Steward

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

Surface Mount EMI Suppression Ferrite Chips Signal and Power Filtering

Features: • Small footprint permits use in densely populated surface mount designs • Economical component for applications requiring discrete signal filtering **Applications:** • Filtering of power input pins of oscillators and logic devices using high speed clocks • Filtering of low frequency input/output signals entering/exiting shielded enclosures • High frequency filtering of medium speed clocks and video signals • Preventing oscillations in high frequency amplifiers

Fig. 1

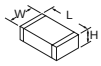

Fig. 2

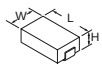

Fig.	Size Code	Dimensions - mm Length	Width	Height	Current Rating (mA)	Typical Impedance @ 100 MHz	Digi-Key Part No.	Cut Tape Pricing 10	50	100	Digi-Key Part No.	Tape & Reel Pricing		Steward Part No.
1	0402	1.01	0.50	0.50	200	300 Ω	240-1136-1-ND	.81	3.51	6.48	240-1136-2-ND	302.28/8,000	1105.48/32,000	LI0402B301R-00
					400	120 Ω	240-1135-1-ND	.81	3.51	6.48	240-1135-2-ND	302.28/8,000	1105.48/32,000	LI0402D121R-00
					500	30 Ω	240-1133-1-ND	.81	3.51	6.48	240-1133-2-ND	302.28/8,000	1105.48/32,000	LI0402E300R-00
					500	60 Ω	240-1134-1-ND	.81	3.51	6.48	240-1134-2-ND	302.28/8,000	1105.48/32,000	LI0402E600R-00
					100	600 Ω	240-1142-1-ND	.88	3.81	7.02	240-1142-2-ND	327.73/8,000	1198.54/32,000	HZ0402A601R-00
1	0603	1.60	0.80	0.80	400	300 Ω	240-1141-1-ND	.52	2.26	4.16	240-1141-2-ND	97.16/4,000	266.50/12,000	LI0603D301R-00
					500	150 Ω	240-1139-1-ND	.57	2.48	4.58	240-1139-2-ND	106.80/4,000	292.94/12,000	LI0603E151R-00
					700	120 Ω	240-1138-1-ND	.34	1.49	2.74	240-1138-2-ND	64.00/4,000	175.55/12,000	LI0603G121R-00
					700	220 Ω	240-1140-1-ND	.52	2.26	4.16	240-1140-2-ND	97.16/4,000	266.50/12,000	LI0603G221R-00
					700	80 Ω	240-1137-1-ND	.52	2.26	4.16	240-1137-2-ND	97.16/4,000	266.50/12,000	LI0603G800R-00
		1.60	0.80	0.80	1,000	60 Ω	240-1131-1-ND	.52	2.24	4.13	240-1131-2-ND	96.39/4,000	264.38/12,000	MI0603J600R-00
					1,000	600 Ω	240-2198-1-ND	.78	3.35	6.20	240-2198-2-ND	144.59/4,000	396.58/12,000	MI0603J601R-00
					1,000	68 Ω	240-1132-1-ND	.52	2.24	4.13	240-1132-2-ND	96.39/4,000	264.38/12,000	MI0603J680R-00
					1,500	30 Ω	240-1130-1-ND	.53	2.30	4.25	240-1130-2-ND	99.09/4,000	271.79/12,000	MI0603K300R-00
					2,000	300 Ω	240-2239-1-ND	.78	3.35	6.20	240-2239-2-ND	144.59/4,000	396.58/12,000	MI0603L301R-00
					2,500	120 Ω	240-2238-1-ND	.78	3.35	6.20	240-2238-2-ND	144.59/4,000	396.58/12,000	MI0603M121R-00
		1.60	0.80	0.80	4,000	60 Ω	240-2193-1-ND	.75	3.26	6.01	240-2193-2-ND	140.34/4,000	384.94/12,000	HI0603P600R-00
		1.60	0.80	0.80	100	2,200 Ω	240-2208-1-ND	.57	2.46	4.54	240-2208-2-ND	106.03/4,000	290.82/12,000	HZ0603A222R-00
					200	1,000 Ω	240-1145-1-ND	.29	1.26	2.33	240-1145-2-ND	54.36/4,000	149.11/12,000	HZ0603B102R-00
					200	1,100 Ω	240-2209-1-ND	.57	2.46	4.54	240-2209-2-ND	140.34/4,000	384.94/12,000	HZ0603B112R-00
					300	600 Ω	240-1143-1-ND	.32	1.40	2.59	240-1143-2-ND	60.53/4,000	166.03/12,000	HZ0603C601R-00
					300	650 Ω	240-2210-1-ND	.57	2.46	4.54	240-2210-2-ND	106.03/4,000	290.82/12,000	HZ0603C651R-00
1	0805	2.00	1.25	0.90	700	300 Ω	240-2218-1-ND	.52	2.26	4.16	240-2218-2-ND	97.16/4,000	266.50/12,000	LI0805G301R-00
					800	120 Ω	240-1041-1-ND	.52	2.26	4.16	240-1041-2-ND	97.16/4,000	266.50/12,000	LI0805H121R-00
					800	150 Ω	240-1021-1-ND	.52	2.26	4.16	240-1021-2-ND	97.16/4,000	266.50/12,000	LI0805H151R-00
					800	75 Ω	240-2219-1-ND	.52	2.26	4.16	240-2219-2-ND	97.16/4,000	266.50/12,000	LI0805H750R-00
		2.00	1.25	0.90	1,000	7 Ω	240-2200-1-ND	.57	2.46	4.54	240-2200-2-ND	106.03/4,000	290.82/12,000	MI0805J070R-00
					1,500	11 Ω	240-1034-1-ND	.57	2.46	4.54	240-1034-2-ND	106.03/4,000	290.82/12,000	MI0805K110R-00
					1,500	26 Ω	240-2201-1-ND	.57	2.46	4.54	240-2201-2-ND	106.03/4,000	290.82/12,000	MI0805K260R-00
					1,500	40 Ω	240-1035-1-ND	.57	2.46	4.54	240-1035-2-ND	106.03/4,000	290.82/12,000	MI0805K400R-00
					1,500	600 Ω	240-2202-1-ND	.67	2.91	5.37	240-2202-2-ND	125.31/4,000	343.70/12,000	MI0805K601R-00
					2,000	300 Ω	240-2203-1-ND	.67	2.91	5.37	240-2203-2-ND	125.31/4,000	343.70/12,000	MI0805L301R-00
					2,500	220 Ω	240-2204-1-ND	.72	3.13	5.78	240-2204-2-ND	134.95/4,000	370.14/12,000	MI0805M221R-00
		2.00	1.25	0.90	3,500	120 Ω	240-2194-1-ND	.75	3.25	6.00	240-2194-2-ND	139.96/4,000	383.89/12,000	HI0805O121R-00
					4,500	31 Ω	240-1007-1-ND	.64	2.76	5.09	240-1007-2-ND	118.75/4,000	325.72/12,000	HI0805Q310R-00
					5,000	80 Ω	240-2195-1-ND	.69	3.01	5.55	240-2195-2-ND	129.55/4,000	355.33/12,000	HI0805R800R-01
		2.00	1.25	0.90	300	2,000 Ω	240-2211-1-ND	.62	2.69	4.96	240-2211-2-ND	115.67/4,000	317.26/12,000	HZ0805C202R-00
					400	1,000 Ω	240-2212-1-ND	.62	2.69	4.96	240-2212-2-ND	115.67/4,000	317.26/12,000	HZ0805D102R-00
					400	1,500 Ω	240-2213-1-ND	.62	2.69	4.96	240-2213-2-ND	115.67/4,000	317.26/12,000	HZ0805D152R-00
					500	600 Ω	240-1018-1-ND	.32	1.40	2.59	240-1018-2-ND	60.53/4,000	166.03/12,000	HZ0805E601R-00
					700	470 Ω	240-2214-1-ND	.52	2.24	4.13	240-2214-2-ND	96.39/4,000	264.38/12,000	HZ0805G471R-00
1	1206	3.20	1.60	1.10	800	120 Ω	240-2222-1-ND	.52	2.26	4.16	240-2222-2-ND	72.87/3,000	137.41/6,000	LI1206H121R-00
				1.10	800	150 Ω	240-2223-1-ND	.52	2.26	4.16	240-2223-2-ND	72.87/3,000	137.41/6,000	LI1206H151R-00
		3.20	1.60	1.10	1,500	26 Ω	240-1027-1-ND	.57	2.46	4.54	240-1027-2-ND	79.52/3,000	149.96/6,000	MI1206K260R-00
					1,500	31 Ω	240-1036-1-ND	.67	2.91	5.37	240-1036-2-ND	93.98/3,000	177.22/6,000	MI1206K310R-00
					2,000	600 Ω	240-2206-1-ND	.78	3.35	6.20	240-2206-2-ND	108.44/3,000	204.48/6,000	MI1206K601R-00
					1,500	90 Ω	240-1037-1-ND	.67	2.91	5.37	240-1037-2-ND	93.98/3,000	177.22/6,000	MI1206K900R-00
					2,000	500 Ω	240-2207-1-ND	.67	2.91	5.37	240-2207-2-ND	93.98/3,000	177.22/6,000	MI1206L501R-00
		3.20	1.60	1.10	3,000	100 Ω	240-1008-1-ND	.75	3.26	6.01	240-1008-2-ND	105.26/3,000	198.49/6,000	HI1206N101R-00
				1.10	3,000	80 Ω	240-1010-1-ND	.75	3.26	6.01	240-1010-2-ND	105.26/3,000	198.49/6,000	HI1206N800R-00
				1.10	4,000	120 Ω	240-2235-1-ND	.69	3.01	5.55	240-2235-2-ND	97.16/3,000	183.22/6,000	HI1206P121R-00
				1.35	6,000	160 Ω	240-2196-1-ND	.75	3.26	6.01	240-2196-2-ND	105.26/3,000	198.49/6,000	HI1206T161R-00
				1.10	6,000	50 Ω	240-1009-1-ND	.75	3.26	6.01	240-1009-2-ND	105.26/3,000	198.49/6,000	HI1206T500R-00
		3.20	1.60	1.10	300	2,000 Ω	240-2215-1-ND	.62	2.69	4.96	240-2215-2-ND	86.75/3,000	163.59/6,000	HZ1206C202R-00
					400	1,000 Ω	240-2216-1-ND	.62	2.69	4.96	240-2216-2-ND	86.75/3,000	163.59/6,000	HZ1206D102R-00
					500	600 Ω	240-1019-1-ND	.46	1.98	3.65	240-1019-2-ND	63.91/3,000	120.51/6,000	HZ1206E601R-00
1	1210	3.20	2.50	1.40	1,500	60 Ω	240-1038-1-ND	1.04	4.48	8.26	240-1038-2-ND	144.59/3,000	272.65/6,000	MI1210K600R-00
1	1612	4.06	3.05	2.28	10,000	56 Ω	240-1128-1-ND	3.98	17.24	31.83	240-1128-2-ND	464.12/2,500	875.19/5,000	DM1612X560R-00
1	1806	4.50	1.60	1.60	300	150 Ω	240-1030-1-ND	1.33	5.77	10.64	240-1030-2-ND	124.15/2,000	351.17/6,000	LI1806C151R-00
					500	100 Ω	240-1031-1-ND	1.33	5.77	10.64	240-1031-2-ND	124.15/2,000	351.17/6,000	LI1806E101R-00
					500	80 Ω	240-1032-1-ND	1.33	5.77	10.64	240-1032-2-ND	124.15/2,000	351.17/6,000	LI1806E800R-00
		4.50	1.60	1.60	1,000	80 Ω	240-1039-1-ND	1.12	4.84	8.92	240-1039-2-ND	104.10/2,000	294.46/6,000	MI1806J800R-00
		4.50	1.60	1.60	6,000	60 Ω	240-1012-1-ND	1.45	6.27	11.57	240-1012-2-ND	134.95/2,000	381.70/6,000	HI1806T600R-00
1	1812	4.50	3.20	1.40	1,500	120 Ω	240-1040-1-ND	1.49	6.44	11.90	240-1040-2-ND	173.50/2,500	327.18/5,000	MI1812K121R-00
		4.50	3.20	1.40	6,000	80 Ω	240-1013-1-ND	1.49	6.44	11.90	240-1013-2-ND	173.50/2,500	327.18/5,000	HI1812T800R-00
1	2220	5.59	5.08	1.52	4,000	170 Ω	240-1014-1-ND	4.03	17.45	32.22	240-1014-2-ND	375.92/2,000	1063.32/6,000	HI2220P171R-00
				1.80	4,000	250 Ω	240-1015-1-ND	4.03	17.45	32.22	240-1015-2-ND	375.92/2,000	1063.32/6,000	HI2220P251R-00
				1.97	4,000	550 Ω	240-2236-1-ND	4.80	20.81	38.42	240-2236-2-ND	448.21/2,000	1267.80/6,000	HI2220P551R-00
				3.05	4,000	600 Ω	240-1016-1-ND	4.80	20.81	38.42	240-1016-2-ND	448.21/2,000	1267.80/6,000	HI2220P601R-00
				3.05	4,000	700 Ω	240-1126-1-ND	4.80	20.81	38.42	240-1126-2-ND	448.21/2,000	1267.80/6,000	HI2220P701R-00
				1.80	5,000	150 Ω	240-1121-1-ND	4.03	17.45	32.22	240-1121-2-ND	375.92/2,000	1063.32/6,000	HI2220R151R-00
				3.20	5,000	300 Ω	240-1124-1-ND	4.03	17.45	32.22	240-1124-2-ND	375.92/2,000	1063.32/6,000	HI2220R301R-00
				1.80	6,000	100 Ω	240-1120-1-ND	4.03	17.45	32.22	240-1120-2-ND	375.92/2,000	1063.32/6,000	HI2220T101R-00
		5.59	5.08	3.05	4,000	600 Ω	240-2197-1-ND	7.96	34.48	63.65	240-2197-2-ND	742.59/2,000	2100.46/6,000	HR2220P601R-00
				3.61	8,000	800 Ω	240-1127-1-ND	11.05	47.89	88.40	240-1127-2-ND	1031.37/2,000	2917.31/6,000	HR2220V801R-00
1	3312	8.50	3.05	2.28	10,000	100 Ω	240-1129-1-ND	7.07	30.65	56.58	240-1129-2-ND	825.10/2,500	1555.90/5,000	DM3312X101R-00
2	1612	5.08	3.05	3.05	10,000	48 Ω	240-1002-1-ND	.88	3.82	7.06	240-1002-2-ND	102.89/2,500	194.04/5,000	28F0121-0SR
2	3312	9.53	3.05	3.05	10,000	96 Ω	240-1001-1-ND	.88	3.82	7.06	240-1001-2-ND	102.89/2,500	194.04/5,000	28F0121-1SR

240-2227-ND Surface Mount Chip Bead Sample Kit (10-20 each of 75 different parts; 0402 to 2220 sizes) **33.05**

D

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240-2228-ND High Current Common Mode (4A to 75A) Kit (25 different CM parts)..... **33.05**

SMD Common Mode Arrays Power and Signal Filtering

An advanced family of common mode choke arrays provides filtering for both power and data lines all in one part. Can be used as a multi-turn device to multiply impedance.

Fig. 1

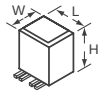


Fig. 2

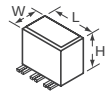


Fig. 3

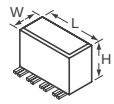


Fig.	Size Code	Dimensions (mm) Length	Width	Height	Current Rating iMax (A)	Typical Impedance @ 100 MHz	Digi-Key Part No.	Cut Tape Price Each 10	50	100	Digi-Key Part No.	Tape & Reel Pricing			Steward Part No.
1	2722	6.99	5.72	7.62	5	150 Ω	240-2175-1-ND	.55	.48	.44	240-2175-2-ND	151.93/600	716.24/3,000	1389.07/6,000	CM2722R151R-00
	2722	6.99	5.72	9.53	5	200 Ω	240-2176-1-ND	.69	.60	.55	240-2176-2-ND	159.43/500	751.59/2,500	1457.64/5,000	CM2722R201R-00
	2722	6.99	5.72	4.32	5	80 Ω	240-2178-1-ND	.53	.46	.42	240-2178-2-ND	243.87/1,000	1149.66/5,000	2229.64/10,000	CM2722R800R-00
2	3822	9.78	5.72	7.62	5	150 Ω	240-2179-1-ND	.59	.51	.47	240-2179-2-ND	164.42/600	775.14/3,000	1503.29/6,000	CM3822R151R-00
	3822	9.78	5.72	4.32	5	80 Ω	240-2180-1-ND	.56	.49	.45	240-2180-2-ND	260.45/1,000	1227.82/5,000	2381.22/10,000	CM3822R800R-00
	3822	9.78	5.72	9.53	5	200 Ω	240-2181-1-ND	.79	.69	.64	240-2181-2-ND	184.10/500	867.92/2,500	1683.24/5,000	CM3822R201R-00
3	5022	12.57	5.72	7.62	5	150 Ω	240-2182-1-ND	.73	.63	.58	240-2182-2-ND	201.90/600	951.81/3,000	1845.93/6,000	CM5022R151R-00
	5022	12.57	5.72	9.53	5	200 Ω	240-2183-1-ND	.93	.81	.75	240-2183-2-ND	162.77/375	767.33/1,875	1488.15/3,750	CM5022R201R-00
	5022	12.57	5.72	4.32	5	80 Ω	240-2184-1-ND	.67	.58	.54	240-2184-2-ND	310.95/1,000	1465.93/5,000	2843.01/10,000	CM5022R800R-00

Common Mode Chokes Ultra High Current Power Filtering

D

Fig. 4

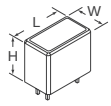
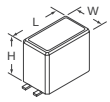


Fig. 5



Features: • High current capability (10A continuous operation) • Compact size • Up to 170 Ω impedance @ 100MHz or 300 Ω @ 1GHz • Parts available in both thru-hole (B) and surface mount (R) versions

Fig. 6

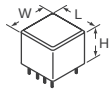
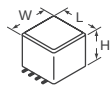
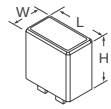


Fig. 7



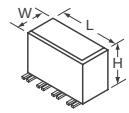
Features: • High current carrying capability (10A continuous operation) • Can be used as multi-turn device to multiply impedance • With two turns, up to 800 ohms impedance at 300MHz • Available in both thru-hole (B) and surface mount (R) versions

Fig. 8



Features: • UL 1950 compliant for creepage up to 250 volts • Very high current continuous operation capability • Small footprint • Low clearance height • Low cost • Parts available in broad band and low frequency materials • Lighter smaller and less susceptible to vibration than older wire-wound chokes

Fig. 9



Features: • Surface mount design • Filters groups of signals. • Can be used as a multi-turn device to multiply impedance • Will fit behind RJ45 Jack • High continuous operating current carrying capability

Fig.	Size Code	Dimensions (mm) Length	Width	Height	Current Rating iMax (A)	Imped-ance @ 100 MHz	Digi-Key Part No.	Cut Tape Price Each 1	10	50	100	Digi-Key Part No.	Tape & Reel Pricing			Steward Part No.
High Power Surface Mount																
5	2545	11.38	6.30	9.32	10	170 Ω	240-1106-1-ND	—	.58	.50	.46	240-1106-2-ND	107.11/400	504.94/2,000	979.28/4,000	CM2545X171R-00
1	3032	7.62	8.13	9.45	8	200 Ω	240-1116-1-ND	—	.73	.63	.59	240-1116-2-ND	84.80/250	399.77/1,250	775.31/2,500	CM3032V201R-00
1	3032	7.62	8.13	14.48	8	300 Ω	240-1118-1-ND	—	.88	.76	—	240-1118-2-ND	40.76/100	192.17/500	372.69/1,000	CM3032V301R-00
5	3440	10.03	8.51	9.32	20	170 Ω	240-2186-1-ND	—	.65	.56	.52	240-2186-2-ND	112.24/375	529.10/1,875	1026.14/3,750	CM3440Z171R-00
7	4545	11.38	11.38	9.32	10	130 Ω	240-1108-1-ND	—	.76	.66	.61	240-1108-2-ND	141.89/400	668.89/2,000	1297.24/4,000	CM4545Z131R-00
2	4732	11.94	8.13	9.45	8	200 Ω	240-1117-1-ND	—	.90	.78	.72	240-1117-2-ND	167.18/400	788.13/2,000	1528.49/4,000	CM4732V201R-00
2	4732	11.94	8.13	14.48	8	300 Ω	240-1119-1-ND	—	1.06	.92	—	240-1119-2-ND	74.00/150	348.85/750	676.56/1,500	CM4732V301R-00
7	5740	14.48	10.03	9.32	20	170 Ω	240-2189-1-ND	—	.74	.64	.59	240-2189-2-ND	128.03/375	603.57/1,875	1170.56/3,750	CM5740Z171R-00
3	6032	15.24	8.13	9.45	8	200 Ω	240-2191-1-ND	—	.92	.80	.74	240-2191-2-ND	107.31/250	505.87/1,250	981.08/2,500	CM6032V201R-00
3	6032	15.24	8.13	14.48	8	300 Ω	240-2192-1-ND	—	1.10	.95	—	240-2192-2-ND	51.15/100	241.16/500	467.70/1,000	CM6032V301R-00
High Current Thru Hole																
4	2545	11.38	6.30	9.32	10	170 Ω	240-1105-ND†	.45	.37	.32	.29	—	—	—	—	CM2545X171B-00
6	4545	11.38	11.38	9.32	10	130 Ω	240-1107-ND†	.52	.44	.38	.34	—	—	—	—	CM4545Z131B-00
Ultra High Current Thru Hole																
4	3440	10.03	8.51	9.32	20	170 Ω	240-2185-ND†	.50	.41	.36	.32	—	—	—	—	CM3440Z171B-00
8	5441	13.72	10.41	15.24	75	160 Ω	240-1109-ND†	.93	.78	.67	.60	—	—	—	—	CM5441Z161B-00
8	5441	13.72	10.41	10.52	75	100 Ω	240-1110-ND†	.89	.74	.64	.58	—	—	—	—	CM5441Z101B-00
6	5740	10.03	14.48	9.32	20	170 Ω	240-2188-ND†	.58	.49	.42	.38	—	—	—	—	CM5740Z171B-00

† Bulk Packaging

Common Mode Chokes Low Frequency PCB Power Filters

A low frequency material is used to provide effective CM filtering in the kHz – 30Mhz range.

Part construction allows for high operating current.

Fig. 1

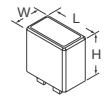


Fig. 2

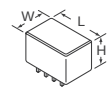
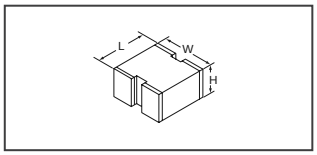


Fig.	Size Code	Dimensions (mm) Length	Width	Height	Current Rating iMax (A)	Typical Impedance @ 4 MHz	Digi-Key Part No.	Price Each 1	10	50	100	Steward Part No.
1	5441	13.72	10.41	15.24	75	99 Ω	240-2187-ND	1.38	1.14	.99	.89	CM5441Z990B-00
2	5740	14.48	10.03	9.32	20	240 Ω	240-2234-ND	.81	.68	.58	.53	CM5740Z241B-00

(Continued)

Common Mode Chip Beads High Frequency

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

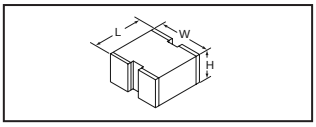


Features:
- Monolithic
- Compact size
- High current carrying capability
- Excellent high frequency performance beyond 3GHz
- Very low DCR to minimize signal distortion
- Smaller, lighter, and less susceptible to vibration than old style wire-wound chokes

Size Code	Dimensions (mm) Length	Width	Height	Current Rating iMax (A)	Typical Impedance @ 100 MHz	Digi-Key Part No.	Cut Tape Price Each 10	50	100	Digi-Key Part No.	Tape & Reel Pricing 2,500	5,000	10,000	Steward Part No.
Low Profile Surface Mount - Monolithic														
3322	8.50	5.60	2.10	4	40 Ω	240-1101-1-ND	.50	.44	.40	240-1101-2-ND	232.78/M	219.48/M	212.83/M	CM3322P400R-00

Common Mode Chip Beads Power Signal Filtering

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



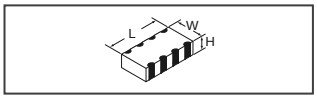
Features:
- Monolithic
- Compact size
- High current carrying capability
- Very low DCR to minimize signal distortion
- Smaller, lighter, and less susceptible to vibration than old style wire-wound chokes

Size Code	Dimensions (mm) Length	Width	Height	Current Rating iMax (A)	Typical Impedance @ 100 MHz	Digi-Key Part No.	Cut Tape Price Each 10	50	100	Digi-Key Part No.	Tape & Reel Pricing 2,500	5,000	10,000	Steward Part No.
Low Profile Surface Mount - Monolithic														
3322	8.50	5.60	2.10	7	61 Ω	240-1102-1-ND	.50	.44	.40	240-1102-2-ND	232.78/M	219.48/M	212.83/M	CM3322U610R-00
3322	8.50	5.60	2.84	10	63 Ω	240-1103-1-ND	.50	.44	.40	240-1103-2-ND	232.78/M	219.48/M	212.83/M	CM3322X630R-00
1922	4.70	5.60	2.84	10	33 Ω	240-1104-1-ND	.38	.33	.31	240-1104-2-ND	177.36/M	167.23/M	162.16/M	CM1922X330R-00

Surface Mount Multi-Line Chip Arrays - 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)

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



Size Code	Dimensions - mm Length	Width	Height	Filtered Circuits	Current Rating iMax (mA)	Typical Impedance @ 100 MHz	Digi-Key Part No.	Cut Tape Price Each 10	50	100	Digi-Key Part No.	Tape & Reel Pricing 3,000	6,000	9,000	Steward Part No.
1206	3.20	1.60	0.80	4	500	30 Ω	240-1146-1-ND	.34	.29	.27	240-1146-2-ND	154.71/M	145.87/M	141.45/M	DA1206E300R-00
					300	120 Ω	240-1147-1-ND	.34	.29	.27	240-1147-2-ND	154.71/M	145.87/M	141.45/M	DA1206C121R-00
					400	300 Ω	240-1148-1-ND	.34	.29	.27	240-1148-2-ND	154.71/M	145.87/M	141.45/M	DA1206D301R-00
					200	600 Ω	240-1149-1-ND	.34	.29	.27	240-1149-2-ND	154.71/M	145.87/M	141.45/M	DA1206B601R-00
					200	1000 Ω	240-1150-1-ND	.38	.33	.31	240-1150-2-ND	175.34/M	165.32/M	160.31/M	DA1206B102R-00

Differential Mode Multi-Line Arrays - Power Filtering

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.

Fig. 1 – Surface Mount

Fig. 2 – Through Hole

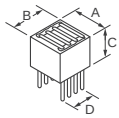


Fig.	Dimensions - mm Length	Width	Height	Current Rating iMax (A)	Lines	Typ. Imped. @ 100 MHz	Digi-Key Part No.	Cut Tape Pricing 10	50	100	Digi-Key Part No.	Tape & Reel Pricing			Steward Part No.
1	4.83	4.50	2.92	6	3	83 Ω	240-1003-1-ND	4.82	20.88	38.55	240-1003-2-ND	202.39/900	954.12/4,500	1850.42/9,000	29F0318-0SR
	8.33	10.87	6.35	9	3	200 Ω	240-1004-1-ND	4.99	21.61	39.91	240-1004-2-ND	104.75/450	493.83/2,250	957.73/4,500	29F0330-2SR
	6.10	4.50	4.19	6	4	119 Ω	240-1005-1-ND	5.16	22.35	41.26	240-1005-2-ND	216.62/900	1021.19/4,500	1980.50/9,000	29F0418-1SR
	10.87	10.87	6.35	9	4	200 Ω	240-1006-1-ND	5.56	24.11	44.52	240-1006-2-ND	116.85/450	550.88/2,250	1068.38/4,500	29F0430-2SR
	11.43	4.50	4.19	6	8	119 Ω	240-2167-1-ND	7.19	31.18	57.55	240-2167-2-ND	302.15/900	1424.44/4,500	2762.55/9,000	29F0818-1SR

Fig.	No. of Lines	Dimensions (mm) A	B	C	D	Current Rating iMax (A)	Typical Impedance	Digi-Key Part No.	Price Each 1	10	Steward Part No.
2	4	10.87	10.87	10.57	7.62	10	342 Ω	240-2001-ND	.40	.33	29F0428-0T0
	4	10.87	5.49	10.44	2.54	8	285 Ω	240-2002-ND	.30	.25	29F0429-0T0
	5	13.41	10.87	10.57	7.62	10	342 Ω	240-2003-ND	.47	.40	29F0528-0T0

Axial Lead Beads Power Filtering

Offers a number of uniquely configured multi-aperture, multiple turn devices. For the most demanding applications, three turn configurations provide lossy impedance over one thousand Ω. These parts offer excellent broadband frequency performance and also can be made using high frequency material. Current rating is up to 7 amps.

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

Fig. 1

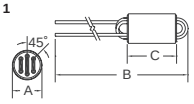


Fig. 2

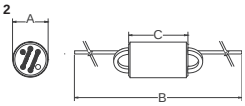


Fig. 3

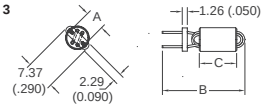


Fig. 4

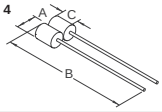


Fig. 5

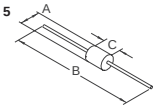


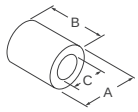
Fig.	Dimensions - mm A	B	C	Current Rating iMax (A)	Typical Impedance @ 100 MHz	Digi-Key Part No.	Cut Tape Pricing 10	50	100	Digi-Key Part No.	Tape & Reel Pricing		Steward Part No.
Broad Band Power Filtering													
1	5.99	50.53	10.00	7	998 Ω	240-2169-ND	.85	3.69	6.64	—	—	—	28C0236-0EW
2	5.99	86.46	10.00	7	835 Ω	240-2168-ND	.73	3.13	5.63	—	—	—	28C0236-0BW
3	6.00	20.96	10.01	7	998 Ω	240-2170-ND	.91	3.92	7.05	—	—	—	28C0236-0JW
Power Filtering													
4	3.51	25.4	4.45	5	143 Ω	240-2171-1-ND	.55	2.35	4.35	240-2171-2-ND	101.40/4,000	191.22/8,000	28J0138-11R
5	3.51	59.00	4.45	5	75 Ω	240-2172-1-ND	.29	1.27	2.35	240-2172-2-ND	61.60/4,500	116.15/9,000	28L0138-10R
5	3.51	59.00	8.89	5	135 Ω	240-2173-1-ND	.40	1.71	3.16	240-2173-2-ND	82.85/4,500	156.23/9,000	28L0138-40R
5	3.51	59.00	13.97	5	220 Ω	240-2174-1-ND	.50	2.16	3.98	240-2174-2-ND	104.54/4,500	197.13/9,000	28L0138-70R

D

240-2225-ND	High Frequency Ferrite Clamp-On and Solid Cylinder Core Kit for Round Cables (18 different sizes)	**16.52**
240-2226-ND	Broadband Ribbon, Flex, and Solid Cylinder Ferrite EMI Cable Core Kit (37 different sizes)	**33.05**

Cylindrical Bead Cores for Round Cable

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 overmolded or covered with heat shrink coating if desired. Additional wire turns will multiply impedance.



Broad Band (30MHz – 800MHz) EMI Bead Cores

Dimensions (mm) A	B	C	Typical Impedance @ 100 MHz	Typical Impedance @ 300 MHz	Digi-Key Part No.	Price Each 1	10	50	Steward Part No.
6.78	14.22	3.99	138 Ω	260 Ω	240-2112-ND	.08	.07	.06	28B0268-000
9.53	14.48	5.08	154 Ω	282 Ω	240-2067-ND	.12	.10	.09	28B0375-100
9.53	19.05	5.08	194 Ω	310 Ω	240-2113-ND	.13	.11	.09	28B0375-300
12.00	10.00	3.55	195 Ω	320 Ω	240-2240-ND	.15	.13	.11	28B0473-000
12.00	25.00	3.55	424 Ω	558 Ω	240-2241-ND	.29	.25	.21	28B0473-200
12.32	25.40	4.88	320 Ω	450 Ω	240-2114-ND	.31	.27	.23	28B0485-000
14.27	28.57	6.35	317 Ω	470 Ω	240-2078-ND	.24	.20	.17	28B0562-200
15.00	35.00	5.90	450 Ω	580 Ω	240-2242-ND	.51	.42	.37	28B0591-200
15.88	28.58	7.87	280 Ω	400 Ω	240-2115-ND	.41	.34	.30	28B0625-100
17.42	28.57	9.52	242 Ω	390 Ω	240-2079-ND	.36	.30	.26	28B0686-200
22.10	12.70	13.72	122 Ω	236 Ω	240-2116-ND	.35	.29	.25	28B0870-100
25.40	12.70	12.70	151 Ω	278 Ω	240-2117-ND	.43	.36	.31	28B1000-000
25.91	28.58	12.83	276 Ω	412 Ω	240-2081-ND	.93	.77	.67	28B1020-100
28.50	28.58	13.77	307 Ω	440 Ω	240-2243-ND	1.32	1.10	.95	28B1122-100
29.01	7.49	19.00	82 Ω	200 Ω	240-2118-ND	.32	.27	.23	28B1142-000
31.75	22.22	19.05	186 Ω	292 Ω	240-2119-ND	.91	.76	.66	28B1250-000
50.80	28.70	25.40	305 Ω	442 Ω	240-2244-ND	4.16	3.45	2.98	28B2000-100
60.96	12.70	35.56	129 Ω	268 Ω	240-2120-ND	1.85	1.54	1.33	28B2400-000

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

Dimensions (mm) A	B	C	Net Impedance @ 800 MHz	Digi-Key Part No.	Price Each 1	10	50	Steward Part No.
7.52	10.00	2.39	138 Ω	240-2146-ND	.09	.08	.07	HFB075024-000
9.52	10.00	5.08	85 Ω	240-2145-ND	.11	.10	.08	HFB095051-100
9.52	19.00	5.08	183 Ω	240-2140-ND	.15	.13	.11	HFB095051-200
12.32	10.00	4.88	127 Ω	240-2149-ND	.15	.13	.12	HFB123049-100
14.27	10.00	6.35	113 Ω	240-2147-ND	.20	.17	.14	HFB143064-100
14.27	28.58	6.35	306 Ω	240-2148-ND	.46	.39	.34	HFB143064-300
15.00	28.58	6.99	279 Ω	240-2150-ND	.50	.42	.36	HFB150070-200
15.24	10.00	3.38	189 Ω	240-2151-ND	.27	.23	.20	HFB152034-000
15.88	28.58	7.87	302 Ω	240-2142-ND	.55	.46	.39	HFB159079-100
16.00	27.99	9.25	261 Ω	240-2152-ND	.47	.39	.34	HFB160093-300
16.99	10.00	7.01	127 Ω	240-2153-ND	.28	.23	.20	HFB170070-000
18.67	30.00	10.16	276 Ω	240-2143-ND	.67	.56	.49	HFB187102-100
25.91	20.00	12.83	242 Ω	240-2144-ND	.93	.77	.66	HFB259128-000
25.91	28.58	12.83	268 Ω	240-2154-ND	1.28	1.06	.92	HFB259128-100

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

Additional wire turns will multiply impedance.

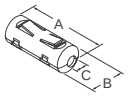
Dimensions (mm) A	B	C	Net Imped. @ 5 MHz (2 Turn)	Digi-Key Part No.	Price Each 1	10	50	Steward Part No.
9.00	7.00	5.00	140 Ω	240-2135-ND	.06	.05	.04	LFB090050-000
14.27	13.46	6.35	215 Ω	240-2136-ND	.32	.27	.24	LFB143064-100
22.00	12.70	14.00	110 Ω	240-2137-ND	.29	.24	.21	LFB220140-000
25.91	28.58	12.83	240 Ω	240-2138-ND	1.61	1.34	1.16	LFB259128-000
31.00	13.00	19.00	88 Ω	240-2139-ND	.61	.50	.44	LFB310190-000

D

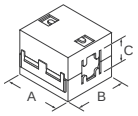
Clamp-On, Split Ferrite Cores for Round Cables and Wires

Split ferrite bead cores in clamp-on (or snap-on) plastic cases can be easily used for EMI attentuation where one-piece cores cannot be installed. Clamp-on cores are also convenient for use during EMI testing Cylinder or Round shaped clamp-on ferrite in plastic case assembly. Box shaped clamp-on ferrite in plastic case assembly.

Cylinder Clamp-On



Box Clamp-On



Broad Band (30MHz – 800MHz) Clamp-On Cores

Case Color	Dimensions (mm) A	B	C	Typical Impedance @ 100 MHz	Digi-Key Part No.	Price Each 1	10	50	Steward Part No.
Round and Cylinder Clamp-On Ferrite									
Black	25.20	13.00	3.50	240 Ω	240-2233-ND	.61	.51	.44	28A0350-0B2
White	29.3	12.8	5.02	170 Ω	240-2068-ND	.59	.49	.42	28A0392-0A0
Black	29.3	12.8	5.02	170 Ω	240-2070-ND	.59	.49	.42	28A0392-0A2
Black	53.39	18.75	4.50	572 Ω	240-2245-ND	.94	.79	.68	28A0592-0A2
Black	53.39	18.75	6.60	417 Ω	240-2246-ND	.89	.74	.64	28A0593-0A2
White	40.38	19.10	9.02	240 Ω	240-2065-ND	1.09	.90	.78	28A0640-0A0
Black	40.38	19.10	9.02	240 Ω	240-2066-ND	1.09	.90	.78	28A0640-0A2
Black	41.68	21.03	8.13	270 Ω	240-2122-ND	1.16	.96	.83	28A2026-0A2
Black	19.90	19.20	8.20	160 Ω	240-2123-ND	.71	.59	.51	28A2432-0A2
Black	35.10	18.00	9.00	220 Ω	240-2124-ND	.85	.71	.61	28A2736-0A2
Black	13.60	24.55	10.20	130 Ω	240-2125-ND	.74	.62	.54	28A3039-0A2
Black	17.63	27.80	11.40	160 Ω	240-2126-ND	1.00	.83	.72	28A3344-0A2
Black	33.70	30.00	13.00	260 Ω	240-2127-ND	1.75	1.45	1.25	28A3851-0A2
Black	42.00	28.80	19.30	120 Ω	240-2128-ND	.85	.71	.61	28A4155-0A2
Box Clamp-On Ferrite									
White	32.5	29.0	13.0	280 Ω	240-2072-ND	2.08	1.73	1.49	28A2024-0A0
Black	32.5	29.0	13.0	280 Ω	240-2073-ND	2.08	1.73	1.49	28A2024-0A2
White	32.5	17.9	7.0	320 Ω	240-2074-ND	1.05	.87	.75	28A2025-0A0
Black	32.5	17.9	7.0	320 Ω	240-2075-ND	1.05	.87	.75	28A2025-0A2
White	32.5	21.5	10.0	250 Ω	240-2076-ND	1.30	1.08	.94	28A2029-0A0
Black	32.5	21.5	10.0	250 Ω	240-2077-ND	1.30	1.08	.94	28A2029-0A2
Black	42.00	29.20	19.30	210 Ω	240-2121-ND	2.90	2.40	2.07	28A5776-0A2

240-2224-ND Split Clamp-On EMI Ferrite Cores Kit for Round Cables (14 different sizes) **16.52**

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

Dimensions (mm) A	B	C	Net Impedance @ 800 MHz	Digi-Key Part No.	Price Each 1	10	50	Steward Part No.
Cylinder Clamp-On Ferrite								
29.30	12.80	5.30	193 Ω	240-2129-ND	.64	.54	.46	HFA100049-0A2
41.68	20.96	6.76	309 Ω	240-2132-ND	1.15	.96	.82	HFA150068-0A2
40.36	19.10	9.09	277 Ω	240-2130-ND	1.23	1.02	.88	HFA163090-0A2
Box Clamp-On Ferrite								
32.50	18.40	7.00	339 Ω	240-2131-ND	1.00	.83	.72	HFA150066-0A2
32.84	21.84	10.00	292 Ω	240-2133-ND	1.37	1.13	.98	HFA187102-0A2
32.51	29.72	13.00	286 Ω	240-2134-ND	2.17	1.81	1.56	HFA259131-0A2

Broad Band (30MHz – 900MHz) Ribbon and Flex Cable Ferrite Cores

One Piece Ferrite EMI Cores for Flat Cables: Cable must be inserted into the ferrite core before cable ends are connected.

Split Ribbon Cable Cores with Plastic End Clips: Easy to use where assembled cable connectors prevent the use of one piece ferrite cores. White end clips provide secure closure of ferrite parts onto the flat cable. Tabs with screw holes for mounting the assembly included. Order two parts for each assembly.

Split Ribbon Cable Cores with Metal Clips: Split ferrite cores for flat ribbon cables clamp together with small metal clips that provide secure closure. Order two parts for each assembly.

Fig. 1 – One Piece Ferrite

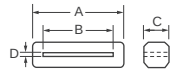
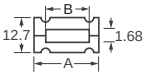
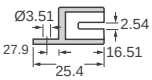


Fig. 2 – One Piece Ferrite

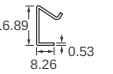
Fig. 3 – Split Ferrite



Plastic Mounting Clip for Split Ribbon Cores



Metal Clip for Split Ribbon Cores



Dimensions (mm) A	B	C	D	Typ. Imped. @ 100 MHz	Digi-Key Part No.	Price Each 1	2	10	50	Steward Part No.
Fig. 1 One Piece Ferrite Cores for Flat Cables										
11.50	8.00	12.00	0.70	104 Ω	240-2155-ND	.15	—	.13	.11	28R0453-200
12.20	8.00	18.00	1.00	190 Ω	240-2156-ND	.14	—	.12	.10	28R0480-000
15.01	10.00	22.86	1.50	227 Ω	240-2229-ND	.25	—	.22	.19	28R0592-010
15.60	13.60	16.00	0.70	116 Ω	240-2158-ND	.18	—	.15	.13	28R0614-200
17.00	13.00	12.00	0.75	110 Ω	240-2157-ND	.18	—	.15	.13	28R0669-000
22.35	14.00	19.05	1.5	187 Ω	240-2082-ND	.33	—	.28	.24	28R0880-000
22.80	18.70	16.00	0.70	127 Ω	240-2161-ND	.20	—	.17	.15	28R0898-200
28.00	23.00	20.00	0.80	192 Ω	240-2162-ND	.28	—	.24	.21	28R1102-100
38.10	26.67	25.40	1.91	230 Ω	240-2084-ND	.85	—	.71	.61	28R1517-000
45.08	34.42	28.58	1.52	260 Ω	240-2086-ND	1.18	—	.98	.85	28R1775-000
63.50	52.07	28.58	1.68	298 Ω	240-2088-ND	1.68	—	1.39	1.20	28R1779-000
55.12	43.69	25.40	1.27	280 Ω	240-2090-ND	1.33	—	1.11	.96	28R2170-000
Fig. 2 One Piece Ferrite Cores for Flat Cables										
19.20	15.00	16.00	1.15	147 Ω	240-2159-ND	.17	—	.14	.12	28R0756-200
25.00	18.00	24.00	0.90	232 Ω	240-2160-ND	.39	—	.32	.28	28R0984-000
28.58	23.50	31.00	1.70	220 Ω	240-2230-ND	.47	—	.39	.34	28R1127-000
28.58	23.50	17.00	1.70	150 Ω	240-2231-ND	.32	—	.27	.24	28R1127-400
37.00	27.00	18.25	1.50	168 Ω	240-2163-ND	.41	—	.35	.30	28R1141-010
36.83	29.58	10.00	0.75	143 Ω	240-2164-ND	.28	—	.24	.21	28R1450-100
37.00	31.08	25.00	1.50	212 Ω	240-2232-ND	.51	—	.43	.37	28R1467-000
49.61	44.00	12.00	1.45	127 Ω	240-2165-ND	.36	—	.31	.27	28R1953-000
56.90	52.32	9.00	1.02	110 Ω	240-2166-ND	.32	—	.27	.23	28R2240-130
Fig. 3 Split Ribbon Cable Cores with Plastic End Clips										
63.50	52.07	—	—	280 Ω	240-2097-ND*	—	2.37	.99	.85	28S2001-0P0
76.20	65.28	—	—	280 Ω	240-2099-ND*	—	2.52	1.05	.90	28S2011-0P0
45.09	34.42	—	—	250 Ω	240-2103-ND*	—	1.91	.79	.68	28S2022-0P0
Fig. 3 Split Ribbon Cable Cores with Metal Clips										
63.50	52.07	—	—	280 Ω	240-2096-ND*	—	2.16	.90	.78	28S2001-0M0
76.20	65.28	—	—	280 Ω	240-2098-ND*	—	2.30	.96	.83	28S2011-0M0
45.09	34.42	—	—	250 Ω	240-2102-ND*	—	1.69	.70	.61	28S2022-0M0
38.10	26.67	—	—	250 Ω	240-2104-ND*	—	1.33	.56	.48	28S2023-0M0

* ***Note:*** Split ferrite ribbon cable cores require two ferrite pieces per one complete assembly.

Panasonic

Combination Line Filters

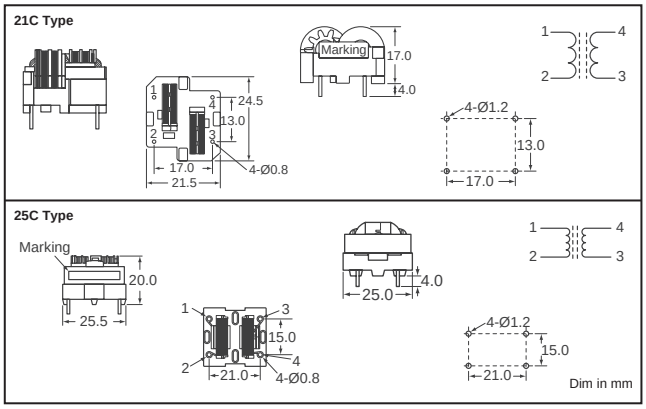
Series C, types 21C and 25C

Combination line filters applicable for attenuation of both the common mode and normal mode.

FEATURES: • Addition of superior normal mode attenuation characteristics • Compact and high inductance • Low profile and suitable for high density mounting

RECOMMENDED APPLICATIONS: • Lighting equipment • AV Equipment • Communication equipment • Power supply

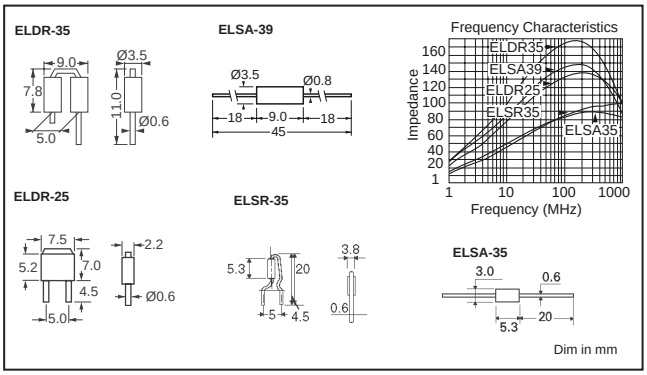
SPECIFICATIONS: • Operating Temperature: -20°C ~ 115°C • Voltage: AC 250 Vrms maximum • Dielectric withstanding voltage: AC 2kV 1 min. • Temperature rise: 45 K maximum



Inductance (mH min) Common	Inductance (mH min) Normal	DCR (at 20°C) (Ω) ±20% Tol.	Rated Current (A rms) max	Digi-Key Part No.	Price Each 1	Price Each 10	Price Each 100	Panasonic Part No.
21C Type								
43.0	1.70	3.07	0.3	PLK1294-ND	2.03	1.74	1.45	ELF-21C003A
25.0	.960	1.75	0.4	PLK1295-ND	2.03	1.74	1.45	ELF-21C004A
11.0	.440	.790	0.6	PLK1296-ND	2.03	1.74	1.45	ELF-21C006A
6.40	.250	.450	0.9	PLK1297-ND	2.03	1.74	1.45	ELF-21C009A
3.90	.150	.300	1.1	PLK1298-ND	2.03	1.74	1.45	ELF-21C011A
2.30	.090	.170	1.5	PLK1299-ND	2.03	1.74	1.45	ELF-21C015A
1.70	.065	.120	1.8	PLK1300-ND	2.03	1.74	1.45	ELF-21C018A
1.00	.040	.080	2.3	PLK1301-ND	2.03	1.74	1.45	ELF-21C023A
25C Type								
184.0	5.30	5.031	0.3	PLK1302-ND	2.47	2.12	1.77	ELF-25C003A
72.0	2.10	1.891	0.5	PLK1303-ND	2.47	2.12	1.77	ELF-25C005A
34.0	0.90	.916	0.7	PLK1304-ND	2.47	2.12	1.77	ELF-25C007A
20.0	0.52	.510	0.9	PLK1305-ND	2.47	2.12	1.77	ELF-25C009A
11.0	0.31	.310	1.2	PLK1306-ND	2.47	2.12	1.77	ELF-25C012A
6.70	.180	.180	1.6	PLK1307-ND	2.47	2.12	1.77	ELF-25C016A
4.40	.110	.113	2.0	PLK1308-ND	2.47	2.12	1.77	ELF-25C020A
3.00	.080	.080	2.5	PLK1309-ND	2.47	2.12	1.77	ELF-25C025A
1.80	.050	.053	3.2	PLK1310-ND	2.47	2.12	1.77	ELF-25C032A
1.20	.03	.037	3.8	PLK1311-ND	2.47	2.12	1.77	ELF-25C038A

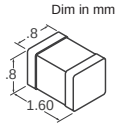
EMI Bead Cores (For Electromagnetic Interference)

SPECIFICATIONS: • **DC Resistance:** 10mΩ maximum • **Insulation Resistance:** 10MΩ min.



Description	Imp. (Ω) 100 MHz	Digi-Key Part No.	Pricing 10	Pricing 100	Pricing 1,000	Pricing 2,000	Panasonic Part No.
Radial Dual Type (Tape & Box)	140 min.	P9817TB-ND	—	—	48.47	—	EXC-ELDR35V
Radial Dual Type (Bulk)	140 min.	P9817BK-ND	.99	8.03	—	—	EXC-ELDR35C
Axial Single Type (Tape & Box)	110 min.	P9818TB-ND	—	—	31.95	—	EXC-ELSA39V
Axial Single Type (Bulk)	110 min.	P9818BK-ND	.70	5.70	—	—	EXC-ELSA39
Radial Dual Type (Tape & Box)	100 min.	P9819TB-ND	—	—	—	45.17/M	EXC-ELDR25V
Radial Dual Type (Bulk)	100 min.	P9819BK-ND	.95	7.76	62.79	—	EXC-ELDR25C
Axial Single Type (Tape & Box)	60 min.	P9820TB-ND	—	—	31.95	—	EXC-ELSA35V
Axial Lead Type (Bulk)	60 min.	P9820BK-ND	.70	4.84	—	—	EXC-ELSA35
Radial Single Type (Tape & Box)	60 min.	P9821TB-ND	—	—	31.95	—	EXC-ELSR35T
Radial Form Type (Bulk)	60 min.	P9821BK-ND	.70	4.84	—	—	EXC-ELSR35S

Surface Mount Bead Cores 0603



FEATURES: EXC-3BB Series: • High impedance for high speed signal line • Increase the A characteristics sharply above 40MHz and is applicable for radiated noise in the 100MHz ~ 300MHz range **EXC-3BP Series:** • Reduced DC resistance for EMI suppression • High current rating • Effective noise suppression at high frequency, up to 2GHz

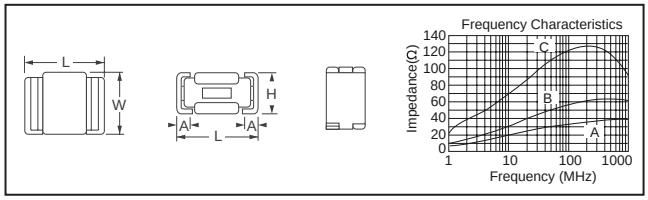
APPLICATIONS: Clock line, signal line, I/O interface circuit

Imp. 100 MHz (Ω)±25%	I (mA)	Rdc (Ω)	Digi-Key Part No.	Cut Tape Pricing 10	Cut Tape Pricing 100	Cut Tape Pricing 500	Digi-Key Part No.	T & R Pricing 4,000	Panasonic Part No.
220	200	0.3	P10188CT-ND	.84	5.63	19.09	P10188TR-ND	24.79/M	EXC-3BB221H
600	100	0.8	P10189CT-ND	.84	5.63	19.09	P10189TR-ND	24.79/M	EXC-3BB601H
1000	50	1	P10190CT-ND	.84	5.63	19.09	P10190TR-ND	24.79/M	EXC-3BB102H
60	1000	0.07	P10749CT-ND	.95	6.66	23.02	P10749TR-ND	36.36/M	EXC-3BP600H
120	500	0.1	P10750CT-ND	.95	6.66	23.02	P10750TR-ND	36.36/M	EXC-3BP121H

Surface Mount Bead Cores

SPECIFICATIONS:

• **Tolerance:** ±25% • **Test Frequency:** 100MHz • **Rated Current:** 2 (A) • **Flow/ Reflow Soldering**



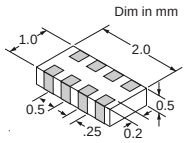
Dia.	Imp. (Ω)	Dimensions (mm) L	W	H	A	Digi-Key Part No.	Cut Tape Price Each 10	Cut Tape Price Each 100	Digi-Key Part No.	Tape & Reel Pricing 2,000	Tape & Reel Pricing 10,000	Panasonic Part No.
A	25	3.2	1.6	1.6	0.5	P9810CT-ND	.23	.17	P9810TR-ND	95.29/M	88.13/M	EXC-CL3216U1
B	45	3.2	2.5	1.6	0.5	P9811CT-ND	.29	.22	P9811TR-ND	121.73/M	112.92/M	EXC-CL3225U1
C	115	4.5	3.2	1.8	0.5	P9812CT-ND	.34	.25	P9812TR-ND	—	132.20/M	EXC-CL4532U1

Surface Mount Bead Cores 0804 (0402x4)

FEATURES: • .02 inch (0.51mm) height, lightweight (typically only 5mg), narrow pitch, compatible with SSOP pitch

EXC-28BB Series: • Suitable for high speed signals (over 50Mhz), excellent cross talk characteristics (100Mhz: <-25dB) **APPLICATIONS:** • PC, LCD, DSC, Printer, PDA, MD, CD, NAVI

EXC-28BA Series: • Suitable for ring suppression while maintaining wave form, excellent cross talk characteristics (100Mhz: <-30dB) **APPLICATIONS:** • HDD, E-IDE (Ultra DMA 33), DVD, CD-ROM, C-DR, CDR-RW



Imp. 100 MHz (Ω)±25%	I (mA)	Rdc (Ω)	Digi-Key Part No.	Cut Tape Price Each 10	Cut Tape Price Each 100	Cut Tape Price Each 500	Digi-Key Part No.	Tape & Reel Pricing 5,000	Panasonic Part No.
120	100	0.5	P10751CT-ND	.39	.29	.21	P10751TR-ND	164.14/M	EXC-28BB121U
220	100	0.7	P10752CT-ND	.39	.29	.21	P10752TR-ND	164.14/M	EXC-28BB221U
120	100	0.5	P10753CT-ND	.39	.29	.21	P10753TR-ND	164.14/M	EXC-28BA121U
200	100	0.7	P10754CT-ND	.39	.29	.21	P10754TR-ND	164.14/M	EXC-28BA221U

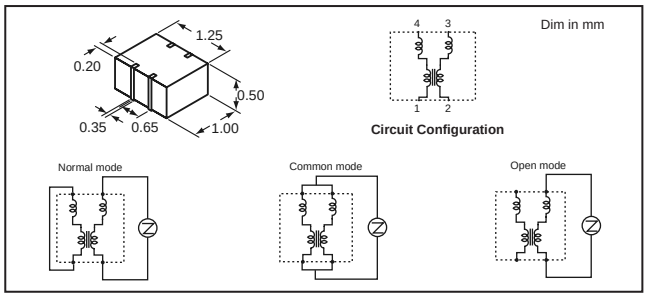
Surface Mount 2 Mode Noise Filters

EXC-24CB and EXC-24CP Series

FEATURES: • Acoustic quality improvement of mobile phone and portable audio equipment • Effectively suppresses both common mode noise and normal mode noise • Small size and light weight

APPLICATIONS: • Receiver line, microphone line and headset of mobile phone (GSM, TDMA, PDC, etc.) • Small digital equipment such as personal computers, printer, HDD, DVD-ROM, CD-ROM and LCD • Digital audio and video equipment such as PDA, DSC, DVC, CD Player, DVD Player and MD Player

SPECIFICATIONS: • **Tolerance:** ±25% • **Rated Voltage**: 5 VDC



Open Mode Impedance @100MHz (Ω)	Rated Current (mA DC)	DC Resist. Max.(Ω)	Digi-Key Part No.	Cut Tape Price Each 1	Cut Tape Price Each 10	Cut Tape Price Each 100	Tape & Reel* Pricing 5,000	Panasonic Part No.
1000	50	1.5	P11169CT-ND	.37	.28	.21	118.43/M	EXC-24CB102U
220	100	0.7	P11170CT-ND	.37	.28	.21	118.43/M	EXC-24CB221U
220	350	0.4	P11598CT-ND	.39	.30	.22	122.83/M	EXC-24CP221U
120	500	0.3	P11597CT-ND	.39	.30	.22	122.83/M	EXC-24CP121U

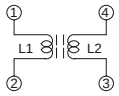
* For Tape and Reel part number, change CT-ND to TR-ND

D

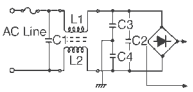
Panasonic® Line Filters

V Series (290, 450, 650, 850, 21V, 24V Types)
H Series (200, 270, 400, 600 Types)
F Series (23F, 25F Types)
M Series (11M, 14M, 16M Types)
N Series (15N, 18N, 20N Types)
High N Series (17N, 19N, 21N Types)

Standard Circuit Diag.



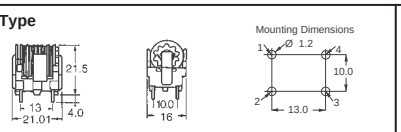
Circuit Example



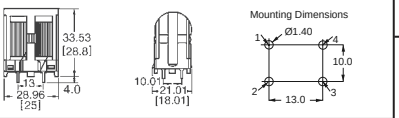
Line filters for suppressing conductive noise ranging from low to high frequencies generated from power supply circuits of various equipment

V Series (Vertical Structure): Excellent attenuation in high frequency characteristics
H Series (Horizontal Structure): Greatly decreases leakage flux
F Series (Thin Structure): 15 mm height max.
M Series (Small Structure): Small size and lightweight
N Series (Vertical Structure): Suitable for high-density automatic insertion
High N Series (High L Structure): High inductance (same size with N Series)

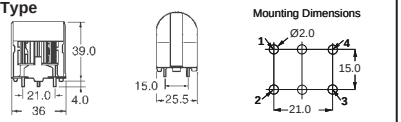
290 Type



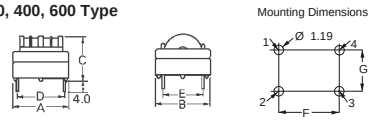
450, 650 Type Dim.: shown in [ ] are for 450 type.



850 Type

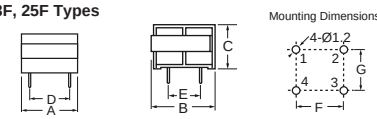


200, 400, 600 Type



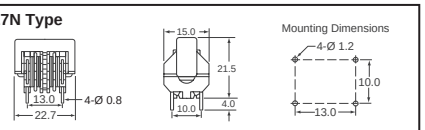
Type	A	B	C	D	E	F	G
200	20.00	21.00	20.00	13.00	10.00	13.00	10.00
400	24.00	24.50	19.50	21.00	15.00	21.00	15.00
600	28.50	29.00	22.50	24.00	20.00	24.00	20.00

23F, 25F Types

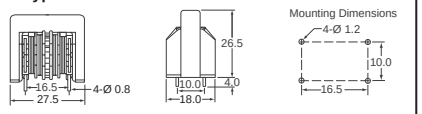


Type	A Max.	B Max.	C Max.	D	E	F	G
23F	24	23	14	16±0.5	10±0.5	16±0.1	10±0.1
25F	28	25	15	21±0.5	11±0.5	21±0.1	11±0.1

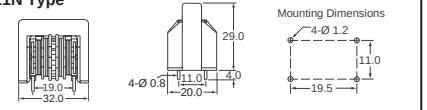
17N Type



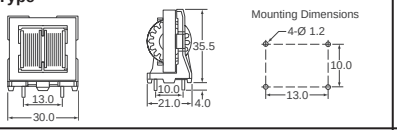
19N Type



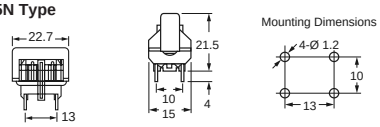
21N Type



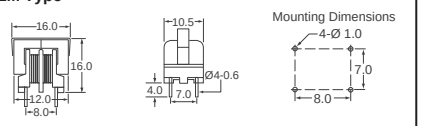
21V Type



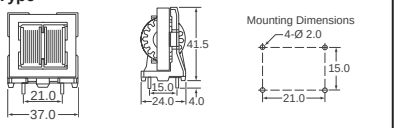
15N Type



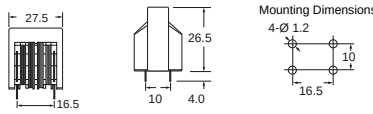
11M Type



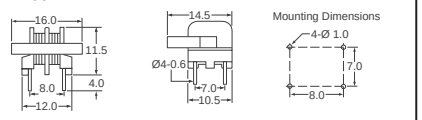
24V Type



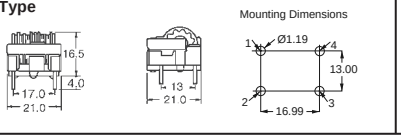
18N Type



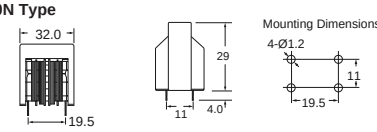
14M Type



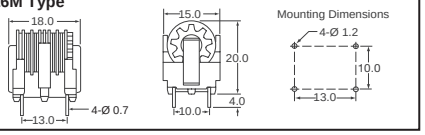
270 Type



20N Type



16M Type



Type	Induc-tance mH min.	Rated Current A rms	Digi-Key Part No.	Pricing 1	10	100	1,000	Panasonic Part No.
			V Series					
290	33.0	0.3	PLK1005-ND	1.85	15.86	132.19	789.30	ELF-18D290H
	22.0	0.4	PLK1004-ND	1.85	15.86	132.19	789.30	ELF-18D290C
	10.0	0.6	PLK1003-ND	1.85	15.86	132.19	789.30	ELF-18D290G
	3.3	1.1	PLK1002-ND	1.85	15.86	132.19	789.30	ELF-18D290S
	2.2	1.3	PLK1001-ND	1.85	15.86	132.19	789.30	ELF-18D290T
	0.82	2.0	PLK1000-ND	1.85	15.86	132.19	789.30	ELF-18D290B
450	56.0	0.45	PLK1206-ND	3.13	26.82	223.49	1334.04	ELF-18D450Q
	39.0	0.50	PLK1207-ND	3.13	26.82	223.49	1334.04	ELF-18D450H
	18.0	0.8	PLK1007-ND	3.13	26.82	223.49	1334.04	ELF-18D450B
	10.0	1.0	PLK1208-ND	3.13	26.82	223.49	1334.04	ELF-18D450J
	8.2	1.1	PLK1209-ND	3.13	26.82	223.49	1334.04	ELF-18D450G
	6.8	1.2	PLK1210-ND	3.13	26.82	223.49	1334.04	ELF-18D450L
	5.6	1.4	PLK1211-ND	3.13	26.82	223.49	1334.04	ELF-18D450D
	3.9	1.8	PLK1212-ND	3.13	26.82	223.49	1334.04	ELF-18D450K
	2.7	2.0	PLK1006-ND	3.13	26.82	223.49	1334.04	ELF-18D450A
	2.2	2.2	PLK1213-ND	3.13	26.82	223.49	1334.04	ELF-18D450C
	1.2	3.0	PLK1214-ND	3.13	26.82	223.49	1334.04	ELF-18D450M
650	68.0	0.6	PLK1223-ND	3.42	29.33	244.42	1459.07	ELF-18D656S
	47.0	0.7	PLK1012-ND	3.42	29.33	244.42	1459.07	ELF-18D650U
	39.0	0.7	PLK1215-ND	3.42	29.33	244.42	1459.07	ELF-18D650P
	33.0	0.8	PLK1216-ND	3.42	29.33	244.42	1459.07	ELF-18D650H
	27.0	1.0	PLK1224-ND	3.42	29.33	244.42	1459.07	ELF-18D656V
	22.0	1.0	PLK1011-ND	3.42	29.33	244.42	1459.07	ELF-18D650L
	18.0	1.0	PLK1217-ND	3.42	29.33	244.42	1459.07	ELF-18D650Q
	18.0	1.2	PLK1225-ND	3.42	29.33	244.42	1459.07	ELF-18D656Q
	15.0	1.3	PLK1226-ND	3.42	29.33	244.42	1459.07	ELF-18D656D
	12.0	1.3	PLK1218-ND	3.42	29.33	244.42	1459.07	ELF-18D650J
	12.0	1.6	PLK1038-ND	3.42	29.33	244.42	1459.07	ELF-18D656J
	10.0	1.4	PLK1219-ND	3.42	29.33	244.42	1459.07	ELF-18D650W
	8.2	1.7	PLK1010-ND	3.42	29.33	244.42	1459.07	ELF-18D650C
	6.8	1.8	PLK1220-ND	3.42	29.33	244.42	1459.07	ELF-18D650K
	6.8	2.0	PLK1227-ND	3.42	29.33	244.42	1459.07	ELF-18D656K
	5.6	2.2	PLK1228-ND	3.42	29.33	244.42	1459.07	ELF-18D656X
	4.7	2.0	PLK1221-ND	3.42	29.33	244.42	1459.07	ELF-18D650Y
	3.3	2.4	PLK1009-ND	3.42	29.33	244.42	1459.07	ELF-18D650B
	1.8	2.8	PLK1222-ND	3.42	29.33	244.42	1459.07	ELF-18D650G
	1.5	3.1	PLK1008-ND	3.42	29.33	244.42	1459.07	ELF-18D650M
	4.7	2.5	PLK1229-ND	3.42	29.33	244.42	1459.07	ELF-18D656Y
	2.7	2.7	PLK1230-ND	3.42	29.33	244.42	1459.07	ELF-18D656Z
	2.2	2.8	PLK1037-ND	3.42	29.33	244.42	1459.07	ELF-18D666A

Type	Induc-tance mH min.	Rated Current A rms	Digi-Key Part No.	Pricing 1	10	100	1,000	Panasonic Part No.
850	82.0	0.8	PLK1231-ND	5.41	46.37	386.39	2306.75	ELF-18D850R
	56.0	1.1	PLK1017-ND	5.41	46.37	386.39	2306.75	ELF-18D850T
	47.0	1.2	PLK1232-ND	5.41	46.37	386.39	2306.75	ELF-18D850U
	33.0	1.4	PLK1233-ND	5.41	46.37	386.39	2306.75	ELF-18D850H
	27.0	1.5	PLK1234-ND	5.41	46.37	386.39	2306.75	ELF-18D850Z
	22.0	1.8	PLK1018-ND	5.41	46.37	386.39	2306.75	ELF-18D860C
	18.0	1.9	PLK1235-ND	5.41	46.37	386.39	2306.75	ELF-18D850Q
	15.0	2.0	PLK1236-ND	5.41	46.37	386.39	2306.75	ELF-18D850D
	10.0	2.5	PLK1016-ND	5.41	46.37	386.39	2306.75	ELF-18D850W
	8.2	3.0	PLK1237-ND	5.41	46.37	386.39	2306.75	ELF-18D850C
	5.6	3.4	PLK1238-ND	5.41	46.37	386.39	2306.75	ELF-18D850X
	4.7	3.5	PLK1015-ND	5.41	46.37	386.39	2306.75	ELF-18D850Y
	3.9	3.7	PLK1239-ND	5.41	46.37	386.39	2306.75	ELF-18D850P
	3.3	4.2	PLK1014-ND	5.41	46.37	386.39	2306.75	ELF-18D850B
	2.7	4.5	PLK1240-ND	5.41	46.37	386.39	2306.75	ELF-18D860B
	1.5	5.0	PLK1013-ND	5.41	46.37	386.39	2306.75	ELF-18D850M
21V	68.0	0.6	PLK1102-ND	2.57	21.99	183.28	1094.44	ELF-21V006A
	56.0	0.7	PLK1103-ND	2.57	21.99	183.28	1094.44	ELF-21V007A
	33.0	0.8	PLK1104-ND	3.18	27.26	227.21	1356.62	ELF-21V008A
	27.0	1.0	PLK1105-ND	3.18	27.26	227.21	1356.62	ELF-21V010A
	18.0	1.2	PLK1106-ND	3.18	27.26	227.21	1356.62	ELF-21V012A
	15.0	1.3	PLK1107-ND	3.18	27.26	227.21	1356.62	ELF-21V013A
	12.0	1.6	PLK1108-ND	3.18	27.26	227.21	1356.62	ELF-21V016A
	8.2	1.8	PLK1109-ND	3.18	27.26	227.21	1356.62	ELF-21V018A
	6.8	2.0	PLK1110-ND	3.18	27.26	227.21	1356.62	ELF-21V020A
	5.6	2.2	PLK1111-ND	3.18	27.26	227.21	1356.62	ELF-21V022A
	4.5	2.5	PLK1112-ND	3.18	27.26	227.21	1356.62	ELF-21V025A
	2.7	2.7	PLK1113-ND	3.18	27.26	227.21	1356.62	ELF-21V027A
	2.2	3.0	PLK1114-ND	3.18	27.26	227.21	1356.62	ELF-21V030A
24V	82.0	0.8	PLK1115-ND	3.18	27.26	227.21	1356.62	ELF-24V008A
	56.0	1.0	PLK1116-ND	3.18	27.26	227.21	1356.62	ELF-24V010A
	47.0	1.2	PLK1117-ND	3.18	27.26	227.21	1356.62	ELF-24V012A
	33.0	1.4	PLK1118-ND	3.18	27.26	227.21	1356.62	ELF-24V014A
	27.0	1.5	PLK1119-ND	3.18	27.26	227.21	1356.62	ELF-24V015A
	22.0	1.8	PLK1120-ND	3.18	27.26	227.21	1356.62	ELF-24V018A
	18.0	1.9	PLK1121-ND	3.18	27.26	227.21	1356.62	ELF-24V019A
	15.0	2.0	PLK1122-ND	3.18	27.26	227.21	1356.62	ELF-24V020A
	10.0	2.5	PLK1123-ND	3.18	27.26	227.21	1356.62	ELF-24V025A
	9.0	2.8	PLK1124-ND	3.18	27.26	227.21	1356.62	ELF-24V028A
	8.2	3.0	PLK1125-ND	3.18	27.26	227.21	1356.62	ELF-24V030A

(Continued)

Type	Induc-tance mH min.	Rated Current A rms	Digi-Key Part No.	Pricing 1	10	100	1,000	Panasonic Part No.
24V	5.6	3.4	PLK1126-ND	3.18	27.26	227.21	1356.62	ELF-24V034A
	4.7	3.5	PLK1127-ND	4.73	40.48	337.37	2014.28	ELF-24V035A
	3.9	3.7	PLK1128-ND	4.73	40.48	337.37	2014.28	ELF-24V037A
	3.3	4.2	PLK1129-ND	4.73	40.48	337.37	2014.28	ELF-24V042A
	2.7	4.5	PLK1130-ND	4.73	40.48	337.37	2014.28	ELF-24V045A
	1.5	5.0	PLK1131-ND	4.73	40.48	337.37	2014.28	ELF-24V050A
	0.80	7.0	PLK1132-ND	4.73	40.48	337.37	2014.28	ELF-24V070A
	0.40	8.0	PLK1133-ND	4.73	40.48	337.37	2014.28	ELF-24V080A
	0.26	9.0	PLK1134-ND	4.73	40.48	337.37	2014.28	ELF-24V090A
	0.15	10.0	PLK1135-ND	4.73	40.48	337.37	2014.28	ELF-24V100A
H Series								
200	68.0	0.25	PLK1247-ND	2.12	18.11	150.92	901.11	ELF-18D222F
	47.0	0.3	PLK1248-ND	2.12	18.11	150.92	901.11	ELF-18D235F
	33.0	0.4	PLK1024-ND	2.12	18.11	150.92	901.11	ELF-18D221F
	22.0	0.4	PLK1021-ND	2.12	18.11	150.92	901.11	ELF-18D218
	18.0	0.5	PLK1241-ND	2.12	18.11	150.92	901.11	ELF-18D210
	15.0	0.5	PLK1242-ND	2.12	18.11	150.92	901.11	ELF-18D215
	8.2	0.7	PLK1243-ND	2.12	18.11	150.92	901.11	ELF-18D214
	6.8	0.8	PLK1244-ND	2.12	18.11	150.92	901.11	ELF-18D225
	4.7	1.0	PLK1249-ND	2.12	18.11	150.92	901.11	ELF-18D227F
	3.9	1.0	PLK1020-ND	2.12	18.11	150.92	901.11	ELF-18D216
	3.3	1.0	PLK1245-ND	2.12	18.11	150.92	901.11	ELF-18D213
	2.7	1.3	PLK1246-ND	2.12	18.11	150.92	901.11	ELF-18D219
	2.2	1.5	PLK1023-ND	2.12	18.11	150.92	901.11	ELF-18D228F
	1.5	1.6	PLK1019-ND	2.12	18.11	150.92	901.11	ELF-18D217
	1.2	2.0	PLK1250-ND	2.12	18.11	150.92	901.11	ELF-18D230F
	1.0	2.1	PLK1022-ND	2.12	18.11	150.92	901.11	ELF-18D212F
270	33.0	0.3	PLK1251-ND	1.85	15.86	132.19	789.30	ELF-18D270J
	22.0	0.4	PLK1252-ND	1.85	15.86	132.19	789.30	ELF-18D270B
	18.0	0.5	PLK1253-ND	1.85	15.86	132.19	789.30	ELF-18D270H
	10.0	0.6	PLK1254-ND	1.85	15.86	132.19	789.30	ELF-18D270G
	6.8	0.7	PLK1025-ND	1.85	15.86	132.19	789.30	ELF-18D270A
	5.6	0.8	PLK1255-ND	1.85	15.86	132.19	789.30	ELF-18D270Q
	2.7	1.1	PLK1256-ND	1.85	15.86	132.19	789.30	ELF-18D270D
	1.8	1.5	PLK1257-ND	1.85	15.86	132.19	789.30	ELF-18D270C
400	68.0	0.4	PLK1266-ND	2.51	21.50	179.15	1069.65	ELF-18D437F
	39.0	0.5	PLK1267-ND	2.51	21.50	179.15	1069.65	ELF-18D427F
	33.0	0.5	PLK1029-ND	2.51	21.50	179.15	1069.65	ELF-18D428
	27.0	0.6	PLK1258-ND	2.51	21.50	179.15	1069.65	ELF-18D423
	22.0	0.6	PLK1259-ND	2.51	21.50	179.15	1069.65	ELF-18D422
	18.0	0.7	PLK1260-ND	2.51	21.50	179.15	1069.65	ELF-18D417
	18.0	0.8	PLK1268-ND	2.51	21.50	179.15	1069.65	ELF-18D417F
	12.0	0.9	PLK1028-ND	2.51	21.50	179.15	1069.65	ELF-18D430
	10.0	1.0	PLK1031-ND	2.51	21.50	179.15	1069.65	ELF-18D431F
	8.2	1.0	PLK1261-ND	2.51	21.50	179.15	1069.65	ELF-18D415
	6.8	1.2	PLK1262-ND	2.51	21.50	179.15	1069.65	ELF-18D412
	5.6	1.3	PLK1263-ND	2.51	21.50	179.15	1069.65	ELF-18D424
	5.6	1.4	PLK1269-ND	2.51	21.50	179.15	1069.65	ELF-18D424F
	3.9	1.5	PLK1264-ND	2.51	21.50	179.15	1069.65	ELF-18D433
	3.3	1.8	PLK1265-ND	2.51	21.50	179.15	1069.65	ELF-18D414
	2.7	2.0	PLK1270-ND	2.51	21.50	179.15	1069.65	ELF-18D434F
	2.2	2.0	PLK1027-ND	2.51	21.50	179.15	1069.65	ELF-18D416
	2.2	2.2	PLK1030-ND	2.51	21.50	179.15	1069.65	ELF-18D435F
	1.5	2.4	PLK1026-ND	2.51	21.50	179.15	1069.65	ELF-18D419
	1.2	3.0	PLK1271-ND	2.51	21.50	179.15	1069.65	ELF-18D420F
	0.56	3.4	PLK1272-ND	2.51	21.50	179.15	1069.65	ELF-18D441F
600	100.0	0.4	PLK1273-ND	3.17	27.15	226.24	1350.56	ELF-18D620
	68.0	0.5	PLK1274-ND	3.17	27.15	226.24	1350.56	ELF-18D607
	47.0	0.7	PLK1287-ND	3.17	27.15	226.24	1350.56	ELF-18D605F
	39.0	0.7	PLK1275-ND	3.17	27.15	226.24	1350.56	ELF-18D615
	33.0	0.8	PLK1036-ND	3.17	27.15	226.24	1350.56	ELF-18D624F
	27.0	0.8	PLK1276-ND	3.17	27.15	226.24	1350.56	ELF-18D618
	27.0	1.0	PLK1288-ND	3.17	27.15	226.24	1350.56	ELF-18D618F
	22.0	1.0	PLK1034-ND	3.17	27.15	226.24	1350.56	ELF-18D612
	18.0	1.0	PLK1277-ND	3.17	27.15	226.24	1350.56	ELF-18D606
	18.0	1.2	PLK1289-ND	3.17	27.15	226.24	1350.56	ELF-18D606F
	12.0	1.3	PLK1278-ND	3.17	27.15	226.24	1350.56	ELF-18D609
	12.0	1.6	PLK1290-ND	3.17	27.15	226.24	1350.56	ELF-18D609F
	10.0	1.4	PLK1279-ND	3.17	27.15	226.24	1350.56	ELF-18D616
	10.0	1.6	PLK1291-ND	3.17	27.15	226.24	1350.56	ELF-18D601F
	8.2	1.7	PLK1280-ND	3.17	27.15	226.24	1350.56	ELF-18D602
	5.6	1.8	PLK1281-ND	3.17	27.15	226.24	1350.56	ELF-18D603
	5.6	2.1	PLK1292-ND	3.17	27.15	226.24	1350.56	ELF-18D603F
	4.7	2.0	PLK1282-ND	3.17	27.15	226.24	1350.56	ELF-18D604
	4.7	2.5	PLK1293-ND	3.17	27.15	226.24	1350.56	ELF-18D604F
	3.9	2.2	PLK1283-ND	3.17	27.15	226.24	1350.56	ELF-18D613
	3.3	2.5	PLK1033-ND	3.17	27.15	226.24	1350.56	ELF-18D605
	2.7	2.6	PLK1284-ND	3.17	27.15	226.24	1350.56	ELF-18D611
	2.2	2.8	PLK1035-ND	3.17	27.15	226.24	1350.56	ELF-18D617F
	1.8	2.8	PLK1285-ND	3.17	27.15	226.24	1350.56	ELF-18D614
	1.5	3.1	PLK1286-ND	3.17	27.15	226.24	1350.56	ELF-18D610
	1.0	3.4	PLK1032-ND	3.17	27.15	226.24	1350.56	ELF-18D608
F Series								
23F	50.0	0.3	PLK1039-ND	5.43	46.48	387.35	2312.26	ELF-23F003A
	30.0	0.4	PLK1040-ND	5.43	46.48	387.35	2312.26	ELF-23F004A
	20.0	0.5	PLK1041-ND	5.43	46.48	387.35	2312.26	ELF-23F005A
	14.0	0.6	PLK1042-ND	5.43	46.48	387.35	2312.26	ELF-23F006A
	10.0	0.7	PLK1043-ND	5.43	46.48	387.35	2312.26	ELF-23F007A
	8.0	0.8	PLK1044-ND	5.43	46.48	387.35	2312.26	ELF-23F008A
	6.0	0.9	PLK1045-ND	5.43	46.48	387.35	2312.26	ELF-23F009A
	5.0	1.0	PLK1046-ND	5.43	46.48	387.35	2312.26	ELF-23F010A
	3.5	1.2	PLK1047-ND	5.43	46.48	387.35	2312.26	ELF-23F012A
	2.0	1.6	PLK1048-ND	5.43	46.48	387.35	2312.26	ELF-23F016A
	1.5	1.8	PLK1049-ND	5.43	46.48	387.35	2312.26	ELF-23F018A
	1.2	2.0	PLK1050-ND	5.43	46.48	387.35	2312.26	ELF-23F020A
	1.0	2.2	PLK1051-ND	5.43	46.48	387.35	2312.26	ELF-23F022A
25F	28.0	0.6	PLK1052-ND	6.33	54.23	451.93	2697.82	ELF-25F106A
	20.0	0.7	PLK1053-ND	6.33	54.23	451.93	2697.82	ELF-25F107A
	15.0	0.8	PLK1054-ND	6.33	54.23	451.93	2697.82	ELF-25F108A
	12.0	0.9	PLK1055-ND	6.33	54.23	451.93	2697.82	ELF-25F109A
	10.0	1.0	PLK1056-ND	6.33	54.23	451.93	2697.82	ELF-25F110A
	7.0	1.2	PLK1057-ND	6.33	54.23	451.93	2697.82	ELF-25F112A
	5.0	1.4	PLK1058-ND	6.33	54.23	451.93	2697.82	ELF-25F114A
	4.0	1.6	PLK1059-ND	6.33	54.23	451.93	2697.82	ELF-25F116A
	3.0	1.8	PLK1060-ND	6.33	54.23	451.93	2697.82	ELF-25F118A
	2.0	2.0	PLK1061-ND	6.33	54.23	451.93	2697.82	ELF-25F020A
	1.6	2.2	PLK1062-ND	6.33	54.23	451.93	2697.82	ELF-25F022A
	1.3	2.5	PLK1063-ND	6.33	54.23	451.93	2697.82	ELF-25F025A

Type	Induc-tance mH min.	Rated Current A rms	Digi-Key Part No.	Pricing 1	10	100	1,000	Panasonic Part No.
M Series								
11M	30.0	0.1	PLK1136-ND	1.61	13.80	114.98	686.30	ELF-11M010E
	12.0	0.2	PLK1137-ND	1.61	13.80	114.98	686.30	ELF-11M020E
	6.0	0.3	PLK1138-ND	1.61	13.80	114.98	686.30	ELF-11M030E
	3.5	0.4	PLK1139-ND	1.61	13.80	114.98	686.30	ELF-11M040E
	2.5	0.5	PLK1140-ND	1.61	13.80	114.98	686.30	ELF-11M050E
	1.5	0.6	PLK1141-ND	1.61	13.80	114.98	686.30	ELF-11M060E
	1.0	0.7	PLK1142-ND	1.61	13.80	114.98	686.30	ELF-11M070E
	0.8	0.8	PLK1143-ND	1.61	13.80	114.98	686.30	ELF-11M080E
	0.7	0.9	PLK1144-ND	1.61	13.80	114.98	686.30	ELF-11M090E
	0.5	1.0	PLK1145-ND	1.61	13.80	114.98	686.30	ELF-11M100E
14M	30.0	0.1	PLK1146-ND	1.76	15.12	126.00	752.39	ELF-14M010E
	12.0	0.2	PLK1147-ND	1.76	15.12	126.00	752.39	ELF-14M020E
	6.0	0.3	PLK1148-ND	1.76	15.12	126.00	752.39	ELF-14M030E
	3.5	0.4	PLK1149-ND	1.76	15.12	126.00	752.39	ELF-14M040E
	2.5	0.5	PLK1150-ND	1.76	15.12	126.00	752.39	ELF-14M050E
	1.5	0.6	PLK1151-ND	1.76	15.12	126.00	752.39	ELF-14M060E
	1.0	0.7	PLK1152-ND	1.76	15.12	126.00	752.39	ELF-14M070E
	0.8	0.8	PLK1153-ND	1.76	15.12	126.00	752.39	ELF-14M080E
	0.7	0.9	PLK1154-ND	1.76	15.12	126.00	752.39	ELF-14M090E
	0.5	1.0	PLK1155-ND	1.76	15.12	126.00	752.39	ELF-14M100E
16M	28.0	0.2	PLK1156-ND	.97	8.34	69.54	415.30	ELF-16M020A
	20.0	0.3	PLK1157-ND	.97	8.34	69.54	415.30	ELF-16M030A
	15.0	0.4	PLK1158-ND	.97	8.34	69.54	415.30	ELF-16M040A
	8.0	0.5	PLK1159-ND	.97	8.34	69.54	415.30	ELF-16M050A
	7.0	0.6	PLK1160-ND	.97	8.34	69.54	415.30	ELF-16M060A
	5.0	0.7	PLK1161-ND	.97	8.34	69.54	415.30	ELF-16M070A
	3.5	0.8	PLK1162-ND	.97	8.34	69.54	415.30	ELF-16M080A
	2.0	1.0	PLK1163-ND	.97	8.34	69.54	415.30	ELF-16M100A
	1.0	1.3	PLK1164-ND	.97	8.34	69.54	415.30	ELF-16M130A
	0.8	1.5	PLK1165-ND	.97	8.34	69.54	415.30	ELF-16M150A
	0.6	1.7	PLK1166-ND	.97	8.34	69.54	415.30	ELF-16M170A
	0.5	2.0	PLK1167-ND	.97	8.34	69.54	415.30	ELF-16M200A
N Series								
15N	104.0	0.2	PLK1064-ND	1.33	11.43	95.29	568.98	ELF-15N002A
	43.0	0.3	PLK1065-ND	1.33	11.43	95.29	568.98	ELF-15N003A
	26.0	0.4	PLK1066-ND	1.33	11.43	95.29	568.98	ELF-15N004A
	19.0	0.5	PLK1067-ND	1.33	11.43	95.29	568.98	ELF-15N005A
	12.0	0.6	PLK1068-ND	1.33	11.43	95.29	568.98	ELF-15N006A
	10.0	0.7	PLK1069-ND	1.33	11.43	95.29	568.98	ELF-15N007A
	6.8	0.8	PLK1070-ND	1.33	11.43	95.29	568.98	ELF-15N008A
	5.3	1.0	PLK1071-ND	1.33	11.43	95.29	568.98	ELF-15N010A
	4.0	1.1	PLK1072-ND	1.33	11.43	95.29	568.98	ELF-15N011A
	2.7	1.3	PLK1073-ND	1.33	11.43	95.29	568.98	ELF-15N013A
	2.1	1.5	PLK1074-ND	1.33	11.43	95.29	568.98	ELF-15N015A
	1.7	1.7	PLK1075-ND	1.33	11.43	95.29	568.98	ELF-15N017A
	1.0	2.2	PLK1076-ND	1.33	11.43	95.29	568.98	ELF-15N022A
	0.6	3.0	PLK1077-ND	1.33	11.43	95.29	568.98	ELF-15N030A
18N	80.0	0.4	PLK1078-ND	2.57	22.06	183.83	1097.74	ELF-18N004A
	50.0	0.5	PLK1079-ND	2.57	22.06	183.83	1097.74	ELF-18N005A
	35.0	0.6	PLK1080-ND	2.57	22.06	183.83	1097.74	ELF-18N006A
	20.0	0.8	PLK1081-ND	2.57	22.06	183.83	1097.74	ELF-18N008A
	15.0	1.0	PLK1082-ND	2.57	22.06	183.83	1097.74	ELF-18N010A
	9.5	1.2	PLK1083-ND	2.57	22.06	183.83	1097.74	ELF-18N012A
	6.0	1.6	PLK1084-ND	2.57	22.06	183.83	1097.74	ELF-18N016A
	4.2	2.0	PLK1085-ND	2.57	22.06	183.83	1097.74	ELF-18N020A
	2.4	2.5	PLK1086-ND	2.57	22.06	183.83	1097.74	ELF-18N025A
	1.4	3.2	PLK1087-ND	2.57	22.06	183.83	1097.74	ELF-18N032A
20N	69.0	0.6	PLK1088-ND	2.81	24.11	200.90	1199.64	ELF-20N006A
	43.0	0.8	PLK1089-ND	2.81	24.11	200.90	1199.64	ELF-20N008A
	28.0	1.0	PLK1090-ND	2.81	24.11	200.90	1199.64	ELF-20N010A
	18.0	1.3	PLK1091-ND	2.81	24.11	200.90	1199.64	ELF-20N013A
	14.0	1.5	PLK1092-ND	2.81	24.11	200.90	1199.64	ELF-20N015A
	12.0	1.6	PLK1093-ND	2.81	24.11	200.90	1199.64	ELF-20N016A
	7.5	1.8	PLK1094-ND	2.81	24.11	200.90	1199.64	ELF-20N018A
	7.0	2.0	PLK1095-ND	2.81	24.11	200.90	1199.64	ELF-20N020A
	6.2	2.2	PLK1096-ND	2.81	24.11	200.90	1199.64	ELF-20N022A
	4.9	2.4	PLK1097-ND	2.81	24.11	200.90	1199.64	ELF-20N024A
	4.7	2.7	PLK1098-ND	2.81	24.11	200.90	1199.64	ELF-20N027A
	2.9	3.0	PLK1099-ND	2.81	24.11	200.90	1199.64	ELF-20N030A
	2.0	3.5	PLK1100-ND	2.81	24.11	200.90	1199.64	ELF-20N035A
	1.5	4.0	PLK1101-ND	2.81	24.11	200.90	1199.64	ELF-20N040A
High N Series								
17N	142.0	0.2	PLK1168-ND	.78	6.73	56.04	334.34	ELF-17N002A
	60.0	0.3	PLK1169-ND	.78	6.73	56.04	334.34	ELF-17N003A
	35.0	0.4	PLK1170-ND	.78	6.73	56.04	334.34	ELF-17N004A
	26.0	0.5	PLK1171-ND	.78	6.73	56.04	334.34	ELF-17N005A
	16.0	0.6	PLK1172-ND	.78	6.73	56.04	334.34	ELF-17N006A
	14.0	0.7	PLK1173-ND	.78	6.73	56.04	334.34	ELF-17N007A
	9.2	0.8	PLK1174-ND	.78	6.73	56.04	334.34	ELF-17N008A
	7.2	1.0	PLK1175-ND	.78	6.73	56.04	334.34	ELF-17N010A
	5.4	1.1	PLK1176-ND	.78	6.73	56.04	334.34	ELF-17N011A
	3.7	1.3	PLK1177-ND	.78	6.73	56.04	334.34	ELF-17N013A
	2.9	1.5	PLK1178-ND	.78	6.73	56.04	334.34	ELF-17N015A
	2.3	1.7	PLK1179-ND	.78	6.73	56.04	334.34	ELF-17N017A
	1.3	2.2	PLK1180-ND	.78	6.73	56.04	334.34	ELF-17N022A
	0.8	3.0	PLK1181-ND	.78	6.73	56.04	334.34	ELF-17N030A
19N	99.0	0.4	PLK1182-ND	1.42	12.15	101.21	604.23	ELF-19N004A
	62.0	0.5	PLK1183-ND	1.42	12.15	101.21	604.23	ELF-19N005A
	43.0	0.6	PLK1184-ND	1.42	12.15	101.21	604.23	ELF-19N006A
	25.0	0.8	PLK1185-ND	1.42	12.15	101.21	604.23	ELF-19N008A
	19.0	1.0	PLK1186-ND	1.42	12.15	101.21	604.23	ELF-19N010A
	12.0	1.2	PLK1187-ND	1.42	12.15	101.21	604.23	ELF-19N012A
	7.4	1.6	PLK1188-ND	1.42	12.15	101.21	604.23	ELF-19N016A
	5.1	2.0	PLK1189-ND	1.42	12.15	101.21	604.23	ELF-19N020A
	3.0	2.5	PLK1190-ND	1.42	12.15	101.21	604.23	ELF-19N025A
	1.7	3.2	PLK1191-ND	1.42	12.15	101.21	604.23	ELF-19N032A
21N	87.0	0.6	PLK1192-ND	1.78	15.28	127.37	760.65	ELF-21N006A
	54.0	0.8	PLK1193-ND	1.78	15.28	127.37	760.65	ELF-21N008A
	36.0	1.0	PLK1194-ND	1.78	15.28	127.37	760.65	ELF-21N010A
	22.0	1.3	PLK1195-ND	1.78	15.28	127.37	760.65	ELF-21N013A
	18.0	1.5	PLK1196-ND	1.78	15.28	127.37	760.65	ELF-21N015A
	15.0	1.6	PLK1197-ND	1.78	15.28	127.37	760.65	ELF-21N016A
	9.4	1.8	PLK1198-ND	1.78	15.28	127.37	760.65	ELF-21N018A
	8.7	2.0	PLK1199-ND	1.78	15.28	127.37	760.65	ELF-21N020A
	7.8	2.2	PLK1200-ND	1.78	15.28	127.37	760.65	ELF-21N022A
	6.1	2.4	PLK1201-ND	1.78	15.28	127.37	760.65	ELF-21N024A
	5.8	2.7	PLK1202-ND	1.78	15.28	127.37	760.65	ELF-21N027A
	3.7	3.0	PLK1203-ND	1.78	15.28	127.37	760.65	ELF-21N030A
	2.5	3.5	PLK1204-ND	1.78	15.28	127.37	760.65	ELF-21N035A
	1.9	4.0	PLK1205-ND	1.78	15.28	127.37	760.65	ELF-21N040A

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