

# LOW PROFILE CORES

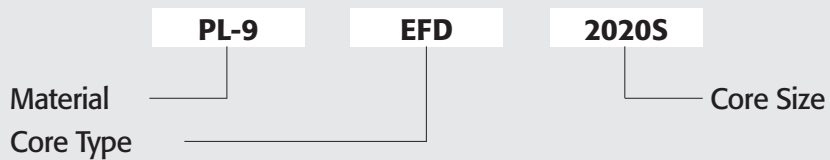
**EFD13~EFD50**

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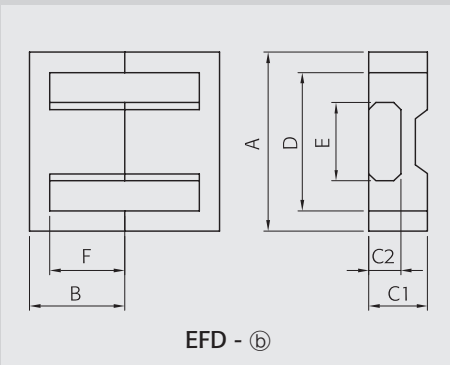
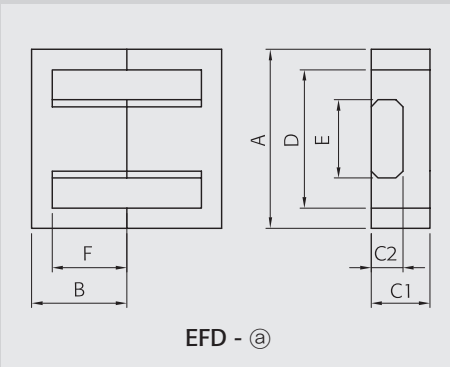
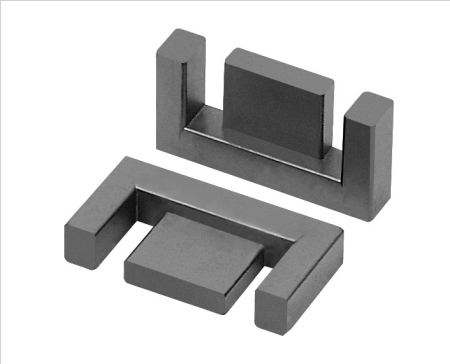
**EPC13~EPC50**

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Ordering Code System



# EFD CORES



Part No.	EFD1322N	EFD1515S	EFD1618S	EFD1715S	
Type	EFD - (a)	EFD - (b)	EFD - (a)	EFD - (a)	
Dimensions in mm	A	13.40 ±0.30	15.00 ±0.40	16.40 ±0.30	16.90 ±0.30
	B	11.20 ±0.15	7.50 ±0.15	9.00 ±0.20	7.60 ±0.20
	C1	4.50 ±0.15	7.50 ±0.15	4.50 ±0.15	5.50 ±0.20
	C2	3.00 ±0.10	2.40 ±0.10	2.35 ±0.10	2.90 <sup>+0.05</sup> <sub>-0.15</sub>
	D	9.80 ±0.20	11.00 ±0.35	12.60 min.	12.80 min.
	E	5.30 ±0.15	5.30 ±0.15	6.70 ±0.15	7.30 ±0.15
	F	8.60 ±0.15	5.50 ±0.25	7.30 ±0.20	5.60 ±0.15

Core Set Parameters	C1(mm <sup>-1</sup> )	2.687	2.270	2.400	1.740
	Le(mm)	45.5	34.0	34.4	34.8
	Ae(mm <sup>2</sup> )	16.9	15.0	14.3	20.0
	Ve(mm <sup>3</sup> )	771	510	492	696
	Ac(mm <sup>2</sup> )	15.9	12.7	30.2	21.2
	AW(mm <sup>2</sup> )	38.3	31.4	44.5	32.7
	W(g/set)	4	2.7	3.0	3.9

Electrical Characteristics <sup>(1)(2)</sup>	Al value	PL-7	810	890	840	1050
		PL-9	1000	1110	1100	1310
		PL-11	850	920	900	1200
		PL-13	1070	1180	1170	1400
		PL-15	850	920	900	1200
	Core loss	PL-7	0.46	0.31	0.30	0.42
		PL-9	0.42	0.28	0.27	0.38
		PL-11	0.42	0.28	0.27	0.38
		PL-13	0.41	0.27	0.26	0.37
		PL-15	0.39	0.26	0.25	0.35

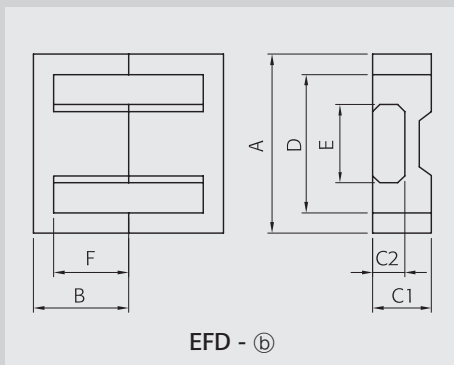
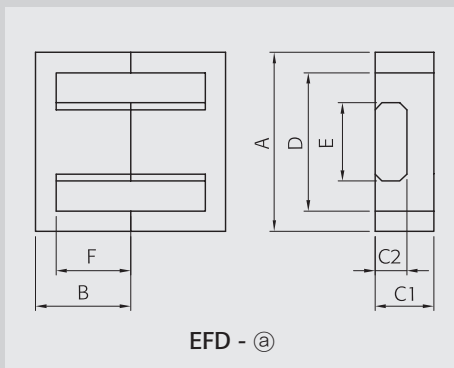
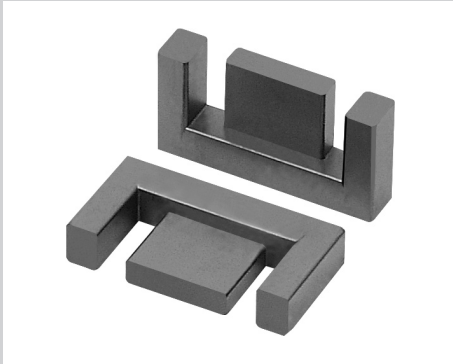
Note : 1) Core loss

- Unit : Watt max.
- Measuring conditions
- PL-7, PL-11, PL-15 : 100 kHz, 200mT, at 100°C
- PL-9, PL-13 : 100 kHz, 200mT, at 80°C

2) Al value

- Unit : nH/N<sup>2</sup>
- Measuring conditions : 1kHz, 0.1V, 23°C
- Tolerance: ±25%

# EFD CORES



Part No.	EFD1820S	EFD1822S	EFD2020S	EFD2023S
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Type	EFD - (a)	EFD - (a)	EFD - (b)	EFD - (b)	
Dimensions in mm	A	17.70 ±0.30	17.70 ±0.30	20.00 ±0.55	20.00 ±0.55
	B	10.10 ±0.20	10.90 ±0.20	10.00 ±0.15	11.50 ±0.15
	C1	5.60 ±0.15	5.60 ±0.15	6.65 ±0.15	6.65 ±0.15
	C2	3.40 ±0.10	3.40 ±0.10	3.60 ±0.15	3.60 ±0.15
	D	13.10 min.	13.10 min.	15.40 ±0.50	15.40 ±0.50
	E	7.50 ±0.15	7.50 ±0.15	8.90 ±0.20	8.90 ±0.20
	F	7.80 ±0.20	8.60 ±0.20	7.70 ±0.20	9.20 ±0.20

Core Set Parameters	C1(mm <sup>-1</sup> )	2.020	2.140	1.520	1.710
	Le(mm)	51.6	54.8	47.0	53.0
	Ae(mm <sup>2</sup> )	25.6	25.6	31.0	31.0
	Ve(mm <sup>3</sup> )	1320	1402	1460	1643
	Ac(mm <sup>2</sup> )	25.5	25.5	32.0	32.0
	Aw(mm <sup>2</sup> )	46.0	53.6	50.0	60.5
	W(g/set)	5.6	6.4	7.2	7.9

Electrical Characteristics <sup>(1)(2)</sup>	AL value	PL-7	1050	990	1370	1240
		PL-9	1310	1250	1710	1550
		PL-11	1100	1030	1400	1300
		PL-13	1400	1330	1820	1650
		PL-15	1100	1030	1400	1300
	Core loss	PL-7	0.79	0.84	0.88	0.99
		PL-9	0.73	0.77	0.80	0.90
		PL-11	0.73	0.77	0.80	0.90
		PL-13	0.70	0.74	0.77	0.87
		PL-15	0.66	0.70	0.73	0.82

Note : 1) Core loss

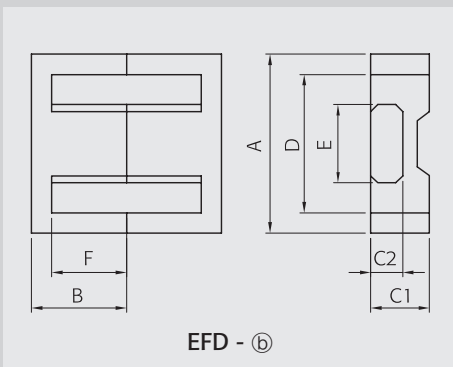
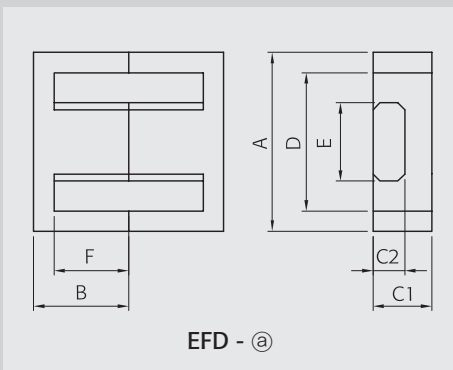
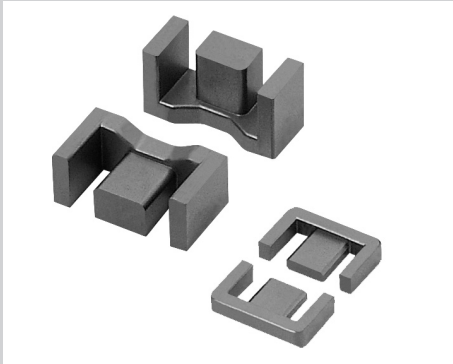
- Unit : Watt max.
- Measuring conditions
- PL-7, PL-11, PL-15 : 100 kHz, 200mT, at 100°C
- PL-9, PL-13 : 100 kHz, 200mT, at 80°C

2) AL value

- Unit : nH/N<sup>2</sup>
- Measuring conditions : 1kHz, 0.1V, 23°C
- Tolerance: ±25%

		EFD2025N	EFD2025S	EFD2027S	EFD2120S	EFD2124N	EFD2125S	EFD2126N	EFD2520S	EFD2525S
		EFD - (a)	EFD - (a)	EFD - (a)	EFD - (b)	EFD - (a)	EFD - (b)	EFD - (a)	EFD - (b)	EFD - (b)
<b>A</b>		20.30 ±0.35	20.00 ±0.55	20.30 ±0.35	20.50 ±0.55	21.20 ±0.40	20.50 ±0.35	21.20 ±0.40	25.40 ±0.40	25.00 ±0.65
<b>B</b>		12.75 ±0.25	12.50 ±0.20	13.50 ±0.25	10.00 ±0.15	11.80 ±0.20	12.75 ±0.20	13.10 ±0.20	10.50 ±0.20	12.50 ±0.15
<b>C1</b>		6.65 <sup>+0.20</sup> <sub>-0.15</sub>	6.65 ±0.15	5.60 <sup>+0.20</sup> <sub>-0.15</sub>	6.65 ±0.15	5.90 ±0.15	6.65 ±0.15	5.90 ±0.15	11.00 ±0.20	9.10 ±0.20
<b>C2</b>		3.60 <sup>+0.20</sup> <sub>-0.15</sub>	3.60 ±0.15	3.40 <sup>+0.20</sup> <sub>-0.15</sub>	3.60 ±0.15	3.30 ±0.10	3.60 ±0.15	3.30 ±0.10	6.60 ±0.15	5.20 ±0.15
<b>D</b>		15.70 ±0.30	15.40 ±0.50	14.30 ±0.30	15.90 ±0.30	15.80 min.	15.90 <sup>+0.30</sup> <sub>-0.25</sub>	15.80 min.	19.00 ±0.40	18.70 ±0.60
<b>E</b>		8.90 ±0.20	8.90 ±0.20	8.90 ±0.20	8.90 ±0.15	9.40 ±0.20	8.90 ±0.15	9.40 <sup>+0.15</sup> <sub>-0.25</sub>	6.60 ±0.15	11.40 ±0.20
<b>F</b>		10.45 ±0.20	10.20 ±0.20	10.45 ±0.20	7.70 ±0.20	9.10 ±0.20	10.45 ±0.20	10.40 ±0.20	7.00 ±0.15	9.30 ±0.25
<b>C1(mm<sup>-1</sup>)</b>		1.940	1.840	1.864	1.516	1.696	1.938	1.863	0.948	0.980
<b>Le(mm)</b>		59.7	57.0	61.5	47	53.1	59.7	58.3	54.8	57.0
<b>Ae(mm<sup>2</sup>)</b>		30.8	31.0	33.0	31	31.3	30.8	31.3	57.8	58.0
<b>Ve(mm<sup>3</sup>)</b>		1840	1767	2030	1457	1660	1840	1825	3163	3300
<b>Ac(mm<sup>2</sup>)</b>		14.4	32.0	30.3	32	31	32	31	43.6	60.0
<b>Aw(mm<sup>2</sup>)</b>		33.8	66.3	56.4	53.9	61.9	73.2	66.6	86.8	70.0
<b>W(g/set)</b>		9.0	8.5	9.5	7.4	8.4	8.8	9.2	15	17.1
<b>AL value</b>	<b>PL-7</b>	1100	1150	1130	1370	1200	1100	1200	2200	2250
	<b>PL-9</b>	1360	1450	1400	1700	1500	1400	1500	2800	2800
	<b>PL-11</b>	1100	1200	1200	1400	1300	1100	1300	2300	2300
	<b>PL-13</b>	1450	1550	1490	1800	1600	1500	1600	3000	2980
	<b>PL-15</b>	1100	1200	1200	1400	1300	1100	1300	2300	2300
<b>Core loss</b>	<b>PL-7</b>	1.10	1.06	1.22	0.9	1.00	1.10	1.10	1.90	1.98
	<b>PL-9</b>	1.01	0.97	1.12	0.80	0.91	1.01	1.00	1.74	1.82
	<b>PL-11</b>	1.01	0.97	1.12	0.80	0.91	1.01	1.00	1.74	1.82
	<b>PL-13</b>	0.98	0.94	1.08	0.77	0.88	0.98	0.97	1.68	1.75
	<b>PL-15</b>	0.92	0.88	1.02	0.73	0.83	0.92	0.91	1.58	1.65

# EFD CORES



Part No.		EFD2525V	EFD2625S	EFD3030N	EFD3030S
Type		EFD - (a)	EFD - (b)	EFD - (b)	EFD - (b)
Dimensions in mm	A	25.05 ±0.75	26.00 ±0.55	30.90 ±0.80	30.00 ±0.80
	B	12.60 ±0.20	12.60 ±0.15	15.30 ±0.20	15.00 ±0.15
	C1	12.45 ±0.25	9.10 ±0.20	9.10 ±0.20	9.10 ±0.25
	C2	8.30 ±0.30	5.20 ±0.15	4.90 ±0.15	4.90 ±0.15
	D	19.20 ±0.40	19.40 ±0.50	23.30 ±0.50	22.40 ±0.75
	E	8.80 ±0.25	11.40 ±0.20	14.60 ±0.25	14.60 ±0.25
	F	9.55 ±0.25	9.30 ±0.25	11.50 ±0.30	11.20 ±0.30

Core Set Parameters	C1(mm <sup>-1</sup> )	0.810	0.973	1.003	0.990
	Le(mm)	60.0	58.4	69.4	68.0
	Ae(mm <sup>2</sup> )	73.0	60.0	69.2	69.0
	Ve(mm <sup>3</sup> )	4300	3500	4800	4700
	Ac(mm <sup>2</sup> )	73.0	59.0	71.5	71.0
	Aw(mm <sup>2</sup> )	91.7	74.4	100.1	87.4
	W(g/set)	21	17	24.3	22.1

Electrical Characteristics <sup>(1)(2)</sup>	AL value	PL-7	2700	2300	2300	1950
		PL-9	3350	2870	2900	2500
		PL-11	2800	2400	2400	2000
		PL-13	3570	3060	3100	2670
		PL-15	2800	2400	2400	2000
	Core loss	PL-7	2.60	2.10	2.88	2.82
		PL-9	2.40	1.93	2.64	2.59
		PL-11	2.40	1.93	2.64	2.59
		PL-13	2.40	1.86	2.54	2.49
		PL-15	2.20	1.75	2.40	2.35

Note : 1) Core loss

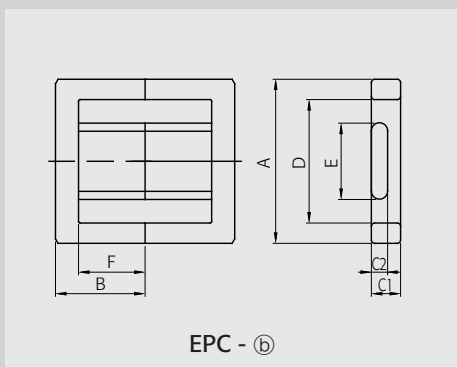
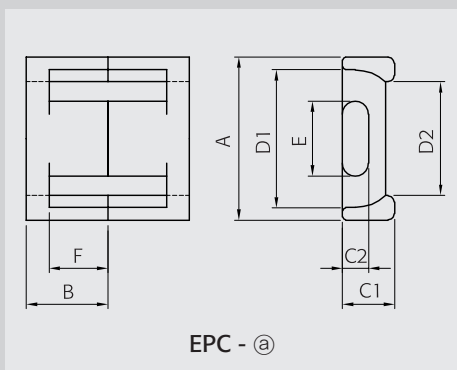
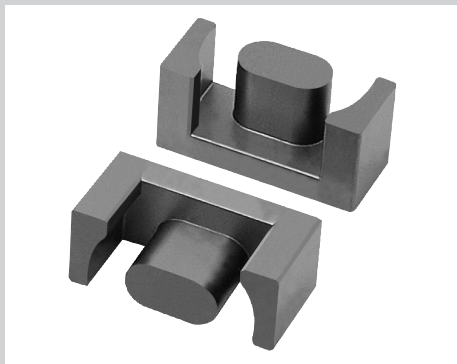
- Unit : Watt max.
- Measuring conditions
- PL-7, PL-11, PL-15 : 100 kHz, 200mT, at 100°C
- PL-9, PL-13 : 100 kHz, 200mT, at 80°C

2) AL value

- Unit : nH/N<sup>2</sup>
- Measuring conditions : 1kHz, 0.1V, 23°C
- Tolerance: ±25%

	EFD3032S	EFD3033V	EFD3130D	EFD3130S	EFD3133V	EFD4351S	EFD4549S	EFD5050S	
	EFD - ⑥	EFD - ⑥	EFD - ⑥	EFD - ⑥	EFD - ⑥	EFD - ③	EFD - ③	EFD - ③	
<b>A</b>	30.00 ±0.80	29.70 ±0.80	30.90 ±0.80	30.90 ±0.80	31.70 ±0.60	43.00 <sup>+0.40</sup> <sub>-0.50</sub>	45.20 ±0.50	50.00 ±0.50	
<b>B</b>	16.00 ±0.15	16.40 ±0.30	15.00 ±0.20	15.00 ±0.20	16.80 ±0.30	26.30 ±0.15	24.50 ±0.20	25.00 ±0.30	
<b>C1</b>	9.10 ±0.20	12.50 ±0.40	9.10 ±0.20	9.10 ±0.25	12.50 ±0.40	6.70 ±0.15	5.90 ±0.25	10.00 ±0.30	
<b>C2</b>	4.90 ±0.15	8.20 ±0.30	4.90 ±0.15	4.90 ±0.15	8.20 ±0.30	4.40 ±0.15	3.00 ±0.20	6.00 ±0.20	
<b>D</b>	22.40 ±0.75	22.10 ±0.50	23.90 ±0.50	23.30 ±0.50	24.10 ±0.50	28.10 ±0.50	33.30 ±0.50	35.00 min.	
<b>E</b>	14.60 ±0.25	11.60 ±0.30	14.60 ±0.25	14.60 ±0.25	11.60 ±0.30	21.60 ±0.30	24.00 ±0.30	23.00 ±0.30	
<b>F</b>	12.20 ±0.30	11.90 ±0.30	11.20 ±0.30	11.20 ±0.30	12.30 ±0.30	18.50 ±0.15	17.80 ±0.20	17.00 ±0.30	
<b>C1(mm<sup>-1</sup>)</b>	1.043	0.750	0.987	0.990	0.768	1.101	1.447	0.680	
<b>Le(mm)</b>	72	73.0	68.2	68.2	76	107.3	105	103.3	
<b>Ae(mm<sup>2</sup>)</b>	69	97.0	69.1	69.1	98.9	97.5	72.6	151.5	
<b>Ve(mm<sup>3</sup>)</b>	4968	7100	4710	4712	7516	10460	7620	15463	
<b>Ac(mm<sup>2</sup>)</b>	71.5	95.0	71.5	71.5	95.1	95	72	138.0	
<b>Aw(mm<sup>2</sup>)</b>	95.2	125.0	104.2	97.4	153.8	120.3	165.5	221.0	
<b>W(g/set)</b>	25.2	36.6	24	24.3	24.5	55	40.7	90	
<b>Al value</b>	<b>PL-7</b>	1900	3020	1800	1800	2500	2080	1100	3100
	<b>PL-9</b>	2400	3775	2300	2400	3100	2600	1370	3900
	<b>PL-11</b>	2000	3100	1900	1900	2600	2150	1150	3200
	<b>PL-13</b>	2600	4020	2500	2560	3300	2770	1470	4160
	<b>PL-15</b>	2000	3100	1900	1900	2600	2150	1150	3200
<b>Core loss</b>	<b>PL-7</b>	2.98	4.26	2.83	2.83	4.50	6.28	4.57	10.00
	<b>PL-9</b>	2.73	3.91	2.59	2.59	4.10	5.75	4.19	8.00
	<b>PL-11</b>	2.73	3.91	2.59	2.59	4.10	5.75	4.19	8.00
	<b>PL-13</b>	2.63	3.76	2.50	2.50	4.05	5.54	4.04	7.80
	<b>PL-15</b>	2.48	3.55	2.36	2.36	3.90	5.23	3.81	7.60

# EPC CORES



Part No.		EPC1313S	EPC1715N	EPC1717S	EPC1720SH
Type		EPC - (a)	EPC - (a)	EPC - (a)	EPC - (a)
Dimensions in mm	A	13.30 ±0.30	17.60 ±0.40	17.60 ±0.40	16.85 ±0.35
	B	6.60 ±0.20	7.60 ±0.20	8.55 ±0.20	9.85 ±0.15
	C1	4.60 ±0.15	6.00 ±0.15	6.00 ±0.15	4.00 ±0.20
	C2	2.05 ±0.10	2.80 ±0.10	2.80 ±0.10	2.60 ±0.15
	D1	10.50 min.	14.30 min.	14.30 min.	13.80 ±0.30
	D2	8.30 min.	12.00 ±0.50	12.00 ±0.50	12.40 ±0.30
	E	5.60 ±0.15	7.70 ±0.15	7.70 ±0.15	8.20 ±0.20
F	4.50 ±0.20	5.40 ±0.20	6.05 ±0.20	7.35 ±0.15	

Core Set Parameters	C1(mm <sup>-1</sup> )	2.460	1.650	1.760	2.563
	Le(mm)	30.6	37.6	40.2	41.7
	Ae(mm <sup>2</sup> )	12.5	22.8	22.8	16.3
	Ve(mm <sup>3</sup> )	382	857	917	679
	Ac(mm <sup>2</sup> )	8.7	19.9	19.9	13.8
	Aw(mm <sup>2</sup> )	23.0	38.0	41.1	41.2
	W(g/set)	2.0	4.3	4.5	3.5

Electrical Characteristics <sup>(1)(2)</sup>	AL value	PL-7	870	1300	1200	830
		PL-9	1090	1625	1500	1040
		PL-11	900	1400	1300	900
		PL-13	1160	1730	1600	1110
		PL-15	900	1400	1300	900
	Core loss	PL-7	0.23	0.51	0.55	0.41
		PL-9	0.21	0.47	0.50	0.37
		PL-11	0.21	0.47	0.50	0.37
		PL-13	0.20	0.45	0.49	0.36
		PL-15	0.19	0.43	0.46	0.34

Note : 1) Core loss

- Unit : Watt max.
- Measuring conditions
- PL-7, PL-11, PL-15 : 100 kHz, 200mT, at 100°C
- PL-9, PL-13 : 100 kHz, 200mT, at 80°C

2) AL value

- Unit : nH/N<sup>2</sup>
- Measuring conditions : 1kHz, 0.1V, 23°C
- Tolerance : ±25%

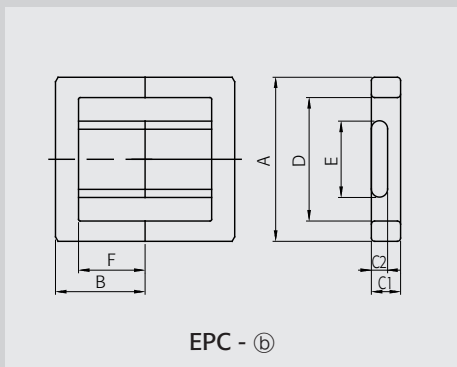
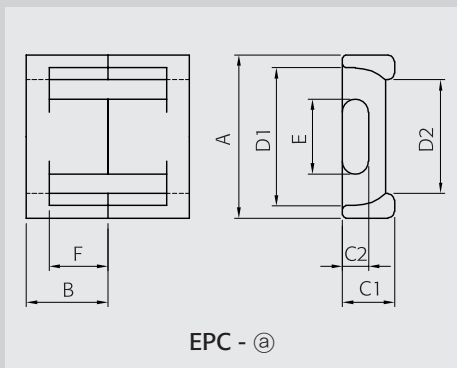
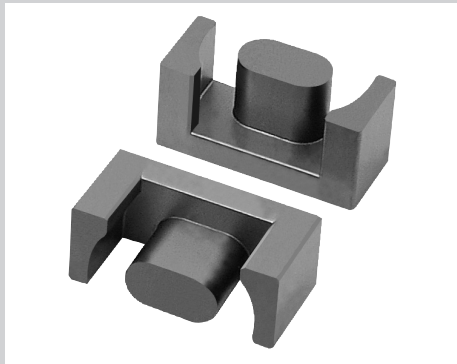
	EPC1826W	EPC1920N	EPC1920S	EPC2228S	EPC2525S	EPC2732S	EPC3035S	EPC4643S	EPC4649S
	EPC - @	EPC - @	EPC - @	EPC - @	EPC - @	EPC - @	EPC - @	EPC - @	EPC - @
A	18.50 ±0.30	19.60 ±0.50	19.10 ±0.50	21.90 ±0.30	25.10 ±0.50	27.10 ±0.50	30.10 ±0.50	46.00 ±0.70	46.00 ±0.70
B	13.20 ±0.15	9.75 ±0.20	9.75 ±0.20	14.20 ±0.20	12.50 ±0.20	16.00 ±0.20	17.50 ±0.20	21.90 ±0.20	24.70 ±0.20
C1	4.25 ±0.15	6.00 ±0.20	6.00 ±0.15	7.30 ±0.20	8.00 ±0.20	8.00 ±0.20	8.00 ±0.20	19.50 ±0.30	19.50 ±0.30
C2	2.75 ±0.15	2.40 ±0.15	2.50 ±0.10	4.15 ±0.15	4.00 ±0.10	4.00 ±0.10	4.00 ±0.10	12.00 ±0.25	12.00 ±0.25
D1(D)	13.10 min.	16.40 ±0.50	15.80 min.	16.90 ±0.20	20.65 min.	21.60 min.	23.60 min.	36.40 ±0.60	36.40 ±0.60
D2	10.70 min.	13.40 ±0.50	13.60 ±0.50	14.80 min.	17.50 ±0.50	19.00 ±0.50	20.00 ±0.50	29.00 ±0.60	29.00 ±0.60
E	9.10 ±0.15	8.30 ±0.20	8.50 ±0.15	9.50 ±0.15	11.50 ±0.20	13.00 ±0.30	15.00 ±0.30	21.00 ±0.30	21.00 ±0.30
F	10.30 ±0.15	7.25 ±0.20	7.25 ±0.20	11.55 ±0.15	9.00 ±0.30	12.00 ±0.30	13.00 ±0.30	15.50 ±0.25	18.30 ±0.25

C1(mm <sup>-1</sup> )	2.630	1.890	2.030	1.380	1.270	1.426	1.320	0.441	0.486
Le(mm)	62.0	43.3	46.1	50.8	59.2	70.1	81.6	100	110.4
Ae(mm <sup>2</sup> )	23.6	23.0	22.7	36.7	46.4	49.1	61.0	227	227
Ve(mm <sup>3</sup> )	1460	996	1047	1864	2747	3441	5035	22700	25060
Ac(mm <sup>2</sup> )	15.8	19.3	20.0	39.0	42.6	48.6	56.6	221	221
AW(mm <sup>2</sup> )	44.3	59.5	54.4	83.0	90.3	108.0	117.0	238.7	281.8
W(g/set)	6.8	5.6	5.2	12	13	18	23	122	134

AL value	PL-7	1050	1200	1090	1500	1600	1720	1640	4800	4700
	PL-9	1150	1500	1250	1900	2000	1925	2050	6000	5875
	PL-11	1100	1300	1130	1600	1700	1600	1700	5000	4800
	PL-13	1230	1600	1300	2030	2130	2050	2190	6400	6270
	PL-15	1100	1300	1130	1600	1700	1600	1700	5000	4800
Core loss	PL-7	0.88	0.60	0.63	1.12	1.65	2.28	3.02	13.62	15.04
	PL-9	0.80	0.55	0.58	1.03	1.51	2.09	2.77	12.49	13.78
	PL-11	0.80	0.55	0.58	1.03	1.51	2.09	2.77	12.49	13.78
	PL-13	0.77	0.53	0.55	0.99	1.46	2.02	2.67	12.03	13.28
	PL-15	0.73	0.50	0.52	0.93	1.37	1.90	2.52	11.35	12.53



# EPC CORES



Part No.		EPC5050S	EPC5055S
Type		EPC - (a)	EPC - (b)
Dimensions in mm	A	50.50 ±0.70	50.50 ±0.70
	B	25.60 ±0.30	27.60 ±0.30
	C1	9.00 ±0.30	9.00 ±0.30
	C2	5.00 ±0.10	5.00 ±0.10
	D1	38.00 ±0.70	38.00 ±0.70
	D2		
	F	18.50 ±0.30	20.50 ±0.30

Core Set Parameters	C1(mm <sup>-1</sup> )	0.995	0.995
	Le(mm)	113.7	114.0
	Ae(mm <sup>2</sup> )	114.3	114.3
	Ve(mm <sup>3</sup> )	12990	13030
	Ac(mm <sup>2</sup> )	105	105
	Aw(mm <sup>2</sup> )	268.3	297
	W(g/set)	70	78

Electrical Characteristics <sup>(1)(2)</sup>	AL value	PL-7	2400	2100
		PL-9	3000	2650
		PL-11	2500	2200
		PL-13	3200	2800
		PL-15	2500	2200
	Core loss	PL-7	7.79	8.50
		PL-9	7.14	7.79
		PL-11	7.14	7.79
		PL-13	6.88	7.51
		PL-15	6.50	7.09

Note : 1) Core loss

- Unit : Watt max.
- Measuring conditions
- PL-7, PL-11, PL-15 : 100 kHz, 200mT, at 100°C
- PL-9, PL-13 : 100 kHz, 200mT, at 80°C

2) AL value

- Unit : nH/N<sup>2</sup>
- Measuring conditions : 1kHz, 0.1V, 23°C
- Tolerance : ±25%