

# アキシャルリード形インダクタ

## AXIAL LEADED INDUCTORS



OPERATING TEMP	-25~+105°C (製品自己発熱を含む) (Including self-generated heat)
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### 特長 FEATURES

- ・自動挿入に対し極めて高い信頼性を有するインダクタ
- ・自動化高速ラインによる生産の為、量産性に優れかつ高品質
- ・アキシャルリードタイプの他、ラジアルテーピング、単品加工品がありバリエーションが豊富

- ・Extremely reliable inductors that are ideal for automatic insertion.
- ・Highly efficient automated production processes can provide high quality inductors in large volumes.
- ・Wide selection of configurations including axial leaded, formed radial leads and bulk products to meet most manufacturing needs.

### 用途 APPLICATIONS

- ・CTV、DVD、オーディオ、通信機、チューナー、その他電子機器全般

- ・Use for TVs, DVD, audio equipment, communication instrument, tuner, and general electrical instrument.

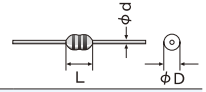
### 形名表記法 ORDERING CODE

<b>1</b> 形式 LA アキシャルリードインダクタ	<b>3</b> 形状寸法(L×D) (mm)max 02 3.4×2.3 (LAL/LAP) 3.6×2.4 (LAN) 03 7.0×2.7 35 4.5×4.0 04 9.8×4.0	<b>4</b> リード加工形状 KB フォーミング単品(04タイプ) KH フォーミング単品(03タイプ) KR フォーミング単品(02タイプ) NA ストレート単品 TA アキシャルつづらテーピング26.0幅 TB アキシャルつづらテーピング52.0幅 VD ラジアルテーピング	<b>5</b> 公称インダクタンス[μH] 例 ※R=小数点 1R5 1.5 120 12	<b>6</b> インダクタンス許容差[%] J ±5 K ±10 M ±20
<b>2</b> 製品区分 L, V△ 一般 N△ 高電流タイプ P△ 一般(リード線径0.45φmm) △=スペース				<b>7</b> 当社管理記号 △△△△ 標準品 △=スペース



<b>1</b> Type LA Axial leaded inductor	<b>3</b> Dimensions(L×D) (mm)max 02 3.4×2.3 (LAL/LAP) 3.6×2.4 (LAN) 03 7.0×2.7 35 4.5×4.0 04 9.8×4.0	<b>4</b> Lead configurations KB Formed lead/bulk(04 type) KH Formed lead/bulk(03 type) KR Formed lead/bulk(02 type) NA Axial lead/bulk TA Axial lead(26mm lead space) /ammo pack(02/03 type) TB Axial lead(52mm lead space) /ammo pack(all types) VD Formed lead/ammo pack(02 type)	<b>5</b> Nominal inductance [μH] example ※R=decimal point 1R5 1.5 120 12	<b>6</b> Inductance tolerance [%] J ±5 K ±10 M ±20
<b>2</b> Product Specification L, V△ Standard type N△ High current type P△ Standard type (lead diameter:0.45mm) △=Blank space				<b>7</b> Internal code △△△△ Standard product △=Blank space

# 外形寸法 EXTERNAL DIMENSIONS



Type	Dimensions [mm] (inch)			テーピング Taped		単品 Bulk	
	L	φD	φd	ストレート Straight	フォーミング Formed	ストレート Straight	フォーミング Formed
LAL02	3.4max (0.134max)	2.3max (0.091max)	0.5±0.05 (0.018±0.002)	TB 	VD 	NA 	---
LAP02	3.4max (0.134max)	2.3max (0.091max)	0.45±0.05 (0.018±0.002)	TA 	---	---	KR 
LAN02	3.6max (0.142max)	2.4max (0.094max)		26 (1.02)	---	---	---
LAL03	7.0max (0.276max)	2.6 <sup>+0.1</sup> <sub>-0.2</sub> (0.102 <sup>+0.004</sup> <sub>-0.008</sub> )	0.5±0.05 (0.020±0.002)	TA 	---	NA 	KH 
				TB 	---	---	---
LAV35	4.5 max (0.177 max)	4.0 max (0.157 max)	0.5±0.05 (0.020±0.002)	TB 	---	---	---
LAL04	9.8max (0.386max)	4.0max (0.157max)	0.65±0.05 (0.026±0.002)	TB 	---	NA 	KB 

Unit : mm (inch)

# 概略バリエーション AVAILABLE INDUCTANCE RANGE

Range	Type	LAL/LAP02		LAN02		LAL03		LAV35		LAL04	
		Imax[mA]	Rdc max[Ω]	Imax[mA]	Rdc max[Ω]	Imax[mA]	Rdc max[Ω]	Imax[mA]	Rdc max[Ω]	Imax[mA]	Rdc max[Ω]
Inductance [μH]	0.1	270	0.8	500	0.32	270	0.8	790	0.17	920	0.19
	1	160	2.5	280	1.0	160	2.5	460	0.45	500	0.58
	10	44	12	120	5.6	90	7.0	150	3.3	275	1.8
	100	220	—	470	—	40	33.0	55	28.0	100	14.0
	1000	—	—	—	—	1000	—	1000	—	1000	—

代表値 Examples	Inductance	Imax [mA]	Rdcmax [Ω]	Imax [mA]	Rdcmax [Ω]	Imax [mA]	Rdcmax [Ω]	Imax [mA]	Rdcmax [Ω]	Imax [mA]	Rdcmax [Ω]
	1 μH	270	0.8	500	0.32	270	0.8	790	0.17	920	0.19
	10 μH	160	2.5	280	1.0	160	2.5	460	0.45	500	0.58
	100 μH	44	12	120	5.6	90	7.0	150	3.3	275	1.8
1000 μH	—	—	—	—	40	33.0	55	28.0	100	14.0	

セレクションガイド  
Selection Guide

アイテム一覧  
Part Numbers

特性図  
Electrical Characteristics

梱包  
Packaging

信頼性  
Reliability Data

使用上の注意  
Precautions



etc



LAN02

形名 Ordering code	EHS (Environmental Hazardous Substances)	公称 インダクタンス Inductance [ $\mu$ H]	インダクタンス 許容差 Inductance Tolerance	Q (min.)	測定 周波数 Measuring frequency [MHz]	自己共振 周波数 Self-resonant frequency [MHz] (min.)	直流抵抗 DC Resistance [ $\Omega$ ] (max.)	定格電流 Rated current [mA] (max.)
LAN 02○ R12K	RoHS	0.12	±10%	50	25.2	500	0.12	850
LAN 02○ R15K	RoHS	0.15				500	0.14	800
LAN 02○ R18K	RoHS	0.18				500	0.15	760
LAN 02○ R22K	RoHS	0.22				500	0.16	730
LAN 02○ R27K	RoHS	0.27				500	0.18	690
LAN 02○ R33K	RoHS	0.33				480	0.19	660
LAN 02○ R39K	RoHS	0.39				430	0.21	640
LAN 02○ R47K	RoHS	0.47				380	0.23	610
LAN 02○ R56K	RoHS	0.56				350	0.25	580
LAN 02○ R68K	RoHS	0.68				310	0.27	550
LAN 02○ R82K	RoHS	0.82				270	0.29	520
LAN 02○ R82K	RoHS	0.82				240	0.32	500
LAN 02○ 1R0J	RoHS	1.0	±5%	40	7.96	210	0.35	480
LAN 02○ 1R2J	RoHS	1.2				190	0.38	450
LAN 02○ 1R5J	RoHS	1.5				140	0.42	430
LAN 02○ 1R8J	RoHS	1.8				90	0.47	410
LAN 02○ 2R2J	RoHS	2.2				70	0.52	390
LAN 02○ 2R7J	RoHS	2.7				50	0.57	370
LAN 02○ 3R3J	RoHS	3.3				35	0.63	360
LAN 02○ 3R9J	RoHS	3.9				32	0.69	340
LAN 02○ 4R7J	RoHS	4.7				30	0.75	320
LAN 02○ 5R6J	RoHS	5.6				28	0.84	310
LAN 02○ 6R8J	RoHS	6.8				26	0.92	290
LAN 02○ 8R2J	RoHS	8.2				24	1.0	280
LAN 02○ 100J	RoHS	10				22	1.0	280
LAN 02○ 120J	RoHS	12				20	1.2	265
LAN 02○ 150J	RoHS	15				18	1.3	250
LAN 02○ 180J	RoHS	18				17	1.5	235
LAN 02○ 220J	RoHS	22				15	1.7	220
LAN 02○ 270J	RoHS	27				14	2.2	180
LAN 02○ 330J	RoHS	33				13	2.4	170
LAN 02○ 390J	RoHS	39				12	2.8	160
LAN 02○ 470J	RoHS	47				10	4.1	140
LAN 02○ 560J	RoHS	56				9.2	4.5	130
LAN 02○ 680J	RoHS	68				8.8	5.0	125
LAN 02○ 820J	RoHS	82				8.0	5.6	120
LAN 02○ 101J	RoHS	100	50	0.796	6.6	9.2	90	
LAN 02○ 121J	RoHS	120			5.8	10.5	85	
LAN 02○ 151J	RoHS	150			5.4	11.5	80	
LAN 02○ 181J	RoHS	180			4.8	13	75	
LAN 02○ 221J	RoHS	220			3.6	16	70	
LAN 02○ 271J	RoHS	270			3.4	18	66	
LAN 02○ 331J	RoHS	330			3.2	20	63	
LAN 02○ 391J	RoHS	390			3.0	22	60	
LAN 02○ 471J	RoHS	470						

形名の○にはリード加工形状記号が入ります。

○ Please specify the Lead configuration code.

LAL03

形名 Ordering code	EHS (Environmental Hazardous Substances)	公称 インダクタンス Inductance [μH]	インダクタンス 許容差 Inductance Tolerance	Q (min.)	測定 周波数 Measuring frequency [MHz]	自己共振 周波数 Self-resonant frequency [MHz] (min.)	直流抵抗 DC Resistance [Ω] (max.)	定格電流 Rated current [mA] (max.)
LAL 03 ○ R22M	RoHS	0.22	± 20%	35	25.2	450	0.40	400
LAL 03 ○ R27M	RoHS	0.27				410	0.43	380
LAL 03 ○ R33M	RoHS	0.33				360	0.48	370
LAL 03 ○ R39M	RoHS	0.39				300	0.51	350
LAL 03 ○ R47M	RoHS	0.47				230	0.56	330
LAL 03 ○ R56M	RoHS	0.56				210	0.61	320
LAL 03 ○ R68M	RoHS	0.68				190	0.67	310
LAL 03 ○ R82M	RoHS	0.82		170		0.74	290	
LAL 03 ○ 1R0M	RoHS	1.0		150		0.80	270	
LAL 03 ○ 1R2M	RoHS	1.2		144		0.90	260	
LAL 03 ○ 1R5M	RoHS	1.5		131		1.0	250	
LAL 03 ○ 1R8M	RoHS	1.8		121		1.1	240	
LAL 03 ○ 2R2M	RoHS	2.2		110		1.2	230	
LAL 03 ○ 2R7M	RoHS	2.7		100		1.3	220	
LAL 03 ○ 3R3K	RoHS	3.3	± 10%	50	7.96	94	1.4	210
LAL 03 ○ 3R9K	RoHS	3.9				65	1.6	200
LAL 03 ○ 4R7K	RoHS	4.7				56	1.7	190
LAL 03 ○ 5R6K	RoHS	5.6				48	1.9	180
LAL 03 ○ 6R8K	RoHS	6.8				37	2.0	175
LAL 03 ○ 8R2K	RoHS	8.2				25	2.2	165
LAL 03 ○ 100K	RoHS	10				21	2.5	160
LAL 03 ○ 120K	RoHS	12				19	2.5	150
LAL 03 ○ 150K	RoHS	15				17	2.8	145
LAL 03 ○ 180K	RoHS	18				13	3.1	140
LAL 03 ○ 220K	RoHS	22				9.6	3.4	130
LAL 03 ○ 270K	RoHS	27				7.2	3.8	125
LAL 03 ○ 330K	RoHS	33				6.3	4.1	120
LAL 03 ○ 390K	RoHS	39				6.3	4.5	115
LAL 03 ○ 470K	RoHS	47		6.3	4.9	110		
LAL 03 ○ 560K	RoHS	56		6.2	5.3	105		
LAL 03 ○ 680K	RoHS	68		5.7	5.8	100		
LAL 03 ○ 820K	RoHS	82		5.3	6.3	95		
LAL 03 ○ 101K	RoHS	100		4.8	7.0	90		
LAL 03 ○ 121K	RoHS	120		3.8	13	90		
LAL 03 ○ 151K	RoHS	150		3.5	15	85		
LAL 03 ○ 181K	RoHS	180		3.3	16	80		
LAL 03 ○ 221K	RoHS	220		3.0	17	75		
LAL 03 ○ 271K	RoHS	270		2.8	19	65		
LAL 03 ○ 331K	RoHS	330		2.6	20	60		
LAL 03 ○ 391K	RoHS	390		2.4	22	55		
LAL 03 ○ 471K	RoHS	470		2.25	24	55		
LAL 03 ○ 561K	RoHS	560		2.10	26	50		
LAL 03 ○ 681K	RoHS	680	1.95	28	45			
LAL 03 ○ 821K	RoHS	820	1.85	30	40			
LAL 03 ○ 102K	RoHS	1000	1.40	33	40			

形名の○にはリード加工形状記号が入ります。

○ Please specify the Lead configuration code.

LAV35

形名 Ordering code	EHS (Environmental Hazardous Substances)	公称 インダクタンス Inductance [μH]	インダクタンス 許容差 Inductance Tolerance [%]	Q (min.)	自己共振 周波数 Self-resonant frequency [MHz] (min.)	直流抵抗 DC Resistance [Ω] (max.)	定格電流 Rated current [mA] (max.)	測定 周波数 Measuring frequency [MHz]
LAV 35 ○ R22M	RoHS	0.22	±20%	50	170	0.09	1000	25.2
LAV 35 ○ R27M	RoHS	0.27			160	0.10	980	
LAV 35 ○ R33M	RoHS	0.33			140	0.11	960	
LAV 35 ○ R39M	RoHS	0.39			130	0.12	940	
LAV 35 ○ R47M	RoHS	0.47			120	0.13	910	
LAV 35 ○ R56M	RoHS	0.56			110	0.14	880	
LAV 35 ○ R68M	RoHS	0.68			100	0.15	850	
LAV 35 ○ R82M	RoHS	0.82			90	0.16	820	
LAV 35 ○ 1R0M	RoHS	1.0			82	0.17	790	
LAV 35 ○ 1R2M	RoHS	1.2			70	0.18	760	
LAV 35 ○ 1R5M	RoHS	1.5			65	0.20	730	
LAV 35 ○ 1R8M	RoHS	1.8			57	0.22	700	
LAV 35 ○ 2R2M	RoHS	2.2			47	0.24	670	
LAV 35 ○ 2R7M	RoHS	2.7			40	0.26	640	
LAV 35 ○ 3R3K	RoHS	3.3	35	0.28	610	7.96		
LAV 35 ○ 3R9K	RoHS	3.9	33	0.30	580			
LAV 35 ○ 4R7K	RoHS	4.7	31	0.33	560			
LAV 35 ○ 5R6K	RoHS	5.6	27	0.36	540			
LAV 35 ○ 6R8K	RoHS	6.8	24	0.39	520			
LAV 35 ○ 8R2K	RoHS	8.2	22	0.42	490			
LAV 35 ○ 100K	RoHS	10	21	0.45	460			
LAV 35 ○ 120K	RoHS	12	18	1.2	350			
LAV 35 ○ 150K	RoHS	15	16	1.3	330			
LAV 35 ○ 180K	RoHS	18	14	1.4	300			
LAV 35 ○ 220K	RoHS	22	13	1.5	270			
LAV 35 ○ 270K	RoHS	27	12	1.6	250			
LAV 35 ○ 330K	RoHS	33	11	1.8	235			
LAV 35 ○ 390K	RoHS	39	10	2.0	220			
LAV 35 ○ 470K	RoHS	47	9.5	2.2	200			
LAV 35 ○ 560K	RoHS	56	9.0	2.4	190			
LAV 35 ○ 680K	RoHS	68	8.5	2.8	170			
LAV 35 ○ 820K	RoHS	82	8.0	3.0	155			
LAV 35 ○ 101K	RoHS	100	7.5	3.3	150			
LAV 35 ○ 121K	RoHS	120	6.8	4.2	140			
LAV 35 ○ 151K	RoHS	150	6.2	5.0	130			
LAV 35 ○ 181K	RoHS	180	5.6	6.0	125			
LAV 35 ○ 221K	RoHS	220	5.0	7.5	120			
LAV 35 ○ 271K	RoHS	270	4.6	11	105			
LAV 35 ○ 331K	RoHS	330	4.2	13	95			
LAV 35 ○ 391K	RoHS	390	3.8	15	90			
LAV 35 ○ 471K	RoHS	470	3.4	17	80			
LAV 35 ○ 561K	RoHS	560	3.0	19	75			
LAV 35 ○ 681K	RoHS	680	2.6	22	68			
LAV 35 ○ 821K	RoHS	820	2.2	25	60			
LAV 35 ○ 102K	RoHS	1000	2.0	28	55			
LAV 35 ○ 121K	RoHS	120	±5%	50	6.8	4.2	140	0.796
LAV 35 ○ 151K	RoHS	150			6.2	5.0	130	
LAV 35 ○ 181K	RoHS	180			5.6	6.0	125	
LAV 35 ○ 221K	RoHS	220			5.0	7.5	120	
LAV 35 ○ 271K	RoHS	270			4.6	11	105	
LAV 35 ○ 331K	RoHS	330			4.2	13	95	
LAV 35 ○ 391K	RoHS	390			3.8	15	90	
LAV 35 ○ 471K	RoHS	470			3.4	17	80	
LAV 35 ○ 561K	RoHS	560			3.0	19	75	
LAV 35 ○ 681K	RoHS	680			2.6	22	68	
LAV 35 ○ 821K	RoHS	820			2.2	25	60	
LAV 35 ○ 102K	RoHS	1000			2.0	28	55	

形名の○にはリード加工形状記号が入ります。

○ Please specify the Lead configuration code.

LAL04

形名 Ordering code	EHS (Environmental Hazardous Substances)	公称 インダクタンス Inductance [μH]	インダクタンス 許容差 Inductance Tolerance	Q (min.)	測定 周波数 Measuring frequency [MHz]	自己共振 周波数 Self-resonant frequency [MHz] (min.)	直流抵抗 DC Resistance [Ω] (max.)	定格電流 Rated current [mA] (max.)
LAL 04 ○ R22M	RoHS	0.22	± 20%	45	25.2	300	0.10	1400
LAL 04 ○ R27M	RoHS	0.27				270	0.11	1320
LAL 04 ○ R33M	RoHS	0.33				250	0.12	1280
LAL 04 ○ R39M	RoHS	0.39				230	0.13	1200
LAL 04 ○ R47M	RoHS	0.47				220	0.14	1150
LAL 04 ○ R56M	RoHS	0.56				200	0.15	1100
LAL 04 ○ R68M	RoHS	0.68				190	0.16	1030
LAL 04 ○ R82M	RoHS	0.82				172	0.17	980
LAL 04 ○ 1R0M	RoHS	1.0				157	0.19	920
LAL 04 ○ 1R2M	RoHS	1.2				± 10%	50	144
LAL 04 ○ 1R5M	RoHS	1.5	55	131	0.23		830	
LAL 04 ○ 1R8M	RoHS	1.8	60	121	0.25		790	
LAL 04 ○ 2R2M	RoHS	2.2	65	110	0.28		750	
LAL 04 ○ 2R7M	RoHS	2.7	70	100	0.30		720	
LAL 04 ○ 3R3K	RoHS	3.3	75	94	0.34		670	
LAL 04 ○ 3R9K	RoHS	3.9	80	65	0.37		640	
LAL 04 ○ 4R7K	RoHS	4.7	85	56	0.39		620	
LAL 04 ○ 5R6K	RoHS	5.6	90	48	0.43		590	
LAL 04 ○ 6R8K	RoHS	6.8	95	37	0.48		550	
LAL 04 ○ 8R2K	RoHS	8.2	100	25	0.52	530		
LAL 04 ○ 100K	RoHS	10	105	21	0.58	500		
LAL 04 ○ 120K	RoHS	12	± 10%	50	2.52	19	0.63	480
LAL 04 ○ 150K	RoHS	15				17	0.72	460
LAL 04 ○ 180K	RoHS	18				13	0.77	430
LAL 04 ○ 220K	RoHS	22				9.6	0.84	410
LAL 04 ○ 270K	RoHS	27				7.2	0.94	390
LAL 04 ○ 330K	RoHS	33				6.3	1.03	370
LAL 04 ○ 390K	RoHS	39				6.3	1.12	350
LAL 04 ○ 470K	RoHS	47				6.3	1.22	340
LAL 04 ○ 560K	RoHS	56				6.2	1.34	320
LAL 04 ○ 680K	RoHS	68				5.7	1.47	305
LAL 04 ○ 820K	RoHS	82	5.3	1.62	290			
LAL 04 ○ 101K	RoHS	100	5.0	1.8	275			
LAL 04 ○ 121K	RoHS	120	4.8	3.7	185			
LAL 04 ○ 151K	RoHS	150	4.5	4.2	175			
LAL 04 ○ 181K	RoHS	180	4.2	4.6	165			
LAL 04 ○ 221K	RoHS	220	4.0	5.1	155			
LAL 04 ○ 271K	RoHS	270	3.8	5.8	145			
LAL 04 ○ 331K	RoHS	330	3.5	6.4	137			
LAL 04 ○ 391K	RoHS	390	3.3	7.0	133			
LAL 04 ○ 471K	RoHS	470	3.0	7.7	126			
LAL 04 ○ 561K	RoHS	560	2.8	8.5	120			
LAL 04 ○ 681K	RoHS	680	2.6	9.4	113			
LAL 04 ○ 821K	RoHS	820	2.4	10.5	105			
LAL 04 ○ 102K	RoHS	1000	2.25	14.0	100			
						2.10		
						1.95		
						1.85		
						1.40		

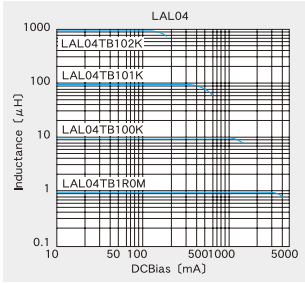
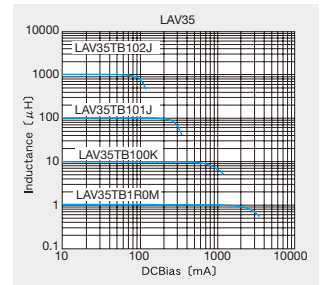
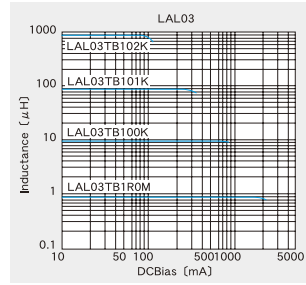
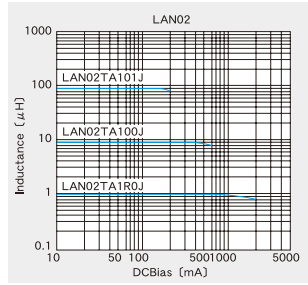
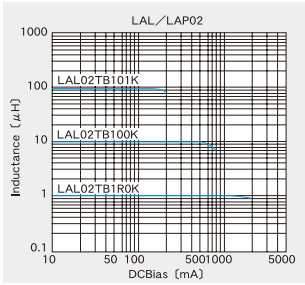
形名の○にはリード加工形状記号が入ります。

○ Please specify the Lead configuration code.

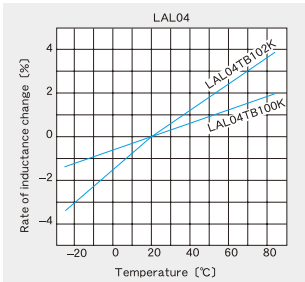
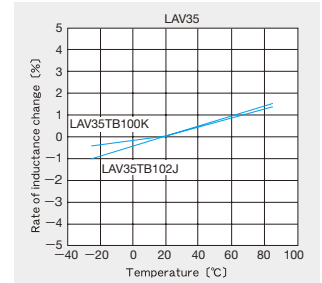
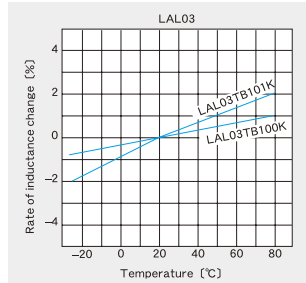
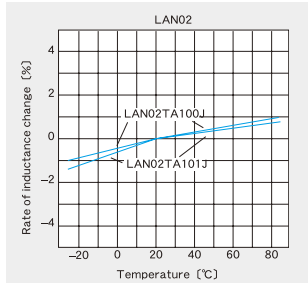
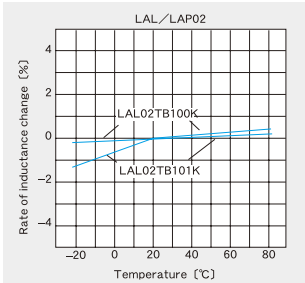




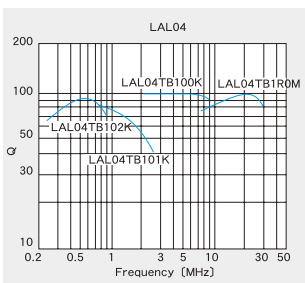
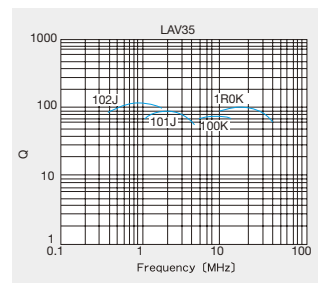
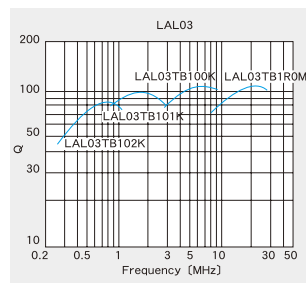
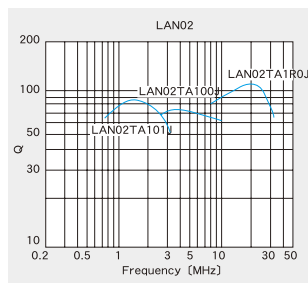
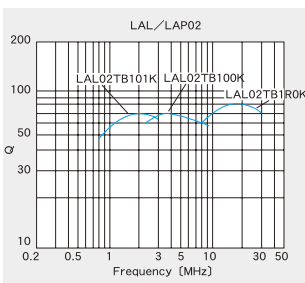
直流重量特性例 DC Bias characteristics (Measured by HP4285A)



温度特性例 Temperature characteristics (Measured by HP4285A)



Q-周波数特性例 Q-Characteristics (Measured by HP4285A+HP42851A)



最小受注単位数 Minimum Quantity

①アキシャルリードの横テーピング Taping for Straight Leads

Type	リード加工記号 Lead Configuration code	標準数量 (pcs.) Standard quantity
LAL02	TB	2,000
LAP02	TA	2,000
LAN02	TA	2,000
LAL03	TA・TB	2,000
LAV35	TB	2,000
LAL04	TB	2,500

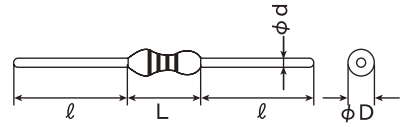
②アキシャルリードの縦テーピング Taping for Formed Leads

Type	リード加工記号 Lead Configuration code	標準数量 (pcs.) Standard quantity
LAL02	VD	2,000

③バルク (袋づめ) Bulk

Type	リード加工記号 Lead Configuration code	標準数量 (pcs.) Standard quantity
LAL02	NA	500
LAP02	KR	2,000
LAN02	KR	2,000
LAL03	NA・KH	500
LAL04	NA・KB	500

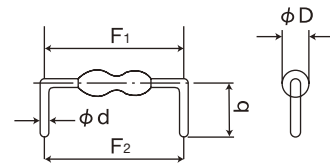
NA形状



Type	寸法 Dimensions				最小挿入ピッチ Minimum insertion pitch
	φD	L	φd	ℓ	
LAL02	2.3max (0.091max)	3.4max (0.134max)	0.50±0.05 (0.020±0.002)	24±2.0 (0.945±0.079)	5.0 (0.197)
LAL03	2.6 <sup>+0.1</sup> <sub>-0.2</sub> (0.102 <sup>+0.004</sup> <sub>-0.008</sub> )	7.0max (0.276max)	0.50±0.05 (0.020±0.002)	22±2.0 (0.866±0.079)	10.0 (0.394)
LAL04	4.0max (0.157max)	9.8max (0.386max)	0.65±0.05 (0.026±0.002)	20±2.0 (0.787±0.079)	12.5 (0.492)

Unit : mm (inch)

KR/KH/KB形状

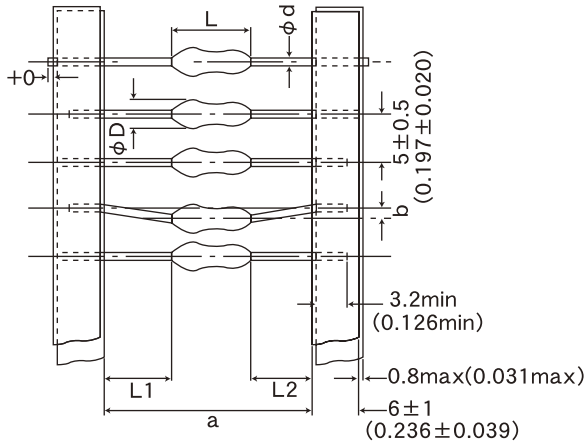


Type	リード加工 形状記号 Lead configuration code	寸法 Dimensions			
		φD	F <sub>1</sub> /F <sub>2</sub> *	φd	b
LAP02	KR	2.3max (0.091max)	5.0±0.5 (0.197±0.020)	0.45±0.05 (0.018±0.002)	7.0±1.0 (0.276±0.039)
LAN02	KR	2.4max (0.094max)	5.0±0.5 (0.197±0.020)	0.45±0.05 (0.018±0.002)	7.0±1.0 (0.276±0.039)
LAL03	KH	2.6 <sup>+0.1</sup> <sub>-0.2</sub> (0.102 <sup>+0.004</sup> <sub>-0.008</sub> )	10.0±0.5 (0.394±0.020)	0.50±0.05 (0.020±0.002)	6.5±0.5 (0.256±0.020)
LAL04	KB	4.0max (0.157max)	12.5±1.0 (0.492±0.039)	0.65±0.05 (0.026±0.002)	6.0±0.5 (0.236±0.020)

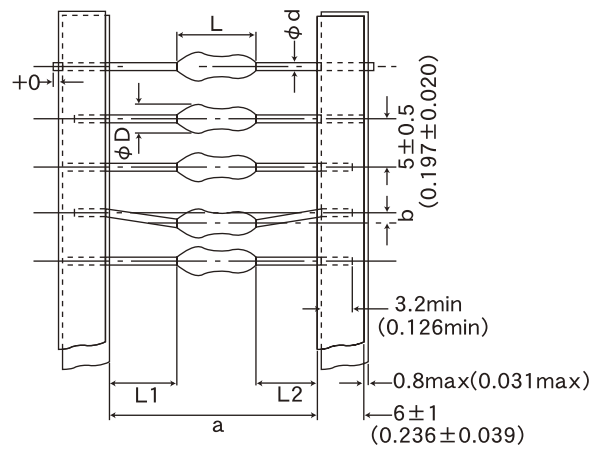
Unit : mm (inch)

\*F<sub>1</sub>: LAP02 KR, LAN02 KR, LAL03 KH  
F<sub>2</sub>: LAL04 KB

TA (a : 26mm lead space)  
(1.02 inch) 形状



TB (a : 52mm lead space)  
(2.05 inches) 形状



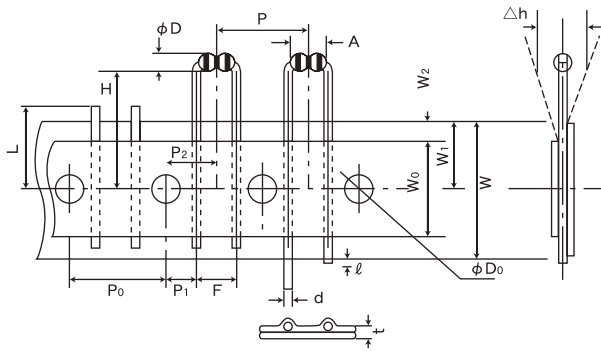
Type	寸法 Dimensions						最小挿入 ピッチ Minimum insertion pitch
	$\phi D$	L	a	b	$ L_1-L_2 $	$\phi d$	
LAP02	2.3max (0.091max)	3.4max (0.134max)	$26^{+0.5}_0$ ( $1.02^{+0.020}_0$ )	0.8max (0.031max)	0.5max (0.020max)	$0.45 \pm 0.05$ ( $0.018 \pm 0.002$ )	5.0 (0.197)
LAN02	2.4max (0.094max)	3.6max (0.142max)	$26^{+0.5}_0$ ( $1.02^{+0.020}_0$ )	0.8max (0.031max)	0.5max (0.020max)	$0.45 \pm 0.05$ ( $0.018 \pm 0.002$ )	5.0 (0.197)
LAL03	$2.6^{+0.1}_{-0.2}$ ( $0.102^{+0.004}_{-0.008}$ )	7.0max (0.276max)	$26^{+1}_{-0.5}$ ( $1.02^{+0.039}_{-0.020}$ )	0.8max (0.031max)	1.0max (0.039max)	$0.5 \pm 0.05$ ( $0.020 \pm 0.002$ )	10.0 (0.394)

Unit : mm (inch)

Type	寸法 Dimensions						最小挿入 ピッチ Minimum insertion pitch
	$\phi D$	L	a	b	$ L_1-L_2 $	$\phi d$	
LAL02	2.3max (0.091max)	3.4max (0.134max)	$52^{+2}_1$ ( $2.05^{+0.079}_{-0.039}$ )	1.2max (0.047max)	1.0max (0.039max)	$0.5 \pm 0.05$ ( $0.020 \pm 0.002$ )	5.0 (0.197)
LAL03	$2.6^{+0.1}_{-0.2}$ ( $0.102^{+0.004}_{-0.008}$ )	7.0max (0.276max)	$52^{+2}_1$ ( $2.05^{+0.079}_{-0.039}$ )	1.2max (0.047max)	1.0max (0.039max)	$0.5 \pm 0.05$ ( $0.020 \pm 0.002$ )	10.0 (0.394)
LAV35	4.0max (0.157max)	4.5max (0.177max)	$52^{+2}_1$ ( $2.05^{+0.079}_{-0.039}$ )	1.2max (0.047max)	1.0max (0.039max)	$0.5 \pm 0.05$ ( $0.020 \pm 0.002$ )	7.5 (0.295)
LAL04	4.0max (0.157max)	9.8max (0.386)	$52^{+2}_1$ ( $2.05^{+0.079}_{-0.039}$ )	1.2max (0.047max)	1.0max (0.039max)	$0.65 \pm 0.05$ ( $0.026 \pm 0.002$ )	12.5 (0.492)

Unit : mm (inch)

VD 形状



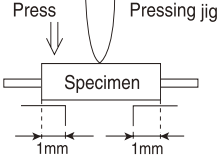
Type	記号 Symbol	寸法 Dimensions	記号 Symbol	寸法 Dimensions
LAL02	A	3.9max (0.154max)	W	18.0 $\begin{smallmatrix} +1.0 \\ -0.5 \end{smallmatrix}$ (0.709 $\begin{smallmatrix} +0.039 \\ -0.020 \end{smallmatrix}$ )
	$\phi D$	2.3max (0.091max)	$W_0$	12.5min (0.492min)
	H	19.5 $\pm$ 0.5 (0.768 $\pm$ 0.020)	$W_1$	9.0 $\begin{smallmatrix} +0.75 \\ -0.5 \end{smallmatrix}$ (0.354 $\begin{smallmatrix} +0.030 \\ -0.020 \end{smallmatrix}$ )
	P	12.7 $\pm$ 1.0 (0.500 $\pm$ 0.039)	$W_2$	3.0max (0.118max)
	$P_0$	12.7 $\pm$ 0.3 (0.500 $\pm$ 0.012)	$\ell$	2.0max (0.079max)
	$P_1$	3.85 $\pm$ 0.7 (0.152 $\pm$ 0.028)	$\phi D_0$	4.0 $\pm$ 0.3 (0.157 $\pm$ 0.012)
	$P_2$	6.35 $\pm$ 0.5 (0.250 $\pm$ 0.020)		
	F	5.08 $\pm$ 0.5 (0.200 $\pm$ 0.020)	$\phi d$	0.50 $\pm$ 0.05 (0.020 $\pm$ 0.002)
	$\Delta h$	0 $\pm$ 1.0 (0 $\pm$ 0.039)	L	11.0max (0.433max)
	—	—	t	0.5 $\pm$ 0.2 (0.020 $\pm$ 0.008)

Unit : mm (inch)



Item	Specified Value								Test Method and Remarks												
	LA02 Type/ LA03 Type	LA04 Type	CAL45 Type	LHL□□□	FBA/FBR	LAV35	FL05□ Type	FL06BT Type													
6.Q	Within the specified tolerance		/			Within the specified tolerance			LA · LAV35 : Measuring equipment : LCR meter (HP4285A+HP42851A or its equivalent) Measuring frequency : Specified frequency  LHL□□□ (except LHLP) : Measuring equipment : LCR meter (HP4285A+HP42851A or its equivalent) LCR meter (HP4262A) or its equivalent (at 1kHz) Measuring frequency : Specified frequency												
7.DC Resistance	Within the specified tolerance								LA : Measuring equipment : low ohmmeter (A&D AD5812 or its equivalent)  LHL□□□ · FB · LAV35 · FL : Measuring equipment : DC ohmmeter												
8.Self resonance frequency	Within the specified tolerance		/			Within the specified tolerance			LA · LAV35 : Measuring equipment : Network analyzer (Anritsu MS620J or its equivalent)  LHL□□□ (except LHLP) : Measuring equipment : (HP4191A, 4192A) its equivalent												
9.Temperature characteristic	$\Delta L/L$ : Within $\pm 5\%$		/	$\Delta L/L$ : Within $\pm 7\%$ (except LHLP16 : Within $\pm 20\%$ )		$\Delta L/L$ : Within $\pm 5\%$			LA · LAV35 : Change of maximum inductance deviation in step 1to5 <table border="1"> <thead> <tr> <th>step</th> <th>Temperature (°C)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>20</td> </tr> <tr> <td>2</td> <td>-25 (Minimum operating temperature)</td> </tr> <tr> <td>3</td> <td>20 (Standard temperature)</td> </tr> <tr> <td>4</td> <td>+85 (Maximum operating temperature)</td> </tr> <tr> <td>5</td> <td>20</td> </tr> </tbody> </table> LHL□□□ Change of maximum inductance deviation in step 1to5 Temperature at step 1 : 20°C Temperature at step 2 : Minimum operating temperature Temperature at step 3 : 20°C (Standard temperature) Temperature at step 4 : Maximum operating temperature Temperature at step 5 : 20°C	step	Temperature (°C)	1	20	2	-25 (Minimum operating temperature)	3	20 (Standard temperature)	4	+85 (Maximum operating temperature)	5	20
step	Temperature (°C)																				
1	20																				
2	-25 (Minimum operating temperature)																				
3	20 (Standard temperature)																				
4	+85 (Maximum operating temperature)																				
5	20																				

Item	Specified Value								Test Method and Remarks																					
	LA02 Type/ LA03 Type	LA04 Type	CAL45 Type	LHL□□□	FBA/FBR	LAV35	FL05□ Type	FL06BT Type																						
10. Terminal strength : tensile force	No abnormality such as cut lead, or looseness.			No abnormality such as cut lead, or looseness.	No abnormality such as cut lead, or looseness.				LA : Apply the stated tensile force progressively in the direction to draw terminal. <table border="1"> <tr> <th>force (N)</th> <th>duration (S)</th> </tr> <tr> <td>25</td> <td>5</td> </tr> </table> LHL□□□ · LAV : Apply the stated tensile force progressively in the direction to draw terminal. <table border="1"> <tr> <th>Nominal wire diameter tensile <math>\phi d</math> (mm)</th> <th>force (N)</th> <th>duration(S)</th> </tr> <tr> <td><math>0.3 &lt; \phi d \leq 0.5</math></td> <td>5</td> <td rowspan="3">30 ± 5</td> </tr> <tr> <td><math>0.5 &lt; \phi d \leq 0.8</math></td> <td>10</td> </tr> <tr> <td><math>0.8 &lt; \phi d \leq 1.2</math></td> <td>25</td> </tr> </table> FBA/FBR : A bead shall be fixed and static loaded $20 \pm 1N$ ( $2.0 \pm 0.1$ kgf) in axial direction of lead wire in $10 \pm 1$ seconds. FL05R□ : Fix the component in the direction to draw terminal, and gradually apply the tensile force of 4.9 N.	force (N)	duration (S)	25	5	Nominal wire diameter tensile $\phi d$ (mm)	force (N)	duration(S)	$0.3 < \phi d \leq 0.5$	5	30 ± 5	$0.5 < \phi d \leq 0.8$	10	$0.8 < \phi d \leq 1.2$	25							
force (N)	duration (S)																													
25	5																													
Nominal wire diameter tensile $\phi d$ (mm)	force (N)	duration(S)																												
$0.3 < \phi d \leq 0.5$	5	30 ± 5																												
$0.5 < \phi d \leq 0.8$	10																													
$0.8 < \phi d \leq 1.2$	25																													
11. Over current			/	There shall be no scorch or short of wire. LHLC08, LHLC10 : There shall be no firing.					LHL□□□ : Measuring current : Rated current × 2 Duration : 5min. Number of measuring : one time																					
12. Terminal strength : bending	No abnormality such as cut lead, or looseness.								LA : Suspend a mass at the end the terminal, incline the body though angel of 90 and return it to initial position. This operation is done over a period of 2-3 sec. Then second bend in the opposite direction shall be made. Number of bends : Two times. <table border="1"> <tr> <th>Nominal wire diameter tensile <math>\phi d</math> (mm)</th> <th>Bending force (N)</th> <th>Mass reference weight (kg)</th> </tr> <tr> <td><math>0.3 &lt; \phi d \leq 0.5</math></td> <td>2.5</td> <td>0.25</td> </tr> <tr> <td><math>0.5 &lt; \phi d \leq 0.8</math></td> <td>5</td> <td>0.50</td> </tr> </table> LH · FB · LAV : Suspend a mass at the end the terminal, incline the body though angel of 90 and return it to initial position. This operation is done over a period of 2-3 sec. Then second bend in the opposite direction shall be made. Number of bends : Two times. <table border="1"> <tr> <th>Nominal wire diameter tensile <math>\phi d</math> (mm)</th> <th>Bending force (N)</th> <th>Mass reference weight (kg)</th> </tr> <tr> <td><math>0.3 &lt; \phi d \leq 0.5</math></td> <td>2.5</td> <td>0.25</td> </tr> <tr> <td><math>0.5 &lt; \phi d \leq 0.8</math></td> <td>5</td> <td>0.5</td> </tr> <tr> <td><math>0.8 &lt; \phi d \leq 1.2</math></td> <td>10</td> <td>1.0</td> </tr> </table>	Nominal wire diameter tensile $\phi d$ (mm)	Bending force (N)	Mass reference weight (kg)	$0.3 < \phi d \leq 0.5$	2.5	0.25	$0.5 < \phi d \leq 0.8$	5	0.50	Nominal wire diameter tensile $\phi d$ (mm)	Bending force (N)	Mass reference weight (kg)	$0.3 < \phi d \leq 0.5$	2.5	0.25	$0.5 < \phi d \leq 0.8$	5	0.5	$0.8 < \phi d \leq 1.2$	10	1.0
Nominal wire diameter tensile $\phi d$ (mm)	Bending force (N)	Mass reference weight (kg)																												
$0.3 < \phi d \leq 0.5$	2.5	0.25																												
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$0.5 < \phi d \leq 0.8$	5	0.5																												
$0.8 < \phi d \leq 1.2$	10	1.0																												
13. Insulation resistance : between the terminals and body			/	100M $\Omega$ min.					LHL□□□ : Applied voltage : 500 VDC Duration : 60 sec.																					
14. Insulation resistance : between terminals and core			/		1M $\Omega$ min. (Other than material code MA)				FBA · FBR : Applied voltage : 100 VDC Duration : $60 \pm 5$ sec.																					
15. Withstanding : between the terminals and body			/	No abnormality such as insulation damage					LHL□□□ : According to JIS C5102. 7. 1. 3 (C) Metal global method Applied voltage : 500 VDC Duration : 60 sec.																					

Item	Specified Value								Test Method and Remarks
	LA02 Type/ LA03 Type	LA04 Type	CAL45 Type	LHL□□□	FBA/FBR	LAV35	FL05□ Type	FL06BT Type	
16.DC bias characteristic	△L/L : Within -10%					△L/L : -10% Within			LA・LAV35 : Measure inductance with application of rated current using LCR meter to compare it with the initial value.
17.Body strength	No abnormality as damage.				No abnormality such as cracks on body.	No abnormality as damage.			LA02・LAV35 : Applied force : 30N Duration : 10 sec. Speed : Shall attain to specified force in 2 sec.  LA03・LA04 : Applied force : 50N Duration : 10 sec. Speed : Shall attain to specified force in 2 sec.  FBA : Applied force : 50±3N Duration : 30±1 sec.  
18.Resistance to vibration	△L/L : Within±5% Q : 30min.	△L/L : Within±5% △Q/Q : Within±10%	△L/L : Within±5%	Appearance : No abnormality △L/L : Within±5% Q change : Within±30% (LHLP : only △L/L)	Appearance : No abnormality Impedance change : Within±20%	△L/L : Within±5% Q : 30min.			LA : Directions : 2 hrs each in X, Y and Z directions total : 6hrs. Frequency range : 10 to 55 to 10Hz(1min.) Amplitude : 1.5mm Mounting method : Soldering onto printed board. Recovery : At least 1hr of recovery under the standard condition after the test, followed by the measurement within 2hrs.  LHL□□□・FB・LAV : Directions : 2 hrs each in X, Y and Z directions total : 6hrs. Frequency range : 10 to 55 to 10Hz(1min.) Amplitude : 1.5mm (But don't exceed acceleration 196m/s (two power) Mounting method : Soldering onto printed board.



Item	Specified Value								Test Method and Remarks
	LA02 Type/ LA03 Type	LA04 Type	CAL45 Type	LHL□□□	FBA/FBR	LAV35	FL05□ Type	FL06BT Type	
19. Resistance to shock	No significant abnormality in appearance					No significant abnormality in appearance			LA・LAV35 : Drop test Impact material : concrete or vinyl tile Height : 1m Total number of drops : 10 times
20. Solderability	At least 75% of terminal electrode is covered by new solder.		At least 75% of lead cir. fference is covered by new solder.	At least 90% of lead cir. fference is covered by new solder.	At least 75% of lead cir. fference is covered by new solder.				LA・LAV35 : Solder temperature : 230±5°C Duration : 2±0.5 sec.  LHL□□□ : Solder temperature : 235±5°C Duration : 2±0.5 sec. Immersion depth : Up to 1.5mm from bottom of case. [LHL08, LHL10, LHL13, LHL16]  FB : Solder temperature : 230±5°C Duration : 3±1 sec. Immersion depth : Up to 1.5mm from terminal root.  FL05R□ : Solder temperature : 230±5°C Duration : 2±0.5 sec. Immersion depth : Up to 2~2.5mm from terminal root.  FL06BT : Solder temperature : 230±5°C Duration : 3±1 sec. Immersion depth : Up to 0.5~1.0mm from terminal root.

Item	Specified Value								Test Method and Remarks
	LA02 Type/ LA03 Type	LA04 Type	CAL45 Type	LHL□□□	FBA/FBR	LAV35	FL05□ Type	FL06BT Type	
21. Resistance to soldering heat	No significant abnormality in appearance	No significant abnormality in appearance	No significant abnormality in appearance	No significant abnormality in appearance Inductance change : Within±5% Q change : Within±30% (LHLP : only ΔL/L)	No significant abnormality in appearance Impedance change : Within±20%	ΔL/L : Within±5% Q : 30min.	Refer to individual specification	No significant abnormality in appearance Impedance change : Within±20%	<p>LA :</p> <p>Solder temperature : 260±5°C (LA02) 270±5°C (LA03 · LA04 · LA45)</p> <p>Duration : 5±0.5 sec. One time</p> <p>Immersion conditions : Inserted into substrate with t = 1.6mm</p> <p>Recovery : At least 1hr of recovery under the standard condition after the test, followed by the measurement within 2hrs.</p> <p>LHL□□□ :</p> <p>Solder bath method Solder temperature : 260±5°C Duration : 10±1 sec. : Up to 1.5mm from bottom of case. [LHL08, LHL10, LHL13, LHL16, LHLP□□]</p> <p>Manual soldering Solder temperature : 350±10°C (At the tip of soldering iron) Duration : 5±1 sec. : Up to 1.5mm from bottom of case. [LHL08, LHL10, LHL13, LHL16, LHLP□□]</p> <p>Caution : No excessive pressing shall be applied to terminal</p> <p>Recovery : 4 to 24hrs of recovery under the standard condition after the test.</p> <p>FB :</p> <p>Solder bath method Condition 1 Solder temperature : 260±5°C Duration : 10±1 sec. Immersion depth : Up to 1.5mm from terminal root. Condition 2 Solder temperature : 350±5°C Duration : 3±1 sec. Immersion depth : Up to 1.5mm from terminal root. Recovery : 3hrs of recovery under the standard condition after the test.</p> <p>LAV35 :</p> <p>Solder temperature : 260±5°C Duration : 5±0.5 sec. Immersion depth : Up to 2.0 to 2.5mm from bottom of kinked part. Recovery : 4 to 24hrs of recovery under the standard condition after the test.</p> <p>FL :</p> <p>Solder condition : 260±5°C 10±1 sec. Immersion depth : Up to 0.5 to 1.0mm from terminal root. Recovery : 3hrs of recovery under the standard condition after the test.</p>

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22.Resistance to solvent	Please avoid the ultrasonic cleaning of this product.				No significant abnormality in appearance Impedance change : Within±20%	Please avoid the ultrasonic cleaning of this product.			FB : Solvent temperature : 20~25°C Duration : 30±5 sec. Solvent type : Acetone, trichloroethylene Recovery : 3hrs of recovery under the standard condition after the test.																																																												
23.Thermal shock	△L/L : Within±10% Q : 30min.	△L/L : Within±10% △Q/Q : Within±30%	△L/L : Within±10%	Appearance : No abnormality Inductance change : Within±10% Q change : Within±30% (LHLP : only △L/L)	Appearance : No abnormality Impedance change : Within±20%	△L/L : Within±10% Q : 20min.	Refer to individual specification	Appearance : No abnormality Impedance change : Within±20%	LA : Conditions for 1 cycle <table border="1"> <thead> <tr> <th>Step</th> <th>Temperature (°C)</th> <th>Duration (min)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-25<sup>+0</sup><sub>-3</sub></td> <td>30±3</td> </tr> <tr> <td>2</td> <td>Room temperature</td> <td>Within 3</td> </tr> <tr> <td>3</td> <td>+85<sup>+2</sup><sub>-0</sub></td> <td>30±3</td> </tr> <tr> <td>4</td> <td>Room temperature</td> <td>Within 3</td> </tr> </tbody> </table> Number of cycles : 5 cycles Recovery : At least 1hr of recovery under the standard condition after the removal from test chamber, followed by the measurement within 2hrs.  LHL□□□ · FB : According to JIS C0025 Conditions for 1 cycle <table border="1"> <thead> <tr> <th>Step</th> <th>Temperature (°C)</th> <th>Duration (min)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Minimum operating temperature<sup>+0</sup><sub>-3</sub></td> <td>30±3</td> </tr> <tr> <td>2</td> <td>Room temperature</td> <td>Within 3</td> </tr> <tr> <td>3</td> <td>Maximum operating temperature<sup>+2</sup><sub>-0</sub></td> <td>30±3</td> </tr> <tr> <td>4</td> <td>Room temperature</td> <td>Within 3</td> </tr> </tbody> </table> Number of cycles : 10 cycles (LHL□□□) : 5 cycles (FBA, FBR) Recovery : 4 to 24hrs of recovery under the standard condition after the removal from the test chamber. (LHL□□□) : 3hrs of recovery under the standard condition after the removal from the test chamber. (FBA, FBR)  LAV : Conditions for 1 cycle <table border="1"> <thead> <tr> <th>Step</th> <th>Temperature (°C)</th> <th>Duration (min)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Minimum operating temperature<sup>+0</sup><sub>-3</sub></td> <td>30±3</td> </tr> <tr> <td>2</td> <td>Room temperature</td> <td>Within 3</td> </tr> <tr> <td>3</td> <td>Maximum operating temperature<sup>+2</sup><sub>-0</sub></td> <td>30±3</td> </tr> <tr> <td>4</td> <td>Room temperature</td> <td>Within 3</td> </tr> </tbody> </table> Number of cycles : 10 cycles Recovery : At least 1hr of recovery under the standard condition after the removal from test chamber, followed by the measurement within 2hrs.  FL : According to JIS C0025 Conditions for 1 cycle <table border="1"> <thead> <tr> <th>Step</th> <th>Temperature (°C)</th> <th>Duration (min)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-25<sup>+0</sup><sub>-3</sub></td> <td>30±3</td> </tr> <tr> <td>2</td> <td>Room temperature</td> <td>Within 3</td> </tr> <tr> <td>3</td> <td>+85<sup>+2</sup><sub>-0</sub></td> <td>30±3</td> </tr> <tr> <td>4</td> <td>Room temperature</td> <td>Within 3</td> </tr> </tbody> </table> Number of cycles : 10 cycles Recovery : 1 to 2hrs of recovery under the standard condition after the removal from the test chamber.	Step	Temperature (°C)	Duration (min)	1	-25 <sup>+0</sup> <sub>-3</sub>	30±3	2	Room temperature	Within 3	3	+85 <sup>+2</sup> <sub>-0</sub>	30±3	4	Room temperature	Within 3	Step	Temperature (°C)	Duration (min)	1	Minimum operating temperature <sup>+0</sup> <sub>-3</sub>	30±3	2	Room temperature	Within 3	3	Maximum operating temperature <sup>+2</sup> <sub>-0</sub>	30±3	4	Room temperature	Within 3	Step	Temperature (°C)	Duration (min)	1	Minimum operating temperature <sup>+0</sup> <sub>-3</sub>	30±3	2	Room temperature	Within 3	3	Maximum operating temperature <sup>+2</sup> <sub>-0</sub>	30±3	4	Room temperature	Within 3	Step	Temperature (°C)	Duration (min)	1	-25 <sup>+0</sup> <sub>-3</sub>	30±3	2	Room temperature	Within 3	3	+85 <sup>+2</sup> <sub>-0</sub>	30±3	4	Room temperature	Within 3
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	LA02 Type/ LA03 Type	LA04 Type	CAL45 Type	LHL□□□□	FBA/FBR	LAV35	FL05□ Type	FL06BT Type	
24.Damp heat	△L/L : Within±10% Q : 30min.	△L/L : Within±10% △Q/Q : Within±30%	△L/L : Within±10%		Appearance : No abnormality Impedance change : Within±20%	△L/L : Within±10% Q : 20min.			LA・LAV35 : Temperature : 40±2°C Humidity : 90~95%RH Duration : 1000 hrs Recovery : At least 1hr of recovery under the standard removal from test chamber, followed by the measurement within 2hrs.  FB : Temperature : 60±2°C Humidity : 90~95%RH Duration : 1000 hrs Recovery : 1 to 2hrs of recovery under the standard condition after the removal from the test chamber.
25.Loading under damp heat	△L/L : Within±10% Q : 30min.	△L/L : Within±10% △Q/Q : Within±30%	△L/L : Within±10%	Appearance : No abnormality Inductance change : Within±10% Q change : Within±30% (LHLP : only △L/L)		△L/L : Within±10% Q : 20min.	Refer to individual specification	Appearance : No abnormality Impedance change : Within±20%	LA・LAV35 : Temperature : 40±2°C Humidity : 90~95%RH Duration : 1000 hrs Applied current : Rated current Recovery : At least 1hr of recovery under the standard removal from test chamber, followed by the measurement within 2hrs.  LHL□□□□ : Temperature : 40±2°C Humidity : 90~95%RH Duration : 1000±24 hrs Applied current : Rated current Recovery : 1 to 2hrs of recovery under the standard condition after the removal from the test chamber.  FL : Temperature : 60±3°C Humidity : 90~95%RH Duration : 500 (+12, -0)hrs Applied current : Rated current Recovery : 1 to 2hrs of recovery under the standard condition after the removal from the test chamber.
26.Loading at high temperature	△L/L : Within±10% Q : 30min.	△L/L : Within±10% △Q/Q : Within±30%	△L/L : Within±10%			△L/L : Within±10% Q : 20min.			LA・LAV35 : Temperature : 85±2°C Duration : 1000 hrs Applied current : Rated current Recovery : At least 1hr of recovery under the standard removal from test chamber, followed by the measurement within 2hrs.

Item	Specified Value								Test Method and Remarks
	LA02 Type/ LA03 Type	LA04 Type	CAL45 Type	LHL□□□	FBA/FBR	LAV35	FL05□ Type	FL06BT Type	
27.Low temperature life test	△L/L : Within±10% Q : 30min.	△L/L : Within±10% △Q/Q : Within±30%	△L/L : Within±10%	Appearance : No abnormality Inductance change : Within±10% Q change : Within±30% (LHLP : only △L/L)		△L/L : Within±10% Q : 20min.	Refer to individual specification	Appearance : No abnormality Impedance change : Within±20%	LA : Temperature : -25±2°C Duration : 1000 hrs Recovery : At least 1hr of recovery under the standard removal from test chamber, followed by the measurement within 2hrs.  LHL□□□ : Temperature : -40±3°C Duration : 1000±24 hrs Recovery : 1 to 2hrs of recovery under the standard condition after the removal from the test cfamber.  LAV35 : Temperature : -40±3°C Duration : 1000 hrs Recovery : At least 1hr of recovery under the standard removal from test chamber, followed by the measurement within 2hrs.  FL : Temperature : -40±3°C Duration : 500 (+12, -0) hrs Recovery : 1 to 2hrs of recovery under the standard condition after the removal from the test cfamber.
28.High temperature life test			/	Appearance : No abnormality Inductance change : Within±10% Q change : Within±30%			Refer to individual specification	Appearance : No abnormality Impedance change : Within±20%	LHL□□□ : Temperature : 105±3°C Duration : 1000±24 hrs Recovery : 1 to 2hrs of recovery under the standard condition after the removal from the test cfamber.  FL : Temperature : 85±3°C Duration : 500 (+12, -0) hrs Recovery : 1 to 2hrs of recovery under the standard condition after the removal from the test cfamber.

LA Type, CAL Type, LH Type, FB Type, FL Type

Stages	Precautions	Technical considerations
1.Circuit Design	<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	<p>Design</p> <p>1.Please design insertion pitches of a base in the pitches that fitted a terminal interval.</p>	<p>1.When Inductors are mounted onto a PC board, hole dimensions on the board should match the lead pitch of the component, if not, it will cause breakage of the terminals or cracking of terminal roots covered with resin as excess stress travels through the terminal legs.</p>
3.Considerations for automatic placement	<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>	<p>1. When installing products, care should be taken not to apply distortion stress as it may deform the products.</p>
4.Soldering	<p>Wave soldering</p> <p>1.Please refer to the specifications in the catalog for a wave soldering.</p> <p>2.Do not immerse the entire Inductors in the flux during the soldering operation.</p> <p>Lead free soldering</p> <p>1.When using products with lead free soldering, we request to use them after confirming of adhesion, temperature of resistance to soldering heat, soldering etc sufficiently.</p> <p>Recommended conditions for using a soldering iron:</p> <p>Put the soldering iron on the land-pattern.</p> <p>Soldering iron's temperature - Below 350 °C</p> <p>Duration - 3 seconds or less</p> <p>The soldering iron should not directly touch the inductor.</p> <p>◆Reflow soldering</p> <p>1.As for reflow soldering, please contact our sales staff.</p>	<p>1.If products are used beyond the range of the recommended conditions, heat stresses may deform the products, and consequently degrade the reliability of the products.</p>
5.Cleaning	<p>Cleaning conditions</p> <p>1.LA type, CAL type, LH type</p> <p>Please do not do cleaning by a supersonic wave.</p>	<p>LA type, CAL type, LH type</p> <p>1.If washing by supersonic waves, supersonic waves may deform products.</p>
6.Handling	<p>Handling</p> <p>1.Keep the inductors away from all magnets and magnetic objects.</p> <p>Mechanical considerations</p> <p>1.Please do not give the inductors any excessive mechanical shocks.</p> <p>2.LH type</p> <p>If inductors are dropped onto the floor or a hard surface they should not be used.</p> <p>Packing</p> <p>1.Please do not give the inductors any excessive mechanical shocks.</p> <p>In loading, please pay attention to handling indication mentioned in a packing box (a loading direction / number of maximum loading / fragile item).</p>	<p>1.There is a case that a characteristic varies with magnetic influence.</p> <p>1.There is a case to be damaged by a mechanical shock.</p> <p>2.LH type</p> <p>There is a case to be broken by a fall.</p> <p>1.There is a case that a lead route turns at by a fall or an excessive shock.</p>
7.Storage conditions	<p>Storage</p> <p>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..</p> <p>•Recommended conditions</p> <p>Ambient temperature           0~40°C</p> <p>Humidity                           Below 70 % RH</p> <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, inductors should be used within one year from the time of delivery.</p> <p>In case of storage over 6 months, solderability shall be checked before actual usage.</p>	<p>1. Under a high temperature and humidity environment, problems such as reduced solderability caused by oxidation of terminal electrodes and deterioration of taping/package materials may take place.</p>