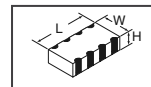


EMI Filters, Chokes, Chips, and Power Inductor Chips

Surface Mount Four - Line Chip Arrays for Differential Signal Filtering

Features: • Small footprint • Rugged construction • Broad range of impedance values • Good high frequency performance (peaks well above 100MHz) • Lower installation cost (one pick and place motion instead of four discrete installations) • Equivalent performance to four 0603 sized chips

 Call Digi-Key for Lead Free Versions of these Parts!

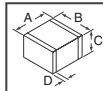


Size Code	Dimensions - mm			Typical Impedance (Ω)		Number of Filtered Circuits	Current Rating iMax (mA) Continuous	Digi-Key Part No.	Cut Tape Price Each			Digi-Key Part No.	Tape & Reel				Steward Part No.				
	Length	Width	Height	@ 100 MHz	@ 200 MHz				10	50	100		Size	Pricing	Size	Pricing		Size	Pricing		
1206	3.20	1.60	0.80	1,000	1,125	4	200	240-1150-1-ND	.58	.51	.47	240-1149-2-ND	3,000	237.79/M	6,000	224.21/M	9,000	217.41/M	DA1206B102R-00		
				600	775				240-1149-1-ND	.51	.45									.41	240-1147-2-ND
				120	160				240-1147-1-ND	.51	.45									.41	240-1147-2-ND
				300	400				240-1148-1-ND	.51	.45									.41	240-1147-2-ND
				30	40				240-1146-1-ND	.51	.45									.41	240-1147-2-ND

Power Inductor Chip / Monolithic Surface Mount

Steward's DI2220V301R-00 is a surface mount, high current power inductor (in the industry's smallest package) with exceptional performance under DC Bias. Very low DCR provides superior thermal performance under DC bias. This compact, monolithic component produces flat inductance over the driven current range (from 3 - 8 amps) comparable to a larger, heavier, wire-wound toroidal inductor. EMI resistant, fully shielded internal coil. Tuned to work with the new generation of high frequency multiphase DC-DC converters. Mounting can be on back side of PC boards. Low profile, small footprint and vibration resistant.

 Call Digi-Key for Lead Free Versions of these Parts!

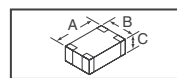


Size Code	Dimensions				L @ 2 MHz Typical nH (± 10%)		DCR Max. (Ω)	Rated I Max Continuous (mA)	Digi-Key Part No.	Cut Tape Price Each			Digi-Key Part No.	Tape & Reel		Steward Part No.
	A (mm)	B (mm)	C (mm)	D (mm)	5 Amps	8 Amps				10	50	100		Size	Pricing	
2220	5.59	5.08	3.61	0.76	300	270	0.010	8,000	240-2357-1-ND	1.47	1.21	.87	240-2357-2-ND	5,000	188.58/M	DI2220V301R-00

Miniature High Current Common Mode Choke Chip Beads

Steward's monolithic surface mount common mode chokes are designed for power and data line EMI filtering where high current, small size or high frequency performance is required. Low Normal Mode Impedance and Low DCR to minimize signal distortion. Up to 10 Amps continuous operating current capability in an 1812 size. Vibration resistant. Excellent performance beyond 1 GHz.

 Call Digi-Key for Lead Free Versions of these Parts!



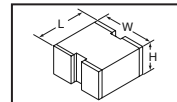
Size Code	Dimensions			Typical Impedance Common Mode (Ω)		DCR Max. (Ω)	Rated I Max Continuous (mA)	Digi-Key Part No.	Cut Tape Price Each			Digi-Key Part No.	Tape & Reel		Steward Part No.	
	A (mm)	B (mm)	C (mm)	@ 100 MHz	@ 500 MHz				10	50	100		Size	Pricing		
1812	4.57	3.05	1.60	33	50	0.003	10,000	240-2357-1-ND	.43	.38	.35	240-2357-2-ND	2,500	200.02/M	5,000	188.58/M
	4.57	3.05	2.36	60	85	0.005	5,000	240-2356-1-ND	.46	.40	.37	240-2356-2-ND	2,500	211.12/M	5,000	199.06/M

Common Mode Chip Beads for Power and Signal EMI Filtering

Features:
• Monolithic
• Compact size
• High current carrying capability

• Very low DCR to minimize signal distortion
• Smaller, lighter, and less susceptible to vibration than old style wire-wound chokes
• Performance peaks beyond 2 GHz

 Call Digi-Key for Lead Free Versions of these Parts!



Size Code	Dimensions (mm)			Typical Impedance Common Mode (Ω)		Current Rating iMax (mA) Continuous	Digi-Key Part No.	Cut Tape Price Each			Digi-Key Part No.	Tape & Reel				Steward Part No.		
	Length	Width	Height	@ 100 MHz	@ 500 MHz			10	50	100		Size	Pricing	Size	Pricing		Size	Pricing
Low Profile Surface Mount - Monolithic																		
1922	4.70	5.60	2.84	33	58	10,000	240-1104-1-ND	.59	.51	.47	240-1104-2-ND	2,500	272.61/M	5,000	257.03/M	10,000	249.24/M	CM1922X330R-00
3322	8.50	5.60	2.10	61	85	7,000	240-1102-1-ND	.77	.67	.62	240-1102-2-ND	—	—	5,000	337.35/M	—	—	CM3322U610R-00
	8.50	5.60	2.84	63	110	10,000	240-1103-1-ND	.77	.67	.62	240-1103-2-ND	2,500	357.80/M	5,000	337.35/M	10,000	327.13/M	CM3322X630R-00
High Frequency - Low Profile Surface Mount - Monolithic																		
3322	8.50	5.60	2.10	40	125	4,000	240-1101-1-ND	.77	.67	.62	240-1101-2-ND	2,500	357.80/M	5,000	337.35/M	10,000	327.13/M	CM3322P400R-00

Common Mode Chokes for Ultra High Current Power EMI Filtering (< 8 to 75 Amps Continuous Operation)

Fig. 1 - Two Chokes

Features: • Surface mount design • Filters groups of signals. • Multi pass board layout application effectively installs 2, 3 or 4 chokes in series to multiply impedance up to 1000 Ohms at 100 MHz • High continuous operating current capability (8 Amps) • Will fit behind RJ45 Jack • Eliminates the need for an expensive filtered connector • Surface mount • Very low DCR

Fig. 2 - Three Chokes

Fig. 3 - Four Chokes

Fig. 4 - One Choke

Features: • High continuous operating current capability (10 - 20 Amps) • Compact size • Parts available in both thru-hole (B) and surface mount (R) versions

Fig. 5 - One Choke

Fig. 6

Features: • High continuous operating current capability (10 - 20 Amps) • Can be used as multi-pass device to multiply impedance • Available in both thru-hole (B) and surface mount (R) versions

Fig. 7

Fig. 8 - One Choke

Features: • Very high continuous operating current capability (up to 75 Amps) • Impedance over 100 Ohms at 50 MHz and 200 Ohms at 100 MHz • Small footprint • Smaller and lighter than older style wire wound high current chokes • Thru hole • Very low DCR

Fig. Code	Size	Dimensions (mm)			Common Mode Impedance (Ω)		Current Rating iMax (A) Continuous	Digi-Key Part No.	Cut Tape Price Each			Digi-Key Part No.	Tape & Reel				Steward Part No.		
		Length	Width	Height	@ 100 MHz	@ 300 MHz			1	10	50		100	Size	Pricing	Size		Pricing	Size
High Power Surface Mount																			
5	2545	11.38	6.30	9.32	170	180	10	240-1106-1-ND	—	.89	.77	.71	—	—	—	491.56/M	—	476.67/M	CM2545X171R-00
1	3032	7.62	8.13	9.45	200	205	8	240-1116-1-ND	—	1.12	.97	.90	240-1116-2-ND	250	130.34	1,250	572.84	2,500	476.67/M
1	3032	7.62	8.13	14.48	300	295	8	240-1118-1-ND	—	1.35	1.17	—	240-1118-2-ND	100	62.66	500	295.37	1,000	572.84
5	3440	10.03	8.51	9.32	170	170	20	240-2186-1-ND	—	.99	.86	.79	240-2186-2-ND	375	172.51	1,875	433.74/M	7,500	420.60/M
7	4545	11.38	11.38	9.32	130	145	10	240-1109-1-ND	—	1.17	1.02	.94	240-1109-2-ND	400	218.08	2,000	514.06/M	4,000	498.48/M
2	4732	11.94	8.13	9.45	200	220	8	240-1117-1-ND	—	1.38	1.20	1.11	—	—	—	—	—	—	—
2	4732	11.94	8.13	14.48	300	305	8	240-1119-1-ND	—	1.63	1.41	—	240-1119-2-ND	150	113.74	750	536.19	1,500	693.27/M
7	5740	14.48	10.03	9.32	170	190	20	240-2189-1-ND	—	1.13	.98	.90	—	—	—	—	—	—	—
3	6032	15.24	8.13	9.45	200	210	8	240-2191-1-ND	—	1.42	1.23	1.14	240-2191-2-ND	250	164.93	1,250	622.04/M	2,500	603.19/M
3	6032	15.24	8.13	14.48	300	300	8	240-2192-1-ND	—	1.69	1.47	—	240-2192-2-ND	100	78.62	500	370.67	1,000	718.86
High Current Thru Hole																			
4	2545	11.38	6.30	9.32	170	175	10	240-1105-ND†	.69	.57	.49	.44	—	—	—	—	—	—	CM2545X171B-00
6	4545	11.38	11.38	9.32	130	145	10	240-1107-ND†	.80	.67	.58	.52	—	—	—	—	—	—	CM4545Z131B-00
Ultra High Current Thru Hole																			
4	3440	10.03	8.51	9.32	170	175	20	240-2185-ND†	.77	.64	.55	.50	—	—	—	—	—	—	CM3440Z171B-00
8	5441	13.72	10.41	15.24	160	150	75	240-1109-ND†	1.43	1.20	1.03	.93	—	—	—	—	—	—	CM5441Z161B-00
8	5441	13.72	10.41	10.52	100	112	75	240-1110-ND†	1.36	1.13	.98	.88	—	—	—	—	—	—	CM5441Z101B-00
6	5740	14.48	10.03	9.32	170	175	20	240-2188-ND†	.89	.75	.65	.58	—	—	—	—	—	—	CM5740Z171B-00

† Bulk Packaging

Steward Common and Differential Mode EMI Filters

SMD Common Mode Arrays for Power and Signal EMI Filtering

An advanced family of common mode choke arrays provides EMI filtering for both power and data lines in one part. High continuous operating current capability (5 Amps). Very low normal mode impedance allows desired signals to pass. Parts have no crosstalk. One single part can be used as a multi-line array or installed as a multi-pass choke in series to multiply impedance. Excellent filters for USB, Firewire and RJ11 to RJ45 Modular Data/Power Port applications. DCR Maximum is 0.020 Ohms. Will easily fit behind connector port jacks.

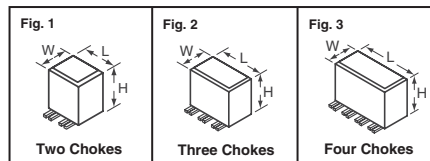


Fig.	Size Code	Dimensions (mm)			Typical Impedance (Ω)		Current Rating iMax (A) Continuous	Digi-Key Part No.	Cut Tape Price Each			Digi-Key Part No.	Tape & Reel				Steward Part No.		
		Length	Width	Height	@ 100 MHz	@ 300 MHz			10	50	100		Size	Pricing	Size	Pricing		Size	Pricing
1	2722	6.99	5.72	7.62	150	170	5	240-2175-1-ND	.84	.73	.67	—	—	—	—	—	—	—	
	2722	6.99	5.72	9.53	200	210	5	240-2176-1-ND	1.06	.92	.85	—	—	—	—	—	—	—	
	2722	6.99	5.72	4.32	80	95	5	240-2178-1-ND	.81	.70	.65	240-2178-2-ND	1,000	374.83	5,000	353.42/M	10,000	342.71/M	—
2	3822	9.78	5.72	7.62	150	170	5	240-2179-1-ND	.91	.79	.73	240-2179-2-ND	600	252.73	3,000	397.14/M	6,000	385.11/M	—
	3822	9.78	5.72	4.32	80	95	5	240-2180-1-ND	.86	.75	.69	240-2180-2-ND	1,000	400.31	5,000	377.44/M	10,000	366.01/M	—
	3822	9.78	5.72	9.53	200	210	5	240-2181-1-ND	1.22	1.06	.98	240-2181-2-ND	500	282.98	2,500	533.62/M	5,000	517.45/M	—
3	5022	12.57	5.72	7.62	150	170	5	240-2182-1-ND	1.11	.97	.89	240-2182-2-ND	600	310.33	3,000	487.66/M	6,000	472.88/M	—
	5022	12.57	5.72	9.53	200	210	5	240-2183-1-ND	1.43	1.24	1.15	240-2183-2-ND	375	250.18	1,875	629.03/M	3,750	609.96/M	—
	5022	12.57	5.72	4.32	80	95	5	240-2184-1-ND	1.03	.89	.82	240-2184-2-ND	1,000	477.95	5,000	450.64/M	10,000	436.99/M	—

Common Mode Chokes for Data/Signal Lines and CAN-Bus Applications

Automotive, Medical, Industrial, Consumer Electronics, Etc... Strong low and high frequency impedance!

Surface mount chokes for Control Area Networks (CAN-Bus) and other common mode EMI filtering applications. Current compensated surface mount chokes filter common mode noise currents and minimize emissions from high speed data lines. Also suppress interface with on-board electronics. Available in 1812 and 2824 sizes. Four chokes offer peak impedance below 10 MHz. Over 12,000 Ohms at 2 MHz.

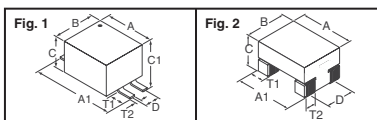


Fig.	A (mm)	A1 (mm) Max.	B (mm)	C (mm)	C1 (mm) Max.	D (mm)	T1 (mm)	T2 (mm)	Steward Part No. Family
1	7.50	9.00	5.50	3.80	4.90	2.54	1.75	0.50	CC2824xxxxR-00
2	5.00	5.20	3.50	3.55	—	1.70	1.00	1.00	CC1812xxxxR-00

Fig.	Lp Inductance (μH)				Typical Peak Impedance	TRP 100KHz/50mV	Hi-Pot (VAC) 0.5 ma, 2 sec.	DCR Typical (Ω)	idc mA	Digi-Key Part No.	Cut Tape Price Each			Digi-Key Part No.	Tape & Reel		Steward Part No.
	Test Conditions	Min.	Nom.	Max.							10	50	100		Size	Pricing	
1	100KHz/50mV	3.5	5.0	6.5	388 Ω @ 500 MHz	1 : 1 ± 5%	250	0.10	1,200	240-2347-1-ND	2.41	2.09	1.93	240-2347-2-ND	1,500	1281.58/M	CC2824J502R-00
	100KHz/50mV	7.7	11.0	14.3	780 Ω @ 200 MHz	1 : 1 ± 5%	250	0.12	800	240-2348-1-ND	2.52	2.19	2.02	240-2348-2-ND	1,500	1342.71/M	CC2824E113R-00
	100KHz/50mV	17.5	25.0	32.5	1,971 Ω @ 100 MHz	1 : 1 ± 5%	250	0.13	800	240-2349-1-ND	2.70	2.34	2.16	240-2349-2-ND	1,500	1437.87/M	CC2824E253R-00
	100KHz/50mV	35.0	51.0	66.3	3,805 Ω @ 50 MHz	1 : 1 ± 5%	250	0.16	800	240-2350-1-ND	2.76	2.39	2.21	240-2350-2-ND	1,500	1469.19/M	CC2824E513R-00
	100KHz/50mV	329.0	470.0	611.0	8,580 Ω @ 5 MHz	1 : 1 ± 5%	250	0.20	700	240-2351-1-ND	2.70	2.34	2.16	240-2351-2-ND	1,500	1437.87/M	CC2824E474R-00
	100KHz/50mV	700.0	1000.0	1500.0	4,250 Ω @ 7 MHz	1 : 1 ± 5%	750	0.20	700	240-2352-1-ND	2.35	2.04	1.88	240-2352-2-ND	1,500	1250.43/M	CC2824E105R-00
2	10KHz/50mV	1540.0	2200.0	3300.0	5,278 Ω @ 5 MHz	1 : 1 ± 5%	750	0.40	500	240-2353-1-ND	2.70	2.34	2.16	240-2353-2-ND	1,500	1437.87/M	CC2824D225R-00
	10KHz/50mV	3290.0	4700.0	7050.0	12,300 Ω @ 2 MHz	1 : 1 ± 5%	750	0.55	400	240-2354-1-ND	2.70	2.34	2.16	240-2354-2-ND	1,500	1258.14/M	CC2824B475R-00
	100KHz/50mV	35.7	51.0	66.3	3,530 Ω @ 40 MHz	1 : 1 ± 5%	250	0.50	200	240-2355-1-ND	1.70	1.48	1.36	240-2355-2-ND	2,000	906.54/M	CC1812C513R-00

Differential Mode Multi-Line Arrays for Power EMI Filtering

3, 4, 5, & 8 Line Filters Rated up to 10 Amps Continuous Operation

These multi-line ferrite products provide economical EMI filtering of differential mode noise in surface mount and through-hole PCB applications. They are designed to provide high frequency suppression of both common and differential mode EMI noise on groups of data/power lines. Low DCR.

Fig. 1 - Surface Mount



Fig. 2 - Through Hole

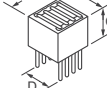


Fig.	Dimensions - mm			Typ. Impedance (Ω)	Current Rating iMax (A) Continuous	# of Lines	Digi-Key Part No.	Cut Tape Pricing			Digi-Key Part No.	Tape & Reel				Steward Part No.		
	Length	Width	Height					@ 100 MHz	@ 300 MHz	10		50	100	Size	Pricing		Size	Pricing
1	8.33	10.87	6.35	200	210	9	240-1004-1-ND	7.67	33.22	61.34	240-1004-2-ND	450	161.01	2,250	337.36/M	4,500	327.13/M	29F0330-2SR
	6.10	4.50	4.19	119	120	6	240-1005-1-ND	7.92	34.36	63.42	240-1005-2-ND	900	332.95	4,500	348.81/M	9,000	338.24/M	29F0418-1SR
	10.87	10.87	6.35	200	210	9	240-1006-1-ND	8.55	37.06	68.42	—	—	—	—	—	—	—	29F0430-2SR
	11.43	4.50	4.19	119	120	6	240-2167-1-ND	11.06	47.92	88.46	—	—	—	—	—	—	—	29F0818-1SR

Fig.	No. of Lines	Dimensions (mm)				Current Rating iMax (A) Continuous	Typical Impedance (Ω)			Digi-Key Part No.	Price Each	Steward Part No.		
		A	B	C	D		@ 100 MHz	@ 300 MHz	1			10	100	
2	4	10.87	10.87	10.57	7.62	10	342	400	240-2001-ND	.61	.51	.44	.40	29F0428-0T0
	4	10.87	5.49	10.44	2.54	10	285	290	240-2002-ND	.46	.39	.34	.30	29F0429-0T0
	5	13.41	10.87	10.57	7.62	10	342	400	240-2003-ND	.73	.61	.52	.47	29F0528-0T0

Wound Bead Chokes for Differential Mode EMI Filtering

Broad Band EMI Filtering - Thru Hole

Multi-aperture, multiple turn ferrite chokes. Three turn configurations provide lossy impedance over one thousand ohms. These parts offer excellent broadband frequency performance. Current rating is up to 7 Amps continuous operation.



Call Digi-Key for Lead Free Versions of these Parts!

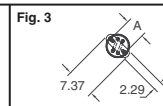
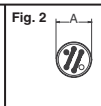
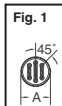


Fig.	Dimensions - mm			Current Rating iMax (A) Continuous	Typical Impedance (Ω)		Digi-Key Part No.	Pricing	Steward Part No.			
	A	B	C		@ 50 MHz	@ 100 MHz						
1	6.00	50.53	10.00	7	845	1,000	240-2169-ND	.16	1.31	5.67	10.21	28C0236-0EW
2	6.00	86.46	10.00	7	700	835	240-2168-ND	.14	1.12	4.81	8.65	28C0236-0BW
3	6.00	20.96	10.00	7	845	1,000	240-2170-ND	.17	1.40	6.02	10.84	28C0236-0JW

Axial Lead Ferrite Beads for EMI Filtering

Steward's two-terminal axial lead ferrite beads provide economical filtering for differential mode EMI suppression applications. Constructed using a continuous 22 gauge conductor, these devices are able to withstand high peak currents that can destroy other surface mount devices. Thru hole installation. Low DCR.



Call Digi-Key for Lead Free Versions of these Parts!

Fig. 1

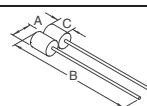


Fig. 2

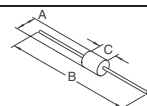


Fig.	Dimensions - mm			Typical Impedance (Ω)	Current Rating iMax (A) Continuous	Digi-Key Part No.	Cut Tape Pricing			Digi-Key Part No.	Tape & Reel				Steward Part No.	
	A	B	C				@ 100 MHz	@ 300 MHz	10		50	100	Size	Pricing		Size
1	3.51	25.4	4.45	143	165	5	240-2171-1-ND	.84	3.61	6.68	240-2171-2-ND	4,000	38.97/M	8,000	36.74/M	28J0138-11R
2	3.51	59.00	4.45	75	80	5	240-2172-1-ND	.45	1.96	3.61	240-2172-2-ND	4,500	21.04/M	9,000	19.84/M	28L0138-10R
2	3.51	59.00	8.89	135	138	5	240-2173-1-ND	.61	2.62	4.85	240-2173-2-ND	4,500	28.30/M	9,000	26.69/M	28L0138-40R
2	3.51	59.00	13.97	220	210	5	240-2174-1-ND	.76	3.32	6.12	240-2174-2-ND	4,500	35.71/M	9,000	33.67/M	28L0138-70R

Steward Ferrite EMI Cores for Cables and Wiring Harnesses

Low Frequency (300 KHz – 30 MHz) Cores for Round Cables

Steward LFB ferrite material provides excellent impedance at lower frequencies. Optimum EMI attenuation is between 300 KHz and 30 MHz however, with additional wire turns, much broader EMI frequencies can be effectively attenuated.



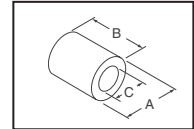
1 Turn



2 Turn



5 Turn



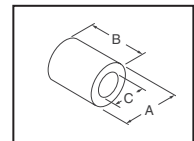
Additional wire turns will multiply impedance.

Dimensions (mm)			Net Impedance (Ω)						Digi-Key Part No.	Pricing			Steward Part No.		
A	B	C	@ 1 MHz (1 Turn)	@ 1 MHz (2 Turn)	@ 1 MHz (5 Turn)	@ 5 MHz (1 Turn)	@ 5 MHz (2 Turn)	@ 5 MHz (5 Turn)		1	10	100		500	
9.00	7.00	5.00	21	90	558	36	140	867	240-2135-ND	.12	.98	4.23	7.62	30.48	LFB090050-000
9.50	19.05	5.10	63	240	1464	86	332	2514	240-2277-ND	.31	2.62	11.30	20.34	81.38	LFB095051-000
12.70	7.00	7.92	16	70	436	25	102	593	240-2278-ND	.16	1.31	5.66	10.18	40.69	LFB127079-000
14.27	28.58	6.35	122	490	2842	120	480	2646	240-2279-ND	.99	8.20	35.31	63.56	254.26	LFB143064-000
14.27	13.46	6.35	57	220	1169	53	215	1552	240-2136-ND	.52	4.26	18.36	33.05	132.20	LFB143064-100
15.88	28.58	7.87	105	410	2615	100	390	2305	240-2281-ND	.99	8.20	35.31	63.56	254.26	LFB159079-000
17.40	28.58	9.50	91	350	2184	85	340	2044	240-2282-ND	1.19	9.83	42.37	76.27	305.08	LFB174095-000
18.10	10.00	10.00	31	138	809	29	115	722	240-2283-ND	.36	2.95	12.71	22.88	91.51	LFB180100-000
18.70	28.58	10.16	91	350	1969	84	330	1863	240-2284-ND	1.35	11.14	48.03	86.45	345.77	LFB187102-000
22.10	12.70	14.00	30	30	120	28	110	699	240-2137-ND	.59	4.92	21.19	38.14	152.54	LFB220140-000
25.00	13.00	15.00	34	105	980	26	80	624	240-2285-ND	.63	5.24	22.60	40.67	162.67	LFB250150-000
25.91	28.58	12.83	106	420	2647	62	240	1487	240-2138-ND	1.82	15.07	64.97	116.94	467.75	LFB259128-000
28.98	15.21	19.05	34	155	963	22	70	573	240-2286-ND	.97	8.03	34.61	62.29	249.15	LFB290190-000
31.00	13.00	19.00	33	33	143	22	88	554	240-2139-ND	.89	7.37	31.78	57.20	228.81	LFB310190-000
36.00	15.00	23.00	27	110	653	19	75	438	240-2287-ND	1.14	9.51	40.97	73.74	294.95	LFB360230-300

Ferrite Cylinders and Toroids for Electromagnetic Interference (EMI)

Broad Band (optimized 30 MHz – 800 MHz +) Bead Cores for Round Cables & Wire Bundles

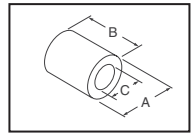
One-piece ferrite tubular bead cores for effectively attenuating a broad range of conducted and radiated electromagnetic interference (EMI). Install over round cables or wire bundles. Ferrite beads can be over molded or covered with heat shrink coating if desired. Additional wire turns will multiply impedance. Steward's cylindrical beads for round cables in Broad Band 28 material allows the smallest and most cost effective EMI solution when filtering both common mode and differential mode EMI on internal and external cable assemblies. By using Steward's high performance material, one is able to use the smallest and lowest weight core size possible with the highest EMI attenuation performance available.



Dimensions (mm)			Typical Impedance Ω			Digi-Key Part No.	Pricing			Steward Part No.		
A	B	C	@ 50 MHz	@ 100 MHz	@ 300 MHz		1	10	100		500	
6.35	15.88	3.18	131	182	300	240-2289-ND	.14	1.10	4.74	8.53	34.13	28B0250-100
6.78	14.22	3.99	100	138	260	240-2112-ND	.12	.97	4.19	7.54	30.17	28B0268-000
7.00	13.50	3.80	84	146	268	240-2290-ND	.13	1.07	4.61	8.29	33.14	28B0275-000
8.00	4.78	3.17	69	100	220	240-2291-ND	.08	.69	3.00	5.39	21.56	28B0315-000
8.00	10.06	3.17	112	158	281	240-2292-ND	.15	1.24	5.33	9.58	38.33	28B0315-100
8.60	10.00	3.80	85	143	264	240-2293-ND	.14	1.14	4.91	8.84	35.35	28B0339-000
9.00	10.00	4.50	93	132	254	240-2294-ND	.14	1.13	4.89	8.80	35.20	28B0354-000
9.00	20.00	4.75	148	205	360	240-2295-ND	.22	1.83	7.90	14.21	56.84	28B0355-000
9.53	14.48	5.08	114	154	282	240-2067-ND	.18	1.46	6.29	11.32	45.26	28B0375-100
9.53	19.05	5.08	146	194	310	240-2113-ND	.20	1.68	7.26	13.07	52.27	28B0375-300
9.53	4.83	5.08	52	81	200	240-2296-ND	.10	.84	3.63	6.54	26.13	28B0375-400
9.75	10.00	3.80	125	159	286	240-2297-ND	.19	1.54	6.65	11.98	47.93	28B0384-000
9.75	25.00	3.80	254	322	473	240-2298-ND	.33	2.76	11.90	21.43	85.72	28B0384-200
9.91	15.00	6.35	88	128	248	240-2299-ND	.16	1.36	5.88	10.59	42.36	28B0390-200
11.90	15.00	7.00	100	142	270	240-2300-ND	.23	1.90	8.22	14.80	59.20	28B0471-000
12.00	10.00	3.55	152	195	320	240-2240-ND	.21	1.76	7.59	13.66	54.63	28B0473-000
12.00	25.00	3.55	318	424	558	240-2241-ND	.46	3.79	16.34	29.41	117.64	28B0473-200
12.32	25.40	4.88	253	320	450	240-2114-ND	.46	3.78	16.32	29.38	117.49	28B0485-000
12.70	6.35	7.92	52	83	200	240-2301-ND	.14	1.19	5.13	9.24	36.95	28B0500-100
14.27	10.16	6.35	101	145	270	240-2302-ND	.27	2.23	9.61	17.30	69.18	28B0562-000
14.27	28.58	6.35	262	317	470	240-2078-ND	.40	3.28	14.12	25.41	101.64	28B0562-200
14.27	15.24	7.26	121	173	295	240-2303-ND	.38	3.15	13.59	24.46	97.83	28B0563-000
14.27	28.57	7.26	197	287	406	240-2304-ND	.54	4.51	19.45	35.02	140.04	28B0563-200
14.48	5.51	8.51	51	82	200	240-2305-ND	.18	1.44	6.21	11.18	44.73	28B0570-000
15.00	35.00	5.90	348	450	580	240-2242-ND	.71	5.88	25.35	45.62	182.48	28B0591-200
15.65	28.58	7.00	232	310	450	240-2306-ND	.64	5.35	23.07	41.53	166.10	28B0616-000
15.88	14.27	7.87	87	163	273	240-2307-ND	.41	3.38	14.56	26.21	104.84	28B0625-000
15.88	28.58	7.87	209	280	400	240-2115-ND	.63	5.19	22.38	40.27	161.07	28B0625-100
16.00	28.00	9.25	171	243	370	240-2308-ND	.58	4.75	20.49	36.88	147.51	28B0631-100
17.00	25.00	7.01	226	323	445	240-2309-ND	.63	5.29	22.80	41.03	164.12	28B0669-000
17.42	6.35	9.52	61	91	214	240-2310-ND	.22	1.84	7.92	14.27	57.07	28B0686-000
17.42	28.57	9.52	191	242	390	240-2079-ND	.65	5.37	23.14	41.64	166.56	28B0686-200
18.67	14.27	10.16	108	150	270	240-2311-ND	.49	4.05	17.45	31.41	125.64	28B0735-300
22.10	6.35	13.72	53	85	205	240-2312-ND	.31	2.60	11.20	20.16	80.61	28B0870-000
22.10	12.70	13.72	80	122	236	240-2116-ND	.50	4.13	17.82	32.08	128.31	28B0870-100
25.40	12.70	15.49	83	122	247	240-2313-ND	.51	5.05	21.79	39.22	156.88	28B0999-000
25.40	12.70	12.70	106	151	278	240-2117-ND	.65	5.41	23.32	41.97	167.86	28B1000-000
25.91	28.58	12.83	104	276	412	240-2081-ND	1.43	11.84	51.06	91.91	367.64	28B1020-100
28.50	28.58	13.77	218	307	440	240-2243-ND	1.74	14.48	62.39	112.31	449.24	28B1122-100
29.01	7.49	19.00	53	85	200	240-2118-ND	.47	3.90	16.83	30.29	121.15	28B1142-000
29.01	13.84	19.00	77	114	235	240-2314-ND	.71	5.87	25.27	45.49	181.95	28B1142-100
31.12	15.93	19.05	100	140	270	240-2315-ND	.95	7.86	33.87	60.97	243.90	28B1225-000
31.12	10.00	19.05	70	110	240	240-2316-ND	.64	5.31	22.89	41.20	164.81	28B1225-300
31.75	22.22	19.05	134	186	292	240-2119-ND	1.41	11.73	50.55	90.99	363.98	28B1250-000
36.00	12.70	23.00	78	115	230	240-2317-ND	.96	7.93	34.19	61.55	246.18	28B1417-200
38.86	28.58	12.95	161	210	347	240-2318-ND	2.02	16.76	72.25	130.05	520.18	28B1531-000
39.12	22.22	16.76	204	254	405	240-2319-ND	2.74	22.76	98.10	176.58	706.32	28B1540-000
50.80	28.70	25.40	218	305	442	240-2244-ND	5.50	45.59	196.52	353.73	1414.92	28B2000-100
60.96	12.70	35.56	90	135	285	240-2120-ND	2.79	23.13	99.69	179.44	717.75	28B2400-000

240-2226-ND Broadband Ribbon, Flex, and Solid Cylinder Ferrite EMI Cable Core Kit (37 different sizes)..... 50.80

(Continued)



High Frequency (300 MHz – 2 GHz) Cylindrical Cores for Round Cables

Made from special high frequency material, these ferrite cylinders and toroids have EMI attenuation (impedance) that peaks above 1 GHz for most part sizes. Also available in split clamp-on shapes (in plastic cases) listed at the bottom of this page. Size and shape of the part can affect performance and frequency response.

Dimensions (mm)			Net Impedance (Ω)		Digi-Key Part No.	1	10	Pricing 50	100	500	Steward Part No.
A	B	C	@ 500 MHz	@ 800 MHz							
7.52	10.00	2.39	136	138	240-2146-ND	.15	1.23	5.30	9.54	38.17	HFB075024-000
9.52	10.00	5.08	74	85	240-2145-ND	.18	1.50	6.48	11.66	46.63	HFB095051-100
9.52	19.00	5.08	135	183	240-2140-ND	.25	2.05	8.81	15.87	63.47	HFB095051-200
12.32	5.00	4.88	56	62	240-2269-ND	.18	1.48	6.37	11.47	45.87	HFB123049-000
12.32	10.00	4.88	110	127	240-2149-ND	.25	2.12	9.13	16.42	65.68	HFB123049-100
12.32	25.40	4.88	287	305	240-2270-ND	.64	5.33	22.94	41.30	165.19	HFB123049-300
14.27	5.00	6.35	50	64	240-2271-ND	.21	1.76	7.59	13.66	54.63	HFB143064-000
14.27	10.00	6.35	100	113	240-2147-ND	.32	2.67	11.50	20.69	82.75	HFB143064-100
14.27	28.58	6.35	315	306	240-2148-ND	.76	6.32	27.23	49.01	196.05	HFB143064-300
14.99	28.58	6.99	287	279	240-2150-ND	.82	6.80	29.32	52.77	211.06	HFB150070-200
15.24	10.00	3.38	190	189	240-2151-ND	.44	3.65	15.71	28.28	113.15	HFB152034-000
15.65	20.00	6.99	200	216	240-2273-ND	.70	5.82	25.10	45.18	180.73	HFB157070-000
15.88	28.58	7.87	290	302	240-2142-ND	.90	7.45	32.09	57.77	231.10	HFB159079-100
16.00	19.00	9.25	145	155	240-2274-ND	.62	5.12	22.08	39.74	158.94	HFB160093-200
16.00	27.99	9.25	198	261	240-2152-ND	.77	6.39	27.56	49.60	198.41	HFB160093-300
16.99	10.00	7.01	115	127	240-2153-ND	.46	3.75	16.18	29.12	116.50	HFB170070-000
16.99	20.00	7.01	215	234	240-2275-ND	.76	6.35	27.35	49.24	196.96	HFB170070-100
18.67	30.00	10.16	250	276	240-2143-ND	1.11	9.17	39.52	71.13	284.51	HFB187102-100
25.91	20.00	12.83	224	242	240-2144-ND	1.52	12.59	54.25	97.65	390.57	HFB259128-000
25.91	28.58	12.83	246	268	240-2154-ND	2.10	17.40	74.99	134.98	539.91	HFB259128-100

240-2225-ND High Frequency Ferrite Clamp-On and Solid Cylinder Core Sample Kit for Round Cables (one each of 18 different sizes)..... 25.40

Clamp-On, Split Ferrite Cores in Plastic Cases for Round Cables and Wire Bundles

Split ferrite bead cores in clamp-on (or snap-on) plastic cases can be easily used for EMI attenuation where one-piece cores cannot be installed. Clamp-on cores are also convenient for use during EMI testing. Cylinder, Round and box shaped plastic cased part shapes available. Additional wire turns will multiply impedance. High performance material.

Broad Band Clamp-On Cores Optimized for 30 MHz – 800 MHz +

Case Color	Plastic Case Dimensions (mm)			Max. Cable Diameter (mm)	Typical Impedance (Ω)		Digi-Key Part No.	1	Price Each 50	100	Steward Part No.	
	A	B	C		@ 100 MHz	@ 300 MHz						
Cylinder Clamp-On Ferrite												
Black	25.20	13.00	3.50	3.50	240	400	240-2233-ND	.86	.72	.62	.56	28A0350-0B2
White	29.08	12.80	5.44	4.65	170	320	240-2068-ND	.89	.74	.64	.57	28A0392-0A0
Black	29.08	12.80	5.44	4.65	170	320	240-2070-ND	.89	.74	.64	.57	28A0392-0A2
Black	42.55	14.30	5.35	5.10	277	449	240-2344-ND	1.04	.87	.75	.68	28A0434-0A2
Black	53.39	18.75	4.80	4.50	572	688	240-2245-ND	1.53	1.28	1.10	.99	28A0592-0A2
Black	53.39	18.75	6.60	6.55	471	575	240-2246-ND	1.48	1.23	1.06	.96	28A0593-0A2
White	40.36	19.10	9.09	8.95	240	390	240-2065-ND	1.63	1.36	1.17	1.06	28A0640-0A0
Black	40.36	19.10	9.09	8.95	240	390	240-2066-ND	1.63	1.36	1.17	1.06	28A0640-0A2
Black	41.68	21.03	7.00	6.35	270	460	240-2122-ND	1.74	1.44	1.25	1.12	28A2026-0A2
Black	35.10	18.00	9.00	9.00	220	360	240-2124-ND	1.28	1.06	.92	.82	28A2736-0A2
Black	33.70	30.00	13.00	12.65	260	410	240-2127-ND	2.63	2.18	1.88	1.70	28A3851-0A2
Round Clamp-On Ferrite												
Black	19.90	19.20	8.20	8.13	160	300	240-2123-ND	1.07	.89	.77	.69	28A2432-0A2
Black	13.60	24.55	10.20	10.19	130	250	240-2125-ND	1.12	.93	.81	.73	28A3039-0A2
Black	15.40	28.80	13.60	13.55	120	230	240-2128-ND	1.29	1.07	.92	.83	28A4155-0A2
Box Clamp-On Ferrite												
White	32.50	29.00	13.00	12.70	280	440	240-2072-ND	3.12	2.60	2.24	2.01	28A2024-0A0
Black	32.50	29.00	13.00	12.70	280	440	240-2073-ND	3.12	2.60	2.24	2.01	28A2024-0A2
White	32.03	17.58	7.26	6.35	320	510	240-2074-ND	1.57	1.31	1.13	1.02	28A2025-0A0
Black	32.03	17.58	7.26	6.35	320	510	240-2075-ND	1.57	1.31	1.13	1.02	28A2025-0A2
White	32.84	21.77	10.00	9.91	250	420	240-2076-ND	1.96	1.63	1.41	1.27	28A2029-0A0
Black	32.84	21.77	10.00	9.91	250	420	240-2077-ND	1.96	1.63	1.41	1.27	28A2029-0A2
Black	42.00	29.20	19.30	18.80	210	360	240-2121-ND	4.36	3.61	3.12	2.81	28A5776-0A2

240-2224-ND Split Clamp-On Broad Band EMI Ferrite Cores Sample Kit for Round Cables (one each of 14 different sizes)..... 25.40

High Frequency (300MHz – 2GHz) Clamp-On Ferrite Cores

Case Color: Black

Plastic Case Dimensions (mm)			Max. Cable Diameter (mm)	Net Impedance (Ω)		Digi-Key Part No.	1	10	Price Each 50	100	Steward Part No.
A	B	C		@ 500 MHz	@ 800 MHz						
Cylinder Clamp-On Ferrite											
29.30	12.80	5.30	4.65	152	168	240-2129-ND	1.14	.95	.82	.74	HFA100049-0A2
41.68	21.03	8.13	6.35	340	281	240-2132-ND	2.04	1.70	1.46	1.32	HFA150068-0A2
40.36	19.10	9.09	8.95	260	262	240-2130-ND	2.19	1.82	1.57	1.41	HFA163090-0A2
Box Clamp-On Ferrite											
32.50	17.88	7.00	6.35	350	339	240-2131-ND	1.83	1.52	1.31	1.18	HFA150066-0A2
32.64	21.77	10.00	9.91	290	280	240-2133-ND	2.42	2.01	1.74	1.56	HFA187102-0A2
32.51	29.01	13.00	12.70	315	275	240-2134-ND	3.87	3.21	2.77	2.49	HFA259131-0A2