

## Notice for TAIYO YUDEN products

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Please read this notice before using the TAIYO YUDEN products.

### REMINDERS

- Product information in this catalog is as of October 2013. All of the contents specified herein are subject to change without notice due to technical improvements, etc. Therefore, please check for the latest information carefully before practical application or usage of the Products.

Please note that TAIYO YUDEN CO., LTD. shall not be responsible for any defects in products or equipment incorporating such products, which are caused under the conditions other than those specified in this catalog or individual specification.

- Please contact TAIYO YUDEN CO., LTD. for further details of product specifications as the individual specification is available.

- Please conduct validation and verification of products in actual condition of mounting and operating environment before commercial shipment of the equipment.

- All electronic components listed in this catalogue are intended for use in general electronic equipment such as AV/OA equipment, home electrical appliances, office equipment, and information-communication equipment (mobile phone, PC, etc.), Medical equipment, Industrial equipment, and in automotive applications (for comfort). Please be sure to contact TAIYO YUDEN CO., LTD. for further information before using the components for any equipment which might have a negative impact directly on human life, such as transportation equipment (automotive powertrain/train/ship control systems, etc.) and traffic signal system.

Please do not incorporate the components into any equipment requiring a high degree of safety and reliability, such as aerospace equipment, avionics, nuclear control equipment, submarine system, and military equipment.

For use in high safety and reliability-required devices/circuits of general electronic equipment, thorough safety evaluation prior to use is strongly recommended, and a protective circuit should be designed and installed as necessary.

- The contents of this catalog are applicable to the products which are purchased from our sales offices or distributors (so called "TAIYO YUDEN's official sales channel").

It is only applicable to the products purchased from any of TAIYO YUDEN's official sales channel.

- Please note that TAIYO YUDEN CO., LTD. shall have no responsibility for any controversies or disputes that may occur in connection with a third party's intellectual property rights and other related rights arising from your usage of products in this catalog. TAIYO YUDEN CO., LTD. grants no license for such rights.

- Caution for export

Certain items in this catalog may require specific procedures for export according to "Foreign Exchange and Foreign Trade Control Law" of Japan, "U.S. Export Administration Regulations", and other applicable regulations. Should you have any question or inquiry on this matter, please contact our sales staff.

# WIRE-WOUND CHIP POWER INDUCTORS(CB SERIES)



REFLOW

## PARTS NUMBER

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

△ = Blank space

### ① Series name

Code	Series name
CB	Wound chip power inductor

### ② Characteristics

Code	Characteristics
△△	Standard
△C	High current

### ③ Dimensions (L × W)

Code	Type (inch)	Dimensions (L × W) [mm]
2012	2012 (0805)	2.0 × 1.25
2016	2016 (0806)	2.0 × 1.6
2518	2518 (1007)	2.5 × 1.8
3225	3225 (1210)	3.2 × 2.5

### ④ Packaging

Code	Packaging
T	Taping

### ⑤ Nominal inductance

Code (example)	Nominal inductance [μH]
1R0	1.0
100	10
101	100

※R=Decimal point

### ⑥ Inductance tolerance

Code	Inductance tolerance
K	±10%
M	±20%

### ⑦ Special code

Code	Special code
△	Standard
R	Low Rdc type

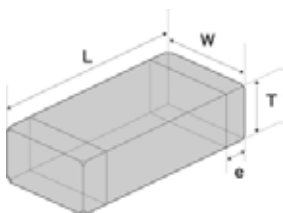
### ⑧ Internal code

Code	Special code
V	Industrial, Automotive Comfort, and Safety

## OPERATING TEMP.

● -40~105°C (Including self-generated heat)

## STANDARD EXTERNAL DIMENSIONS / STANDARD QUANTITY



### Recommended Land Patterns

#### Surface Mounting

- Mounting and soldering conditions should be checked beforehand.
- Applicable soldering process to these products is reflow soldering only.



Type	A	B	C
2012	0.60	1.0	1.45
2016	0.60	1.0	1.8
2518	0.60	1.5	2.0
3225	0.85	1.7	2.7

Unit: mm

Type	L	W	T	e	Standard quantity [pcs]	
					Paper tape	Embossed tape
CB 2012 CB C2012	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)	—	3000
CB 2016 CB C2016	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)	—	2000
CB 2518 CB C2518	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)	—	2000
CB C3225	3.2±0.2 (0.126±0.008)	2.5±0.2 (0.098±0.008)	2.5±0.2 (0.098±0.008)	0.6±0.3 (0.024±0.012)	—	1000

Unit: mm (inch)

► This catalog contains the typical specification only due to the limitation of space. When you consider the purchase of our products, please check our specification. For details of each product (characteristics graph, reliability information, precautions for use, and so on), see our Web site (<http://www.ty-top.com/>).

## ● 2012 (0805) type

Parts number	EHS	Nominal inductance [ $\mu$ H]	Inductance tolerance	Self-resonant frequency [MHz] (min.)	DC Resistance [ $\Omega$ ] ( $\pm 30\%$ )	Rated current ※) [mA]		Measuring frequency [MHz]
						Saturation current Idc1	Temperature rise current Idc2	
CB 2012T1R0M V	RoHS	1.0	$\pm 20\%$	100	0.15	500	700	7.96
CB 2012T2R2M V	RoHS	2.2	$\pm 20\%$	80	0.23	410	620	7.96
CB 2012T3R3M V	RoHS	3.3	$\pm 20\%$	55	0.30	330	550	7.96
CB 2012T4R7M V	RoHS	4.7	$\pm 20\%$	45	0.40	300	430	7.96
CB 2012T6R8M V	RoHS	6.8	$\pm 20\%$	38	0.47	250	350	7.96
CB 2012T100□ V	RoHS	10	$\pm 10\%, \pm 20\%$	32	0.70	190	300	2.52
CB 2012T100□R V	RoHS	10	$\pm 10\%, \pm 20\%$	32	0.50	200	300	2.52
CB 2012T150□ V	RoHS	15	$\pm 10\%, \pm 20\%$	28	1.3	170	240	2.52
CB 2012T220□ V	RoHS	22	$\pm 10\%, \pm 20\%$	16	1.7	135	220	2.52
CB 2012T470□ V	RoHS	47	$\pm 10\%, \pm 20\%$	11	3.7	90	140	2.52
CB 2012T680□ V	RoHS	68	$\pm 10\%, \pm 20\%$	10	6.0	70	100	2.52
CB 2012T101□ V	RoHS	100	$\pm 10\%, \pm 20\%$	8	7.0	60	100	0.796

Parts number	EHS	Nominal inductance [ $\mu$ H]	Inductance tolerance	Self-resonant frequency [MHz] (min.)	DC Resistance [ $\Omega$ ] ( $\pm 30\%$ )	Rated current ※) [mA]		Measuring frequency [MHz]
						Saturation current Idc1	Temperature rise current Idc2	
CB C2012T1R0M V	RoHS	1.0	$\pm 20\%$	100	0.20	700	640	7.96
CB C2012T2R2M V	RoHS	2.2	$\pm 20\%$	70	0.30	530	485	7.96
CB C2012T4R7M V	RoHS	4.7	$\pm 20\%$	45	0.50	360	395	7.96
CB C2012T100□ V	RoHS	10	$\pm 10\%, \pm 20\%$	40	1.2	240	255	2.52
CB C2012T220□ V	RoHS	22	$\pm 10\%, \pm 20\%$	16	3.7	170	145	2.52
CB C2012T470□ V	RoHS	47	$\pm 10\%, \pm 20\%$	11	5.8	120	115	2.52

## ● 2016 (0806) type

Parts number	EHS	Nominal inductance [ $\mu$ H]	Inductance tolerance	Self-resonant frequency [MHz] (min.)	DC Resistance [ $\Omega$ ] ( $\pm 30\%$ )	Rated current ※) [mA]		Measuring frequency [MHz]
						Saturation current Idc1	Temperature rise current Idc2	
CB 2016T1R0M V	RoHS	1.0	$\pm 20\%$	100	0.09	600	720	7.96
CB 2016T1R5M V	RoHS	1.5	$\pm 20\%$	80	0.11	550	650	7.96
CB 2016T2R2M V	RoHS	2.2	$\pm 20\%$	70	0.13	510	600	7.96
CB 2016T3R3M V	RoHS	3.3	$\pm 20\%$	55	0.20	400	440	7.96
CB 2016T4R7M V	RoHS	4.7	$\pm 20\%$	45	0.25	340	410	7.96
CB 2016T6R8M V	RoHS	6.8	$\pm 20\%$	38	0.35	300	330	7.96
CB 2016T100□ V	RoHS	10	$\pm 10\%, \pm 20\%$	32	0.50	250	270	2.52
CB 2016T150□ V	RoHS	15	$\pm 10\%, \pm 20\%$	28	0.70	210	220	2.52
CB 2016T220□ V	RoHS	22	$\pm 10\%, \pm 20\%$	16	1.0	165	190	2.52
CB 2016T330□ V	RoHS	33	$\pm 10\%, \pm 20\%$	14	1.7	130	140	2.52
CB 2016T470□ V	RoHS	47	$\pm 10\%, \pm 20\%$	11	2.4	110	120	2.52
CB 2016T680□ V	RoHS	68	$\pm 10\%, \pm 20\%$	10	3.0	90	110	2.52
CB 2016T101□ V	RoHS	100	$\pm 10\%, \pm 20\%$	8	4.5	70	90	0.796

Parts number	EHS	Nominal inductance [ $\mu$ H]	Inductance tolerance	Self-resonant frequency [MHz] (min.)	DC Resistance [ $\Omega$ ] ( $\pm 30\%$ )	Rated current ※) [mA]		Measuring frequency [MHz]
						Saturation current Idc1	Temperature rise current Idc2	
CB C2016T1R0M V	RoHS	1.0	$\pm 20\%$	100	0.10	1,100	885	7.96
CB C2016T1R5M V	RoHS	1.5	$\pm 20\%$	80	0.15	1,000	775	7.96
CB C2016T2R2M V	RoHS	2.2	$\pm 20\%$	70	0.20	750	625	7.96
CB C2016T3R3M V	RoHS	3.3	$\pm 20\%$	55	0.27	600	535	7.96
CB C2016T4R7M V	RoHS	4.7	$\pm 20\%$	45	0.37	550	460	7.96
CB C2016T6R8M V	RoHS	6.8	$\pm 20\%$	38	0.59	450	360	7.96
CB C2016T100□ V	RoHS	10	$\pm 10\%, \pm 20\%$	32	0.82	380	305	2.52
CB C2016T150□ V	RoHS	15	$\pm 10\%, \pm 20\%$	28	1.2	300	255	2.52
CB C2016T220□ V	RoHS	22	$\pm 10\%, \pm 20\%$	16	1.8	250	205	2.52
CB C2016T330□ V	RoHS	33	$\pm 10\%, \pm 20\%$	14	2.8	220	165	2.52
CB C2016T470□ V	RoHS	47	$\pm 10\%, \pm 20\%$	11	4.3	150	130	2.52
CB C2016T680□ V	RoHS	68	$\pm 10\%, \pm 20\%$	10	7.0	130	105	2.52
CB C2016T101□ V	RoHS	100	$\pm 10\%, \pm 20\%$	8	8.0	110	95	0.796

\* □ Please specify the Inductance tolerance code (Kor M)

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

※) The temperature rise current value (Idc2) is the DC current value having temperature increase up to 20°C. (at 20°C)

## ● 2518(1007) type

Parts number	EHS	Nominal inductance [ $\mu$ H]	Inductance tolerance	Self-resonant frequency [MHz] (min.)	DC Resistance [ $\Omega$ ] ( $\pm 30\%$ )	Rated current ※) [mA]		Measuring frequency [MHz]
						Saturation current Idc1	Temperature rise current Idc2	
CB 2518T1R0M V	RoHS	1.0	$\pm 20\%$	100	0.06	1,200	1,250	7.96
CB 2518T1R5M V	RoHS	1.5	$\pm 20\%$	80	0.07	650	1,100	7.96
CB 2518T2R2M V	RoHS	2.2	$\pm 20\%$	68	0.09	510	1,000	7.96
CB 2518T3R3M V	RoHS	3.3	$\pm 20\%$	54	0.11	440	900	7.96
CB 2518T4R7MR V	RoHS	4.7	$\pm 20\%$	46	0.10	310	820	7.96
CB 2518T4R7M V	RoHS	4.7	$\pm 20\%$	46	0.13	340	820	7.96
CB 2518T6R8M V	RoHS	6.8	$\pm 20\%$	38	0.15	270	750	7.96
CB 2518T100□ V	RoHS	10	$\pm 10\%$ , $\pm 20\%$	30	0.25	250	600	2.52
CB 2518T150□ V	RoHS	15	$\pm 10\%$ , $\pm 20\%$	23	0.32	180	500	2.52
CB 2518T220□ V	RoHS	22	$\pm 10\%$ , $\pm 20\%$	19	0.50	165	390	2.52
CB 2518T330□ V	RoHS	33	$\pm 10\%$ , $\pm 20\%$	15	0.70	130	320	2.52
CB 2518T470□ V	RoHS	47	$\pm 10\%$ , $\pm 20\%$	12	0.95	110	270	2.52
CB 2518T680□ V	RoHS	68	$\pm 10\%$ , $\pm 20\%$	9.5	1.5	70	210	2.52
CB 2518T101□ V	RoHS	100	$\pm 10\%$ , $\pm 20\%$	9.0	2.1	60	190	0.796
CB 2518T151□ V	RoHS	150	$\pm 10\%$ , $\pm 20\%$	7.0	3.2	55	140	0.796
CB 2518T221□ V	RoHS	220	$\pm 10\%$ , $\pm 20\%$	5.5	4.5	50	110	0.796
CB 2518T331□ V	RoHS	330	$\pm 10\%$ , $\pm 20\%$	4.5	7.0	40	90	0.796
CB 2518T471□ V	RoHS	470	$\pm 10\%$ , $\pm 20\%$	3.5	10	35	70	0.796
CB 2518T681□ V	RoHS	680	$\pm 10\%$ , $\pm 20\%$	3.0	17	30	50	0.796
CB 2518T102□ V	RoHS	1000	$\pm 10\%$ , $\pm 20\%$	2.4	24	25	45	0.252

Parts number	EHS	Nominal inductance [ $\mu$ H]	Inductance tolerance	Self-resonant frequency [MHz] (min.)	DC Resistance [ $\Omega$ ] ( $\pm 30\%$ )	Rated current ※) [mA]		Measuring frequency [MHz]
						Saturation current Idc1	Temperature rise current Idc2	
CB C2518T1R0M V	RoHS	1.0	$\pm 20\%$	100	0.08	1,000	775	7.96
CB C2518T1R5M V	RoHS	1.5	$\pm 20\%$	80	0.11	950	730	7.96
CB C2518T2R2M V	RoHS	2.2	$\pm 20\%$	68	0.13	890	630	7.96
CB C2518T3R3M V	RoHS	3.3	$\pm 20\%$	54	0.16	730	560	7.96
CB C2518T4R7M V	RoHS	4.7	$\pm 20\%$	41	0.20	680	510	7.96
CB C2518T6R8M V	RoHS	6.8	$\pm 20\%$	38	0.30	550	420	7.96
CB C2518T100□ V	RoHS	10	$\pm 10\%$ , $\pm 20\%$	30	0.36	480	375	2.52
CB C2518T150□ V	RoHS	15	$\pm 10\%$ , $\pm 20\%$	23	0.65	350	285	2.52
CB C2518T220□ V	RoHS	22	$\pm 10\%$ , $\pm 20\%$	19	0.77	320	250	2.52
CB C2518T330□ V	RoHS	33	$\pm 10\%$ , $\pm 20\%$	15	1.5	270	185	2.52
CB C2518T470□ V	RoHS	47	$\pm 10\%$ , $\pm 20\%$	12	1.9	240	165	2.52
CB C2518T680□ V	RoHS	68	$\pm 10\%$ , $\pm 20\%$	9.5	2.8	200	140	2.52
CB C2518T101□ V	RoHS	100	$\pm 10\%$ , $\pm 20\%$	9.0	3.7	160	125	0.796
CB C2518T151□ V	RoHS	150	$\pm 10\%$ , $\pm 20\%$	7.0	6.1	140	95	0.796
CB C2518T221□ V	RoHS	220	$\pm 10\%$ , $\pm 20\%$	5.5	8.4	115	80	0.796
CB C2518T331□ V	RoHS	330	$\pm 10\%$ , $\pm 20\%$	4.5	12.3	100	65	0.796
CB C2518T471□ V	RoHS	470	$\pm 10\%$ , $\pm 20\%$	3.5	22	80	50	0.796
CB C2518T681□ V	RoHS	680	$\pm 10\%$ , $\pm 20\%$	3.0	28	65	45	0.796

## ● 3225(1210) type

Parts number	EHS	Nominal inductance [ $\mu$ H]	Inductance tolerance	Self-resonant frequency [MHz] (min.)	DC Resistance [ $\Omega$ ] ( $\pm 30\%$ )	Rated current ※) [mA]		Measuring frequency [MHz]
						Saturation current Idc1	Temperature rise current Idc2	
CB C3225T1R0MR V	RoHS	1.0	$\pm 20\%$	250	0.055	2,000	1,100	0.1
CB C3225T1R5MR V	RoHS	1.5	$\pm 20\%$	220	0.060	2,000	1,000	0.1
CB C3225T2R2MR V	RoHS	2.2	$\pm 20\%$	190	0.080	2,000	930	0.1
CB C3225T3R3MR V	RoHS	3.3	$\pm 20\%$	160	0.095	2,000	850	0.1
CB C3225T4R7MR V	RoHS	4.7	$\pm 20\%$	70	0.100	1,250	830	0.1
CB C3225T6R8MR V	RoHS	6.8	$\pm 20\%$	50	0.120	950	760	0.1
CB C3225T100□R V	RoHS	10	$\pm 10\%$ , $\pm 20\%$	23	0.133	900	720	0.1
CB C3225T150□R V	RoHS	15	$\pm 10\%$ , $\pm 20\%$	20	0.195	730	590	0.1
CB C3225T220□R V	RoHS	22	$\pm 10\%$ , $\pm 20\%$	17	0.27	620	500	0.1
CB C3225T330□R V	RoHS	33	$\pm 10\%$ , $\pm 20\%$	13	0.41	500	400	0.1
CB C3225T470□R V	RoHS	47	$\pm 10\%$ , $\pm 20\%$	10	0.67	390	320	0.1
CB C3225T680□R V	RoHS	68	$\pm 10\%$ , $\pm 20\%$	8.0	1.0	320	260	0.1
CB C3225T101□R V	RoHS	100	$\pm 10\%$ , $\pm 20\%$	6.0	1.4	270	220	0.1
CB C3225T221□R V	RoHS	220	$\pm 10\%$ , $\pm 20\%$	3.0	2.5	190	170	0.1
CB C3225T821□R V	RoHS	820	$\pm 10\%$ , $\pm 20\%$	1.8	12	110	80	0.1
CB C3225T102□R V	RoHS	1000	$\pm 10\%$ , $\pm 20\%$	1.6	13	100	75	0.1

□ Please specify the Inductance tolerance code (Kor M)

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

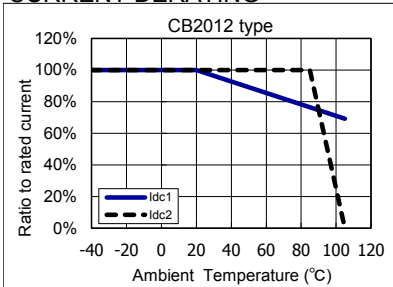
※) The temperature rise current value (Idc2) is the DC current value having temperature increase up to 20°C. (at 20°C)

CB SERIES

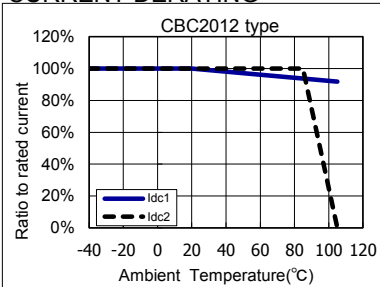
Derating of current is necessary for CB-series depending on ambient temperature.

Please refer to the chart shown below for appropriate derating of current.

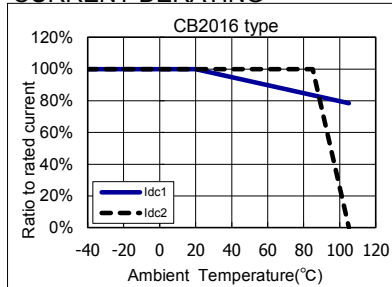
CURRENT DERATING



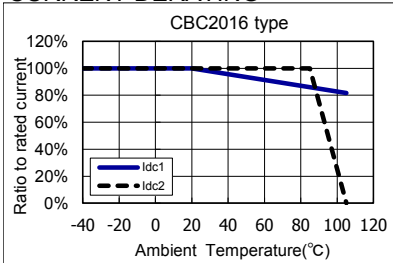
CURRENT DERATING



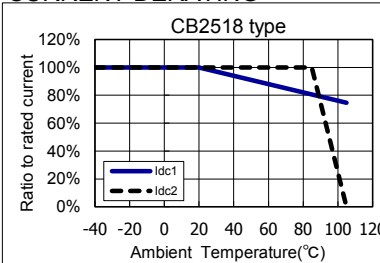
CURRENT DERATING



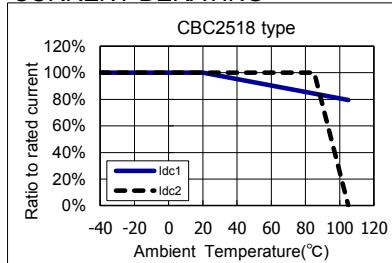
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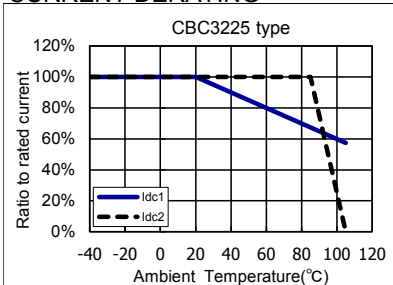
CURRENT DERATING



CURRENT DERATING



CURRENT DERATING



**WIRE-WOUND CHIP INDUCTORS (LB SERIES),**  
**WIRE-WOUND CHIP POWER INDUCTORS (CB SERIES),**  
**WIRE-WOUND CHIP INDUCTORS FOR SIGNAL LINES (LB SERIES M TYPE)**

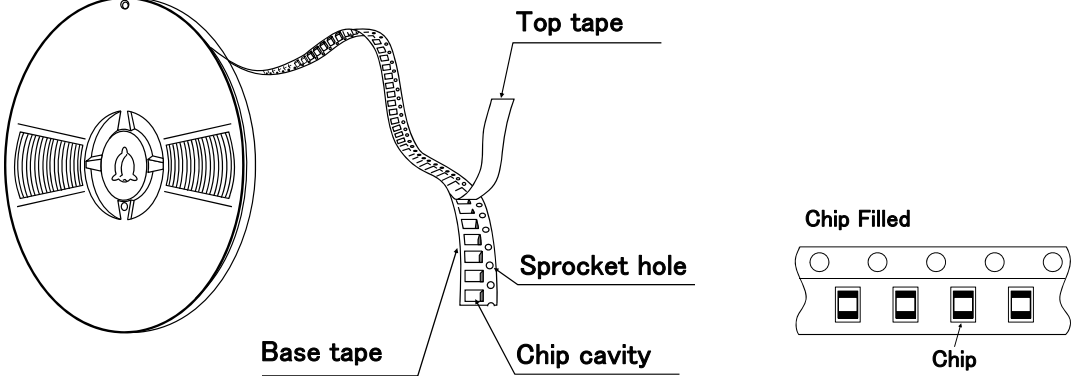
■ PACKAGING

① Minimum Quantity

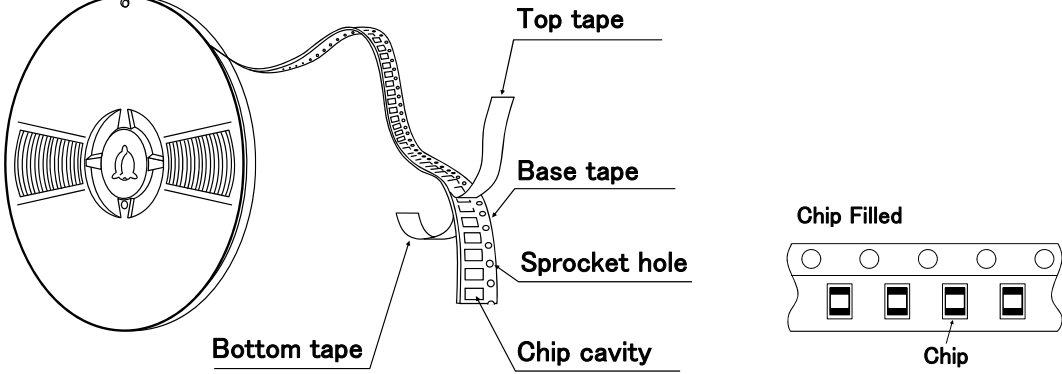
Type	Standard Quantity [pcs]	
	Paper Tape	Embossed Tape
LB C3225	—	1000
CB C3225	—	—
LB 3218	—	2000
LB R2518	—	—
LB C2518	—	—
LB 2518	—	2000
CB 2518	—	—
CB C2518	—	—
LBM2016	—	—
LB C2016	—	—
LB 2016	—	2000
CB 2016	—	—
CB C2016	—	—
LB 2012	—	—
LB C2012	—	—
LB R2012	—	3000
CB 2012	—	—
CB C2012	—	—
CB L2012	4000	—
LB 1608	4000	—
LBMF1608	—	—
CBMF1608	—	3000

② Tape material

● Embossed tape



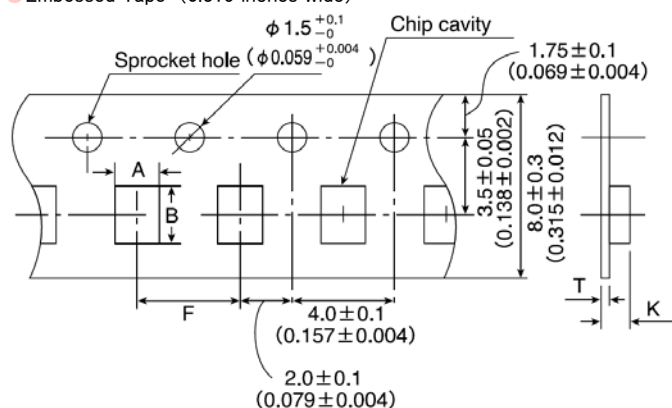
● Card board carrier tape



▶ This catalog contains the typical specification only due to the limitation of space. When you consider the purchase of our products, please check our specification. For details of each product (characteristics graph, reliability information, precautions for use, and so on), see our Web site (<http://www.ty-top.com/>) .

### ③Taping Dimensions

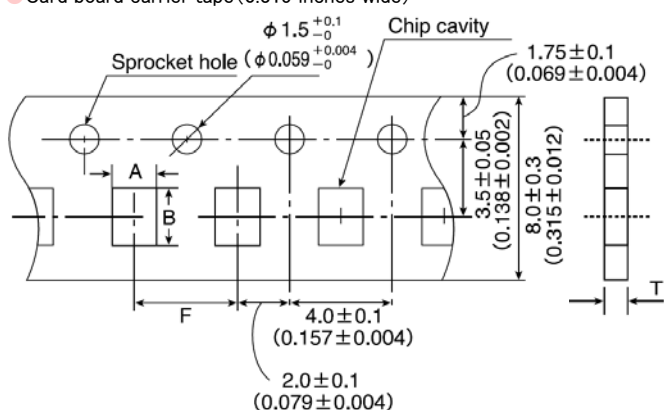
#### ● Embossed Tape (0.315 inches wide)



Type	Chip cavity		Insertion pitch	Tape thickness	
	A	B	F	T	K
LBM2016	$1.75 \pm 0.1$ ( $0.069 \pm 0.004$ )	$2.1 \pm 0.1$ ( $0.083 \pm 0.004$ )	$4.0 \pm 0.1$ ( $0.157 \pm 0.004$ )	$0.3 \pm 0.05$ ( $0.012 \pm 0.002$ )	1.9max. ( $0.075\text{max.}$ )
LB C3225	$2.8 \pm 0.1$ ( $0.110 \pm 0.004$ )	$3.5 \pm 0.1$ ( $0.138 \pm 0.004$ )	$4.0 \pm 0.1$ ( $0.157 \pm 0.004$ )	$0.3 \pm 0.05$ ( $0.012 \pm 0.002$ )	4.0max. ( $0.157\text{max.}$ )
CB C3225	$2.1 \pm 0.1$ ( $0.083 \pm 0.004$ )	$3.5 \pm 0.1$ ( $0.138 \pm 0.004$ )	$4.0 \pm 0.1$ ( $0.157 \pm 0.004$ )	$0.3 \pm 0.05$ ( $0.012 \pm 0.002$ )	2.2max. ( $0.087\text{max.}$ )
LB 3218	$2.15 \pm 0.1$ ( $0.085 \pm 0.004$ )	$2.7 \pm 0.1$ ( $0.106 \pm 0.004$ )	$4.0 \pm 0.1$ ( $0.157 \pm 0.004$ )	$0.3 \pm 0.05$ ( $0.012 \pm 0.002$ )	2.2max. ( $0.087\text{max.}$ )
LB 2518	$1.45 \pm 0.1$ ( $0.057 \pm 0.004$ )	$2.25 \pm 0.1$ ( $0.089 \pm 0.004$ )	$4.0 \pm 0.1$ ( $0.157 \pm 0.004$ )	$0.25 \pm 0.05$ ( $0.010 \pm 0.002$ )	1.45max. ( $0.057\text{max.}$ )
CB 2518	$1.1 \pm 0.1$ ( $0.043 \pm 0.004$ )	$1.9 \pm 0.1$ ( $0.075 \pm 0.004$ )	$4.0 \pm 0.1$ ( $0.157 \pm 0.004$ )	$0.25 \pm 0.05$ ( $0.010 \pm 0.002$ )	1.2max. ( $0.047\text{max.}$ )
LB C2518	$1.75 \pm 0.1$ ( $0.069 \pm 0.004$ )	$2.1 \pm 0.1$ ( $0.083 \pm 0.004$ )	$4.0 \pm 0.1$ ( $0.157 \pm 0.004$ )	$0.3 \pm 0.05$ ( $0.012 \pm 0.002$ )	1.9max. ( $0.075\text{max.}$ )
CB C2518	$1.75 \pm 0.1$ ( $0.069 \pm 0.004$ )	$2.1 \pm 0.1$ ( $0.083 \pm 0.004$ )	$4.0 \pm 0.1$ ( $0.157 \pm 0.004$ )	$0.3 \pm 0.05$ ( $0.012 \pm 0.002$ )	1.9max. ( $0.075\text{max.}$ )
LB R2518	$1.45 \pm 0.1$ ( $0.057 \pm 0.004$ )	$2.25 \pm 0.1$ ( $0.089 \pm 0.004$ )	$4.0 \pm 0.1$ ( $0.157 \pm 0.004$ )	$0.25 \pm 0.05$ ( $0.010 \pm 0.002$ )	1.45max. ( $0.057\text{max.}$ )
LB 2012	$1.55 \pm 0.1$ ( $0.061 \pm 0.004$ )	$2.3 \pm 0.1$ ( $0.091 \pm 0.004$ )	$4.0 \pm 0.1$ ( $0.157 \pm 0.004$ )	$1.1\text{max.}$ ( $0.043\text{max.}$ )	
CB 2012	$1.0 \pm 0.1$ ( $0.039 \pm 0.004$ )	$1.8 \pm 0.1$ ( $0.071 \pm 0.004$ )	$4.0 \pm 0.1$ ( $0.157 \pm 0.004$ )	$1.1\text{max.}$ ( $0.043\text{max.}$ )	
LB C2012	$1.55 \pm 0.1$ ( $0.061 \pm 0.004$ )	$2.3 \pm 0.1$ ( $0.091 \pm 0.004$ )	$4.0 \pm 0.1$ ( $0.157 \pm 0.004$ )	$1.1\text{max.}$ ( $0.043\text{max.}$ )	
LB R2012	$1.55 \pm 0.1$ ( $0.061 \pm 0.004$ )	$2.3 \pm 0.1$ ( $0.091 \pm 0.004$ )	$4.0 \pm 0.1$ ( $0.157 \pm 0.004$ )	$1.1\text{max.}$ ( $0.043\text{max.}$ )	
LBMF1608	$1.55 \pm 0.1$ ( $0.061 \pm 0.004$ )	$2.3 \pm 0.1$ ( $0.091 \pm 0.004$ )	$4.0 \pm 0.1$ ( $0.157 \pm 0.004$ )	$1.1\text{max.}$ ( $0.043\text{max.}$ )	
CBMF1608	$1.55 \pm 0.1$ ( $0.061 \pm 0.004$ )	$2.3 \pm 0.1$ ( $0.091 \pm 0.004$ )	$4.0 \pm 0.1$ ( $0.157 \pm 0.004$ )	$1.1\text{max.}$ ( $0.043\text{max.}$ )	

Unit : mm (inch)

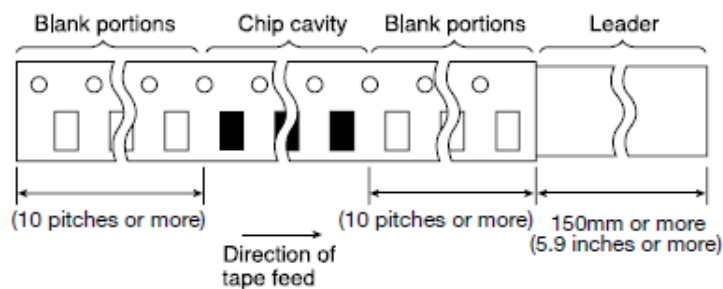
#### ● Card board carrier tape (0.315 inches wide)



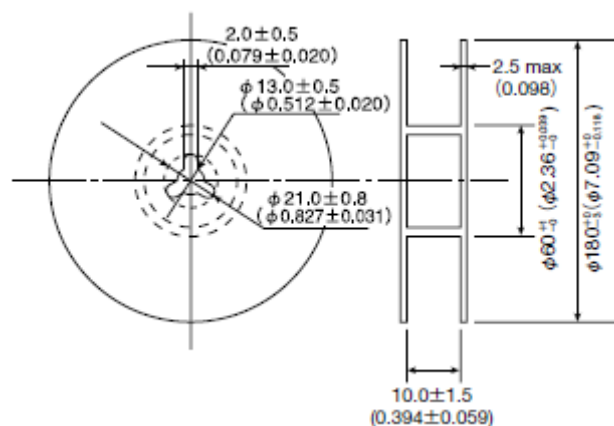
Type	Chip cavity		Insertion pitch	Tape thickness
	A	B	F	T
CB L2012	$1.55 \pm 0.1$ ( $0.061 \pm 0.004$ )	$2.3 \pm 0.1$ ( $0.091 \pm 0.004$ )	$4.0 \pm 0.1$ ( $0.157 \pm 0.004$ )	1.1max. ( $0.043\text{max.}$ )
LB 1608	$1.0 \pm 0.1$ ( $0.039 \pm 0.004$ )	$1.8 \pm 0.1$ ( $0.071 \pm 0.004$ )	$4.0 \pm 0.1$ ( $0.157 \pm 0.004$ )	1.1max. ( $0.043\text{max.}$ )

Unit : mm (inch)

#### ④ Leader and Blank Portion

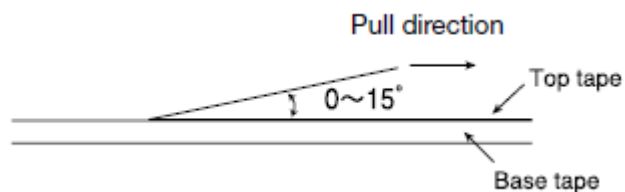


#### ⑤ Reel Size



#### ⑥ Top Tape Strength

The top tape requires a peel-off force 0.2 to 0.7N in the direction of the arrow as illustrated below.





# WIRE-WOUND CHIP INDUCTORS (LB SERIES), WIRE-WOUND CHIP POWER INDUCTORS (CB SERIES), WIRE-WOUND CHIP INDUCTORS FOR SIGNAL LINES (LB SERIES M TYPE)

## RELIABILITY DATA

1. Operating temperature Range		
Specified Value	LB, LBC, LBR Series	−40～+105℃ (Including self-generated heat)
	CB, CBC Series	
	LBM Series	
Test Methods and Remarks	Including self-generated heat	

2. Storage Temperature Range (after soldering)		
Specified Value	LB, LBC, LBR Series	−40~+85℃
	CB, CBC Series	
	LBM Series	
Test Methods and Remarks	LB, CB Series: Please refer the term of “7. storage conditions” in precautions.	

3. Rated Current		
Specified Value	LB, LBC, LBR Series	Within the specified tolerance
	CB, CBC Series	
	LBM Series	

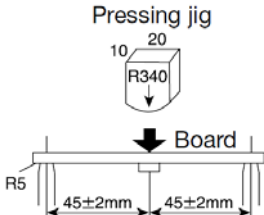
4.Inductance		
Specified Value	LB, LBC, LBR Series	Within the specified tolerance
	CB, CBC Series	
	LBM Series	
Test Methods and Remarks	LB・LBC・LBR・CB・CBC・LBM Series Measuring equipment : LCR Mater (HP4285A or its equivalent)	

5. Q		
Specified Value	LB, LBC, LBR Series	—
	CB, CBC Series	
	LBM Series	Within the specified tolerance
Test Methods and Remarks	LBM Series Measuring equipment : LCR Meter (HP4285A or its equivalent)	

6.DC Resistance		
Specified Value	LB, LBC, LBR Series	Within the specified tolerance
	CB, CBC Series	
	LBM Series	
Test Methods and Remarks	Measuring equipment : DC Ohmmeter (HIOKI 3227 or its equivalent)	

7.Self-Resonant Frequency		
Specified Value	LB, LBC, LBR Series	Within the specified tolerance
	CB, CBC Series	
	LBM Series	
Test Methods and Remarks	Measuring equipment : Impedance analyzer (HP4291A or its equivalent)	

8.Temperature Characteristic					
Specified Value	LBM2016				Inductance change : Within±5%
	LB2012	LBR2012	CB2012	LB2016	Inductance change : Within±20%
	CB2016	LB2518	LBR2518	CB2518	
	LBC3225	CBC3225			Inductance change : Within±25%
	LBC2016	CBC2016	LBC2518	CBC2518	
	LB3218				Inductance change : Within±35%
LBC2012	CBC2012				
Test Methods and Remarks	Change of maximum inductance deviation in step 1~5				
	Step	Temperature(°C)			
		LB, CB Serie			
	1	20			
	2	－40			
	3	20(Reference temperature)			
	4	＋85(Maximum operating temperature)			
	5	20			

9.Rasistance to Flexure of Substrate		
Specified Value	LB, LBC, LBR Series	No damage.
	CB, CBC Series	
	LBM Series	
Test Methods and Remarks	Warp : 2mm (LB・LBC・LBR・CB・CBC・LBM Series) Test substrate : Board according to JIS C0051 Thickness : 1.0mm	
	<div><p>Pressing jig</p></div>	

10.Body Strength		
Specified Value	LB, LBC, LBR Series	No damage.
	CB, CBC Series	
	LBM Series	
Test Methods and Remarks	LB・LBC・LBR・CB・CBC・LBM Applied force : 10N Duration : 10sec.	

11.Adhesion of terminal electrode		
Specified Value	LB, LBC, LBR Series	No abnormality.
	CB, CBC Series	
	LBM Series	
Test Methods and Remarks	LB・LBC・LBR・CB・CBC・CBL・LBM	
	Applied force : 10N to X and Y directions	
	Duration : 5 sec.	
	Test substrate : Printed board	

12.Resistance to vibration		
Specified Value	LB, LBC, LBR Series	Inductance change : Within±10% No significant abnormality in appearance.
	CB, CBC Series	
	LBM Series	Inductance change : Within±5% No significant abnormality in appearance.
Test Methods and Remarks	LB•LBR•LBC•CB•CBC•LBM : 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 Recovery : At least 2 hrs of recovery under the standard condition after the test, followed by the measurement within 48 hrs.	

13.Drop test		
Specified Value	LB, LBC, LBR Series	—
	CB, CBC Series	
	LBM Series	

14.Solderability		
Specified Value	LB, LBC, LBR Series	At least 90% of surface of terminal electrode is covered by new
	CB, CBC Series	
	LBM Series	
Test Methods and Remarks	LB•LBC•LBR•CB•CBC•CBL•LBM : Solder temperature : 245±5℃ Duration : 5±0.5sec Flux : Methanol solution with 25% of colophony	

15.Resistance to soldering		
Specified Value	LB, LBC, LBR Series	Inductance change : Within±10%
	CB, CBC Series	
	LBM Series	Inductance change : Within±5%
Test Methods and Remarks	LB•LBC•LBR•CB•CBC•CBL•LBM : 3 times of reflow oven at 230℃ MIN for 40sec. with peak temperature at 260 ℃ for 5sec.	

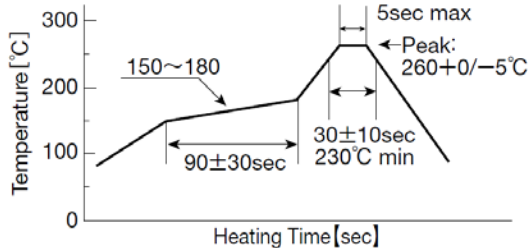
16.Resisittance to solvent		
Specified Value	LB, LBC, LBR Series	—
	CB, CBC Series	
	LBM Series	
Test Methods and Remarks	Solvent temperature : Room temperature Type of solvent : Isopropyl alcohol Cleaning conditions : 90s. Immersion and cleaning.	

17.Thermal shock		
Specified Value	LB, LBC, LBR Series	Inductance change : Within±20% No significant abnormality in appearance.
	CB, CBC Series	
	LBM Series	
Test Methods and Remarks	LB•LBC•LBR•CB•CBC•CBL•LBM : −40∼+85℃, maintain times 30min. ,100 cycle Recovery : At least 2 hrs of recovery under the standard condition after the test, followed by the measurement within 48 hrs.	

18.Damp heat life test		
Specified Value	LB, LBC, LBR Series	Inductance change : Within±20% No significant abnormality in appearance.
	CB, CBC Series	
	LBM Series	
Test Methods and Remarks	Temperature : 60±2℃ Humidity : 90~95%RH Duration : 1000 hrs Recovery : At least 2 hrs of recovery under the standard condition after the test, followed by the measurement within 48 hrs.	
19.Loading under damp heat life test		
Specified Value	LB, LBC, LBR Series	Inductance change : Within±20% No significant abnormality in appearance.
	CB, CBC Series	
	LBM Series	
Test Methods and Remarks	Temperature : 60±2℃ Humidity : 90~95%RH Duration : 1000 hrs Applied current : Rated current Recovery : At least 2 hrs of recovery under the standard condition after the test, followed by the measurement within 48 hrs.	
20.High temperature life test		
Specified Value	LB, LBC, LBR Series	—
	CB, CBC Series	Inductance change : Within±20% No significant abnormality in appearance.
	LBM Series	
Test Methods and Remarks	Temperature : 85±2℃ Duration : 1000 hrs Recovery : At least 2 hrs of recovery under the standard condition after the test, followed by the measurement within 48 hrs.	
21.Loading at high temperature life test		
Specified Value	LB, LBC, LBR Series	Inductance change : Within±20% No significant abnormality in appearance.
	CB, CBC Series	—
	LBM Series	
Test Methods and Remarks	Temperature : 85±2℃ Duration : 1000 hrs Applied current : Rated current Recovery : At least 2 hrs of recovery under the standard condition after the test, followed by the measurement within 48 hrs.	
22.Low temperature life test		
Specified Value	LB, LBC, LBR Series	Inductance change : Within±20% No significant abnormality in appearance.
	CB, CBC Series	
	LBM Series	
Test Methods and Remarks	Temperature : —40±2℃ Duration : 1000 hrs Recovery : At least 2 hrs of recovery under the standard condition after the test, followed by the measurement within 48 hrs.	
23.Standard condition		
Specified Value	LB, LBC, LBR Series	Standard test conditions Unless specified, Ambient temperature is 20±15℃ and the Relative humidity is 65±20%. If there is any doubt about the test results, further measurement shall be had within the following limits: Ambient Temperature: 20±2℃ Relative humidity: 65±5% Inductance value is based on our standard measurement systems.
	CB, CBC Series	
	LBM Series	

# WIRE-WOUND CHIP INDUCTORS (LB SERIES), WIRE-WOUND CHIP POWER INDUCTORS (CB SERIES), WIRE-WOUND CHIP INDUCTORS FOR SIGNAL LINES (LB SERIES M TYPE)

## ■ PRECAUTIONS

1. Circuit Design	
Precautions	<p>◆ Operating environment</p> <p>1. All electronic components listed in this catalogue are intended for use in general electronic equipment such as AV/OA equipment, home electrical appliances, office equipment, and information-communication equipment (mobile phone, PC, etc.), Medical equipment, Industrial equipment, and in automotive applications (for comfort). Please be sure to contact TAIYO YUDEN CO., LTD. for further information before using the components for any equipment which might have a negative impact directly on human life, such as transportation equipment (automotive power train/train/ship control systems, etc.) and traffic signal system and medical equipment including life-support systems.</p> <p>Please do not incorporate the components into any equipment requiring a high degree of safety and reliability, such as aerospace equipment, avionics, nuclear control equipment, submarine system, and military equipment.</p>
2. PCB Design	
Precautions	<p>◆ Land pattern design</p> <p>1. Please contact any of our offices for a land pattern, and refer to a recommended land pattern of a right figure or specifications.</p>
Technical considerations	<p>PRECAUTIONS 【Recommended Land Patterns】</p> <p>Surface Mounting</p> <ul style="list-style-type: none"> <li>• Mounting and soldering conditions should be checked beforehand.</li> <li>• Applicable soldering process to those products is reflow soldering only.</li> </ul>
3. Considerations for automatic placement	
Precautions	<p>◆ Adjustment of mounting machine</p> <p>1. Excessive impact load should not be imposed on the products when mounting onto the PC boards.</p> <p>2. Mounting and soldering conditions should be checked beforehand.</p>
Technical considerations	<p>1. When installing products, care should be taken not to apply distortion stress as it may deform the products.</p>
4. Soldering	
Precautions	<p>◆ Reflow soldering ( LB and CB Types)</p> <p>1. For reflow soldering with either leaded or lead-free solder, the profile specified in “point for controlling” is recommended.</p> <p>◆ Recommended conditions for using a soldering iron</p> <p>1. Put the soldering iron on the land-pattern. Soldering iron's temperature – Below 350°C Duration-3 seconds or less. The soldering iron should not come in contact with inductor directly.</p>
Technical considerations	<p>◆ Reflow soldering ( LB and CB Types)</p> <p>1. Reflow profile</p>  <p>Temperature [°C]</p> <p>Heating Time [sec]</p> <p>150~180</p> <p>90±30sec</p> <p>30±10sec</p> <p>230°C min</p> <p>5sec max</p> <p>Peak: 260±0/-5°C</p> <p>◆ Recommended conditions for using a soldering iron</p> <p>1. Components can be damaged by excessive heat where soldering conditions exceed the specified range.</p>
5. Cleaning	
Precautions	<p>◆ Cleaning conditions</p> <p>Washing by supersonic waves shall be avoided.</p>
Technical considerations	<p>◆ Cleaning conditions</p> <p>If washed by supersonic waves, the products might be broken.</p>

6. Handling	
Precautions	<ul style="list-style-type: none"> <li>◆Handling               <ol style="list-style-type: none"> <li>1. Keep the inductors away from all magnets and magnetic objects.</li> </ol> </li> <li>◆Breakaway PC boards ( splitting along perforations)               <ol style="list-style-type: none"> <li>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.</li> <li>2. Board separation should not be done manually, but by using the appropriate devices.</li> </ol> </li> <li>◆Mechanical considerations               <ol style="list-style-type: none"> <li>1. Please do not give the inductors any excessive mechanical shocks.</li> </ol> </li> </ul>
Technical considerations	<ul style="list-style-type: none"> <li>◆Handling               <ol style="list-style-type: none"> <li>1. There is a case that a characteristic varies with magnetic influence.</li> </ol> </li> <li>◆Breakaway PC boards ( splitting along perforations)               <ol style="list-style-type: none"> <li>1. Planning pattern configurations and the position of products should be carefully performed to minimize stress.</li> </ol> </li> <li>◆Mechanical considerations               <ol style="list-style-type: none"> <li>1. There is a case to be damaged by a mechanical shock.</li> </ol> </li> </ul>
7. Storage conditions	
Precautions	<ul style="list-style-type: none"> <li>◆Storage               <ol style="list-style-type: none"> <li>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.                   <ul style="list-style-type: none"> <li>▪ Recommended conditions Ambient temperature: 0~40°C / Humidity: Below 70% RH</li> </ul> </li> </ol> <p>The ambient temperature must be kept below 30°C even under ideal storage conditions, solderability of products electrodes may decrease as time passes. For this reason, LB type: Should be used within 6 months from the time of delivery.</p> </li> </ul>
Technical considerations	<ul style="list-style-type: none"> <li>◆Storage               <ol style="list-style-type: none"> <li>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.</li> </ol> </li> </ul>

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