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Panasonic Electronic Components



Inductors, Chips and Chokes

A Comprehensive Guide to Choosing the Right Inductor

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A Wide Range of Inductive Components

Panasonic Electronic Components offers a wide range of Inductor Products. These comprehensive guides provide a quick and easy snapshot of Panasonic's offering of chip inductors and choke coils which will make choosing the appropriate part for the application easy.

ELJ Series Chip Inductors

Panasonic Electronic Components offers a variety of Chip Inductors ranging from Laser-cut 0402 and 0603 case sizes to 0805 through 1812 case sizes with wirewound construction.



Laser-cut Inductors provide tight control of inductance value and mounting in any direction. For higher Q, there are ELJ-QF (0402) and ELJ-QE (0603) with higher Q than the general use ELJ-RF and ELJ-RE, respectively. While wirewound devices offer a bit better Q in high frequency circuits, the ELJ-QF and ELJ-QE Series provide adequate Q in a cost effective solution. For higher current there are the ELJ-PF and ELJ-PE Series.

ELL Series Chip Choke Coils



Panasonic offers a selection of SMT Chip Choke Coils in different form factors and footprints for a variety of applications. There are both magnetically shielded and non-shielded Series.

Panasonic Electronic Components SMT Chip Choke Coils are available with a wide variety of specifications, including, magnetically shielded, low profile, thin, low DC resistance, large current capability, and vibration resistant.

ETQ Series Power Choke Coils

Panasonic Power Choke Coils offer high heat resistance, excellent DC bias characteristic, Hi-BS With Ferrous alloy magnetic material and great reliability at high temperatures with a high tolerance for vibration. These Power Choke Coils also have very low audible noise and are extremely efficient with low DCR and eddy current loss reduction. Metal composite core material, with distributed airgap, and stamped frame coils on some series provide near linear Inductance vs Current and do not saturate, while also offering a cost effective design solution.



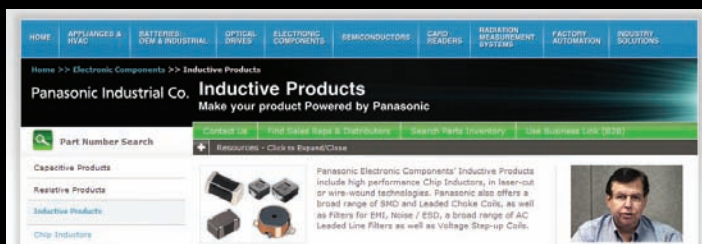
ELC Series Radial Leaded Choke Coils

Panasonic offers both magnetically shielded and non-shielded Radial Leaded Choke Coils. The magnetically shielded series are, ELC-10E-L, ELC-12E-L, ELC-15E-L, and ELC-18E-L while the non-shielded Series include ELC-09D, ELC-11D, ELC-12D, ELC-16B, and ELC-18B. Both are primarily used for noise filtering and energy storage applications.



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for more detailed selection of Inductors, Chips and Chokes



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Inductors, Chips and Chokes Quick Selection Guide

Making easy to use Panasonic SMT Chip Choke Coils (CCC) and Power Choke Coils easy to choose as well, we now have selection guides to facilitate SMT choke coil selection. With Inductance values down the left column and Series with their form factors across the top rows, it is now easy to locate available values. Also shown are Rated Current and DC Resistance (DCR).

Series	Size Code Inch (mm)	Inductor Range								Rated Current (mA)				
		1n	10n	100n	1u	10u	100u	1m	10m	10	100	1K	10K	100K

Chip Inductors

ELJ-RF,QF	0402 (0603mm)	1nH			100nH						90	400		
ELJ-QF	0402 (0603mm)	1.1nH			36nH						90	400		
ELJ-PF	0402 (0603mm)	2.2nH	10nH									750	1900	
ELJ-RE	0603 (1608mm)	1nH			220nH						70	500		
ELJ-QE	0603 (1608mm)	2.2nH			56nH						70	500		
ELJ-PE	0603 (1608mm)	2.2nH			22nH							700	2100	
ELJ-ND	0805 (2012mm)		10nH			1000nH					120	540		
ELJ-C	1008 (2520mm)		10nH				100uH				60	475		
ELJ-A	1210 (3225mm)			47nH			330uH			30		600		
ELJ-PA***2	1210 (3225mm)				1uH		220uH				85		1200	
ELJ-DA	1210 (3225mm)					39uH	100uH				250	370		
ELJ-B	1812 (4532mm)				220nH			1000uH				700		

Chip Choke Coils

ELL-VEG	(3.0x3.0x1.0)				1uH	68uH				180	1800		
ELL-VFG-C	(3.0x3.0x1.2)				0.5uH	33uH				280	2000		
ELC-3FN	(3.2x3.2x1.2)			0.2uH		68uH				170	1500		
ELC-3GN	(3.2x3.2x1.55)				1uH	68uH				190	1300		
ELL-4FG	(3.8x3.8x1.2)				1uH	47uH				260	1900		
ELL-4LG	(3.8x3.8x1.8)				1uH	150uH				220	1900		
ELL-4GG	(3.8x3.8x1.4)				1.2uH	100uH				250	1900		
ELL-SFG	(4.0x4.0x1.2)				1uH	470uH				100	1700		
ELL-5PR	(5.0x5.0x2.0)			0.47uH		22uH					800	3900	
ELL-5PS	(5.0x5.0x2.0)				1.2uH	100uH				120	1000		
ELL-6GG	(6.0x6.0x1.6)				1uH	100uH				300	2500		
ELC-6GN	(6.0x6.0x1.6)				1.5uH	68uH				400	2200		
ELL-6PG	(6.0x6.0x2.0)				0.8uH	100uH				380	2800		
ELL-6RH	(6.0x6.0x2.8)				1uH	220uH				200	3000		
ELL-6SH	(6.0x6.0x3.3)				1uH	680uH				160	3400		
ELL-6UH	(6.0x6.0x5.0)					10uH	1mH			180	1800		
ELL-8UV	(8.0x8.0x6.5)				1.3uH	220uH					660	5400	
ELL-ATV	(10x10x4.5)				1.5uH		1mH			320	6700		
ELL-CTV	(12x12x4.5)				1.2uH		1mH			410	6500		

Power Choke Coils

ETQ-P5M***YFM	(7.5x7.0x5.4)				4.7uH	48uH				1.6A	4.5A		
ETQ-P5M***YFK	(8.5x8.0x5.4)				2.45uH	22uH	48uH			1.8A	2.6A	7.5A	
ETQ-P5M***YFC	(10.7x10x5.4)				2.5uH	4.7uH					7.2A	10A	
ETQ-P5M***YGC	(10.7x10x5.0)						97uH			1.6A			
ETQ-P3LR**XFN	(7.5x6.5x3.0)			0.33uH								17A	
ETQ-P3LR**YFN	(6.5x6.0x3.0)			0.68uH	1uH	1.5uH				5.6A	7.4A		
ETQ-P4LR**AFC	(11.7x10x4.0)			0.36uH								30A	
ETQ-P4LR**XFC	(11.7x10x4.0)			0.68uH								21A	
ETQ-P4LR**WFC	(11.5x10x4.0)			0.19uH	0.56uH						21A	28A	
ETQ-P5LR**XFA	(14.5x12.5x5.0)			0.5uH	0.6uH						27A	30A	
ETQ-P3H**BFA	(13.0x12.9x3.9)			0.36uH	0.8uH	1.43uH				12A	23A		
ETQ-P2H**BFA	(13.0x12.9x4.9)			0.29uH		2.61uH					12A	36A	
ETQ-P1H**BFA	(13.0x12.9x6.0)			0.6uH	1uH					19A	26A		
ETQ-P6F**BFA	(12.5x12.5x6.0)			0.58uH		3.32uH					10A	19A	
ETQ-P6F***FA	(12.5x12.5x5.7)				0.8uH		10.2uH				6.5A	14.2A	

Radial Leaded Choke Coils

ELC-09D	(ø9.5x8.9) w/case				2.2uH				10mH	.08A	3.5A		
ELC-11D	(ø11.5x13.9) w/case				2.2uH				10mH	.16A	5.3A		
ELC-12D	(ø12.5x16.5)					100uH			10mH	.27A	1.9A		
ELC-16B	(ø16.0x23.0)				3.3uH				10mH	.26A	8.5A		
ELC-18B	(ø20.0x27.0)				3.3uH				10mH	.36A	8.5A		
ELC-10E*L	(ø10.0x13.0)				3.9uH				8200uH	.1A	2.9A		
ELC-12E*L	(ø13.0x18.5)				4.7uH				10mH	.13A	4.4A		
ELC-15E*L	(ø16.0x22.0) 3 pin				5.6uH				10mH	.34A	5.4A		
ELC-18E*L	(ø19.0x25.1) 4 pin				5.6uH				10mH	.33A	5.5A		

Chip Choke Coil Detailed Selection Guide

Series		ELL-VEG		ELL-VFG-C		ELC-3FN***		ELC-3GN***		ELL-4FG***A		ELL-4LG***A		ELL-4GG***		ELL-SFG***A		ELL-5PR***		ELL-5PS***		ELL-6GG***		ELC-6GN***		ELL-6PG***		ELL-6RH***		ELL-6SH***		ELL-6UH***		ELL-8UV***		ELL-ATV***		ELL-CTV***		Series							
Length x Width (mm)		3.0 x 3.0				3.2 x 3.2				3.8 x 3.8				4.0 x 4.0				5.0x5.0				6.0 x 6.0												8.0*8.0				10.0*10.0				12.0 x 12.0				Foot Area (mm)	
Height (mm)		1.10								1.10						1.10		1.85		1.85		1.50						2.5		3.0				6.2		4.2		4.2		Height (mm)							
Max Height (mm)		1.00		1.20		1.20		1.55		1.20		1.80		1.40		1.20		2.00		2.00		1.6		1.6		2.0		2.8		3.3		5.0		6.5		4.5		4.5		Max Height (mm)							
Shielded or Unshielded		Shielded		Shielded		Unshielded		Unshielded		Shielded		Shielded		Shielded		Shielded		Shielded		Shielded		Shielded		Unshielded		Shielded		Shielded		Shielded		Shielded		Shielded		Shielded		Shielded or Unshielded									
Marking	L value at 0A Lo [uH]	Rated Current lo [A]	DCR ±20% [mOhm]	Rated Current lo [A]	DCR ±20% [mOhm]	Rated Current lo [A]	DCR ±20% [mOhm]	Rated Current lo [A]	DCR ±20% [mOhm]	Rated Current lo [A]	DCR ±20% [mOhm]	Rated Current lo [A]	DCR ±20% [mOhm]	Rated Current lo [A]	DCR ±20% [mOhm]	Rated Current lo [A]	DCR ±20% [mOhm]	Rated Current lo [A]	DCR ±20% [mOhm]	Rated Current lo [A]	DCR ±20% [mOhm]	Rated Current lo [A]	DCR ±20% [mOhm]	Rated Current lo [A]	DCR ±20% [mOhm]	Rated Current lo [A]	DCR ±20% [mOhm]	Rated Current lo [A]	DCR ±20% [mOhm]	Rated Current lo [A]	DCR ±20% [mOhm]	Rated Current lo [A]	DCR ±20% [mOhm]	Rated Current lo [A]	DCR ±20% [mOhm]	Rated Current lo [A]	DCR ±20% [mOhm]	Marking	L value at 0A Lo [uH]								
	L=+20%(Over 10uH,"M"),+30%(Under 10uH,"N")																																														
R10	0.1					2.50	29.0											5.5	12																				R10	0.1							
R20	0.2																																							R20	0.2						
R50	0.5			2.00	37																																										
R08	0.8																									2.8	24														R08	0.8					
1R0	1.0	1.60	61	1.50	50	1.40	80	1.30	64	1.90	45	1.90	43			1.70	49	4.5	21			2.5	27					3.00	19	3.40	19										1R0	1.0					
1R2	1.2													1.90	50	1.55	58	4.2	21	2.50	22																6.50	4.6			1R2	1.2					
1R3	1.3																																								1R3	1.3					
1R5	1.5	1.40	74	1.30	61							1.80	48					4	25	2.40	28	2.25	36	2.2	60	2.5	30	2.40	24	3.20	24											1R5	1.5				
1R6	1.6							1.20	83																																	1R6	1.6				
1R8	1.8					1.10	110							1.55	71																												1R8	1.8			
2R0	2.0									1.30	70																				2.60	26										2R0	2.0				
2R2	2.2	1.10	110	1.10	87	1.00	120	1.00	100			1.50	55	1.40	88	1.30	79	3.2	32	2.10	34	1.95	45	1.9	70	2.2	37	2.30	30														2R2	2.2			
2R4	2.4																																											2R4	2.4		
2R5	2.5																																											2R5	2.5		
2R7	2.7					0.95	150					1.40	63																														2R7	2.7			
3R0	3.0																	2.6	37																								3R0	3.0			
3R3	3.3	0.82	210	0.98	110			0.97	130	1.10	110	1.30	72	1.20	110	1.10	110			1.90	46			1.5	77	1.7	44	1.60	44	2.20	34												3R3	3.3			
3R6	3.6																																											3R6	3.6		
3R8	3.8																																											3R8	3.8		
3R9	3.9													1.15	120								1.65	60			1.6	51															3R9	3.9			
4R1	4.1																								1.40	90																					
4R2	4.2																																														
4R3	4.3																																														
4R7	4.7	0.75	240	0.74	150	0.75	280	0.78	200	0.86	160	1.10	96	1.00	160	1.00	130	2.2	56	1.50	61	1.4	70	1.3	115	1.5	58	1.58	49	2.00	42			4.20	12			5.00	10.0					4R7	4.7		
5R1	5.1							0.76	220																			1.55	56															5R1	5.1		
5R6	5.6					0.68	310							0.97	170											1.4	65			1.80	49													5R6	5.6		
6R2	6.2											0.93	140															1.40	62															6R2	6.2		
6R8	6.8	0.58	350	0.60	230	0.62	360	0.68	250	0.80	220			0.93	200	0.80	180	1.7	85				1.15	110	1.10	150	1.4	70			1.50	52												6R8	6.8		
7R0	7.0																																												7R0	7.0	
7R5	7.5					0.60	390																																						7R5	7.5	
8R2	8.2							0.54	410					0.87	220														1.25	80															8R2	8.2	
9R1	9.1																												1.20	87	1.40	61													9R1	9.1	
100	10	0.52	480	0.55	380	0.53	430	0.53	430	0.65	290	0.80	200	0.77	250	0.74	230	1.4	150	1.00	120	0.9	170	1.0	170	1.3	110	1.10	95	1.30	65	1.80	63	3.00	22	3.30	23	3.90	17	100	10						
120	12													0.65	380													1.00	130	1.20	71	1.70	71												120	12	
150	15	0.43	710	0.48	540	0.37	1000	0.43	600	0.55	480	0.62	300	0.58	500	0.50	390			0.79	170	0.8	210				1.0	150	0.85	150	1.10	96	1.60	79	2.50	26	2.80	32	3.10	25	150	15					
160	16																																											160	16		
180	18																												0.80	170	1.00	130	1.40	88										180	18		
220	22	0.33	1200	0.35	710	0.33	1180	0.33	950	0.35	620	0.55	390	0.50	640	0.47	520			0.65	290	0.62	300	0.70	350	0.80	230	0.70	220	0.90	140	1.30	98	2.05	40	2.20	45	2.70	37	220	22						
270	27																										0.73	260	0.65	260	0.80	160	1.20	110	1.80	53	2.00	56	2.30	43	270	27					
330	33	0.26	2300	0.28	1160	0.26	1900	0.28	1400	0.30	1.05	0.43	610	0.40	980	0.35	860			0.49	470	0.49	510	0.60	520	0.70	300	0.60	380	0.70	180	1.10	130	1.65	78	1.80	62	2.20	50	330	33						
390	39																											0.55	410	0.65	240	1.00	150	1.50	90	1.60	74	2.10	61	390	39						
470	47	0.22	2700			0.23	2450	0.24	1950	0.26	1.6	0.36	920	0.35	1250	0.30	1150			0.45	620	0.40	610	0.50	720	0.55	470	0.50	480	0.60	270	0.90	160	1.25	100	1.55	94	1.90	69	470	47						
560	56															0.29	1300			0.43	680			0.5	830	0.5	520	0.45	540	0.55	290	0.80	210			1.35	100	1.60	87	560	56						
680	68	0.18	3500			0.17	4200	0.19	3000			0.27	1300			0.27	1500			0.38	750	0.38	860	0.40	1170	0.42	700	0.40	770	0.50	520	0.70	230	1.10	130	1.20	130	1.50	100	680	68						
820																																															

*Rated Current: This indicates the value of current when the inductance is 80% or more than nominal value and/or temperature rising 45deg lower at D.C superposition (at 20°)

Please ask a Panasonic Electronic Components representative to confirm product spec and availability prior to design in.

Design, specification are subject to change without notice.

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■ Capacitors

ECA, EEA, EEU, ECE	Aluminum Electrolytic Cap. (Radial Lead)	ECQ	Thru Hole Polyester Film Cap.
ECC-T, ECK-T	SMT Ceramic Disc	ECW-F, ECW-H	Thru Hole Polypropylene Film Cap.
ECE, ECO, EET	Aluminum Electrolytic Cap. (Snap-in)	ECH, ECP, ECW-U	SMT Plastic Film Cap.
EEC	Electric Double Layer (Gold Cap.)	EZA	Networks: Chip Cap., RD, 3 Term.
EEE, EEV	SMT AL Lytic (Lead Free)	EEH	Hybrid Aluminum Electrolytic Cap.
EEF	Specialty Polymer Cap. (SP Cap)		

■ Resistors

ERA	Metal/Thin Film Chip Resistors	ERJ	Thick Film Chip Resistors
ERB	Micro Chip Fuse	ERX	Metal Film Resistors
ERF	Wirewound Resistors	ERQ	Metal (Oxide) Film Fuse Resistors
ERG	Metal (Oxide) Film Resistors	EVM	Trimmers: Carbon Chip; 6mm Carbon
EXB	Chip Res. Networks, Res. Array, Chip Attn, RC Fitter		

■ Inductors and Filters

EFC	Saw Devices	ELL	Choke Coils (SMD)
ELC	Choke Coils	EXC	Bead Cores; Chip Bead Cores; Chip Bead Arrays; EMI Filters
ELF	Line Filters	ELT	Voltage Step-Up Coils
ELJ	Chip Inductors	ELW	L-R Filter (Inductor)
ELK	Inductance Type EMI Filters	ETQ	Power Choke Coils (SMD)

■ Circuit Protection

EYG	Pyrolytic Graphite Sheet (PGS)	ERZ	ZNR (Metal Oxide Varistors)
EZJ	Multilayer Chip Varistor, ESD Protection	EYP	Thermal Cut-offs (TCO)
ERT-J	NTC Thermistors	EZA	ESD Suppressor

■ Electromechanical

ESB	Push Switches	EVN	Cermet Trimmer Potentiometers
ESE	Detector and Push Switches	EVP	Light Touch Switches
EVE	Encoders	EVQ	Light Touch Switches, Encoders
EVC, EVU, EWV	Rotary Potentiometers	EVW	Position Sensors, Rotary Potentiometers
EVA	Slide Potentiometers; Position Sensors	EVB, EWA	Slide Potentiometers

■ RF Modules

ENW	Wireless RF Modules	Bluetooth®	Mesh Networking	ISM
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■ Semiconductors *New Product Group!*

MOS FET	F*,MTM	N Channel/P Channel	ASSP	AN,NN	DC-DC Converter IC, LED Driver, Matrix LED Driver, Lens Driver, LNA, Hall IC
Diode	DA	Switching Diode	Transistor	DS	Small Signal Transistor
Diode	DB	Schottky Barrier Diode	Transistor	DSK	Junction FET
Diode	DA**F	Fast Recovery Diode	Transistor	DR	Transistor w/ Built-in Resistors
Diode	DZ	Zener Diode	Transistor	DM	Composite Transistor

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