

Choke Coils

Series: **Pin terminal**

Type: **06D, 09D, 10D, 16B, 18B
10E, 12E, 15E, 18E**

Pin terminal inductors featuring small size and high performance

Industrial Property: Patent 1 (pending)

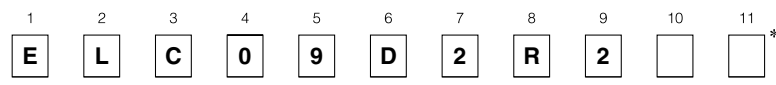
■ Features

- Adoption of High μ and High Bm ferrite cores
- Wide inductance range

■ Recommended Applications

- CTV, VTR, Audio, PC, Facsimiles

■ Explanation of Part Numbers



Product code

Style

Construction

Inductance

Packaging Option

06	Core size Terminal board or Case size
09	
10	
12	
15	
16	
18	

D		Core Terminal
		Core Case Terminal
B		Terminal board Terminal
		Terminal board Terminal
E		Core Terminal board Terminal

Taping	D
Other	Omission

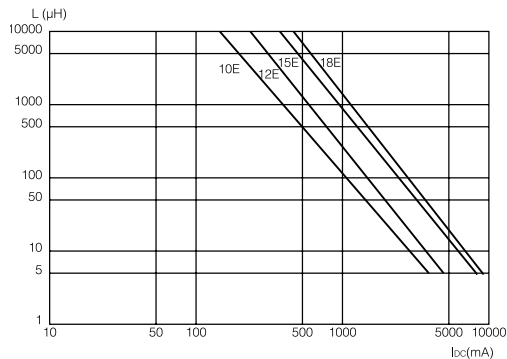
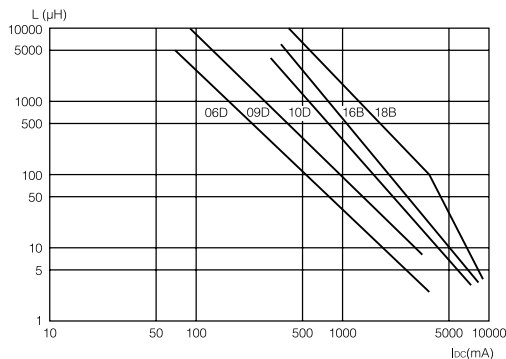
06	E
09	F
10	E
16	L
18	L

*As for construction
"E" No optional letter.

Japan
Singapore
Indonesia



■ Available I-L Characteristics



■ Examples Type 06D

Type	Part No.	Inductance (μH)	Tolerance (%)	Test Freq. (kHz)	DCR.(Ω) [at 20°C] *(Tol.±30 %) (Tol.±20 %)	**IDC. [at 20°C] (Amax.)
06D	ELC06D2R2E	2.2	±20	10	*0.026	3.4
	ELC06D2R7E	2.7			*0.028	3.2
	ELC06D3R3E	3.3			*0.027	3.0
	ELC06D3R9E	3.9			*0.030	2.8
	ELC06D4R7E	4.7			*0.033	2.6
	ELC06D5R6E	5.6			*0.035	2.4
	ELC06D6R8E	6.8			0.041	2.0
	ELC06D8R2E	8.2			0.048	1.8
	ELC06D100E	10			0.052	1.7
	ELC06D120E	12			0.054	1.65
	ELC06D150E	15			0.059	1.50
	ELC06D180E	18			0.065	1.25
	ELC06D220E	22	±10		0.076	1.20
	ELC06D270E	27			0.083	0.95
	ELC06D330E	33			0.100	0.90
	ELC06D390E	39			0.105	0.85
	ELC06D470E	47			0.12	0.80
	ELC06D560E	56			0.14	0.75
	ELC06D680E	68			0.15	0.70
	ELC06D820E	82			0.21	0.55
	ELC06D101E	100			0.23	0.50
	ELC06D121E	120			0.26	0.49
	ELC06D151E	150			0.37	0.45
	ELC06D181E	180			0.42	0.40
	ELC06D221E	220			0.55	0.36
	ELC06D271E	270			0.65	0.35
	ELC06D331E	330			0.74	0.30
	ELC06D391E	390			0.95	0.27
	ELC06D471E	470			1.08	0.24
	ELC06D561E	560			1.22	0.22
	ELC06D681E	680			1.59	0.21
	ELC06D821E	820			1.76	0.18
	ELC06D102E	1000			2.49	0.16
	ELC06D122E	1200			2.76	0.15
	ELC06D152E	1500			3.24	0.13
	ELC06D182E	1800			4.56	0.12
	ELC06D222E	2200			5.18	0.11
	ELC06D272E	2700			6.08	0.10
	ELC06D332E	3300			8.80	0.10
	ELC06D392E	3900			9.47	0.08
	ELC06D472E	4700			10.9	0.075
	ELC06D562E	5600			12.3	0.07

*DC Resistance:±30%

**Allowable DC Current: Smaller current value of either when the inductance drops -10 %max., or when the temperature rises 25°C max.

■ Examples Type 09D

Type	Part No.	Inductance (μH)	Tolerance (%)	Test Freq. (kHz)	DCR, (Ω) [at 20°C] (Tol. ±20 %)	*IDC. [at 20°C] (Amax.)
09D	ELC09D2R2□F	2.2	±20	10	0.012	3.5
	ELC09D2R7□F	2.7			0.013	3.3
	ELC09D3R3□F	3.3			0.015	3.2
	ELC09D3R9□F	3.9			0.016	3.1
	ELC09D4R7□F	4.7			0.018	3.0
	ELC09D5R6□F	5.6			0.019	2.9
	ELC09D6R8□F	6.8			0.021	2.8
	ELC09D8R2□F	8.2			0.024	2.6
	ELC09D100□F	10			0.027	2.5
	ELC09D120□F	12			0.031	2.3
	ELC09D150□F	15	0.035		2.1	
	ELC09D180□F	18	0.038		2.0	
	ELC09D220□F	22	±10		0.051	1.8
	ELC09D270□F	27			0.058	1.6
	ELC09D330□F	33			0.081	1.4
	ELC09D390□F	39			0.087	1.3
	ELC09D470□F	47			0.11	1.2
	ELC09D560□F	56			0.13	1.1
	ELC09D680□F	68			0.14	1.0
	ELC09D820□F	82			0.16	0.90
	ELC09D101□F	100			0.20	0.82
	ELC09D121□F	120			0.25	0.77
	ELC09D151□F	150			0.32	0.74
	ELC09D181□F	180			0.36	0.61
	ELC09D221□F	220			0.41	0.58
	ELC09D271□F	270			0.50	0.52
	ELC09D331□F	330			0.65	0.49
	ELC09D391□F	390			0.86	0.46
	ELC09D471□F	470			0.98	0.39
	ELC09D561□F	560			1.1	0.36
	ELC09D681□F	680			1.4	0.34
	ELC09D821□F	820			1.6	0.30
	ELC09D102□F	1000			2.1	0.28
	ELC09D122□F	1200			2.4	0.23
	ELC09D152□F	1500			2.8	0.21
	ELC09D182□F	1800			3.8	0.19
	ELC09D222□F	2200			4.4	0.17
	ELC09D272□F	2700			6.1	0.16
	ELC09D332□F	3300			7.0	0.14
	ELC09D392□F	3900			8.0	0.13
	ELC09D472□F	4700			11.2	0.12
	ELC09D562□F	5600			12.6	0.11
	ELC09D682□F	6800			14.4	0.10
	ELC09D822□F	8200			16.6	0.09
	ELC09D103□F	10000			18.8	0.08

*Allowable DC Current: Smaller current value of either when the inductance drops 10 %max., or when the temperature rises 45°C max.

Design and specifications are subject to change without notice. Ask factory for technical specifications before purchase and/or use.
Whenever a doubt about safety arises from this product, please contact us immediately for technical consultation.

■ Examples Type 10D

Type	Part No.	Inductance (μ H)	Tolerance (%)	Test Freq. (kHz)	DCR, (Ω) [at 20°C] (Tol. $\pm$ 20 %)	*IDC. [at 20°C] (Amax.)
10D	ELC10D2R2E	2.2	$\pm$ 20	10	0.014	5.9
	ELC10D2R7E	2.7			0.015	5.5
	ELC10D3R3E	3.3			0.016	5.2
	ELC10D3R9E	3.9			0.018	4.8
	ELC10D4R7E	4.7			0.019	4.6
	ELC10D5R6E	5.6			0.021	4.3
	ELC10D6R8E	6.8			0.022	4.2
	ELC10D8R2E	8.2			0.024	4.0
	ELC10D100E	10			0.026	3.9
	ELC10D120E	12			0.028	3.8
	ELC10D150E	15			0.033	3.5
	ELC10D180E	18			0.036	3.4
	ELC10D220E	22	$\pm$ 10		0.040	3.2
	ELC10D270E	27			0.044	3.0
	ELC10D330E	33			0.051	2.8
	ELC10D390E	39			0.054	2.7
	ELC10D470E	47			0.060	2.5
	ELC10D560E	56			0.067	2.3
	ELC10D680E	68			0.075	2.1
	ELC10D820E	82			0.095	1.8
	ELC10D101E	100			0.11	1.7
	ELC10D121E	120			0.12	1.6
	ELC10D151E	150			0.16	1.4
	ELC10D181E	180			0.18	1.3
	ELC10D221E	220			0.21	1.1
	ELC10D271E	270			0.28	1.0
	ELC10D331E	330			0.32	0.90
	ELC10D391E	390			0.40	0.80
	ELC10D471E	470			0.45	0.70
	ELC10D561E	560			0.56	0.68
	ELC10D681E	680			0.66	0.64
	ELC10D821E	820			0.80	0.55
	ELC10D102E	1000			1.0	0.50
	ELC10D122E	1200			1.2	0.45
	ELC10D152E	1500			1.5	0.42
	ELC10D182E	1800			1.8	0.40
	ELC10D222E	2200			2.1	0.36
	ELC10D272E	2700			2.7	0.32
	ELC10D332E	3300			3.2	0.28
	ELC10D392E	3900			3.5	0.26

*Allowable DC Current: Smaller current value of either when the inductance drops 10 %max., or when the temperature rises 45°C max.

■ Examples Type 16B

Type	Part No.	Inductance (μH)	Tolerance (%)	Test Freq. (kHz)	DCR (Ω) [at 20°C] **(Tol.±30 %) (Tol.±20 %)	*IDC. [at 20°C] (Amax.)
16B	ELC16B3R3L	3.3	±25	10	**0.012	8.5
	ELC16B3R9L	3.9			**0.013	8.0
	ELC16B4R7L	4.7			**0.015	7.8
	ELC16B5R6L	5.6	**0.016		7.4	
	ELC16B6R8L	6.8	±20		0.018	6.7
	ELC16B8R2L	8.2			0.019	6.1
	ELC16B100L	10			0.022	5.6
	ELC16B120L	12			0.023	5.5
	ELC16B150L	15			0.026	5.4
	ELC16B180L	18			0.028	5.1
	ELC16B220L	22			0.031	4.6
	ELC16B270L	27			0.034	4.3
	ELC16B330L	33			0.039	4.0
	ELC16B390L	39			0.042	3.9
	ELC16B470L	47			0.045	3.8
	ELC16B560L	56	±10		0.051	3.4
	ELC16B680L	68			0.057	3.2
	ELC16B820L	82			0.064	3.0
	ELC16B101L	100			0.072	2.6
	ELC16B121L	120			0.080	2.5
	ELC16B151L	150			0.103	2.2
	ELC16B181L	180			0.115	2.1
	ELC16B221L	220			0.13	1.9
	ELC16B271L	270			0.17	1.6
	ELC16B331L	330			0.20	1.5
	ELC16B391L	390			0.25	1.3
	ELC16B471L	470			0.28	1.2
	ELC16B561L	560			0.38	1.1
	ELC16B681L	680			0.43	1.0
	ELC16B821L	820			0.58	0.88
	ELC16B102L	1000			0.66	0.85
	ELC16B122L	1200			0.74	0.82
	ELC16B152L	1500			0.87	0.74
	ELC16B182L	1800			1.22	0.60
	ELC16B222L	2200			1.38	0.57
	ELC16B272L	2700			1.57	0.54
	ELC16B332L	3300			2.0	0.47
	ELC16B392L	3900			2.4	0.42
	ELC16B472L	4700			3.3	0.36
	ELC16B562L	5600			3.7	0.34
	ELC16B682L	6800			4.2	0.32
	ELC16B822L	8200			5.6	0.28
	ELC16B103L	10000			6.4	0.26
	ELC16B123L	12000			7.3	0.24

*Refer to former page

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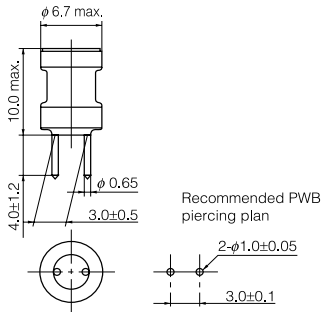
■ Examples Type 18B

Type	Part No.	Inductance (μ H)	Tolerance (%)	Test Freq. (kHz)	DCR(Ω) [at 20°C] (Tol.±20 %)	*IDC. [at 20°C] (Amax.)
18B	ELC18B3R3L	3.3	±20	10	0.010	8.5
	ELC18B3R9L	3.9			0.011	8.0
	ELC18B4R7L	4.7			0.012	7.8
	ELC18B5R6L	5.6			0.013	7.4
	ELC18B6R8L	6.8			0.015	6.8
	ELC18B8R2L	8.2			0.016	6.6
	ELC18B100L	10			0.017	6.5
	ELC18B120L	12			0.018	6.0
	ELC18B150L	15			0.021	5.9
	ELC18B180L	18			0.022	5.6
	ELC18B220L	22	±10		0.025	5.4
	ELC18B270L	27			0.028	4.8
	ELC18B330L	33			0.030	4.6
	ELC18B390L	39			0.033	4.4
	ELC18B470L	47			0.037	4.3
	ELC18B560L	56			0.040	4.2
	ELC18B680L	68			0.046	4.0
	ELC18B820L	82			0.051	3.7
	ELC18B101L	100			0.057	3.2
	ELC18B121L	120			0.065	3.0
	ELC18B151L	150			0.072	2.7
	ELC18B181L	180			0.082	2.6
	ELC18B221L	220			0.090	2.4
	ELC18B271L	270			0.11	2.2
	ELC18B331L	330			0.13	1.9
	ELC18B391L	390			0.15	1.8
	ELC18B471L	470			0.21	1.6
	ELC18B561L	560			0.23	1.5
	ELC18B681L	680			0.26	1.4
	ELC18B821L	820			0.34	1.3
	ELC18B102L	1000			0.39	1.1
	ELC18B122L	1200			0.44	1.0
	ELC18B152L	1500			0.58	0.85
	ELC18B182L	1800			0.65	0.84
	ELC18B222L	2200			0.88	0.75
	ELC18B272L	2700			1.2	0.68
	ELC18B332L	3300			1.4	0.60
	ELC18B392L	3900			1.5	0.57
	ELC18B472L	4700			1.7	0.55
	ELC18B562L	5600			2.2	0.46
	ELC18B682L	6800			2.8	0.45
	ELC18B822L	8200			3.1	0.41
	ELC18B103L	10000			3.9	0.36

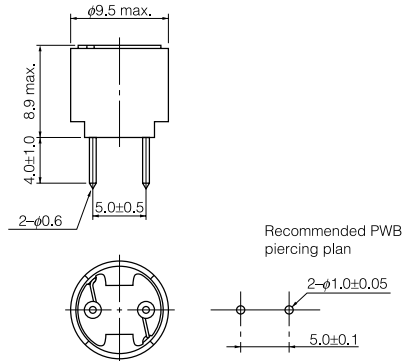
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■ Dimensions in mm (not to scale)

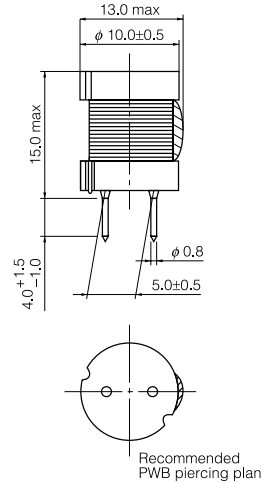
● Type 06D



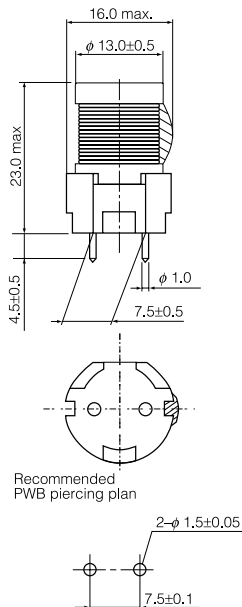
● Type 09D



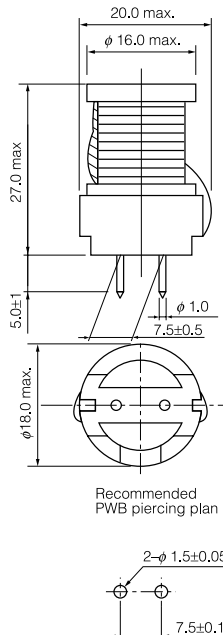
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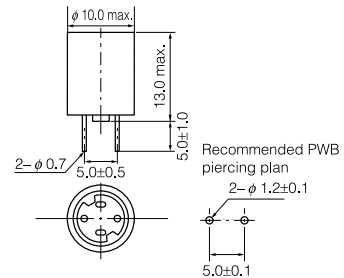
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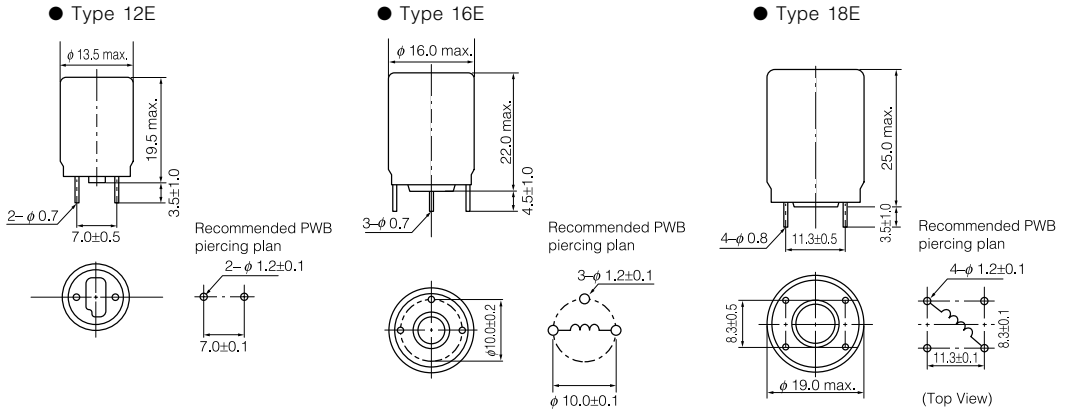
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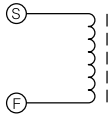
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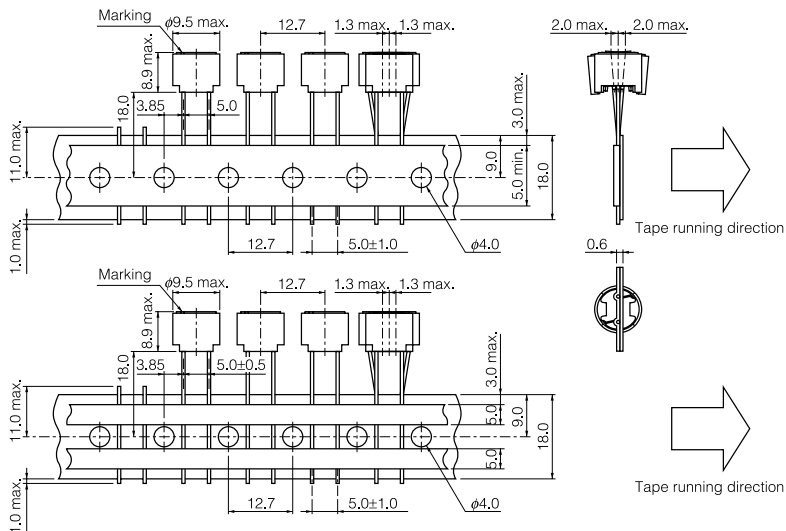
■ Dimensions in mm (not to scale)



■ Connection Schematic



■ Tape Dimensions in mm for Type 09D (not to scale)



500 pcs./reel

Usage Precautions

Coils for general electronic equipment

For assured reliability and safety, consider following these caution items.

1. Rated current

The rated current is defined as the smaller value of either the current when the inductance drops 10 % down from the initial point, or the current when the average temperature inside the coil rises 45 °C up on power source or 20 °C up on signal from initial point.

Do not operate these coils beyond the specified rated current.

2. Mounting

- ① The main part: a core may be damaged when excessive force or shock is applied.
Do not use the dropped products.
- ② Be careful not to contact other parts and consider the combined effect of magnetic and electrostatic interference between coils and other parts.
- ③ Be careful about heat-radiation of parts with high temperature.
- ④ Secure spacing and insulation distances from high voltage and power source parts on the basis of applicable safety standards(Especially, be careful not to contact and approach the lead wires with different voltage and metal plates.)
- ⑤ Separate the coils without a shielded case from any metal plates as much as possible to avoid an effect on L & Q.
- ⑥ The shielded case shall be earthed. But, don't solder on the sides or upper side of it (because there are some cases where the core does not rotate.)
- ⑦ Do not bend the pin-terminals during mounting.
The pin-terminals must connect correctly.
Do not mechanically shock them to avoid disconnection or short.
- ⑧ The float on the PWB must not be made after mounting.
- ⑨ Confirm the effects on the core performance from the magnetic field of parts feeder.
- ⑩ For the choke coil of E type with outer wrapped tube, mount, basically, in vertical direction because the tube may loosen at high temperature.
Confirm the effect at other directional mounting.

3. Core adjustment (Variable inductor only)

- ① The materials of screwdriver shall be nonmagnetized such as aluminum or epoxy resin, etc.
The tip shape shall fit the drain of the core.
- ② When adjusting core, be careful about the slant of the screwdriver, the pressing force, the rotary torque and over rotation, etc. to avoid damaging the core.

4. Soldering

- ① Do not press the pin terminals from above with a soldering iron.
- ② Use the flux that will not decay a copper wire.
(Take care of the quantity of chloride, pH and the kind of solvent)
- ③ When soldering by iron, the soldering repetition shall be at intervals of 3 s min.
- ④ When soldering by dipping method, cool the back of PWB for 30 sec after dipping.

5. Storage

- ① Don't load in disorder or heap with coil products.
- ② Do not store in high temperatures, or in the presence of a large amount of moisture, gases and magnetic fields.
- ③ After long storage of more than 1 year, use the products only after inspecting the outer structure.
(Be careful about a rusty core and inferiority of lead wire solderability.)