

- All specifications are subject to change without notice.
- Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

Inductors for High-frequency Circuits Multilayer/Super High-Q

Conformity to RoHS Directive

MHQ Series MHQ1005P

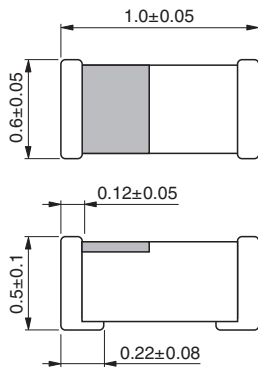
FEATURES

- Achieves High Q characteristics equivalent to that of an air-core wire wound inductor through the use of TDK's unique ceramic materials and structures.
- Inductance is provided in small increments, taking advantage of the multilayer technique.
- The products contain no lead and also support lead-free soldering.
- It is a product conforming to RoHS directive.

APPLICATIONS

For high-frequency applications including mobile phones, high frequency modules (PA, VCO, FEM etc.), Bluetooth, W-LAN, UWB and tuners.

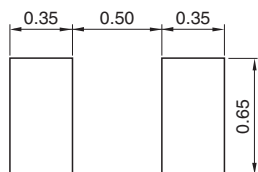
SHAPES AND DIMENSIONS



Weight: 1mg
Dimensions in mm

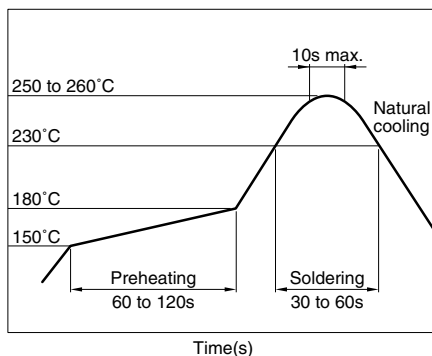


RECOMMENDED PC BOARD PATTERN



Dimensions in mm

RECOMMENDED SOLDERING CONDITION REFLOW SOLDERING



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- Please contact our Sales office when your application is considered the following:
The device's failure or malfunction may directly endanger human life (e.g. application for automobile/aircraft/medical/nuclear power devices, etc.)

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PRODUCT IDENTIFICATION

MHQ	1005	P	2N2	S	T	☐ ☐ ☐
(1)	(2)	(3)	(4)	(5)	(6)	(7)

(1) Series name

(2) Dimensions L×W

1005	1.0×0.5mm (L×W)
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(3) Type name

(4) Inductance

2N2	2.2nH
12N	12nH

(5) Tolerance

B	±0.1nH
C	±0.2nH
S	±0.3nH
G	±2%
H	±3%
J	±5%

(6) Packaging style

T	Taping (reel)
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(7) TDK internal code

SPECIFICATIONS

Operating temperature range	−55 to +125°C
Storage temperature range	−55 to +125°C (After mount)

PACKAGING STYLE AND QUANTITIES

Packaging style	Quantity
Taping	10000 pieces/reel

HANDLING AND PRECAUTIONS

- Before soldering, be sure to preheat components.
The preheating temperature should be set so that the temperature difference between the solder temperature and product temperature does not exceed 150°C.
- After mounting components onto the printed circuit board, do not apply stress through board bending or mishandling.
- When hand soldering, apply the soldering iron to the printed circuit board only. Temperature of the iron tip should not exceed 350°C. Soldering time should not exceed 3 seconds.

ELECTRICAL CHARACTERISTICS

Inductance (nH)	Inductance tolerance	Test frequency L (MHz)	Q min.	Test frequency Q (MHz)	Self-resonant frequency (GHz)		DC resistance (Ω)		Rated current (mA)max.	Part No.*
					min.	typ.	max.	typ.		
1.0	$\pm 0.1, \pm 0.2, 0.3\text{nH}$	100	—	250	15.0	20.0	0.03	0.01	1200	MHQ1005P1N0□T
1.1	$\pm 0.1, \pm 0.2, 0.3\text{nH}$	100	—	250	14.0	20.0	0.03	0.02	1200	MHQ1005P1N1□T
1.2	$\pm 0.1, \pm 0.2, 0.3\text{nH}$	100	—	250	13.0	18.3	0.03	0.01	1200	MHQ1005P1N2□T
1.3	$\pm 0.1, \pm 0.2, 0.3\text{nH}$	100	—	250	12.0	20.0	0.03	0.01	1200	MHQ1005P1N3□T
1.5	$\pm 0.1, \pm 0.2, 0.3\text{nH}$	100	23	250	11.0	19.7	0.04	0.02	1000	MHQ1005P1N5□T
1.6	$\pm 0.1, \pm 0.2, 0.3\text{nH}$	100	23	250	10.0	15.2	0.04	0.02	1000	MHQ1005P1N6□T
1.8	$\pm 0.1, \pm 0.2, 0.3\text{nH}$	100	23	250	9.0	15.1	0.04	0.03	1000	MHQ1005P1N8□T
2.0	$\pm 0.1, \pm 0.2, 0.3\text{nH}$	100	23	250	8.0	11.5	0.05	0.03	1000	MHQ1005P2N0□T
2.2	$\pm 0.1, \pm 0.2, 0.3\text{nH}$	100	23	250	8.0	12.1	0.06	0.04	1000	MHQ1005P2N2□T
2.4	$\pm 0.1, \pm 0.2, 0.3\text{nH}$	100	23	250	6.5	9.8	0.06	0.04	1000	MHQ1005P2N4□T
2.7	$\pm 0.1, \pm 0.2, 0.3\text{nH}$	100	23	250	6.5	9.6	0.07	0.04	900	MHQ1005P2N7□T
3.0	$\pm 0.1, \pm 0.2, 0.3\text{nH}$	100	23	250	6.0	9.4	0.08	0.06	900	MHQ1005P3N0□T
3.3	$\pm 0.1, \pm 0.2, 0.3\text{nH}$	100	23	250	6.0	9.0	0.08	0.06	900	MHQ1005P3N3□T
3.6	$\pm 0.1, \pm 0.2, 0.3\text{nH}$	100	23	250	5.5	8.4	0.09	0.07	900	MHQ1005P3N6□T
3.9	$\pm 0.1, \pm 0.2, 0.3\text{nH}$	100	23	250	5.0	7.7	0.09	0.07	900	MHQ1005P3N9□T
4.3	$\pm 0.1, \pm 0.2, 0.3\text{nH}$	100	23	250	5.0	7.1	0.10	0.08	800	MHQ1005P4N3□T
4.7	$\pm 0.1, \pm 0.2, 0.3\text{nH}$	100	23	250	5.0	7.7	0.11	0.08	800	MHQ1005P4N7□T
5.1	$\pm 0.1, \pm 0.2, 0.3\text{nH}$	100	23	250	4.5	7.2	0.12	0.09	800	MHQ1005P5N1□T
5.6	$\pm 0.1, \pm 0.2, 0.3\text{nH}$	100	23	250	4.5	6.5	0.13	0.10	800	MHQ1005P5N6□T
6.2	$\pm 0.1, \pm 0.2, 0.3\text{nH}$	100	23	250	4.0	5.9	0.13	0.09	700	MHQ1005P6N2□T
6.8	$\pm 2\%, \pm 3\%, \pm 5\%$	100	23	250	4.0	5.8	0.14	0.10	700	MHQ1005P6N8□T
7.5	$\pm 2\%, \pm 3\%, \pm 5\%$	100	23	250	4.0	5.6	0.16	0.12	600	MHQ1005P7N5□T
8.2	$\pm 2\%, \pm 3\%, \pm 5\%$	100	23	250	3.6	4.9	0.16	0.12	550	MHQ1005P8N2□T
9.1	$\pm 2\%, \pm 3\%, \pm 5\%$	100	23	250	3.4	4.5	0.17	0.13	550	MHQ1005P9N1□T
10	$\pm 2\%, \pm 3\%, \pm 5\%$	100	23	250	3.3	4.6	0.19	0.15	500	MHQ1005P10N□T
12	$\pm 2\%, \pm 3\%, \pm 5\%$	100	23	250	2.8	3.8	0.24	0.19	450	MHQ1005P12N□T
15	$\pm 2\%, \pm 3\%, \pm 5\%$	100	23	250	2.3	3.2	0.28	0.22	400	MHQ1005P15N□T

* □: Please specify inductance tolerance, B ($\pm 0.1\text{nH}$), C ($\pm 0.2\text{nH}$), S ($\pm 0.3\text{nH}$), G ($\pm 2\%$), H ($\pm 3\%$) or J ($\pm 5\%$).

• Test equipment

Inductance Q: E4991A+16197A, or equivalent

SRF: HP8720C, or equivalent

Rdc: YOKOGAWA TYPE7561, or equivalent

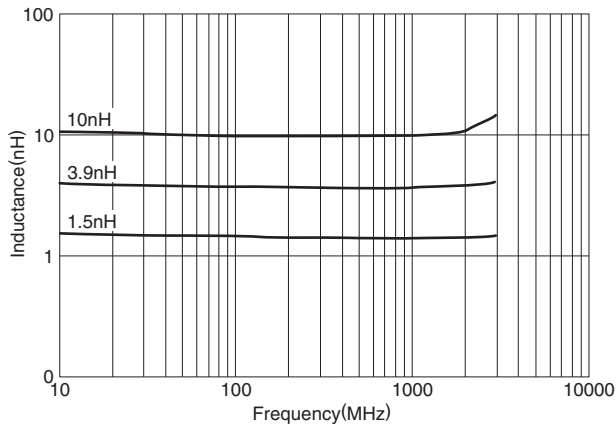
• Short bar residual inductance $\approx 0.556\text{nH}$

L, Q vs. FREQUENCY CHARACTERISTICS

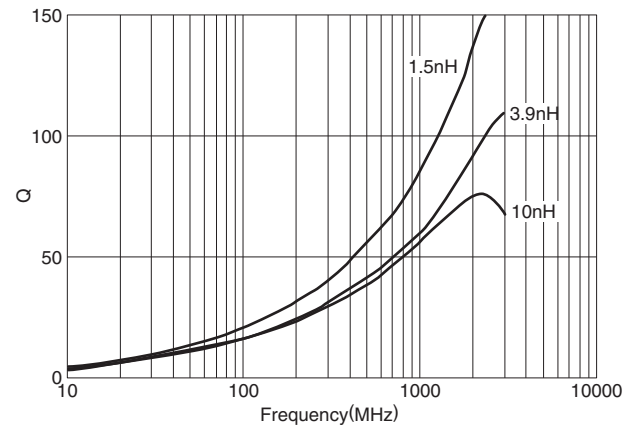
Part No.	Inductance(nH)typ.					Q typ.				
	500MHz	800MHz	1.8GHz	2.0GHz	2.4GHz	500MHz	800MHz	1.8GHz	2.0GHz	2.4GHz
MHQ1005P1N0	1.0	1.0	1.0	1.0	1.0	56min.	76min.	126min.	130min.	160min.
MHQ1005P1N1	1.1	1.1	1.1	1.1	1.1	56min.	76min.	126min.	130min.	160min.
MHQ1005P1N2	1.2	1.2	1.2	1.2	1.2	56min.	76min.	126min.	130min.	160min.
MHQ1005P1N3	1.3	1.3	1.3	1.3	1.3	56min.	76min.	126min.	130min.	160min.
MHQ1005P1N5	1.5	1.5	1.5	1.5	1.5	56	76	126	130	160
MHQ1005P1N6	1.6	1.6	1.6	1.6	1.6	60	78	136	144	174
MHQ1005P1N8	1.8	1.8	1.8	1.8	1.8	52	72	123	129	152
MHQ1005P2N0	2.0	2.0	2.0	2.0	2.0	54	70	108	113	132
MHQ1005P2N2	2.2	2.1	2.2	2.2	2.2	47	62	104	110	129
MHQ1005P2N4	2.3	2.3	2.4	2.4	2.4	45	59	98	102	120
MHQ1005P2N7	2.6	2.6	2.7	2.7	2.7	45	57	87	91	108
MHQ1005P3N0	2.9	2.9	3.0	3.0	3.1	47	59	92	97	116
MHQ1005P3N3	3.2	3.2	3.3	3.3	3.4	41	55	91	95	112
MHQ1005P3N6	3.5	3.5	3.6	3.6	3.7	41	53	87	91	107
MHQ1005P3N9	3.8	3.8	3.9	4.0	4.1	40	53	87	91	105
MHQ1005P4N3	4.2	4.2	4.4	4.5	4.6	41	54	86	89	102
MHQ1005P4N7	4.6	4.6	4.7	4.8	4.9	38	50	82	85	98
MHQ1005P5N1	5.0	5.0	5.2	5.3	5.4	41	52	79	83	97
MHQ1005P5N6	5.5	5.5	5.7	5.8	6.1	39	51	81	84	95
MHQ1005P6N2	6.1	6.1	6.5	6.7	7.0	45	56	84	87	99
MHQ1005P6N8	6.7	6.7	7.2	7.4	7.8	42	53	77	80	91
MHQ1005P7N5	7.3	7.3	7.9	8.1	8.5	38	49	76	79	87
MHQ1005P8N2	8.0	8.1	8.9	9.2	9.8	42	53	77	80	88
MHQ1005P9N1	8.9	9.0	9.9	10.3	11.2	38	49	73	75	79
MHQ1005P10N	9.8	9.9	11.1	11.6	12.6	39	51	74	75	77
MHQ1005P12N	12	12	14	14	16	39	49	67	68	70
MHQ1005P15N	15	15	18	20	23	37	45	57	57	54

TYPICAL ELECTRICAL CHARACTERISTICS

INDUCTANCE vs. FREQUENCY CHARACTERISTICS

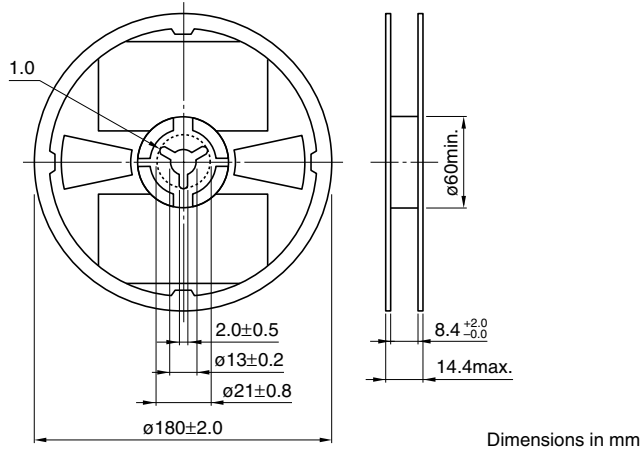


Q vs. FREQUENCY CHARACTERISTICS



PACKAGING STYLES

REEL DIMENSIONS



TAPE DIMENSIONS

