巻線チップインダクタ
WOUND CHIP INDUCTORS
CB SERIES

OPERATING TEMP.	−25～+85℃

リフロー／REFLOW

特長　FEATURES

・超小型、大電流の巻線チップインダクタ
・実装性、特性において方向性のない形状
・DC/DCコンバーター回路向け

・Small size wound chip inductor with high current.
・Demension without directional influence on mounterbility and characteristics.
・For DC-DC converter circuit.

用途　APPLICATIONS

・DVC, MD, PDA等の携帯AV機器、ディジタル機器

・DVC, MD, PDA and other portable digital equipment.

形名表記法　ORDERING CODE

① 形式

CB	巻線チップインダクタ

② 形状

△	低 Rdc
C	大電流
L	低背

③ 外径寸法〔mm〕

2012(0805)	2.0×1.25
2016(0806)	2.0×1.6
2518(1007)	2.5×1.8
3225(1210)	3.2×2.5

④ 包装

T	テーピング

⑤ 公称インダクタンス〔μH〕

例	
1R0	1
100	10
101	100

※R= 小数点

⑥ インダクタンス許容差〔%〕

M	±20

⑦ 個別仕様

△	標準品
R	低 RDC 品

⑧ 当社管理記号

△△△	標準品

△= スペース

C B △ 2 0 1 6 T 1 0 0 M △ △ △ △
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Type

CB	Wound chip inductor

② Shape

△	Low Rdc
C	High current Type
L	Low profile

③ External Dimensions〔mm〕

2012(0805)	2.0×1.25
2016(0806)	2.0×1.6
2518(1007)	2.5×1.8
3225(1210)	3.2×2.5

④ Packaging

T	Tape & Reel

⑤ Nominal Inductance〔μH〕

example	
1R0	1
100	10
101	100

*R=decimal point

⑥ Inductance Tolerances〔%〕

M	±20

⑦ Special code

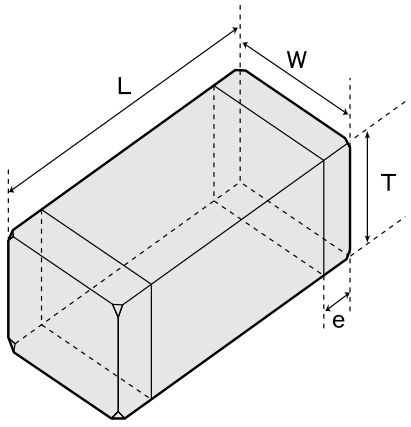
△	Standard products
R	Low Rdc type

⑧ Internal code

△△△	Standard Products

△=Blank space

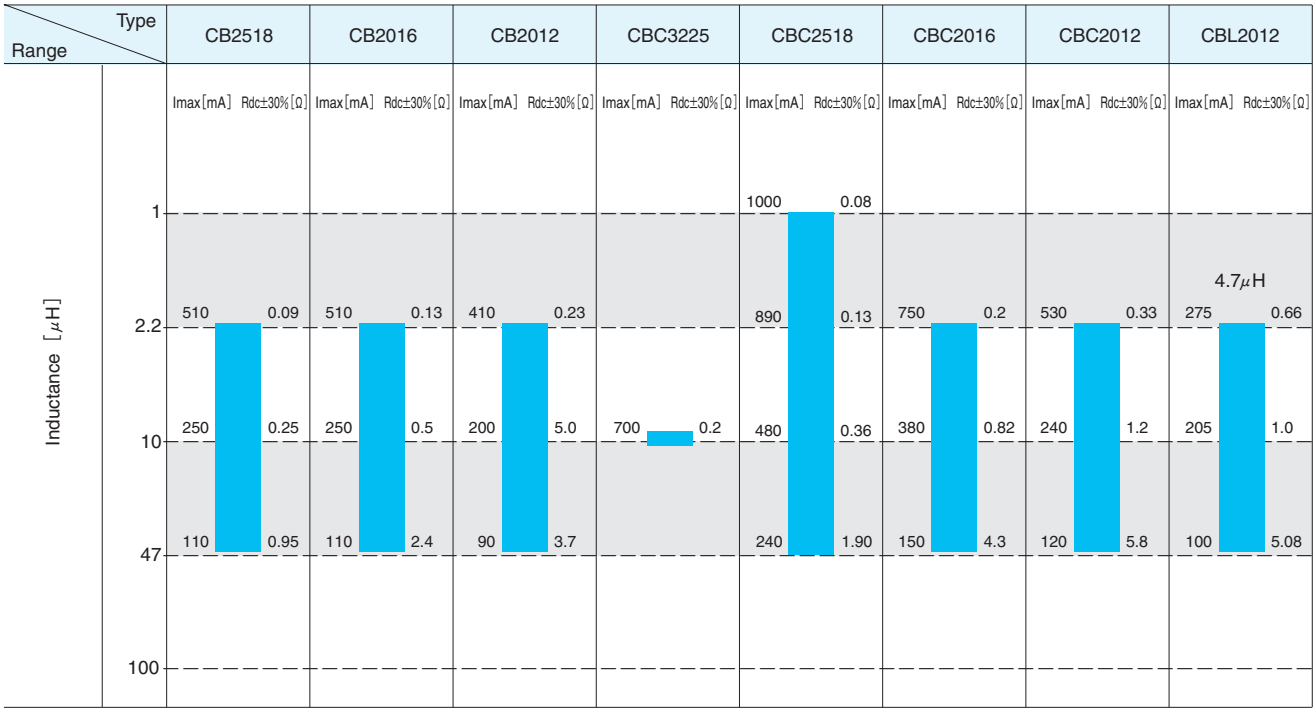
外形寸法　EXTERNAL DIMENSIONS



Type	L	W	T	E
CBC3225	3.2±0.3 (0.126±0.012)	2.5±0.3 (0.098±0.012)	2.5±0.3 (0.098±0.012)	0.6±0.3 (0.024±0.012)
CB2518 CBC2518	2.5±0.2 (0.098±0.008)	1.8±0.2 (0.071±0.008)	1.8±0.2 (0.071±0.008)	0.5±0.2 (0.020±0.008)
CB2016 CBC2016	2.0±0.2 (0.079±0.008)	1.6 ±0.2 (0.063±0.008)	1.6 ±0.2 (0.063±0.008)	0.5±0.2 (0.020±0.008)
CB2012 CBC2012	2.0±0.2 (0.079±0.008)	1.25±0.2 (0.049±0.008)	1.25±0.2 (0.049±0.008)	0.5±0.2 (0.020±0.008)
CBL2012	2.0±0.2 (0.079±0.008)	1.25±0.2 (0.049±0.008)	0.9±0.1 (0.035±0.004)	0.5±0.2 (0.020±0.008)

Unit　mm(inch)

概略バリエーション　AVAILABLE INDUCTANCE RANGE



	Inductance	Imax [mA]	Rdc±30% [Ω]	Imax [mA]	Rdc±30% [Ω]	Imax [mA]	Rdc±30% [Ω]	Imax [mA]	Rdc±30% [Ω]	Imax [mA]	Rdc±30% [Ω]	Imax [mA]	Rdc±30% [Ω]	Imax [mA]	Rdc±30% [Ω]	Imax [mA]	Rdc±30% [Ω]
代表値 Examples	1μH	—	—	—	—	—	—	—	—	1000	0.08	—	—	—	—	—	—
	2.2μH	510	0.09	510	0.13	410	0.23	—	—	890	0.13	750	0.2	530	0.33	275(4.7μH)	0.66(4.7μH)
	10μH	250	0.25	250	0.5	200	50	700	0.2	480	0.36	380	0.82	240	1.2	205	1.0
	47μH	110	0.95	110	2.4	90	3.7	—	—	240	1.9	150	4.3	120	5.8	100	5.08
	100μH	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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アイテム一覧 Part Numbers P.188 ▶
特性図 Electrical Characteristics P.190 ▶
梱包 Packaging P.195 ▶
信頼性 Reliability Data P.196 ▶
使用上の注意 Precautions P.212 ▶
etc

CB2012 TYPE

形　名 Ordering code		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〕 (±30%)	定格電流 Rated current 〔mA〕 max. ①	②	測定周波数 Measuring frequency 〔MHz〕
CB　2012T2R2M		2.2	±20%	80	0.23	410	770	7.96
CB　2012T4R7M		4.7		45	0.40	300	580	
CB　2012T100MR		10		32	0.5	200	520	2.52
CB　2012T220M		22		16	1.70	135	280	
CB　2012T470M		47		11	3.70	90	190	

CB2016 TYPE

形　名 Ordering code		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〕 (±30%)	定格電流 Rated current 〔mA〕 max. ①	②	測定周波数 Measuring frequency 〔MHz〕
CB　2016T2R2M		2.2	±20%	70	0.13	510	1000	7.96
CB　2016T4R7M		4.7		45	0.25	340	740	
CB　2016T100M		10		32	0.5	250	520	2.52
CB　2016T220M		22		16	1.0	165	370	
CB　2016T470M		47		11	2.4	110	240	

CB2518 TYPE

形　名 Ordering code		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〕 (±30%)	定格電流 Rated current 〔mA〕 max. ①	②	測定周波数 Measuring frequency 〔MHz〕
CB　2518T2R2M		2.2	±20%	68	0.09	510	1300	7.96
CB　2518T4R7M		4.7		46	0.13	340	1100	
CB　2518T100M		10		30	0.25	250	820	2.52
CB　2518T220M		22		19	0.50	165	580	
CB　2518T470M		47		12	0.95	110	420	

CBC2012 TYPE

形　名 Ordering code		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〕 (±30%)	定格電流 Rated current 〔mA〕 max. ①	②	測定周波数 Measuring frequency 〔MHz〕
CB　C2012T2R2M		2.2	±20%	70	0.33	530	640	7.96
CB　C2012T4R7M		4.7		45	0.50	360	520	
CB　C2012T100M		10		40	1.20	240	340	2.52
CB　C2012T220M		22		16	3.70	170	190	
CB　C2012T470M		47		11	5.80	120	150	

CBC2016TYPE

形　名 Ordering code		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〕 (±30%)	定格電流 Rated current 〔mA〕 max. ①	②	測定周波数 Measuring frequency 〔MHz〕
CB　C2016T2R2M		2.2	±20%	70	0.20	750	720	7.96
CB　C2016T4R7M		4.7		45	0.37	550	530	
CB　C2016T100M		10		40	0.82	380	410	2.52
CB　C2016T220M		22		16	1.80	250	240	
CB　C2016T470M		47		11	4.30	150	150	

※一般的な小型パワーチョークコイルの定格電流としては上表の定格電流①を参考にして下さい。
※定格電流②は、DC/DCコンバータの突入電流のような、瞬時であれば通電可能な電流値です。
　自動復帰回路等を備え、半連続的に5分間以上、大電流が通電する様な回路でご利用される場合には弊社営業に御相談下さい。
定格電流①：公称インダクタンスの–30%を保証する電流値
定格電流②：通電した時に部品温度がΔT=40℃以内であることを保証する電流値（インダクタンス値を保証する電流ではありません）

※For rated current of ordinary small power choke coils, please refer to the rated current ① in the above table.
※Rated current ② is the current for instantaneous flow such as plunging current of DC/DC converter.
　In case of usage in the circuit where large current may be semicontinuously applied over 5 minutes with auto recovery circuit, etc., please contact our sales section before practical application.
Rated current ① : Current value to guarantee –30% of nominal inductance
Rated current ② : Current value to guarantee component temperature within ΔT=40℃ with current flow.
　(It is not the current to guarantee the inductance value.)

CBC2518 TYPE

形　名 Ordering code		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〕 (±30%)	定格電流 Rated current 〔mA〕 max.		測定周波数 Measuring frequency 〔MHz〕
						①	②	
CB C2518T1R0M		1.0	±20%	100	0.08	1000	1200	7.96
CB C2518T2R2M		2.2		68	0.13	890	1100	
CB C2518T4R7M		4.7		41	0.20	680	920	
CB C2518T100M		10		30	0.36	480	680	2.52
CB C2518T220M		22		19	0.77	320	460	
CB C2518T470M		47		12	1.90	240	290	

CBC3225 TYPE

形　名 Ordering code		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〕 (±30%)	定格電流 Rated current 〔mA〕 max.		測定周波数 Measuring frequency 〔MHz〕
						①	②	
CB C3225T100M		10	±20%	8	0.2	700	760	0.1

CBL2012 TYPE

形　名 Ordering code		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〕 (±30%)	定格電流 Rated current 〔mA〕 max.		測定周波数 Measuring frequency 〔MHz〕
						①	②	
CB L2012T4R7M		4.7	±20%	45	0.69	275	490	0.1
CB L2012T100M		10		32	1.09	205	370	
CB L2012T470M		47		11	5.08	100	140	

※一般的な小型パワーチョークコイルの定格電流としては上表の定格電流①を参考にして下さい。
※定格電流②は、DC/DCコンバータの突入電流のような、瞬時であれば通電可能な電流値です。
　自動復帰回路等を備え、半連続的に5分間以上、大電流が通電する様な回路でご利用される場合には弊社営業に御相談下さい。
定格電流①：公称インダクタンスの−30%を保証する電流値
定格電流②：通電した時に部品温度がΔT=40℃以内であることを保証する電流値（インダクタンス値を保証する電流ではありません）

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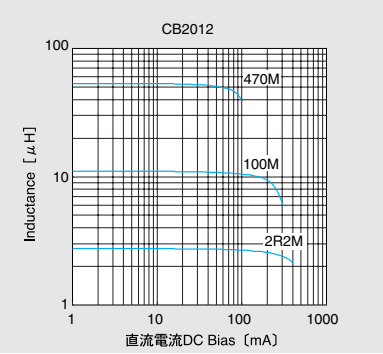
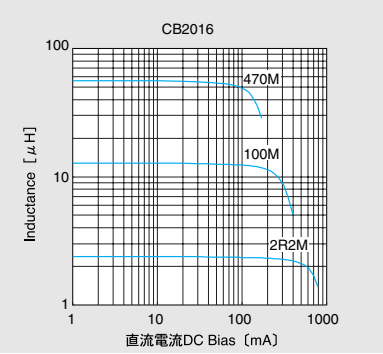
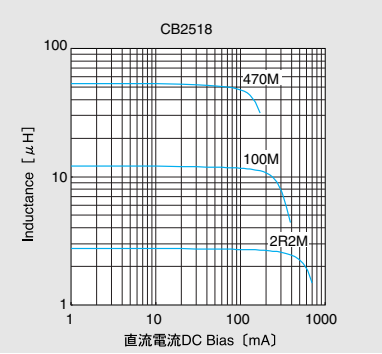
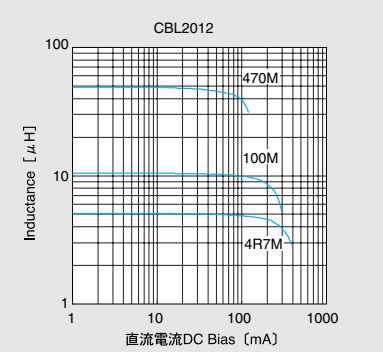
Rated current ② : Current value to guarantee component temperature within ΔT=40℃ with current flow.
　(It is not the current to guarantee the inductance value.)

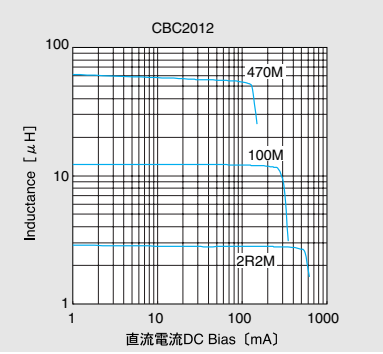
直流重畳特性例 DC Bias characteristics (Measured by HP4285A+42841A)

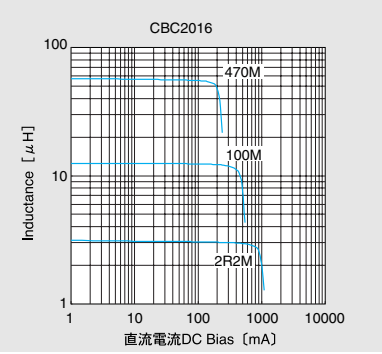


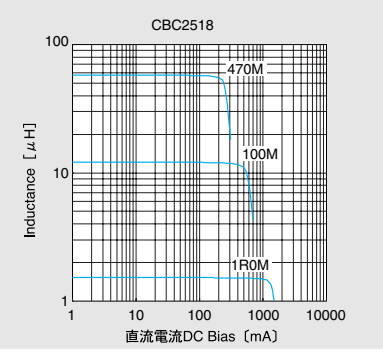


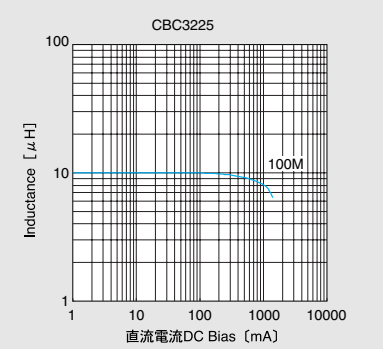




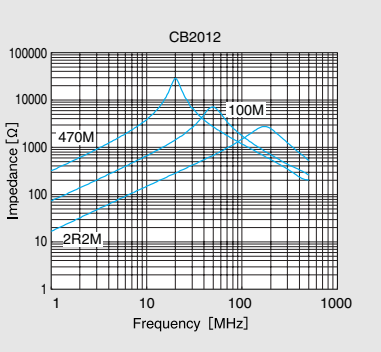


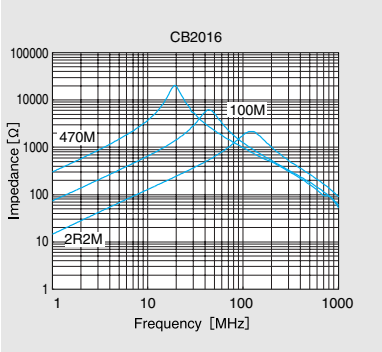


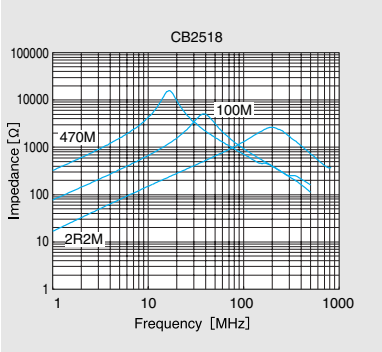


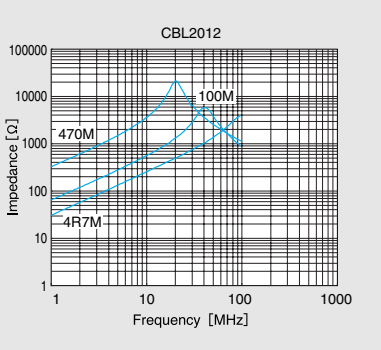


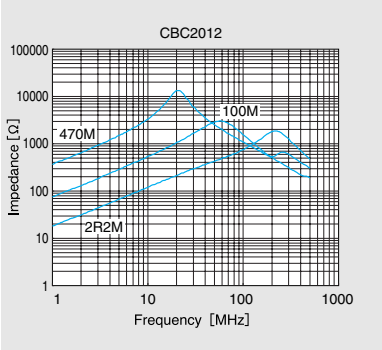
インピーダンス周波数 Impedance-vs-Frequency characteristics (Measured by HP4291A)

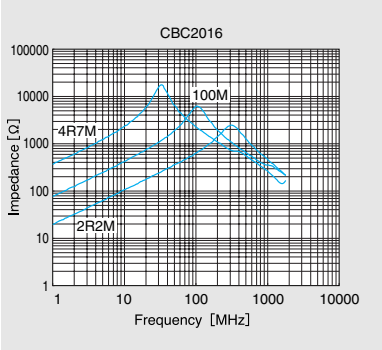


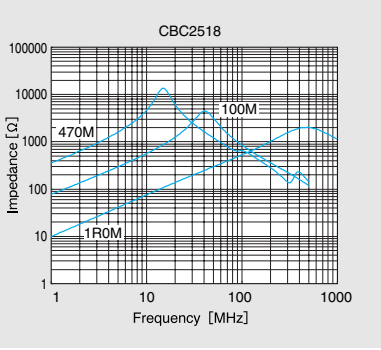


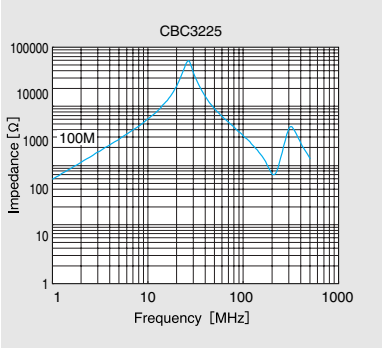












①最小受注単位数 Minimum Quantity

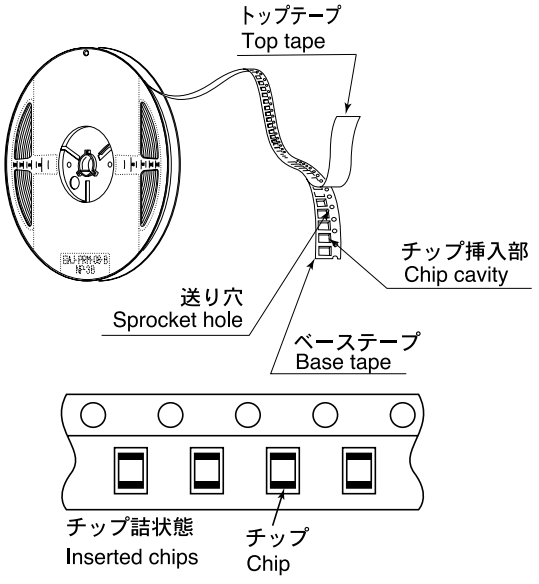
形　式 Type	標準数量 Standard Quantity [pcs]
	テーピング Tape&Reel
LB2518 / LBC2518 CB2518 / CBC2518	2000
LB2016 / LBC2016 CB2016 / CBC2016	2000
LB2012 / LBC2012 CB2012 / CBC2012	3000
LBH1608 / LB1608	4000
CBC3225	1000
CBL2012	4000

形　式 Type	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	T
LB2518 / CB2519 LBC2518 / CBC2519	2.15±0.1 (0.085±0.004)	2.7±0.1 (0.107±0.004)	4.0±0.1 (0.157±0.004)	2.1 (0.083)	0.3 (0.012)
LB2016 / LBC2016 CB2016 / CBC2016	1.9±0.1 (0.075±0.004)	2.2±0.1 (0.087±0.004)	4.0±0.1 (0.157±0.004)	2.15 (0.085)	0.3 (0.012)
LB2012 / LBC2012 CB2012 / CBC2012	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)
LBH1608 LB1608	1.0±0.2 (0.059±0.008)	1.8±0.2 (0.091±0.008)	4.0±0.1 (0.157±0.004)	1.1max (0.079)	1.1max (0.012)
CBC3225	2.8±0.2 (0.110±0.008)	3.5±0.2 (0.138±0.008)	4.0±0.2 (0.157±0.003)	4.0max (0.157)	0.6max (0.024)
CBL2012	1.55±0.2 (0.061±0.008)	2.3±0.2 (0.091±0.008)	4.0±0.1 (0.157±0.004)	1.1max (0.079)	1.1max (0.079)

Unit: mm (inch)

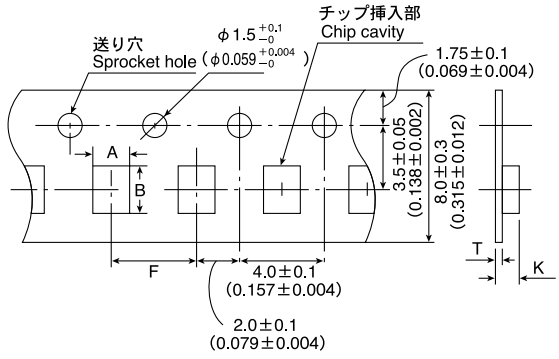
②テーピング材質 Tape material

エンボステープ Embossed tape
紙テープ(LBH1608) Card board carrier tape(LBH1608)

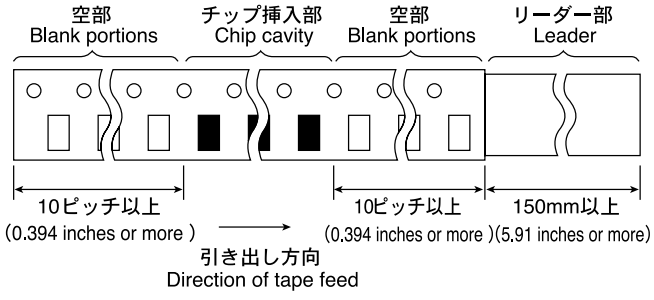


③テーピング寸法　Taping Dimensions

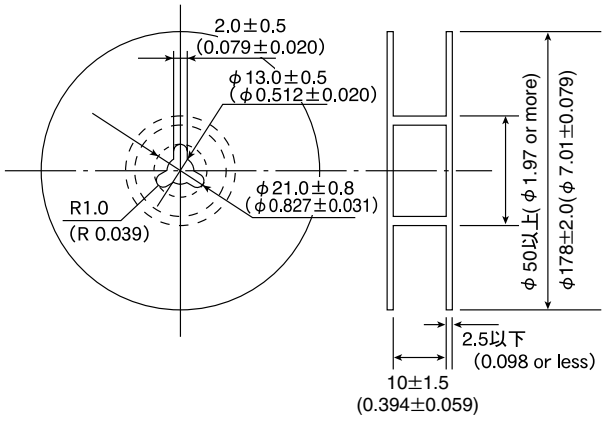
エンボステープ（8mm幅）Embossed Tape (0.315 inches wide)
紙テープ（8mm幅）Paper tape (0.315 inches wide)



④リーダ部／空部 Leader and Blank Portion

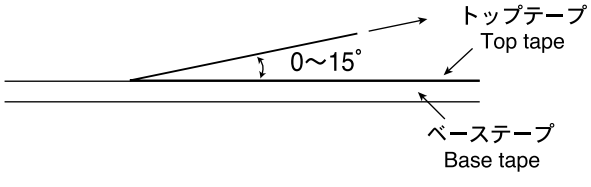


⑤リール寸法 Reel Size



⑥トップテープ強度 Top Tape Strength

トップテープのはがし力は、下図矢印方向にて0.2〜0.7Nとなります。
The top tape requires a peel-off force of 0.2 to 0.7N in the direction of the arrow as illustrated below.



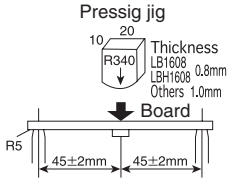
Item	Specified Value							Test Methods and Remarks
	LEM2520	LB2518 LB2016 LB2012 LB1608	LBC2518 LBC2016 LBC2012	CB2518 CB2016 CB2012	CBC3225 CBC2518 CBC2016 CBC2012	CBL2012	LBH1608	
1.Operating temperature Range	−40～+85℃	−25～+85℃						
2.Storage	−40～+85℃	−25～+85℃						
3.Rated Current	Within the specified tolerance							LEM・LB・LBC Series The maximum DC value having inductance decrease within 10% and temperature increas within 20℃ by the application of DC bias. CB・CBC・CBL Series The maximum DC value having inductance decrease within 30% and temperature increas within 40℃ by the application of DC bias. LBH1608: The maximum DC value having temperature increas within 20℃ by the application of DC bias.
4.Inductance	Within the specified tolerance							YLEM Series 5N6VR10： Measuring equipment：Impedance analyzer (HP4291A or its equivalent) Measuring frequency：Specified frequency LEM Series R12～221： Measuring equipment：LCR Meter (HP4285A+42851A or its equivalent) Measuring frequency：Specified frequency LB・LBC ・CB・CBC・CBL Series： Measuring equipment：LCR Mater (HP4285A or its equivalent) LBH1608 Series： Measuring equipment：Impedance analyzer (HP4291A or its equivalent)
5.Q	Within the specified tolerance						12～18 (at 100MHz) min	LEM Series R12～221： Measuring equipment：LCR Meter (HP4285A+42851A or its equivalent) Measuring frequency：Specified frequency LBH1608 Series： Measuring equipment：Impedance analyzer (HP4291A or its equivalent)
6.DC Resisitance	Within the specified tolerance							LEM・LB・LBC・CB・CBC・CBL・LBH Series： Measuring equipment：low ohmmeter (A&D AD5812 or its equivalent)

<table>
<tr><th rowspan="2">Item</th><th colspan="7">Specified Value</th><th rowspan="2">Test Methods and Remarks</th></tr>
<tr><th>LEM2520</th><th>LB2518
LB2016
LB2012
LB1608</th><th>LBC2518
LBC2016
LBC2012</th><th>CB2518
CB2016
CB2012</th><th>CBC3225
CBC2518
CBC2016
CBC2012</th><th>CBL2012</th><th>LBH1608</th></tr>
<tr><td>7.Self-Resonant Frequency</td><td colspan="7">Within the specified tolerance</td><td>LEM2520：
Measuring equipment：Network analyzer
(Anritsu MS620J or its equivalent)

LB・LBC・CB・CBC・CBL Series：
Measuring equipment：Impedance analyzer
(HP4291A or its equivalent)
LBH1608 Series：
Measuring equipment：Network analyzer
(HP8720B or its equivalent)</td></tr>
<tr><td>8.Temperature Characteristic</td><td>△L/L→
Within±5%</td><td>△L/L→
Within±15%</td><td>2518
2016
△L/L→
Within±20%

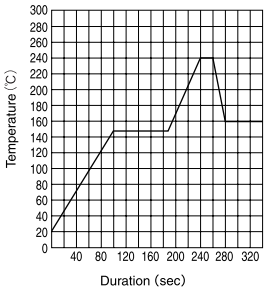
2012
△L/L→
Within±30%</td><td>△L/L→
Within±15%</td><td>3225
2518
2016
△L/L→
Within±20%

2012
△L/L→
Within±30%</td><td>△L/L→
Within±15%</td><td>△L/L→
Within±5%
※△L/L→
Within±0.5nH
under 8.2nH</td><td>Change of maximum inductance deviation in step 1−5

＊Exclude CM03MS series
<table><tr><th>Step</th><th>Temperture (℃)</th></tr><tr><td>1</td><td>20</td></tr><tr><td>2</td><td>−25</td></tr><tr><td>3</td><td>20 (Reference temperature)</td></tr><tr><td>4</td><td>+85 (Maximum operating temperature)</td></tr><tr><td>5</td><td>20</td></tr></table></td></tr>
<tr><td>9.Rasistance to Flexure of Substrate</td><td colspan="7">No breakdown or damage</td><td>Warp: 2mm (LBC, LB, CB, CBC, CBL, LBH Series)
: 3mm (LEM2520)
Test substrate: Printed board
Accoding to JIS C0051
  </td></tr>
<tr><td>10.Body Strength</td><td colspan="7">No breakdown or damage</td><td>Applide forde：15N
Duration：5sec.
LB・LBC・CB・CBC・CBL・LBH・LEM2520
Applide forde：10N
Duration：10sec.
LB1608
Applide forde：5N
Duration：10sec.</td></tr>
<tr><td>11.Self Resonant Freguency</td><td colspan="2">△L/L→Within−10%</td><td colspan="2">△L/L→Within−30%</td><td colspan="2">△L/L→
Within−10%</td><td>Measure inductance with application of rated current using LCR metre to cpmpare it with the initial value. (* Excluding 5N6～R10)</td></tr>
</table>

Item	Specified Value							Test Methods and Remarks
	LEM2520	LB2518 LB2016 LB2012 LB1608	LBC2518 LBC2016 LBC2012	CB2518 CB2016 CB2012	CBC3225 CBC2518 CBC2016 CBC2012	CBL2012	LBH1608	
12.Adhesion of terminal electrode	Shall not come off PC board.							LB・LBC・CB・CBC・CBL・LBH・LEM2520 Applied force：10N to X and Y directions Duration：5 sec. Test substrate：Printed board
13.Resistance to vibration	△L/L→ Within±5% No significant abnormality in appearance.	△L/L→Within±10% No significant abnormality in appearance.					No significant abnormality in appearance.	LEM・LB・LBC・CB・CBC・CBL： According to JIS C5102 clause 8.2. Vibration type：A Directions：2 hrs each in X, Y and Z directions. Total：6 hrs Frequency range：10 to 55 to 10 Hz (1min.) Amplitude：1.5mm Mounting method：Soldering onto printed board (* Excluding 5N6-R10 LE Series) Recovery：At least 1 hr of recovery under the standard condition after the test, followed by the measurement within 2 hrs.

Item	Specified Value							Test Methods and Remarks
	LEM2520	LB2518 LB2016 LB2012 LB1608	LBC2518 LBC2016 LBC2012	CB2518 CB2016 CB2012	CBC3225 CBC2518 CBC2016 CBC2012	CBL2012	LBH1608	
14.Drop test	△L/L→ Within±5% No significant abnormality in appearance.							LEM： Drop test Impact material：concreta or vinyl tile Height：1m Total number of drops：10 times LEM2520 Acceleration：980m/sec^2 Duration：6msec Number of times：6 sides × 3 times Mounting method：Soldering onto printed board (* Excluding 10N～R10) Recovery：At least 1 hr of recovery under the standard condition after the test, followed by the measurement within 2 hrs.
15.Solderability	At least 90% of electrode							LEM： Solder temperature：230±5℃ Duration：5±0.5sec. (LEM2520) Fiux：Methanol solution with 25% of colophony LB・LBC・CB・CBC・CBL・LBH： Solder temperature：230±5℃ Duration：5±0.5sec Fiux：Methanol solution with 25% of colophony

Item	Specified Value							Test Methods and Remarks
	LEM2520	LB2518 LB2016 LB2012 LB1608	LBC2518 LBC2016 LBC2012	CB2518 CB2016 CB2012	CBC3225 CBC2518 CBC2016 CBC2012	CBL2012	LBH1608	
16.Resisitance to soldering heat	No significant abnormality in appearance							Conduct following wave soldering twice.  Solder temperature：260±5℃ Duration：5±0.5sec. Twice 10±1sec. Once (LEM2520) LB・LBC・CB・CBC・CBL・LBH： 3 times of reflow oven at 220 ± 5℃for 40sec.with peak temperature at 235± 5℃ for 5sec.
17.Resisitance to soolvent	No significant abnormality in appearance.							Solvent temperature：Room temperature Type of solvent：Chlorocarbon type (LEM2520) Isopropyl alcohol (LB・LBC・CB・CBC・CBL) Cleaning conditions：Output：20mW/cm³ Frequency：28kHz Duration：1 min Conduct ultrasonic cleaning. (LEM2520) 90s. Immersion and cleaning. (LB・LBC)

Item	Specified Value							Test Methods and Remarks
	LEM2520	LB2518 LB2016 LB2012 LB1608	LBC2518 LBC2016 LBC2012	CB2518 CB2016 CB2012	CBC3225 CBC2518 CBC2016 CBC2012	CBL2012	LBH1608	
18.Thermal shock	△L/L→ Within±10% Q→ 10N：10min. 12N～33N： 15min. 39N～R10： 20min. R12～4R7： 30min. 5R6～330： 25min. 390～820： 20min. 101：15min.	△L/L→Within±10%					△L/L→ Within±5% ※△L/L→ within±0.5nH under 8.2 n H △Q/Q→ within±20% ※△Q/Q→ within±5 under 8.2 n H	Conditions for 1cycle Step / Temperature(℃) / Duration(min) 1 / −40 / 30 2 / +85 / 30 Temperature for：LEM2520 Number of cycle：100 cycle Recovery：At least 1 hr of recovery the standard condition after the removal from test chamber, followed by measurement within 2 hrs. LB・LBC・CB・CBC・CBL・LBH： −40～+85℃, miantain times 30min. ,100 cycle Recovery：At least 1 hr of recovery under the standard condition after the test, followed by the measurement within 2 hrs.
19.Damp heat	△L/L→ Within±10% Q→ 10N：10min. 12N～33N： 15min. 39N～R10： 20min. R12～4R7： 30min. 5R6～330： 25min. 390～820： 20min. 101：15min.	△L/L→Within±10%					△L/L→ Within±5% ※△L/L→ within±0.5nH under 8.2 n H △Q/Q→ Within±20% ※△Q/Q→ within±5 under 8.2 n H	Temperature：60±2℃ Humidity：90～95%RH Duration：1000 hrs Recovery：At least 1 hr of recovery the standard condition after the removal from test chamber, followed by measurement within 2 hrs.

Item	Specified Value							Test Methods and Remarks
	LEM2520	LB2518 LB2016 LB2012 LB1608	LBC2518 LBC2016 LBC2012	CB2518 CB2016 CB2012	CBC3225 CBC2518 CBC2016 CBC2012	CBL2012	LBH1608	
20.Loading under damp heat	△L/L→ Within±10% Q→ R12～4R7： 30min. 5R6～330： 25min. 390～820： 20min. 101：15min.	△L/L→Within±10%					△L/L→ Within±5% ※△L/L→ within±0.5nH under 8.2 n H △Q/Q→ within±20% ※△Q/Q→ within±5 under 8.2 n H	LEM・LB・LBC・CB・CBC・CBL： Temperature：60±2℃ (Excluding nH range) Humidity：90～95%RH Duration：1000 hrs Applied current：Rated current Recovery：At least 1 hr of recovery the standard condition after the removal from test chamber, followed by measurement within 2 hrs.
21.High temperaturte life test	△L/L→ Within±10% Q→ 10N：10min. 12N～33N： 15min. 39N～R10： 20min. R12～4R7： 30min. 5R6～330： 25min. 390～820： 20min. 101：15min.		△L/L→Within±10%					LEM・CB・CBC・CBL： Temperature：85±2℃ Duration：1000 hrs Recovery：At least 1 hr of recovery the standard condition after the removal from test chamber, followed by measurement within 2 hrs.
22.Loading at high temperature		△L/L→Within±10%					△L/L→ Within±5% ※△L/L→ within±0.5nH under 8.2 n H △Q/Q→ Within±20% ※△Q/Q→ within±0.5 under 8.2 n H	LB・LBC： Temperature：85±2℃ (Excluding nH range) Duration：1000 hrs Applied current：Rated current Recovery：At least 1 hr of recovery the standard condition after the removal from test chamber, followed by measurement within 2 hrs.

Item	Specified Value							Test Methods and Remarks
	LEM2520	LB2518 LB2016 LB2012 LB1608	LBC2518 LBC2016 LBC2012	CB2518 CB2016 CB2012	CBC3225 CBC2518 CBC2016 CBC2012	CBL2012	LBH1608	
23.Low temperature life test	△L/L→ Within±10% Q→ 10N：10min. 12N～33N： 15min. 39N～R10： 20min. R12～4R7： 30min. 5R6～330： 25min. 390～820： 20min. 101：15min.	△L/L→Within±10%					△L/L→ Within±5% ※△L/L→ within±0.5nH under 8.2 n H △Q/Q→ Within±20% ※△Q/Q→ within±5 under 8.2 n H	LEM・LB・LBC・CB・CBC・CBL・LBH Temperature：−40±2℃ Duration：1000 hrs Recovery：At least 1 hr of recovery the standard condition after the removal from test chamber, followed by measurement within 2 hrs.
24.Standard condition	"Sutandard condition" referred to herein defined as follows：5 to 35℃ 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±2℃ of temperature, 45 to 85% to 106kPa of air pressure. Unless otherwise specified all the test are conducted under the "standard condition"	Standard test condition：Unless oherwise specified,Temperature20±15℃of temperature, 65±20% of relative humidity.When there are question concerning measurement result：In order to provide correlation date, the test shall be condition of 20±2℃ of tenterature, 65±5% relative humidity. Inductance is in accordance with our measured value.						

PRECAUTIONS

LEM Type, LB Type, CB Type

Stages	Precautions	Technical considerations
1.Circuit Design	Operating environment, 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.	
2.PCB Design	Land pattern design 1.Please contact any of our offices for a land pattern, and refer to a recommended land pattern of specifications.	
3.Considerations for automatic placement	Adjustment of mounting machine 1.Excessive impact load should not be imposed on the products when mounting onto the PC boards. 2.Mounting and soldering conditions should be checked beforehand.	1. When installing products, care should be taken not to apply distortion stress as it may deform the products.
4.Soldering	Wave soldering 1.Please refer to the specifications in the catalog for a wave soldering. Reflow soldering 1.Please contact any of our offices for a reflow soldering, and refer to the recommended condition specified. 2.LB Type, CB Type Reflow solderring only. Lead free soldering 1.When using products with lead free soldering, we request to use them after confirming of adhesion, temperature of resistance to soldering heat, etc. sufficiently. Recommended conditions for using a soldering iron Put the soldering iron on the land-pattern. Soldering iron's temperature - Below 350 ℃ Duration - 3 seconds or less The soldering iron should not directly touch the inductor.	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.
5.Cleaning	Cleaning conditions LB Type, CB Type 1.Washing by supersonic waves shall be avoided.	LB Type, CB Type 1.If washing by supersonic waves, supersonic waves may cause broken products.
6.Handling	Handling 1.Keep the inductors away from all magnets and magnetic objects. Breakaway PC boards (splitting along perforations) 1.When splitting the PC board after mounting inductors, care should be taken not to give any stresses of deflection or twisting to the board. 2.Board separation should not be done manually, but by using the appropriate devices. Mechanical considerations 1.Please do not give the inductors any excessive mechanical shocks.	1.There is a case that a characteristic varies with magnetic influence. 1.Planning pattern configurations and the position of products should be carefully performed to minimize stress. 1.There is a case to be damaged by a mechanical shock.
7.Storage conditions	Storage 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. ・Recommended conditions Ambient temperature 0～40℃ Humidity Below 70% RH The ambient temperature must be kept below 30℃ Even under ideal storage conditions, solderability of products electrodes may decrease as time passes. For this reason, LE type inductors should be used within one year from the time of delivery. LB type Please should be used within 6 months from the time of delivery. LE type In case of storage over 6 months, solderability shall be checked before actual usage.	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.