有关敝公司产品的注意事项

请务必在使用敝公司产品之前阅读。

⚠ 注 意

产品目录中的记载内容

本产品目录中所记载的内容为2023年3月的内容。因产品改良等原因，可能会不经预告而变更其记载内容，或是停止供应本产品目录中所记载的产品。所以，请务必在使用前先确认最新的产品信息。

未按照本产品目录中所记载的内容或交货规格说明书使用敝公司产品的，即便其致使用设备发生损害、不良情况等时，敝公司也不承担任何责任，敬请知悉。

签署交货规格说明书

就本产品目录中所记载产品的产品规格等相关内容，敝公司备有交货规格说明书，详情请向敝公司咨询。在使用敝公司产品前请务必就交货规格说明书之内容确认并批准之。

实装前的事前评估

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

用途的限定

1. 可以使用的设备

本产品目录中所记载的产品预设为使用于一般民用电子设备［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）］以及面向本产品目录或是交货规格说明书中另行注明的设备或是敝公司另行承诺的设备的通用性，标准性用途。另外，面向下述设备的应用，敝公司也备有预设的产品系列，请参考本产品目录或是交货规格说明书的内容，使用相对应的产品。

用途	产品系列		品质等级(注释3)
	对象设备(注释1)	规格号（型号标记(注释2)）	
车载	汽车用电子设备（控制系 / 安全系）	A	1
	汽车用电子设备（车身系 / 情报系）	C	2
工业	通信基础设备·工业设备	B	2
医疗	医疗设备（国际（GHTF）第三类）	M	2
	医疗设备（国际（GHTF）第一类、第二类）	L	3
民用	一般电子设备	S	3
	移动设备专用(注释4)	E	4

注释1：基于敝公司所认知的该类设备对于电子元器件所需的一般要求规格，对于该产品系列进行的应用推荐。在讨论将各个产品系列使用在对象设备以外的设备上时，请务必事先向敝公司咨询。

注释2：在产品型号中左起第2位标注有上表中所记载的“规格号”。对于相关的详细内容，请参照有关各产品型号标示法的说明资料。

注释3：在各产品系列中，都设定了从上至下1至4的“品质等级”。另外，在未得到敝公司的事前书面承诺之前，请勿将敝公司的产品使用于相对于该产品的品质等级被设定为上位品质等级的设备。

注释4：本产品系列仅可应用于一般民用电子设备中的移动设备（智能手机、平板电脑、智能手表、掌上游戏机等）。由于其设计、规格和使用环境与面向“一般电子设备”的产品系列（规格号：S）不同，有关本产品系列的详细信息请参照交货规格说明书。另外，面向“一般电子设备”的产品系列（规格号：S）也可以应用于移动设备。

▶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，若考虑使用敝公司产品时，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)，请参阅敝公司网站(http://www.ty-top.com/)。

2. 需要另行确认的设备

若考虑将本产品目录中所记载的产品使用于当产品发生故障、品质不良，或是由此引起的运转失常而可能会危及生命、身体或是财产，以及有可能给社会造成深刻影响的以下设备（不包括本产品目录或是交货规格说明书中另行注明可以使用设备）等时，请务必事先向敝公司咨询。

(1) 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）
(2) 交通信号设备
(3) 防灾 / 保安设备
(4) 医疗设备（国际（GHTF）第三类）
(5) 高公共性信息通讯设备 / 信息处理设备（电话交换机、电话 / 无线 / 广播电视基站等）
(6) 其他与上述设备有同等品质与可靠性要求的设备

3. 禁止使用的设备

请勿将敝公司产品使用于对安全性和可靠性有着极高要求的以下设备。

(1) 航天设备（人工卫星、火箭等）
(2) 航空设备(注释1)
(3) 医疗设备（国际（GHTF）第四类）、植体（体内植入型）医疗设备(注释2)
(4) 发电控制设备（面向核能 / 水力 / 火力发电厂等的设备）
(5) 海底设备（海底中继设备、海中的作业设备等）
(6) 军事设备
(7) 其他与上述设备有同等品质与可靠性要求的设备

注释1：仅限于对航空设备的安全运行不产生直接干扰的设备［机内娱乐设备、机内照明设备、电动座椅、餐饮设备等］，在满足敝公司另行指定的相关条件时，亦可将敝公司产品用于以上用途。在贵公司考虑将敝公司的产品用于以上用途时，请务必事先向敝公司咨询相关的信息。

注释2：包括注入人体内的部分和与此相连接的体外部分。

4. 责任的限制

未经敝公司的事先书面同意，把本产品目录中所记载的产品使用于非敝公司预设用途的设备、前述需要向敝公司咨询的设备或敝公司禁止使用的设备，从而给客户或第三方造成损害的，敝公司不承担任何责任，敬请知悉。

安全设计

需将敝公司的产品使用于对安全性和可靠性要求较高的设备、电路上时，请进行充分的安全性评估和可靠性评估。另外，请通过设置保护电路、保护装置的系统，设置冗余电路不会被单一故障影响安全性的系统等失效导向安全（fail-safe）设计，确保充分的安全性。

有关知识产权

本产品目录中所记载的信息是用于说明相关产品的典型操作以及相关应用。此类信息的使用不代表对于敝公司以及第三方的知识产权以及其他权利的使用许可或是不侵权保证。

保证范围

敝公司产品的保证范围仅限于符合交货规格说明书中所记载的产品规格且已经交付的敝公司产品本身，由敝公司产品的故障或不良情况所诱发的损害，敝公司不承担任何责任，敬请知悉。但是，仅限于敝公司的产品作为通用性，标准性用途使用于本产品目录或是交货规格说明书中另行注明的设备，且以书面形式另行签署了交易基本合同书，品质保证协定书等时，敝公司将根据该合同等的条件提供保证。

正规销售渠道

本产品目录中所记载的内容适用于从敝公司营业所、销售子公司、销售代理店（即“正规销售渠道”）购买的敝公司产品，并不适用于从其他渠道购买的敝公司产品，敬请知悉。

出口时的注意事项

本产品目录中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》以及美国在出口管理方面的相关法规，并办理相关手续。如有不明之处，请向敝公司咨询。

▶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，若考虑使用敝公司产品时，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)，请参阅敝公司网站(http://www.ty-top.com/)。

一般民生用 绕线型铁氧体系电感器 LSQB/LSQC/LSQE 系列

系列前的记号来自型号，用来区分产品的种类和特性等。

回流焊

■型号标示法

*使用温度范围：-40～+105℃（包含产品本身发热）

L S Q B	A	2 0 1 2	1 2	T	1 0 0	M		
①	②	③	④	⑤	⑥	⑦	⑧	⑨

①系列

代码 (1) (2) (3) (4)	
LSQB	一般民生用 绕线型铁氧体系电感器
LSQC	一般民生用 绕线型铁氧体系电感器
LSQE	一般民生用 绕线型铁氧体系电感器

(1) 产品群

代码	
L	电感器

(2) 范畴

代码	推荐设备	品质等级
S	一般民生用电子设备	3

(3) 类型

代码	
Q	绕线型铁氧体系 横型

(4) 特效 / 特性

代码	
B	一般
C	大电流
E	低 Rdc

②特征

代码	特征
A	5 面电极（树脂银×镀锡）
B	L 字电极（树脂银×镀锡）

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
3218	3218（1207）	3.2×1.8
3225	3225（1210）	3.2×2.5

④尺寸（T）

代码	尺寸（T）[mm]
08	0.8
12	1.25
16	1.6
18	1.8
25	2.5

⑤包装

代码	包装
T	卷盘带装

⑥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

⑦电感量公差

代码	电感量公差
K	±10%
M	±20%

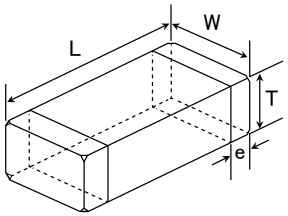
⑧个别规格

代码	个别规格
R	低 Rdc 品

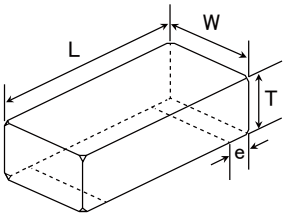
⑨管理记号

■标准外型尺寸 / 标准数量

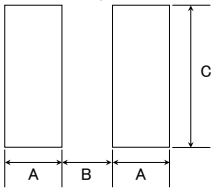
5 面电极产品



L 字电极品



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
A1608	0.55	0.7	0.9
B1608	0.55	0.7	1.0
A2012	0.60	1.0	1.45
A2016	0.60	1.0	1.8
A2518	0.60	1.5	2.0
A3218	0.85	1.7	2.0
A3225	0.85	1.7	2.7

单位：mm

Type	L	W	T	e	标准数量［pcs］	
					纸带	压模带
A160808	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	—
B160808	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
A201212	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
A201616	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
A251818	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
A321818	3.2±0.2 (0.126±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
A322525	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）

■PART NUMBER

●1608(0603) type

New part number	Old part number (for reference)	EHS	Nominal inductance [μH]	Inductance tolerance	Self-resonant frequency [MHz] (min.)	DC Resistance [Ω] (±30%)	Rated current [mA] (max.)	Measuring frequency [MHz]
LSQBA160808T1R0M	LB 1608T1R0M	RoHS	1.0	±20%	100	0.17	160	7.96
LSQBA160808T2R2M	LB 1608T2R2M	RoHS	2.2	±20%	80	0.33	115	7.96
LSQBA160808T4R7M	LB 1608T4R7M	RoHS	4.7	±20%	45	0.55	70	7.96
LSQBA160808T8R2M	LB 1608T8R2M	RoHS	8.2	±20%	32	0.70	60	2.52
LSQBA160808T100M	LB 1608T100M	RoHS	10	±20%	32	0.70	60	2.52

New part number	Old part number (for reference)	EHS	Nominal inductance [μH]	Inductance tolerance	Self-resonant frequency [MHz] (min.)	DC Resistance [Ω] (±30%)	Rated current [mA] (max.)	Measuring frequency [MHz]
LSQBB160808T1R0M	LBMF1608T1R0M	RoHS	1.0	±20%	100	0.09	230	7.96
LSQBB160808T2R2M	LBMF1608T2R2M	RoHS	2.2	±20%	80	0.17	160	7.96
LSQBB160808T3R3M	LBMF1608T3R3M	RoHS	3.3	±20%	60	0.22	130	7.96
LSQBB160808T4R7M	LBMF1608T4R7M	RoHS	4.7	±20%	45	0.24	110	7.96
LSQBB160808T100K	LBMF1608T100K	RoHS	10	±10%	32	0.36	80	2.52
LSQBB160808T100M	LBMF1608T100M	RoHS	10	±20%	32	0.36	80	2.52
LSQBB160808T220K	LBMF1608T220K	RoHS	22	±10%	16	1.0	50	2.52
LSQBB160808T220M	LBMF1608T220M	RoHS	22	±20%	16	1.0	50	2.52
LSQBB160808T470K	LBMF1608T470K	RoHS	47	±10%	11	2.5	35	2.52
LSQBB160808T470M	LBMF1608T470M	RoHS	47	±20%	11	2.5	35	2.52

●2012(0805) type

New part number	Old part number (for reference)	EHS	Nominal inductance [μH]	Inductance tolerance	Self-resonant frequency [MHz] (min.)	DC Resistance [Ω] (±30%)	Rated current [mA] (max.)	Measuring frequency [MHz]
LSQBA201212T1R0M	LB 2012T1R0M	RoHS	1.0	±20%	100	0.15	405	7.96
LSQBA201212T2R2M	LB 2012T2R2M	RoHS	2.2	±20%	80	0.23	260	7.96
LSQBA201212T3R3M	LB 2012T3R3M	RoHS	3.3	±20%	55	0.30	235	7.96
LSQBA201212T4R7M	LB 2012T4R7M	RoHS	4.7	±20%	45	0.40	190	7.96
LSQBA201212T6R8M	LB 2012T6R8M	RoHS	6.8	±20%	38	0.47	135	7.96
LSQBA201212T100K	LB 2012T100K	RoHS	10	±10%	32	0.70	120	2.52
LSQBA201212T100M	LB 2012T100M	RoHS	10	±20%	32	0.70	120	2.52
LSQBA201212T100KR	LB 2012T100KR	RoHS	10	±10%	32	0.50	120	2.52
LSQBA201212T100MR	LB 2012T100MR	RoHS	10	±20%	32	0.50	120	2.52
LSQBA201212T150K	LB 2012T150K	RoHS	15	±10%	28	1.3	100	2.52
LSQBA201212T150M	LB 2012T150M	RoHS	15	±20%	28	1.3	100	2.52
LSQBA201212T220K	LB 2012T220K	RoHS	22	±10%	16	1.7	80	2.52
LSQBA201212T220M	LB 2012T220M	RoHS	22	±20%	16	1.7	80	2.52
LSQBA201212T470K	LB 2012T470K	RoHS	47	±10%	11	3.7	60	2.52
LSQBA201212T470M	LB 2012T470M	RoHS	47	±20%	11	3.7	60	2.52
LSQBA201212T680K	LB 2012T680K	RoHS	68	±10%	10	6.0	50	2.52
LSQBA201212T680M	LB 2012T680M	RoHS	68	±20%	10	6.0	50	2.52
LSQBA201212T101K	LB 2012T101K	RoHS	100	±10%	8	7.0	45	0.796
LSQBA201212T101M	LB 2012T101M	RoHS	100	±20%	8	7.0	45	0.796

New part number	Old part number (for reference)	EHS	Nominal inductance [μH]	Inductance tolerance	Self-resonant frequency [MHz] (min.)	DC Resistance [Ω] (±30%)	Rated current [mA] (max.)	Measuring frequency [MHz]
LSQCA201212T1R0M	LB C2012T1R0M	RoHS	1.0	±20%	100	0.19	620	7.96
LSQCA201212T2R2M	LB C2012T2R2M	RoHS	2.2	±20%	70	0.33	430	7.96
LSQCA201212T4R7M	LB C2012T4R7M	RoHS	4.7	±20%	45	0.50	295	7.96
LSQCA201212T100K	LB C2012T100K	RoHS	10	±10%	40	1.2	200	2.52
LSQCA201212T100M	LB C2012T100M	RoHS	10	±20%	40	1.2	200	2.52
LSQCA201212T220K	LB C2012T220K	RoHS	22	±10%	16	3.7	130	2.52
LSQCA201212T220M	LB C2012T220M	RoHS	22	±20%	16	3.7	130	2.52
LSQCA201212T470K	LB C2012T470K	RoHS	47	±10%	11	5.8	90	2.52
LSQCA201212T470M	LB C2012T470M	RoHS	47	±20%	11	5.8	90	2.52

New part number	Old part number (for reference)	EHS	Nominal inductance [μH]	Inductance tolerance	Self-resonant frequency [MHz] (min.)	DC Resistance [Ω] (±30%)	Rated current [mA] (max.)	Measuring frequency [MHz]
LSQEA201212T1R0M	LB R2012T1R0M	RoHS	1.0	±20%	100	0.07	400	7.96
LSQEA201212T2R2M	LB R2012T2R2M	RoHS	2.2	±20%	80	0.13	260	7.96
LSQEA201212T4R7M	LB R2012T4R7M	RoHS	4.7	±20%	45	0.24	200	7.96
LSQEA201212T100K	LB R2012T100K	RoHS	10	±10%	32	0.36	150	2.52
LSQEA201212T100M	LB R2012T100M	RoHS	10	±20%	32	0.36	150	2.52
LSQEA201212T220K	LB R2012T220K	RoHS	22	±10%	16	1.0	100	2.52
LSQEA201212T220M	LB R2012T220M	RoHS	22	±20%	16	1.0	100	2.52
LSQEA201212T470K	LB R2012T470K	RoHS	47	±10%	11	1.7	75	2.52
LSQEA201212T470M	LB R2012T470M	RoHS	47	±20%	11	1.7	75	2.52
LSQEA201212T101K	LB R2012T101K	RoHS	100	±10%	8	4.0	50	0.796
LSQEA201212T101M	LB R2012T101M	RoHS	100	±20%	8	4.0	50	0.796

LSQB/LSQC series
Rated Current : The maximum DC value having inductance decrease within 10 % and temperature increase within 20 degC by the application of DC bias.

LSQE series
Rated Current : The maximum DC value having inductance decrease within 20 % and temperature increase within 20 degC by the application of DC bias.

■PART NUMBER

●2016(0806) type

New part number	Old part number (for reference)	EHS	Nominal inductance [μH]	Inductance tolerance	Self-resonant frequency [MHz] (min.)	DC Resistance [Ω] (±30%)	Rated current [mA] (max.)	Measuring frequency [MHz]
LSQBA201616T1R0M	LB 2016T1R0M	RoHS	1.0	±20%	100	0.09	490	7.96
LSQBA201616T1R5M	LB 2016T1R5M	RoHS	1.5	±20%	80	0.11	380	7.96
LSQBA201616T2R2M	LB 2016T2R2M	RoHS	2.2	±20%	70	0.13	375	7.96
LSQBA201616T3R3M	LB 2016T3R3M	RoHS	3.3	±20%	55	0.20	285	7.96
LSQBA201616T4R7M	LB 2016T4R7M	RoHS	4.7	±20%	45	0.25	225	7.96
LSQBA201616T6R8M	LB 2016T6R8M	RoHS	6.8	±20%	38	0.35	200	7.96
LSQBA201616T100K	LB 2016T100K	RoHS	10	±10%	32	0.50	155	2.52
LSQBA201616T100M	LB 2016T100M	RoHS	10	±20%	32	0.50	155	2.52
LSQBA201616T150K	LB 2016T150K	RoHS	15	±10%	28	0.70	130	2.52
LSQBA201616T150M	LB 2016T150M	RoHS	15	±20%	28	0.70	130	2.52
LSQBA201616T220K	LB 2016T220K	RoHS	22	±10%	16	1.0	105	2.52
LSQBA201616T220M	LB 2016T220M	RoHS	22	±20%	16	1.0	105	2.52
LSQBA201616T330K	LB 2016T330K	RoHS	33	±10%	14	1.7	85	2.52
LSQBA201616T330M	LB 2016T330M	RoHS	33	±20%	14	1.7	85	2.52
LSQBA201616T470K	LB 2016T470K	RoHS	47	±10%	11	2.4	70	2.52
LSQBA201616T470M	LB 2016T470M	RoHS	47	±20%	11	2.4	70	2.52
LSQBA201616T680K	LB 2016T680K	RoHS	68	±10%	10	3.0	55	2.52
LSQBA201616T680M	LB 2016T680M	RoHS	68	±20%	10	3.0	55	2.52
LSQBA201616T101K	LB 2016T101K	RoHS	100	±10%	8	4.5	40	0.796
LSQBA201616T101M	LB 2016T101M	RoHS	100	±20%	8	4.5	40	0.796

New part number	Old part number (for reference)	EHS	Nominal inductance [μH]	Inductance tolerance	Self-resonant frequency [MHz] (min.)	DC Resistance [Ω] (±30%)	Rated current [mA] (max.)	Measuring frequency [MHz]
LSQCA201616T1R0M	LB C2016T1R0M	RoHS	1.0	±20%	100	0.10	690	7.96
LSQCA201616T1R5M	LB C2016T1R5M	RoHS	1.5	±20%	80	0.15	600	7.96
LSQCA201616T2R2M	LB C2016T2R2M	RoHS	2.2	±20%	70	0.20	520	7.96
LSQCA201616T3R3M	LB C2016T3R3M	RoHS	3.3	±20%	55	0.27	410	7.96
LSQCA201616T4R7M	LB C2016T4R7M	RoHS	4.7	±20%	45	0.37	355	7.96
LSQCA201616T6R8M	LB C2016T6R8M	RoHS	6.8	±20%	38	0.59	290	7.96
LSQCA201616T100K	LB C2016T100K	RoHS	10	±10%	32	0.82	245	2.52
LSQCA201616T100M	LB C2016T100M	RoHS	10	±20%	32	0.82	245	2.52
LSQCA201616T150K	LB C2016T150K	RoHS	15	±10%	28	1.2	200	2.52
LSQCA201616T150M	LB C2016T150M	RoHS	15	±20%	28	1.2	200	2.52
LSQCA201616T220K	LB C2016T220K	RoHS	22	±10%	16	1.8	165	2.52
LSQCA201616T220M	LB C2016T220M	RoHS	22	±20%	16	1.8	165	2.52
LSQCA201616T330K	LB C2016T330K	RoHS	33	±10%	14	2.8	135	2.52
LSQCA201616T330M	LB C2016T330M	RoHS	33	±20%	14	2.8	135	2.52
LSQCA201616T470K	LB C2016T470K	RoHS	47	±10%	11	4.3	110	2.52
LSQCA201616T470M	LB C2016T470M	RoHS	47	±20%	11	4.3	110	2.52
LSQCA201616T680K	LB C2016T680K	RoHS	68	±10%	10	7.0	95	2.52
LSQCA201616T680M	LB C2016T680M	RoHS	68	±20%	10	7.0	95	2.52
LSQCA201616T101K	LB C2016T101K	RoHS	100	±10%	8	8.0	75	0.796
LSQCA201616T101M	LB C2016T101M	RoHS	100	±20%	8	8.0	75	0.796

●2518(1007) type

New part number	Old part number (for reference)	EHS	Nominal inductance [μH]	Inductance tolerance	Self-resonant frequency [MHz] (min.)	DC Resistance [Ω] (±30%)	Rated current [mA] (max.)	Measuring frequency [MHz]
LSQBA251818T1R0M	LB 2518T1R0M	RoHS	1.0	±20%	100	0.06	665	7.96
LSQBA251818T1R5M	LB 2518T1R5M	RoHS	1.5	±20%	80	0.07	405	7.96
LSQBA251818T2R2M	LB 2518T2R2M	RoHS	2.2	±20%	68	0.09	340	7.96
LSQBA251818T3R3M	LB 2518T3R3M	RoHS	3.3	±20%	54	0.11	280	7.96
LSQBA251818T4R7M	LB 2518T4R7M	RoHS	4.7	±20%	46	0.13	240	7.96
LSQBA251818T4R7MR	LB 2518T4R7MR	RoHS	4.7	±20%	46	0.10	235	7.96
LSQBA251818T6R8M	LB 2518T6R8M	RoHS	6.8	±20%	38	0.15	195	7.96
LSQBA251818T100K	LB 2518T100K	RoHS	10	±10%	30	0.25	165	2.52
LSQBA251818T100M	LB 2518T100M	RoHS	10	±20%	30	0.25	165	2.52
LSQBA251818T150K	LB 2518T150K	RoHS	15	±10%	23	0.32	145	2.52
LSQBA251818T150M	LB 2518T150M	RoHS	15	±20%	23	0.32	145	2.52
LSQBA251818T220K	LB 2518T220K	RoHS	22	±10%	19	0.50	115	2.52
LSQBA251818T220M	LB 2518T220M	RoHS	22	±20%	19	0.50	115	2.52
LSQBA251818T330K	LB 2518T330K	RoHS	33	±10%	15	0.70	95	2.52
LSQBA251818T330M	LB 2518T330M	RoHS	33	±20%	15	0.70	95	2.52
LSQBA251818T470K	LB 2518T470K	RoHS	47	±10%	12	0.95	85	2.52
LSQBA251818T470M	LB 2518T470M	RoHS	47	±20%	12	0.95	85	2.52
LSQBA251818T680K	LB 2518T680K	RoHS	68	±10%	9.5	1.5	70	2.52
LSQBA251818T680M	LB 2518T680M	RoHS	68	±20%	9.5	1.5	70	2.52
LSQBA251818T101K	LB 2518T101K	RoHS	100	±10%	9.0	2.1	60	0.796
LSQBA251818T101M	LB 2518T101M	RoHS	100	±20%	9.0	2.1	60	0.796
LSQBA251818T151K	LB 2518T151K	RoHS	150	±10%	7.0	3.2	45	0.796
LSQBA251818T151M	LB 2518T151M	RoHS	150	±20%	7.0	3.2	45	0.796
LSQBA251818T221K	LB 2518T221K	RoHS	220	±10%	5.5	4.5	40	0.796
LSQBA251818T221M	LB 2518T221M	RoHS	220	±20%	5.5	4.5	40	0.796
LSQBA251818T331K	LB 2518T331K	RoHS	330	±10%	4.5	7.0	30	0.796
LSQBA251818T331M	LB 2518T331M	RoHS	330	±20%	4.5	7.0	30	0.796
LSQBA251818T471K	LB 2518T471K	RoHS	470	±10%	3.5	10	25	0.796
LSQBA251818T471M	LB 2518T471M	RoHS	470	±20%	3.5	10	25	0.796
LSQBA251818T681K	LB 2518T681K	RoHS	680	±10%	3.0	17	20	0.796
LSQBA251818T681M	LB 2518T681M	RoHS	680	±20%	3.0	17	20	0.796
LSQBA251818T102K	LB 2518T102K	RoHS	1000	±10%	2.4	24	15	0.252
LSQBA251818T102M	LB 2518T102M	RoHS	1000	±20%	2.4	24	15	0.252

LSQB/LSQC series
Rated Current : The maximum DC value having inductance decrease within 10 % and temperature increase within 20 degC by the application of DC bias.

LSQE series
Rated Current : The maximum DC value having inductance decrease within 20 % and temperature increase within 20 degC by the application of DC bias.

■PART NUMBER

New part number	Old part number (for reference)	EHS	Nominal inductance [μH]	Inductance tolerance	Self-resonant frequency [MHz] (min.)	DC Resistance [Ω] (±30%)	Rated current [mA] (max.)	Measuring frequency [MHz]
LSQCA251818T1R0M	LB C2518T1R0M	RoHS	1.0	±20%	100	0.08	775	7.96
LSQCA251818T1R0MR	LB C2518T1R0MR	RoHS	1.0	±20%	100	0.07	890	7.96
LSQCA251818T1R5M	LB C2518T1R5M	RoHS	1.5	±20%	80	0.11	730	7.96
LSQCA251818T2R2M	LB C2518T2R2M	RoHS	2.2	±20%	68	0.13	630	7.96
LSQCA251818T3R3M	LB C2518T3R3M	RoHS	3.3	±20%	54	0.16	560	7.96
LSQCA251818T4R7M	LB C2518T4R7M	RoHS	4.7	±20%	41	0.20	510	7.96
LSQCA251818T6R8M	LB C2518T6R8M	RoHS	6.8	±20%	38	0.30	420	7.96
LSQCA251818T100K	LB C2518T100K	RoHS	10	±10%	30	0.36	375	2.52
LSQCA251818T100M	LB C2518T100M	RoHS	10	±20%	30	0.36	375	2.52
LSQCA251818T150K	LB C2518T150K	RoHS	15	±10%	23	0.65	285	2.52
LSQCA251818T150M	LB C2518T150M	RoHS	15	±20%	23	0.65	285	2.52
LSQCA251818T220K	LB C2518T220K	RoHS	22	±10%	19	0.77	250	2.52
LSQCA251818T220M	LB C2518T220M	RoHS	22	±20%	19	0.77	250	2.52
LSQCA251818T330K	LB C2518T330K	RoHS	33	±10%	15	1.5	185	2.52
LSQCA251818T330M	LB C2518T330M	RoHS	33	±20%	15	1.5	185	2.52
LSQCA251818T470K	LB C2518T470K	RoHS	47	±10%	12	1.9	165	2.52
LSQCA251818T470M	LB C2518T470M	RoHS	47	±20%	12	1.9	165	2.52
LSQCA251818T680K	LB C2518T680K	RoHS	68	±10%	9.5	2.8	140	2.52
LSQCA251818T680M	LB C2518T680M	RoHS	68	±20%	9.5	2.8	140	2.52
LSQCA251818T101K	LB C2518T101K	RoHS	100	±10%	9.0	3.7	125	0.796
LSQCA251818T101M	LB C2518T101M	RoHS	100	±20%	9.0	3.7	125	0.796
LSQCA251818T151K	LB C2518T151K	RoHS	150	±10%	7.0	6.1	95	0.796
LSQCA251818T151M	LB C2518T151M	RoHS	150	±20%	7.0	6.1	95	0.796
LSQCA251818T221K	LB C2518T221K	RoHS	220	±10%	5.5	8.4	80	0.796
LSQCA251818T221M	LB C2518T221M	RoHS	220	±20%	5.5	8.4	80	0.796
LSQCA251818T331K	LB C2518T331K	RoHS	330	±10%	4.5	12.3	65	0.796
LSQCA251818T331M	LB C2518T331M	RoHS	330	±20%	4.5	12.3	65	0.796
LSQCA251818T471K	LB C2518T471K	RoHS	470	±10%	3.5	22	50	0.796
LSQCA251818T471M	LB C2518T471M	RoHS	470	±20%	3.5	22	50	0.796
LSQCA251818T681K	LB C2518T681K	RoHS	680	±10%	3.0	28	45	0.796
LSQCA251818T681M	LB C2518T681M	RoHS	680	±20%	3.0	28	45	0.796

New part number	Old part number (for reference)	EHS	Nominal inductance [μH]	Inductance tolerance	Self-resonant frequency [MHz] (min.)	DC Resistance [Ω] (±30%)	Rated current [mA] (max.)	Measuring frequency [MHz]
LSQEA251818T1R0M	LB R2518T1R0M	RoHS	1.0	±20%	100	0.045	960	7.96
LSQEA251818T2R2M	LB R2518T2R2M	RoHS	2.2	±20%	68	0.07	480	7.96
LSQEA251818T4R7M	LB R2518T4R7M	RoHS	4.7	±20%	45	0.10	345	7.96
LSQEA251818T100K	LB R2518T100K	RoHS	10	±10%	30	0.19	235	2.52
LSQEA251818T100M	LB R2518T100M	RoHS	10	±20%	30	0.19	235	2.52
LSQEA251818T220K	LB R2518T220K	RoHS	22	±10%	19	0.44	175	2.52
LSQEA251818T220M	LB R2518T220M	RoHS	22	±20%	19	0.44	175	2.52
LSQEA251818T470K	LB R2518T470K	RoHS	47	±10%	11	0.84	120	2.52
LSQEA251818T470M	LB R2518T470M	RoHS	47	±20%	11	0.84	120	2.52
LSQEA251818T101K	LB R2518T101K	RoHS	100	±10%	9	1.89	80	0.796
LSQEA251818T101M	LB R2518T101M	RoHS	100	±20%	9	1.89	80	0.796

●3218(1207) type

New part number	Old part number (for reference)	EHS	Nominal inductance [μH]	Inductance tolerance	Self-resonant frequency [MHz] (min.)	DC Resistance [Ω] (±30%)	Rated current [mA] (max.)	Measuring frequency [MHz]
LSQBA321818T1R0M	LB 3218T1R0M	RoHS	1.0	±20%	100	0.06	1,075	7.96
LSQBA321818T1R5M	LB 3218T1R5M	RoHS	1.5	±20%	80	0.07	860	7.96
LSQBA321818T2R2M	LB 3218T2R2M	RoHS	2.2	±20%	68	0.09	775	7.96
LSQBA321818T3R3M	LB 3218T3R3M	RoHS	3.3	±20%	54	0.11	560	7.96
LSQBA321818T4R7M	LB 3218T4R7M	RoHS	4.7	±20%	41	0.13	550	7.96
LSQBA321818T6R8M	LB 3218T6R8M	RoHS	6.8	±20%	40	0.17	380	7.96
LSQBA321818T100K	LB 3218T100K	RoHS	10	±10%	30	0.25	340	2.52
LSQBA321818T100M	LB 3218T100M	RoHS	10	±20%	30	0.25	340	2.52
LSQBA321818T150K	LB 3218T150K	RoHS	15	±10%	25	0.32	300	2.52
LSQBA321818T150M	LB 3218T150M	RoHS	15	±20%	25	0.32	300	2.52
LSQBA321818T220K	LB 3218T220K	RoHS	22	±10%	19	0.49	255	2.52
LSQBA321818T220M	LB 3218T220M	RoHS	22	±20%	19	0.49	255	2.52
LSQBA321818T330K	LB 3218T330K	RoHS	33	±10%	15	0.75	215	2.52
LSQBA321818T330M	LB 3218T330M	RoHS	33	±20%	15	0.75	215	2.52
LSQBA321818T470K	LB 3218T470K	RoHS	47	±10%	12	0.92	205	2.52
LSQBA321818T470M	LB 3218T470M	RoHS	47	±20%	12	0.92	205	2.52
LSQBA321818T680K	LB 3218T680K	RoHS	68	±10%	11	1.49	145	2.52
LSQBA321818T680M	LB 3218T680M	RoHS	68	±20%	11	1.49	145	2.52
LSQBA321818T101K	LB 3218T101K	RoHS	100	±10%	8.0	2.4	140	0.796
LSQBA321818T101M	LB 3218T101M	RoHS	100	±20%	8.0	2.4	140	0.796
LSQBA321818T151K	LB 3218T151K	RoHS	150	±10%	7.0	3.2	105	0.796
LSQBA321818T151M	LB 3218T151M	RoHS	150	±20%	7.0	3.2	105	0.796
LSQBA321818T221K	LB 3218T221K	RoHS	220	±10%	5.0	5.4	80	0.796
LSQBA321818T221M	LB 3218T221M	RoHS	220	±20%	5.0	5.4	80	0.796
LSQBA321818T331K	LB 3218T331K	RoHS	330	±10%	4.0	7.0	65	0.796
LSQBA321818T331M	LB 3218T331M	RoHS	330	±20%	4.0	7.0	65	0.796
LSQBA321818T471K	LB 3218T471K	RoHS	470	±10%	3.5	14	54	0.796
LSQBA321818T471M	LB 3218T471M	RoHS	470	±20%	3.5	14	54	0.796
LSQBA321818T681K	LB 3218T681K	RoHS	680	±10%	3.0	17	45	0.796
LSQBA321818T681M	LB 3218T681M	RoHS	680	±20%	3.0	17	45	0.796
LSQBA321818T102K	LB 3218T102K	RoHS	1000	±10%	2.4	27	39	0.252
LSQBA321818T102M	LB 3218T102M	RoHS	1000	±20%	2.4	27	39	0.252

LSQB/LSQC series
Rated Current : The maximum DC value having inductance decrease within 10 % and temperature increase within 20 degC by the application of DC bias.

LSQE series
Rated Current : The maximum DC value having inductance decrease within 20 % and temperature increase within 20 degC by the application of DC bias.

■PART NUMBER

●3225(1210) type

New part number	Old part number (for reference)	EHS	Nominal inductance [μH]	Inductance tolerance	Self-resonant frequency [MHz] (min.)	DC Resistance [Ω] (±30%)	Rated current [mA] (max.)	Measuring frequency [MHz]
LSQCA322525T1R0MR	LB C3225T1R0MR	RoHS	1.0	±20%	250	0.055	1,100	0.1
LSQCA322525T1R5MR	LB C3225T1R5MR	RoHS	1.5	±20%	220	0.060	1,000	0.1
LSQCA322525T2R2MR	LB C3225T2R2MR	RoHS	2.2	±20%	190	0.080	930	0.1
LSQCA322525T3R3MR	LB C3225T3R3MR	RoHS	3.3	±20%	160	0.095	820	0.1
LSQCA322525T4R7MR	LB C3225T4R7MR	RoHS	4.7	±20%	70	0.100	680	0.1
LSQCA322525T6R8MR	LB C3225T6R8MR	RoHS	6.8	±20%	50	0.120	620	0.1
LSQCA322525T100KR	LB C3225T100KR	RoHS	10	±10%	23	0.133	540	0.1
LSQCA322525T100MR	LB C3225T100MR	RoHS	10	±20%	23	0.133	540	0.1
LSQCA322525T150KR	LB C3225T150KR	RoHS	15	±10%	20	0.195	420	0.1
LSQCA322525T150MR	LB C3225T150MR	RoHS	15	±20%	20	0.195	420	0.1
LSQCA322525T220KR	LB C3225T220KR	RoHS	22	±10%	17	0.27	330	0.1
LSQCA322525T220MR	LB C3225T220MR	RoHS	22	±20%	17	0.27	330	0.1
LSQCA322525T330KR	LB C3225T330KR	RoHS	33	±10%	13	0.41	300	0.1
LSQCA322525T330MR	LB C3225T330MR	RoHS	33	±20%	13	0.41	300	0.1
LSQCA322525T470KR	LB C3225T470KR	RoHS	47	±10%	10	0.67	220	0.1
LSQCA322525T470MR	LB C3225T470MR	RoHS	47	±20%	10	0.67	220	0.1
LSQCA322525T680KR	LB C3225T680KR	RoHS	68	±10%	8	1.0	190	0.1
LSQCA322525T680MR	LB C3225T680MR	RoHS	68	±20%	8	1.0	190	0.1
LSQCA322525T101KR	LB C3225T101KR	RoHS	100	±10%	6	1.4	150	0.1
LSQCA322525T101MR	LB C3225T101MR	RoHS	100	±20%	6	1.4	150	0.1

LSQB/LSQC series
Rated Current : The maximum DC value having inductance decrease within 10 % and temperature increase within 20 degC by the application of DC bias.

LSQE series
Rated Current : The maximum DC value having inductance decrease within 20 % and temperature increase within 20 degC by the application of DC bias.

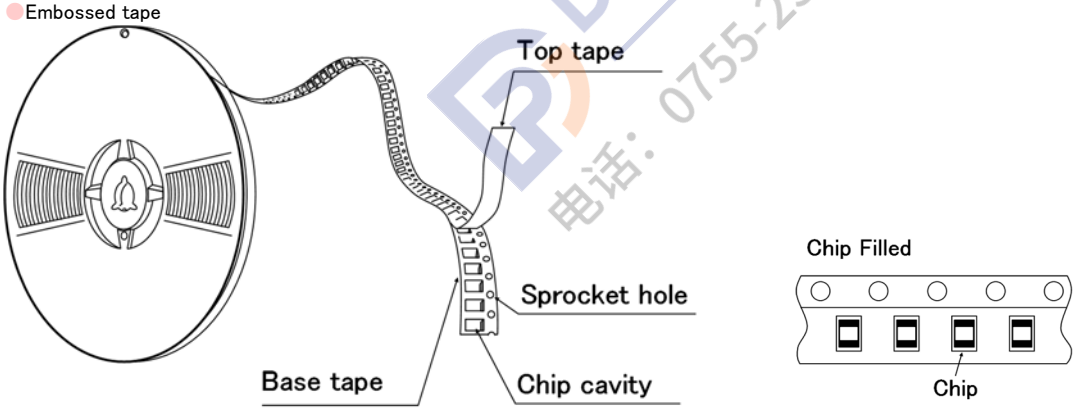
■PACKAGING

①Minimum Quantity

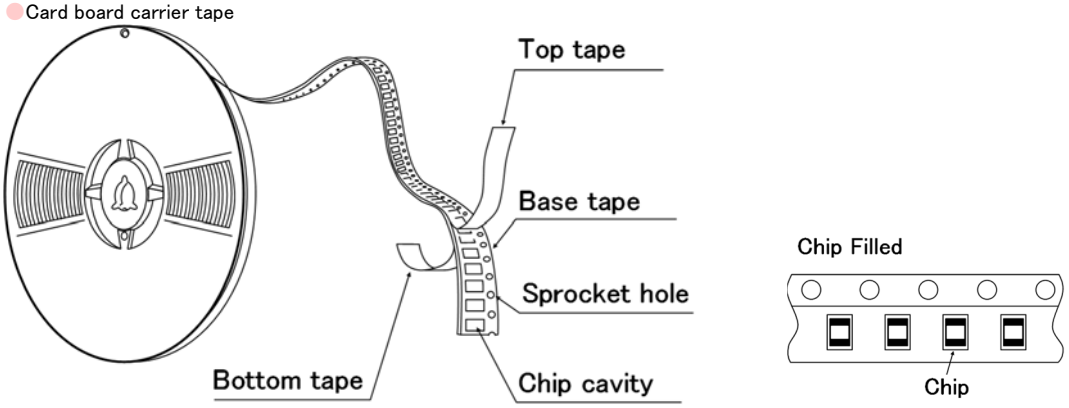
Type	Standard Quantity [pcs]	
	Paper Tape	Embossed Tape
A322525	—	1000
A321818	—	2000
A251818	—	2000
B201616 A201616	—	2000
A201212	—	3000
A201209	4000	—
A160808	4000	—
B160808	—	3000

②Tape material

●Embossed tape

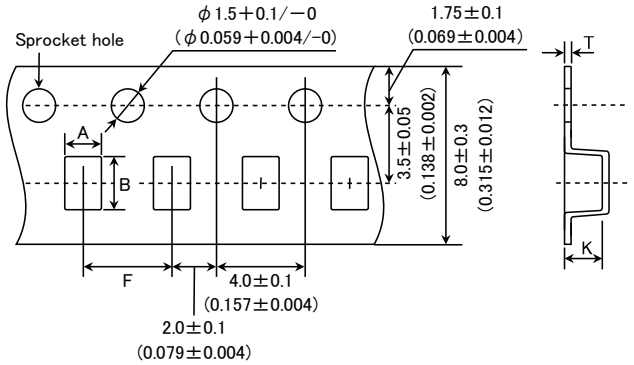


●Card board carrier tape



③Taping Dimensions

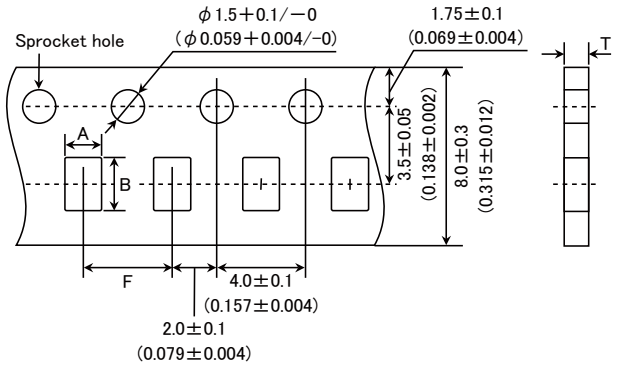
Embossed Tape (0.315 inches wide)



Type	Chip cavity		Insertion pitch	Tape thickness	
	A	B	F	T	K
B201616	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.)
A322525	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.)
A321818	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.)
A251818	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.)
A201616	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.)
A201212	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.)
B160808	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)

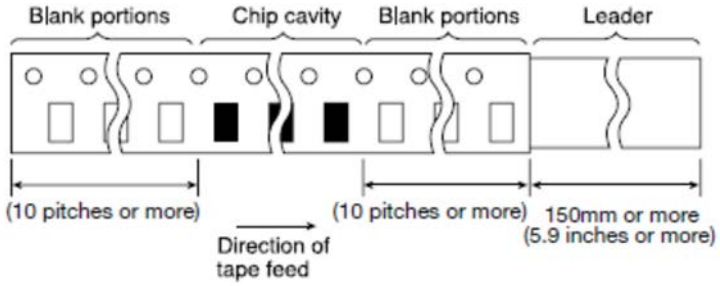
Card board carrier tape (0.315 inches wide)



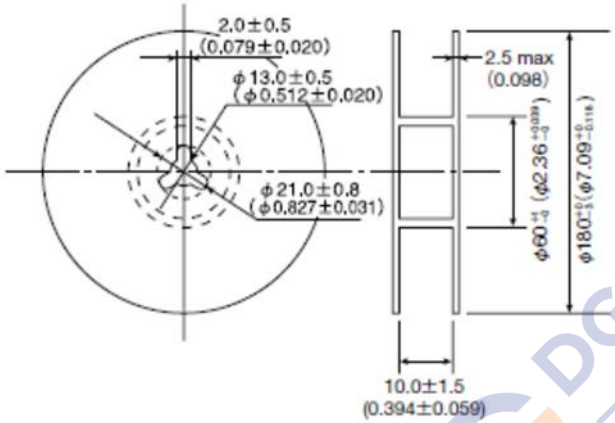
Type	Chip cavity		Insertion pitch	Tape thickness
	A	B	F	T
A201209	1.55±0.1 (0.061±0.004)	2.3±0.1 (0.091±0.004)	4.0±0.1 (0.157±0.004)	1.1max. (0.043max.)
A160808	1.0±0.1 (0.039±0.004)	1.8±0.1 (0.071±0.004)	4.0±0.1 (0.157±0.004)	1.1max. (0.043max.)

Unit : mm (inch)

④Leader and Blank Portion

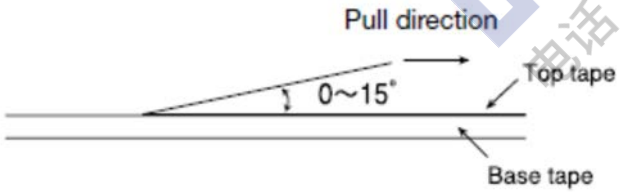


⑤Reel Size



⑥Top Tape Strength

The top tape requires a peel-off force 0.1 to 1.0N in the direction of the arrow as illustrated below.



Wire-wound Ferrite Inductors LSQB/LSQC/LSQE series
for General Electronic Equipment for Consumer
Wire-wound Ferrite Power Inductors LSQN/LSQPA series
for General Electronic Equipment for Consumer
Wire-wound Ferrite Inductors for Signal Lines LSQM series
for General Electronic Equipment for Consumer
Wire-wound Ferrite Inductors LLQB/LLQC/LLQE series
for Medical Devices classified as GHTF Classes A or B (Japan Classes I or II)
Wire-wound Ferrite Power Inductors LLQN/LLQPA series
for Medical Devices classified as GHTF Classes A or B (Japan Classes I or II)
Wire-wound Ferrite Inductors for Signal Lines LLQM series
for Medical Devices classified as GHTF Classes A or B (Japan Classes I or II)

■RELIABILITY DATA

1.Operating temperature Range	
Specified Value	−40～＋105℃(Including self-generated heat)

2. Storage Temperature Range(after soldering)	
Specified Value	−40～＋85℃
Test Methods and Remarks	Wire-wound Ferrite Inductors, Wire-wound Ferrite Power Inductors Please refer the term of "7. storage conditions" in precautions.

3.Rated Current	
Specified Value	Within the specified tolerance

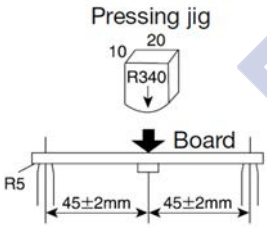
4.Inductance	
Specified Value	Within the specified tolerance
Test Methods and Remarks	Measuring equipment : LCR Mater(HP4285A or its equivalent) Measuring frequency : Specified frequency

5.Q	
Specified Value	Wire-wound Ferrite Inductors for Signal Lines: Within the specified tolerance
Test Methods and Remarks	Wire-wound Ferrite Inductors for Signal Lines: Measuring equipment : LCR Mater(HP4285A or its equivalent) Measuring frequency : Specified frequency

6.DC Resisitance	
Specified Value	Within the specified tolerance
Test Methods and Remarks	Measuring equipment : DC Ohmmeter (HIOKI 3227 or its equivalent)

7.Self-Resonant Frequency	
Specified Value	Within the specified tolerance
Test Methods and Remarks	Measuring equipment : Impedance analyzer (HP4291A or its equivalent)

8.Temperature Characteristic					
Specified Value	LSQMB2016				Inductance change : Within±5%
	LLQMB2016				
	LSQBA1608	LSQBA2012	LSQEA2012	LSQNA2012	Inductance change : Within±20%
	LSQNA2012	LSQBA2016	LSQNA2016	LSQBA2518	
	LSQEA2518	LSQNA2518	LSQCA3225	LSQPA3225	
	LLQBA2016	LLQBA2012	LLQEA2012	LLQNA2012	
	LLQNA2012	LLQBA2016	LLQNA2016	LLQBA2518	
	LLQEA2518	LLQNA2518	LLQCA3225	LLQPA3225	
	LSQBB1608	LSQNB1608	LSQCA2016	LSQPA2016	Inductance change : Within±25%
	LSQCA2518	LSQPA2518	LSQBA3218		
	LLQBB1608	LLQNB1608	LLQCA2016	LLQPA2016	
	LLQCA2518	LLQPA2518	LLQBA3218		
	LSQCA2012	LSQPA2012			Inductance change : Within±35%
	LLQCA2012	LLQPA2012			
Test Methods and Remarks	Based on the inductance at 20℃ and Measured at the ambient of −40℃～+85℃.				

9.Rasistance to Flexure of Substrate	
Specified Value	No damage.
Test Methods and Remarks	Warp : 2mm Test substrate : Glass epoxy-resin substrate Thickness : 1.0mm (1608 type : 0.8mm) 

10.Body Strength	
Specified Value	No damage.
Test Methods and Remarks	Applied force : 10N (1608 type : 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	Applied force : 10N to X and Y directions (1608 type : 5N to X and Y directions) Duration : 5 sec. Test substrate : Printed board	

12.Resistance to vibration

Specified Value

Wire-wound Ferrite Inductors, Wire-wound Ferrite Power Inductors
Inductance change : Within±10%
No significant abnormality in appearance.
Wire-wound Ferrite Inductors for Signal Lines
Inductance change :Within±5%
No significant abnormality in appearance.

Test Methods and Remarks

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/s2)	
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 —

14.Solderability

Specified Value At least 90% of surface of terminal electrode is covered by new

Test Methods and Remarks

Solder temperature : 245±5℃
Duration : 5±0.5sec
Flux : Ethanol solution with 25% of colophony

15.Resistance to soldering

Specified Value

Wire-wound Ferrite Inductors, Wire-wound Ferrite Power Inductors
Inductance change : Within±10%
Wire-wound Ferrite Inductors for Signal Lines
Inductance change :Within±5%

Test Methods and Remarks

3 times of reflow oven at 230℃ MIN for 40sec. with peak temperature at 260 ℃ for 5sec.
Recovery : At least 2 hrs of recovery under the standard condition after the test, followed by the measurement within 48 hrs.

16.Resisitance to solvent

Specified Value —

Test Methods and Remarks

Solvent temperature : Room temperature
Type of solvent : Isopropyl alcohol
Cleaning conditions : 90s. Immersion and cleaning.

17.Thermal shock

Specified Value

Inductance change : Within±10%
No significant abnormality in appearance.

Test Methods and Remarks

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 (℃)	Duration (min)
1	−40±3	30±3
2	Room temperature	Within 3
3	+85±2	30±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.

18.Damp heat life test

Specified Value

Inductance change : Within±10%
No significant abnormality in appearance.

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	Inductance change : Within±10% No significant abnormality in appearance.
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	Wire-wound Ferrite Power Inductors, Wire-wound Ferrite Inductors for Signal Lines : Inductance change : Within±10% No significant abnormality in appearance.
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	Wire-wound Ferrite Inductors: Inductance change : Within±10% (3225 type:Within±20%) No significant abnormality in appearance.
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	Inductance change : Within±10% No significant abnormality in appearance.
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	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.

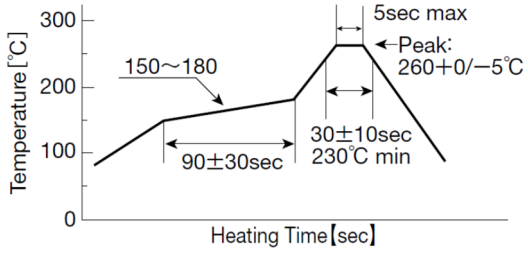
Wire-wound Ferrite Inductors LSQB/LSQC/LSQE/LLQB/LLQC/LLQE/LMQB/LMQC/LMQE/ LBQB/LBQC/LBQE series
Wire-wound Ferrite Power Inductors LSQN/LSQPA/LLQN/LLQPA/LMQN/LMQPA/ LBQN/LBQPA series
Wire-wound Ferrite Inductors for Signal Lines LSQM/LLQM/LMQM/LBQM series

■PRECAUTIONS

1. Circuit Design	
Precautions	◆Verification of operating environment, electrical rating and performance 1. A malfunction in medical equipment, spacecraft, nuclear reactors, etc. may cause serious harm to human life or have severe social ramifications. As such, any inductors to be used in such equipment may require higher safety and/or reliability considerations and should be clearly differentiated from components used in general purpose applications. 2. When inductors are used in places where dew condensation develops and/or where corrosive gas such as hydrogen sulfide, sulfurous acid, or chlorine exists in the air, characteristic deterioration may occur. Please do not use inductors under such environmental conditions. ◆Operating Current (Verification of Rated current) 1. The operating current including inrush current for inductors must always be lower than their rated values. 2. Do not apply current in excess of the rated value because the inductance may be reduced due to the magnetic saturation effect. ◆Temperature rise Temperature rise of power choke coil depends on the installation condition in end products. Make sure that temperature rise of power choke coils in actual end products is within the specified temperature range.

2. PCB Design	
Precautions	◆Land pattern design 1. Please contact any of our offices for a land pattern, and refer to a recommended land pattern of a right figure or specifications.
Technical considerations	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. Considerations for automatic placement	
Precautions	◆Adjustment of mounting machine 1. Excessive impact load should not be imposed on the products when mounting onto the PC boards. 2. Mounting and soldering conditions should be checked beforehand.
Technical considerations	1. When installing products, care should be taken not to apply distortion stress as it may deform the products.

4. Soldering	
Precautions	◆Reflow soldering (Wire-wound Ferrite Inductors, Wire-wound Ferrite Power Inductors) 1. For reflow soldering with either leaded or lead-free solder, the profile specified in "point for controlling" is recommended. ◆Recommended conditions for using a soldering iron 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.
Technical considerations	◆Reflow soldering (Wire-wound Ferrite Inductors, Wire-wound Ferrite Power Inductors) 1. Reflow profile  ◆Recommended 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 Washing by supersonic waves shall be avoided.
Technical considerations	◆Cleaning conditions If washed by supersonic waves, the products might be broken.

6. Handling	
Precautions	◆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.
Technical considerations	◆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.

7. Storage conditions	
Precautions	◆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. ・ Storage conditions Ambient temperature : 0～40℃ Humidity : Below 70% RH ・ The recommended ambient temperature is below 30℃. Even under ideal storage conditions, solderability of products electrodes may decrease as time passes. For this reason, product should be used within 6 months from the time of delivery. In case of storage over 6 months, solderability shall be checked before actual usage.
Technical considerations	◆Storage 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.