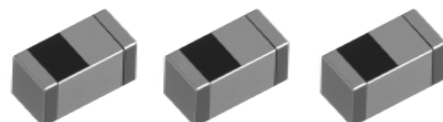


高周波積層チップインダクタ

MULTILAYER CHIP INDUCTOR

FOR HIGH FREQUENCY

HK SERIES



* HK0603, HK1005を除く
* Except for HK0603, HK1005

OPERATING TEMP.	0603 : -55~125°C
	1005 : -55~125°C** -55~85°C**
	1608 : -40~85°C
	2125 : -40~85°C

**保証定格により変わります。
** Operating temperature depends on rated current.

特長 FEATURES

- 内部導体として比抵抗値の低いAgを使用し、良好なQ特性と自己共振周波数特性を実現
- 積層シート工法による、高生産性、高品質、高インダクタンス値対応
- モノリシック構造のため、高い信頼性を有する
- Multilayer inductor made of advanced ceramics with low-resistivity silver used as internal conductors provides excellent Q and SRF characteristics.
- Designed to address surface mount inductor needs for applications above 100MHz.
- Multilayer block structure ensures outstanding reliability, high productivity and product quality.

用途 APPLICATIONS

- 携帯電話、PHS、ページャー
- その他の高周波回路、中間周波増幅回路
- 高周波帯域でのEMI対策
- Portable telephones, PHS and pagers
- Miscellaneous high-frequency circuits
- EMI countermeasure in high-frequency circuits.

形名表記法 ORDERING CODE

1	2	3	4	5
形式	形状寸法(L×W)(mm)	公称インダクタンス (nH)	インダクタンス許容差	包装
HK 高周波積層チップインダクタ	0603(0201) 0.6×0.3	例	H ± 3%	-T リールテーピング
HKQ 高周波積層チップインダクタ High Qバージョン	1005(0402) 1.0×0.5	3N9 3.9	J ± 5%	
	1608(0603) 1.6×0.8	10N 10	C ±0.2nH	
	2125(0805) 2.0×1.2	R10 100	S ±0.3nH	
		R12 120		

※R=小数点
※N=nHとして的小数点

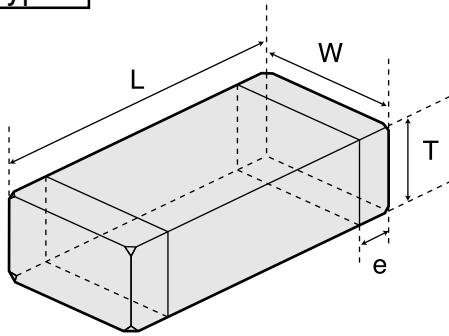


1	2	3	4	5
Type	External Dimensions(mm)	Nominal Inductance(nH)	Inductance Tolerances	Packaging
HK Multilayer chip inductors for high frequency	0603(0201) 0.6×0.3	Example	H ± 3%	-T Tape & Reel
HKQ Multilayer chip inductors for high frequency High Q Version	1005(0402) 1.0×0.5	3N9 3.9	J ± 5%	
	1608(0603) 1.6×0.8	10N 10	C ±0.2nH	
	2125(0805) 2.0×1.2	R10 100	S ±0.3nH	
		R12 120		

*R=decimal point
*N=0.0(nH type)

外形寸法 EXTERNAL DIMENSIONS

HK Type



Type	L	W	T	e
HK0603 (0201)	0.6±0.03 (0.024±0.001)	0.3±0.03 (0.012±0.001)	0.3±0.03 (0.012±0.001)	0.15±0.05 (0.006±0.002)
HK1005 (0402)	1.00±0.05 (0.039±0.002)	0.5±0.05 (0.020±0.002)	0.5±0.05 (0.020±0.002)	0.25±0.10 (0.010±0.004)
HK1608 (0603)	1.6±0.15 (0.063±0.006)	0.8±0.15 (0.031±0.006)	0.8±0.15 (0.031±0.006)	0.3±0.2 (0.012±0.008)
HK2125 (0805)	2.0 ^{+0.3} _{-0.1} (0.079 ^{+0.012} _{-0.004})	1.25±0.2 (0.049±0.008)	0.85±0.2 1.0 ^{+0.3} _{-0.2} (0.033±0.008) (0.039 ^{+0.008} _{-0.012})	0.5±0.3 (0.020±0.012)

Unit : mm(inch)

概略バリエーション AVAILABLE INDUCTANCE RANGE

Range	Type	HK0603	HK1005	HK1608	HK2125
		使用温度範囲 -55~+125°C	使用温度範囲 -55~+125°C -55~+85°C	使用温度範囲 -40~+85°C	使用温度範囲 -40~+85°C
		I _{max} [mA]	I _{max} [mA] I _{max} [mA]	I _{max} [mA]	I _{max} [mA]
inductance [nH]	1.0	1N0□ 250	1N0□ 900	1N0□	
	1.2	1N2□ 250	1N2□ 900	1N2□	
	1.5	1N5□ 230	1N5□ 850	1N5□	
	1.8	1N8□ ↑	1N8□ 700	1N8□	
	2.2	2N2□ 200	2N2□ 700	2N2□	
	2.7	2N7□ ↓	2N7□ 650	2N7□	
	3.3	3N3□ 180	3N3□ 550	3N3□	
	3.9	3N9□ 170	3N9□ 500	3N9□	
	4.7	4N7□ ↑	4N7□ 500	4N7□	
	5.6	5N6□ 150	5N6□ 430	5N6□	
	6.8	6N8○ ↓	6N8○ 430	6N8○	
	8.2	8N2○ ↓	8N2○ 380	8N2○	
	10.0	10N○ ↓	10N○ 340	10N○	
	12.0	12N○ ↑	12N○ 330	12N○	
	15.0	15N○ ↓	15N○ 320	15N○	
	18.0	18N○ ↓	18N○ 310	18N○	
	22.0	22N○ ↓	22N○ 300	22N○	
	27.0	27N○ ↓	27N○ 300	27N○	
	33.0	33N○ ↓	33N○ 250	33N○	
	39.0	39N○ ↓	39N○ 250	39N○	
47.0	47N○ ↓	47N○ 230	47N○		
56.0	56N○ ↓	56N○ 220	56N○		
68.0	68N○ ↓	68N○ 180	68N○		
82.0	82N○ ↓	82N○ 180	82N○		
100.0	R10○ ↓	R10○ 150	R10○		
120.0		R12○ ↓	R12○		
150.0		R15○ ↓	R15○		
180.0		R18○ ↓	R18○		
220.0		R22○ ↓	R22○		
270.0		R27○ ↓	R27○		
330.0		R33○ ↓	R33○		
390.0		R39○ ↓	R39○		
470.0		R47○ ↓	R47○		

代表値 Examples	Inductance	I _{max} [mA]	R _{dcmax} [Ω]	I _{max} [mA]		R _{dcmax} [Ω]	I _{max} [mA]	R _{dcmax} [Ω]	I _{max} [mA]	R _{dcmax} [Ω]
				-55~+125°C	-55~+85°C					
	1.5nH	230	0.18	300	850	0.1	300	0.1	300	0.1
	10.0nH	150	0.63	300	340	0.31	300	0.26	300	0.3
	100.0nH	40	4.0	150	200	1.5	300	1	300	0.9

※形名の□、○にはインダクタンス許容差記号が入ります。±0.3nH(□)、±5%(○)以下の許容差も対応可能ですので、お問い合わせ下さい。
□、○mark indicates the Inductance tolerance code. The product with tolerance less than ±0.3nH(□), ±5%(○) is also available. Please contact your local sales office.

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

アイテム一覧 PART NUMBERS

HK0603

形名 Ordering code	EHS (Environmental Hazardous Substances)	インダクタンス Inductance (nH)	Q min.	LQ測定周波数 Measuring frequency [MHz]	Q(Typical) 周波数 Frequency [MHz]					自己共振周波数 Self-resonant frequency [MHz]		直流抵抗 DC.Resistance (Ω)		定格電流 Rated current [mA] max.	厚さ Thickness [mm] (inch)
					100	300	500	800	1000	min.	Typ.	max.	Typ.		
										>13000	>13000	0.14	0.088		
HK 0603 1N0□	RoHS	1.0±0.3nH ※	4	100	6	12	17	22	27	10000	>13000	0.14	0.088	250	0.30±0.03 (0.012±0.001)
HK 0603 1N2□	RoHS	1.2±0.3nH ※	4	100	6	12	16	21	25	10000	>13000	0.14	0.089	250	
HK 0603 1N5□	RoHS	1.5±0.3nH ※	4	100	6	12	15	20	23	10000	>13000	0.18	0.11	230	
HK 0603 1N8□	RoHS	1.8±0.3nH ※	4	100	6	12	15	20	23	10000	>13000	0.19	0.12	200	
HK 0603 2N0□	RoHS	2.0±0.3nH ※	4	100	6	12	15	20	22	10000	>13000	0.20	0.13	200	
HK 0603 2N2□	RoHS	2.2±0.3nH ※	4	100	6	12	15	20	22	8800	12500	0.22	0.14	200	
HK 0603 2N4□	RoHS	2.4±0.3nH ※	4	100	6	12	15	20	22	8300	11700	0.24	0.15	200	
HK 0603 2N7□	RoHS	2.7±0.3nH ※	5	100	7	12	15	20	22	7700	11000	0.25	0.16	200	
HK 0603 3N0□	RoHS	3.0±0.3nH ※	5	100	7	12	15	20	22	7200	11000	0.28	0.18	180	
HK 0603 3N3□	RoHS	3.3±0.3nH ※	5	100	7	12	15	20	22	6700	9600	0.30	0.19	180	
HK 0603 3N6□	RoHS	3.6±0.3nH ※	5	100	7	12	15	20	22	6400	9100	0.30	0.20	170	
HK 0603 3N9□	RoHS	3.9±0.3nH ※	5	100	7	12	15	20	22	6000	8600	0.30	0.20	170	
HK 0603 4N3□	RoHS	4.3±0.3nH ※	5	100	7	12	15	19	21	5700	8100	0.40	0.22	150	
HK 0603 4N7□	RoHS	4.7±0.3nH ※	5	100	7	12	15	19	21	5300	7600	0.40	0.24	150	
HK 0603 5N1□	RoHS	5.1±0.3nH ※	5	100	7	12	15	19	21	5000	7100	0.40	0.26	150	
HK 0603 5N6□	RoHS	5.6±0.3nH ※	5	100	7	12	15	19	21	4600	6600	0.40	0.27	150	
HK 0603 6N2○	RoHS	6.2±0.3nH ※	5	100	7	11	14	18	20	4200	6100	0.44	0.29	150	
HK 0603 6N8○	RoHS	6.8±5% ※	5	100	7	11	14	18	20	3900	5600	0.48	0.30	150	
HK 0603 7N5○	RoHS	7.5±5% ※	5	100	7	11	14	18	19	3600	5300	0.53	0.34	150	
HK 0603 8N2○	RoHS	8.2±5% ※	5	100	7	11	14	18	19	3400	4900	0.55	0.34	150	
HK 0603 9N1○	RoHS	9.1±5% ※	5	100	7	11	14	17	18	3200	4600	0.62	0.40	150	
HK 0603 10N○	RoHS	10±5% ※	5	100	7	11	14	17	18	2900	4200	0.63	0.41	150	
HK 0603 12N○	RoHS	12±5% ※	5	100	7	11	14	17	18	2700	3800	0.7	0.45	100	
HK 0603 15N○	RoHS	15±5% ※	5	100	7	11	13	16	17	2300	3300	0.8	0.5	100	
HK 0603 18N○	RoHS	18±5% ※	5	100	7	11	13	16	17	2100	3000	0.9	0.57	100	
HK 0603 22N○	RoHS	22±5% ※	5	100	7	11	13	15	16	1800	2600	1.2	0.71	100	
HK 0603 27N○	RoHS	27±5% ※	4	100	6	10	12	14	15	1800	2600	1.8	1.11	50	
HK 0603 33N○	RoHS	33±5% ※	4	100	6	10	12	14	14	1700	2400	2.1	1.33	50	
HK 0603 39N○	RoHS	39±5% ※	4	100	6	10	12	13	12	1500	2100	2.4	1.51	50	
HK 0603 47N○	RoHS	47±5% ※	4	100	6	10	11	12	11	1300	1800	2.8	1.74	50	
HK 0603 56N○	RoHS	56±5% ※	4	100	6	10	11	11	10	1100	1600	3.0	1.85	50	
HK 0603 68N○	RoHS	68±5% ※	4	100	6	10	11	11	10	1100	1500	3.0	2.30	50	
HK 0603 82N○	RoHS	82±5% ※	4	100	6	10	11	10	8	1000	1400	3.5	2.60	50	
HK 0603 R10○	RoHS	100±5% ※	4	100	6	9	10	9	6	900	1200	4.0	3.00	40	

※形名の□、○にはインダクタンス許容差記号が入ります。±0.3nH(□)、±5%(○)以下の許容差も対応可能ですので、お問い合わせ下さい。
□、○mark indicates the Inductance tolerance code. The product with tolerance less than ±0.3nH(□), ±5%(○) is also available. Please contact your local sales office.

HK1005

形名 Ordering code	EHS (Environmental Hazardous Substances)	インダクタンス Inductance (nH)	Q min.	LQ測定周波数 Measuring frequency [MHz]	Q(Typical) 周波数 Frequency [MHz]					自己共振周波数 Self-resonant frequency [MHz]		直流抵抗 DC.Resistance (Ω)		定格電流 Rated current [mA] max.	厚さ Thickness [mm] (inch)
					100	300	500	800	1000	min.	Typ.	max.	Typ.		
										>13000	>13000	0.08	0.04		
HK 1005 1N0□	RoHS	1.0±0.3nH ※	8	100	11	25	34	43	52	10000	>13000	0.08	0.04	300	0.50±0.05 (0.020±0.002)
HK 1005 1N2□	RoHS	1.2±0.3nH ※	8	100	11	25	35	44	52	10000	>13000	0.09	0.04	300	
HK 1005 1N5□	RoHS	1.5±0.3nH ※	8	100	11	24	33	44	48	6000	>13000	0.1	0.05	300	
HK 1005 1N8□	RoHS	1.8±0.3nH ※	8	100	11	23	30	36	42	6000	11000	0.12	0.06	300	
HK 1005 2N0□	RoHS	2.0±0.3nH ※	8	100	11	21	27	34	39	6000	10500	0.12	0.06	300	
HK 1005 2N2□	RoHS	2.2±0.3nH ※	8	100	10	18	25	31	36	6000	10000	0.13	0.07	300	
HK 1005 2N4□	RoHS	2.4±0.3nH ※	8	100	10	18	24	31	35	6000	9500	0.13	0.07	300	
HK 1005 2N7□	RoHS	2.7±0.3nH ※	8	100	10	18	24	31	34	6000	9000	0.13	0.08	300	
HK 1005 3N0□	RoHS	3.0±0.3nH ※	8	100	10	18	24	31	35	6000	8500	0.16	0.09	300	
HK 1005 3N3□	RoHS	3.3±0.3nH ※	8	100	10	18	24	31	35	6000	8000	0.16	0.1	300	
HK 1005 3N6□	RoHS	3.6±0.3nH ※	8	100	10	18	24	31	35	5000	7500	0.2	0.11	300	
HK 1005 3N9□	RoHS	3.9±0.3nH ※	8	100	10	18	24	31	35	4000	7000	0.21	0.12	300	
HK 1005 4N3□	RoHS	4.3±0.3nH ※	8	100	10	18	24	31	35	4000	6500	0.2	0.12	300	
HK 1005 4N7□	RoHS	4.7±0.3nH ※	8	100	10	18	24	31	34	4000	6000	0.21	0.12	300	
HK 1005 5N1□	RoHS	5.1±0.3nH ※	8	100	10	18	24	31	34	4000	5800	0.21	0.13	300	
HK 1005 5N6□	RoHS	5.6±0.3nH ※	8	100	10	18	24	30	35	4000	5700	0.23	0.15	300	
HK 1005 6N2○	RoHS	6.2±0.3nH ※	8	100	10	18	24	30	34	3900	5600	0.25	0.16	300	
HK 1005 6N8○	RoHS	6.8±5% ※	8	100	10	18	23	29	32	3900	5500	0.25	0.17	300	
HK 1005 7N5○	RoHS	7.5±5% ※	8	100	10	18	23	29	32	3700	5200	0.25	0.18	300	
HK 1005 8N2○	RoHS	8.2±5% ※	8	100	10	18	23	29	31	3600	4900	0.28	0.21	300	
HK 1005 9N1○	RoHS	9.1±5% ※	8	100	10	18	23	29	31	3400	4500	0.3	0.22	300	
HK 1005 10N○	RoHS	10±5% ※	8	100	10	18	23	29	31	3200	4300	0.31	0.23	300	
HK 1005 12N○	RoHS	12±5% ※	8	100	11	18	23	29	31	2700	3900	0.4	0.28	300	
HK 1005 15N○	RoHS	15±5% ※	8	100	11	18	23	28	30	2300	3500	0.46	0.31	300	
HK 1005 18N○	RoHS	18±5% ※	8	100	11	18	23	28	30	2100	3100	0.55	0.35	300	
HK 1005 22N○	RoHS	22±5% ※	8	100	11	17	22	26	27	1900	2800	0.6	0.42	300	
HK 1005 27N○	RoHS	27±5% ※	8	100	11	17	21	25	26	1600	2300	0.7	0.47	300	
HK 1005 33N○	RoHS	33±5% ※	8	100	11	16	20	23	22	1300	1900	0.8	0.5	200	
HK 1005 39N○	RoHS	39±5% ※	8	100	11	16	20	23	21	1200	1700	0.9	0.52	200	
HK 1005 47N○	RoHS	47±5% ※	8	100	11	16	19	21	18	1000	1500	1	0.58	200	
HK 1005 56N○	RoHS	56±5% ※	8	100	11	16	18	18	16	750	1300	1	0.61	200	
HK 1005 68N○	RoHS	68±5% ※	8	100	11	15	17	18	11	750	1200	1.2	0.7	180	
HK 1005 82N○	RoHS	82±5% ※	8	100	10	14	16	15	6	600	1100	1.3	0.81	150	
HK 1005 R10○	RoHS	100±5% ※	8	100	10	14	14	12	—	600	1000	1.5	0.94	150	
HK 1005 R12○	RoHS	120±5% ※	8	100	10	12	10	—	—	600	800	1.6	1.1	150	
HK 1005 R15○	RoHS	150±5% ※	8	100	12	17	17	—	—	550	920	3.2	2.57	140	
HK 1005 R18○	RoHS	180±5% ※	8	100	12	16	—	—	—	500	810	3.7	2.97	130	
HK 1005 R22○	RoHS	220±5% ※	8	100	12	16	—	—	—	450	700	4.2	3.29	120	
HK 1005 R27○	RoHS	270±5% ※	8	100	12	14	—	—	—	400	600	4.8	3.92	110	

※形名の□、○にはインダクタンス許容差記号が入ります。±0.3nH(□)、±5%(○)以下の許容差も対応可能ですので、お問い合わせ下さい。
□、○mark indicates the Inductance tolerance code. The product with tolerance less than ±0.3nH(□), ±5%(○) is also available. Please contact your local sales office.

HK1608

形名 Ordering code	EHS (Environmental Hazardous Substances)	インダクタンス Inductance [nH]	Q min.	LQ測定周波数 Measuring frequency [MHz]	Q(Typical) 周波数 Frequency [MHz]					自己共振周波数 Self-resonant frequency [MHz]		直流抵抗 DC Resistance [Ω]		定格電流 Rated current [mA] max.	厚さ Thickness [mm] (inch)
					100	300	500	800	1000	min.	Typ.	max.	Typ.		
HK 1608 1N0□	RoHS	1.0±0.3nH ※	8	100	14	30	40	70	90	10000	>13000	0.05	0.015	300	0.8±0.15 (0.031±0.006)
HK 1608 1N2□	RoHS	1.2±0.3nH ※	8	100	14	30	40	70	90	10000	>13000	0.05	0.015	300	
HK 1608 1N5□	RoHS	1.5±0.3nH ※	8	100	14	26	34	47	50	6000	>13000	0.10	0.03	300	
HK 1608 1N8□	RoHS	1.8±0.3nH ※	8	100	10	18	24	30	34	6000	>13000	0.10	0.06	300	
HK 1608 2N2□	RoHS	2.2±0.3nH ※	8	100	12	22	29	37	40	6000	12000	0.10	0.06	300	
HK 1608 2N7□	RoHS	2.7±0.3nH ※	10	100	13	24	32	41	45	6000	11000	0.10	0.06	300	
HK 1608 3N3□	RoHS	3.3±0.3nH ※	10	100	14	25	33	42	47	6000	9000	0.12	0.06	300	
HK 1608 3N9□	RoHS	3.9±0.3nH ※	10	100	13	25	33	42	46	6000	8000	0.14	0.07	300	
HK 1608 4N7□	RoHS	4.7±0.3nH ※	10	100	13	25	33	42	47	4000	6500	0.16	0.08	300	
HK 1608 5N6□	RoHS	5.6±0.3nH ※	10	100	14	25	33	42	46	4000	5800	0.18	0.09	300	
HK 1608 6N8○	RoHS	6.8±5% ※	10	100	14	25	33	43	47	4000	5600	0.22	0.11	300	
HK 1608 8N2○	RoHS	8.2±5% ※	10	100	14	26	34	44	48	3500	5200	0.24	0.13	300	
HK 1608 10N○	RoHS	10±5% ※	12	100	14	26	34	43	47	3400	4600	0.26	0.16	300	
HK 1608 12N○	RoHS	12±5% ※	12	100	14	27	35	45	49	2600	4000	0.28	0.17	300	
HK 1608 15N○	RoHS	15±5% ※	12	100	15	28	37	46	51	2300	3400	0.32	0.20	300	
HK 1608 18N○	RoHS	18±5% ※	12	100	15	27	36	44	48	2000	3000	0.35	0.21	300	
HK 1608 22N○	RoHS	22±5% ※	12	100	16	28	36	44	47	1600	2900	0.40	0.25	300	
HK 1608 27N○	RoHS	27±5% ※	12	100	16	29	37	45	46	1400	2200	0.45	0.28	300	
HK 1608 33N○	RoHS	33±5% ※	12	100	17	31	40	46	47	1200	1800	0.55	0.35	300	
HK 1608 39N○	RoHS	39±5% ※	12	100	18	31	39	44	44	1100	1600	0.60	0.38	300	
HK 1608 47N○	RoHS	47±5% ※	12	100	17	28	34	35	34	900	1600	0.70	0.45	300	
HK 1608 56N○	RoHS	56±5% ※	12	100	17	28	34	34	31	900	1400	0.75	0.50	300	
HK 1608 68N○	RoHS	68±5% ※	12	100	18	29	34	30	22	700	1200	0.85	0.55	300	
HK 1608 82N○	RoHS	82±5% ※	12	100	18	28	33	27	—	600	1100	0.95	0.60	300	
HK 1608 R10○	RoHS	100±5% ※	12	100	18	27	28	16	—	600	1000	1.00	0.65	300	
HK 1608 R12○	RoHS	120±5% ※	8	50	16	24	23	—	—	500	800	1.20	0.68	300	
HK 1608 R15○	RoHS	150±5% ※	8	50	13	19	16	—	—	500	800	1.20	0.73	300	
HK 1608 R18○	RoHS	180±5% ※	8	50	13	18	12	—	—	400	700	1.30	0.85	300	
HK 1608 R22○	RoHS	220±5% ※	8	50	12	16	—	—	—	400	600	1.50	0.95	300	
HK 1608 R27○	RoHS	270±5% ※	8	50	14	15	—	—	—	400	550	1.9	1.34	150	
HK 1608 R33○	RoHS	330±5% ※	8	50	14	—	—	—	—	350	480	2.1	1.53	150	
HK 1608 R39○	RoHS	390±5% ※	8	50	13	—	—	—	—	350	410	2.3	1.72	150	
HK 1608 R47○	RoHS	470±5% ※	8	50	13	—	—	—	—	300	360	2.6	2.04	150	

※形名の□、○にはインダクタンス許容差記号が入ります。±0.3nH(□)、±5%(○)以下の許容差も対応可能ですので、お問い合わせ下さい。

□、○mark indicates the Inductance tolerance code. The product with tolerance less than ±0.3nH(□), ±5%(○) is also available. Please contact your local sales office.

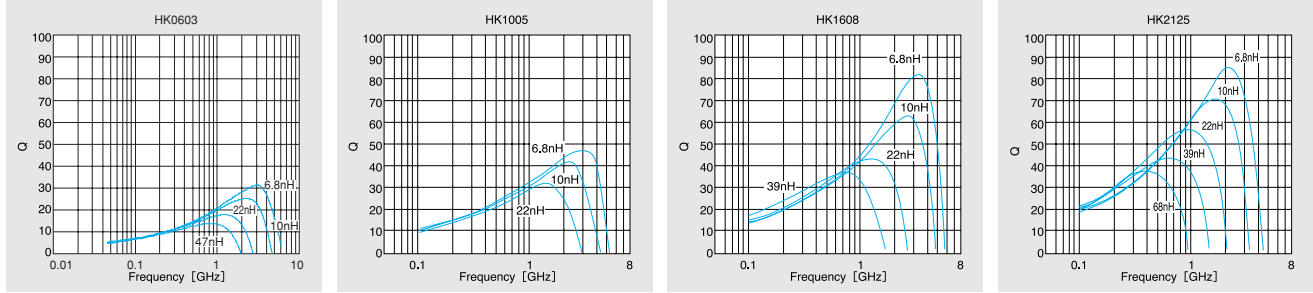
HK2125

形名 Ordering code	EHS (Environmental Hazardous Substances)	インダクタンス Inductance [nH]	Q min.	LQ測定周波数 Measuring frequency [MHz]	Q Typical 周波数 Frequency [MHz]					自己共振周波数 Self-resonant Frequency [MHz]		直流抵抗 DC Resistance [Ω]		定格電流 Rated current [mA]	厚さ Thickness [mm] (inch)
					100	300	500	800	1000	min.	Typ.	max.	Typ.		
HK 2125 1N5S	RoHS	1.5±0.3nH	10	100	21	39	57	61	68	4000	>6000	0.10	0.02	300	0.85±0.2 (0.033±0.008)
HK 2125 1N8S	RoHS	1.8±0.3nH	10	100	18	35	49	55	59	4000	>6000	0.10	0.02	300	
HK 2125 2N2S	RoHS	2.2±0.3nH	10	100	18	33	46	53	58	4000	>6000	0.10	0.03	300	
HK 2125 2N7S	RoHS	2.7±0.3nH	12	100	19	36	50	56	60	4000	>6000	0.10	0.03	300	
HK 2125 3N3S	RoHS	3.3±0.3nH	12	100	16	29	40	47	51	4000	>6000	0.13	0.04	300	
HK 2125 3N9S	RoHS	3.9±0.3nH	12	100	18	33	46	54	60	4000	>6000	0.15	0.05	300	
HK 2125 4N7S	RoHS	4.7±0.3nH	12	100	18	34	46	55	60	3500	>6000	0.20	0.05	300	
HK 2125 5N6S	RoHS	5.6±0.3nH	15	100	20	38	51	60	66	3200	5400	0.23	0.05	300	
HK 2125 6N8J	RoHS	6.8±5%	15	100	20	39	52	63	69	2800	4200	0.25	0.06	300	
HK 2125 8N2J	RoHS	8.2±5%	15	100	21	40	54	63	70	2400	3700	0.28	0.07	300	
HK 2125 10NJ	RoHS	10±5%	15	100	20	38	51	60	67	2100	3100	0.30	0.09	300	
HK 2125 12NJ	RoHS	12±5%	15	100	21	39	52	60	67	1900	3000	0.35	0.10	300	
HK 2125 15NJ	RoHS	15±5%	15	100	22	42	55	63	72	1600	2600	0.40	0.11	300	
HK 2125 18NJ	RoHS	18±5%	15	100	24	44	57	63	72	1500	2300	0.45	0.13	300	
HK 2125 22NJ	RoHS	22±5%	18	100	23	43	55	60	69	1400	2100	0.50	0.16	300	
HK 2125 27NJ	RoHS	27±5%	18	100	23	42	53	58	68	1300	1800	0.55	0.17	300	
HK 2125 33NJ	RoHS	33±5%	18	100	24	43	54	55	60	1200	1700	0.60	0.19	300	
HK 2125 39NJ	RoHS	39±5%	18	100	23	41	50	47	47	1000	1400	0.65	0.25	300	
HK 2125 47NJ	RoHS	47±5%	18	100	23	41	49	43	41	900	1200	0.70	0.26	300	
HK 2125 56NJ	RoHS	56±5%	18	100	23	42	48	39	38	800	1100	0.75	0.28	300	
HK 2125 68NJ	RoHS	68±5%	18	100	25	42	45	30	—	700	900	0.80	0.33	300	
HK 2125 82NJ	RoHS	82±5%	18	100	24	41	41	—	—	600	800	0.90	0.37	300	
HK 2125 R10J	RoHS	100±5%	18	100	23	37	37	—	—	600	800	0.90	0.40	300	
HK 2125 R12J	RoHS	120±5%	13	50	22	33	29	—	—	500	700	0.95	0.43	300	
HK 2125 R15J	RoHS	150±5%	13	50	22	34	26	—	—	500	700	1.00	0.46	300	
HK 2125 R18J	RoHS	180±5%	13	50	23	34	20	—	—	400	600	1.10	0.50	300	
HK 2125 R22J	RoHS	220±5%	12	50	20	23	—	—	—	350	550	1.20	0.75	300	
HK 2125 R27J	RoHS	270±5%	12	50	20	19	—	—	—	300	480	1.30	0.85	300	
HK 2125 R33J	RoHS	330±5%	12	50	22	15	—	—	—	250	400	1.40	0.90	300	
HK 2125 R39J	RoHS	390±5%	10	50	17	12	—	—	—	250	400	1.30	0.85	300	
HK 2125 R47J	RoHS	470±5%	10	50	17	—	—	—	—	200	350	1.50	0.95	300	

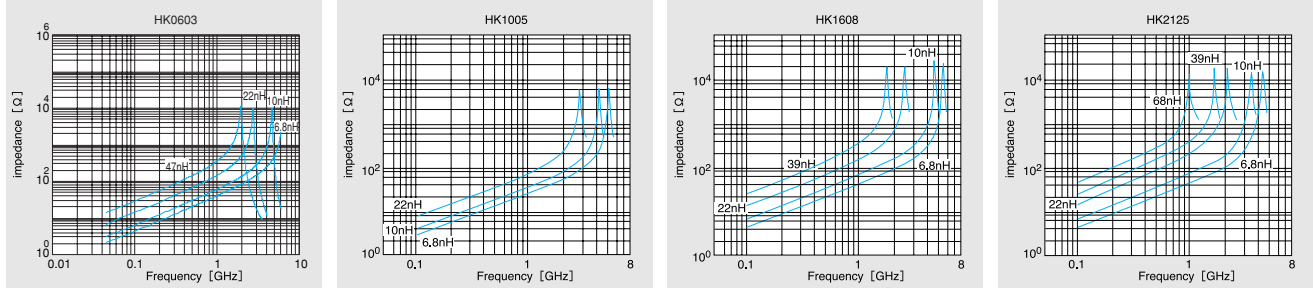
1.00^{+0.2}_{-0.3}
(0.039^{+0.008}_{-0.012})

特性図 ELECTRICAL CHARACTERISTICS

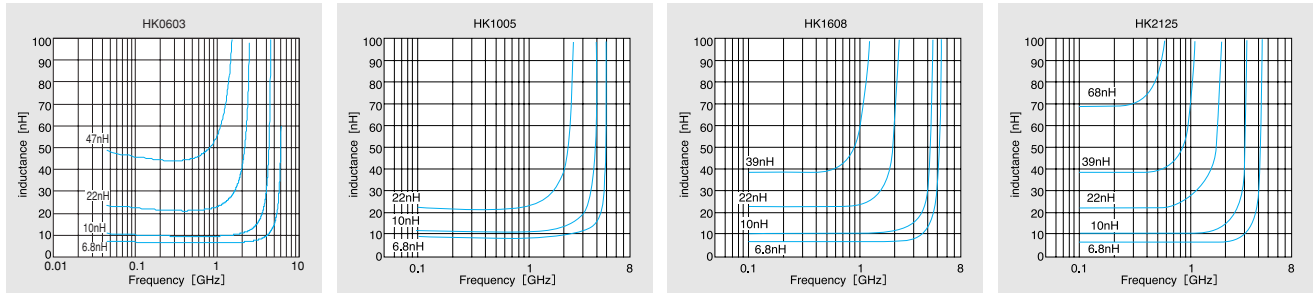
Q-周波数特性例 Q-Characteristics(Measured by HP8719C)



インピーダンス周波数特性例 Impedance-vs-Frequency characteristics(Measured by HP8719C)

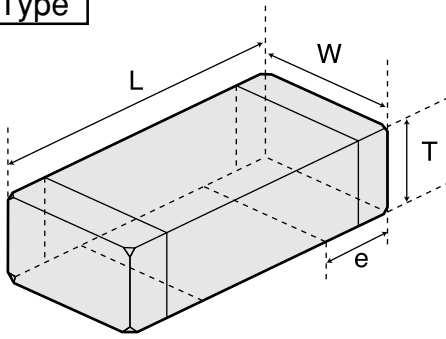


インダクタンス周波数特性例 Inductance-vs-Frequency characteristics(Measured by HP8719C)



外形寸法 EXTERNAL DIMENSIONS

HKQ Type



Type	L	W	T	e
HKQ0603 (0201)	0.6±0.03 (0.024±0.001)	0.3±0.03 (0.012±0.001)	0.3±0.03 (0.012±0.001)	0.15±0.05 (0.006±0.002)

Unit : mm(inch)

概略バリエーション AVAILABLE INDUCTANCE RANGE

Type		HKQ0603	
Range		使用温度範囲 -55~+125°C	
inductance [nH]	[nH]		Imax [mA]
	1.0	1N0□	400
	1.2	1N2□	▲
	1.5	1N5□	350
	1.8	1N8□	▼
	2.2	2N2□	300
	2.7	2N7□	300
	3.3	3N3□	250
	3.9	3N9□	200
	4.7	4N7□	200
	5.6	5N6□	170
6.8	6N8○	170	
8.2	8N2○	150	
10.0	10N○	150	

代 表 値 Examples	Inductance	Imax [mA]	Rdcmax [Ω]
	1.5nH	350	0.13
	10.0nH	150	0.83
	100.0nH	—	—

※形名の□、○にはインダクタンス許容差記号が入ります。±0.3nH(□)、±5%(○)以下の許容差も対応可能ですので、お問い合わせ下さい。
□、○mark indicates the Inductance tolerance code. The product with tolerance less than ±0.3nH(□), ±5%(○) is also available. Please contact your local sales office.

アイテム一覧 PART NUMBERS

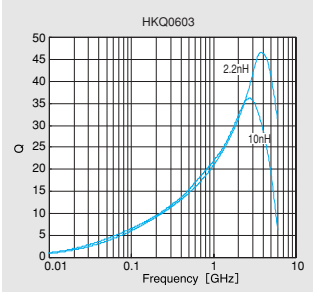
HKQ0603

形名 Ordering code	EHS (Environmental Hazardous Substances)	インダクタンス Inductance (nH)	Q min.	LQ測定周波数 Measuring frequency [MHz]	Q(Typical) 周波数 Frequency [MHz]					自己共振周波数 Self-resonant frequency [MHz]		直流抵抗 DC Resistance [Ω]		定格電流 Rated current [mA] max.	厚さ Thickness (mm) (inch)
					100	300	500	800	1000	min.	Typ.	max.	Typ.		
HKQ 0603 1N0□	RoHS	1.0±0.3nH ※	4	100	7	14	19	26	31	10000	>13000	0.10	0.04	400	0.30±0.03 (0.012±0.001)
HKQ 0603 1N2□	RoHS	1.2±0.3nH ※	4	100	7	13	18	25	29	10000	>13000	0.13	0.08	350	
HKQ 0603 1N5□	RoHS	1.5±0.3nH ※	4	100	7	13	17	23	26	10000	>13000	0.13	0.07	350	
HKQ 0603 1N8□	RoHS	1.8±0.3nH ※	4	100	7	13	17	23	26	9500	>13000	0.13	0.08	350	
HKQ 0603 2N2□	RoHS	2.2±0.3nH ※	4	100	7	12	17	22	25	9000	13000	0.19	0.12	300	
HKQ 0603 2N7□	RoHS	2.7±0.3nH ※	5	100	7	12	16	22	24	7700	11000	0.19	0.11	300	
HKQ 0603 3N3□	RoHS	3.3±0.3nH ※	5	100	7	12	16	22	24	7000	10000	0.27	0.17	250	
HKQ 0603 3N9□	RoHS	3.9±0.3nH ※	5	100	7	12	16	22	24	7000	10000	0.44	0.27	200	
HKQ 0603 4N7□	RoHS	4.7±0.3nH ※	5	100	7	12	16	21	24	5500	8000	0.44	0.22	200	
HKQ 0603 5N6□	RoHS	5.6±0.3nH ※	5	100	7	12	16	21	24	5500	8000	0.55	0.35	170	
HKQ 0603 6N8○	RoHS	6.8±5% ※	5	100	7	12	16	21	24	5000	7500	0.61	0.38	170	
HKQ 0603 8N2○	RoHS	8.2±5% ※	5	100	7	12	16	21	23	4500	6500	0.72	0.45	150	
HKQ 0603 10N○	RoHS	10±5% ※	5	100	7	12	16	21	23	4000	6000	0.83	0.52	150	

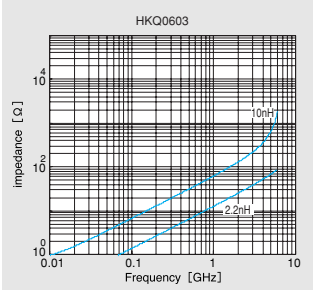
※形名の□、○にはインダクタンス許容差記号が入ります。±0.3nH(□)、±5%(○)以下の許容差も対応可能ですので、お問い合わせ下さい。
□、○mark indicates the Inductance tolerance code. The product with tolerance less than ±0.3nH(□), ±5%(○) is also available. Please contact your local sales office.

特性図 ELECTRICAL CHARACTERISTICS

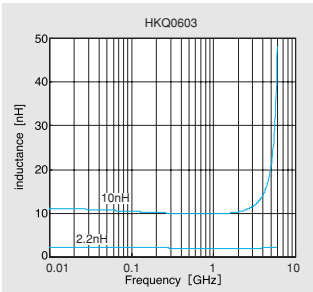
Q-周波数特性例 Q-Characteristics(Measured by HP8719C)



インピーダンス周波数特性例 Impedance-vs-Frequency characteristics(Measured by HP8719C)



インダクタンス周波数特性例 Inductance-vs-Frequency characteristics(Measured by HP8719C)

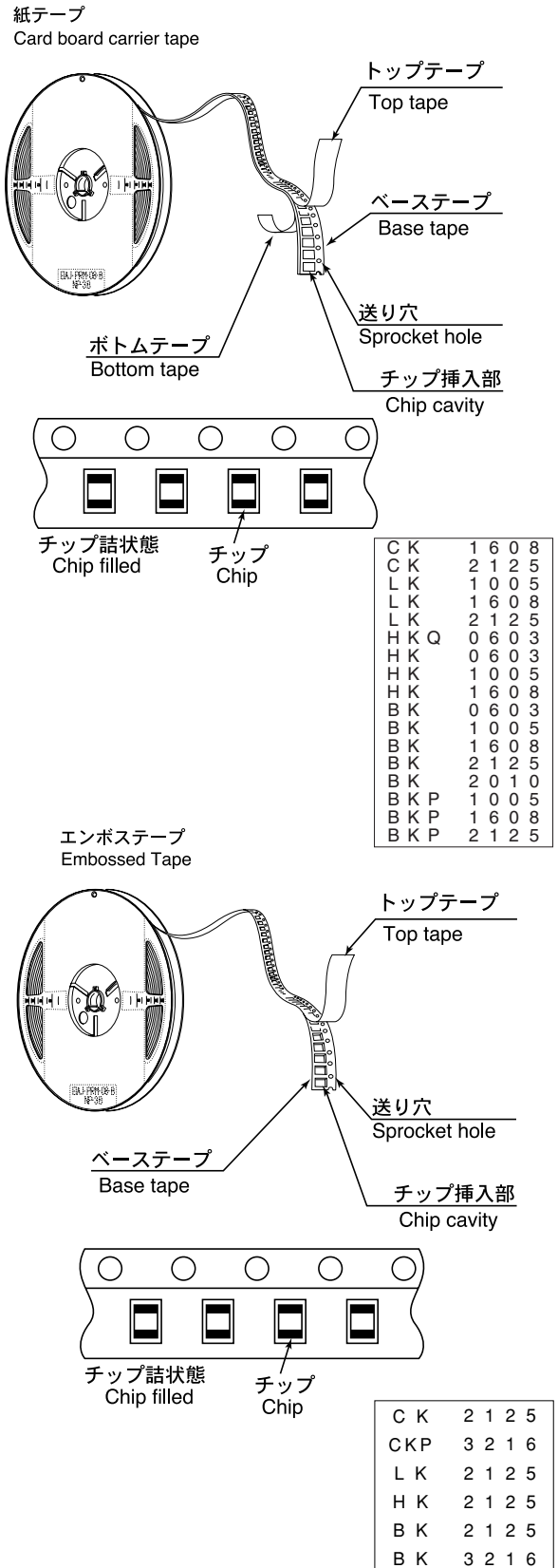


①最小受注単位数 Minimum Quantity

■テーピング梱包 Tape & Reel Packaging

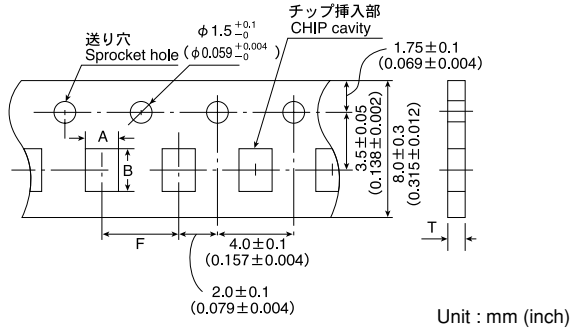
形式 Type	製品厚み Thickness [mm] (inch)	標準数量 [pcs] Standard Quantity	
		紙テープ Paper Tape	エンボステープ Embossed Tape
CK1608(0603)	0.8 (0.031)	4000	—
CK2125(0805)	0.85 (0.033)	4000	—
	1.25 (0.049)	—	2000
CKP3216(1206)	0.8 (0.031)	—	4000
LK1005(0402)	0.5 (0.020)	10000	—
LK1608(0603)	0.8 (0.031)	4000	—
LK2125(0805)	0.85 (0.033)	4000	—
	1.25 (0.049)	—	2000
HKQ0603(0201)	0.3 (0.012)	15000	—
HK0603(0201)	0.3 (0.012)	15000	—
HK1005(0402)	0.5 (0.020)	10000	—
HK1608(0603)	0.8 (0.031)	4000	—
HK2125(0805)	0.85 (0.033)	—	4000
	1.0 (0.039)	—	3000
BK0603(0201)	0.3 (0.012)	15000	—
BK1005(0402)	0.5 (0.020)	10000	—
BK1608(0603)	0.8 (0.031)	4000	—
BK2125(0805)	0.85 (0.033)	4000	—
	1.25 (0.049)	—	2000
BK2010(0804)	0.45 (0.018)	4000	—
BK3216(1206)	0.8 (0.031)	—	4000
BKP1005(0402)	0.5 (0.020)	10000	—
BKP1608(0603)	0.8 (0.031)	4000	—
BKP2125(0805)	0.85 (0.033)	4000	—

②テーピング材質 Taping material



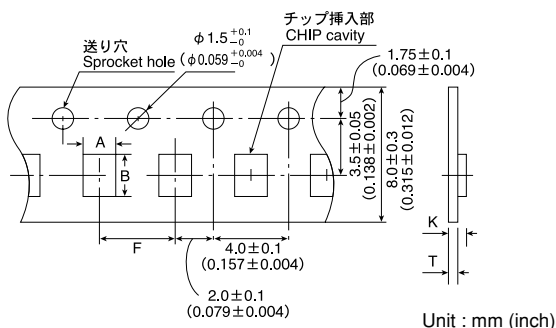
③テーピング寸法 Taping Dimensions

・紙テープ (8mm幅) Paper tape (0.315 inches wide)



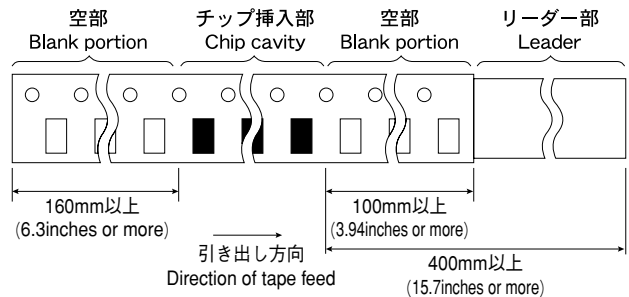
形式 Type	製品厚み Thickness [mm]	チップ挿入部 Chip cavity		挿入ピッチ Insertion Pitch F	テープ厚み Tape Thickness T
		A	B		
CK1608(0603)	0.8 (0.031)	1.0±0.2 (0.039±0.008)	1.8±0.2 (0.071±0.008)	4.0±0.1 (0.157±0.004)	1.1max (0.043max)
CK2125(0805)	0.85 (0.033)	1.5±0.2 (0.059±0.008)	2.3±0.2 (0.091±0.008)	4.0±0.1 (0.157±0.004)	1.1max (0.043max)
LK1005(0402)	0.5 (0.020)	0.65±0.1 (0.026±0.004)	1.15±0.1 (0.045±0.004)	2.0±0.05 (0.079±0.002)	0.8max (0.031max)
LK1608(0603)	0.8 (0.031)	1.0±0.2 (0.039±0.008)	1.8±0.2 (0.071±0.008)	4.0±0.1 (0.157±0.004)	1.1max (0.043max)
LK2125(0805)	0.85 (0.033)	1.5±0.2 (0.059±0.008)	2.3±0.2 (0.091±0.008)	4.0±0.1 (0.157±0.004)	1.1max (0.043max)
HKQ0603(0201)	0.3 (0.012)	0.40±0.06 (0.016±0.002)	0.70±0.06 (0.028±0.002)	2.0±0.05 (0.079±0.002)	0.45max (0.018max)
HK0603(0201)	0.3 (0.012)	0.40±0.06 (0.016±0.002)	0.70±0.06 (0.028±0.002)	2.0±0.05 (0.079±0.002)	0.45max (0.018max)
HK1005(0402)	0.5 (0.020)	0.65±0.1 (0.026±0.004)	1.15±0.1 (0.045±0.004)	2.0±0.05 (0.079±0.002)	0.8max (0.031max)
HK1608(0603)	0.8 (0.031)	1.0±0.2 (0.039±0.008)	1.8±0.2 (0.071±0.008)	4.0±0.1 (0.157±0.004)	1.1max (0.043max)
BK0603(0201)	0.3 (0.012)	0.40±0.06 (0.016±0.002)	0.70±0.06 (0.028±0.002)	2.0±0.05 (0.079±0.002)	0.45max (0.018max)
BK1005(0402)	0.5 (0.020)	0.65±0.1 (0.026±0.004)	1.15±0.1 (0.045±0.004)	2.0±0.05 (0.079±0.002)	0.8max (0.031max)
BK1608(0603)	0.8 (0.031)	1.0±0.2 (0.039±0.008)	1.8±0.2 (0.071±0.008)	4.0±0.1 (0.157±0.004)	1.1max (0.043max)
BK2125(0805)	0.85 (0.033)	1.5±0.2 (0.059±0.008)	2.3±0.2 (0.091±0.008)	4.0±0.1 (0.157±0.004)	1.1max (0.043max)
BK2010(0804)	0.45 (0.018)	1.2±0.1 (0.047±0.004)	2.17±0.1 (0.085±0.004)	4.0±0.1 (0.157±0.004)	0.80max (0.031max)
BKP1005(0402)	0.5 (0.020)	0.65±0.1 (0.026±0.004)	1.15±0.1 (0.045±0.004)	2.0±0.05 (0.079±0.002)	0.8max (0.031max)
BKP1608(0603)	0.8 (0.031)	1.0±0.2 (0.039±0.008)	1.8±0.2 (0.071±0.008)	4.0±0.1 (0.157±0.004)	1.1max (0.043max)
BKP2125(0805)	0.85 (0.033)	1.5±0.2 (0.059±0.008)	2.3±0.2 (0.091±0.008)	4.0±0.1 (0.157±0.004)	1.1max (0.043max)

・エンボステープ (8mm幅) Embossed Tape (0.312 inches wide)

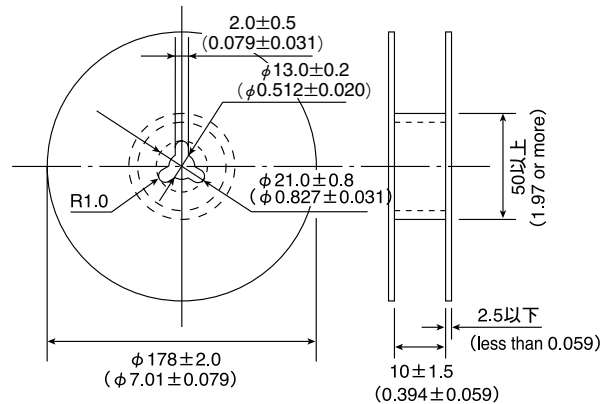


形式 Type	製品厚み Thickness [mm]	チップ挿入部 Chip cavity		挿入ピッチ Insertion Pitch F	テープ厚みmax. Tape Thickness K T	
		A	B		K	T
CK2125(0805)	1.25 (0.049)	1.5±0.2 (0.059±0.008)	2.3±0.2 (0.091±0.008)	4.0±0.1 (0.157±0.004)	2.0 (0.079)	0.3 (0.012)
CKP3216(1206)	0.8 (0.031)	1.9±0.1 (0.075±0.004)	3.5±0.1 (0.138±0.004)	4.0±0.1 (0.157±0.004)	1.4 (0.055)	0.3 (0.012)
LK2125(0805)	1.25 (0.049)	1.5±0.2 (0.059±0.008)	2.3±0.2 (0.091±0.008)	4.0±0.1 (0.157±0.004)	2.0 (0.079)	0.3 (0.012)
HK2125(0805)	0.85 (0.033)	1.5±0.2 (0.059±0.008)	2.3±0.2 (0.091±0.008)	4.0±0.1 (0.157±0.004)	1.5 (0.059)	0.3 (0.012)
	1.0 (0.039)				2.0 (0.079)	
BK2125(0805)	1.25 (0.049)	1.5±0.2 (0.059±0.008)	2.3±0.2 (0.091±0.008)	4.0±0.1 (0.157±0.004)	2.0 (0.079)	0.3 (0.012)
BK3216(1206)	0.8 (0.031)	1.9±0.1 (0.075±0.004)	3.5±0.1 (0.138±0.004)	4.0±0.1 (0.157±0.004)	1.4 (0.055)	0.3 (0.012)

④リーダー部・空部 LEADER AND BLANK PORTION

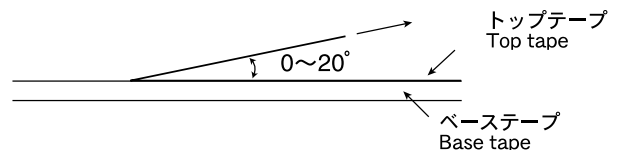


⑤リール寸法 Reel Size



⑥トップテープ強度 Top tape strength

トップテープの剥離力は、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 0.1~0.7N in the direction of the arrow as illustrated below.



Multilayer chip inductors and beads

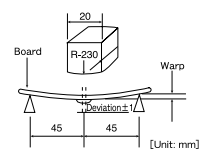
Item	Specified Value																				Test Methods and Remarks	
	BK0603	BK1005	BK1608	BK2125	ARRAY		BKP1005	BKP1608	BKP2125	CK1608	CK2125	CKP3216	LK1005	LK1608	LK2125	HK0603	HK0603	HK1005	HK1608	HK2125		
					BK2010	BK3216																
1. Operating Temperature Range	-55~+125°C				-55~+85°C				-40~+85°C				-55~+125°C				-40~+85°C					
2. Storage Temperature Range	-55~+125°C				-55~+85°C				-40~+85°C				-55~+125°C				-40~+85°C					
3. Rated Current	100~500mA DC	150~1000mA DC	150~1500mA DC	200~1200mA DC	100mA DC	100~200mA DC	1.0A DC	1.0~3.0A DC	2.0~4.0A DC	40~100mA DC	60~500mA DC	0.7~1.1A DC	10~25mA DC	1~50mA DC	5~300mA DC	150~400mA DC	40~250mA DC	110~300mA DC	150~300mA DC	300mA DC		
4. Impedance	10~600Ω ±25%	10~1000Ω ±25%	22~2500Ω ±25%	15~2500Ω ±25%	5~600Ω ±25%	68~1000Ω ±25%	120Ω ±25%	33~390Ω ±25%	33~220Ω ±25%													BK0603 Series: Measuring frequency: 100±1MHz Measuring equipment: HP4291A Measuring jig: 16193A BK1005 Series: BKP1005 Series: Measuring frequency: 100±1MHz Measuring equipment: HP4291A Measuring jig: 16192A, 16193A BK1608, 2125 Series: BKP1608, 2125 Series: Measuring frequency: 100±1MHz Measuring equipment: HP4291A, HP4195A Measuring jig: 16092A or 16192A (HW) BK2010, 3216 Series: Measuring frequency: 100±1MHz Measuring equipment: HP4291A, HP4195A Measuring jig: 16192A
5. Inductance										2.2~10.0μH : ±20%	0.1~10.0μH : ±20%	1.0~4.7μH : ±20%	0.12~2.2μH : ±10%	0.047~33.0μH : ±20%	0.047~33.0μH : ±20%	1.0~5.6nH : ±5%	1.0~6.2nH : ±5%	1.0~6.2nH : ±5%	1.0~5.6nH : ±5%	1.0~5.6nH : ±5%	CK Series: Measuring frequency: 2 to 4MHz (CK1608) Measuring frequency: 2 to 25MHz (CK2125) Measuring frequency: 1MHz (CKP3216) LK Series: Measuring frequency: 10 to 25MHz (LK1005) Measuring frequency: 1 to 50MHz (LK1608) Measuring frequency: 0.4 to 50MHz (LK2125) Measuring equipment, jig: HP4194+16085B+16092A (or its equivalent) HP4195+41951+16092A (or its equivalent) HP4294+16192A HP4291A+16193A (LK1005) HP4285A+42841A+42842C+ 42851-61100 (CKP3216) Measuring current: 1mA rms (0.047 to 4.7μH) 0.1mA rms (5.6 to 33μH) HK Series: Measuring frequency: 100MHz (HKQ0603, HK0603, HK1005) Measuring frequency: 50/100MHz (HK1608, HK2125) Measuring equipment, jig: HP4291A+16197A (HKQ0603, HK0603) HP4291A+16193A (HK1005) HP4291A (or its equivalent)+16092A+ in-house made jig (HK1608, 2125)	

* Definition of rated current : In the CK and BK Series, the rated current is the value of current at which the temperature of the element is increased within 20°C.

In the BK Series P type and CK Series P type, the rated current is the value of current at which the temperature of the element is increased within 40°C.

In the LK and HK Series, the rated current is either the DC value at which the internal L value is decreased within 5% with the application of DC bias, or the value of current at which the temperature of the element is increased within 20°C.

Multilayer chip inductors and beads

Item	Specified Value																			Test Methods and Remarks		
	BK0603	BK1005	BK1608	BK2125	ARRAY		BKP1005	BKP1608	BKP2125	CK1608	CK2125	CKP216	LK1005	LK1608	LK2125	HKQ0603	HK0603	HK1005	HK1608		HK2125	
					BK2010	BK3216																
6.Q										20 min.	15~20 min.		10~20 min.	10~35 min.	15~50 min.	4~5 min.	4~5 min.	8min.	8~12 min.	10~18 min.	CK Series: Measuring frequency: 2 to 4 MHz (CK1608) Measuring frequency: 2 to 25 MHz (CK2125) LK Series: Measuring frequency: 10 to 25 MHz (LK1005) Measuring frequency: 1 to 50 MHz (LK1608) Measuring frequency: 0.4 to 50MHz (LK2125) Measuring equipment, jig: HP4194A + 16085B + 16092A (or its equivalent) HP4195A + 41951 + 16092A (or its equivalent) HP4294A + 16192A HP4291A + 16193A (LK1005) Measuring current: 1mA rms (0.047 to 4.7μH) 0.1mA rms (5.6 to 33μH) HK Series: Measuring frequency: 100MHz (HKQ0603, HK0603, HK1005) Measuring frequency: 50 / 100MHz (HK1608, 2125) Measuring equipment, jig: HP4291A + 16197A(HKQ0603, HK0603) HP4291A + 16193A(HK1005) HP4195A + 16092A + in-house made jig (HK1608, 2125)	
7.DC Resistance	0.075~1.50Ω max.	0.05~0.80Ω max.	0.05~1.10Ω max.	0.05~0.75Ω max.	0.10~0.90Ω max.	0.15~0.80Ω max.	0.140Ω max.	0.025~0.140Ω max.	0.020~0.050Ω max.	0.30~0.90Ω (±30%) max.	0.16~0.65Ω max.	0.11~0.20Ω max.	0.7~1.70Ω max.	0.3~2.95Ω max.	0.20~1.25Ω max.	0.10~0.83Ω max.	0.14~4.0Ω max.	0.08~4.8Ω max.	0.05~2.6Ω max.	0.10~1.5Ω max.	Measuring equipment: VOAC-7412 (made by Iwasaki Tsushinki) VOAC-7512 (made by Iwasaki Tsushinki)	
8.Self Resonance Frequency(SRF)										17~33MHz min.	24~235MHz min.		40~180MHz min.	9~260MHz min.	13~320MHz min.	4000~10000MHz min.	900~10000MHz min.	400~10000MHz min.	300~10000MHz min.	200~4000MHz min.	LK Series: Measuring equipment: HP4195A Measuring jig: 41951 + 16092A (or its equivalent) HK Series: Measuring equipment: HP8719C • HP8753D(HK2125)	
9.Temperature Characteristic																Inductance change: Within±10%						HK Series: Temperature range: -30 to +85°C Reference temperature: +20°C
10. Resistance to Flexure of Substrate	No mechanical damage.																			Warp: 2mm Testing board: glass epoxy-resin substrate Thickness: 0.8mm 		

Multilayer chip inductors and beads

Item	Specified Value																Test Methods and Remarks		
	BK0603	BK1005	BK1608	BK2125	ARRAY		BKP1005	BKP1608	BKP2125	CK1608	CK2125	CKP3216	LK1005	LK1608	LK2125	HK0603		HK0603	HK1005
11.Solderability	At least 75% of terminal electrode is covered by new solder.								At least 75% of terminal electrode is covered by new solder.								Solder temperature: 230±5°C Duration: 4±1 sec.		
12.Resistance to Soldering	Appearance: No significant abnormality Impedance change: Within ±30%								No mechanical damage. Remaining terminal electrode: 70% min. Inductance change R10~4R7: Within±10% 6R8~100: Within±15% CKP3216: Within±30%	No mechanical damage. Remaining terminal electrode: 70% min. Inductance change 47N~4R7: Within±10% 5R6~330: Within±15%	No mechanical damage. Remaining terminal electrode: 70% min. Inductance change: Within±5%	Solder temperature: 260±5°C Duration: 10±0.5 sec. Preheating temperature: 150 to 180°C Preheating time: 3 min. Flux: Immersion into methanol solution with colophony for 3 to 5 sec. Recovery: 2 to 3 hrs of recovery under the standard condition after the test. (See Note 1)							
13.Thermal Shock	Appearance: No significant abnormality Impedance change: Within ±30%								No mechanical damage. Inductance change: Within ±20% Qchange: Within ±30%	No mechanical damage. Inductance change: Within ±30%	No mechanical damage. Inductance change: Within±10% Qchange: Within±20%	Conditions for 1 cycle step 1: Minimum operating temperature +0/-3°C 30±3 min. step 2: Room temperature 2 to 3min. step 3: Minimum operating temperature +0/-3°C 30±3 min. step 4: Room temperature 2 to 3min. Number of cycles: 5 Recovery: 2 to 3 hrs of recovery under the standard condition after the test. (See Note 1)							

(Note 1) When there are questions concerning measurement result : measurement shall be made after 48±2 hrs of recovery under the standard condition.

Multilayer chip inductors and beads

Item	Specified Value														Test Methods and Remarks						
	BK0603	BK1005	BK1608	BK2125	ARRAY		BKP1005	BKP1608	BKP2125	CK1608	CK2125	CKP216	LK1005	LK1608		LK2125	HK0603	HK0603	HK1005	HK1608	HK2125
14. Damp Heat (Steady state)	Appearance: No significant abnormality Impedance change: Within $\pm 30\%$						No mechanical damage.		No mechanical damage.	No mechanical damage.	No mechanical damage.	No mechanical damage.	No mechanical damage.	No mechanical damage.	No mechanical damage.	No mechanical damage.	No mechanical damage. Inductance change: Within $\pm 10\%$ Q change: Within $\pm 20\%$				BK Series: Temperature: $40 \pm 2^\circ\text{C}$ Humidity: 90 to 95%RH Duration: 500 ± 2^4 hrs Recovery: 2 to 3 hrs of recovery under the standard condition after the removal from test chamber. (See Note1) LK, CK, HK Series: Temperature: $40 \pm 2^\circ\text{C}$ (LK, CK Series) $60 \pm 2^\circ\text{C}$ (HK Series) Humidity: 90 to 95%RH Duration: 500 ± 12 hours Recovery: 2 to 3 hrs of recovery under the standard condition after the removal from test chamber. (See Note1)
15. Loading under Damp Heat	No mechanical damage, Inductance change within $\pm 30\%$						No mechanical damage.		No mechanical damage.	No mechanical damage.	No mechanical damage.	No mechanical damage.	No mechanical damage.	No mechanical damage.	No mechanical damage.	No mechanical damage.	No mechanical damage. Inductance change: Within $\pm 10\%$ Q change: Within $\pm 20\%$				BK Series: Temperature: $40 \pm 2^\circ\text{C}$ (LK Series) Humidity: 90 to 95%RH Duration: 500 ± 2^4 hrs Applied current: Rated current Recovery: 2 to 3 hrs of recovery under the standard condition after the removal from test chamber. (See Note1) LK, CK, HK Series: Temperature: $40 \pm 2^\circ\text{C}$ (LK, CK Series) $60 \pm 2^\circ\text{C}$ (HK Series) Humidity: 90 to 95%RH Duration: 500 ± 12 hrs Applied current: Rated current Recovery: 2 to 3 hrs of recovery under the standard condition after the removal from test chamber. (See Note1)
16. Loading at High Temperature	Appearance: No significant abnormality Impedance change: Within $\pm 30\%$						No mechanical damage.		No mechanical damage.	No mechanical damage.	No mechanical damage.	No mechanical damage.	No mechanical damage.	No mechanical damage.	No mechanical damage.	No mechanical damage.	No mechanical damage. Inductance change: Within $\pm 10\%$ Q change: Within $\pm 20\%$				BK Series: Temperature: $125 \pm 3^\circ\text{C}$ Applied current: Rated current Duration: 500 ± 2^4 hrs Recovery: 2 to 3 hrs of recovery under the standard condition after the removal from test chamber. (See Note1) LK, CK, HK Series, BK Series P type: Temperature: $85 \pm 2^\circ\text{C}$ (LK, CK Series) : $85 \pm 3^\circ\text{C}$ (BK Series P type) : $85 \pm 2^\circ\text{C}$ (HK 1608, 2125) : $85 \pm 2^\circ\text{C}$ (HK 1005 operating temperature range -55 to $+85^\circ\text{C}$) : $125 \pm 2^\circ\text{C}$ (HKQ 0603, HK 0603, HK1005) operating temperature range -55 to $+125^\circ\text{C}$) Applied current: Rated current Duration: 500 ± 12 hrs Recovery: 2 to 3 hrs of recovery under the standard condition after the removal from test chamber. (See Note1)

Note on standard condition: "standard condition" referred to herein is defined as follows:

5 to 35°C of temperature, 45 to 85% relative humidity, and 86 to 106kPa of air pressure.

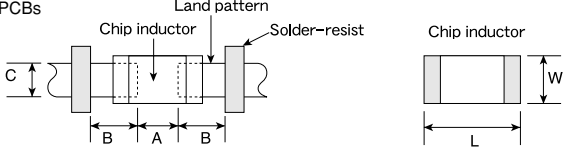
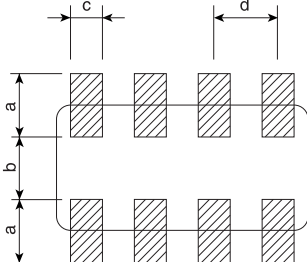
When there are questions concerning measurement results:

In order to provide correlation data, the test shall be conducted under condition of $20 \pm 2^\circ\text{C}$ of temperature, 60 to 70% relative humidity, and 86 to 106kPa of air pressure. Unless otherwise specified, all the tests are conducted under the "standard condition."

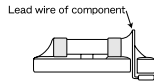
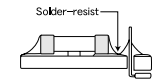
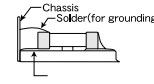
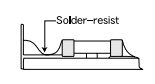
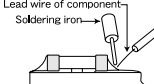
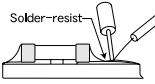
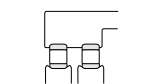
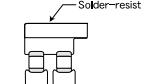
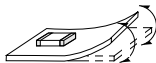
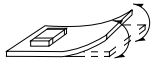
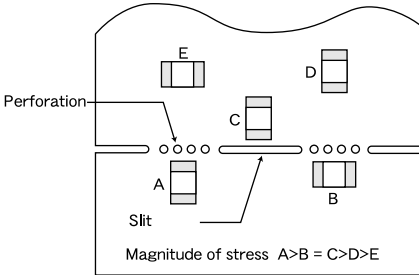
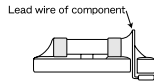
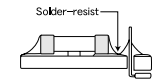
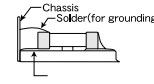
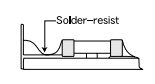
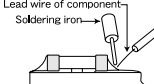
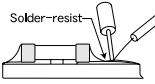
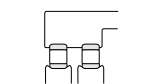
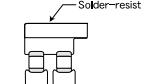
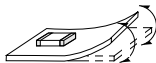
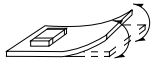
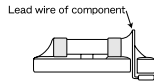
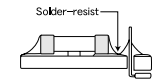
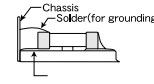
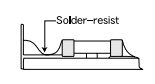
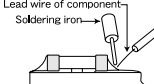
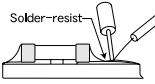
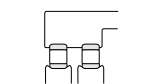
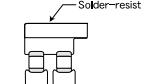
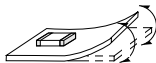
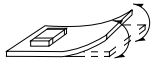
(Note 1)

measurement shall be made after 48 ± 2 hrs of recovery under the standard condition.

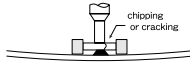
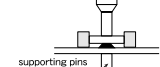
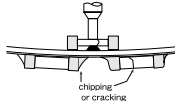
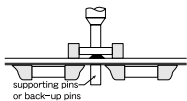
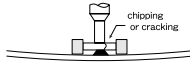
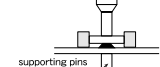
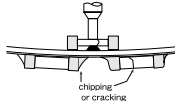
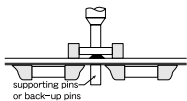
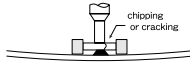
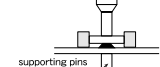
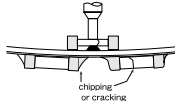
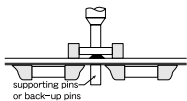
Precautions on the use of Multilayer chip Inductors, Multilayer chip inductors for high frequency, Multilayer ferrite chip beads

Stages	Precautions	Technical considerations																																																																																									
1. Circuit Design	<p>◆Verification of operating environment, electrical rating and performance</p> <p>1. A malfunction in medical equipment, spacecraft, nuclear reactors, etc. may cause serious harm to human life or have severe social ramifications. As such, any inductors to be used in such equipment may require higher safety and/or reliability considerations and should be clearly differentiated from components used in general purpose applications.</p> <p>◆Operating Current (Verification of Rated current)</p> <p>1. The operating current for inductors must always be lower than their rated values.</p> <p>2. Do not apply current in excess of the rated value because the inductance may be reduced due to the magnetic saturation effect.</p>																																																																																										
2. PCB Design	<p>◆Pattern configurations (Design of Land-patterns)</p> <p>1. When inductors are mounted on a PCB, the amount of solder used (size of fillet) can directly affect inductor performance. Therefore, the following items must be carefully considered in the design of solder land patterns:</p> <p>(1) The amount of solder applied can affect the ability of chips to withstand mechanical stresses which may lead to breaking or cracking. Therefore, when designing land-patterns it is necessary to consider the appropriate size and configuration of the solder pads which in turn determines the amount of solder necessary to form the fillets.</p> <p>(2) When more than one part is jointly soldered onto the same land or pad, the pad must be designed so that each component's soldering point is separated by solder-resist.</p>	<p>1. The following diagrams and tables show some examples of recommended patterns to prevent excessive solder amounts (larger fillets which extend above the component end terminations). Examples of improper pattern designs are also shown.</p> <p>(1) Recommended land dimensions for a typical chip inductor land patterns for PCBs</p>  <p>Recommended land dimensions for wave-soldering (unit: mm)</p> <table border="1" data-bbox="849 1161 1268 1343"> <thead> <tr> <th>Type</th> <th>1608</th> <th>2125</th> <th>3216</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Size</td> <td>L</td> <td>1.6</td> <td>2.0</td> <td>3.2</td> </tr> <tr> <td>W</td> <td>0.8</td> <td>1.25</td> <td>1.6</td> </tr> <tr> <td>A</td> <td>0.8~1.0</td> <td>1.0~1.4</td> <td>1.8~2.5</td> </tr> <tr> <td>B</td> <td>0.5~0.8</td> <td>0.8~1.5</td> <td>0.8~1.7</td> </tr> <tr> <td>C</td> <td>0.6~0.8</td> <td>0.9~1.2</td> <td>1.2~1.6</td> </tr> </tbody> </table> <p>Recommended land dimensions for reflow-soldering (unit: mm)</p> <table border="1" data-bbox="849 1402 1497 1583"> <thead> <tr> <th>Type</th> <th>0603</th> <th>1005</th> <th>1608</th> <th>2125</th> <th>3216</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Size</td> <td>L</td> <td>0.6</td> <td>1.0</td> <td>1.6</td> <td>2.0</td> <td>3.2</td> </tr> <tr> <td>W</td> <td>0.3</td> <td>0.5</td> <td>0.8</td> <td>1.25</td> <td>1.6</td> </tr> <tr> <td>A</td> <td>0.20~0.30</td> <td>0.45~0.55</td> <td>0.6~0.8</td> <td>0.8~1.2</td> <td>1.8~2.5</td> </tr> <tr> <td>B</td> <td>0.20~0.30</td> <td>0.40~0.50</td> <td>0.6~0.8</td> <td>0.8~1.2</td> <td>0.6~1.5</td> </tr> <tr> <td>C</td> <td>0.25~0.40</td> <td>0.45~0.55</td> <td>0.6~0.8</td> <td>0.9~1.6</td> <td>1.2~2.0</td> </tr> </tbody> </table> <p>Excess solder can affect the ability of chips to withstand mechanical stresses. Therefore, please take proper precautions when designing land-patterns.</p>  <p>Recommended land dimension for Reflow-soldering (unit: mm)</p> <table border="1" data-bbox="1189 1764 1465 1972"> <thead> <tr> <th></th> <th></th> <th>3216</th> <th>2010</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Size</td> <td>L</td> <td>3.2</td> <td>2.0</td> </tr> <tr> <td>W</td> <td>1.6</td> <td>1.0</td> </tr> <tr> <td>a</td> <td></td> <td>0.7~0.9</td> <td>0.5~0.6</td> </tr> <tr> <td>b</td> <td></td> <td>0.8~1.0</td> <td>0.5~0.6</td> </tr> <tr> <td>c</td> <td></td> <td>0.4~0.5</td> <td>0.2~0.3</td> </tr> <tr> <td>d</td> <td></td> <td>0.8</td> <td>0.5</td> </tr> </tbody> </table>	Type	1608	2125	3216	Size	L	1.6	2.0	3.2	W	0.8	1.25	1.6	A	0.8~1.0	1.0~1.4	1.8~2.5	B	0.5~0.8	0.8~1.5	0.8~1.7	C	0.6~0.8	0.9~1.2	1.2~1.6	Type	0603	1005	1608	2125	3216	Size	L	0.6	1.0	1.6	2.0	3.2	W	0.3	0.5	0.8	1.25	1.6	A	0.20~0.30	0.45~0.55	0.6~0.8	0.8~1.2	1.8~2.5	B	0.20~0.30	0.40~0.50	0.6~0.8	0.8~1.2	0.6~1.5	C	0.25~0.40	0.45~0.55	0.6~0.8	0.9~1.6	1.2~2.0			3216	2010	Size	L	3.2	2.0	W	1.6	1.0	a		0.7~0.9	0.5~0.6	b		0.8~1.0	0.5~0.6	c		0.4~0.5	0.2~0.3	d		0.8	0.5
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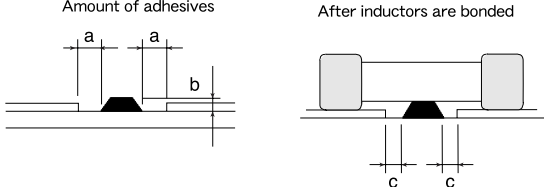
Precautions on the use of Multilayer chip Inductors, Multilayer chip inductors for high frequency, Multilayer ferrite chip beads

Stages	Precautions	Technical considerations																					
2.PCB Design	<p>◆Pattern configurations (Inductor layout on panelized [breakaway] PC boards)</p> <p>1. After inductors have been mounted on the boards, chips can be subjected to mechanical stresses in subsequent manufacturing processes (PCB cutting, board inspection, mounting of additional parts, assembly into the chassis, wave soldering the reflow soldered boards etc.) For this reason, planning pattern configurations and the position of SMD inductors should be carefully performed to minimize stress.</p>	<p>(2) Examples of good and bad solder application</p> <table border="1" data-bbox="852 297 1455 729"> <thead> <tr> <th></th> <th>Not recommended</th> <th>Recommended</th> </tr> </thead> <tbody> <tr> <td>Mixed mounting of SMD and leaded components</td> <td></td> <td></td> </tr> <tr> <td>Component placement close to the chassis</td> <td></td> <td></td> </tr> <tr> <td>Hand-soldering of leaded components near mounted components</td> <td></td> <td></td> </tr> <tr> <td>Horizontal component placement</td> <td></td> <td></td> </tr> </tbody> </table> <p>1-1. The following are examples of good and bad inductor layout; SMD inductors should be located to minimize any possible mechanical stresses from board warp or deflection.</p> <table border="1" data-bbox="852 847 1455 995"> <thead> <tr> <th>Item</th> <th>Not recommended</th> <th>Recommended</th> </tr> </thead> <tbody> <tr> <td>Deflection of the board</td> <td></td> <td></td> </tr> </tbody> </table> <p>1-2. To layout the inductors for the breakaway PC board, it should be noted that the amount of mechanical stresses given will vary depending on inductor layout. An example below should be counted for better design.</p> <div data-bbox="916 1109 1337 1384" style="border: 1px solid black; padding: 5px;">  <p style="text-align: center;">Perforation</p> <p style="text-align: center;">Slit</p> <p style="text-align: center;">Magnitude of stress $A > B = C > D > E$</p> </div> <p>1-3. When breaking PC boards along their perforations, the amount of mechanical stress on the inductors can vary according to the method used. The following methods are listed in order from least stressful to most stressful: push-back, slit, V-grooving, and perforation. Thus, any ideal SMD inductor layout must also consider the PCB splitting procedure.</p>		Not recommended	Recommended	Mixed mounting of SMD and leaded components			Component placement close to the chassis			Hand-soldering of leaded components near mounted components			Horizontal component placement			Item	Not recommended	Recommended	Deflection of the board		
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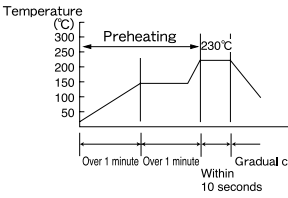
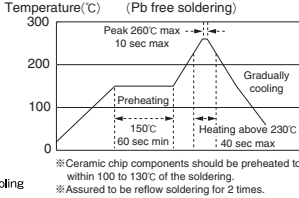
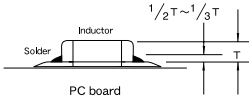
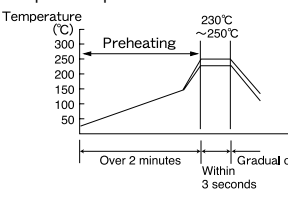
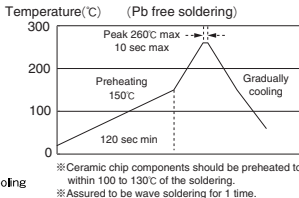
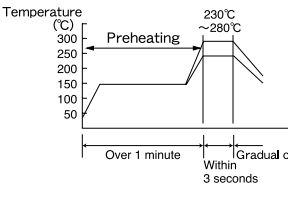
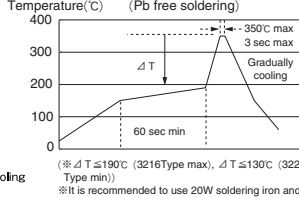
Precautions on the use of Multilayer chip Inductors, Multilayer chip inductors for high frequency, Multilayer ferrite chip beads

Stages	Precautions	Technical considerations									
<p>3.Considerations for automatic placement</p>	<p>◆Adjustment of mounting machine</p> <ol style="list-style-type: none"> Excessive impact load should not be imposed on the inductors when mounting onto the PC boards. The maintenance and inspection of the mounter should be conducted periodically. <p>◆Selection of Adhesives</p> <ol style="list-style-type: none"> Mounting inductors with adhesives in preliminary assembly, before the soldering stage, may lead to degraded inductor characteristics unless the following factors are appropriately checked; the size of land patterns, type of adhesive, amount applied, hardening temperature and hardening period. Therefore, it is imperative to consult the manufacturer of the adhesives on proper usage and amounts of adhesive to use. 	<ol style="list-style-type: none"> If the lower limit of the pick-up nozzle is low, too much force may be imposed on the inductors, causing damage. To avoid this, the following points should be considered before lowering the pick-up nozzle: <ol style="list-style-type: none"> The lower limit of the pick-up nozzle should be adjusted to the surface level of the PC board after correcting for deflection of the board. The pick-up pressure should be adjusted between 1 and 3 N static loads. To reduce the amount of deflection of the board caused by impact of the pick-up nozzle, supporting pins or back-up pins should be used under the PC board. The following diagrams show some typical examples of good pick-up nozzle placement: <table border="1" data-bbox="847 535 1453 805"> <thead> <tr> <th></th> <th>Improper method</th> <th>Proper method</th> </tr> </thead> <tbody> <tr> <td>Single-sided mounting</td> <td></td> <td></td> </tr> <tr> <td>Double-sided mounting</td> <td></td> <td></td> </tr> </tbody> </table> <ol style="list-style-type: none"> As the alignment pin wears out, adjustment of the nozzle height can cause chipping or cracking of the inductors because of mechanical impact on the inductors. To avoid this, the monitoring of the width between the alignment pin in the stopped position, and maintenance, inspection and replacement of the pin should be conducted periodically. <ol style="list-style-type: none"> Some adhesives may cause reduced insulation resistance. The difference between the shrinkage percentage of the adhesive and that of the inductors may result in stresses on the inductors and lead to cracking. Moreover, too little or too much adhesive applied to the board may adversely affect component placement, so the following precautions should be noted in the application of adhesives. <ol style="list-style-type: none"> Required adhesive characteristics <ol style="list-style-type: none"> The adhesive should be strong enough to hold parts on the board during the mounting & solder process. The adhesive should have sufficient strength at high temperatures. The adhesive should have good coating and thickness consistency. The adhesive should be used during its prescribed shelf life. The adhesive should harden rapidly The adhesive must not be contaminated. The adhesive should have excellent insulation characteristics. The adhesive should not be toxic and have no emission of toxic gasses. 		Improper method	Proper method	Single-sided mounting			Double-sided mounting		
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<p>3.Considerations for automatic placement</p>		<p>When using adhesives to mount inductors on a PCB, inappropriate amounts of adhesive on the board may adversely affect component placement. Too little adhesive may cause the inductors to fall off the board during the solder process. Too much adhesive may cause defective soldering due excessive flow of adhesive on to the land or solder pad.</p> <p>[Recommended conditions]</p> <table border="1" data-bbox="898 445 1452 567"> <thead> <tr> <th>Figure</th> <th>0805 case sizes as examples</th> </tr> </thead> <tbody> <tr> <td>a</td> <td>0.3mm min</td> </tr> <tr> <td>b</td> <td>100 ~120 μm</td> </tr> <tr> <td>c</td> <td>Area with no adhesive</td> </tr> </tbody> </table> 	Figure	0805 case sizes as examples	a	0.3mm min	b	100 ~120 μm	c	Area with no adhesive
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<p>4.Soldering</p>	<p>◆Selection of Flux</p> <p>1. Since flux may have a significant effect on the performance of inductors, it is necessary to verify the following conditions prior to use;</p> <p>(1)Flux used should be with less than or equal to 0.1 wt% (Chlorine conversion method) of halogenated content. Flux having a strong acidity content should not be applied.</p> <p>(2)When soldering inductors on the board, the amount of flux applied should be controlled at the optimum level.</p> <p>(3)When using water-soluble flux, special care should be taken to properly clean the boards.</p> <p>◆Soldering</p> <p>Temperature, time, amount of solder, etc. are specified in accordance with the following recommended conditions.</p>	<p>1-1. When too much halogenated substance (Chlorine, etc.) content is used to activate the flux, or highly acidic flux is used, an excessive amount of residue after soldering may lead to corrosion of the terminal electrodes or degradation of insulation resistance on the surface of the Inductor.</p> <p>1-2. Flux is used to increase solderability in flow soldering, but if too much is applied, a large amount of flux gas may be emitted and may detrimentally affect solderability. To minimize the amount of flux applied, it is recommended to use a flux-bubbling system.</p> <p>1-3. Since the residue of water-soluble flux is easily dissolved by water content in the air, the residue on the surface of Inductor in high humidity conditions may cause a degradation of insulation resistance and therefore affect the reliability of the components. The cleaning methods and the capability of the machines used should also be considered carefully when selecting water-soluble flux.</p> <p>1-1. Preheating when soldering</p> <p>Heating: Chip inductor components should be preheated to within 100 to 130°C of the soldering. Cooling: The temperature difference between the components and cleaning process should not be greater than 100 °C. Chip inductors are susceptible to thermal shock when exposed to rapid or concentrated heating or rapid cooling. Therefore, the soldering process must be conducted with a great care so as to prevent malfunction of the components due to excessive thermal shock.</p>								

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Stages	Precautions	Technical considerations
4.Soldering	<p>◆And please contact us about peak temperature when you use lead-free paste.</p>	<p>Recommended conditions for soldering</p> <p>[Reflow soldering]</p> <p>Temperature profile</p>   <p>※Ceramic chip components should be preheated to within 100 to 130°C of the soldering. ※Assured to be reflow soldering for 2 times.</p> <p>Caution</p> <ol style="list-style-type: none"> The ideal condition is to have solder mass (fillet) controlled to 1/2 to 1/3 of the thickness of the inductor, as shown below:  <ol style="list-style-type: none"> Because excessive dwell times can detrimentally affect solderability, soldering duration should be kept as close to recommended times as possible. <p>[Wave soldering]</p> <p>Temperature profile</p>   <p>※Ceramic chip components should be preheated to within 100 to 130°C of the soldering. ※Assured to be wave soldering for 1 time. ※Except for reflow soldering type.</p> <p>Caution</p> <ol style="list-style-type: none"> Make sure the inductors are preheated sufficiently. The temperature difference between the inductor and melted solder should not be greater than 100 to 130°C Cooling after soldering should be as gradual as possible. Wave soldering must not be applied to the inductors designated as for reflow soldering only. <p>[Hand soldering]</p> <p>Temperature profile</p>   <p>※ΔT ≤ 190°C (3216Type max), ΔT ≤ 130°C (3225 Type min) ※It is recommended to use 20W soldering iron and the tip is 1φ or less. ※The soldering iron should not directly touch the components. ※Assured to be soldering iron for 1 time.</p> <p>Note: The above profiles are the maximum allowable soldering condition, therefore these profiles are not always recommended.</p> <p>Caution</p> <ol style="list-style-type: none"> Use a 20W soldering iron with a maximum tip diameter of 1.0 mm. The soldering iron should not directly touch the inductor.
5.Cleaning	<p>◆Cleaning conditions</p> <ol style="list-style-type: none"> When cleaning the PC board after the Inductors are all mounted, select the appropriate cleaning solution according to the type of flux used and purpose of the cleaning (e.g. to remove soldering flux or other materials from the production process.) 	<ol style="list-style-type: none"> The use of inappropriate solutions can cause foreign substances such as flux residue to adhere to the inductor, resulting in a degradation of the inductor's electrical properties (especially insulation resistance).

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Stages	Precautions	Technical considerations						
5. Cleaning	<p>2. Cleaning conditions should be determined after verifying, through a test run, that the cleaning process does not affect the inductor's characteristics.</p>	<p>2. Inappropriate cleaning conditions (insufficient or excessive cleaning) may detrimentally affect the performance of the inductors.</p> <p>(1) Excessive cleaning In the case of ultrasonic cleaning, too much power output can cause excessive vibration of the PC board which may lead to the cracking of the inductor or the soldered portion, or decrease the terminal electrodes' strength. Thus the following conditions should be carefully checked;</p> <table border="0" data-bbox="893 476 1212 550"> <tr> <td>Ultrasonic output</td> <td>Below 20 w/l</td> </tr> <tr> <td>Ultrasonic frequency</td> <td>Below 40 kHz</td> </tr> <tr> <td>Ultrasonic washing period</td> <td>5 min. or less</td> </tr> </table>	Ultrasonic output	Below 20 w/l	Ultrasonic frequency	Below 40 kHz	Ultrasonic washing period	5 min. or less
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Ultrasonic washing period	5 min. or less							
6. Post cleaning processes	<p>◆ Application of resin coatings, moldings, etc. to the PCB and components.</p> <p>1. With some type of resins a decomposition gas or chemical reaction vapor may remain inside the resin during the hardening period or while left under normal storage conditions resulting in the deterioration of the inductor's performance.</p> <p>2. When a resin's hardening temperature is higher than the inductor's operating temperature, the stresses generated by the excess heat may lead to inductor damage or destruction.</p> <p>3. Stress caused by a resin's temperature generated expansion and contraction may damage inductors.</p> <p>The use of such resins, molding materials etc. is not recommended.</p>							
7. Handling	<p>◆ Breakaway PC boards (splitting along perforations)</p> <p>1. When splitting the PC board after mounting inductors and other components, care is required so as 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>◆ General handling precautions</p> <p>1. Always wear static control bands to protect against ESD.</p> <p>2. Keep the inductors away from all magnets and magnetic objects.</p> <p>3. Use non-magnetic tweezers when handling inductors.</p> <p>4. Any devices used with the inductors (soldering irons, measuring instruments) should be properly grounded.</p> <p>5. Keep bare hands and metal products (i.e., metal desk) away from chip electrodes or conductive areas that lead to chip electrodes.</p> <p>6. Keep inductors away from items that generate magnetic fields such as speakers or coils.</p> <p>◆ Mechanical considerations</p> <p>1. Be careful not to subject the inductors to excessive mechanical shocks.</p> <p>(1) If inductors are dropped on the floor or a hard surface they should not be used.</p> <p>(2) When handling the mounted boards, be careful that the mounted components do not come in contact with or bump against other boards or components.</p>							

Precautions on the use of Multilayer chip Inductors, Multilayer chip inductors for high frequency, Multilayer ferrite chip beads

Stages	Precautions	Technical considerations
8. Storage conditions	<p>◆Storage</p> <p>1. To maintain the solderability of terminal electrodes and to keep the packaging material in good condition, care must be taken to control temperature and humidity in the storage area. Humidity should especially be kept as low as possible.</p> <p>Recommended conditions Ambient temperature Below 40 °C Humidity Below 70% RH</p> <p>The ambient temperature must be kept below 30 °C. Even under ideal storage conditions inductor electrode solderability decreases as time passes, so inductors should be used within 6 months from the time of delivery.</p> <p>*The packaging material should be kept where no chlorine or sulfur exists in the air.</p>	<p>1. If the parts are stocked in 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. For this reason, components should be used within 6 months from the time of delivery. If exceeding the above period, please check solderability before using the inductors</p>