Notice for TAIYO YUDEN products

Please read this notice before using the TAIYO YUDEN products.

REMINDERS

Product information in this catalog is as of October 2011. 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 or functional modules listed in this catalog are developed, designed and intended for use in general electronics equipment.(for AV, office automation, household, office supply, information service, telecommunications, (such as mobile phone or PC) etc.). Before incorporating the components or devices into any equipment in the field such as transportation,(automotive control, train control, ship control), transportation signal, disaster prevention, medical, public information network (telephone exchange, base station) etc. which may have direct influence to harm or injure a human body, please contact Taiyo Yuden Co., Ltd. for more detail in advance. Do not incorporate the products into any equipment in fields such as aerospace, aviation, nuclear control, submarine system, military, etc. where higher safety and reliability are especially required.

In addition, even electronic components or functional modules that are used for the general electronic equipment, if the equipment or the electric circuit require high safety or reliability function or performances, a sufficient reliability evaluation check for safety shall be performed before commercial shipment and moreover, due consideration to install a protective circuit is strongly recommended at customer's design stage.

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 INDUCTORS (LB SERIES)



FEATURES

LB-series are Wound Chip Inductors having wide line-up, which are suitable for any circuit designs.

- LBC series has large rated current. They contribute to the miniaturization of the power supply circuit.
- LBR series has low DC resistance. They contribute to the miniaturization of the power supply circuit.
- LBMF series has a low loss characteristic.

ORDERING CODE

APPLICATIONS

• They are suitable for an anti-noise measure on the power supply circuit of DSC, DVC, HDD, LCD-TV, mobile phones, PC, game equipments, various communication equipments and etc..

OPERATING TEMP.

• $-40 \sim 105^{\circ}$ C (Including-self-generated heat)



EXTERNAL DIMENSIONS/STANDARD QUANTITY

EXTERNAL DIMENSIONS

ΤY 16 MF

w :	
T	
e	

		ι	Jnit : mm	
TYPE	А	В	С	Surfa
1608	0.55	0.7	0.9	• Mo diti
MF1608	0.55	0.7	1.0	bet
2012	0.60	1.0	1.45	· Ap
2016	0.60	1.0	1.8	to t
2518	0.60	1.5	2.0	sol • Re
3218	0.85	1.7	2.0	
3225	0.85	1.7	2.7	

						Standard Q	uantity [pcs]
c	Туре	L	W	т	e	Paper Tape	Embossed Tape
	LB1608	1.6±0.1 (0.063±0.004)	0.8±0.1 (0.031±0.004)	0.8±0.1 (0.031±0.004)	0.35±0.15 (0.014±0.006)	4000	_
A B A	LBMF1608	1.6±0.2 (0.063±0.008)	0.8±0.2 (0.031±0.008)	0.8±0.2 (0.031±0.008)	0.45±0.15 (0.016±0.006)	-	3000
Irface Mounting Mounting and soldering con-	LB2012 LBC2012 LBR2012	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
ditions should be checked beforehand.	LB2016 LBC2016	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
Applicable soldering process to those products is reflow soldering only.	LBC2518 LBR2518	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
Recommended Land Patterns	LB3218	3.2±0.2 (0.128±0.008)	1.8±0.2 (0.071±0.008)	1.8±0.2 (0.071±0.008)	0.6±0.2 (0.024±0.008)	-	2000
	LBC3225	3.2±0.2 (0.128±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
						Ur	nit:mm(inch)

AVAILABLE INDUCTANCE RANGE

Range	Туре	L	_B160)8	LB	MF16	608	L	B201	2	LE	8C20	12	LE	8R20)12	L	B201	6	LE	3C20	16	L	B251	18	LE	3C25	18	LE	3R25	518	LI	B321	8	LB	C322	25
		lmax[i	mA) Rdc±	:30%[Ω]	lmax.(m	A] Rdc±	±30%[Ω]	lmax[m	A] Rdc±	:30%[Ω]	lmax.[m	A) Rdc±	:30%[Ω]	lmax.[m/	A) Rdc:	±30%[Ω]	lmax[m	A] Rdc±	30%[Ω]	lmax.[m	A] Rdc±	30%[Ω]	lmax.[m	A) Rdc±	±30%[Ω]	lmax[m	A] Rdc±	:30%[Ω]	lmax.[m	A) Rdc±	±30%[Ω]	lmax.[m/	A) Rdc±3	30%[Ω]	lmax[m/	N Rdc±3	x0%[Ω]
	1	160	1µH	0.17	230	1µH	0.09	405	1µH	0.15	620	1µH	0.19	400	1µH	0.07	490	1µH	0.09	690	1µH	_0.1	665	1µH	0.06	775	1µH	0.08	960	1µH	0.045	1075	1µH	0.06	1100	1µH	0.055
_		70		0.55																																	
[Hη]	10	60		0.7	80		0.36	120		0.7	200		1.2	150		0.36	155	_	0.5	245		0.82	165		0.25	375		0.36	235		0.19	340		0.25	540		0.133
ance	10		10µH	4	35		2.5				90		5.8																								
Inductance	100				4	47µ⊦	1	45		7.0	4	47µ⊦	1	50		4.0	40		4.5	75		8.0	60		2.1	125		3.70	80		1.89	140		2.40	150		1.4
<u> </u>	100							1	00µ	Ĥ				1	00 <i>µ</i>	H	1	00µI	H	1	00µI	H				45		28.0	1	00 <i>µ</i>	H				1	00µH	1
																							15		24	6	80µ	н				39		27			
	1000	_		_	-			_													_		1	000 µ	ιH							10	000μ	H			-

PART NUMBERS

1608(0603) TYPE

Ordering code	EHS	Inductance [µH]	Inductance Tolerance	Self-resonant frequency (MHz)min.	DC Resistance [Ω](±30%)	Rated current (mA)max.	Measuring frequency [MHz]
LB 1608T1R0M	RoHS	1.0		100	0.17	160	
LB 1608T2R2M	RoHS	2.2		80	0.33	115	7.96
LB 1608T4R7M	RoHS	4.7	±20%	45	0.55	70	7
LB 1608T8R2M	RoHS	8.2]	32	0.70	60	0.50
LB 1608T100M	RoHS	10		32	0.70	60	2.52

Ordering code	EHS	Inductance [µH]	Inductance Tolerance	Self-resonant frequency [MHz]min.	DC Resistance [Ω](±30%)	Rated current (mA)max.	Measuring frequency [MHz]
LBMF1608T1R0M	RoHS	1.0		100	0.09	230	
LBMF1608T2R2M	RoHS	2.2	±20%	80	0.17	160	7.96
LBMF1608T3R3M	RoHS	3.3	±20%	60	0.22	130	7.90
LBMF1608T4R7M	RoHS	4.7		45	0.24	110	
LBMF1608T100	RoHS	10	1.100/	32	0.36	80	
LBMF1608T220	RoHS	22	土10% 土20%	16	1.0	50	2.52
LBMF1608T470	RoHS	47	±2070	11	2.5	35]

Please specify the Inductance tolerance code(K or M)

2012(0805) TYPE

Ordering code		EHS	Inductance [µH]	Inductance Tolerance	Self-resonant frequency (MHz)min.	DC Resistance $(\Omega)(\pm 30\%)$	Rated current (mA)max.	Measuring frequency [MHz]
LB 2012T1R0M	1	RoHS	1.0		100	0.15	405	
LB 2012T2R2M		RoHS	2.2		80	0.23	260]
LB 2012T3R3M	1	RoHS	3.3	±20%	55	0.30	235	7.96
LB 2012T4R7M	1	RoHS	4.7		45	0.40	190]
LB 2012T6R8M		RoHS	6.8		38	0.47	135	
LB 2012T100	1	RoHS	10		32	0.70	120	
LB 2012T100 R		RoHS	10		32	0.50	120]
LB 2012T150	1	RoHS	15		28	1.3	100	2.52
LB 2012T220	1	RoHS	22	±10% ±20%	16	1.7	80	2.52
LB 2012T470		RoHS	47	-2070	11	3.7	60	
LB 2012T680	1	RoHS	68		10	6.0	50	
LB 2012T101	1	RoHS	100		8	7.0	45	0.796

Please specify the Inductance tolerance code(K or M)

Ordering code	EHS	Inductance [µH]	Inductance Tolerance	Self-resonant frequency [MHz]min.	DC Resistance [Ω](±30%)	Rated current (mA)max.	Measuring frequency [MHz]
LB C2012T1R0M	RoHS	1.0		100	0.19	620	
LB C2012T2R2M	RoHS	2.2	±20%	70	0.33	430	7.96
LB C2012T4R7M	RoHS	4.7		45	0.50	295	
LB C2012T100	RoHS	10	1.400/	40	1.2	200	
LB C2012T220	RoHS	22	土10% 土20%	16	3.7	130	2.52
LB C2012T470	RoHS	47	2070	11	5.8	90	

Please specify the Inductance tolerance code(K or M)

Ordering code	EHS	Inductance [µH]	Inductance Tolerance	Self-resonant frequency [MHz]min.	DC Resistance [Ω](±30%)	Rated current (mA)max.	Measuring frequency [MHz]
LB R2012T1R0M	RoHS	1.0		100	0.07	400	
LB R2012T2R2M	RoHS	2.2	±20%	80	0.13	260	7.96
LB R2012T4R7M	RoHS	4.7		45	0.24	200	7
LB R2012T100	RoHS	10		32	0.36	150	
LB R2012T220	RoHS	22	±10%	16	1.0	100	2.52
LB R2012T470	RoHS	47	±20%	11	1.7	75]
LB R2012T101	RoHS	100		8	4.0	50	0.796

Please specify the Inductance tolerance code(K or M)

2016(0806) TYPE

Ordering code	EHS	Inductance [µH]	Inductance Tolerance	Self-resonant frequency [MHz]min.	DC Resistance [Ω](±30%)	Rated current (mA)max.	Measuring frequency [MHz]
LB 2016T1R0M	RoHS	1.0		100	0.09	490	
LB 2016T1R5M	RoHS	1.5		80	0.11	380	
LB 2016T2R2M	RoHS	2.2	±20%	70	0.13	375	7.00
LB 2016T3R3M	RoHS	3.3	土20%	55	0.20	285	7.96
LB 2016T4R7M	RoHS	4.7		45	0.25	225	
LB 2016T6R8M	RoHS	6.8		38	0.35	200]
LB 2016T100	RoHS	10		32	0.50	155	
LB 2016T150	RoHS	15		28	0.70	130	
LB 2016T220	RoHS	22	1.400/	16	1.0	105	2.52
LB 2016T330	RoHS	33	±10%	14	1.7	85	2.52
LB 2016T470	RoHS	47	±20%	11	2.4	70	
LB 2016T680	RoHS	68		10	3.0	55]
LB 2016T101	RoHS	100		8	4.5	40	0.796

 $\cdot \square \mathsf{Please}$ specify the Inductance tolerance $\mathsf{code}(\mathsf{K} \text{ or } \mathsf{M})$

* 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/) or CD catalogs.

TAIYO YUDEN 2012

PART NUMBERS

Ordering code	EHS	Inductance [µH]	Inductance Tolerance	Self-resonant frequency (MHz)min.	DC Resistance [Ω](±30%)	Rated current (mA)max.	Measuring frequency (MHz)
LB C2016T1R0M	RoHS	1.0		100	0.10	690	
LB C2016T1R5M	RoHS	1.5		80	0.15	600	
LB C2016T2R2M	RoHS	2.2	1	70	0.20	520	7.00
LB C2016T3R3M	RoHS	3.3	±20%	55	0.27	410	7.96
LB C2016T4R7M	RoHS	4.7]	45	0.37	355	
LB C2016T6R8M	RoHS	6.8		38	0.59	290	
LB C2016T100	RoHS	10		32	0.82	245	
LB C2016T150	RoHS	15]	28	1.2	200	
LB C2016T220	RoHS	22]	16	1.8	165	0.50
LB C2016T330	RoHS	33	±10% ±20%	14	2.8	135	2.52
LB C2016T470	RoHS	47	20%	11	4.3	110	
LB C2016T680	RoHS	68	1	10	7.0	95]
LB C2016T101	RoHS	100	1	8	8.0	75	0.796

• Please specify the Inductance tolerance code(K or M)

2518(1007) TYPE

Ordering code	EHS	Inductance 〔µH〕	Inductance Tolerance	Self-resonant frequency [MHz]min.	DC Resistance (Ω)(±30%)	Rated current (mA)max.	Measuring frequency (MHz)
LB 2518T1R0M	RoHS	1.0		100	0.06	665	
LB 2518T1R5M	RoHS	1.5	1	80	0.07	405	
LB 2518T2R2M	RoHS	2.2	1	68	0.09	340	
LB 2518T3R3M	RoHS	3.3	±20%	54	0.11	280	7.96
LB 2518T4R7M	RoHS	4.7	7	46	0.13	240	7
LB 2518T4R7MR	RoHS	4.7		46	0.10	235	1
LB 2518T6R8M	RoHS	6.8	1	38	0.15	195	
LB 2518T100	RoHS	10		30	0.25	165	
LB 2518T150	RoHS	15		23	0.32	145]
LB 2518T220	RoHS	22	7	19	0.50	115	0.50
LB 2518T330	RoHS	33		15	0.70	95	2.52
LB 2518T470	RoHS	47		12	0.95	85	
LB 2518T680	RoHS	68		9.5	1.5	70	
LB 2518T101	RoHS	100	ー ±10% - ±20%	9.0	2.1	60	
LB 2518T151	RoHS	150		7.0	3.2	45	
LB 2518T221	RoHS	220		5.5	4.5	40	0.796
LB 2518T331	RoHS	330		4.5	7.0	30	0.796
LB 2518T471	RoHS	470		3.5	10	25	
LB 2518T681	RoHS	680		3.0	17	20	
LB 2518T102	RoHS	1000		2.4	24	15	0.252

Please specify the Inductance tolerance code(K or M)

Ordering code	EHS	Inductance [µH]	Inductance Tolerance	Self-resonant frequency (MHz)min.	DC Resistance $(\Omega)(\pm 30\%)$	Rated current (mA)max.	Measuring frequency [MHz]
LB C2518T1R0M	RoHS	1.0		100	0.080	775	-
LB C2518T1R0MR	RoHS	1.0	1	100	0.065	890	
LB C2518T1R5M	RoHS	1.5]	80	0.11	730	
LB C2518T2R2M	RoHS	2.2	±20%	68	0.13	630	7.96
LB C2518T3R3M	RoHS	3.3]	54	0.16	560	
LB C2518T4R7M	RoHS	4.7]	41	0.20	510	
LB C2518T6R8M	RoHS	6.8		38	0.30	420	
LB C2518T100	RoHS	10		30	0.36	375	
LB C2518T150	RoHS	15]	23	0.65	285	2.52
LB C2518T220	RoHS	22	1	19	0.77	250	
LB C2518T330	RoHS	33	-	15	1.5	185	2.52
LB C2518T470	RoHS	47		12	1.9	165	
LB C2518T680	RoHS	68	±10%	9.5	2.8	140	
LB C2518T101	RoHS	100	±20%	9.0	3.7	125	
LB C2518T151	RoHS	150		7.0	6.1	95	
LB C2518T221	RoHS	220]	5.5	8.4	80	0.706
LB C2518T331	RoHS	330]	4.5	12.3	65	0.796
LB C2518T471	RoHS	470]	3.5	22	50	
LB C2518T681	RoHS	680]	3.0	28	45	

Please specify the Inductance tolerance code(K or M)

Ordering code	EHS	Inductance [µH]	Inductance Tolerance	Self-resonant frequency [MHz]min.	DC Resistance [Ω](±30%)	Rated current (mA)max.	Measuring frequency [MHz]
LB R2518T1R0M	RoHS	1.0		100	0.045	960	
LB R2518T2R2M	RoHS	2.2	±20%	68	0.07	480	7.96
LB R2518T4R7M	RoHS	4.7		45	0.10	345	
LB R2518T100	RoHS	10		30	0.19	235	
LB R2518T220	RoHS	22	±10%	19	0.44	175	2.52
LB R2518T470	RoHS	47	±20%	11	0.84	120	
LB R2518T101	RoHS	100		9	1.89	80	0.796

• Please specify the Inductance tolerance code(K or M)

^{*} 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/) or CD catalogs.

PART NUMBERS

3218(1297) TYPE

Ordering code	EHS	Inductance [µH]	Inductance Tolerance	Self-resonant frequency [MHz]min.	DC Resistance [Ω](±30%)	Rated current (mA)max.	Measuring frequency [MHz]
LB 3218T1R0M	RoHS	1.0		100	0.06	1075	
LB 3218T1R5M	RoHS	1.5		80	0.07	860	
LB 3218T2R2M	RoHS	2.2	1.000/	68	0.09	775	
LB 3218T3R3M	RoHS	3.3	±20%	54	0.11	560	7.96
LB 3218T4R7M	RoHS	4.7		41	0.13	550	7
LB 3218T6R8M	RoHS	6.8		40	0.17	380	1
LB 3218T100	RoHS	10		30	0.25	340	
LB 3218T150	RoHS	15		25	0.32	300	2.52
LB 3218T220	RoHS	22		19	0.49	255	
LB 3218T330	RoHS	33		15	0.75	215	2.52
LB 3218T470	RoHS	47		12	0.92	205]
LB 3218T680	RoHS	68		11	1.49	145	
LB 3218T101	RoHS	100	±10% ±20%	8	2.4	140	
LB 3218T151	RoHS	150	12070	7	3.2	105]
LB 3218T221	RoHS	220		5	5.4	80	0.796
LB 3218T331	RoHS	330		4	7.0	65	0.796
LB 3218T471	RoHS	470		3.5	14	54]
LB 3218T681	RoHS	680		3.0	17	45]
LB 3218T102	RoHS	1000		2.4	27	39	0.252

Please specify the Inductance tolerance code(K or M)

3225(1210) TYPE

Ordering code		EHS	Inductance [µH]	Inductance Tolerance	Self-resonant frequency (MHz)min.	DC Resistance [Ω](±30%)	Rated current [mA]max.	Measuring frequency [MHz]
LB C3225T1R0MR		RoHS	1.0		250	0.055	1100	
LB C3225T1R5MR		RoHS	1.5		220	0.060	1000	
LB C3225T2R2MR		RoHS	2.2	±20%	190	0.080	930]
LB C3225T3R3MR		RoHS	3.3	±20%	160	0.095	820	
LB C3225T4R7MR		RoHS	4.7		70	0.100	680	
LB C3225T6R8MR		RoHS	6.8		50	0.120	620]
LB C3225T100 R		RoHS	10		23	0.133	540	0.1
LB C3225T150 R		RoHS	15		20	0.195	420]
LB C3225T220 R		RoHS	22	1.100/	17	0.27	330]
LB C3225T330 R		RoHS	33	±10% ±20%	13	0.41	300	
LB C3225T470 R		RoHS	47	12070	10	0.67	220	
LB C3225T680 R		RoHS	68		8	1.0	190	
LB C3225T101 R		RoHS	100		6	1.4	150	
Diseas energify the Indu	otopoo tolor	anaa aada(k	(or M)					

Please specify the Inductance tolerance code(K or M)

* 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/) or CD catalogs.

TAIYO YUDEN 2012

ELECTRICAL CHARACTERISTICS



①Minimum Quantity

Turne	Standard Quantity [pcs]			
Туре	Papar Tape	Embossed Tape		
LBC3225/CBC3225	_	1000		
LB3218	_	2000		
LBR2518/LBC2518/LB251 /CB2518/CBC2518/LEM2520	-	2000		
LBM2016/LBC2016/ LB2016/CB2016/CBC2016	-	2000		
LB2012/LBC2012/LBR202 /CB2012/CBC2012	-	3000		
CBL2012	4000	-		
LB1608	4000	_		
LBMF1608/CBMF1608	-	3000		

②Tape material

Embossed tape



③Taping Dimensions

Embossed Tape (0.315 inches wide)

Card board carrier tape (0.315 inches wide)



Tuno	Chip	cavity	Insertion pitch	Tape thickness	
Туре	А	В	F	Т	к
LBM 2016	1.75±0.1	2.1±0.1	4.0±0.1	0.3±0.05	1.9max.
	(0.069±0.004)	(0.083±0.004)	(0.157±0.004)	(0.012±0.002)	(0.075max.)
LEM 2520	2.3±0.1	2.7±0.1	4.0±0.1	0.3±0.05	2.1±0.1
	(0.091±0.004)	(0.106±0.004)	(0.157±0.004)	(0.012±0.002)	(0.083±0.004)
LBC3225/	2.8±0.1	3.5±0.1	4.0±0.1	0.3±0.05	4.0max.
CBC3225	(0.110±0.004)	(0.138±0.004)	(0.157±0.004)	(0.012±0.002)	(0.157max.)
LB3218	2.1±0.1	3.5±0.1	4.0±0.1	0.3±0.05	2.2max.
	(0.083±0.004)	(0.138±0.004)	(0.157±0.004)	(0.012±0.002)	(0.087max.)
LB2518 / CB2518 LBC2518 / CBC2518 LBR2518	2.15±0.1 (0.085±0.004)	2.7±0.1 (0.106±0.004)	4.0±0.1 (0.157±0.004)	0.3±0.05 (0.012±0.002)	2.2max. (0.087max.)
LB2016/ CB2016	1.75±0.1	2.1±0.1	4.0±0.1	0.3±0.05	1.9max.
LBC2016 / CBC2016	(0.069±0.004)	(0.083±0.004)	(0.157±0.004)	(0.012±0.002)	(0.075max.)
LB2012 / CB2012 LBC2012 / CBC2012 LBR2012	1.45±0.1 (0.057±0.004)	2.25±0.1 (0.089±0.004)	4.0±0.1 (0.157±0.004)	0.25±0.05 (0.010±0.002)	1.45max. (0.057max.)
CBL2012	1.55±0.1	2.3±0.1	4.0±0.1	1.1max.	1.1max.
	(0.061±0.004)	(0.091±0.004)	(0.157±0.004)	(0.043max.)	(0.043max.)
LB1608	1.0±0.1	1.8±0.1	4.0±0.1	1.1max.	1.1max.
	(0.039±0.004)	(0.071±0.004)	(0.157±0.004)	(0.043max.)	(0.043max.)
LBMF1608 /	1.1±0.1	1.9±0.1	4.0±0.1	$\substack{0.25 \pm 0.05 \\ (0.010 \pm 0.002)}$	1.2max.
CBMF1608	(0.043±0.004)	(0.075±0.004)	(0.157±0.004)		(0.047max.)
				Uni	it: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.



1.Operating temperature Range	
LB, LBC, LBR, LBMF Series	
CB, CBC, CBL, CBMF Series	-40 $\pm 105^{\circ}$ (including colf generated best)
	-40~+105°C (Including self-generated heat)
LBM Series	
LEM Series	−40~+85°C
2.Storage	
LB, LBC, LBR, LBMF Series	
CB, CBC, CBL, CBMF Series]−40~+85°C
LBM, LEM Series	
[Test Methods and Remarks]	<u> </u>
Please refer the term of "7. storage conditions" in precautions.	
3.Rated Current	
LB, LBC, LBR, LBMF Series	
CB, CBC, CBL, CBMF Series	Within the specified tolerance
LBM, LEM Series	
[Test Methods and Remarks]	
LEM Series The maximum DC value having inductance decrease within 10% and temperat	ture increase within 20° C by the application of DC bias
4.Inductance	
LB, LBC, LBR, LBMF Series	
CB, CBC, CBL, CBMF Series	Within the specified tolerance
LBM, LEM Series	
[Test Methods and Remarks]	
LEM Series Measuring equipment : LCR M	leter (HP4285A+42851A or its equivalent)
Measuring frequency : Specifie	
LB·LBC·LBR·CB·CBC·CBL·LBMF·CBMF·LBM Series Measuring equipment : LCR M.	ater(HP4285A or its equivalent)
5.Q	
LB, LBC, LBR, LBMF Series	
CB, CBC, CBL, CBMF Series	
LBM, LEM Series	Within the specified tolerance
[Test Methods and Remarks]	
LEM Series Measuring equipment : LCR Meter (HP4285A+42851A or its equivalent)	
Measuring frequency : Specified frequency	
LBM Series Measuring equipment : LCR Mater(HP4285A or its equivalent)	
6.DC Resisitance	
LB, LBC, LBR, LBMF Series	
CB, CBC, CBL, CBMF Series	Within the specified tolerance
LBM, LEM Series	
[Test Methods and Remarks]	·
Measuring equipment : DC Ohmmeter (HIOKI 3227 or its equivalent)	
7.Self-Resonant Frequency	
LB, LBC, LBR, LBMF Series	
CB, CBC, CBL, CBMF Series	Within the specified tolerance
LBM, LEM Series	
[Test Methods and Remarks] Measuring equipment : Impedance analyzer (HP4291A or its equivalent)	
8. Temperature Characteristic	
LBM2016 LEM2520	Inductance change:Within±5%
LB1608 LB2012 LBR2012 CB2012 CBL2012 LB2016	Inductance change:Within±20%
CB2016 LB2518 LBR2518 CB2518 LBC3225 CBC3225	
LBMF1608 CBMF1608 LBC2016 CBC2016 LBC2518 CBC2518 LB3218	Inductance change:Within±25%
	la durada en a statutidad a la OSO/
LBC2012 CBC2012	Inductance change:Within±35%
[Test Methods and Remarks] Change of maximum inductance deviation in step 1-5	
LB, CB Series Step 1 2 3	4 5
	85 (Maximum operating temperature) 20
LEM2520 Step 1 2 3	
	4 5
Temperture (°C) 20 -25 20 (Reference temperature) +	85 (Maximum operating temperature) 20
9.Rasistance to Flexure of Substrate	
LB, LBC, LBR, LBMF Series	
CB, CBC, CBL, CBMF Series	No damage.
LBM, LEM Series	<u> </u>
[Test Methods and Remarks]	
3mm(LEM2520)	LEM2520:1.6mm
Test substrate: Description to UC CODE1	
Others:	1.0mm
↓ B oard	
R5 45±2mm45±2mm	JII
. • • •	>

10 Dardy Chrometh					
10.Body Strength					
LB, LBC, LBR, LBMF Series		No damage.			
CB, CBC, CBL, CBMF Series LBM, LEM Series		No dallage.			
	lied force : 10N ation : 10sec.				
LB1608 · LBMF1608 · CBMF1608 Appl	lied force : 5N ation : 10sec.				
11.Adhesion of terminal electrode					
LB, LBC, LBR, LBMF Series					
CB, CBC, CBL, CBMF Series		No abnormality.			
LBM, LEM Series					
[Test Methods and Remarks] LB · LBC · LBR · CB · CBL · LBM · LBM · CBMF · CBMF · LB1608 · CBMF1608 · LBMF1608	LEM2520 Applied force : 10N to X and Duration : 5 sec. Test substrate : Printed boa Applied force : 5N to X and	rd			
	Duration : 5 sec. Test substrate : Printed boa				
12.Resistance to vibration					
LB, LBC, LBR, LBMF Series					
CB, CBC, CBL, CBMF Series		Inductance change:Within±10%	No significant abnormality in appearance.		
LBM, LEM Series		Inductance change:Within±5%	No significant abnormality in appearance.		
[Test Methods and Remarks] LEM·LB·LBC·LBR·CB·CBC·CBL·LBM·LBMF·CI Vibration type : A Directions : 2 hrs each in X, Y and Z directions. Total : 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 standa LEM : Recovery At least 1 hr of recovery under the standard condition	6 hrs rd condition after the test, followed by t	he measurement within 48 hrs.			
13.Drop test					
LB, LBC, LBR, LBMF Series					
CB, CBC, CBL, CBMF Series					
LBM Series					
LEM Series		Inductance change:Within±5%	No significant abnormality in appearance.		
[Test Methods and Remarks] LEM : Acceleration : 980m/sec2 Duration : 6msec Number of times : 6 sides × 3 times Mounting method : Soldering onto printed board Recovery : At least 2 hrs of recovery under the standa LEM : Recovery		he measurement within 48 hrs.			
At least 1 hr of recovery under the standard condition	after the test, followed by the measurer	nent within 2 hrs.			
14.Solderability					
LB, LBC, LBR, LBMF Series					
CB, CBC, CBL, CBMF Series At least 90% of surface of terminal electrode is covered by new					
LBM, LEM Series					
[Test Methods and Remarks] LEM : LB · LBC · LBR · CB · CBC · CBL · LBM · LBMF · CBMF :	Solder temperature : $230\pm5^{\circ}$ C Duration : 5 ± 0.5 sec. Flux : Methanol solution with 25% of c Solder temperature : $245\pm5^{\circ}$ C Duration : 5 ± 0.5 sec	olophony			
Duration : 5±0.5sec Flux : Methanol solution with 25% of colophony					

^{*} 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/) or CD catalogs.

15.Resistance to soldering							
LB, LBC, LBR, LBMF Series				Inductance change:Within±10%			
CB, CBC, CBL, CBMF Series					Inductance change:Within±5%		
LEM Series				No significant abnormality in appearance.			
LEM2520 [Test Methods and Remarks]				No significant abnormality in appea	rance.		
LEM :				280			
Reflow condition 3 times of ref	flow over at 220±5°	C for 40sec. MAX,	With Peak temperatu	e at 240±5°C for 5 sec.			
MAX. (Refer to a Profile of cha	art below.)						
				n 180			
Flow condition Solder temperature : 260±5°C							
Duration : 10±1sec. Once				80			
				40	+++++++		
LB·LBC·LBR·CB·CBC·CBL				0 40 80 120 16	0 200 240 280 320		
3 times of reflow oven at 230°C	C MIN for 40sec. wit	th peak temperatur	e at 260 °C for 5sec.	Duration	(sec)		
16.Resisitance to solvent							
LB, LBC, LBR, LBMF Series							
CB, CBC, CBL, CBMF Series				No significant abnormality in appea	rance		
LBM, LEM Series							
[Test Methods and Remarks]							
Solvent temperature : Room te Type of solvent : Isopropyl alco							
Cleaning conditions : 90s. Imm		л					
		5.					
17.Thermal shock							
LB, LBC, LBR, LBMF Series CB, CBC, CBL, CBMF Series					No significant apparmality in apparance		
LBM Series				Inductance change:Within±10%	No significant abnormality in appearance.		
LBW Series				Industance shance Within ± 10%			
				Inductance change :Within $\pm 10\%$ Q \rightarrow R12 \sim 4R7 : 30 min.			
LEM Series				5R6~330 : 25 min.			
				390~820 : 20 min.			
				101 : 15 min.			
Test Methods and Remarks	Step	Temperature(°C)	Duration (min)				
LEM : Conditions for 1cycle	1	-40	30				
	2	+85	30				
Number of cycle : 100 c				and has the survey and with its O have			
LB·LBC·LBR·CB·CBC·CBL				wed by the measurement within 2 hrs.			
					test, followed by the measurement within 48 hrs.		
		,		·			
18.Damp heat life test							
LB, LBC, LBR, LBMF Series							
					No significant chapter altheir compositions		
CB, CBC, CBL, CBMF Series				Inductance change:Within±10%	No significant abnormality in appearance.		
LBM Series							
				Inductance change :Within±10% Q→ R12~4R7 : 30 min.			
LEM Series				5R6~330 : 25 min.			
				390~820 : 20 min.			
				101 : 15 min.			
[Test Methods and Remarks]							
Temperature : 60±2°C Humidity : 90~95%RH							
Duration : 1000 hrs							
Recovery : At least 2 hrs of rec	overy under the sta	andard condition af	ter the test, followed b	by the measurement within 48 hrs.			
LEM : Recovery							
At least 1 hr of recovery under	the standard condi	tion after the test,	followed by the measu	irement within 2 hrs.			
19.Loading under damp heat lif	e test						
LB, LBC, LBR, LBMF Series							
CB, CBC, CBL, CBMF Series				Inductance change:Within±10%	No significant abnormality in appearance.		
LBM Series							
				Inductance change :Within±10%			
LEM Carias				$Q \rightarrow R12 \sim 4R7$: 30 min.			
LEM Series				5R6~330 : 25 min. 390~820 : 20 min.			
				101 : 15 min.			
[Test Methods and Remarks]				- I			
Temperature∶60±2℃							
Humidity : 90~95%RH							
Duration : 1000 hrs Applied current : Rated current	ł						
Recovery : At least 2 hrs of reco		lard condition after t	he test, followed by the	e measurement within 48 hrs.			
LEM : Recovery							
At least 1 hr of recovery under	the standard condi	tion after the test,	followed by the measu	irement within 2 hrs.			

^{*} 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/) or CD catalogs.

20.High temperature life test	
LB, LBC, LBR, LBMF Series	
CB, CBC, CBL, CBMF Series	Inductance change:Within±10% No significant abnormality in appearance.
LBM Series	Inductance change:Within±10% No significant abnormality in appearance.
	Inductance change :Within±10%
	$Q \rightarrow R12 \sim 4R7$: 30 min.
LEM Series	5R6~330 : 25 min.
	390~820 : 20 min.
	101 : 15 min.

[Test Methods and Remarks]

Temperature : 85±2°C Duration : 1000 hrs

Recovery : At least 2 hrs of recovery under the standard condition after the test, followed by the measurement within 48 hrs. LEM : Recovery

At least 1 hr of recovery under the standard condition after the test, followed by the measurement within 2 hrs.

21.Loading at high temperature life test		
LB, LBC, LBR, LBMF Series	Inductance change:Within±10%	No significant abnormality in appearance.
CB, CBC, CBL, CBMF Series		
LBM, LEM Series		
[Test Methods and Remarks]		

Temperature : 85±2°C

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		
LB, LBC, LBR, LBMF Series		
CB, CBC, CBL, CBMF Series	Inductance change:Within±10%	No significant abnormality in appearance
LBM Series		
LEM Series	Inductance change :Within±10% Q→ R12~4R7 : 30 min. 5R6~330 : 25 min. 390~820 : 20 min. 101 : 15 min.	

[Test Methods and Remarks] Temperature : $-40\pm2^{\circ}C$

Duration : 1000 hrs

Recovery : At least 2 hrs of recovery under the standard condition after the test, followed by the measurement within 48 hrs. LEM : Recovery

At least 1 hr of recovery under the standard condition after the test, followed by the measurement within 2 hrs.

23.Standard condition	
LB, LBC, LBR, LBMF Series	Standard test conditions Unless specified, Ambient temperature is 20±15°C 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°C Relative humidity: 65±5% Inductance value is based on our standard measurement systems.
CB, CBC, CBL, CBMF Series	
LBM, LEM Series	

PRECAUTIONS

LEM Type, LB Type, CB Type

LEIVI Type,	LB Туре, CB Туре
1. Circuit Des	ign
Precautions	Operating environment 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 Desig	n
Precautions	Land pattern design Please contact any of our offices for a land pattern, and refer to a recommended land pattern of a right figure or specifications.
Technical consider- ations	PRECAUTIONS [Recommended Land Patterns] Surface Mounting • Mounting and soldering conditions should be checked beforehand. • Applicable soldering process to those products is reflow soldering only
3. Considerat	ions for automatic placement
Precautions	 Adjustment of mounting machine Excessive impact load should not be imposed on the products when mounting onto the PC boards. Mounting and soldering conditions should be checked beforehand.
Technical consider- ations	1. When installing products, care should be taken not to apply distortion stress as it may deform the products.
4. Soldering	
	Wave soldering (LEM Type only)
	 For wave soldering, please apply conditions meeting the range of the specified conditions in our catalog or the relevant specifications. Reflow soldering (LB and CB Types)
	1. For reflow soldering with either leaded or lead-free solder,the profile specified in "point for controlling" is recommended. ♦Reflow soldering (LEM)
	1. For reflow soldering, please apply conditions meeting the range of the specified conditions in our catalog or the relevant specifications.
	 Recommended conditions for using a soldering iron Put the soldering iron on the land-pattern. Soldering iron's temperature - Below 350°C Duration-3 seconds or less. The soldering iron shoud not come in contact with inductor directly.
	Wave soldering (LEM Type only) 1. Components can be damaged by excessive heat where soldering conditions exceed the specified range.
Technical consider- ations	300 250 200 180°C - Pre-heat zone 150°C - Pre-heat zone 150°C - 230°C Minn 150°C - 90±30 sec 30±10 sec
	 ● Commended conditions for using a soldering iron 1. Components can be damaged by excessive heat where soldering conditions exceed the specified range.
5. Cleaning	
Precautions	Cleaning conditions
Technical consider- ations	Washing by supersonic waves shall be avoided. Cleaning conditions If washed by supersonic waves, the products might be broken.
alions	
6. Handling	
Precautions	 ♦ Handling 1. There is a case that a characteristic varies with magnetic influence. ♦ Breakaway PC boards (splitting along perforations) 1. Planning pattern configurations and the position of products should be carefully performed to minimize stress. ♦ Mechanical considerations 1. There is a case to be damaged by a mechanical shock.
Technical consider- ations	 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.
7. Storage co	nditions
	Storage 1. Under a high temperature and humidity environment, problems such as reduced solderability caused by oxidation of terminal electrodes and deterioration of
Technical consider- ations	taping/packaging materials may take place. ♦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°C / Humidity : Below 70% RH 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, LE type inductors should be used within one year from the time of delivery. LB type : 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.