

# LL1005-FHL Series

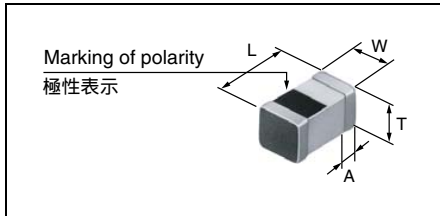
**Inductance Range:** 1.0~100nH (E-24 Series)、個別対応品 order production available (1.1nH, 1.3nH, 1.6nH, 2.0nH, 2.4nH, 3.0nH, 3.6nH, 4.3nH, 5.1nH, 6.2nH, 7.5nH, 9.1nH)

**Temperature Coefficient of L:** + 250ppm/°C (for reference only)

## FEATURES / 特長

- Dual frequency standard for inductance value
- Tight tolerance physical dimensions ( $\pm 0.05\text{mm}$ )
- Supports high temperature reflow soldering ( $260^\circ\text{C}$ , 3 times)
- Expanding operating temperature range ( $-55^\circ\text{C}\sim+125^\circ\text{C}$ )
- Extended applicable frequency range ( $\sim 10\text{GHz}$ )
- Surface mounting applicability (Supports reflow soldering)
- High reliability (ceramic integrated structure, and terminals plated)
- RoHS compliant
- インダクタンス値の2周波規格化
- 外形寸法の狭公差化 ( $\pm 0.05\text{mm}$ )
- 高温リフロー対応可 ( $260^\circ\text{C}$  × 3回)
- 使用温度範囲の拡大化 ( $-55^\circ\text{C} \sim +125^\circ\text{C}$ )
- 高周波適用性の拡大化 ( $\sim 10\text{GHz}$ )
- 面実装適用性 (リフロー対応)
- 高信頼性 (セラミック一体構造、およびめっき端子電極)
- RoHS指令対応

## DIMENSIONS / 外形寸法図



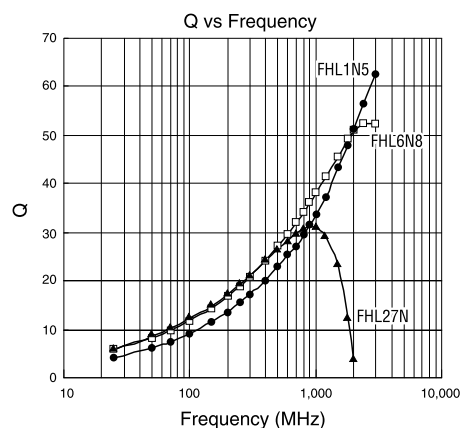
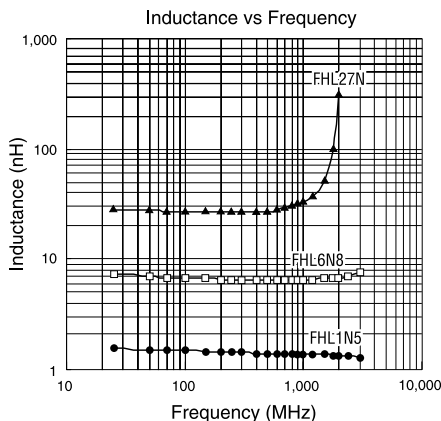
Inductance	Length L (mm)	Width W (mm)	Thickness T (mm)	Electrode width A (mm)
1.0 ~ 68nH	$1.0 \pm 0.05$	$0.5 \pm 0.05$	$0.5 \pm 0.05$	$0.25 \pm 0.1$
82 ~ 100nH	$1.0 \pm 0.05$	$0.5 \pm 0.05$	$0.5 \pm 0.1$	$0.25 \pm 0.1$

- **Marking of polarity:** Marking is on the upper Surface of the unit.
- **極性表示:** 磁束方向を示します。この表示が、常に上を向くようにテーピングされています。

## ELECTRICAL CHARACTERISTICS / 電気的特性

- |   |   |                    |   |
|---|---|--------------------|---|
| • Inductance Range  | 1.0~100nH (E-24 Series)   | • インダクタンス範囲        | 1.0 ~ 100nH (E-24 Series)   |
| • Inductance Tolerance                                    | S ; $\pm 0.3\text{nH}$ (1.0~6.2nH)<br>J ; $\pm 5\%$ (6.8~100nH) | • インダクタンス許容差       | S級; $\pm 0.3\text{nH}$ (1.0 ~ 6.2nH)<br>J級; $\pm 5\%$ (6.8 ~ 100nH) |
| • Q (Typical)   | 15~35 (at 800MHz)   | • Q (Typical)      | 15 ~ 35 (at 800MHz)   |
| • Rated Current   | 200~500mA   | • 許容電流値            | 200 ~ 500mA   |
| • Inductance Temperature Coefficient (for reference only) | +250ppm/°C  | • インダクタンス温度係数(参考値) | + 250ppm/°C   |
| • Operating Temperature Range                             | $-55^\circ\text{C}\sim+125^\circ\text{C}$                       | • 使用温度範囲           | $-55^\circ\text{C} \sim +125^\circ\text{C}$                         |
| • Storage Temperature Range                               | $-55^\circ\text{C}\sim+125^\circ\text{C}$                       | • 保存温度範囲           | $-55^\circ\text{C} \sim +125^\circ\text{C}$                         |

## EXAMPLES OF CHARACTERISTICS / 代表特性例



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**TOKO STANDARD PART NUMBERS / 東光 標準品一覧**
**LL1005-FHL Series (Quantity/reel; 10,000 PCS)**

TOKO Part number	Inductance & Tolerance		Q Min. 100 MHz	Q Typical							S.R.F. (MHz) Min.	R <sub>DC</sub> (Ω) Max.	R <sub>DC</sub> (Ω) Typ.	I <sub>bc</sub> (mA) Max.
	100MHz	800MHz (**500MHz)		100 MHz	300 MHz	500 MHz	800 MHz	1000 MHz	1800 MHz	2400 MHz				
LL1005-FHL1N0S	1.0±0.3nH	0.93±0.5nH	8.0	8.8	17.0	22.0	29.0	33.0	47.0	57.0	20000	0.10	0.07	500
* LL1005-FHL1N1S	1.1±0.3nH	1.0±0.5nH	8.0	9.0	16.0	21.0	27.0	30.0	43.0	53.0	16000	0.10	0.07	500
LL1005-FHL1N2S	1.2±0.3nH	1.1±0.5nH	8.0	9.0	17.0	22.0	28.0	32.0	46.0	55.0	16000	0.10	0.07	500
* LL1005-FHL1N3S	1.3±0.3nH	1.2±0.5nH	8.0	9.0	17.0	22.0	28.0	32.0	45.0	54.0	12000	0.11	0.07	500
LL1005-FHL1N5S	1.5±0.3nH	1.4±0.5nH	8.0	9.2	17.0	23.0	29.0	33.0	47.0	57.0	12000	0.13	0.08	500
* LL1005-FHL1N6S	1.6±0.3nH	1.5±0.5nH	8.0	10.0	17.0	23.0	29.0	33.0	46.0	55.0	12000	0.13	0.08	500
LL1005-FHL1N8S	1.8±0.3nH	1.7±0.5nH	8.0	9.1	16.0	22.0	28.0	32.0	44.0	53.0	12000	0.14	0.08	500
* LL1005-FHL2N0S	2.0±0.3nH	1.9±0.5nH	8.0	10.0	18.0	23.0	30.0	34.0	46.0	53.0	11000	0.14	0.08	500
LL1005-FHL2N2S	2.2±0.3nH	2.0±0.5nH	8.0	10.0	18.0	24.0	31.0	34.0	48.0	55.0	11000	0.15	0.09	500
* LL1005-FHL2N4S	2.4±0.3nH	2.2±0.5nH	8.0	11.0	18.0	24.0	31.0	35.0	49.0	54.0	8100	0.15	0.09	500
LL1005-FHL2N7S	2.7±0.3nH	2.5±0.5nH	8.0	10.0	18.0	24.0	31.0	35.0	50.0	58.0	8100	0.15	0.10	500
* LL1005-FHL3N0S	3.0±0.3nH	2.9±0.5nH	8.0	10.0	18.0	24.0	31.0	35.0	49.0	54.0	7700	0.15	0.10	500
LL1005-FHL3N3S	3.3±0.3nH	3.1±0.5nH	8.0	10.0	18.0	24.0	30.0	34.0	47.0	54.0	7700	0.16	0.10	500
* LL1005-FHL3N6S	3.6±0.3nH	3.4±0.5nH	8.0	10.0	18.0	24.0	30.0	34.0	46.0	52.0	6200	0.16	0.11	500
LL1005-FHL3N9S	3.9±0.3nH	3.7±0.5nH	8.0	10.0	18.0	24.0	31.0	36.0	48.0	55.0	6200	0.18	0.12	500
* LL1005-FHL4N3S	4.3±0.3nH	4.1±0.5nH	8.0	10.0	18.0	24.0	30.0	34.0	46.0	50.0	6000	0.18	0.12	400
LL1005-FHL4N7S	4.7±0.3nH	4.4±0.5nH	9.0	11.0	19.0	24.0	31.0	35.0	47.0	52.0	6000	0.20	0.13	400
* LL1005-FHL5N1S	5.1±0.3nH	4.8±0.5nH	9.0	11.0	19.0	25.0	31.0	35.0	45.0	49.0	5300	0.20	0.14	400
LL1005-FHL5N6S	5.6±0.3nH	5.3±0.5nH	9.0	12.0	21.0	27.0	35.0	39.0	50.0	53.0	5100	0.22	0.15	400
* LL1005-FHL6N2S	6.2±0.3nH	6.0±0.5nH	9.0	12.0	21.0	27.0	34.0	38.0	50.0	54.0	4700	0.22	0.15	400
LL1005-FHL6N8J	6.8nH±5%	6.5nH±10%	9.0	12.0	21.0	27.0	34.0	38.0	49.0	52.0	4700	0.23	0.16	400
* LL1005-FHL7N5J	7.5nH±5%	7.3nH±10%	9.0	12.0	21.0	27.0	34.0	38.0	46.0	46.0	4200	0.23	0.16	400
LL1005-FHL8N2J	8.2nH±5%	7.9nH±10%	9.0	12.0	21.0	27.0	33.0	37.0	46.0	46.0	4000	0.25	0.17	400
* LL1005-FHL9N1J	9.1nH±5%	8.9nH±10%	9.0	11.0	19.0	25.0	31.0	34.0	40.0	36.0	3600	0.26	0.18	400
LL1005-FHL10NJ	10nH±5%	9.7nH±10%	9.0	12.0	20.0	26.0	33.0	36.0	43.0	39.0	3600	0.30	0.19	400
LL1005-FHL12NJ	12nH±5%	12nH±10%	9.0	12.0	20.0	25.0	31.0	33.0	33.0	23.0	2800	0.40	0.21	300
LL1005-FHL15NJ	15nH±5%	15nH±10%	9.0	12.0	20.0	25.0	30.0	32.0	27.0	-	2500	0.50	0.26	300
LL1005-FHL18NJ	18nH±5%	18nH±10%	10.0	12.0	21.0	26.0	31.0	33.0	27.0	-	2300	0.60	0.44	300
LL1005-FHL22NJ	22nH±5%	23nH±10%	10.0	12.0	20.0	25.0	30.0	31.0	18.0	-	2100	0.70	0.50	300
LL1005-FHL27NJ	27nH±5%	30nH±10%	10.0	12.0	21.0	26.0	31.0	31.0	12.0	-	1700	0.85	0.52	300
LL1005-FHL33NJ	33nH±5%	36nH±10%	10.0	12.0	19.0	24.0	27.0	27.0	-	-	1700	1.00	0.70	200
LL1005-FHL39NJ	39nH±5%	44nH±10%	10.0	12.0	20.0	24.0	26.0	26.0	-	-	1600	1.10	0.80	200
LL1005-FHL47NJ	47nH±5%	**50nH±10%	10.0	11.0	18.0	21.0	21.0	18.0	-	-	1200	1.30	0.93	200
LL1005-FHL56NJ	56nH±5%	**60nH±10%	10.0	12.0	19.0	22.0	20.0	16.0	-	-	1100	1.50	1.20	200
LL1005-FHL68NJ	68nH±5%	**77nH±10%	10.0	11.0	18.0	20.0	18.0	13.0	-	-	1100	1.70	1.25	200
LL1005-FHL82NJ	82nH±5%	**95nH±10%	10.0	13.0	20.0	21.0	15.0	-	-	-	970	1.90	1.26	200
LL1005-FHLR10J	100nH±5%	**122nH±10%	10.0	13.0	19.0	19.0	-	-	-	-	870	2.20	1.45	200

注：(1)上表以外のインダクタンス値及び許容差(C級±0.2nH, T級±3%, B級±0.1nH, G級±2%)もご要望により用意いたします。  
 (2)\*印の品番は個別対応品です。サンプルキット等には入っておりませんので品番毎にご要求下さい。  
 Note: (1)Add tolerance to part number; B = ±0.1nH, C = ±0.2nH, G ±2%, T±3%,  
 (2)\* Sign shows the order production product number. Please demand each product number because it is not a regular product number of the sample kit.

**Test Equipment & note**

(測定器 / 注意事項)

- L, Q : RF Impedance Analyzer 4291A/B (Agilent Technologies), Test Fixture 16192A (Agilent Technologies)
- Q at 2400MHz : RF Impedance Analyzer E4991A (Agilent Technologies), Test Fixture 16192A (Agilent Technologies)
- S.R.F. / 自己共振周波数 : Network Analyzer 8719D (Agilent Technologies), 8720D (Agilent Technologies)
- R<sub>DC</sub> / 直流抵抗 : Milliohmeter 4338A/B (Agilent Technologies)
- Inductance tolerance / インダクタンス許容差 : S=±0.3nH, J=±5%
- Operating temperature range / 使用温度範囲 : -55°C ~ +125°C
- Storage temperature range / 保存温度範囲 : -55°C ~ +125°C