

有关敝司产品的注意事项

请务必在使用敝司产品之前阅读。

注意

■ 本产品目录所记载的内容为2016年10月之内容。因改良等原因，可能会不经预告而变更记载内容，所以请务必在使用前先确认最新的产品信息。未按照本产品目录所记载的内容或交货规格说明书使用敝司产品的，即便其致使使用设备发生损害、瑕疵等时，敝司也不承担任何责任，敬请悉知。

■ 就规格相关的详细内容，敝司备有交货规格说明书，详情请向敝司咨询。

■ 使用敝司产品时，请务必事先安装到设备之后，在实际使用的环境下进行评估和确认。

■ 本产品目录中所记载的产品可使用于一般电子设备 [音像设备、办公自动化设备、家电产品、办公设备、信息/通讯设备 (手机、电脑等)]。因此，若考虑将本产品目录所记载的产品使用于可能会直接危及生命或身体的设备 [运输用设备 (汽车驱动控制设备、火车控制设备、船舶控制设备等)、交通信号设备、防灾设备、医疗用器械、高公共性信息通信设备 (电话交换机以及电话、无线、广播电视等基站)] 等时，请务必事先向敝司咨询。

另外，请勿将敝司产品使用于对安全性和可靠性要求较高的设备 (航天设备、航空设备、原子能控制设备、海底设备、军事设备等)。

且即便属于一般电子设备，使用于对安全性和可靠性要求较高的设备、电路上时，敝司建议进行充分的安全评估，并根据需要，在设计时追加保护电路等。

未经敝司的事先书面同意，把本产品目录中记载的产品使用于前述需要向敝司咨询的设备或敝司禁止使用的设备，从而给客户或第三方造成的损害的，敝司不承担任何责任，敬请悉知。

■ 因使用敝司产品，发生第三方的知识产权等权利相关问题的，敝司不承担责任。另外，并不代表授予这些权利的实施权，敬请悉知。

■ 除非书面合同中另有规定，敝司产品的保证范围仅限于交付的敝司产品单品，并且就敝司产品的故障或瑕疵所导致的损害，敝司不承担任何责任，敬请悉知。

■ 本产品目录所记载的内容适用于从敝司营业所、销售子公司、销售代理店 (即“正规销售渠道”) 购买的敝司产品，并不适用于从上述以外的渠道购买的敝司产品，敬请悉知。

出口相关注意事项

本产品目录所记载的部分产品在出口时须事先确认《外汇和对外贸易法》以及美国出口管理的相关法规，并办理相关手续。如有不明之处，请向敝司咨询。

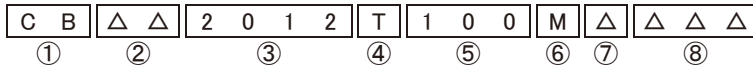
绕线型片状功率电感器(CB 系列)



回流焊

■ 型号标示法

※使用温度范围: -40~+105°C (包含产品本身发热)



①类型

代码	类型
CB	绕线型片状功率电感器

②特性

代码	特性
△△	标准品
△C	大电流
△L	超薄
MF	低损耗

③尺寸 (L × W)

代码	外型 (inch)	尺寸 (L×W) [mm]
1608	1608(0603)	1.6 × 0.8
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包装

代码	包装
T	卷盘带装

⑤标称电感值

代码 (例)	标称电感值 [μH]
1R0	1.0
100	10
101	100

※R=小数点

⑥电感量公差

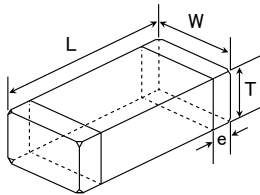
代码	电感量公差
K	±10%
M	±20%

⑦个别规格

代码	个别规格
△	标准品
R	低Rdc 品

⑧本公司管理记号

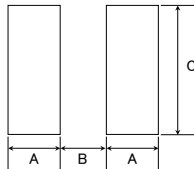
■ 标准外型尺寸 / 标准数量



推荐焊盘图案

实装上的注意

- 请确认实装状态后使用。
- 本产品焊法限定为回流焊法。



Type	A	B	C
MF1608	0.55	0.7	1.0
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

单位: mm

Type	L	W	T	e	标准数量[pcs]	
					纸带	压纹带
CBMF1608	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
CB L2012	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)	4000	—
CB 2012	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	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	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

单位: mm (inch)

▶ 由于篇幅有限, 本产品目录中只记载了有代表性的产品规格, 若考虑使用弊公司产品时, 请确认交货规格说明书中的详细规格。另外, 有关各产品的详细信息(特性图、可靠性信息、使用时的注意事项等), 请参阅弊司网站(<http://www.ty-top.com/>)。

● 1608 (0603) 型

型号	EHS	标称电感值 [μH]	电感量公差	自共振频率 [MHz] (min.)	直流电阻 [Ω] (±30%)	额定电流 ※) [mA]		测试频率 [MHz]
						直流重叠允许电流 Idc1	温度上升允许电流 Idc2	
CBMF1608T1R0M	RoHS	1.0	±20%	100	0.09	290	770	7.96
CBMF1608T2R2M	RoHS	2.2	±20%	80	0.17	190	560	7.96
CBMF1608T3R3M	RoHS	3.3	±20%	60	0.22	170	500	7.96
CBMF1608T4R7M	RoHS	4.7	±20%	45	0.24	145	470	7.96
CBMF1608T100□	RoHS	10	±10%, ±20%	32	0.36	115	380	2.52
CBMF1608T220□	RoHS	22	±10%, ±20%	16	1.0	70	230	2.52
CBMF1608T470□	RoHS	47	±10%, ±20%	11	2.5	50	140	2.52

● 2012 (0805) 型

型号	EHS	标称电感值 [μH]	电感量公差	自共振频率 [MHz] (min.)	直流电阻 [Ω] (±30%)	额定电流 ※) [mA]		测试频率 [MHz]
						直流重叠允许电流 Idc1	温度上升允许电流 Idc2	
CB 2012T1R0M	RoHS	1.0	±20%	100	0.15	500	900	7.96
CB 2012T2R2M	RoHS	2.2	±20%	80	0.23	410	770	7.96
CB 2012T3R3M	RoHS	3.3	±20%	55	0.30	330	650	7.96
CB 2012T4R7M	RoHS	4.7	±20%	45	0.40	300	580	7.96
CB 2012T6R8M	RoHS	6.8	±20%	38	0.47	250	540	7.96
CB 2012T100□	RoHS	10	±10%, ±20%	32	0.70	190	440	2.52
CB 2012T100□R	RoHS	10	±10%, ±20%	32	0.50	200	520	2.52
CB 2012T150□	RoHS	15	±10%, ±20%	28	1.3	170	320	2.52
CB 2012T220□	RoHS	22	±10%, ±20%	16	1.7	135	280	2.52
CB 2012T470□	RoHS	47	±10%, ±20%	11	3.7	90	190	2.52
CB 2012T680□	RoHS	68	±10%, ±20%	10	6.0	70	140	2.52
CB 2012T101□	RoHS	100	±10%, ±20%	8	7.0	60	130	0.796

型号	EHS	标称电感值 [μH]	电感量公差	自共振频率 [MHz] (min.)	直流电阻 [Ω] (±30%)	额定电流 ※) [mA]		测试频率 [MHz]
						直流重叠允许电流 Idc1	温度上升允许电流 Idc2	
CB C2012T1R0M	RoHS	1.0	±20%	100	0.19	700	840	7.96
CB C2012T2R2M	RoHS	2.2	±20%	70	0.33	530	640	7.96
CB C2012T4R7M	RoHS	4.7	±20%	45	0.50	360	520	7.96
CB C2012T100□	RoHS	10	±10%, ±20%	40	1.2	240	340	2.52
CB C2012T220□	RoHS	22	±10%, ±20%	16	3.7	170	190	2.52
CB C2012T470□	RoHS	47	±10%, ±20%	11	5.8	120	150	2.52

型号	EHS	标称电感值 [μH]	电感量公差	自共振频率 [MHz] (min.)	直流电阻 [Ω] (±30%)	额定电流 ※) [mA]		测试频率 [MHz]
						直流重叠允许电流 Idc1	温度上升允许电流 Idc2	
CB L2012T1R0M	RoHS	1.0	±20%	100	0.15	620	950	0.1
CB L2012T2R2M	RoHS	2.2	±20%	80	0.39	440	590	0.1
CB L2012T4R7M	RoHS	4.7	±20%	45	0.66	275	490	0.1
CB L2012T100M	RoHS	10	±20%	32	1.0	205	370	0.1
CB L2012T220M	RoHS	22	±20%	23	2.1	150	250	0.1
CB L2012T470M	RoHS	47	±20%	11	4.2	100	140	0.1

● 2016 (0806) 型

型号	EHS	标称电感值 [μH]	电感量公差	自共振频率 [MHz] (min.)	直流电阻 [Ω] (±30%)	额定电流 ※) [mA]		测试频率 [MHz]
						直流重叠允许电流 Idc1	温度上升允许电流 Idc2	
CB 2016T1R0M	RoHS	1.0	±20%	100	0.09	600	1,100	7.96
CB 2016T1R5M	RoHS	1.5	±20%	80	0.11	550	1,000	7.96
CB 2016T2R2M	RoHS	2.2	±20%	70	0.13	510	1,000	7.96
CB 2016T3R3M	RoHS	3.3	±20%	55	0.20	400	800	7.96
CB 2016T4R7M	RoHS	4.7	±20%	45	0.25	340	740	7.96
CB 2016T6R8M	RoHS	6.8	±20%	38	0.35	300	600	7.96
CB 2016T100□	RoHS	10	±10%, ±20%	32	0.50	250	520	2.52
CB 2016T150□	RoHS	15	±10%, ±20%	28	0.70	210	440	2.52
CB 2016T220□	RoHS	22	±10%, ±20%	16	1.0	165	370	2.52
CB 2016T330□	RoHS	33	±10%, ±20%	14	1.7	130	270	2.52
CB 2016T470□	RoHS	47	±10%, ±20%	11	2.4	110	240	2.52
CB 2016T680□	RoHS	68	±10%, ±20%	10	3.0	90	210	2.52
CB 2016T101□	RoHS	100	±10%, ±20%	8	4.5	70	170	0.796

(注)请在型号的[]中指定电感量公差代码 (M或K)。

※) 直流重叠允许电流 (Idc1) 为直流重叠带来的电感值下降, 范围在30%以内的直流电感值 (at 20°C)

※) 温度上升允许电流 (Idc2) 为温度上升到40°C时的直流电感值 (at 20°C)

※) 额定电流值: Idc1或Idc2中低的一方的直流电流值当作额定电流值。

型号	EHS	标称电感值 [μH]	电感量公差	自共振频率 [MHz] (min.)	直流电阻 [Ω] (±30%)	额定电流 ※) [mA]		测试频率 [MHz]
						直流重叠允许电流 Idc1	温度上升允许电流 Idc2	
CB C2016T1R0M	RoHS	1.0	±20%	100	0.10	1,100	1,100	7.96
CB C2016T1R5M	RoHS	1.5	±20%	80	0.15	1,000	1,000	7.96
CB C2016T2R2M	RoHS	2.2	±20%	70	0.20	750	720	7.96
CB C2016T3R3M	RoHS	3.3	±20%	55	0.27	600	610	7.96
CB C2016T4R7M	RoHS	4.7	±20%	45	0.37	550	530	7.96
CB C2016T6R8M	RoHS	6.8	±20%	38	0.59	450	450	7.96
CB C2016T100□	RoHS	10	±10%, ±20%	32	0.82	380	350	2.52
CB C2016T150□	RoHS	15	±10%, ±20%	28	1.2	300	300	2.52
CB C2016T220□	RoHS	22	±10%, ±20%	16	1.8	250	240	2.52
CB C2016T330□	RoHS	33	±10%, ±20%	14	2.8	220	220	2.52
CB C2016T470□	RoHS	47	±10%, ±20%	11	4.3	150	150	2.52
CB C2016T680□	RoHS	68	±10%, ±20%	10	7.0	130	130	2.52
CB C2016T101□	RoHS	100	±10%, ±20%	8	8.0	110	110	0.796

●2518(1007)型

型号	EHS	标称电感值 [μH]	电感量公差	自共振频率 [MHz] (min.)	直流电阻 [Ω] (±30%)	额定电流 ※) [mA]		测试频率 [MHz]
						直流重叠允许电流 Idc1	温度上升允许电流 Idc2	
CB 2518T1R0M	RoHS	1.0	±20%	100	0.06	1,200	1,500	7.96
CB 2518T1R5M	RoHS	1.5	±20%	80	0.07	650	1,400	7.96
CB 2518T2R2M	RoHS	2.2	±20%	68	0.09	510	1,300	7.96
CB 2518T3R3M	RoHS	3.3	±20%	54	0.11	440	1,200	7.96
CB 2518T4R7MR	RoHS	4.7	±20%	46	0.10	310	1,200	7.96
CB 2518T4R7M	RoHS	4.7	±20%	46	0.13	340	1,100	7.96
CB 2518T6R8M	RoHS	6.8	±20%	38	0.15	270	930	7.96
CB 2518T100□	RoHS	10	±10%, ±20%	30	0.25	250	820	2.52
CB 2518T150□	RoHS	15	±10%, ±20%	23	0.32	180	650	2.52
CB 2518T220□	RoHS	22	±10%, ±20%	19	0.50	165	580	2.52
CB 2518T330□	RoHS	33	±10%, ±20%	15	0.70	130	460	2.52
CB 2518T470□	RoHS	47	±10%, ±20%	12	0.95	110	420	2.52
CB 2518T680□	RoHS	68	±10%, ±20%	9.5	1.5	70	310	2.52
CB 2518T101□	RoHS	100	±10%, ±20%	9.0	2.1	60	260	0.796
CB 2518T151□	RoHS	150	±10%, ±20%	7.0	3.2	55	210	0.796
CB 2518T221□	RoHS	220	±10%, ±20%	5.5	4.5	50	180	0.796
CB 2518T331□	RoHS	330	±10%, ±20%	4.5	7.0	40	140	0.796
CB 2518T471□	RoHS	470	±10%, ±20%	3.5	10	35	120	0.796
CB 2518T681□	RoHS	680	±10%, ±20%	3.0	17	30	90	0.796
CB 2518T102□	RoHS	1000	±10%, ±20%	2.4	24	25	75	0.252

型号	EHS	标称电感值 [μH]	电感量公差	自共振频率 [MHz] (min.)	直流电阻 [Ω] (±30%)	额定电流 ※) [mA]		测试频率 [MHz]
						直流重叠允许电流 Idc1	温度上升允许电流 Idc2	
CB C2518T1R0M	RoHS	1.0	±20%	100	0.08	1,000	1,200	7.96
CB C2518T1R5M	RoHS	1.5	±20%	80	0.11	950	1,190	7.96
CB C2518T2R2M	RoHS	2.2	±20%	68	0.13	890	1,100	7.96
CB C2518T3R3M	RoHS	3.3	±20%	54	0.16	730	1,020	7.96
CB C2518T4R7M	RoHS	4.7	±20%	41	0.20	680	920	7.96
CB C2518T6R8M	RoHS	6.8	±20%	38	0.30	550	740	7.96
CB C2518T100□	RoHS	10	±10%, ±20%	30	0.36	480	680	2.52
CB C2518T150□	RoHS	15	±10%, ±20%	23	0.65	350	500	2.52
CB C2518T220□	RoHS	22	±10%, ±20%	19	0.77	320	460	2.52
CB C2518T330□	RoHS	33	±10%, ±20%	15	1.5	270	320	2.52
CB C2518T470□	RoHS	47	±10%, ±20%	12	1.9	240	290	2.52
CB C2518T680□	RoHS	68	±10%, ±20%	9.5	2.8	200	200	2.52
CB C2518T101□	RoHS	100	±10%, ±20%	9.0	3.7	160	170	0.796
CB C2518T151□	RoHS	150	±10%, ±20%	7.0	6.1	140	130	0.796
CB C2518T221□	RoHS	220	±10%, ±20%	5.5	8.4	115	110	0.796
CB C2518T331□	RoHS	330	±10%, ±20%	4.5	12.3	100	90	0.796
CB C2518T471□	RoHS	470	±10%, ±20%	3.5	22	80	70	0.796
CB C2518T681□	RoHS	680	±10%, ±20%	3.0	28	65	60	0.796

(注)请在型号的□中指定电感量公差代码 (M或K)。

※) 直流重叠允许电流 (Idc1) 为直流重叠带来的电感值下降, 范围在30%以内的直流电感值 (at 20°C)

※) 温度上升允许电流 (Idc2) 为温度上升到40°C时的直流电感值 (at 20°C)

※) 额定电流值: Idc1或Idc2中低的一方的直流电流值当作额定电流值。

● 3225 (1210) 型

型号	EHS	标称电感值 [μ H]	电感量公差	自共振频率 [MHz] (min.)	直流电阻 [Ω] ($\pm 30\%$)	额定电流 ※) [mA]		测试频率 [MHz]
						直流重叠允许电流 Idc1	温度上升允许电流 Idc2	
CB C3225T1R0MR	RoHS	1.0	$\pm 20\%$	250	0.055	2,000	1,440	0.1
CB C3225T1R5MR	RoHS	1.5	$\pm 20\%$	220	0.060	2,000	1,310	0.1
CB C3225T2R2MR	RoHS	2.2	$\pm 20\%$	190	0.080	2,000	1,130	0.1
CB C3225T3R3MR	RoHS	3.3	$\pm 20\%$	160	0.095	2,000	1,040	0.1
CB C3225T4R7MR	RoHS	4.7	$\pm 20\%$	70	0.100	1,250	1,010	0.1
CB C3225T6R8MR	RoHS	6.8	$\pm 20\%$	50	0.120	950	940	0.1
CB C3225T100□R	RoHS	10	$\pm 10\%$, $\pm 20\%$	23	0.133	900	900	0.1
CB C3225T150□R	RoHS	15	$\pm 10\%$, $\pm 20\%$	20	0.195	730	850	0.1
CB C3225T220□R	RoHS	22	$\pm 10\%$, $\pm 20\%$	17	0.27	620	780	0.1
CB C3225T330□R	RoHS	33	$\pm 10\%$, $\pm 20\%$	13	0.41	500	570	0.1
CB C3225T470□R	RoHS	47	$\pm 10\%$, $\pm 20\%$	10	0.67	390	480	0.1
CB C3225T680□R	RoHS	68	$\pm 10\%$, $\pm 20\%$	8.0	1.0	320	410	0.1
CB C3225T101□R	RoHS	100	$\pm 10\%$, $\pm 20\%$	6.0	1.4	270	340	0.1
CB C3225T221□R	RoHS	220	$\pm 10\%$, $\pm 20\%$	3.0	2.5	190	190	0.1
CB C3225T821□R	RoHS	820	$\pm 10\%$, $\pm 20\%$	1.8	12	110	110	0.1
CB C3225T102□R	RoHS	1000	$\pm 10\%$, $\pm 20\%$	1.6	13	100	100	0.1

(注)请在型号的□中指定电感量公差代码 (M或K)。

※) 直流重叠允许电流 (Idc1) 为直流重叠带来的电感值下降, 范围在30%以内的直流电感值 (at 20°C)

※) 温度上升允许电流 (Idc2) 为温度上升到40°C时的直流电感值 (at 20°C)

※) 额定电流值: Idc1或Idc2中低的一方的直流电流值当作额定电流值。

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	—	1000
LB 3218	—	2000
LB R2518	—	2000
LB C2518	—	2000
LB 2518	—	2000
CB 2518	—	2000
CB C2518	—	2000
LBM2016	—	2000
LB C2016	—	2000
LB 2016	—	2000
CB 2016	—	2000
CB C2016	—	2000
LB 2012	—	3000
LB C2012	—	3000
LB R2012	—	3000
CB 2012	—	3000
CB C2012	—	3000
CB L2012	4000	—
LB 1608	4000	—
LBMF1608	—	3000
CBMF1608	—	3000

② Tape material

● Embossed tape



● Card board carrier tape



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③ Taping Dimensions

● Embossed Tape (0.315 inches wide)



Type	Chip cavity		Insertion pitch	Tape thickness	
	A	B	F	T	K
LBM2016	1.75 ± 0.1 (0.069 ± 0.004)	2.1 ± 0.1 (0.083 ± 0.004)	4.0 ± 0.1 (0.157 ± 0.004)	0.3 ± 0.05 (0.012 ± 0.002)	1.9max. (0.075max.)
LB C3225 CB C3225	2.8 ± 0.1 (0.110 ± 0.004)	3.5 ± 0.1 (0.138 ± 0.004)	4.0 ± 0.1 (0.157 ± 0.004)	0.3 ± 0.05 (0.012 ± 0.002)	4.0max. (0.157max.)
LB 3218	2.1 ± 0.1 (0.083 ± 0.004)	3.5 ± 0.1 (0.138 ± 0.004)	4.0 ± 0.1 (0.157 ± 0.004)	0.3 ± 0.05 (0.012 ± 0.002)	2.2max. (0.087max.)
LB 2518 CB 2518 LB C2518 CB C2518 LB R2518	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.)
LB 2016 CB 2016 LB C2016 CB C2016	1.75 ± 0.1 (0.069 ± 0.004)	2.1 ± 0.1 (0.083 ± 0.004)	4.0 ± 0.1 (0.157 ± 0.004)	0.3 ± 0.05 (0.012 ± 0.002)	1.9max. (0.075max.)
LB 2012 CB 2012 LB C2012 CB C2012 LB R2012	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.)
LBMF1608 CBMF1608	1.1 ± 0.1 (0.043 ± 0.004)	1.9 ± 0.1 (0.075 ± 0.004)	4.0 ± 0.1 (0.157 ± 0.004)	0.25 ± 0.05 (0.010 ± 0.002)	1.2max. (0.047max.)

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 ± 0.1 (0.061 ± 0.004)	2.3 ± 0.1 (0.091 ± 0.004)	4.0 ± 0.1 (0.157 ± 0.004)	1.1max. (0.043max.)
LB 1608	1.0 ± 0.1 (0.039 ± 0.004)	1.8 ± 0.1 (0.071 ± 0.004)	4.0 ± 0.1 (0.157 ± 0.004)	1.1max. (0.043max.)

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, LBMF Series	-40~ +105°C (Including self-generated heat)
	CB, CBC, CBL, CBMF Series	
	LBM Series	
2. Storage Temperature Range (after soldering)		
Specified Value	LB, LBC, LBR, LBMF Series	-40~ +85°C
	CB, CBC, CBL, CBMF 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, LBMF Series	Within the specified tolerance
	CB, CBC, CBL, CBMF Series	
	LBM Series	
4. Inductance		
Specified Value	LB, LBC, LBR, LBMF Series	Within the specified tolerance
	CB, CBC, CBL, CBMF Series	
	LBM Series	
Test Methods and Remarks	LB・LBC・LBR・CB・CBC・CBL・LBMF・CBMF・LBM Series Measuring equipment : LCR Meter (HP4285A or its equivalent) Measuring frequency : Specified frequency	
5. Q		
Specified Value	LB, LBC, LBR, LBMF Series	-
	CB, CBC, CBL, CBMF Series	
	LBM Series	
Test Methods and Remarks	LBM Series Measuring equipment : LCR Meter (HP4285A or its equivalent) Measuring frequency : Specified frequency	
6. DC Resitance		
Specified Value	LB, LBC, LBR, LBMF Series	Within the specified tolerance
	CB, CBC, CBL, CBMF 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, LBMF Series	Within the specified tolerance
	CB, CBC, CBL, CBMF Series	
	LBM Series	
Test Methods and Remarks	Measuring equipment : Impedance analyzer (HP4291A or its equivalent)	

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8. Temperature Characteristic					
Specified Value	LBM2016				Inductance change : Within $\pm 5\%$
	LB1608	LB2012	LBR2012	CB2012	Inductance change : Within $\pm 20\%$
	CBL2012	LB2016	CB2016	LB2518	
	LBR2518	CB2518	LBC3225	CBC3225	
	LBMF1608	CBMF1608	LBC2016	CBC2016	Inductance change : Within $\pm 25\%$
LBC2518	CBC2518	LB3218			
Test Methods and Remarks	LBC2012	CBC2012			Inductance change : Within $\pm 35\%$
	Based on the inductance at 20°C and Measured at the ambient of $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$.				

9. Resistance to Flexure of Substrate			
Specified Value	LB, LBC, LBR, LBMF Series		No damage.
	CB, CBC, CBL, CBMF Series		
	LBM Series		
Test Methods and Remarks	Warp : 2mm (LB·LBC·LBR·CB·CBC·CBL·LBM·LBMF·CBMF Series)		
	Test substrate : Glass epoxy-resin substrate Thickness : 0.8mm (LB1608·LBMF1608·CBMF1608) : 1.0mm (Others)		

10. Body Strength			
Specified Value	LB, LBC, LBR, LBMF Series		No damage.
	CB, CBC, CBL, CBMF Series		
	LBM Series		
Test Methods and Remarks	LB·LBC·LBR·CB·CBC·CBL·LBM		
	Applied force : 10N Duration : 10sec. LB1608·LBMF1608·CBMF1608 Applied force : 5N Duration : 10sec.		

11. Adhesion of terminal electrode			
Specified Value	LB, LBC, LBR, LBMF Series		No abnormality.
	CB, CBC, CBL, CBMF Series		
	LBM Series		
Test Methods and Remarks	LB·LBC·LBR·CB·CBC·CBL·LBM·LBMF·CBMF		
	Applied force : 10N to X and Y directions Duration : 5 sec. Test substrate : Printed board LB1608·CBMF1608·LBMF1608 Applied force : 5N to X and Y directions Duration : 5 sec. Test substrate : Printed board		

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12. Resistance to vibration		
Specified Value	LB, LBC, LBR, LBMF Series	Inductance change : Within $\pm 10\%$ No significant abnormality in appearance.
	CB, CBC, CBL, CBMF Series	
	LBM Series	Inductance change : Within $\pm 5\%$ No significant abnormality in appearance.
Test Methods and Remarks	LB·LBR·LBC·CB·CBC·CBL·LBM·LBMF·CBMF : The given sample is soldered to the board and then it is tested depending on the conditions of the following table.	
	Vibration Frequency	10~55Hz
	Total Amplitude	1.5mm (May not exceed acceleration 196m/s ²)
	Sweeping Method	10Hz to 55Hz to 10Hz for 1min.
Time	X	For 2 hours on each X, Y, and Z axis.
	Y	
	Z	
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, LBMF Series	—
	CB, CBC, CBL, CBMF Series	
	LBM Series	

14. Solderability		
Specified Value	LB, LBC, LBR, LBMF Series	At least 90% of surface of terminal electrode is covered by new
	CB, CBC, CBL, CBMF Series	
	LBM Series	
Test Methods and Remarks	LB·LBC·LBR·CB·CBC·CBL·LBM·LBMF·CBMF : Solder temperature : 245 \pm 5 $^{\circ}$ C Duration : 5 \pm 0.5sec Flux : Methanol solution with 25% of colophony	

15. Resistance to soldering		
Specified Value	LB, LBC, LBR, LBMF Series	Inductance change : Within $\pm 10\%$
	CB, CBC, CBL, CBMF Series	
	LBM Series	Inductance change : Within $\pm 5\%$
Test Methods and Remarks	LB·LBC·LBR·CB·CBC·CBL·LBM·LBMF·CBMF : 3 times of reflow oven at 230 $^{\circ}$ C MIN for 40sec. with peak temperature at 260 $^{\circ}$ C for 5sec. Recovery : At least 2 hrs of recovery under the standard condition after the test, followed by the measurement within 48 hrs.	

16. Resistance to solvent		
Specified Value	LB, LBC, LBR, LBMF Series	—
	CB, CBC, CBL, CBMF 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, LBMF Series	Inductance change : Within $\pm 10\%$ No significant abnormality in appearance.	
	CB, CBC, CBL, CBMF Series		
	LBM Series		
Test Methods and Remarks	LB·LBC·LBR·CB·CBC·CBL·LBM·LBMF·CBMF : The given sample is soldered to the board and then its Inductance is measured after 100cycles of the following conditions.		
	Conditions of 1 cycle		
	Step	Temperature ($^{\circ}$ C)	Duration (min)
	1	-40 \pm 3	30 \pm 3
	2	Room temperature	Within 3
	3	+85 \pm 2	30 \pm 3
4	Room temperature	Within 3	
Recovery	: At least 2 hrs of recovery under the standard condition after the test, followed by the measurement within 48 hrs.		

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18.Damp heat life test		
Specified Value	LB, LBC, LBR, LBMF Series	Inductance change : Within $\pm 10\%$ No significant abnormality in appearance.
	CB, CBC, CBL, CBMF Series	
	LBM Series	
Test Methods and Remarks	Temperature : $60 \pm 2^\circ\text{C}$ Humidity : $90 \sim 95\% \text{RH}$ 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, LBMF Series	Inductance change : Within $\pm 10\%$ No significant abnormality in appearance.
	CB, CBC, CBL, CBMF Series	
	LBM Series	
Test Methods and Remarks	Temperature : $60 \pm 2^\circ\text{C}$ Humidity : $90 \sim 95\% \text{RH}$ 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, LBMF Series	—
	CB, CBC, CBL, CBMF Series	Inductance change : Within $\pm 10\%$ No significant abnormality in appearance.
	LBM Series	
Test Methods and Remarks	Temperature : $85 \pm 2^\circ\text{C}$ Duration : 1000 hrs Recovery : At least 2 hrs of recovery under the standard condition after the test, followed by the measurement within 48 hrs.	

21.Loading at high temperature life test		
Specified Value	LB, LBC, LBR, LBMF Series	Inductance change : Within $\pm 10\%$ (LBC3225 Series : Within $\pm 20\%$) No significant abnormality in appearance.
	CB, CBC, CBL, CBMF Series	
	LBM Series	—
Test Methods and Remarks	Temperature : $85 \pm 2^\circ\text{C}$ 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		
Specified Value	LB, LBC, LBR, LBMF Series	Inductance change : Within $\pm 10\%$ No significant abnormality in appearance.
	CB, CBC, CBL, CBMF Series	
	LBM Series	
Test Methods and Remarks	Temperature : $-40 \pm 2^\circ\text{C}$ Duration : 1000 hrs Recovery : At least 2 hrs of recovery under the standard condition after the test, followed by the measurement within 48 hrs.	

23.Standard condition		
Specified Value	LB, LBC, LBR, LBMF Series	Standard test conditions Unless specified, Ambient temperature is $20 \pm 15^\circ\text{C}$ and the Relative humidity is $65 \pm 20\%$. If there is any doubt about the test results, further measurement shall be had within the following limits: Ambient Temperature: $20 \pm 2^\circ\text{C}$ Relative humidity: $65 \pm 5\%$ Inductance value is based on our standard measurement systems.
	CB, CBC, CBL, CBMF Series	
	LBM Series	

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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. The products described in this specification are intended for use in general electronic equipment, (office supply equipment, telecommunications systems, measuring equipment, and household equipment). They are not intended for use in mission-critical equipment or systems requiring special quality and high reliability (traffic systems, safety equipment, aerospace systems, nuclear control systems and medical equipment including life-support systems,) where product failure might result in loss of life, injury or damage. For such uses, contact TAIYO YUDEN Sales Department in advance.</p>
2. PCB Design	
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"> • Mounting and soldering conditions should be checked beforehand. • Applicable soldering process to those products is reflow soldering only.
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"> ◆ Handling <ol style="list-style-type: none"> 1. Keep the inductors away from all magnets and magnetic objects. ◆ Breakaway PC boards (splitting along perforations) <ol style="list-style-type: none"> 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 <ol style="list-style-type: none"> 1. Please do not give the inductors any excessive mechanical shocks.
Technical considerations	<ul style="list-style-type: none"> ◆ Handling <ol style="list-style-type: none"> 1. There is a case that a characteristic varies with magnetic influence. ◆ Breakaway PC boards (splitting along perforations) <ol style="list-style-type: none"> 1. Planning pattern configurations and the position of products should be carefully performed to minimize stress. ◆ Mechanical considerations <ol style="list-style-type: none"> 1. There is a case to be damaged by a mechanical shock.
7. Storage conditions	
Precautions	<ul style="list-style-type: none"> ◆ Storage <ol style="list-style-type: none"> 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"> • Recommended conditions Ambient temperature: 0~40°C / Humidity: Below 70% RH <p>The ambient temperature must be kept below 30°C even under ideal storage conditions, solderability of products electrodes may decrease as time passes. For this reason, Should be used within 6 months from the time of delivery.</p>
Technical considerations	<ul style="list-style-type: none"> ◆ Storage <ol style="list-style-type: none"> 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.