

CAN-BUS COMMON MODE CHOKE SERIES

FEATURES

- Accurate current matching capability over a broad range of inductance values
- Sector wound coils at 25 & 51 μH to filter differential mode noise from the data signal.
- Low distortion
- Custom designs possible
- Open bottom case construction
- Small (1812) size parts are so available
- Surface Mount



HIGH SPEED SERIAL INTERFACE COMMON MODE CHOKE

TYPE	PART NUMBER	Lp IMPEDANCE (μH)			PEAK IMPEDANCE (Z)	L LEAKAGE (μH)	HI-POT (VAC) 0.5 mA 2 SEC	DCR TYPICAL (Ω)	I _{dc} (mA)	
		TEST CONDITION	MIN	NOM						MAX
Surface Mount (For 2 lines)	CC1812C513R-10*	100 KHz / 50mV	35.7	51	66.3	3500 @40 MHz	2.6	250	0.5	200
	CC2824J502R-10	100 KHz / 50 mV	3.5	5	6.5	400 @ 500 MHz	0.05	250	0.1	1200
	CC2824E113R-10	100 KHz / 50mV	7.7	11	14.3	800 @ 200 MHz	0.05	250	0.12	800
	CC2824E253R-10	100 KHz / 50mV	17.5	25	32.5	2000 @ 100 MHz	1.5	250	0.13	800
	CC2824E513R-10*	100 KHz / 50mV	35	51	66.3	3800 @ 50 MHz	2	250	0.16	800
	CC2824E474R-10	100 KHz / 50mV	329	470	611	8600 @ 5 MHz	0.2	750	0.2	700
	CC2824E105R-10	100 KHz / 50mV	700	1000	1500	4250 @ 7 MHz	0.2	750	0.2	700
	CC2824D225R-10	10 KHz / 50mV	1540	2200	3300	5300 @ 5 MHz	0.25	750	0.4	500
	CC2824B475R-10	10 KHz / 50mV	3290	4700	7050	12300 @ 2 MHz	0.3	750	0.55	400

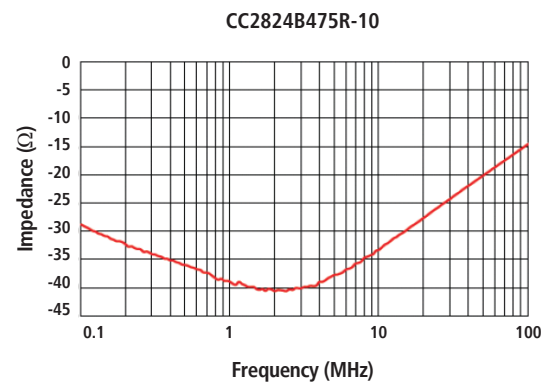
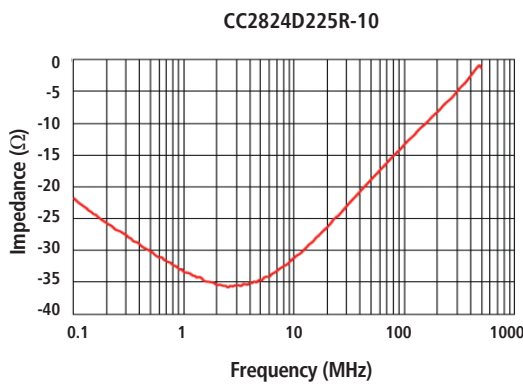
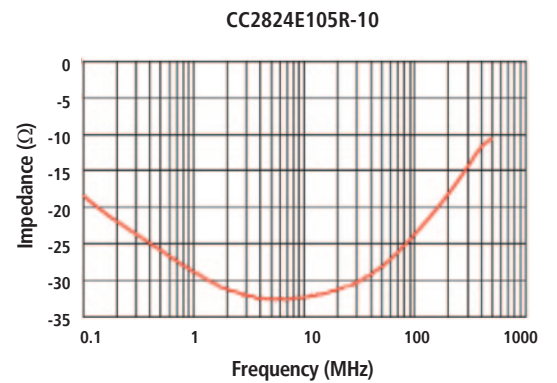
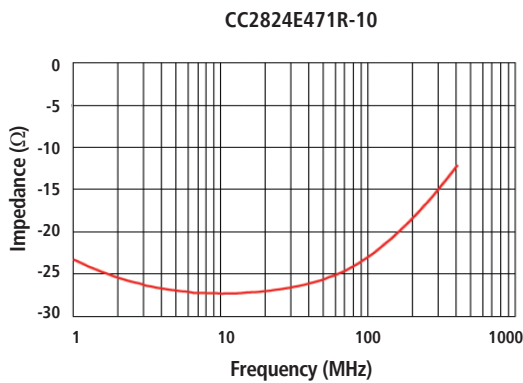
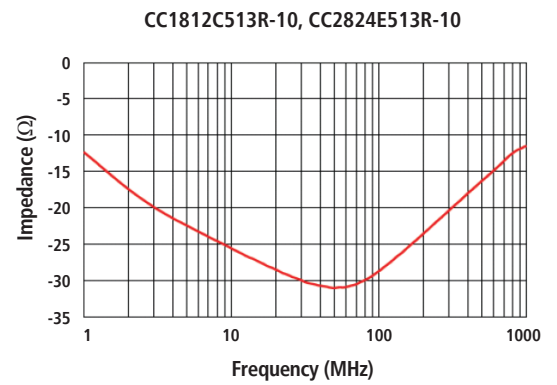
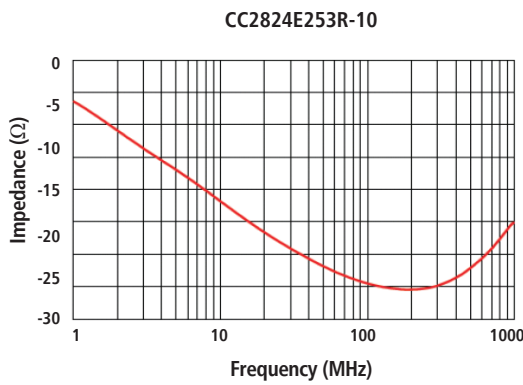
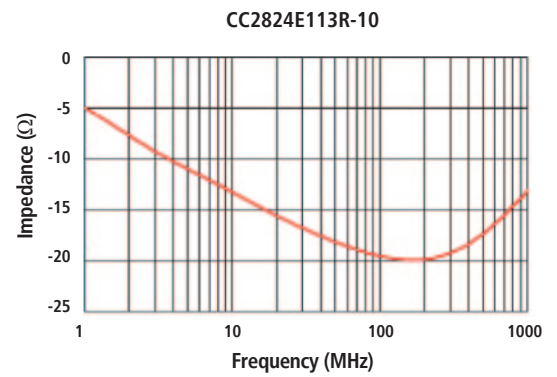
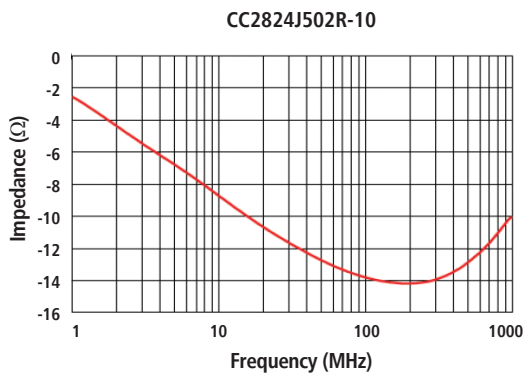
* Sector Wound

DIMENSION

PART NUMBER	A mm (INCHES)	B mm (INCHES)	C mm (INCHES)	
CC2824	7.50 MAX (0.295 MAX)	5.50 MAX (0.217 MAX)	3.80 MAX (0.150 MAX)	
CC1812	5.00 MAX (0.197 MAX)	3.50 MAX (0.138 MAX)	5.55 MAX (0.140 MAX)	

CAN-BUS COMMON MODE CHOKE SERIES

Typical Insertion Loss @ 50 Ω

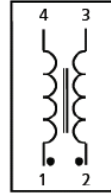


PASSES AND TURNS

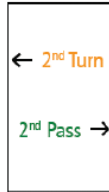
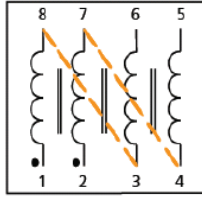
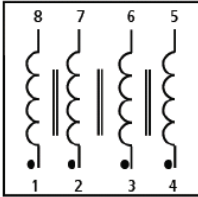
EMI Chip Beads, Chip Inductors



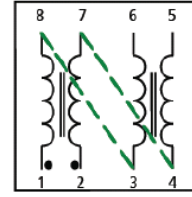
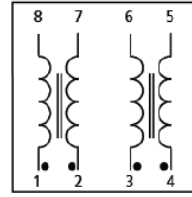
CM Beads, CM 05 / 21 / 40 / 41 / 45, LF CM, Can Bus



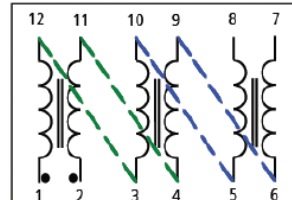
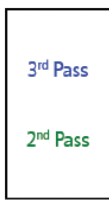
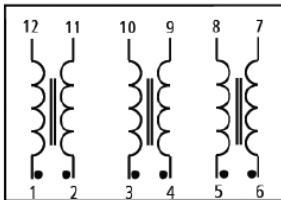
CM5740Z241B-10, CM 45 Array



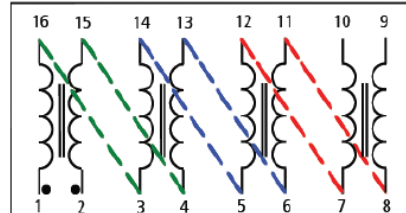
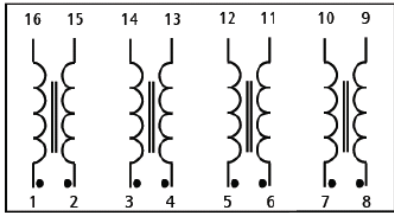
CM22 Array, CM 32 Array, CM 40 Array



CM22 Array, CM 32 Array



CM22 Array, CM 32 Array



EXPLANATION OF PASSES & TURNS

Multi-choke arrays can be electrically connected in the PC board to increase effective impedance. When the PCB circuits are configured, as shown above, such that individual side-by-side chokes within one array part are connected in series, the impedance is increased by a factor of the number of passes through the part. Since internal construction of Laird Technologies ferrite common mode chokes varies, Laird Technologies refers to this special installation configuration using the different terms of "pass" (additive) or "turn" (multiplicative).

When the term "pass" is used to describe series connections through a choke, each additional pass increases the impedance (Z) in proportion to the number of series PCB connections applied. Each additional "pass" adds a choke in series. If needed, it's an optional effective method of increasing impedance with an array.

When the term "turn" is used to describe series connection through a choke, each additional turn increases the impedance in proportion to the square of the number of series PCB connections applied. Each turn multiplies impedance.

Parts have no polarity.

COMMON MODE CHOKE SERIES

SORTED BY IMPEDANCE @ 100 MHZ OR 4 MHZ

PART NUMBER	TYPICAL Z Ω @ 25 MHZ	NOMINAL Z Ω @ 100 MHZ	TYPICAL Z Ω @ 500 MHZ	TYPICAL Z Ω @ 1 GHZ	TYPICAL PEAK IMPEDANCE (Ω)	TYPICAL PEAK IMPEDANCE FREQ. (MHZ)	DCR MAX (Ω)	RATED CONTINUOUS CURRENT (mA)	A (mm) LENGTH	B (mm) WIDTH	C (mm) HEIGHT
CM1812X330R-10	18	33	62	74	88	2359	0.003	10,000	4.57	3.05	1.60
CM1922X330R-10	14	33	64	86	93	1783	0.003	10,000	4.70	5.60	2.85
CM2021Y330R-10	18	33	52	61	62	1100	0.001	15,000	5.60	2.85	5.00
CM3322P400R-10	13	0	121	185	251	1931	0.03	4,000	8.50	5.60	2.10
CM1812R600R-10	22	60	112	138	146	1519	0.001	5,000	4.75	3.05	2.36
CM3421Y600R-10	39	60	96	110	110	1000	0.001	15,000	5.60	2.85	8.68
CM3322U610R-10	26	61	123	170	191	1581	0.009	7,000	8.50	5.60	2.10
CM3322X630R-10	26	63	114	152	165	1459	0.008	10,000	8.50	5.60	2.85
CF0805D670R-10	24	67	196	98	166	510	0.4	400	2.00	1.25	1.00
CM2722R800R-10	60	80	92	98	140	3000	0.02	5,000	6.99	5.72	4.32
CM3822R800R-10	64	80	97	105	151	3000	0.02	5,000	9.78	5.72	4.32
CM5022R800R-10	61	80	95	102	150	3000	0.02	5,000	12.57	5.72	4.32
CF0504C900R-10	28	90	210	148	217	583	0.6	300	1.25	1.00	0.82
CF0805D900R-10	32	90	210	106	220	435	0.4	400	2.00	1.25	1.00
CM0805D900R-10	24	90	340	435	445	1405	0.3	400	2.00	1.20	1.20
CH0805D900R-10	48	90	249	339	494	2000	0.3	400	2.00	1.20	1.20
CM5441Z101B-10	79	100	188	183	204	682	0.0008	75,000	13.72	10.41	10.52
CM5441Z101B-13	79	100	188	183	204	682	0.0008	75,000	13.72	10.41	10.52
CM4440Z111R-10	79	110	122	177	122	500	0.001	20,000	11.05	10.03	9.32
CM3312R111R-10	44	110	168	165	170	800	0.005	5,000	8.50	3.05	2.36
CF0504C121R-10	33	120	250	145	250	500	0.6	300	1.25	1.00	0.82
CF0805D121R-10	36	120	240	103	260	397	0.4	400	2.00	1.25	1.00
CM3032V121R-10	80	120	130	140	169	2010	0.01	8,000	7.62	8.13	5.72
CM4545Z131B-10	65	130	267	256	288	682	0.01	10,000	11.38	11.38	9.32
CM4545Z131R-10	65	130	267	256	288	682	0.01	10,000	11.38	11.38	9.32
CM5022R151R-10	113	150	165	167	177	2092	0.02	5,000	12.57	5.72	7.62
CM2722R151R-10	113	150	165	165	168	1783	0.02	5,000	6.99	5.72	7.62
CM3822R151R-10	107	150	170	169	172	1646	0.02	5,000	9.78	5.72	7.62
CM0805C161R-10	49	160	540	684	684	1000	0.35	300	2.00	1.20	1.20
CM5441Z161B-10	112	160	261	146	263	457	0.0008	75,000	13.72	10.41	15.24
CM5441Z161R-13	112	160	261	146	263	457	0.0008	75,000	13.72	10.41	15.24
CM3440Z171B-10	116	170	189	202	202	1000	0.001	20,000	8.51	10.03	9.32
CM3440Z171R-10	116	170	189	202	202	1000	0.001	20,000	8.51	10.03	9.32
CM5740Z171B-10	114	170	189	202	202	1000	0.001	20,000	14.48	10.03	9.32
CM5740Z171R-10	114	170	189	202	202	1000	0.001	20,000	14.48	10.03	9.32
CM2545X171B-10	108	170	210	180	210	500	0.01	10,000	6.30	11.38	9.32
CM2545X171R-10	108	170	210	180	210	500	0.01	10,000	6.30	11.38	9.32
CF0805D181R-10	48	180	123	42	277	210	0.5	400	2.00	1.25	1.00
CM6032V201R-10	140	200	219	213	219	500	0.01	8,000	15.24	8.13	9.45
CM3032V201R-10	143	200	210	199	214	319	0.01	8,000	7.62	8.13	9.45
CM5022R201R-10	142	200	206	188	210	306	0.02	5,000	12.57	5.72	9.53
CM2722R201R-10	142	200	202	187	206	272	0.02	5,000	6.99	5.72	9.53
CM4732V201R-10	152	200	218	187	229	241	0.01	8,000	11.94	8.13	9.45
CM3822R201R-10	141	200	207	187	213	218	0.02	5,000	9.78	5.72	9.53
CF0805C221R-10	50	220	109	33	296	180	0.5	300	2.00	1.25	1.00
CM0805C221R-10	57	220	570	720	724	1147	0.4	300	2.00	1.20	1.20
CM3032V301R-10	211	300	280	224	307	214	0.01	8,000	7.62	8.13	14.48
CM4732V301R-10	217	300	250	172	328	168	0.01	8,000	11.94	8.13	14.48
CM6032V301R-10	240	300	258	170	346	149	0.01	8,000	15.24	8.13	14.48
CM0805A371R-10	186	370	730	878	878	1000	0.5	100	2.00	1.20	1.20
Low Frequency Parts	@ 1 MHz	@ MHz	@ 10 MHz	@ 25 MHz	(Ohms)	(MHz)	(Ohms)	(mA)	(mm)	(mm)	(mm)
CM5740Z241B-10	170 (2 Turns)	240 (2 Turns)	173 (2 Turns)	140 (2 Turns)	276 (2 Turns)	3 (2 Turns)	0.001	20,000	14.48	10.03	9.32
CM2824E182R-10	200	570	920	1400	1920	80	0.26	800	7.50	5.50	3.80
CM1812C282R-10	370	1100	1900	2700	3500	50	0.5	200	5.00	3.50	5.55
CM2824E352R-10	350	1400	2100	3200	3950	45	0.3	800	7.50	5.50	3.80
CM2824E702R-10	3000	7000	5800	4800	7200	6	0.26	700	7.50	5.50	3.80
CM2824B103R-10	10000	8900	3980	1800	13200	2	1.3	400	7.50	5.50	3.80

COMMON MODE CHOKE SERIES

SORTED BY RATED CURRENT (AT CONTINUOUS OPERATION)

PART NUMBER	TYPICAL Z Ω @ 25 MHZ	NOMINAL Z Ω @ 100 MHZ	TYPICAL Z Ω @ 500 MHZ	TYPICAL Z Ω @ 1 GHZ	TYPICAL PEAK IMPEDANCE (Ω)	TYPICAL PEAK IMPEDANCE FREQ. (MHZ)	DCR MAX (Ω)	RATED CONTINUOUS CURRENT (mA)	A (mm) LENGTH	B (mm) WIDTH	C (mm) HEIGHT
CM0805A371R-10	186	370	730	878	878	1,000	0.5	100	2.00	1.20	1.20
CM0805C161R-10	49	160	540	684	684	1,000	0.35	300	2.00	1.20	1.20
CM0805C221R-10	57	220	570	720	724	1,147	0.4	300	2.00	1.20	1.20
CF0504C900R-10	28	90	210	148	217	583	0.6	300	1.25	1.00	0.82
CF0504C121R-10	33	120	250	145	250	500	0.6	300	1.25	1.00	0.82
CF0805C221R-10	50	220	109	33	296	180	0.5	300	2.00	1.25	1.00
CF0805D670R-10	24	67	196	98	166	510	0.4	400	2.00	1.25	1.00
CF0805D900R-10	32	90	210	106	220	435	0.4	400	2.00	1.25	1.00
CF0805D121R-10	36	120	240	103	260	397	0.4	400	2.00	1.25	1.00
CF0805D181R-10	48	180	123	42	277	210	0.5	400	2.00	1.25	1.00
CH0805D900R-10	48	90	249	339	494	2000	0.3	400	2.00	1.20	1.20
CM0805D900R-10	24	90	340	435	445	1,405	0.3	400	2.00	1.20	1.20
CM3322P400R-10	13	40	121	185	251	1,931	0.03	5000	8.50	5.60	2.10
CM1812R600R-10	22	60	112	138	146	1,519	0.001	5,000	4.75	3.05	2.36
CM2722R151R-10	113	150	165	165	168	1,783	0.02	5,000	6.99	5.72	7.62
CM2722R201R-10	142	200	202	187	206	272	0.02	5,000	6.99	5.72	9.53
CM2722R800R-10	60	80	92	98	140	3,000	0.02	5,000	6.99	5.72	4.32
CM3312R111R-10	44	110	168	165	170	800	0.005	5,000	8.50	3.05	2.36
CM3822R151R-10	107	150	170	169	172	1,646	0.02	5,000	9.78	5.72	7.62
CM3822R201R-10	141	200	207	187	213	218	0.02	5,000	9.78	5.72	9.53
CM3822R800R-10	64	80	97	105	151	3,000	0.02	5,000	9.78	5.72	4.32
CM5022R151R-10	113	150	165	167	177	2,092	0.02	5,000	12.57	5.72	7.62
CM5022R201R-10	142	200	206	188	210	306	0.02	5,000	12.57	5.72	9.53
CM5022R800R-10	61	80	95	102	150	3,000	0.02	5,000	12.57	5.72	4.32
CM3322U610R-10	26	61	123	170	191	1,581	0.009	7,000	8.50	5.60	2.10
CM3032V121R-10	80	120	130	140	169	2,010	0.01	8,000	7.62	8.13	5.72
CM3032V201R-10	143	200	210	199	214	319	0.01	8,000	7.62	8.13	9.45
CM3032V301R-10	211	300	280	224	307	214	0.01	8,000	7.62	8.13	14.48
CM4732V201R-10	152	200	218	187	229	241	0.01	8,000	11.94	8.13	9.45
CM4732V301R-10	217	300	250	172	328	168	0.01	8,000	11.94	8.13	14.48
CM6032V201R-10	140	200	219	213	219	500	0.01	8,000	15.24	8.13	9.45
CM6032V301R-10	240	300	258	170	346	149	0.01	8,000	15.24	8.13	14.48
CM1812X330R-10	18	33	62	74	88	2,359	0.003	10,000	4.57	3.05	1.60
CM1922X330R-10	14	33	64	86	93	1,783	0.003	10,000	4.70	5.60	2.85
CM2545X171B-10	108	170	210	180	210	500	0.01	10,000	6.30	11.38	9.32
CM2545X171R-10	108	170	210	180	210	500	0.01	10,000	6.30	11.38	9.32
CM3322X630R-10	26	63	114	152	165	1,459	0.008	10,000	8.50	5.60	2.85
CM4545Z131B-10	65	130	267	256	288	682	0.01	10,000	11.38	11.38	9.32
CM4545Z131R-10	65	130	267	256	288	682	0.01	10,000	11.38	11.38	9.32
CM2021Y330R-10	18	33	52	61	62	1,100	0.001	15,000	5.60	2.85	5.00
CM3421Y600R-10	39	60	96	110	110	1,000	0.001	15,000	5.60	2.85	8.68
CM3440Z171B-10	116	170	189	202	202	1,000	0.001	20,000	8.51	10.03	9.32
CM3440Z171R-10	116	170	189	202	202	1,000	0.001	20,000	8.51	10.03	9.32
CM4440Z111R-10	79	110	122	117	122	500	0.001	20,000	11.05	10.03	9.32
CM5740Z171B-10	114	170	189	202	202	1,000	0.001	20,000	14.48	10.03	9.32
CM5740Z171R-10	114	170	189	202	202	1,000	0.001	20,000	14.48	10.03	9.32
CM5441Z101B-10	79	100	188	183	204	682	0.0008	75,000	13.72	10.41	10.52
CM5441Z101B-13	79	100	188	183	204	682	0.0008	75,000	13.72	10.41	10.52
CM5441Z161B-10	112	160	261	146	263	457	0.0008	75,000	13.72	10.41	15.24
CM5441Z161B-13	112	160	261	146	263	457	0.0008	75,000	13.72	10.41	15.24
Low Frequency Parts	@ 1 MHz	@ 10 MHz	@ 10 MHz	@ 25 MHz	(Ohms)	(MHz)	(Ohms)	(mA)	(mm)	(mm)	(mm)
CM1812C282R-10	370	1,100	1,900	2,700	3,500	50	0.5	200	5.00	3.50	5.55
CM2824B103R-10	10,000	8,900	3,980	1,800	13,200	2	1.3	400	7.50	5.50	3.80
CM2824E702R-10	3,000	7,000	5,800	4,800	7,200	6	0.26	700	7.50	5.50	3.80
CM2824E182R-10	200	570	920	1,400	1,920	80	0.26	800	7.50	5.50	3.80
CM2824E352R-10	350	1,400	2,100	3,200	3,950	45	0.3	800	7.50	5.50	3.80
CM5740Z241B-10	170 (2 Turns)	240 (2 Turns)	173 (2 Turns)	140 (2 Turns)	276 (2 Turns)	3 (2 Turns)	0.001	20,000	14.48	10.03	9.32