

# Ferrite EMI Chip Beads

## Features:

- Up to 10 Amps (I MAX) continuous operating capability • Low DCR • Vibration Resistant • Rugged monolithic construction • Small footprint • Excellent retention under bias • Superior impedance vs. frequency characteristics
- Economical • Broad range of sizes ( from EIA 0402 up to 3312 ) • Broad range of impedance values and current ratings • Lead free & RoHS compliant • High bias current resistant versions (HR) available. • Low frequency and high frequency chip beads now available • Spice Models incorporating DC bias effects available on [www.lairdtech.com](http://www.lairdtech.com).

## PART NUMBERING SYSTEM EXAMPLE

<b>HZ</b>	<b>0402</b>	<b>A</b>	<b>152</b>	<b>R</b>	<b>-10</b>
Product Series Code	Part Size Code ( EIA )	Rated Continuous Current Code	Impedance Value Code	Packaging Code	Additional Description

**HI** High Current Chips (  $\geq 3$  Amps )

**MI** Mid Current Chips ( 1 Amp to  $< 3$  Amps )

**HR** High Retention Under Bias

**DA** 4 Line Chip Array ( Page 4 )

**LI** Low Current Chips (  $< 1$  Amp and  $< 400$  Ohms )

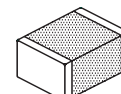
**HZ** High Impedance Chips (  $< 1$  Amp and  $> 400$  Ohms )

**HF** High Frequency (  $> 5$  GHz Peak / Page 4 )

**LF** Low Frequency ( Page 4 )



Chip Array



Chip Bead

CHIP BEAD PART NUMBER	DESCRIPTION / SPECIAL FEATURES	METRIC PKG. SIZE	TYPICAL IMPEDANCE ( $\Omega$ )				Typical Peak Impedance ( $\Omega$ )	Peak Impedance Frequency (MHz)	DCR MAX ( $\Omega$ )	RATED I MAX (continuous) mA
			Z @ 25 MHz	Z @ 100 MHz	Z @ 500 MHz	Z @ 1 GHz				
<b>0402 CHIP BEADS</b>										
HZ0402A152R-10	High Impedance	1005	400	1,500	441	200	1,500	143	2.000	50
HZ0402A601R-10	High Impedance	1005	182	600	600	300	965	241	1.000	100
HZ0402B102R-10	High Impedance	1005	225	1,000	489	222	1,116	182	1.000	200
LI0402B301R-10	Low Current	1005	96	300	454	351	549	374	0.800	200
LI0402B800R-10	Low Current	1005	32	80	220	224	243	769	0.800	200
LI0402C221R-10	Low Current	1005	72	220	443	243	453	440	0.350	300
LI0402C470R-10	Low Current	1005	15	47	76	90	92	1402	0.150	300
LI0402D121R-10	Low Current	1005	40	120	205	195	213	682	0.400	400
LI0402E190R-10	Low Current	1005	6	19	43	56	92	1,519	0.100	500
LI0402E300R-10	Low Current	1005	9	30	50	57	58	1,195	0.300	500
LI0402E600R-10	Low Current	1005	29	60	90	57	97	801	0.300	500
<b>0603 CHIP BEADS</b>										
HI0603P600R-10	High Current	1608	25	60	85	85	100	750	0.030	4,000
HZ0603A152R-10	High Impedance	1608	552	1,500	1,062	503	2,306	190	0.900	100
HZ0603A182R-10	High Impedance	1608	610	1,800	1,070	500	2,420	180	1.500	50
HZ0603A222R-10	High Impedance	1608	195	2,200	375	175	3,051	122	1.500	100
HZ0603A252R-10	High Impedance	1608	791	2,500	1,014	501	3,065	149	1.500	50
HZ0603B102R-10	High Impedance	1608	453	1,000	380	200	1,000	100	0.600	200
HZ0603B112R-10	High Impedance	1608	515	1,100	1,300	850	1,539	288	0.800	200
HZ0603B751R-10	High Impedance	1608	302	750	437	198	863	137	0.600	200
HZ0603C601R-10	High Impedance	1608	232	600	360	171	775	168	0.450	300
HZ0603C651R-10	High Impedance	1608	296	650	954	652	960	400	0.600	300
LI0603B201R-10	Low Current	1608	70	200	340	210	362	420	0.400	200
LI0603D301R-10	Low Current	1608	144	300	286	165	389	261	0.350	400

0603 part list continues on the next page.

CHIP BEAD PART NUMBER	DESCRIPTION / SPECIAL FEATURES	METRIC PKG. SIZE	TYPICAL IMPEDANCE ( $\Omega$ )				Typical Peak Impedance ( $\Omega$ )	Peak Impedance Frequency (MHz)	DCR MAX ( $\Omega$ )	RATED I MAX (continuous) mA
			Z @ 25 MHz	Z @ 100 MHz	Z @ 500 MHz	Z @ 1 GHz				
<b>0603 CHIP BEADS</b>										
(continued)										
LI0603E151R-10	Low Current	1608	61	150	197	131	209	331	0.250	500
LI0603E470R-10	Low Current	1608	17	47	83	91	91	1,000	0.100	500
LI0603G121R-10	Low Current	1608	52	120	156	113	177	389	0.200	700
LI0603G221R-10	Low Current	1608	98	220	279	168	283	251	0.300	700
LI0603G800R-10	Low Current	1608	32	80	100	91	100	500	0.200	700
MI0603J600R-10	Mid Current	1608	25	60	91	92	95	700	0.100	1,000
MI0603J680R-10	Mid Current	1608	35	68	106	99	110	650	0.100	1,000
MI0603J601R-10	Mid Current	1608	225	600	400	200	620	150	0.200	1,000
MI0603K300R-10	Mid Current	1608	12	30	43	45	45	1,000	0.090	1,500
MI0603L221R-10	Mid Current	1608	107	220	219	121	240	280	0.050	2,000
MI0603L301R-10	Mid Current	1608	50	300	225	120	410	200	0.100	2,000
MI0603M121R-10	Mid Current	1608	55	120	169	138	170	420	0.050	2,500
<b>0805 CHIP BEADS</b>										
HI0805O121R-10	High Current	2012	61	120	140	80	167	270	0.020	3,500
HI0805Q310R-10	High Current	2012	12	31	42	44	45	800	0.025	4,500
HI0805R800R-10	High Current	2012	38	80	70	38	100	200	0.010	5,000
HZ0805B222R-10	High Impedance	2012	648	2,200	419	213	2,200	100	0.800	200
HZ0805B272R-10	High Impedance	2012	400	2,700	400	150	2,900	88	0.800	200
HZ0805C202R-10	High Impedance	2012	350	2,000	300	150	2,000	100	0.500	300
HZ0805D102R-10	High Impedance	2012	280	1,000	328	168	1,268	113	0.300	400
HZ0805D152R-10	High Impedance	2012	289	1,500	333	166	1,525	110	0.400	400
HZ0805E601R-10	High Impedance	2012	277	600	304	151	696	155	0.300	500
LI0805G201R-10	Low Current	2012	100	200	221	128	272	250	0.300	700
LI0805G301R-10	Low Current	2012	124	300	248	146	350	205	0.200	700
HZ0805G471R-10	High Impedance	2012	221	470	286	150	572	149	0.200	700
LI0805H121R-10	Low Current	2012	53	120	170	114	170	340	0.150	800
LI0805H151R-10	Low Current	2012	73	150	207	150	210	400	0.150	800
LI0805H750R-10	Low Current	2012	31	75	128	130	132	769	0.150	800
MI0805J102R-10	Mid Current	2012	195	1,000	226	108	1,112	120	0.150	1,000
MI0805K110R-10	Mid Current	2012	5	11	18	19	20	1,000	0.060	1,500
MI0805K400R-10	Mid Current	2012	19	40	60	63	69	903	0.050	1,500
MI0805K601R-10	Mid Current	2012	280	600	240	120	723	130	0.100	1,500
MI0805L301R-10	Mid Current	2012	135	300	271	147	350	200	0.060	2,000
MI0805M221R-10	Mid Current	2012	100	220	274	115	287	260	0.050	2,500
<b>1206 CHIP BEADS</b>										
HF1206J150R-10	High Frequency	3216	0.25	2	7	15	111	5,450	0.060	1,000
HI1206N101R-10	High Current	3216	41	100	144	145	150	600	0.035	3,000
HI1206N800R-10	High Current	3216	38	80	120	129	130	800	0.035	3,000

Impedance Curves with multiple levels of applied DC bias are available on [www.lairdtech.com](http://www.lairdtech.com).  
Specific part dimensions, land patterns and soldering profiles available on [www.lairdtech.com](http://www.lairdtech.com).

CHIP BEAD PART NUMBER	DESCRIPTION / SPECIAL FEATURES	METRIC PKG. SIZE	TYPICAL IMPEDANCE ( $\Omega$ )				Typical Peak Impedance ( $\Omega$ )	Peak Impedance Frequency (MHz)	DCR MAX ( $\Omega$ )	RATED I MAX (continuous) mA
			Z @ 25 MHz	Z @ 100 MHz	Z @ 500 MHz	Z @ 1 GHz				
<b>1206 CHIP BEADS</b> (continued)										
HI1206P121R-10	High Current	3216	56	120	130	105	142	300	0.030	4,000
HI1206T161R-10	High Current	3216	71	160	220	127	229	251	0.018	6,000
HI1206T500R-10	High Current	3216	19	50	66	70	70	1,000	0.010	6,000
HZ1206C202R-10	High Impedance	3216	1,673	915	180	100	2,505	41	0.500	300
HZ1206D102R-10	High Impedance	3216	201	1,000	185	100	1,000	100	0.400	400
HZ1206E152R-10	High Impedance	3216	823	950	188	57	1,564	57	0.300	500
HZ1206E601R-10	High Impedance	3216	296	600	202	103	674	75	0.300	500
LI1206H121R-10	Low Current	3216	53	120	144	135	145	422	0.150	800
LI1206H151R-10	Low Current	3216	73	150	173	123	182	241	0.150	800
MI1206K260R-10	Mid Current	3216	12	26	44	46	46	1,000	0.060	1,500
MI1206K310R-10	Mid Current	3216	12	31	37	41	41	1,000	0.045	1,500
MI1206K601R-10	Mid Current	3216	300	600	250	130	650	80	0.080	1,500
MI1206K900R-10	Mid Current	3216	44	90	142	150	154	867	0.080	1,500
MI1206L391R-10	Mid Current	3216	100	390	160	90	460	130	0.050	2,000
MI1206L501R-10	Mid Current	3216	210	500	150	82	500	100	0.060	2,000
<b>1210 CHIP BEAD</b>										
MI1210K600R-10	Mid Current	3225	30	60	90	95	105	900	0.035	1,500
<b>1612 HIGH CURRENT CHIP BEAD</b>										
HI1612X560R-10	High Current	4131	23	56	75	79	79	1,000	0.004	10,000
<b>1806 CHIP BEADS</b>										
HI1806N910R-10	High Current	4516	42	91	140	150	150	1,000	0.030	3,000
HI1806T600R-10	High Current	4516	28	60	87	92	92	1,000	0.010	6,000
HZ1806K102R-10	High Impedance	4516	60	1,000	160	80	1,390	135	0.150	1500
LI1806C151R-10	Low Current	4516	60	150	219	222	223	871	0.500	300
LI1806E101R-10	Low Current	4516	45	100	157	164	166	966	0.300	500
LI1806E800R-10	Low Current	4516	28	80	117	117	117	1,000	0.300	500
MI1806J800R-10	Mid Current	4516	34	78	114	118	119	903	0.030	1,000
<b>1812 CHIP BEADS</b>										
HI1812T800R-10	High Current	4532	30	80	97	107	107	1,000	0.010	6,000
HI1812V101R-10	High Current	4532	45	100	136	134	139	800	0.010	8,000
LI1812D121R-10	Low Current	4532	55	120	182	184	186	738	0.400	400
MI1812K121R-10	Mid Current	4532	45	120	162	170	175	900	0.055	1,500
<b>2220 CHIP BEADS</b>										
HI2220P171R-10	High Current	5620	78	170	256	237	256	500	0.030	4,000
HI2220P251R-10	High Current	5620	100	250	172	91	390	200	0.015	4,000
HI2220P271R-10	High Current	5620	110	270	360	250	390	300	0.035	4,000
HI2220P551R-10	High Current	5620	180	550	670	343	850	300	0.035	4,000
HI2220P601R-10	High Current	5620	220	600	184	106	600	100	0.025	4,000

All current ratings ( I MAX ) are based upon continuous operation.  
All chart data can be sorted on [www.lairdtech.com](http://www.lairdtech.com)



CHIP BEAD PART NUMBER	DESCRIPTION / SPECIAL FEATURES	METRIC PKG. SIZE	TYPICAL IMPEDANCE ( $\Omega$ )				Typical Peak Impedance ( $\Omega$ )	Peak Impedance Frequency (MHz)	DCR MAX ( $\Omega$ )	RATED I MAX (continuous) mA
			Z @ 25 MHz	Z @ 100 MHz	Z @ 500 MHz	Z @ 1 GHz				
<b>2220 CHIP BEADS</b> (continued)										
HI2220P701R-10	High Current	5620	200	700	140	90	700	100	0.025	4,000
HI2220Q401R-10	High Current	5620	100	400	159	99	450	150	0.030	4,500
HI2220R151R-10	High Current	5620	60	150	230	196	230	500	0.015	5,000
HI2220R181R-10	High Current	5620	80	180	263	234	270	400	0.020	5,000
HI2220R301R-10	High Current	5620	100	300	190	100	380	200	0.020	5,000
HI2220T101R-10	High Current	5620	50	100	148	152	160	600	0.006	6,000
HR2220P601R-10	High Retention	5620	200	600	150	75	600	100	0.025	4,000
HR2220V801R-10	High Retention	5620	150	800	125	75	910	90	0.010	8,000

### 3312 HIGH CURRENT CHIP BEAD

HI3312X101R-10	High Current	8531	39	100	160	172	172	1,000	0.004	10,000
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### 1206 SIZE CHIP ARRAYS

DA1206B102R-10	Array	3216	275	1,000	520	240	1,129	175	0.800	200
DA1206B601R-10	Array	3216	180	600	475	230	761	214	0.350	200
DA1206C121R-10	Array	3216	39	120	181	151	211	559	0.200	300
DA1206D301R-10	Array	3216	94	300	437	245	437	500	0.400	400
DA1206D600R-10	Array	3216	15	60	115	132	133	1,103	0.200	400
DA1206E300R-10	Array	3216	10	30	55	56	56	1,000	0.300	500

### 1206 HIGH FREQUENCY EMI CHIP BEAD

CHIP BEAD PART NUMBER	DESCRIPTION / SPECIAL FEATURES	METRIC PKG. SIZE	TYPICAL IMPEDANCE ( $\Omega$ )				Typical Peak Impedance ( $\Omega$ )	Peak Impedance Frequency (MHz)	DCR MAX ( $\Omega$ )	RATED I MAX (continuous) mA
			Z @ 100 MHz	Z @ 1 GHz	Z @ 2 GHz	Z @ 4 GHz				
HF1206J150R-10	High Frequency	3216	2	15	21	42	111	5,450*	0.060	1,000

\*Insertion loss peaks at beyond 10 GHz

### 0805 & 1206 LOW FREQUENCY EMI CHIP BEADS

CHIP BEAD PART NUMBER	DESCRIPTION / SPECIAL FEATURES	METRIC PKG. SIZE	TYPICAL IMPEDANCE ( $\Omega$ )				Typical Peak Impedance ( $\Omega$ )	Peak Impedance Frequency (MHz)	DCR MAX ( $\Omega$ )	RATED I MAX (continuous) mA
			Z @ 5 MHz	Z @ 10 MHz	Z @ 25 MHz	Z @ 100 MHz				
LF0805A252R-10	Low Frequency	2012	1,162	2,553	5,138	1,267	5,138	25	1.25	100
LF1206A302R-10	Low Frequency	3216	1,143	2,743	4,434	740	5,650	19	1.05	100
LF1206C202R-10	Low Frequency	3216	70	300	1,673	915	2,505	41	0.50	300
LF1206E152R-10	Low Frequency	3216	38	150	823	950	1,564	57	0.30	500

Visit [www.LAIRDTECH.com](http://www.LAIRDTECH.com) for additional and most up-to-date information.