	4.6	0.21		
N 06D B102J	RoHS	1000	±5%	2.1	8.2	0.16	

NP06DZB シールドタイプ Shielded type

形名 Ordering code	EHS (Environmental Hazardous Substances)	公称 インダクタンス Inductance [μH]	インダクタンス 許容差 Inductance Tolerance	自己共振 周波数 Self-resonant frequency [MHz] (min.)	直流抵抗 DC Resistance [mΩ] (max.)	定格電流 ※) Rated current [A]		測定 周波数 Measuring frequency
						直流重畳許容電流 Saturation current Idc1	温度上昇許容電流 Temperature rise current Idc2	
NP06DZB 1R0M	RoHS	1.0	±20%	90	19	6.90	4.60	1kHz
NP06DZB 1R5M	RoHS	1.5		71	23	5.80	4.00	
NP06DZB 2R2M	RoHS	2.2		53	26	5.10	3.60	
NP06DZB 3R3M	RoHS	3.3		39	34	3.60	3.30	
NP06DZB 4R7M	RoHS	4.7		36	38	3.00	3.00	
NP06DZB 6R8M	RoHS	6.8		28	52	2.80	2.50	
NP06DZB 100M	RoHS	10		20	75	2.10	2.00	
NP06DZB 150M	RoHS	15		17	110	1.80	1.70	
NP06DZB 220M	RoHS	22		14	160	1.50	1.40	
NP06DZB 330M	RoHS	33		10	210	1.30	1.10	
NP06DZB 470M	RoHS	47		9.3	310	1.03	0.91	
NP06DZB 680M	RoHS	68		8.0	450	0.90	0.73	
NP06DZB 101M	RoHS	100		6.7	700	0.65	0.64	
NP06DZB 151M	RoHS	150		5.3	890	0.59	0.56	
NP06DZB 221M	RoHS	220		4.8	1500	0.49	0.42	
NP06DZB 331M	RoHS	330		3.7	2500	0.39	0.31	
NP06DZB 471M	RoHS	470		3.0	3000	0.31	0.29	
NP06DZB 681M	RoHS	680		2.5	5500	0.23	0.23	
NP06DZB 102M	RoHS	1000	2.0	7100	0.18	0.18		

※) 直流重畳許容電流(Idc1)は、直流重畳によるインダクタンス低下が30%以内となる直流電流値 (at 20℃)
The saturation current value(Idc1) is the DC current value having inductance decrease down to 30%. (at 20℃)

※) 温度上昇許容電流(Idc2)は、温度上昇が40℃となる直流電流値 (at 20℃)
The temperature rise current value(Idc2) is the DC current value having temperature increase up to 40℃. (at 20℃)

※) 定格電流値は直流重畳許容電流、または温度上昇許容電流をいずれも満足する直流電流値
The rated current is the DC current value that satisfies both of current value saturation current value and temperature rise current value.

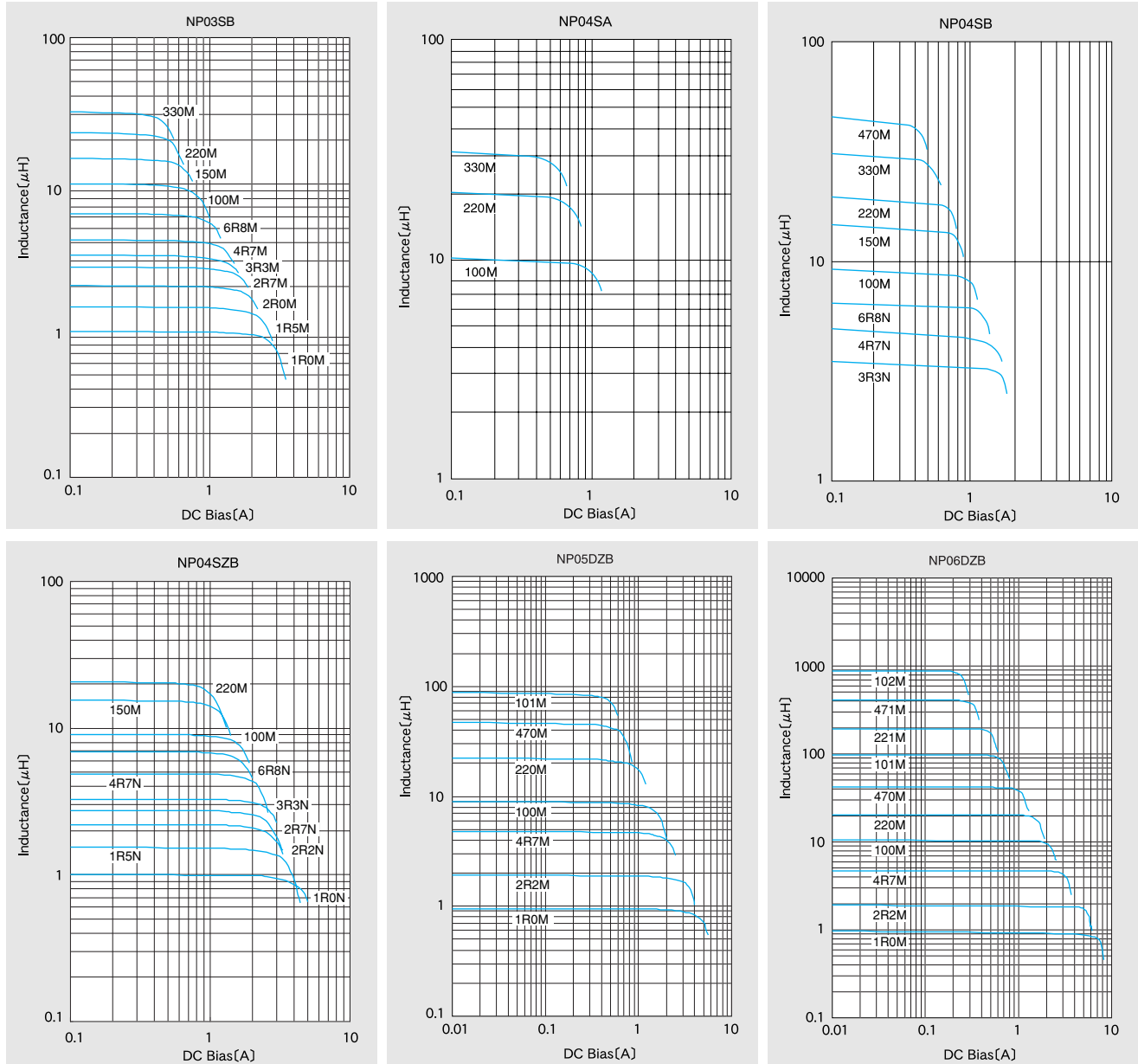
N08DPA 非シールドタイプ Non-Shielded type

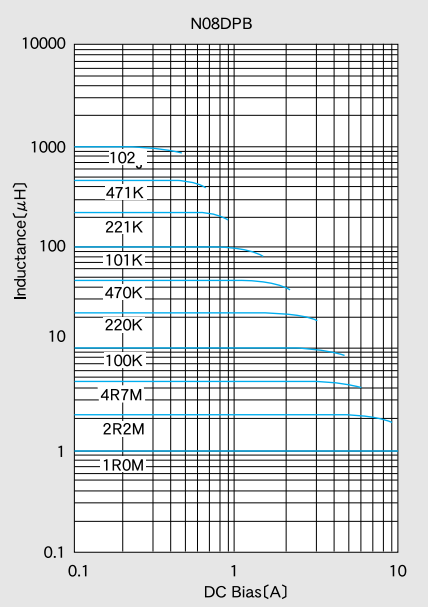
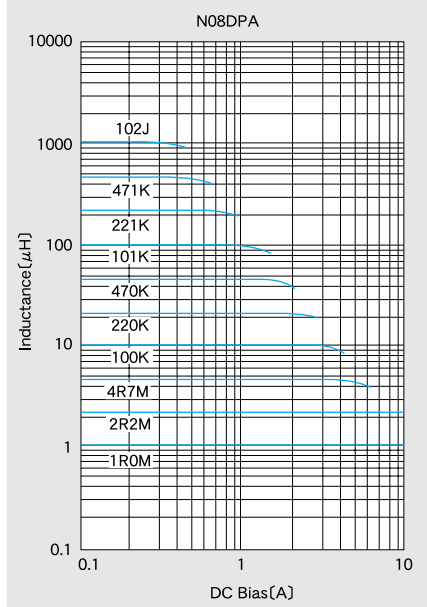
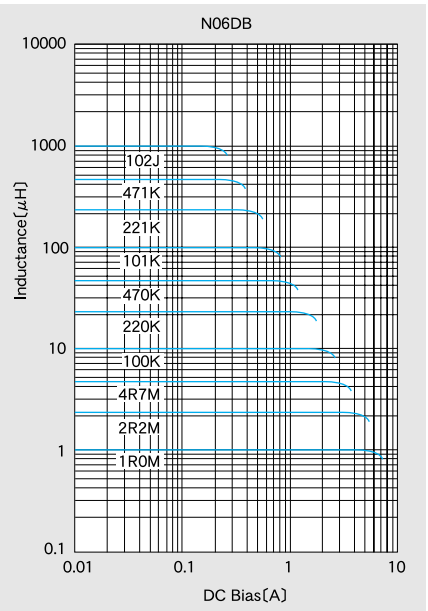
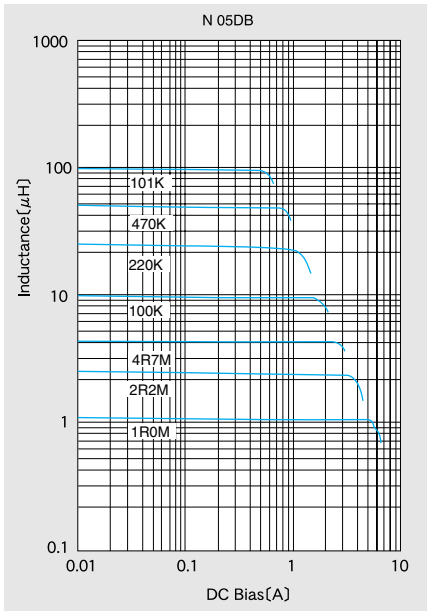
形名 Ordering code	EHS (Environmental Hazardous Substances)	公称 インダクタンス Inductance [μH]	インダクタンス 許容差 Inductance Tolerance	自己共振 周波数 Self-resonant frequency [MHz] (min.)	直流抵抗 DC Resistance [Ω] (max.)	定格電流 Rated current [A] (max.)	測定 周波数 Measuring frequency
N 08DPA1R0M	RoHS	1.0	±20%	86	0.028	3.9	1kHz
N 08DPA1R5M	RoHS	1.5		69	0.030	3.4	
N 08DPA2R2M	RoHS	2.2		58	0.036	3.2	
N 08DPA3R3M	RoHS	3.3		50	0.039	3.0	
N 08DPA4R7M	RoHS	4.7		30	0.047	2.6	
N 08DPA6R8M	RoHS	6.8		21	0.057	2.4	
N 08DPA100K	RoHS	10		18	0.066	2.2	
N 08DPA120K	RoHS	12	±10%	16	0.077	2.1	
N 08DPA150K	RoHS	15		14	0.087	2.0	
N 08DPA180K	RoHS	18		13	0.092	1.9	
N 08DPA220K	RoHS	22		11	0.11	1.8	
N 08DPA270K	RoHS	27		10	0.12	1.6	
N 08DPA330K	RoHS	33		9.5	0.14	1.55	
N 08DPA390K	RoHS	39		8.9	0.15	1.5	
N 08DPA470K	RoHS	47		8.6	0.17	1.4	
N 08DPA560K	RoHS	56		8.3	0.19	1.35	
N 08DPA680K	RoHS	68		7.9	0.23	1.3	
N 08DPA820K	RoHS	82		7.3	0.30	1.1	
N 08DPA101K	RoHS	100		6.7	0.35	1.05	
N 08DPA121K	RoHS	120		6.5	0.40	0.95	
N 08DPA151K	RoHS	150		6.0	0.55	0.80	
N 08DPA181K	RoHS	180		4.9	0.62	0.76	
N 08DPA221K	RoHS	220		4.1	0.80	0.66	
N 08DPA271K	RoHS	270		3.4	0.90	0.63	
N 08DPA331K	RoHS	330		3.2	1.1	0.59	
N 08DPA391K	RoHS	390		2.9	1.2	0.54	
N 08DPA471K	RoHS	470		2.6	1.5	0.50	
N 08DPA561K	RoHS	560		2.4	1.7	0.45	
N 08DPA681K	RoHS	680	2.2	2.4	0.38		
N 08DPA821K	RoHS	820	1.9	2.6	0.36		
N 08DPA102J	RoHS	1000	±5%	1.8	3.1	0.34	

N08DPB 非シールドタイプ Non-Shielded type

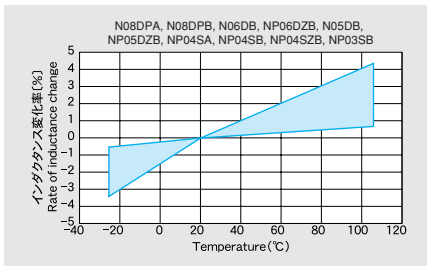
形名 Ordering code	EHS (Environmental Hazardous Substances)	公称 インダクタンス Inductance [μH]	インダクタンス 許容差 Inductance Tolerance	自己共振 周波数 Self-resonant frequency [MHz] (min.)	直流抵抗 DC Resistance [Ω] (max.)	定格電流 Rated current [A] (max.)	測定 周波数 Measuring frequency
N 08DPB1R0M	RoHS	1.0	±20%	98	0.023	4.0	1kHz
N 08DPB1R5M	RoHS	1.5		73	0.028	3.7	
N 08DPB2R2M	RoHS	2.2		56	0.032	3.4	
N 08DPB3R3M	RoHS	3.3		42	0.037	3.2	
N 08DPB4R7M	RoHS	4.7		32	0.047	2.7	
N 08DPB6R8M	RoHS	6.8		26	0.057	2.4	
N 08DPB100K	RoHS	10		21	0.069	2.2	
N 08DPB120K	RoHS	12	±10%	20	0.074	2.1	
N 08DPB150K	RoHS	15		17	0.087	2.0	
N 08DPB180K	RoHS	18		16	0.099	1.9	
N 08DPB220K	RoHS	22		14	0.12	1.8	
N 08DPB270K	RoHS	27		13	0.15	1.5	
N 08DPB330K	RoHS	33		12	0.18	1.4	
N 08DPB390K	RoHS	39		11	0.19	1.3	
N 08DPB470K	RoHS	47		10	0.22	1.2	
N 08DPB560K	RoHS	56		9.2	0.29	1.1	
N 08DPB680K	RoHS	68		8.3	0.34	1.0	
N 08DPB820K	RoHS	82		7.6	0.39	0.94	
N 08DPB101K	RoHS	100		7.3	0.49	0.82	
N 08DPB121K	RoHS	120		6.8	0.54	0.79	
N 08DPB151K	RoHS	150		6.2	0.66	0.75	
N 08DPB181K	RoHS	180		5.8	0.75	0.68	
N 08DPB221K	RoHS	220		5.0	0.92	0.63	
N 08DPB271K	RoHS	270		4.5	1.1	0.56	
N 08DPB331K	RoHS	330		4.2	1.5	0.48	
N 08DPB391K	RoHS	390		4.0	1.7	0.45	
N 08DPB471K	RoHS	470		3.0	2.1	0.41	
N 08DPB561K	RoHS	560		2.7	2.4	0.38	
N 08DPB681K	RoHS	680	2.5	2.7	0.36		
N 08DPB821K	RoHS	820	2.4	3.1	0.33		
N 08DPB102J	RoHS	1000	±5%	2.1	4.4	0.27	

直流重畳特性例 DC Bias characteristics(Measured by HP4262A)





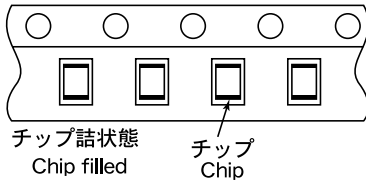
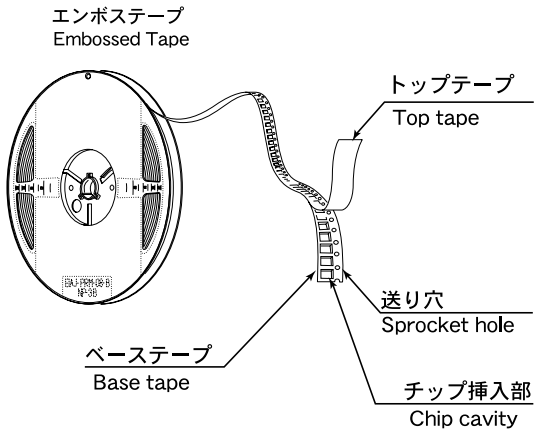
温度特性例 Temperature characteristics (Measured by HP4262A)



①最小受注単位数 Minimum Quantity

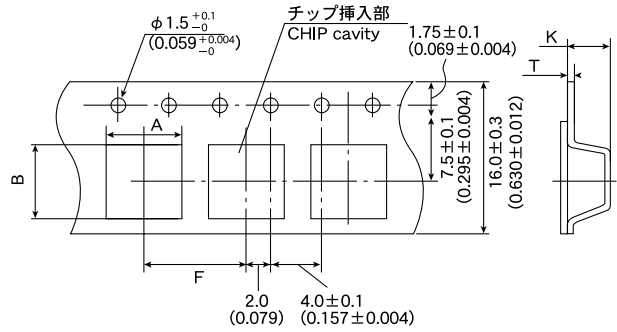
形式 Type	高さ記号 Height code	標準数量 Standard quantity (pcs.)
		テーピング Taped
NP04S	A	2000
NP03S, NP04S, NP04SZ	B	3000
N05D	B	1500
NP05DZ	B	1500
N06D	B	1500
NP06DZ	B	1500
N08DP	A	1000
N08DP	B	1500

②テーピング材質 Tape Material



③テーピング寸法 Taping dimensions

(1)エンボステープ (16mm幅) Embossed tape (0.63 inches wide)



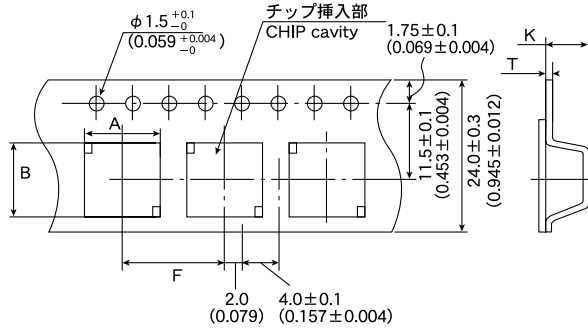
形式 Type	高さ記号 Height code	チップ挿入部 Chip cavity		挿入ピッチ Insertion pitch F	テープ厚み Tape thickness	
		A	B		K	T
N 05D	B	6.1 (0.240)	6.3 (0.248)	12 (0.472)	3.4 (0.134)	0.4 (0.016)
NP05DZ	B	6.1 (0.240)	6.3 (0.248)	12 (0.472)	3.4 (0.134)	0.4 (0.016)
N06D	B	7.5 (0.295)	7.7 (0.303)	12 (0.472)	3.7 (0.138)	0.4 (0.016)
NP06DZ	B	7.5 (0.295)	7.7 (0.303)	12 (0.472)	3.7 (0.138)	0.4 (0.016)

Unit : mm (inch)

公差のない数値は参考値です。
The values without tolerance are for reference only.

Tape Material

(2)エンボステープ (24mm幅) Embossed Tape(0.94 inches wide)



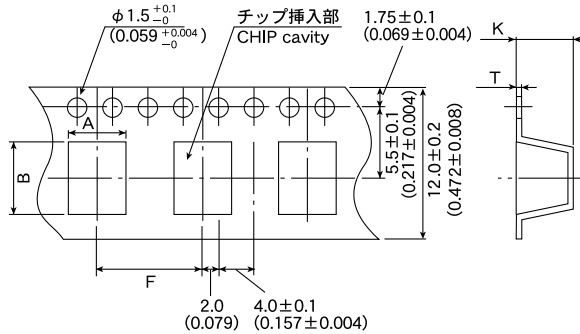
形式 Type	高さ記号 Height code	チップ挿入部 Chip cavity		挿入ピッチ Insertion pitch	テープ厚み Tape thickness	
		A	B		F	K
N08DP	A	9.4 (0.370)	11.0 (0.433)	12 (0.472)	6.0 (0.236)	0.4 (0.016)
	B	9.4 (0.370)	11.0 (0.433)	12 (0.472)	5.0 (0.197)	0.4 (0.016)

Unit : mm(inch)

公差のない数値は参考値です。

The values without tolerance are for reference only.

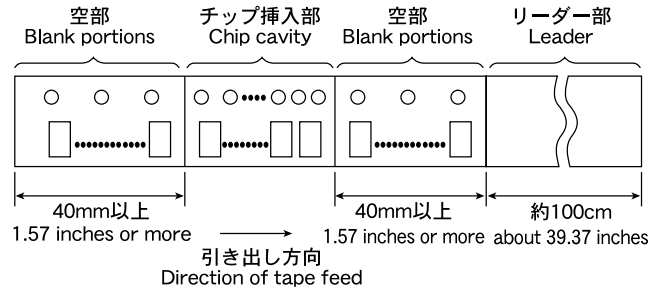
(3)エンボステープ (12mm幅) Embossed Tape(0.47 inches wide)



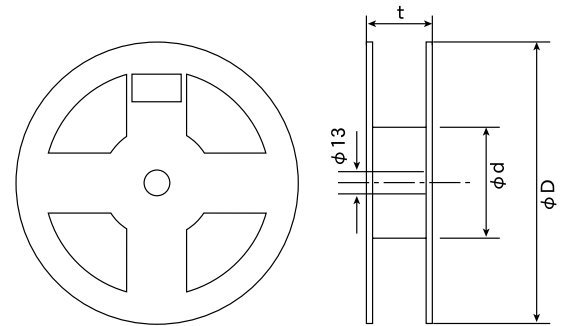
形式 Type	高さ記号 Height code	チップ挿入部 Chip cavity		挿入ピッチ Insertion pitch	テープ厚み Tape thickness	
		A	B		F	K
NP03S	B	4.3 (0.169)	4.3 (0.169)	8.0 (0.315)	2.2 (0.087)	0.4 (0.016)
NP04S	A	5.25 (0.207)	5.25 (0.207)	8.0 (0.315)	3.7 (0.146)	0.4 (0.016)
NP04S NP04SZ	B	5.25 (0.207)	5.25 (0.207)	8.0 (0.315)	2.7 (0.106)	0.4 (0.016)

Unit : mm(inch)

④リーダー部・空部 Leader and Blank portion



⑤リール寸法 Reel size

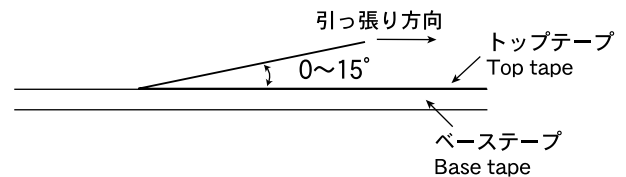


形式 Type	リール寸法 Reel size(mm) (参考値 Reference values)		
	φD	φd	t
NP03S, NP04S, NP04SZ	330(12.99)	80(3.15)	17.5(0.689)
N05D	330(12.99)	80(3.15)	21.5(0.846)
NP05D	330(12.99)	80(3.15)	21.5(0.846)
N06D	330(12.99)	80(3.15)	21.5(0.846)
NP06D	330(12.99)	80(3.15)	21.5(0.846)
N08DP	380(14.96)	80(3.15)	29.5(1.16)


⑥トップテープ強度 Top Tape Strength

トップテープのはがし力は、下図矢印方向にて0.1~0.7Nとなります。

The top tape requires a peel-off force of 0.1 to 0.7N in the direction of the arrow as illustrated below.



Item	Specified Value				Test Method and Remarks										
	Surface Mount High current inductors NR30/40/60 Type	Surface Mount High current inductors NR10050 Type	Surface Mount High current inductors 08 Type	Surface Mount High current inductors 04/05/06 Type											
1. Operating Temperature Range	-25°C~+120°C	-25°C~+105°C	-25~+85°C	-25~+105°C	Including self-generated heat										
2. Storage Temperature Range	-40°C~+85°C				NR30/40/60 Type, 08Type, 04/05/06Type : For products in unopened tape package, -5 to 40°C NR10050 Type : For the product without taping. (0 ~40°C for the product with taping)										
3. Rated current	Within the specification				The maximum DC value having inductance decrease within specified value and temperature increase within 40°C by the application of DC bias. Inductance decrease <table border="1"> <tr> <td>NR30/40/60 type NP04, NP05DZ, NP06DZ, NR10050</td> <td>N05D</td> <td>N06D</td> </tr> <tr> <td></td> <td>30%</td> <td>20% 10%</td> </tr> </table>	NR30/40/60 type NP04, NP05DZ, NP06DZ, NR10050	N05D	N06D		30%	20% 10%				
NR30/40/60 type NP04, NP05DZ, NP06DZ, NR10050	N05D	N06D													
	30%	20% 10%													
4. Inductance	Within the specified tolerance				NR30/40/60 Type : LCR Meter : HP 4285A or equivalent, 100KHz, 1V 08Type, 04/05/06Type : HP4284A or equivalent, 1KHz, 1V NR10050Type : LCR Meter : HP 4263A or equivalent, 100KHz, 1V										
5. DC Resisitance	Within the specified tolerance				DC ohmmeter : HIOKI 3227 or equivalent										
6. Self resonance frequency	Within the specification				NR30/40/60 Type, NR10050Type : Impedance analyzer/material analyzer : HP4291A or equivalent 08 Type, 04/05/06 Type : Impedance analyzer/material analyzer : HP4191A, 4192A or equivalent										
7. Temperature characteristic	Inductance change : ±20%		Inductance change : ±5%	Inductance change : ±10%	NR30/40/60 Type, NR10050Type : Measurement of inductance shall be taken at temperature range within -25°C~+85°C. With reference to inductance value at +20°C., change rate shall be calculated. 08Type, 04/05/06Type : Change of maximum inductance deviation in step 1 to 5 <table border="1"> <tr> <td>Temperature at step 1</td> <td>20°C</td> </tr> <tr> <td>Temperature at step 2</td> <td>Minimum operating temperature</td> </tr> <tr> <td>Temperature at step 3</td> <td>20°C (Standard temperature)</td> </tr> <tr> <td>Temperature at step 4</td> <td>Maximum operating temperature</td> </tr> <tr> <td>Temperature at step 5</td> <td>20°C</td> </tr> </table>	Temperature at step 1	20°C	Temperature at step 2	Minimum operating temperature	Temperature at step 3	20°C (Standard temperature)	Temperature at step 4	Maximum operating temperature	Temperature at step 5	20°C
Temperature at step 1	20°C														
Temperature at step 2	Minimum operating temperature														
Temperature at step 3	20°C (Standard temperature)														
Temperature at step 4	Maximum operating temperature														
Temperature at step 5	20°C														
8. Resistance to flexure of substrate	No damage.				NR30/40/60 Type : The test samples shall be soldered to the test board by the reflow . As illustrated below, apply force in the direction of the arrow indicating until deflection of the test board reaches to 2 mm. Test board size : 100×40×1.0 Test board material : glass epoxy-resin Solder cream thickness : 0.15 <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Land dimension(NR40...)</p> <p>Unit : mm</p> </div> <div style="text-align: center;"> <p>Land dimension(NR30...)</p> <p>Unit : mm</p> </div> </div> <div style="text-align: center; margin-top: 10px;"> <p>Land dimension(NR60...)</p> <p>Unit : mm</p> </div> <div style="text-align: center; margin-top: 10px;"> </div>										
9. Insulation resistance : between wires					08 Type, 04/05/06 Type : Applied voltage : 100VDC Duration : 60 sec										
10. Insulation resistance : between wire and core					08 Type, 04/05/06 Type : Applied voltage : 100VDC Duration : 60 sec										
11. Withstanding voltage : between wires and core					08 Type, 04/05/06 Type : Applied voltage : 500VAC Duration : 60 sec										

Item	Specified Value				Test Method and Remarks																														
	Surface Mount High current inductors NR30/40/60 Type	Surface Mount High current inductors NR10050 Type	Surface Mount High current inductors 08 Type	Surface Mount High current inductors 04/05/06 Type																															
12. Adhesion of terminal electrode	No abnormality				<p>NR30/40/60Type :</p> <p>The test samples shall be soldered to the test board by the reflow.</p> <p>Applied force : 10N to X and Y directions. Duration : 5s.</p> <p>Solder cream thickness : 0.15mm.</p>  <p>NR10050Type :</p> <p>Applied force : 5N to X and Y directions. Duration : 5s.</p> <p>08 Type, 04/05/06 Type :</p> <p>Self testing jigs perpendicularly to top surface of specimen mounted on printed board, and apply specified static load for 5 sec</p> <p>Specified static load</p> <table border="1"> <thead> <tr> <th>Type</th> <th>static load</th> </tr> </thead> <tbody> <tr> <td>N08DP</td> <td>10N</td> </tr> <tr> <td>NP04S</td> <td rowspan="5">5N</td> </tr> <tr> <td>N05D</td> </tr> <tr> <td>NP05DZ</td> </tr> <tr> <td>N06D</td> </tr> <tr> <td>NP06DZ</td> </tr> </tbody> </table>	Type	static load	N08DP	10N	NP04S	5N	N05D	NP05DZ	N06D	NP06DZ																				
Type	static load																																		
N08DP	10N																																		
NP04S	5N																																		
N05D																																			
NP05DZ																																			
N06D																																			
NP06DZ																																			
13. Resistance to vibration	Inductance change : ±10%	Inductance change : ±5%		<p>NR30/40/60 Type, NR10050Type : The test samples shall be soldered to the test board by the reflow.</p> <p>Then it shall be submitted to below test conditions.</p> <table border="1"> <tr> <td>Frequency Range</td> <td colspan="2">10~55Hz</td> </tr> <tr> <td>Total Amplitude</td> <td colspan="2">1.5mm(May not exceed acceleration 196 m/S²)</td> </tr> <tr> <td>Sweeping Method</td> <td colspan="2">10Hz to 55Hz to 10 Hz for 1 min.</td> </tr> <tr> <td rowspan="3">Time</td> <td>X</td> <td rowspan="3">For 2 hours on each X, Y, and Z axis.</td> </tr> <tr> <td>Y</td> </tr> <tr> <td>Z</td> </tr> </table> <p>08Type, 04/05/06Type : According to JIS 0040, The test samples shall be soldered to the test board by the reflow.</p> <p>Then it shall be submitted to below test conditions.</p> <table border="1"> <tr> <td>Frequency Range</td> <td colspan="2">10~55Hz</td> </tr> <tr> <td>Total Amplitude</td> <td colspan="2">1.5mm(May not exceed acceleration 196 m/S²)</td> </tr> <tr> <td>Sweeping Method</td> <td colspan="2">10Hz to 55Hz to 10 Hz for 1 min.</td> </tr> <tr> <td rowspan="3">Time</td> <td>X</td> <td rowspan="3">For 2 hours on each X, Y, and Z axis.</td> </tr> <tr> <td>Y</td> </tr> <tr> <td>Z</td> </tr> <tr> <td>A kind of vibration</td> <td colspan="2">A</td> </tr> </table> <p>Recovery : At least 2hrs of recovery under the standard condition after the test, followed by the measurement within 24 hrs.</p>	Frequency Range	10~55Hz		Total Amplitude	1.5mm(May not exceed acceleration 196 m/S ²)		Sweeping Method	10Hz to 55Hz to 10 Hz for 1 min.		Time	X	For 2 hours on each X, Y, and Z axis.	Y	Z	Frequency Range	10~55Hz		Total Amplitude	1.5mm(May not exceed acceleration 196 m/S ²)		Sweeping Method	10Hz to 55Hz to 10 Hz for 1 min.		Time	X	For 2 hours on each X, Y, and Z axis.	Y	Z	A kind of vibration	A	
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Time	X	For 2 hours on each X, Y, and Z axis.																																	
	Y																																		
	Z																																		
A kind of vibration	A																																		
14. Solderability	At least 90% of surface of terminal electrode is covered by new solder.	95% or more of mounting terminal side shall be covered with fresh solder		<p>NR30/40/60 Type, NR10050 Type : The test samples shall be dipped in flux, and then immersed in molten solder as shown in below table Flux : Methanol solution containing rosin 25%.</p> <p>NR30/40/60Type :</p> <table border="1"> <tr> <td>Solder Temperature</td> <td>235±5°C</td> </tr> <tr> <td>Time</td> <td>5±0.5sec</td> </tr> </table> <p>NR10050Type :</p> <table border="1"> <tr> <td>Solder Temperature</td> <td>245±5°C</td> </tr> <tr> <td>Time</td> <td>5±1.0sec</td> </tr> </table> <p>08Type, 04/05/06Type :</p> <table border="1"> <tr> <td>Solder Temperature</td> <td>235±5°C</td> </tr> <tr> <td>Time</td> <td>2±0.5sec</td> </tr> </table> <p>※Immersion depth : All sides of mounting terminal shall be immersed.</p>	Solder Temperature	235±5°C	Time	5±0.5sec	Solder Temperature	245±5°C	Time	5±1.0sec	Solder Temperature	235±5°C	Time	2±0.5sec																			
Solder Temperature	235±5°C																																		
Time	5±0.5sec																																		
Solder Temperature	245±5°C																																		
Time	5±1.0sec																																		
Solder Temperature	235±5°C																																		
Time	2±0.5sec																																		

Item	Specified Value				Test Method and Remarks																																																						
	Surface Mount High current inductors NR30/40/60 Type	Surface Mount High current inductors NR10050 Type	Surface Mount High current inductors 08 Type	Surface Mount High current inductors 04/05/06 Type																																																							
15. Resistance to soldering heat	Inductance change : $\pm 10\%$		No abnormality		<p>NR30/40/60 Type, NR10050 Type : The test sample shall be exposed to reflow oven at $230\pm 5^\circ\text{C}$ for 40 seconds, with peak temperature at $260\pm 5^\circ\text{C}$ for 5 seconds, 2 times. Test board thickness : 1.0 mm Test board material : glass epoxy-resin</p> <p>08 Type, 04/05/06 Type (Reflow soldering)</p> <table border="1"> <tr> <td>Temp.rag</td> <td>150~180°C</td> <td>180°C min</td> <td>Peak temperature 240~250°C</td> </tr> <tr> <td>Duration</td> <td>120~150sec</td> <td>40~60sec</td> <td>Within 5sec</td> </tr> </table> <p>Recovery : At least 2hrs of recovery under the standard condition after the test , followed by the measurement within 24 hrs.</p>	Temp.rag	150~180°C	180°C min	Peak temperature 240~250°C	Duration	120~150sec	40~60sec	Within 5sec																																														
Temp.rag	150~180°C	180°C min	Peak temperature 240~250°C																																																								
Duration	120~150sec	40~60sec	Within 5sec																																																								
16. Thermal shock	Inductance change : $\pm 10\%$		Inductance change : Within $\pm 10\%$		<p>NR30/40/60 Type, NR10050 Type : The test samples shall be soldered to the test board by the reflow. The test samples shall be placed at specified temperature for specified time by step 1 to step 4 as shown in below table in sequence. The temperature cycle shall be repeated 10 cycles.</p> <table border="1"> <thead> <tr> <th colspan="3">Conditions of 1 cycle</th> </tr> <tr> <th>Step</th> <th>Temperature(°C)</th> <th>Duration(min)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-40 ± 3</td> <td>30± 3</td> </tr> <tr> <td>2</td> <td>Room temperature</td> <td>Within 3</td> </tr> <tr> <td>3</td> <td>$+85\pm 2$</td> <td>30± 3</td> </tr> <tr> <td>4</td> <td>Room temperature</td> <td>Within 3</td> </tr> </tbody> </table> <p>Accoding to JIS 0025</p> <p>08 Type :</p> <table border="1"> <thead> <tr> <th colspan="3">Conditions of 1 cycle</th> </tr> <tr> <th>Step</th> <th>Temperature(°C)</th> <th>Duration(min)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-25^{+0}_{-3}</td> <td>30± 3</td> </tr> <tr> <td>2</td> <td>Room temperature</td> <td>Within 3</td> </tr> <tr> <td>3</td> <td>$+85^{+2}_{-0}$</td> <td>30± 3</td> </tr> <tr> <td>4</td> <td>Room temperature</td> <td>Within 3</td> </tr> </tbody> </table> <p>04/05/06 Type :</p> <table border="1"> <thead> <tr> <th colspan="3">Conditions of 1 cycle</th> </tr> <tr> <th>Step</th> <th>Temperature(°C)</th> <th>Duration(min)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-25^{+0}_{-3}</td> <td>30± 3</td> </tr> <tr> <td>2</td> <td>Room temperature</td> <td>Within 3</td> </tr> <tr> <td>3</td> <td>$+105^{+2}_{-0}$</td> <td>30± 3</td> </tr> <tr> <td>4</td> <td>Room temperature</td> <td>Within 3</td> </tr> </tbody> </table> <p>Number of cycle : 10 cycles</p> <p>Recovery : At least 2 hrs of recovery under the standard condition after the test , followed by the measurement within 24 hrs.</p>	Conditions of 1 cycle			Step	Temperature(°C)	Duration(min)	1	-40 ± 3	30 ± 3	2	Room temperature	Within 3	3	$+85\pm 2$	30 ± 3	4	Room temperature	Within 3	Conditions of 1 cycle			Step	Temperature(°C)	Duration(min)	1	-25^{+0}_{-3}	30 ± 3	2	Room temperature	Within 3	3	$+85^{+2}_{-0}$	30 ± 3	4	Room temperature	Within 3	Conditions of 1 cycle			Step	Temperature(°C)	Duration(min)	1	-25^{+0}_{-3}	30 ± 3	2	Room temperature	Within 3	3	$+105^{+2}_{-0}$	30 ± 3	4	Room temperature	Within 3
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17.Damp heat	Inductance change : $\pm 10\%$ No abnormality observed in appearance.				NR30/40/60 Type : The test samples shall be soldered to the test board by the reflow. The test samples shall be placed in thermostatic oven set at specified temperature and humidity as shown in below table. <table border="1"> <tr><td>Temperature</td><td>60\pm2$^{\circ}$C</td></tr> <tr><td>Humidity</td><td>90~95%RH</td></tr> <tr><td>Time</td><td>500\pm24hour</td></tr> </table>	Temperature	60 \pm 2 $^{\circ}$ C	Humidity	90~95%RH	Time	500 \pm 24hour										
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18.Loading under damp heat	Inductance change : $\pm 10\%$ No abnormality observed in appearance.				NR30/40/60 Type, NR10050 Type : The test samples shall be soldered to the test board by the reflow. The test samples shall be placed in thermostatic oven set at specified temperature and humidity and applied the rated current continuously as shown in below table. <table border="1"> <tr><td>Temperature</td><td>60\pm2$^{\circ}$C</td></tr> <tr><td>Humidity</td><td>90~95%RH</td></tr> <tr><td>Applied current</td><td>Rated current</td></tr> <tr><td>Time</td><td>500\pm2hour</td></tr> </table> 08 Type, 04/05/06 Type : <table border="1"> <tr><td>Temperature</td><td>40\pm2$^{\circ}$C</td></tr> <tr><td>Humidity</td><td>90~95%RH</td></tr> <tr><td>Applied current</td><td>Rated current</td></tr> <tr><td>Time</td><td>240\pm2hour</td></tr> </table> Recovery : At least 2hrs of recovery under the standard condition after the test ,followed by the measurement within 24 hrs.	Temperature	60 \pm 2 $^{\circ}$ C	Humidity	90~95%RH	Applied current	Rated current	Time	500 \pm 2hour	Temperature	40 \pm 2 $^{\circ}$ C	Humidity	90~95%RH	Applied current	Rated current	Time	240 \pm 2hour
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19.Low temperature life test	Inductance change : $\pm 10\%$ No abnormality observed in appearance.				NR30/40/60, NR10050 Type : The test samples shall be soldered to the test board by the reflow. After that, the test samples shall be placed at test conditions as shown in below table. <table border="1"> <tr><td>Temperature</td><td>-40\pm3$^{\circ}$C</td></tr> <tr><td>Time</td><td>500\pm24hour</td></tr> </table> 08 Type, 04/05/06 Type : <table border="1"> <tr><td>Temperature</td><td>-40\pm3$^{\circ}$C</td></tr> <tr><td>Time</td><td>240\pm2hour</td></tr> </table> Recovery : At least 2 hrs of recovery under the standard condition after the test ,followed by the measurement within 24 hrs.	Temperature	-40 \pm 3 $^{\circ}$ C	Time	500 \pm 24hour	Temperature	-40 \pm 3 $^{\circ}$ C	Time	240 \pm 2hour								
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20.High temperature life test		Inductance change : $\pm 10\%$			08 Type, 04/05/06 Type : <table border="1"> <tr><td>Temperature</td><td>105\pm3$^{\circ}$C</td></tr> <tr><td>Time</td><td>240\pm2hour</td></tr> </table> NR10050 Type : <table border="1"> <tr><td>Temperature</td><td>105\pm3$^{\circ}$C</td></tr> <tr><td>Time</td><td>500\pm24hour</td></tr> </table> Recovery : At least 2 hrs of recovery under the standard condition after the test ,followed by the measurement within 24 hrs.	Temperature	105 \pm 3 $^{\circ}$ C	Time	240 \pm 2hour	Temperature	105 \pm 3 $^{\circ}$ C	Time	500 \pm 24hour								
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21.Loading at high temperature life test	Inductance change : $\pm 10\%$ No abnormality observed in appearance.				NR30/40/60 Type : The test samples shall be soldered to the test board by the reflow soldering <table border="1"> <tr><td>Temperature</td><td>85\pm2$^{\circ}$C</td></tr> <tr><td>Applied current</td><td>Rated current (Refer to table)</td></tr> <tr><td>Time</td><td>500\pm24hour</td></tr> </table>	Temperature	85 \pm 2 $^{\circ}$ C	Applied current	Rated current (Refer to table)	Time	500 \pm 24hour										
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SMD Inductors

Stages	Precautions	Technical considerations
1.Circuit Design	<p>Operating environment,</p> <p>1.The products described in this specification are intended for use in general electronic equipment,(office supply equipment, telecommunications systems, measuring equipment, and household equipment). They are not intended for use in mission-critical equipment or systems requiring special quality and high reliability (traffic systems, safety equipment, aerospace systems, nuclear control systems and medical equipment including life-support systems,) where product failure might result in loss of life, injury or damage. For such uses, contact TAIYO YUDEN Sales Department in advance.</p>	
2.PCB Design	<p>Land pattern design</p> <p>1.Please contact any of our offices for a land pattern, and refer to a recommended land pattern of specifications.</p>	<p>Surface Mounting</p> <ul style="list-style-type: none"> Mounting and soldering conditions should be checked beforehand. Applicable soldering process to this products is reflow soldering only. Recommended Land Patterns <p>Unit : mm</p>
3.Considerations for automatic placement	<p>Adjustment of mounting machine</p> <p>1.Excessive impact load should not be imposed on the products when mounting onto the PC boards.</p> <p>2.Mounting and soldering conditions should be checked beforehand.</p>	<p>1. When installing products, care should be taken not to apply distortion stress as it may deform the products.</p>
4.Soldering	<p>Reflow soldering</p> <p>1.Please contact any of our offices for a reflow soldering, and refer to the recommended condition specified.</p> <p>2.This products is reflow soldering only.</p> <p>3.Please do not add any stress to a product until it returns in normal temperature after reflow soldering.</p> <p>Lead free soldering</p> <p>1.When using products with lead free soldering, we request to use them after confirming of adhesion, temperature of resistance to soldering heat, soldering etc sufficiently.</p> <p>Recommended conditions for using a soldering iron:</p> <p>(03/04/05/06/08, NR10050 type)</p> <p>Put the soldering iron on the land-pattern.</p> <p>Soldering iron's temperature - Below 350 °C</p> <p>Duration - 3 seconds or less</p> <p>The soldering iron should not directly touch the inductor.</p>	<p>1.If products are used beyond the range of the recommended conditions, heat stresses may deform the products, and consequently degrade the reliability of the products.</p> <p>[NR30/40/60 Type]</p> <p>[08 Type, 04/05/06 Type]</p> <p>[NR10050 Type]</p>
5.Cleaning	<p>Cleaning conditions</p> <p>1.SMD Inductors</p> <p>Please contact any of our offices for a cleaning.</p>	
6.Handling	<p>Handling</p> <p>1.Keep the product away from all magnets and magnetic objects.</p> <p>Breakaway PC boards (splitting along perforations)</p> <p>1.When splitting the PC board after mounting product, care should be taken not to give any stresses of deflection or twisting to the board.</p> <p>2.Board separation should not be done manually, but by using the appropriate devices.</p> <p>Mechanical considerations</p> <p>1.Please do not give the product any excessive mechanical shocks.</p> <p>2.Please do not add any shock and power to a product in transportation.</p> <p>Pick-up pressure</p> <p>1.Please do not push to add any pressure to a winding part. Please do not give any shock and push into a ferrite core exposure part.</p> <p>Packing</p> <p>1.Please avoid accumulation of a packing box as much as possible.</p>	<p>1.There is a case that a characteristic varies with magnetic influence.</p> <p>1.Planning pattern configurations and the position of products should be carefully performed to minimize stress.</p> <p>1.There is a case to be damaged by a mechanical shock.</p> <p>2.There is a case to be broken by the handling in transportation.</p> <p>1.Damage and a characteristic can vary with an excessive shock or stress.</p> <p>1.There is a case that transformation and a product of tape are damaged by accumulation of a packing box.</p>
7.Storage conditions	<p>Storage</p> <p>1.To maintain the solderability of terminal electrodes and to keep the packing material in good condition, temperature and humidity in the storage area should be controlled.</p> <ul style="list-style-type: none"> Recommended conditions Ambient temperature 0~40°C Humidity Below 70% RH <p>The ambient temperature must be kept below 30°C. Even under ideal storage conditions, solderability of products electrodes may decrease as time passes. For this reason, product should be used within one year from the time of delivery.</p> <p>In case of storage over 6 months, solderability shall be checked before actual usage.</p>	<p>1.Under a high temperature and humidity environment, problems such as reduced solderability caused by oxidation of terminal electrodes and deterioration of taping/packaging materials may take place.</p>