

HI 0603 Series

High Frequency Multilayer Chip Inductors

Features

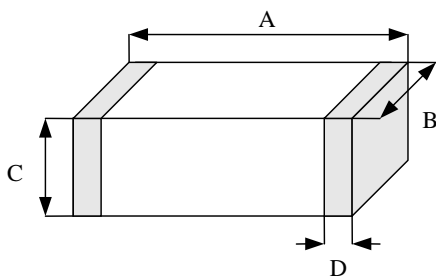
- ❖ Super fine and monolithic structure ensuring high performance and reliability.
- ❖ High frequency applications up to 6GHz.

Applications

- ❖ RF modules for telecommunication systems including GSM, PCS, DECT, WLAN, Bluetooth, etc.



Shape and Dimensions



Unit : mm (inch)

TYPE	EIA Code	A	B	C	D
0603	0201	0.60 ±0.03	0.30 ±0.03	0.30 ±0.03	0.15 ±0.05
		(.024 ±.001)	(.012 ±.001)	(.012 ±.001)	(.006 ±.002)

Part Number

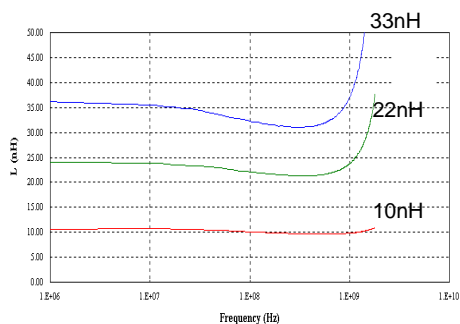
HI 0603 - 1 C 2N2 □ N □

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

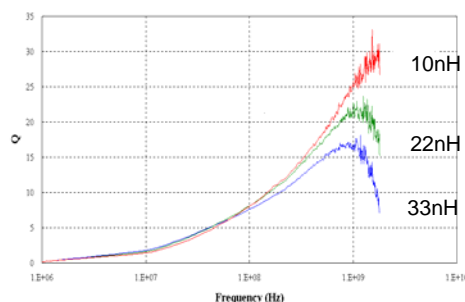
① Type	HI : High Frequency Inductors	② Dimensions (L × W)	0.6 × 0.3 mm
③ Circuit	1 : Single	④ Material Code	C (lead-free)
⑤ Inductance	2N2=2.2nH 22N=22nH	⑥ Tolerance	S:±0.3nH, J:±5%, K:±10%
⑦ Marking	N: Without marking	⑧ Packaging	T: Tape & Reel B: Bulk

Typical Electrical Characteristics

L vs. Frequency



Q vs. Frequency



Specifications

Part Number	Inductance(nH)	Q Min.	Q Typ.	L/Q Freq. (MHz)	Q typical (MHz)			R _{DC} (Ω)		S.R.F. (MHz) Typ.	I _{DC} (mA) Max.
					500	800	1800	Max	Typ.		
HI0603-1C1N0_N_	1.0 ± 0.3	4	6	100	13	17	26	0.12	0.06	>13000	300
HI0603-1C1N2_N_	1.2 ± 0.3	4	6	100	14	17	26	0.15	0.10	>13000	300
HI0603-1C1N5_N_	1.5 ± 0.3	4	6	100	14	17	26	0.18	0.12	>13000	300
HI0603-1C1N8_N_	1.8 ± 0.3	4	6	100	15	17	28	0.22	0.14	10500	300
HI0603-1C2N2_N_	2.2 ± 0.3	4	6	100	15	18	28	0.26	0.15	9500	300
HI0603-1C2N7_N_	2.7 ± 0.3	4	6	100	16	18	28	0.32	0.17	8500	300
HI0603-1C3N3_N_	3.3 ± 0.3 or ± 10%	4	6	100	16	19	28	0.38	0.19	7500	300
HI0603-1C3N9_N_	3.9 ± 0.3 or ± 10%	4	6	100	16	20	26	0.45	0.23	6800	300
HI0603-1C4N7_N_	4.7 ± 0.3 or ± 10%	4	6	100	16	20	26	0.50	0.27	6000	300
HI0603-1C5N6_N_	5.6 ± 0.3 or ± 10%	5	7	100	16	20	25	0.60	0.29	5500	300
HI0603-1C6N8_N_	6.8 ± 5% or ± 10%	5	7	100	16	20	25	0.70	0.30	4800	250
HI0603-1C8N2_N_	8.2 ± 5% or ± 10%	5	7	100	16	20	23	0.90	0.52	4600	250
HI0603-1C10N_N_	10 ± 5% or ± 10%	5	7	100	16	20	23	1.20	0.58	4000	250
HI0603-1C12N_N_	12 ± 5% or ± 10%	5	7	100	16	19	22	1.30	0.60	3500	250
HI0603-1C15N_N_	15 ± 5% or ± 10%	5	7	100	15	19	18	1.40	0.70	3000	250
HI0603-1C18N_N_	18 ± 5% or ± 10%	5	7	100	15	19	16	1.50	0.80	2500	200
HI0603-1C22N_N_	22 ± 5% or ± 10%	5	8	100	14	18	15	1.80	1.00	2200	200
HI0603-1C27N_N_	27 ± 5% or ± 10%	5	8	100	13	18	9	2.00	1.16	1800	200
HI0603-1C33N_N_	33 ± 5% or ± 10%	5	8	100	13	17	7	2.30	1.50	1500	200
HI0603-1C39N_N_	39 ± 5% or ± 10%	5	8	100	14	16	-	2.50	1.60	1400	200

Operating Temperature Range : -40 ~ +100 °C

Storage Temperature Range : +5 ~ +35 °C, Humidity 45~75%RH

Storage Period: 12 months max.

Test Method : L and Q

: HP 4291B (+16192A)

S.R.F. (Self Resonant Frequency)

: HP 8722D

R_{DC} (DC Resistance)

: HP 4338B

I_{DC} (Rated Current)

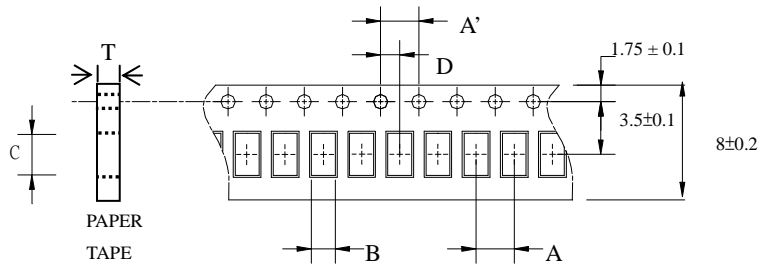
: HP 4284A

Notes

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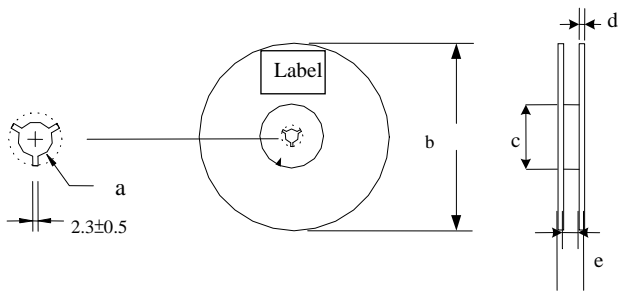
Taping Specifications

❖Tape Dimensions (Unit: mm) & Quantity



Type	A	A'	B	C	D	T	Quantity/ reel	Tape material
HI0603	2.0±0.03	4.0±0.025	0.37±0.02	0.67±0.02	2.0±0.03	0.42±0.02	15,000 pcs	Paper

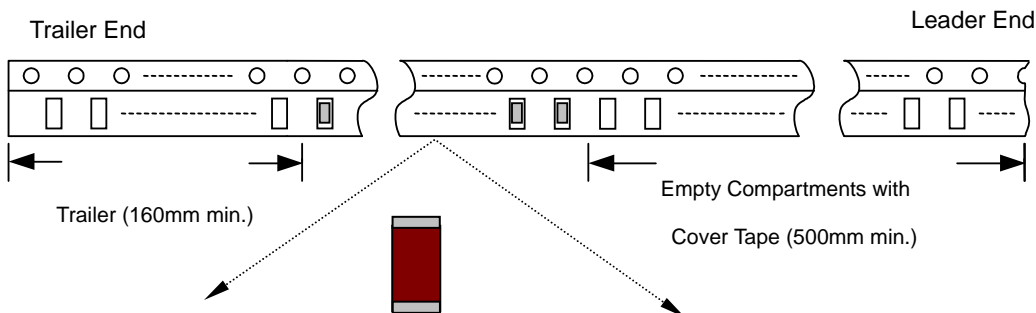
❖Reel Dimensions (Unit: mm)



Label: Customer's Name, ACX P/N,
Q'ty, Date, ACX Corp.

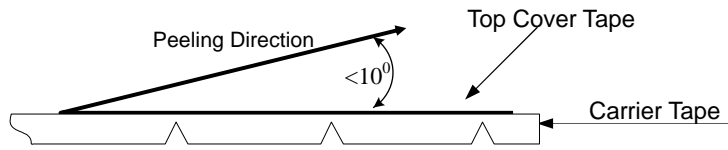
Type	a	b	c	d	e
HI0603	13.5±0.5	178±1	60±1	1.2±0.2	9.0±0.3

❖Leader / Trailer Tape (Unit: mm)



❖ **Peel-off Force**

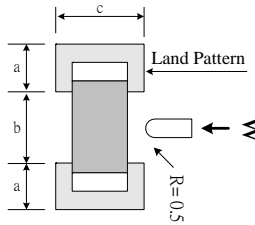
Peel-off force should be in the range of 0.1 – 0.6 N at a peel-off speed of 300 ± 10 mm/min .



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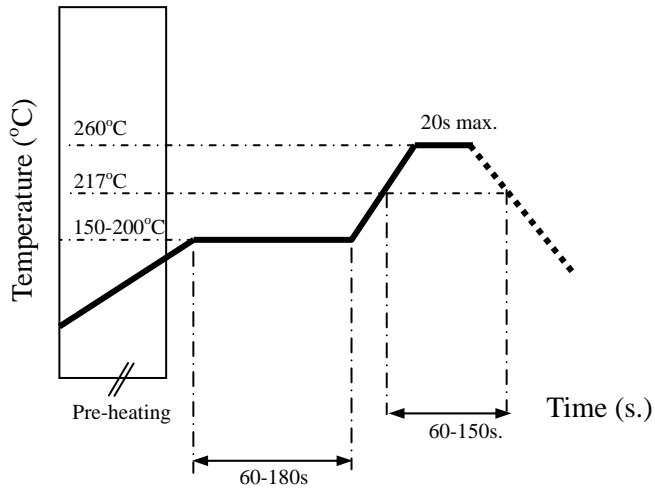
Mechanical & Environmental Characteristics

tem	Requirements	Procedure										
Solderability	<ol style="list-style-type: none"> No apparent damage More than 95% of the terminal electrode shall be covered with new solder. L : within $\pm 10 \%$ Q : within $\pm 20 \%$ 	<ol style="list-style-type: none"> Preheat : $120\pm 20^{\circ}\text{C}$ for ≥ 1 min Solder : $245\pm 5^{\circ}\text{C}$ for 5 ± 1 sec 										
Termination Adhesion (Flexure Strength)	<ol style="list-style-type: none"> No apparent damage 	 <table border="1" style="float: right; margin-left: 20px;"> <thead> <tr> <th>Type</th> <th>HI0603</th> </tr> </thead> <tbody> <tr> <td>a (mm)</td> <td>0.4</td> </tr> <tr> <td>b (mm)</td> <td>0.3</td> </tr> <tr> <td>c (mm)</td> <td>0.4</td> </tr> <tr> <td>W (kgf)</td> <td>0.2</td> </tr> </tbody> </table>	Type	HI0603	a (mm)	0.4	b (mm)	0.3	c (mm)	0.4	W (kgf)	0.2
Type	HI0603											
a (mm)	0.4											
b (mm)	0.3											
c (mm)	0.4											
W (kgf)	0.2											
Solder Heat Resistance	<ol style="list-style-type: none"> No apparent damage More than 95% of the terminal electrode shall be covered with new solder. 	<ol style="list-style-type: none"> Preheat : $120\pm 20^{\circ}\text{C}$ for ≥ 1 min Solder : $260\pm 5^{\circ}\text{C}$ for 10 ± 1 sec 										
Heat/ Humidity Resistance	<ol style="list-style-type: none"> No apparent damage L : within $\pm 10 \%$ Q: within $\pm 20 \%$ Fulfill the electrical specification 	<ol style="list-style-type: none"> Temperature : $85 \pm 2^{\circ}\text{C}$ Humidity : 80%~85% RH Applied current : rated current Duration : 500 ± 24 hours Recovery : 1-2hr 										
Thermal Shock (Temperature Cycle)	<ol style="list-style-type: none"> No apparent damage L : within $\pm 10 \%$ Q: within $\pm 20 \%$ Fulfill the electrical specification 	<ol style="list-style-type: none"> One cycle/step 1 : $125 \pm 5^{\circ}\text{C}$ for 30 min step 2 : $-40 \pm 3^{\circ}\text{C}$ for 30 min No. of cycles : 100 Recovery:1-2 hrs 										
Low Temperature Resistance	<ol style="list-style-type: none"> No apparent damage L : within $\pm 10 \%$ Q: within $\pm 20 \%$ Fulfill the electrical specification 	<ol style="list-style-type: none"> Temperature : $-40 \pm 5^{\circ}\text{C}$ Duration : 500 ± 24 hours Recovery : 1-2hr 										

Soldering Conditions

❖ Typical Soldering Profile for Lead-free Process

Reflow Soldering :



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