Panasonic

Choke Coils

Series: Pin terminal

: 09D, 11D, 12D, 16B, 18B, Type

10E, 12E, 15E, 18E

Pin terminal inductors featuring small size and high performance

Type 16B

Type 09D









Type 10E-L

Features

- High μ and High Bm cores
- Wide inductor range
- Magnetic shield type (E Type)
- RoHS compliant





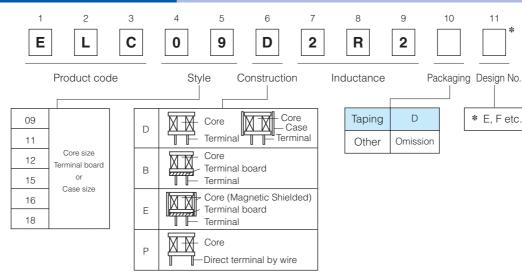


Type 18E-L

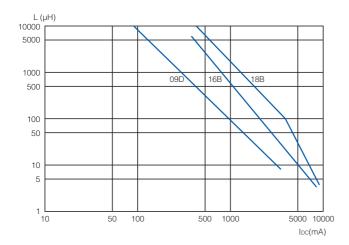
Recommended Applications

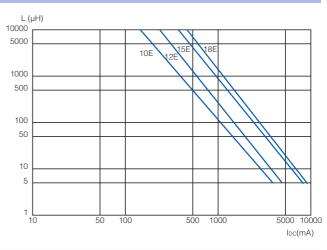
• Appliance, Office automation equipment, Amusement machine, Power circuit for electric device

Explanation of Part Numbers



Available I-L Characteristics





Design and specifications are each subject to change without notice. Ask factory for the current technical specifications before purchase and/or use Should a safety concern arise regarding this product, please be sure to contact us immediately 02 Oct. 2014



Performance Characteristics by Series

	Туре	Construction	Extermal Dimensions D×H (mm)	Inductance (μH) 0.1 1.0 10 100 1000 10000	Current Inc (A)
Regular	09D *		φ9.5×8.9 (with case)	2.2 10000	0.08 to 3.5
	11D *		¢11.5×13.9 (with case)	2.2 10000	0.16 to 5.3
	12D		φ12.5×16.5	100 10000	0.27 to 1.9
	16B		φ16.0×23.0	3.3 10000	0.26 to 8.5
	18B		φ20.0×27.0	3.3 10000	0.36 to 8.5
Shield	10E-L		<i>∮</i> 10.0×13.0	3.9 8200	0.10 to 2.9
	12E-L		φ13.0×18.5	4.7 10000	0.13 to 4.4
	15E-L		\$\phi_16.0 \times 22.0 (3 pin terminal)	5.6 10000	0.30 to 5.4
	18E-L			5.6 10000	0.33 to 5.9

*: Taping Available



Examples Type 09D $\mathsf{R}_{\mathsf{DC}}.(\Omega)$ I_{DC}.* Inductance Tolerance Test Frea. [at 20 °C] Part No. [at 20 °C] (kHz) (μH) (%)(Tol.±20 %) (A)max. ELC09D2R2□F 2.2 0.012 3.50 [Dimensions in mm] (not to scale) 3.30 ELC09D2R7□F 2.7 0.013 ELC09D3R3□F 3.3 0.015 3.20 ELC09D3R9□F 3.9 0.016 3.10 φ9.5 max. ELC09D4R7□F 4.7 0.018 3.00 ELC09D5R6□F 5.6 0.019 2.90 8.9 max ±20 ELC09D6R8□F 6.8 0.021 2.80 ELC09D8R2□F 8.2 0.024 2.60 1.0±1.0 ELC09D100□F 10.0 0.027 2.50 ELC09D120□F 12.0 0.031 2.30 5.0±0.5 ELC09D150□F 15.0 0.035 2.10 $2-\phi 0.6$ 2.00 ELC09D180□F 18.0 0.038 ELC09D220□F 22.0 0.051 1.80 ELC09D270□F 27.0 0.058 1.60 ELC09D330□F 33.0 0.081 1.40 ELC09D390□F 39.0 0.087 1.30 ELC09D470□F 47.0 0.110 1.20 ELC09D560□F 56.0 0.130 1.10 ELC09D680□F 68.0 0.140 1.00 Recommended PWB 82.0 0.90 ELC09D820□F 0.160 piercing plan 100.0 0.200 0.82 ELC09D101□F ELC09D121□F 120.0 0.250 0.77 ELC09D151□F 150.0 10 0.320 0.74 ELC09D181□F 180.0 0.360 0.61 2-\phi1.00\pm0.05 ELC09D221□F 220.0 0.410 0.58 ELC09D271□F 270.0 0.500 0.52 5.0 ± 0.1 ELC09D331□F 330.0 0.650 0.49 ELC09D391□F 390.0 0.860 0.46 0.39 ELC09D471□F 470.0 0.980 ±10 0.36 ELC09D561□F 560.0 1.100 ELC09D681□F 680.0 1.400 0.34 Connection Schematic 820.0 0.30 ELC09D821□F 1.600 ELC09D102□F 1000.0 2.100 0.28 0.23 ELC09D122□F 1200.0 2.400 2.800 0.21 ELC09D152□F 1500.0 ELC09D182□F 1800.0 3.800 0.19 ELC09D222□F 2200.0 4.400 0.17 6.100 ELC09D272□F 2700.0 0.16 ELC09D332□F 3300.0 7.000 0.14 ELC09D392□F 3900.0 8.000 0.13 ELC09D472□F 4700.0 11.200 0.12 ELC09D562□F 5600.0 12.600 0.11 ELC09D682□F 6800.0 14.400 0.10 ELC09D822□F 8200.0 16.600 0.09 ELC09D103□F 10000.0 18.800 0.08

^{*} Allowable DC Current: Smaller current value either when the inductance is -10 % or when the case temperature has risen 45 °C.



Examples Type 11D I_{DC}.* $\mathsf{R._{DC.}}(\Omega)$ Inductance Tolerance Test Frea. [at 20 °C] Part No. [at 20 °C] (kHz) (μH) (%)(Tol.±20 %) (A)max. ELC11D2R2□F 2.2 0.013 5.30 [Dimensions in mm] (not to scale) ELC11D2R7□F 2.7 0.014 5.10 ELC11D3R3□F 3.3 0.015 4.90 ELC11D3R9□F 3.9 0.016 4.80 φ11.5 max. 4.70 ELC11D4R7□F 4.7 0.018 4.60 ELC11D5R6□F 5.6 0.020 13.9 max ±20 ELC11D6R8□F 6.8 0.022 4.40 ELC11D8R2□F 8.2 0.024 3.90 3.5 ± 1.0 ELC11D100□F 10.0 0.029 3.50 ELC11D120□F 12.0 0.030 3.40 5.0±0.5 ELC11D150□F 15.0 0.033 3.30 $2-\phi 0.6$ ELC11D180□F 18.0 0.037 3.10 ELC11D220□F 22.0 0.040 2.80 ELC11D270□F 27.0 0.048 2.70 ELC11D330□F 33.0 0.051 2.60 ELC11D390□F 39.0 0.057 2.50 ELC11D470□F 47.0 0.063 2.30 ELC11D560□F 56.0 0.071 2.10 ELC11D680□F 68.0 0.082 2.00 82.0 ELC11D820□F 0.090 1.90 Recommended PWB 100.0 1.80 ELC11D101□F 0.120 piercing plan ELC11D121□F 120.0 0.160 1.60 ELC11D151□F 150.0 10 0.180 1.40 ELC11D181□F 180.0 0.200 1.30 $2-\phi 1.00+0.05$ ELC11D221□F 220.0 0.230 1.20 ELC11D271□F 270.0 0.320 1.10 5.0±0.1 ELC11D331□F 330.0 0.350 1.00 ELC11D391□F 390.0 0.400 0.95 ELC11D471□F 470.0 0.490 0.82 ±10 0.73 ELC11D561□F 560.0 0.620 0.780 ELC11D681□F 680.0 0.64 Connection Schematic ELC11D821□F 0.62 820.0 0.870 ELC11D102□F 1000.0 1.100 0.57 0.52 ELC11D122□F 1200.0 1.200 ELC11D152□F 0.43 1500.0 1.700 ELC11D182□F 1800.0 2.000 0.40 ELC11D222□F 2200.0 2.300 0.38 0.34 ELC11D272□F 2700.0 2.800 0.31 ELC11D332□F 3300.0 3.600 ELC11D392□F 3900.0 4.500 0.29 0.26 ELC11D472□F 4700.0 5.200 0.23 ELC11D562□F 5600.0 6.900 ELC11D682□F 6800.0 7.800 0.21 ELC11D822□F 8200.0 10.600 0.18 ELC11D103□F 10000.0 11.800 0.16

^{*} Allowable DC Current: Smaller current value either when the inductance is -10 % or when the case temperature has risen 45 °C



Examples Type 12D									
	Part No.	Inductance (µH)	Tolerance (%)	Test Freq. (kHz)	R _{DC} .(Ω) [at 20 °C] (Tol.±20 %)	I _{DC} .* [at 20 °C] (A)max.			
[Dimensions in mm]	ELC12D101E	100			0.150	1.90			
(not to scale)	ELC12D121E	120			0.170	1.78			
14.0 max. \$\phi\$12.0±0.5	ELC12D151E	150			0.190	1.67			
	ELC12D181E	180			0.210	1.58			
ax.	ELC12D221E	220			0.230	1.55			
16. 5тах	ELC12D271E	270			0.270	1.44			
	ELC12D331E	330			0.300	1.34			
	ELC12D391E	390			0.330	1.32			
0.8 7.5±0.5 7.5±0.5	ELC12D471E	470			0.380	1.25			
89	ELC12D561E	560			0.420	1.15			
	ELC12D681E	680			0.460	0.98			
	ELC12D821E	820			0.650	0.94			
	ELC12D102E	1000	±10	10	0.720	0.87			
December of all DMD	ELC12D122E	1200			0.830	0.86			
Recommended PWB piercing plan	ELC12D152E	1500			1.270	0.64			
2-\phi 1.20\pm 0.05	ELC12D182E	1800			1.330	0.63			
	ELC12D222E	2200			1.500	0.60			
7.5±0.1	ELC12D272E	2700			1.890	0.54			
	ELC12D332E	3300			2.370	0.48			
Connection Schematic	ELC12D392E	3900			2.830	0.45			
©	ELC12D472E	4700			3.190	0.41			
\exists	ELC12D562E	5600			4.080	0.34			
 	ELC12D682E	6800			5.740	0.29			
(F)	ELC12D822E	8200			6.340	0.28			
	ELC12D103E	10000			7.200	0.27			

^{*} Allowable DC Current: Smaller current value either when the inductance is -10 % or when the case temperature has risen 45 °C.



Examples Type 16B $R_{DC.}(\Omega)$ I_{DC}.* [at 20 °C] Inductance Tolerance Test Freq. [at 20 °C] Part No. (Tol.±30 %)** (μH) (%) (kHz) (A)max. (Tol.±20 %) 0.012** ELC16B3R3L 3.3 8.50 [Dimensions in mm] ±25 (not to scale) 0.013** ELC16B3R9L 3.9 8.00 0.015** ELC16B4R7L 4.7 7.80 16.0 max. 0.016** 7.40 ELC16B5R6L 5.6 ϕ 13.0±0.5 ELC16B6R8L 6.8 0.018 6.70 ELC16B8R2L 8.2 0.019 6.10 +20ELC16B100L 10.0 0.022 5.60 23.0 max ELC16B120L 12.0 0.023 5.50 ELC16B150L 15.0 0.026 5.40 ELC16B180L 18.0 0.028 5.10 ELC16B220L 22.0 0.031 4.60 ELC16B270L 27.0 0.034 4.30 φ 1.0 4.5 ± 0.5 ELC16B330L 33.0 0.039 4.00 7.5±0.5 ELC16B390L 39.0 0.042 3.90 ELC16B470L 47.0 0.045 3.80 ELC16B560L 56.0 0.051 3.40 3.20 ELC16B680L 68.0 0.057 82.0 3.00 ELC16B820L 0.064 ELC16B101L 100.0 0.072 2.60 2.50 120.0 0.080 ELC16B121L Recommended PWB 2.20 ELC16B151L 150.0 0.103 piercing plan 10 0.115 2.10 ELC16B181L 180.0 ELC16B221L 220.0 0.130 1.90 ELC16B271L 270.0 0.170 1.60 ELC16B331L 330.0 0.200 1.50 2-φ 1.50±0.05 ELC16B391L 390.0 0.250 1.30 ELC16B471L 470.0 ±10 0.280 1.20 ELC16B561L 560.0 0.380 1.10 7.5±0.1 ELC16B681L 680.0 0.430 1.00 ELC16B821L 820.0 0.580 0.88 ELC16B102L 0.85 1000.0 0.660 ELC16B122L 1200.0 0.740 0.82 Connection Schematic ELC16B152L 1500.0 0.870 0.74 ELC16B182L 1800.0 1.220 0.60 ELC16B222L 2200.0 1.380 0.57 ELC16B272L 2700.0 1.570 0.54 ELC16B332L 3300.0 2.000 0.47 ELC16B392L 3900.0 2.400 0.42 4700.0 3.300 0.36 ELC16B472L ELC16B562L 5600.0 3.700 0.34 0.32 ELC16B682L 6800.0 4.200 ELC16B822L 8200.0 5.600 0.28 0.26 ELC16B103L 10000.0 6.400

^{*} Allowable DC Current: Smaller current value either when the inductance is -10 % or when the case temperature has risen 45 °C.

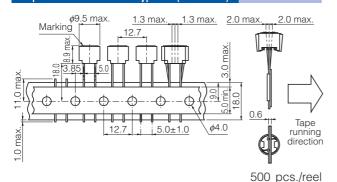


Examples Type 18B I_{DC}.* $\mathsf{R}_{\mathsf{DC}}.(\Omega)$ Inductance Tolerance Test Freq. [at 20 °C] Part No. [at 20 °C] (kHz) (μH) (%) (Tol.±20 %) (A)max. ELC18B3R3L 8.50 3.3 0.010 [Dimensions in mm] (not to scale) ELC18B3R9L 3.9 0.011 8.00 ELC18B4R7L 4.7 7.80 0.012 20.0 max 7.40 ELC18B5R6L 5.6 0.013 ϕ 16.0 max. ELC18B6R8L 6.8 0.015 6.80 ±20 ELC18B8R2L 8.2 0.016 6.60 ELC18B100L 10.0 0.017 6.50 ELC18B120L 12.0 0.018 6.00 27.0 max ELC18B150L 15.0 0.021 5.90 ELC18B180L 18.0 0.022 5.60 ELC18B220L 22.0 0.025 5.40 ELC18B270L 27.0 0.028 4.80 ELC18B330L 33.0 0.030 4.60 5.0± φ 1.0 ELC18B390L 39.0 0.033 4.40 7.5±0.5 ELC18B470L 47.0 0.037 4.30 ø18.0 max. 4.20 ELC18B560L 56.0 0.040 0 0 -ELC18B680L 68.0 0.046 4.00 82.0 0.051 3.70 ELC18B820L ELC18B101L 100.0 0.057 3.20 120.0 3.00 ELC18B121L 0.065 Recommended PWB 2.70 ELC18B151L 150.0 0.072 piercing plan 180.0 10 2.60 ELC18B181L 0.082 ELC18B221L 220.0 0.090 2.40 ELC18B271L 270.0 0.110 2.20 ELC18B331L 330.0 0.130 1.90 2-φ 1.50±0.05 ELC18B391L 390.0 0.150 1.80 ELC18B471L 470.0 ±10 0.210 1.60 ELC18B561L 560.0 0.230 1.50 7.5±0.1 ELC18B681L 680.0 0.260 1.40 ELC18B821L 820.0 0.340 1.30 ELC18B102L 1000.0 0.390 1.10 ELC18B122L 1200.0 0.440 1.00 Connection Schematic ELC18B152L 1500.0 0.580 0.85 ELC18B182L 1800.0 0.650 0.84 ELC18B222L 2200.0 0.880 0.75 **ELC18B272L** 2700.0 1.200 0.68 ELC18B332L 3300.0 1.400 0.60 ELC18B392L 3900.0 1.500 0.57 ELC18B472L 4700.0 1.700 0.55 ELC18B562L 5600.0 2.200 0.46 ELC18B682L 6800.0 2.800 0.45 ELC18B822L 8200.0 3.100 0.41 0.36 ELC18B103L 10000.0 3.900

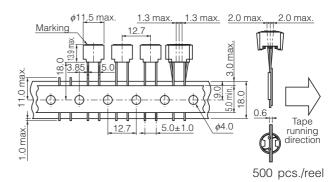
^{*} Allowable DC Current: Smaller current value either when the inductance is -10 % or when the case temperature has risen 45 °C.



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



Tape Dimensions in mm for Type 11D (not to scale)



- When using our products, no matter what sort of equipment they might be used for, be sure to make a written agreement on the specifications with us in advance. The design and specifications in this catalog are subject to change without prior notice.
- Do not use the products beyond the specifications described in this catalog.
- This catalog explains the quality and performance of the products as individual components. Before use, check and evaluate their operations when installed in your products.
- Install the following systems for a failsafe design to ensure safety if these products are to be used in equipment where a defect in these products may cause the loss of human life or other significant damage, such as damage to vehicles (automobile, train, vessel), traffic lights, medical equipment, aerospace equipment, electric heating appliances, combustion/gas equipment, rotating equipment, and disaster/crime prevention equipment.
- * Systems equipped with a protection circuit and a protection device
- * Systems equipped with a redundant circuit or other system to prevent an unsafe status in the event of a single fault

⚠ Precautions for use

1. Rated current

The rated current is defined as the smaller value of either the current value when the inductance drops 10 % down from its initial point, or when the average temperature of coil interior rises 45 °C up on power source. Do not operate these coils beyond the specified rated current.

2. Mounting

- ① Cores may be damaged when excessive force or shock is applied. Do not use products which may have been dropped.
- ② Be careful not to make contact with other parts and consider possible interaction between coils due to magnetic interference.
- 3 Be careful of being too close to heat-radiating parts (high temperature).
- Do not bend the pin-terminals during assembly.

 The pin-terminals must connect correctly.
 - Do not apply them a shock to avoid causing an open or short circuit condition.
- (5) The float on PWB must not be after mounting.

3. Soldering

- ① Use flux which will not effect copper wire. (Be sure to use proper amounts of chloride, pH and other solvents)
- 2 When using a soldering iron, wait at least 3 minutes before attempting to re-solder.

4. Storage

- ① Avoid high temperatures, high moisture, gases and magnetic fields.
- ② For long term storage of more than 1 year, use the prod ucts only after inspecting their outer structure. (Look for possible rusting of the core and oxidation of the lead wire, which would affect its solderability.)

<Package markings>

Package markings include the product number, quantity, and country of origin. In principle, the country of origin should be indicated in English.