SPECIFICATIONS

Customer	
Product Name	Thin Film RF Inductor
Sunlord Part Number	HQ0402Q-P01 Series
Customer Part Number	

[☒New Released, ☐Revised] **SPEC No.: HQ0204210000**

Rev.	Effective Date	Changed Contents	Change reasons	Approved By
01	/	New release	/	Xiangdong Zeng

【This SPEC is total 12 pages including specifications and appendix. 】
【ROHS, Halogen-Free and SVHC Compliant Parts】

Approved By	Checked By	Issued By

Shenzhen Sunlord Electronics Co., Ltd.

Address: Sunlord Industrial Park, Dafuyuan Industrial Zone, Baoan, Shenzhen, China 518110
Tel: 0086-755-29832333 Fax: 0086-755-82269029 E-Mail: sunlord@sunlordinc.com

【For Customer approval Only】 Date:____________________

Qualification Status: ☐ Full ☐ Restricted ☐ Rejected

Approved By	Verified By	Re-checked By	Checked By

Comments:

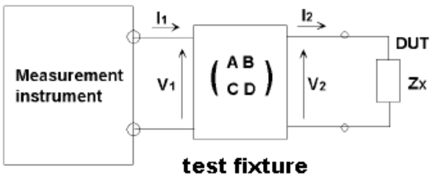
Caution

All products listed in this specification are developed, designed and intended for use in general electronics equipment. The products are not designed or warranted to meet the requirements of the applications listed below, whose performance and/or quality require especially high reliability, or whose failure, malfunction or trouble might directly cause damage to society, person, or property. Please understand that we are not responsible for any damage or liability caused by use of the products in any of the applications below. Please contact us for more details if you intend to use our products in the following applications.

1. *Aircraft equipment*
2. *Aerospace equipment*
3. *Undersea equipment*
4. *nuclear control equipment*
5. *military equipment*
6. *Power plant equipment*
7. *Medical equipment*
8. *Transportation equipment (automobiles, trains, ships,etc.)*
9. *Traffic signal equipment*
10. *Disaster prevention / crime prevention equipment*
11. *Data-processing equipment*
12. *Applications of similar complexity or with reliability requirements comparable to the applications listed in the above*

Measuring Method of Inductance

a. *Residual elements and stray elements of test fixture can be described by F-parameter as shown in the following:*



test fixture

$$\begin{bmatrix} V_1 \\ I_1 \end{bmatrix} = \begin{bmatrix} A & B \\ C & D \end{bmatrix} \begin{bmatrix} V_2 \\ I_2 \end{bmatrix}$$

$$\begin{bmatrix} V_1 \\ I_1 \end{bmatrix} = \begin{bmatrix} AV_2 + BI_2 \\ CV_2 + DI_2 \end{bmatrix}$$

Measured open impedance: $Zom = \frac{A}{C}$

Measured short impedance: $Zsm = \frac{B}{D} \approx -Zsc$ *(when uses short chip to short)*

Measured short ship impedance: Zsc

Measured value: $Zxm = V_1/I_1$

Impedance of DUT: $Zx = V_2/I_2$

b. *The relation between Zx and Zom, Zsm, Zxm is shown in the following:*

$$Zx = \frac{V_2}{I_2} = \frac{D}{A} * \frac{\frac{V_1}{I_1} - \frac{B}{D}}{1 - \frac{V_1}{I_1} * \frac{C}{A}} = \frac{D}{A} * \frac{Zxm - \frac{B}{D}}{1 - Zxm * \frac{C}{A}} = \frac{D}{A} * \frac{Zxm - Zsm}{1 - Zxm / Zom}$$

c. *Lx should be calculated with the following equation:*

$$Lx = \frac{\mathrm{Im}(Zx)}{2\pi f} = \frac{\mathrm{Im}(Zxm + Zsc)}{2\pi f} = \frac{\mathrm{Im}(Zxm)}{2\pi f} + \frac{\mathrm{Im}(Zsc)}{2\pi f} = Lxm + Lsc$$

Lxm：Measured chip inductor inductance

Lsc：Measured short chip inductance

Lx：Nominal Inductance of chip inductor

Compensation Value（Lsc）of Short Chip

Series	*Compensation Value*
HQ0402Q-P01	*0.11nH*

1. Scope

This specification applies to HQ0402Q-P01 series of thin film radio frequency inductor.

2. Product Description and Identification (Part Number)

1) Description

HQ0402Q-P01 series of thin film radio frequency inductor.

2) Product Identification (Part Number)

HQ	0402	Q	XXX	□	◎	01
①	②	③	④	⑤	⑥	⑦

①	Type
HQ	High Q Ceramic Chip Inductor

② External Dimensions (L X W) (mm)	
0402 [01005]	0.4 X 0.2

③ Applications and Characteristics Code	
Q	Super Q

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

④ Nominal Inductance	
Example	Example
3N9	3N9
10N	10N

⑥	Packing
P	Plastic Tape Carrier Package

⑦ Serial Code
01

3. Electrical Characteristics

Please refer to **Appendix A** (Page9-12).

1) Operating and storage temperature range (individual chip without packing): -55℃~ +125℃,

2) Storage temperature range (packaging conditions): -10℃~+40℃ and RH 70% (Max.)

4. Shape and Dimensions

1) Dimensions and recommended PCB pattern for reflow soldering: See **Fig.4-1**, **Fig.4-2** and **Table 4-1**.

2) Structure: See **Fig. 4-3** and **Fig. 4-4**.

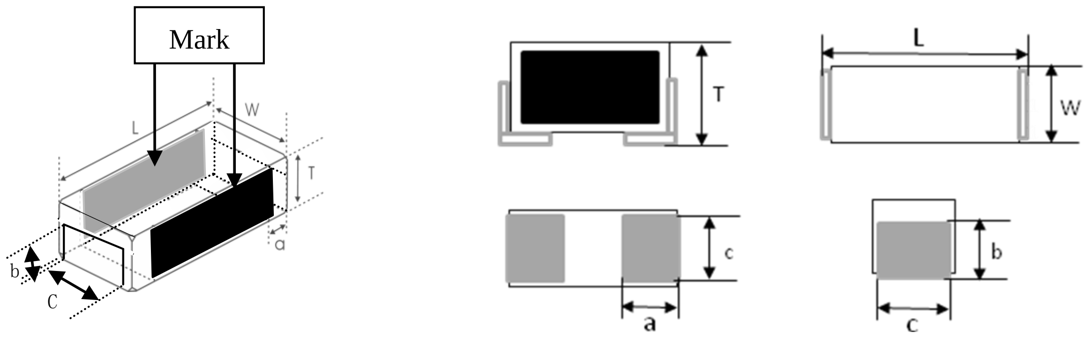


Fig. 4-1

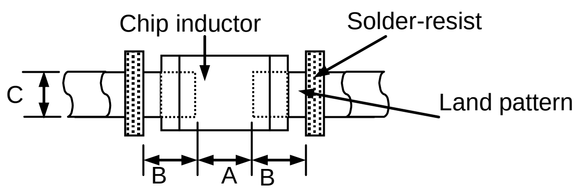
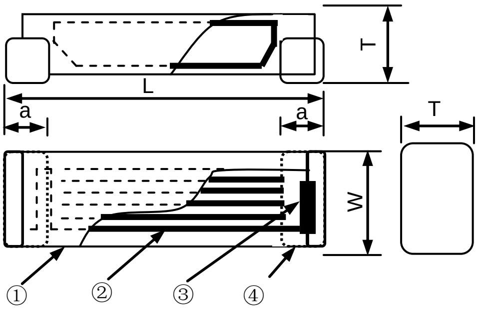


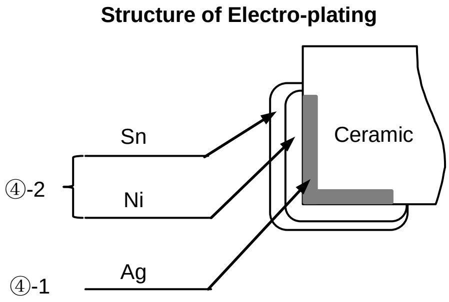
Fig. 4-2

[Table 4-1] Unit: mm [inch]

Type	L	W	T	a	b	c	A	B	C
0402 [01005]	0.4±0.02 [.016±.0008]	0.2±0.02 [.008±.0008]	0.3±0.02 [.118±.0008]	0.14±0.03 [.005±.0010]	0.14±0.03 [.005±.0010]	0.17±0.03 [.006±.0010]	0.15~0.19	0.18~0.22	0.18~0.22



[Fig 4-3]



[Fig 4-4]

① Ceramic for HQ Series
② Internal electrode (Ag)
③ Pull out electrode(Ag)
④-1 Terminal electrode: Inside (Ag)
④-2 Outside (Electro-plating Ni-Sn)

3) Material Information: See **Table 4-2**

Code	Part Name	Material Name
①	Ceramic Body	Ceramic Powder
②	Inner Coils	Silver Paste
③	Pull-out Electrode (Ag)	Silver Paste
④-1	Terminal Electrode: Inside Ag	Silver Paste
④-2	Electro-Plating: Ni/Sn plating	Plating Chemicals

4) Soldering Notice: The surface with the mark should be on the two beside when soldering

5. Test and Measurement Procedures

5.1 Test Conditions

Unless otherwise specified, the standard atmospheric conditions for measurement/test as:

a. Ambient Temperature: 20±15℃
b. Relative Humidity: 65±20%
c. Air Pressure: 86 KPa to 106 KPa

If any doubt on the results, measurements/tests should be made within the following limits:

a. Ambient Temperature: 20±2℃
b. Relative Humidity: 65±5%
c. Air Pressure: 86KPa to 106 KPa

5.2 Visual Examination

a. Inspection Equipment: 60 X magnifier

5.3 Electrical Test

5.3.1 DC Resistance (DCR)

a. Refer to **Appendix A**.
b. Test equipment (Analyzer): High Accuracy Milliohmmeter-HP4338B or equivalent.

5.3.2 Inductance (L)

a. Refer to **Appendix A**.
b. Test equipment: High Accuracy RF Impedance /Material Analyzer-E4991A+16196D or equivalent.
c. Test signal: -20dBm or 50mV
d. Test frequency refers to Appendix A.
e. Short bar residual inductance=0.11nH

5.3.3 Q Factor (Q)

a. Refer to **Appendix A**.
b. Test equipment: High Accuracy RF Impedance /Material Analyzer-E4991A+16196D or equivalent.
c. Test signal: -20dBm or 50mV
d. Test frequency refers to Appendix A.

5.3.4 Self-Resonant Frequency (SRF)

a. Refer to **Appendix A**.
b. Test equipment: Agilent 8719ES or equivalent.
c. Test signal: -20 dBm or 50 mV

5.3.5 Rated Current

a. Refer to **Appendix A**.
b. Test equipment (see **Fig. 5.3.5-1**): Electric Power, Electric current meter, Thermometer.
c. Measurement method (see **Fig. 5.3.5-1**):
   1. Set test current to be 0 mA.
   2. Measure initial temperature of chip surface.
   3. Gradually increase voltage and measure chip temperature for corresponding current.
d. Definition of Rated Current(Ir): Ir is direct electric current as chip surface temperature rose just 20℃ against chip initial surface temperature(Ta) (see **Fig. 5.3.5-2**).

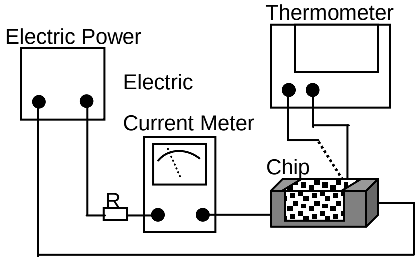


Fig. 5.3.5-1

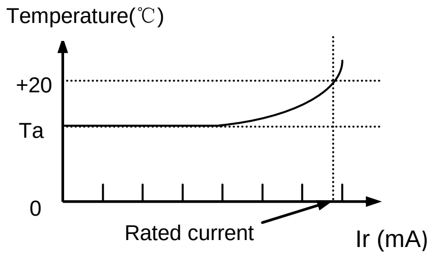


Fig. 5.3.5-2

5.4 Reliability Test

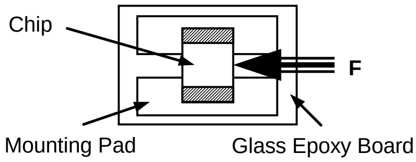
<table>
<tr><th>Items</th><th>Requirements</th><th>Test Methods and Remarks</th></tr>
<tr><td>5.4.1
Terminal Strength</td><td>No removal or split of the termination or other defects shall occur.


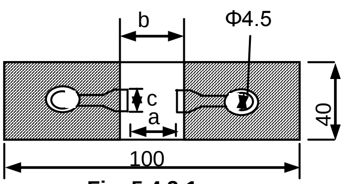
Fig.5.4.1-1</td><td>① Solder the inductor to the testing jig (glass epoxy board shown in Fig. 5.4.1-1) using leadfree solder. Then apply a force in the direction of the arrow.
② 1N force for HQ0402H-01 series.
③ Keep time: 10±1s
④ Speed: 1.0mm/s.</td></tr>
<tr><td>5.4.2
Resistance to Flexure</td><td>No visible mechanical damage.
<table><tr><td colspan="4">Unit: mm [inch]</td></tr><tr><td>Type</td><td>a</td><td>b</td><td>c</td></tr><tr><td>0402[01005]</td><td>0.18</td><td>0.8</td><td>0.2</td></tr></table>

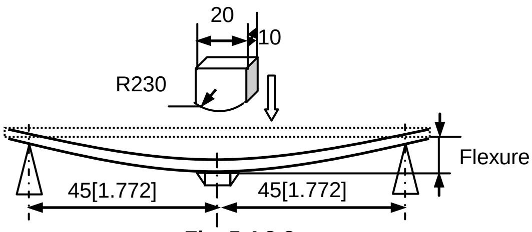
Fig. 5.4.2-1</td><td>① Solder the inductor to the test jig (glass epoxy board shown in Fig. 5.4.2-1) Using a leadfree solder. Then apply a force in the direction shown Fig. 5.4.2-2.
② Flexure: 2mm.
③ Pressurizing Speed: 0.5mm/sec.
④ Keep time: 30 sec.


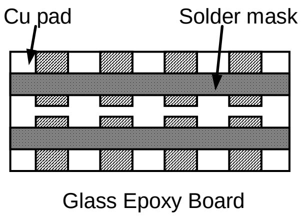
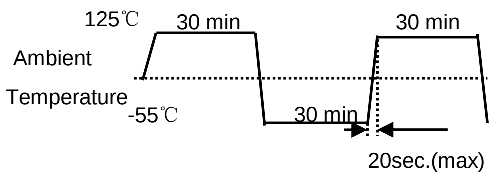
Fig. 5.4.2-2</td></tr>
<tr><td>5.4.3
Vibration</td><td>① No visible mechanical damage.
② Inductance change: Within ±10%.
③ Q factor change: Within ±20%.


Fig. 5.4.3-1</td><td>① Solder the inductor to the testing jig (glass epoxy board shown in Fig. 5.4.3-1) using leadfree solder.
② The inductor shall be subjected to a simple harmonic motion having total amplitude of 1.5mm, the frequency being varied uniformly between the approximate limits of 10 and 55 Hz.
③ The frequency range from 10 to 55 Hz and return to 10 Hz shall be traversed in approximately 1 minute. This motion shall be applied for a period of 2 hours in each 3mutually perpendicular directions (total of 6 hours).</td></tr>
<tr><td>5.4.4
Dropping</td><td>① No visible mechanical damage.
② Inductance change: Within ±10%.
③ Q factor change: Within ±20%.</td><td>Drop chip inductor 10 times on a concrete floor from a height of 100 cm.</td></tr>
<tr><td>5.4.5
Temperature</td><td>Inductance change should be within ±10% of initial value measuring at 20℃.</td><td>Temperature range: HQ0402H-01: -55℃ to +125℃,
Reference temperature: +20℃</td></tr>
<tr><td>5.4.6
Solderability</td><td>① No visible mechanical damage.
② Wetting shall exceed 95% coverage.</td><td>① Solder temperture:240±2℃
② Duration: 3 sec.
③ Solder: Sn/3.0Ag/0.5Cu.
④ Flux: 25% Resin and 75% ethanol in weight.</td></tr>
<tr><td>5.4.7
Resistance to Soldering Heat</td><td>① No visible mechanical damage.
② Wetting shall exceed 75% coverage.
③ Inductance change: Within ±10%.
④ Q factor change: Within ±20%.</td><td>① Solder temperature: 260±3℃
② Duration: 5 sec.
③ Solder: Sn/3.0Ag/0.5Cu.
④ Flux: 25% Resin and 75% ethanol in weight.
⑤ The chip shall be stabilized at normal condition for 1~2 hours before measuring.</td></tr>
</table>

5.4.8 Thermal Shock	① No mechanical damage. ② Inductance change: Within ±10%. ③ Q factor change: Within ±20%.  **Fig. 5.4.8-1**	① Temperature, Time: (See **Fig. 5.4.8-1**) HQ0402H-01: -55℃for 30±3 min→125℃ for 30±3min, ② Transforming interval: Max. 20 sec. ③ Tested cycle: 100 cycles. ④ The chip shall be stabilized at normal condition for 1~2 hours before measuring.
5.4.9 Resistance to Low Temperature	① No mechanical damage. ② Inductance change: Within ±10%. ③ Q factor change: Within ±20%.	① Temperature: -55±2℃, ② Duration: 1000^{+24} hours. ③ The chip shall be stabilized at normal condition for 1~2 hours before measuring.
5.4.10 Resistance to High Temperature	① No mechanical damage. ② Inductance change: Within ±10%. ③ Q factor change: Within ±20%.	① Temperature: 125±2℃, ② Duration: 1000^{+24} hours. ③ The chip shall be stabilized at normal condition for 1~2 hours before measuring.
5.4.11 Damp Heat (Steady States)	① No visible mechanical damage. ② Inductance change: Within ±10%. ③ Q factor change: Within ±20%.	① Temperature: 60±2℃ ② Humidity: 90% to 95% RH. ③ Duration: 1000^{+24} hours. ④ The chip shall be stabilized at normal condition for 1~2 hours before measuring.
5.4.12 Loading Under Damp Heat	① No visible mechanical damage. ② Inductance change: Within ±10%. ③ Q factor change: Within ±20%.	① Temperature: 60±2℃ ② Humidity: 90% to 95% RH. ③ Duration: 1000^{+24} hours. ④ Applied current: Rated current. ⑤ The chip shall be stabilized at normal condition for 1~2 hours before measuring.
5.4.13 Loading at High Temperature (Life Test)	① No visible mechanical damage. ② Inductance change: Within ±10%. ③ Q factor change: Within ±20%.	① Temperature: 125±2℃, ② Duration: 1000^{+24} hours. ③ Applied current: Rated current. ④ The chip shall be stabilized at normal condition for 1~2 hours before measuring.

6. Packaging and Storage

6.1 Packaging

Tape Carrier Packaging:

Packaging code: T

a. Tape carrier packaging are specified in attached figure **Fig.6.1-1~3**

b. Tape carrier packaging quantity please see the following table:

Type	0402[01005]
Thickness (mm)	0.2±0.02
Tape	Plastic Tape
Quantity	30K

(1) Taping Drawings (Unit: mm)

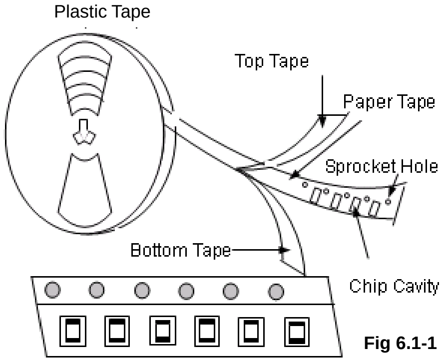


Fig 6.1-1

Remark: The sprocket holes are to the right as the tape is pulled toward the user.

(2) Taping Dimensions (Unit: mm)

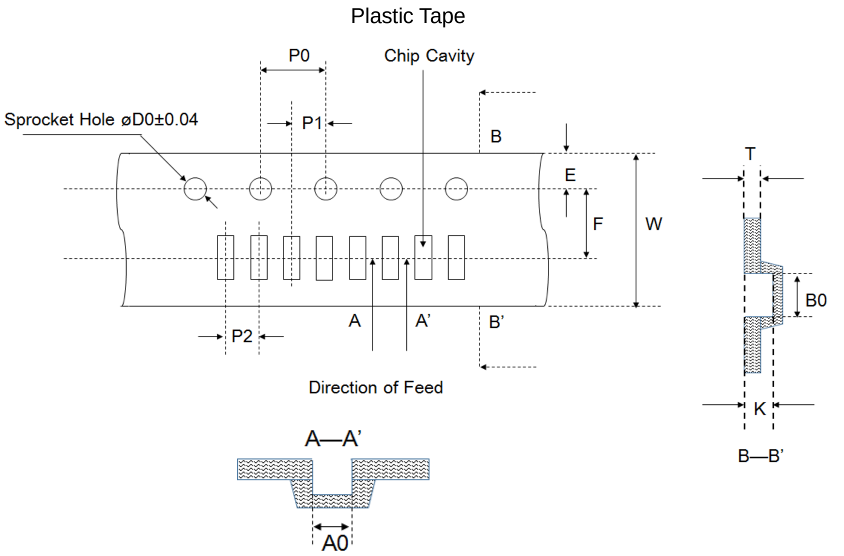


Fig. 6.1-2

Table 6.1-1 Unit:mm

Type	A0	B0	T	W	K	P0	P1	P2	D0	F	E
0402	0.24±0.02	0.44±0.02	2.0±0.05	4.0±0.05	0.35±0.02	2.0±0.04	1.0±0.02	1.0±0.02	0.80±0.04	1.8±0.02	0.9±0.05

(2) Reel Dimensions (Unit: mm)

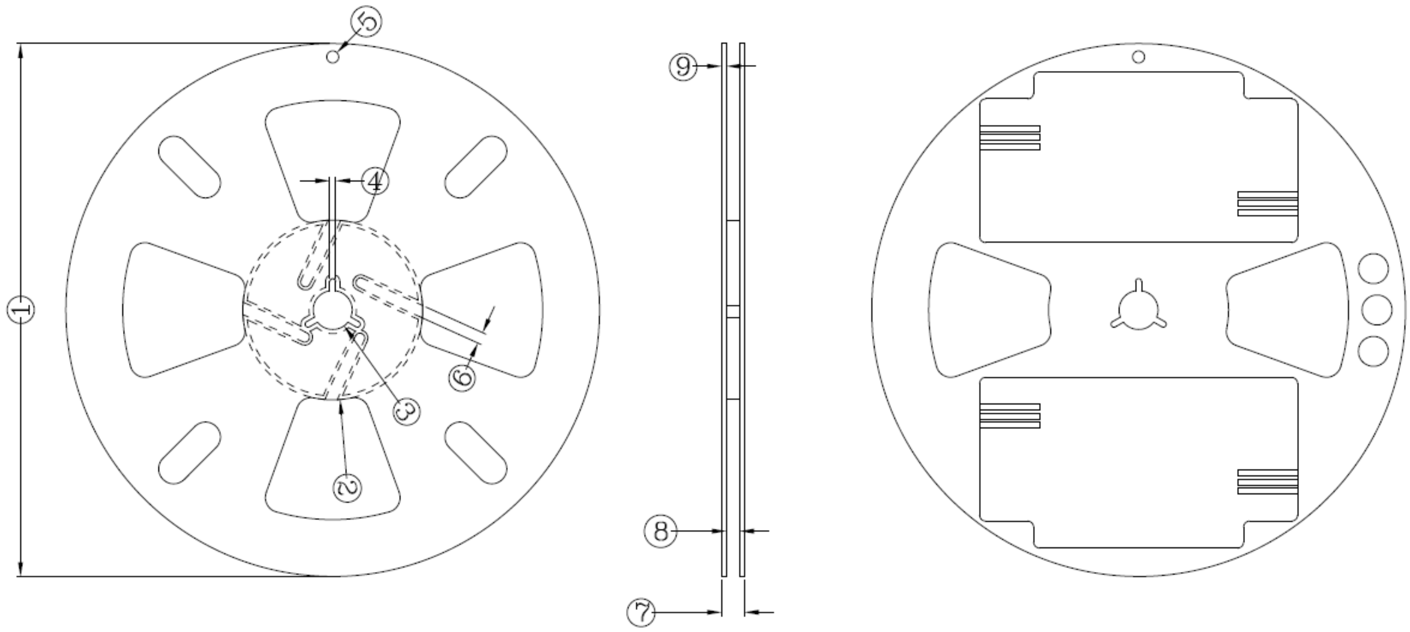


Fig. 6.1-3

Table 6.1-2 Unit:mm

①	②	③	④	⑤	⑥	⑦	⑧	⑨
178±1.0	60±1.0	13±0.3	2.0±0.5	4±0.2	4±0.5	7.5±1	4.5±0.5	1.5±0.3

6.2 Storage

a. The solderability of the external electrode may be deteriorated if packages are stored where they are exposed to high humidity. Package must be stored at 40℃ or less and 70% RH or less.

b. The solderability of the external electrode may be deteriorated if packages are stored where they are exposed to dust of harmful gas (e.g. HCl, sulfurous gas of H_2S).

c. Packaging material may be deformed if package are stored where they are exposed to heat of direct sunlight.

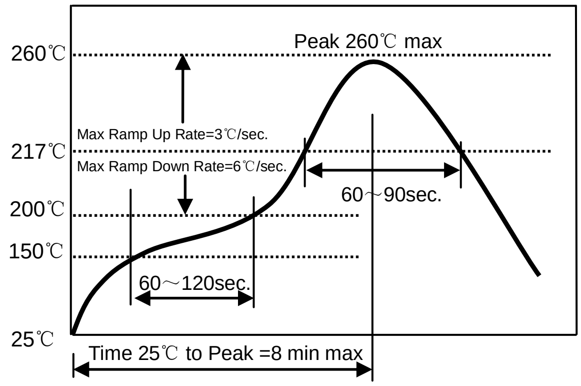
d. Solderability specified in **Clause 5.4.6** shall be guaranteed for *12* months from the date of delivery on condition that they are stored at the environment specified in **Clause 3**. For those parts, which passed more than *12* months shall be checked solder-ability before use.

7. Recommended Soldering Technologies

7.1 Reflow Profile

- △ Preheat condition: 150 ~200℃/60~120sec.
- △ Allowed time above 217℃: 60~90sec.
- △ Max temp: 260℃
- △ Max time at max temp: 10sec.
- △ Solder paste: Sn/3.0Ag/0.5Cu
- △ Allowed Reflow time: 2x max

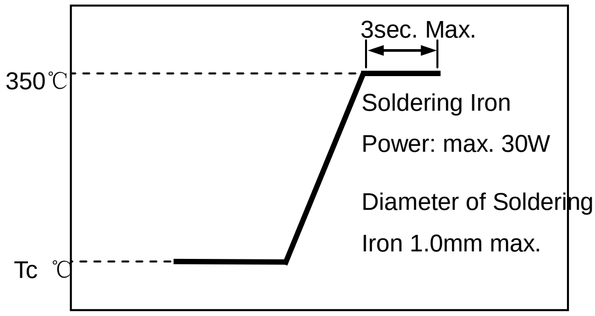
[Note: The reflow profile in the above table is only for qualification and is not meant to specify board assembly profiles. Actual board assembly profiles must be based on the customer's specific board design, solder paste and process, and should not exceed the parameters as the Reflow profile shows.]



7.2 Iron Soldering Profile

- △ Iron soldering power: Max. 30W
- △ Pre-heating: 150℃/60sec.
- △ Soldering Tip temperature: 350℃ Max.
- △ Soldering time: 3sec. Max.
- △ Solder paste: Sn/3.0Ag/0.5Cu
- △ Max.1 times for iron soldering

[Note: Take care not to apply the tip of the soldering iron to the terminal electrodes.]



Appendix A: Electrical Characteristics (HQ0402Q-P01 Series of Inductors)

HQ0402Q-P01 **Series of Inductor**

Part Number	Inductance	Min. Quality Factor	L, Q Test Freq. L/Q	Typical Q @ Freq. (GHz)					Min. Self-resonant Frequency	Max. DC Resistance	Max. Rated Current	Thickness
				0.5	0.8	1.8	2.0	2.4				
Units	nH	-	MHz	-					MHz	Ω	mA	mm [inch]
Symbol	L	Q	Freq	Q					S.R.F	DCR	Ir	T
HQ0402Q0N2□P01	0.2	-	500	-	-	-	-	-	17000	0.01	1000	
HQ0402Q0N3□P01	0.3	-	500	-	-	-	-	-	17000	0.015	1000	
HQ0402Q0N4□P01	0.4	-	500	-	-	-	-	-	17000	0.03	1000	
HQ0402Q0N5□P01	0.5	-	500	-	-	-	-	-	17000	0.04	1000	
HQ0402Q0N6□P01	0.6	14	500	28	31	44	48	55	17000	0.05	950	
HQ0402Q0N7□P01	0.7	14	500	25	29	41	44	51	15500	0.05	900	
HQ0402Q0N8□P01	0.8	14	500	23	27	39	43	48	15500	0.05	900	
HQ0402Q0N9□P01	0.9	14	500	21	25	37	40	45	14600	0.05	900	
HQ0402Q1N0□P01	1.0	14	500	20	24	36	39	44	13200	0.05	900	
HQ0402Q1N1□P01	1.1	14	500	22	26	40	42	48	13000	0.07	850	
HQ0402Q1N2□P01	1.2	14	500	20	25	37	40	46	13000	0.07	800	
HQ0402Q1N3□P01	1.3	14	500	21	26	39	42	48	12700	0.08	700	
HQ0402Q1N4□P01	1.4	14	500	21	25	38	42	47	12700	0.08	700	
HQ0402Q1N5□P01	1.5	14	500	20	25	37	40	46	12700	0.08	700	
HQ0402Q1N6□P01	1.6	14	500	19	23	35	37	42	11000	0.08	700	
HQ0402Q1N7□P01	1.7	14	500	20	24	37	39	44	11000	0.08	700	
HQ0402Q1N8□P01	1.8	14	500	22	28	43	46	50	10200	0.08	700	
HQ0402Q1N9□P01	1.9	14	500	24	30	46	50	55	10200	0.08	700	
HQ0402Q2N0□P01	2.0	14	500	22	27	41	44	48	10100	0.1	700	
HQ0402Q2N1□P01	2.1	14	500	24	29	45	48	54	10100	0.1	650	
HQ0402Q2N2□P01	2.2	14	500	22	27	42	45	49	9800	0.2	500	0.3±0.02 [.012±.0008]
HQ0402Q2N3□P01	2.3	14	500	24	30	46	50	55	9800	0.2	450	
HQ0402Q2N4□P01	2.4	14	500	20	25	39	42	46	9500	0.2	450	
HQ0402Q2N5□P01	2.5	14	500	19	24	39	42	46	9500	0.2	450	
HQ0402Q2N6□P01	2.6	14	500	19	24	39	42	46	9500	0.2	450	
HQ0402Q2N7□P01	2.7	14	500	20	25	39	41	45	8800	0.2	450	
HQ0402Q2N8□P01	2.8	14	500	19	25	40	44	47	8800	0.2	450	
HQ0402Q2N9□P01	2.9	14	500	19	25	40	44	47	8800	0.2	450	
HQ0402Q3N0□P01	3.0	14	500	20	26	40	43	46	8500	0.2	450	
HQ0402Q3N1□P01	3.1	14	500	20	25	41	43	45	8500	0.25	400	
HQ0402Q3N2□P01	3.2	14	500	20	26	41	44	47	8500	0.25	400	
HQ0402Q3N3□P01	3.3	14	500	20	26	42	44	48	8200	0.25	400	
HQ0402Q3N4□P01	3.4	14	500	20	26	42	44	48	8200	0.3	400	
HQ0402Q3N5□P01	3.5	14	500	20	26	42	44	48	8200	0.3	350	
HQ0402Q3N6□P01	3.6	14	500	20	27	42	44	48	8200	0.3	350	
HQ0402Q3N7□P01	3.7	14	500	19	25	41	43	49	8200	0.35	350	
HQ0402Q3N8□P01	3.8	14	500	18	23	37	39	43	8200	0.35	350	
HQ0402Q3N9□P01	3.9	14	500	19	24	37	39	42	7700	0.35	350	
HQ0402Q4N0□P01	4.0	14	500	18	24	38	41	44	6900	0.35	350	
HQ0402Q4N1□P01	4.1	14	500	19	24	38	41	44	6900	0.35	350	
HQ0402Q4N2□P01	4.2	14	500	18	23	37	39	45	6900	0.35	350	

HQ0402Q4N3□P01	4.3	14	500	19	24	37	39	42	6900	0.35	350	
HQ0402Q4N7□P01	4.7	14	500	18	23	36	38	41	6700	0.35	350	

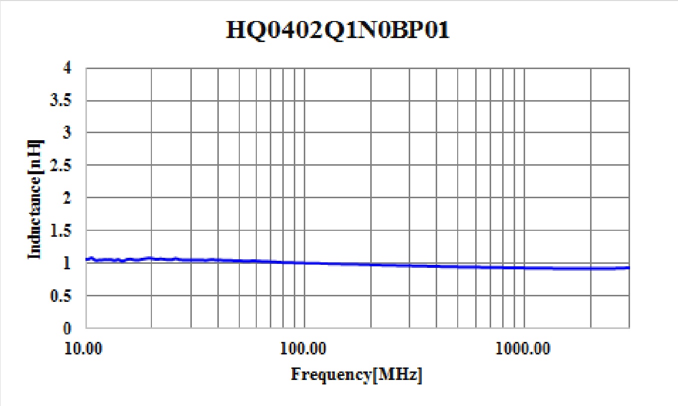
Part Number	Inductance	Min. Quality Factor	L, Q Test Freq. L/Q	Typical Q @ Freq. (GHz)					Min. Self-resonant Frequency	Max. DC Resistance	Max. Rated Current	Thickness
				0.5	0.8	1.8	2.0	2.4				
Units	nH	-	MHz	-					MHz	Ω	mA	mm [inch]
Symbol	L	Q	Freq	Q					S.R.F	DCR	Ir	T
HQ0402Q5N1□P01	5.1	14	500	18	24	36	38	41	6600	0.35	350	
HQ0402Q5N6□P01	5.6	14	500	18	24	35	37	40	6100	0.4	300	
HQ0402Q6N2□P01	6.2	14	500	17	22	32	34	37	6000	0.4	300	
HQ0402Q6N8□P01	6.8	14	500	17	22	33	35	37	5700	0.4	300	
HQ0402Q7N5□P01	7.5	14	500	17	23	34	36	38	5600	0.5	300	
HQ0402Q8N2□P01	8.2	14	500	17	21	30	31	33	5100	0.5	300	
HQ0402Q9N1□P01	9.1	14	500	17	22	31	32	33	4900	0.5	300	
HQ0402Q10N□P01	10	14	500	17	22	32	33	34	4900	0.6	250	
HQ0402Q11N□P01	11	14	500	15	20	30	31	33	4000	0.8	250	
HQ0402Q12N□P01	12	14	500	17	21	30	31	32	4000	0.82	230	
HQ0402Q13N□P01	13	14	500	15	20	30	31	32	4000	0.99	210	
HQ0402Q15N□P01	15	12	500	17	21	29	30	30	4000	1.53	170	
HQ0402Q16N□P01	16	12	500	16	20	29	30	29	4000	1.53	170	0.3±0.02
HQ0402Q18N□P01	18	12	500	17	21	29	29	29	3700	1.63	160	[.012±.0008]
HQ0402Q20N□P01	20	12	500	16	19	25	24	23	3000	2.26	140	
HQ0402Q22N□P01	22	12	500	16	19	25	24	22	3000	2.26	140	
HQ0402Q24N□P01	24	12	500	15	18	23	21	20	2900	2.6	120	
HQ0402Q27N□P01	27	12	500	15	18	22	20	17	2900	2.6	120	
HQ0402Q30N□P01	30	10	500	13	16	18	19	20	2600	3.2	120	
HQ0402Q33N□P01	33	10	300	13	16	20	19	20	2600	3.2	120	
HQ0402Q36N□P01	36	10	300	13	15	16	15	12	2400	3.6	110	
HQ0402Q39N□P01	39	10	300	13	15	16	15	10	2400	3.6	120	
HQ0402Q43N□P01	43	8	300	12	14	13	12	7	2100	4.0	100	
HQ0402Q47N□P01	47	8	300	12	14	13	11	6	2100	4.0	100	
HQ0402Q51N□P01	51	8	300	12	14	11	9	4	1900	4.2	100	
HQ0402Q56N□P01	56	8	300	12	14	10	8	-	1900	4.2	100	

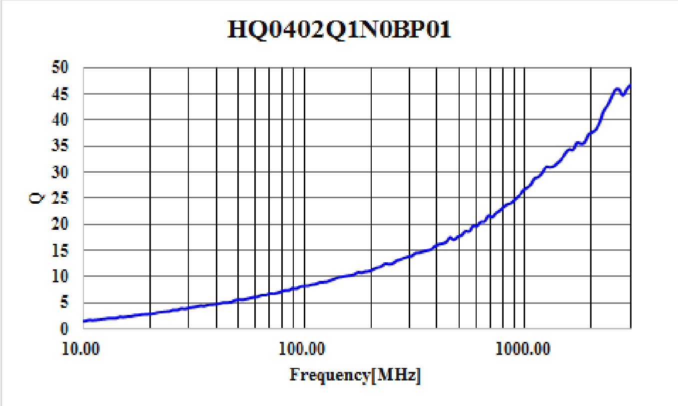
Note: □: Please specify the inductance tolerance. For L≤4.2nH, choose B=±0.1nH, C=±0.2nH or S=±0.3nH; For 4.2nH＜L＜5.6nH, choose, H=±3%, J=±5%. or S=±0.3nH；For L≥5.6nH, choose, H=±3%, J=±5%.

TYPICAL ELECTRICAL CHARACTERISTICS

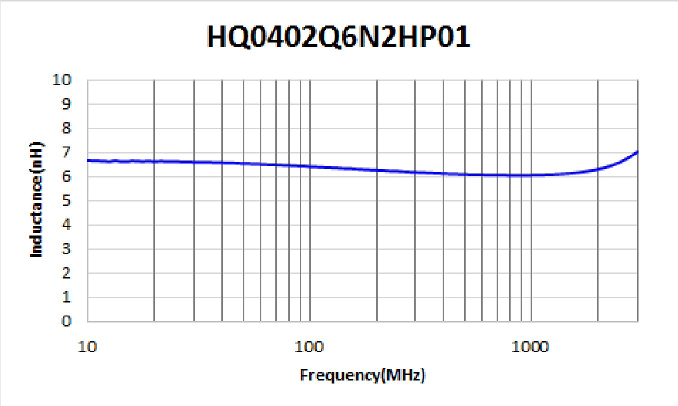
Inductance-Frequency Characteristics(Typ.) Q-Frequency Characteristics(Typ.)

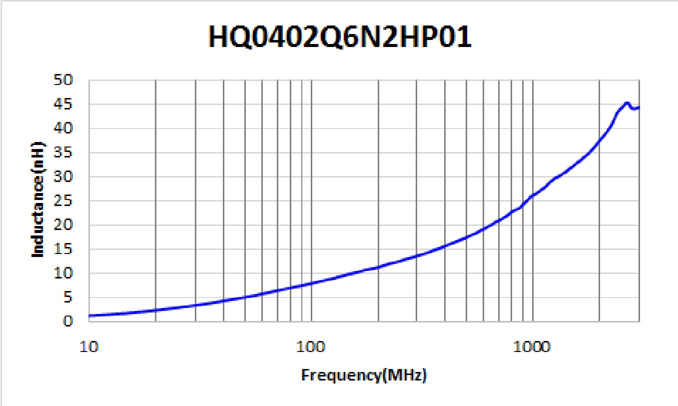
HQ0402Q1N0BP01





HQ0402Q6N2HP01





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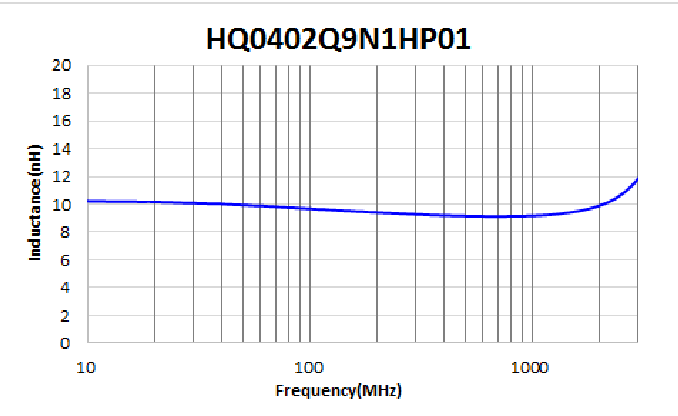

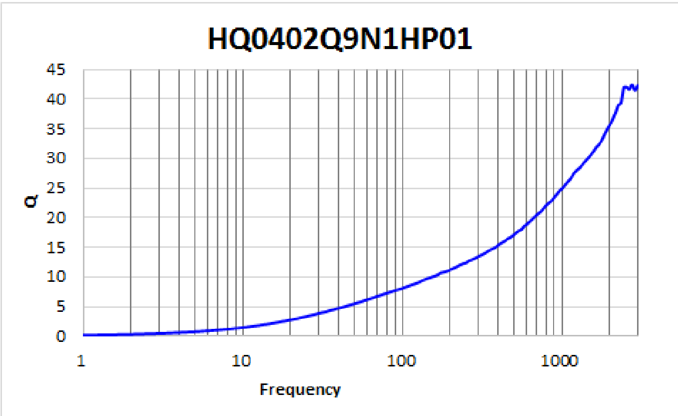

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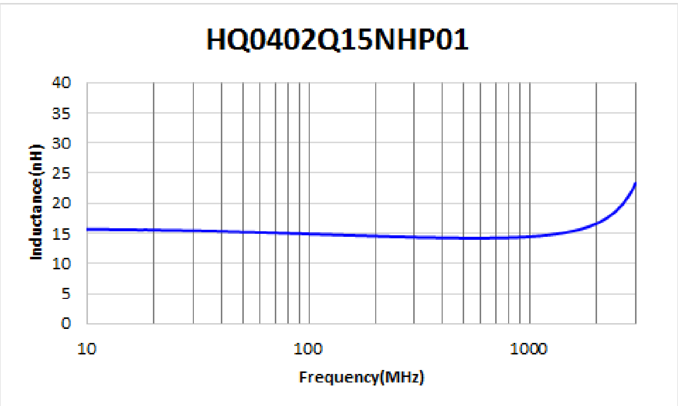

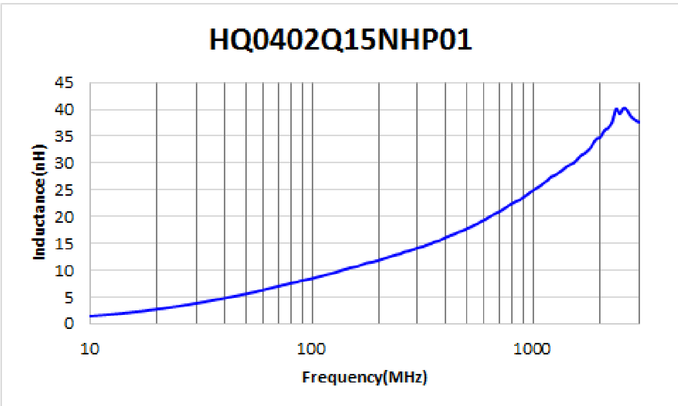

TYPICAL ELECTRICAL CHARACTERISTICS

Inductance-Frequency Characteristics(Typ.)

Q-Frequency Characteristics(Typ.)

HQ0402Q30NHP01