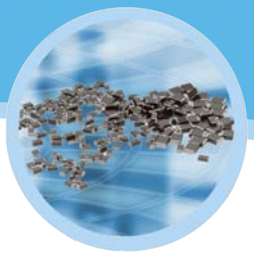
Laird TECHNOLOGIES



Ferrite EMI Chip Beads

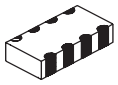
Features:

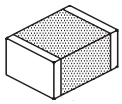
• Up to 10 Amps (I MAX) continuous operating capability • Low DCR • Vibration Resistant • Rugged monolithic construction • Small footprint • Excellent retention under bias • Superior impedance vs. frequency characteristics • Economical • Broad range of sizes (from EIA 0402 up to 3312) • Broad range of 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.

PART NUMBERING SYSTEM EXAMPLE

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

HI High Current Chips (≥ 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 (Ω)				Typical Peak Impedance (Ω)	Peak Impedance Frequency (MHz)	DCR MAX (Ω)	RATED I MAX (continuous) mA
			Z @ 25 MHz	Z @ 100 MHz	Z @ 500 MHz	Z @ 1 GHz				
0402 CHIP BEADS										
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
0603 CHIP BEADS										
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 (Ω)				Typical Peak Impedance (Ω)	Peak Impedance Frequency (MHz)	DCR MAX (Ω)	RATED I MAX (continuous) mA
			Z @ 25 MHz	Z @ 100 MHz	Z @ 500 MHz	Z @ 1 GHz				
0603 CHIP BEADS (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
0805 CHIP BEADS										
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
1206 CHIP BEADS										
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.
Specific part dimesionsions, land patterns and soldering profiles available on www.lairdtech.com.

CHIP BEAD PART NUMBER	DESCRIPTION / SPECIAL FEATURES	METRIC PKG. SIZE	TYPICAL IMPEDANCE (Ω)				Typical Peak Impedance (Ω)	Peak Impedance Frequency (MHz)	DCR MAX (Ω)	RATED I MAX (continuous) mA
			Z @ 25 MHz	Z @ 100 MHz	Z @ 500 MHz	Z @ 1 GHz				
1206 CHIP BEADS (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
1210 CHIP BEAD										
MI1210K600R-10	Mid Current	3225	30	60	90	95	105	900	0.035	1,500
1612 HIGH CURRENT CHIP BEAD										
HI1612X560R-10	High Current	4131	23	56	75	79	79	1,000	0.004	10,000
1806 CHIP BEADS										
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
1812 CHIP BEADS										
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
2220 CHIP BEADS										
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

Pb RoHS Compliant

CHIP BEAD PART NUMBER	DESCRIPTION / SPECIAL FEATURES	METRIC PKG. SIZE	TYPICAL IMPEDANCE (Ω)				Typical Peak Impedance (Ω)	Peak Impedance Frequency (MHz)	DCR MAX (Ω)	RATED I MAX (continuous) mA
			Z @ 25 MHz	Z @ 100 MHz	Z @ 500 MHz	Z @ 1 GHz				
2220 CHIP BEADS (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
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 (Ω)				Typical Peak Impedance (Ω)	Peak Impedance Frequency (MHz)	DCR MAX (Ω)	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 (Ω)				Typical Peak Impedance (Ω)	Peak Impedance Frequency (MHz)	DCR MAX (Ω)	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 for additional and most up-to-date information.