

Chip Inductors

Steward's two-terminal surface mount chip inductors provide a cost effective solution for densely packed PC board designs. Our proprietary SMT construction yields rugged components with superior inductance vs. frequency characteristics. Parts are available with inductance tolerance from $\pm 20\%$ to $\pm 5\%$. For part numbers beginning with IC, a minimum order quantity may apply for parts with $\pm 5\%$ (J) inductance tolerance.

Features:

- Small footprint • Economical • Rugged construction • Superior inductance vs. frequency characteristics • Parts available in broad band and high frequency materials

Application:

- RF and wireless communication • Information technology equipment including: computers, telecommunications, radar detectors, automotive electronics, cellular phones, pagers, audio equipment, PDAs, keyless remote systems and low-voltage power supply modules • Filters

Test Specifications:

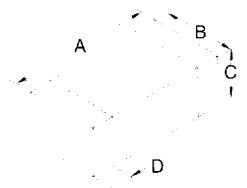
- Agilent E4991A (1MHz - 3.0 GHz) or HP8753 (to 6 GHz) Network/Spectrum Analyzer • HP43961A Impedance Test Kit • HP16192A Test Fixture or Inter-Continental Microwave custom fixtures • HP16200A DC Bias Adapter • Philips PM2811 DC Power Supply
- Ambient Temperature $23.5^{\circ}\text{C} \pm 2^{\circ}$ • Bandwidth 3 kHz • Sweep Time 423 ms • Inductance is rated at $\pm 10\%$ at rated frequency • Board level components are rated to a maximum of 75 volts • Maximum current ratings are determined by testing to a maximum

STEWARD PART NUMBERING SYSTEM

<u>IC</u>	<u>0603</u>	<u>D</u>	<u>470</u>	<u>R</u>	- <u>** or *0</u>
PRODUCT SERIES CODE	PART SIZE CODE	RATED CURRENT CODE	INDUCTANCE VALUE CODE	PACKAGING CODE	ADDITIONAL DESCRIPTION

* Replace asterisk (*) in part number with tolerance code - J = $\pm 5\%$, K = $\pm 10\%$, M = $\pm 20\%$

** Replace double asterisk (**) in part number with tolerance code - C = $\pm 0.3\text{nH}$, J = $\pm 5\%$, K = $\pm 10\%$, M = $\pm 20\%$



Ferrite Chip Inductors

PART NUMBER	Inductance (L) (nH)	Q (min)	Self-Resonant Frequency (MHz)	DCR MAX OHMS	RATED I MAX (continuous) mA
IC0603D470R*0	47.00	10	260	0.15	400
IC0603C680R*0	68.00	10	250	0.25	300
IC0603C820R*0	82.00	10	245	0.25	300
IC0603B101R*0	100.00	15	276	0.50	200
IC0603B121R*0	120.00	15	236	0.50	200
IC0603B151R*0	150.00	15	207	0.60	200
IC0603B181R*0	180.00	15	190	0.60	200
IC0603A221R*0	220.00	15	173	0.80	100
IC0603A271R*0	270.00	15	157	0.80	100
IC0603A331R*0	330.00	15	144	0.85	100
IC0603A391R*0	390.00	15	127	1.00	100
IC0603A471R*0	470.00	15	121	1.35	75
IC0603A561R*0	560.00	15	110	1.55	75
IC0603A681R*0	680.00	15	104	1.70	75

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Ferrite Chip Inductors

PART NUMBER	Inductance (L) (nH)	Q (min)	Self-Resonant Frequency (MHz)	DCR MAX OHMS	RATED I MAX (continuous) mA
IC0603A821R*0	820.00	15	98	2.10	50
IC0603B102R*0	1,000.00	35	87	0.60	200
IC0603A122R*0	1,200.00	35	74	0.80	100
IC0603A152R*0	1,500.00	35	69	0.80	100
IC0603A182R*0	1,800.00	35	64	0.95	100
IC0603A222R*0	2,200.00	35	58	1.15	80
IC0603A272R*0	2,700.00	35	52	1.35	75
IC0603A332R*0	3,300.00	35	46	1.55	75
IC0603A392R*0	3,900.00	35	41	1.70	75
IC0603A472R*0	4,700.00	35	38	2.10	50
IC0805C470R*0	47.00	15	320	0.20	300
IC0805C560R*0	56.00	15	300	0.20	300
IC0805C680R*0	68.00	15	280	0.20	300
IC0805C820R*0	82.00	15	255	0.20	300

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Ferrite Chip Inductors

PART NUMBER	Inductance (L) (nH)	Q (min)	Self-Resonant Frequency (MHz)	DCR MAX OHMS	RATED I MAX (continuous) mA
IC0805B101R*0	100.00	20	279	0.30	250
IC0805B121R*0	120.00	20	253	0.30	250
IC0805B151R*0	150.00	20	230	0.40	250
IC0805B181R*0	180.00	20	213	0.40	250
IC0805B221R*0	220.00	20	196	0.50	250
IC0805B271R*0	270.00	20	173	0.50	250
IC0805B331R*0	330.00	20	167	0.55	250
IC0805B391R*0	390.00	25	156	0.65	200
IC0805B471R*0	470.00	25	144	0.65	200
IC0805A561R*0	560.00	25	133	0.75	150
IC0805A681R*0	680.00	25	121	0.80	150
IC0805A821R*0	820.00	25	115	1.00	150
IC0805B102R*0	1,000.00	45	87	0.40	250
IC0805B122R*0	1,200.00	45	75	0.50	250
IC0805B152R*0	1,500.00	45	69	0.50	250
IC0805B182R*0	1,800.00	45	64	0.60	250
IC0805B222R*0	2,200.00	45	78	0.65	200
IC0805A272R*0	2,700.00	45	52	0.75	150
IC0805A332R*0	3,300.00	45	48	0.80	150
IC0805A392R*0	3,900.00	45	44	0.90	150
IC0805A472R*0	4,700.00	45	41	1.00	150
IC0805A562R*0	5,600.00	50	37	0.90	150
IC0805A682R*0	6,800.00	50	34	1.00	150
IC0805A822R*0	8,200.00	50	30	1.10	100
IC0805A103R*0	10,000.00	50	28	1.15	100
IC0805A123R*0	12,000.00	50	26	1.25	100
IC0805A153R*0	15,000.00	30	22	0.80	150
IC0805A183R*0	18,000.00	30	21	0.90	150

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Ferrite Chip Inductors

PART NUMBER	Inductance (L) (nH)	Q (min)	Self-Resonant Frequency (MHz)	DCR MAX OHMS	RATED I MAX (continuous) mA
IC0805A223R*0	22,000.00	30	19	1.10	100
IC0805A273R*0	27,000.00	30	17	1.15	100
IC0805A333R*0	33,000.00	30	15	1.25	100
IC1206D470R*0	47.00	20	320	0.15	400
IC1206D560R*0	56.00	20	300	0.15	400
IC1206D680R*0	68.00	20	280	0.15	400
IC1206D820R*0	82.00	20	255	0.15	400
IC1206C101R*0	100.00	20	271	0.25	300
IC1206B121R*0	100.00	20	253	0.30	250
IC1206B151R*0	150.00	20	230	0.30	250
IC1206B181R*0	180.00	20	213	0.40	250
IC1206B221R*0	220.00	20	196	0.40	250
IC1206B271R*0	270.00	20	173	0.50	250
IC1206B331R*0	330.00	20	167	0.60	250
IC1206B391R*0	390.00	25	156	0.50	250
IC1206B471R*0	470.00	25	144	0.60	250
IC1206B561R*0	560.00	25	133	0.75	200
IC1206A681R*0	680.00	25	121	0.80	150
IC1206B821R*0	820.00	25	115	0.90	150
IC1206B102R*0	1,000.00	45	87	0.40	250
IC1206B122R*0	1,200.00	45	75	0.50	250
IC1206B152R*0	1,500.00	45	69	0.50	250
IC1206B182R*0	1,800.00	45	64	0.50	250
IC1206B222R*0	2,200.00	45	58	0.60	250
IC1206B272R*0	2,700.00	45	52	0.60	250
IC1206B332R*0	3,300.00	45	48	0.70	200
IC1206A392R*0	3,900.00	45	44	0.80	150
IC1206A472R*0	4,700.00	45	41	0.90	150

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Ferrite Chip Inductors

PART NUMBER	Inductance (L) (nH)	Q (min)	Self-Resonant Frequency (MHz)	DCR MAX OHMS	RATED I MAX (continuous) mA
IC1206B562R*0	5,600.00	50	37	0.70	200
IC1206A682R*0	6,800.00	50	34	0.80	150
IC1206A822R*0	8,200.00	50	30	0.90	150
IC1206A103R*0	10,000.00	50	28	1.00	150
IC1206A123R*0	12,000.00	50	26	1.05	100

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Ferrite Chip Inductors

PART NUMBER	Inductance (L) (nH)	Q (min)	Self-Resonant Frequency (MHz)	DCR MAX OHMS	RATED I MAX (continuous) mA
IC1206B153R*0	15,000.00	35	22	0.70	200
IC1206B183R*0	18,000.00	35	21	0.70	200
IC1206A223R*0	22,000.00	35	19	0.90	150
IC1206A273R*0	27,000.00	35	17	0.90	150
IC1206A333R*0	33,000.00	35	15	1.05	100

High Frequency Chip Inductors (air cores)

PART NUMBER	Inductance (L) (nH)	Q (Minimum)		Self-Resonant Frequency (MHz)		DCR MAX OHMS	RATED I MAX (continuous) mA
		100MHz	800MHz	Min	Typ		
IH0402C1C0R**0	1.00	6	9	>6,000	>6,000	0.12	300
IH0402C1C2R**0	1.20	6	9	>6,000	>6,000	0.12	300
IH0402C1C5R**0	1.50	7	10	>6,000	>6,000	0.13	300
IH0402C1C8R**0	1.80	7	10	>6,000	>6,000	0.14	300
IH0402C2D2R**0	2.20	7	10	>6,000	>6,000	0.16	300
IH0402C2D7R**0	2.70	7	10	>6,000	>6,000	0.17	300
IH0402C3D3R**0	3.30	7	10	>6,000	>6,000	0.19	300
IH0402C3D9R**0	3.90	7	10	>6,000	>6,000	0.22	300
IH0402C4D7R**0	4.70	7	10	5,000	5,300	0.24	300
IH0402C5D6R**0	5.60	7	10	4,700	5,000	0.27	300
IH0402B6D8R**0	6.80	7	10	4,500	4,800	0.32	200
IH0402B8D2R**0	8.20	7	10	3,900	4,200	0.37	200
IH0402B100R**0	10.00	7	10	3,300	3,600	0.42	200
IH0402B120R**0	12.00	7	10	2,900	3,200	0.50	200
IH0402B150R**0	15.00	7	10	2,500	2,800	0.55	200
IH0402B180R**0	18.00	7	10	2,100	2,400	0.65	200
IH0402B220R**0	22.00	7	10	1,800	2,100	0.80	200
IH0402B270R**0	27.00	7	10	1,300	1,600	0.90	200
IH0603E1D5R**0	1.50	12	37	>6,000	>6,000	0.10	500
IH0603E1D8R**0	1.80	12	37	>6,000	>6,000	0.10	500

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High Frequency Chip Inductors (air cores)

PART NUMBER	Inductance (L) (nH)	Q (Minimum)		Self-Resonant Frequency (MHz)		DCR MAX OHMS	RATED I MAX (continuous) mA
		100MHz	800MHz	Min	Typ		
IH0603E2D2R**0	2.20	12	38	>6,000	>6,000	0.10	500
IH0603E2D7R**0	2.70	13	41	>6,000	>6,000	0.10	500
IH0603E3D3R**0	3.30	14	45	5,700	6,000	0.12	500
IH0603E3D9R**0	3.90	13	43	5,600	5,800	0.14	500
IH0603E4D7R**0	4.70	13	43	4,800	5,100	0.16	500
IH0603E5D6R**0	5.60	14	42	4,350	4,650	0.18	500
IH0603E6D8R**0	6.80	14	43	3,750	4,050	0.22	500
IH0603E8D2R**0	8.20	14	44	3,300	3,500	0.24	500
IH0603C100R**0	10.00	14	44	2,850	3,150	0.26	300
IH0603C120R**0	12.00	15	44	2,700	3,000	0.28	300
IH0603C150R**0	15.00	15	46	2,400	2,700	0.32	300
IH0603C180R**0	18.00	15	44	2,050	2,350	0.35	300
IH0603C220R**0	22.00	16	44	1,850	2,150	0.40	300
IH0603C270R**0	27.00	16	45	1,750	2,050	0.45	300
IH0603C330R**0	33.00	16	46	1,500	1,800	0.55	300
IH0603C390R**0	39.00	16	41	1,350	1,550	0.60	300
IH0603C470R**0	47.00	16	38	1,200	1,500	0.70	300
IH0603C560R**0	56.00	16	34	1,150	1,350	0.75	300
IH0603C680R**0	68.00	16	30	1,050	1,350	0.85	300
IH0603C820R**0	82.00	16	20	1,000	1,300	0.95	300

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High Frequency Chip Inductors (air cores)

PART NUMBER	Inductance (L) (nH)	Q (Minimum)		Self-Resonant Frequency (MHz)		DCR MAX CHMS	RATED I MAX (continuous) mA
		100MHz	800MHz	Min	Typ		
IH0603C101R**0	100.00	16	12	925	1,225	1.00	300
IH0805E1D5R**0	1.50	10	50	6,000	>6,000	0.10	500
IH0805E1D8R**0	1.80	10	52	6,000	>6,000	0.10	500
IH0805E2D2R**0	2.20	11	53	6,000	>6,000	0.10	500
IH0805E2D7R**0	2.70	12	56	6,000	>6,000	0.10	500
IH0805E3D3R**0	3.30	13	58	6,000	>6,000	0.13	500
IH0805E3D9R**0	3.90	13	58	5,400	5,600	0.15	500
IH0805E4D7R**0	4.70	14	58	4,500	4,800	0.20	500
IH0805E5D6R**0	5.60	14	60	4,000	4,300	0.23	500
IH0805E6D8R**0	6.80	15	60	3,650	3,800	0.25	500
IH0805E8D2R**0	8.20	15	64	3,000	3,300	0.28	500
IH0805E100R**0	10.00	15	60	2,500	2,800	0.30	500
IH0805C120R**0	12.00	16	60	2,450	2,750	0.35	300
IH0805C150R**0	15.00	16	63	2,200	2,500	0.40	300
IH0805C180R**0	18.00	17	63	1,750	2,050	0.45	300
IH0805C220R**0	22.00	18	60	1,700	2,000	0.50	300
IH0805C270R**0	27.00	17	58	1,550	1,850	0.55	300
IH0805C330R**0	33.00	18	55	1,350	1,650	0.60	300
IH0805C390R**0	39.00	18	47	1,300	1,600	0.65	300
IH0805C470R**0	47.00	18	43	1,200	1,500	0.70	300
IH0805C560R**0	56.00	19	39	1,150	1,450	0.75	300
IH0805C680R**0	68.00	19	30	1,000	1,300	0.80	300
IH0805C820R**0	82.00	19	10	850	1,150	0.90	300
IH0805C101R**0	100.00	15	*	700	1,000	0.90	300
IH0805C121R**0	120.00	16	*	650	950	0.95	300
IH0805C151R**0	150.00	16	*	550	850	1.00	300
IH0805C181R**0	180.00	16	*	500	800	1.10	300

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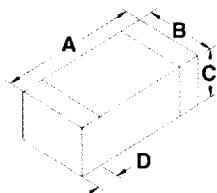
High Frequency Chip Inductors (air cores)

PART NUMBER	Inductance (L) (nH)	Q (Minimum)		Self-Resonant Frequency (MHz)		DCR MAX CHMS	RATED I MAX (continuous) mA
		50MHz	100MHz	Min	Typ		
IH0805C221R**0	220.00	16	16	430	730	1.20	300
IH0805C271R**0	270.00	13	*	650	950	0.95	300
IH0805C331R**0	330.00	15	*	550	850	1.00	300
IH0805C391R**0	390.00	15	*	500	800	1.10	300
IH0805C471R**0	470.00	13	*	430	730	1.20	300

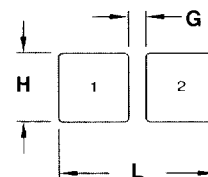
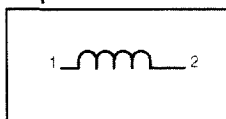
Inductor Chip Specifications

Recommended Land Patterns

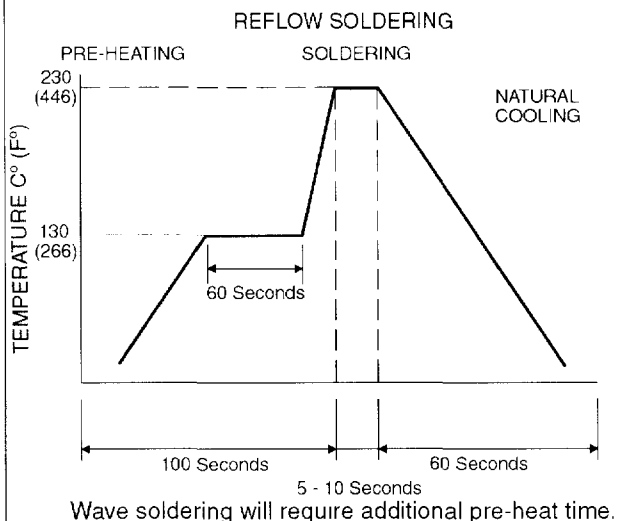
Metric (EIA) Pkg. Size	Type	A	B	C	D	L	G	H
1005 (0402)	IC / IH	1.01 + 0.18 (0.040 + 0.007)	0.50 + 0.20 (0.020 + 0.008)	0.50 + 0.20 (0.020 + 0.008)	0.30 MAX. (0.012 MAX.)	2.10 (0.083)	0.50 (0.020)	0.81 (0.032)
1608 (0603)	IC / IH	1.60 + 0.15 (0.063 + 0.006)	0.80 + 0.15 (0.031 + 0.006)	0.80 + 0.15 (0.031 + 0.006)	0.36 + 0.15 (0.014 + 0.006)	2.60 (0.102)	0.60 (0.023)	1.04 (0.041)
2012 (0805)	IC	2.00 + 0.20 (0.079 + 0.008)	1.25 + 0.20 (0.049 + 0.008)	0.90 + 0.20 (0.035 + 0.008)	0.51 + 0.25 (0.020 + 0.010)	3.00 (0.118)	1.00 (0.039)	1.50 (0.059)
2012 (0805)	IC / IH	2.00 + 0.20 (0.079 + 0.006)	1.25 + 0.20 (0.049 + 0.008)	1.25 + 0.20 (0.049 + 0.008)	0.51 + 0.25 (0.020 + 0.010)	3.00 (0.118)	1.00 (0.039)	1.50 (0.059)
3216 (1206)	IC / IH	3.20 + 0.20 (0.126 + 0.008)	1.60 + 0.20 (0.063 + 0.008)	1.10 + 0.20 (0.043 + 0.008)	0.51 + 0.25 (0.020 + 0.010)	4.40 (0.118)	2.20 (0.087)	1.91 (0.075)
5650 (2220)	DI	5.59 + 0.51 (0.220 + 0.020)	5.08 + 0.25 (0.200 + 0.010)	3.45 + 0.25 (0.136 + 0.010)	0.76 + 0.25 (0.030 + 0.010)	9.19 (0.362)	3.07 (0.121)	6.10 (0.240)



Equivalent Circuit



Recommended Soldering Conditions



SEE PAGE 91 FOR GENERAL TAPE & REEL SPECIFICATIONS
(CONTACT STEWARD FOR ANY ITEMS NOT LISTED)