

JIS

JAPANESE INDUSTRIAL STANDARD

**E-Cores Made of
Ferromagnetic Oxide**

JIS C 2514—1989

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In the event of any doubt arising,
the original Standard in Japanese is to be final authority.

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J I S

E-Cores Made of Ferromagnetic Oxide

C 2514-1989

1. Scope

This Japanese Industrial Standard specifies *E*-cores made of ferromagnetic oxide, hereinafter referred to as the "cores", intended mainly for use in instrument transformers, transformers and choke coils.

Remark: *E*-cores made of ferromagnetic oxide means the cores of *E* type, *I* type, *ER* type and a combination thereof.

2. Definitions

For the main terms used in this Standard the definitions in JIS C 2560 apply, and the rest of the terms shall be as follows:

- (1) effective sectional area A_e The effective sectional area of a magnetic path expressed in the unit of square meter (m^2).
- (2) centre limb sectional area A_c The sectional area of centre limb expressed in the unit of square meter (m^2).
- (3) effective length of magnetic path l_e The effective length of a magnetic path expressed in the unit of meter (m).
- (4) effective volume V_e The effective volume of a magnetic path expressed in the unit of cubic meter (m^3).
- (5) core constant C_1 or C_2 A constant in relation with the shape of a core. The unit of C_1 is per meter (m^{-1}), and the unit of C_2 is per cubic meter (m^{-3}).
- (6) window The portion into which the winding is inserted (see Tables 10 to 13).
- (7) inductance factor A_L The self-inductance which appears per unit turn of a coil wound on a set of cores, expressed in the unit of henry (H).
- (8) core loss The power absorbed by a core and dissipated as heat when the core is subjected to a time-varying magnetic field. When the core loss of one set of cores is denoted, the symbol is P_c , and the unit is watt (W). When the loss is expressed by the power per unit volume, the symbol is P_{cv} and the unit is watt per cubic meter (W/m^3). When the loss is expressed by the power per unit mass, the symbol is P_{cm} and the unit is watt per kilogram (W/kg).
- (9) relative amplitude permeability μ_a The relative permeability which obtained from the maximum value of flux density and the maximum value of magnetic field strength when such a magnetic field is applied to a set of cores under demagnetized state, that the strength varies periodically with time and the average value of the strength becomes zero.

Applicable Standard and Corresponding International Standard: See page 28.

- (10) E-strength The compressive strength of *E*-cores when placed as *E* shape (see Fig. 6)
- (11) W-strength The compressive strength of *E*-cores when placed as *W* shape (see Fig. 7)
- (12) M-strength The compressive strength of *E*-cores when placed as *M* shape (see Fig. 8)
- (13) I-strength The bending strength of *I*-cores (see Fig. 9)
- (14) T-strength The tensile strength of *E*-cores (see Fig. 10)

3. Type Designation

3.1 Structure of Type Designation The type designation shall be formed in the following arrangement:

(1) E-Cores and ER-Cores

[Symbol denoting ferromagnetic oxide core]	[Symbol denoting style]	[Hyphen]	[Symbol denoting dimension A]	[Hyphen]
(3.2.1)	(3.2.2)		(3.2.3)	

Example: F	E	—	16.0	—
F	ER	—	25.5	—

[Symbol denoting dimension B]	[Hyphen]	[Symbol denoting dimension C]	[Hyphen]	[Symbol denoting material]
(3.2.3)		(3.2.3)		(3.2.5)

Example:

7.20	—	4.80	—	XY10
9.30	—	7.50	—	XY10

(2) I-Cores

[Symbol denoting ferromagnetic oxide core]	[Symbol denoting style]	[Hyphen]	[Symbol denoting dimension A]	[Hyphen]
(3.2.1)	(3.2.2)		(3.2.3)	

Example: F	I	—	22.0	—
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[Symbol denoting dimension I]	[Hyphen]	[Symbol denoting dimension C]	[Hyphen]	[Symbol denoting material]
(3.2.3)		(3.2.3)		(3.2.5)

Example:

4.00 — 5.80 — XY10

(3) EE-Cores and EER-Cores

[Symbol denoting ferromagnetic oxide core]	[Symbol denoting style]	[Hyphen]	[Symbol denoting dimension A]	[Hyphen]	[Symbol denoting dimension B x 2]
(3.2.1)	(3.2.2)		(3.2.3)		(3.2.3)

Example: F EE — 16.0 — 14.4
F EER — 25.5 — 18.6

[Hyphen]	[Symbol denoting dimension C]	[Hyphen]	[Symbol denoting inductance factor]	[Hyphen]	[Symbol denoting material]
	(3.2.3)		(3.2.4)		(3.2.5)

Example: — 4.80 — 100 — XY10
— 7.50 — 100 — XY10

(4) EI-Cores and EIR-Cores

[Symbol denoting ferromagnetic oxide core]	[Symbol denoting style]	[Hyphen]	[Symbol denoting dimension A]	[Hyphen]	[Symbol denoting dimension B + I]
(3.2.1)	(3.2.2)		(3.2.3)		(3.2.3)

Example: F EI — 16.0 — 14.4
F EIR — 25.5 — 18.6

[Hyphen]	[Symbol denoting dimension C]	[Hyphen]	[Symbol denoting inductance factor]	[Hyphen]	[Symbol denoting material]
	(3.2.3)		(3.2.4)		(3.2.5)

Example: — 4.80 — 100 — XY10
— 7.50 — 100 — XY10

3.2 Symbols

3.2.1 Ferromagnetic Oxide Core The symbol denoting ferromagnetic oxide core shall be an English capital letter of F.

3.2.2 Style The symbols denoting style shall be as given in Table 1.

Table 1. Style of Individual Core

Symbol	Style	Remark
E	E shaped core with square centre limb	See Table 3
I	Square rod type core	See Table 4
ER	E shaped core with round centre limb	See Table 5

The symbol for a combination of styles stated in Table 1 shall be as given in Table 2.

Table 2. Style of Combined Cores

Symbol	Style	Remark
EE	A core assembly consisting of two Es of Table 1	See Table 6
EI	A core assembly consisting of E and I of Table 1	See Table 7
EER	A core assembly consisting of 2 ERs of Table 1	See Table 8
EIR	A core assembly consisting of ER and I of Table 1	See Table 9

3.2.3 Dimensions The symbol denoting the dimensions shall consist of three significant figures of the dimensions A , B , C , I , $B+I$, $B \times 2$, etc. specified in Tables 3 to 9.

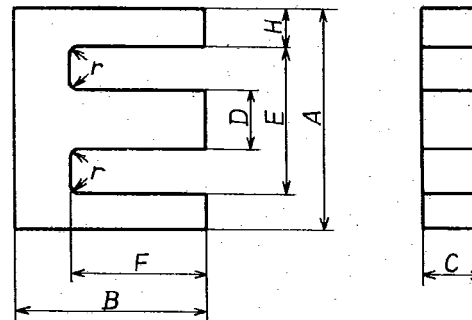
3.2.4 Inductance Factor The symbol denoting inductance factor shall consist of the numerals based on the unit of nano-henry (nH).

3.2.5 Material The symbol denoting material is subjected to agreement between the parties concerned with the acceptance.

4. Construction, Dimension and Effective Parameter

4.1 Construction and Dimension The construction and dimensions of cores shall be as given in Tables 3 to 9.

Table 3. Construction and Dimension of E-Core

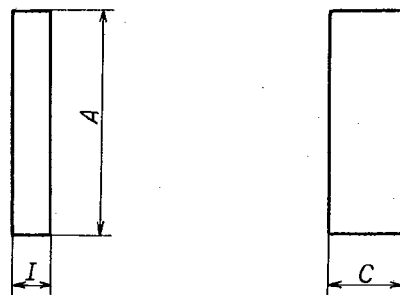


Unit: mm

Type designation ⁽¹⁾	Abbreviation	A	B	C	D	E	F	H	r
FE-8.30-4.00-3.60	FE 8.3	8.30 ^{+0.30} _{-0.20}	4.00±0.10	3.60±0.20	1.80±0.20	6.10 min.	3.00±0.10	1.00±0.15	0.2 max.
FE-10.2-5.50-4.70	FE 10.2	10.2 ^{+0.3} _{-0.2}	5.50±0.15	4.70±0.20	2.40±0.20	7.60 min.	4.20±0.15	1.20±0.15	
FE-12.5-7.40-5.00	FE 12.5	12.5±0.3	7.40±0.20	5.00±0.20	2.40±0.20	9.00 min.	5.10±0.20	1.60±0.20	0.3 max.
FE-12.7-6.40-3.50	FE 12.7	12.7±0.3	6.40±0.15	3.50±0.20	3.50±0.20	8.90 min.	4.65±0.15	1.70±0.15	
FE-16.0-7.20-4.80	FE 16 A	16.0±0.3	7.20±0.20	4.80±0.20	4.00±0.20	11.7 min.	5.20±0.20	2.00±0.20	
FE-16.0-12.2-4.80	FE 16 B	16.0±0.3	12.2±0.2	4.80±0.20	4.00±0.20	11.7 min.	10.2±0.2	2.00±0.20	
FE-19.0-8.00-5.00	FE 19 A	19.0 ^{+0.4} _{-0.3}	8.00±0.20	5.00±0.20	4.50±0.20	14.2 min.	5.60±0.20	2.25±0.20	0.4 max.
FE-19.0-13.4-5.00	FE 19 B	19.0 ^{+0.4} _{-0.3}	13.4±0.3	5.00±0.20	4.50±0.20	14.2 min.	11.0±0.3	2.25±0.20	
FE-22.0-9.40-5.80	FE 22 A	22.0 ^{+0.5} _{-0.4}	9.40±0.20	5.80±0.30	5.80±0.30	15.6 min.	5.40±0.20	3.00±0.20	
FE-22.0-14.6-5.80	FE 22 B	22.0 ^{+0.5} _{-0.4}	14.6±0.3	5.80±0.30	5.80±0.30	15.6 min.	10.6±0.3	3.00±0.20	
FE-25.4-9.50-6.35	FE 25.4 A	25.4 ^{+0.5} _{-0.4}	9.50±0.20	6.35±0.30	6.35±0.30	18.6 min.	6.40±0.20	3.20±0.20	0.5 max.
FE-25.4-16.0-6.35	FE 25.4 B	25.4 ^{+0.5} _{-0.4}	16.0±0.3	6.35±0.30	6.35±0.30	18.6 min.	12.9±0.3	3.20±0.20	
FE-28.0-16.8-10.7	FE 28	28.0 ^{+0.6} _{-0.5}	16.8±0.3	10.7±0.3	7.20±0.30	18.5 min.	12.3±0.3	4.50±0.20	
FE-30.0-13.2-10.7	FE 30 A	30.0 ^{+0.6} _{-0.5}	13.2±0.3	10.7±0.3	10.7±0.3	19.5 min.	8.20±0.30	5.00±0.25	
FE-30.0-21.3-10.7	FE 30 B	30.0 ^{+0.6} _{-0.5}	21.3±0.3	10.7±0.3	10.7±0.3	19.5 min.	16.3±0.3	5.00±0.25	0.6 max.
FE-33.0-13.8-12.7	FE 33 A	33.0 ^{+0.6} _{-0.5}	13.8±0.3	12.7±0.3	9.70±0.30	23.1 min.	9.30±0.30	4.70±0.25	
FE-33.0-23.3-12.7	FE 33 B	33.0 ^{+0.7} _{-0.5}	23.3±0.3	12.7±0.3	9.70±0.30	23.1 min.	19.1±0.3	4.70±0.25	
FE-35.0-15.5-10.0	FE 35 A	35.0 ^{+0.7} _{-0.5}	15.5±0.3	10.0±0.3	10.0±0.3	24.5 min.	9.50±0.30	5.00±0.25	
FE-35.0-24.2-10.0	FE 35 B	35.0 ^{+0.7} _{-0.5}	24.2±0.3	10.0±0.3	10.0±0.3	24.5 min.	18.2±0.3	5.00±0.25	0.6 max.
FE-35.0-24.2-11.7	FE 35 C	35.0 ^{+0.7} _{-0.5}	24.2±0.3	11.7±0.3	10.0±0.3	24.5 min.	18.2±0.3	5.00±0.25	
FE-40.0-17.0-10.7	FE 40 A	40.0 ^{+0.7} _{-0.5}	17.0±0.3	10.7±0.3	10.7±0.3	27.5 min.	10.3±0.3	6.00±0.25	
FE-40.0-27.3-11.7	FE 40 B	40.0 ^{+0.9} _{-0.6}	27.3±0.3	11.7±0.3	11.7±0.3	27.0 min.	20.3±0.4	6.20±0.25	
FE-42.0-21.0-15.0	FE 42 A	42.0 ^{+0.9} _{-0.7}	21.0±0.3	15.0±0.4	12.0±0.3	29.5 min.	15.1±0.3	6.00±0.25	0.6 max.
FE-42.0-21.0-19.6	FE 42 B	42.0 ^{+0.9} _{-0.7}	21.0±0.3	19.6±0.4	12.0±0.3	29.5 min.	15.1±0.3	6.00±0.25	
FE-44.0-30.3-15.0	FE 44	44.0 ^{+0.9} _{-0.6}	30.3±0.4	15.0±0.4	11.7±0.3	31.2 min.	23.3±0.4	6.10±0.25	
FE-50.0-21.3-14.6	FE 50 A	50.0 ^{+1.0} _{-0.7}	21.3±0.3	14.6±0.4	14.6±0.4	34.3 min.	12.8±0.3	7.50±0.25	
FE-50.0-33.3-14.6	FE 50 B	50.0 ^{+1.0} _{-0.7}	33.3±0.4	14.6±0.4	14.6±0.4	34.3 min.	24.8±0.4	7.50±0.25	0.6 max.
FE-55.0-27.5-20.7	FE 55	55.0 ^{+1.1} _{-0.8}	27.5±0.4	20.7±0.4	17.0±0.4	37.2 min.	18.9±0.4	8.50±0.25	
FE-60.0-22.3-15.6	FE 60 A	60.0 ^{+1.1} _{-0.8}	22.3±0.3	15.6±0.4	15.6±0.4	43.7 min.	14.0±0.3	7.75±0.25	
FE-60.0-36.0-15.6	FE 60 B	60.0 ^{+1.2} _{-0.8}	36.0±0.5	15.6±0.4	15.6±0.4	43.7 min.	28.0±0.5	7.75±0.25	

Note (1) In this type designation, the symbol denoting material is omitted.

Table 4. Construction and Dimension of I-Core

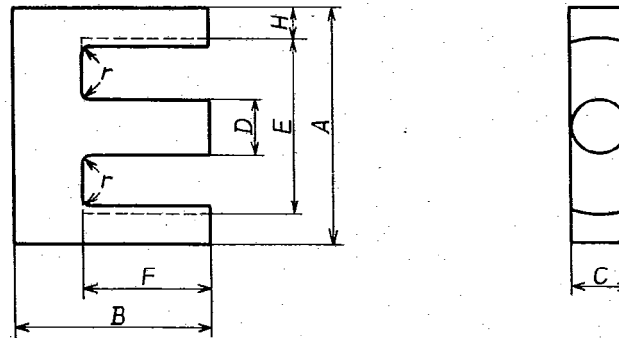


Unit: mm

Type designation ⁽¹⁾	Abbreviation	A	I	C
FI-12.5-1.50-5.00	FI 12.5	12.5 ± 0.3	1.50 ± 0.15	5.00 ± 0.20
FI-16.0-2.00-4.80	FI 16	16.0 ± 0.3	2.00 ± 0.20	4.80 ± 0.20
FI-19.0-2.40-5.00	FI 19	19.0 ^{+0.4} _{-0.3}	2.40 ± 0.20	5.00 ± 0.20
FI-22.0-4.00-5.80	FI 22	22.0 ^{+0.5} _{-0.4}	4.00 ± 0.20	5.80 ± 0.30
FI-25.4-3.20-6.35	FI 25.4	25.4 ^{+0.5} _{-0.4}	3.20 ± 0.20	6.35 ± 0.30
FI-25.5-3.10-7.50	FI 25.5	25.5 ± 0.6	3.10 ± 0.20	7.50 ± 0.25
FI-28.0-3.50-10.7	FI 28	28.0 ^{+0.6} _{-0.5}	3.50 ± 0.30	10.7 ± 0.3
FI-28.5-4.40-11.4	FI 28.5	28.5 ± 0.6	4.40 ± 0.20	11.4 ± 0.3
FI-30.0-5.50-10.7	FI 30	30.0 ^{+0.7} _{-0.5}	5.50 ± 0.30	10.7 ± 0.3
FI-33.0-5.00-12.7	FI 33	33.0 ^{+0.7} _{-0.5}	5.00 ± 0.30	12.7 ± 0.3
FI-35.0-5.00-10.0	FI 35 A	35.0 ^{+0.7} _{-0.5}	5.00 ± 0.30	10.0 ± 0.3
FI-35.0-5.00-11.3	FI 35 B	35.0 ^{+0.7} _{-0.5}	5.00 ± 0.30	11.3 ± 0.3
FI-35.0-5.00-11.7	FI 35 C	35.0 ^{+0.7} _{-0.5}	5.00 ± 0.30	11.7 ± 0.3
FI-40.0-7.50-11.7	FI 40 A	40.0 ^{+0.9} _{-0.6}	7.50 ± 0.30	11.7 ± 0.3
FI-40.0-7.00-13.3	FI 40 B	40.0 ± 1.0	7.00 ± 0.30	13.3 ± 0.3
FI-44.0-7.00-15.0	FI 44	44.0 ^{+0.9} _{-0.6}	7.00 ± 0.30	15.0 ± 0.4
FI-50.0-9.00-14.6	FI 50 A	50.0 ^{+1.0} _{-0.7}	9.00 ± 0.30	14.6 ± 0.4
FI-50.0-9.00-16.5	FI 50 B	50.0 ± 1.2	9.00 ± 0.30	16.5 ± 0.4
FI-60.0-8.50-15.6	FI 60	60.0 ^{+1.2} _{-0.8}	8.50 ± 0.30	15.6 ± 0.4

Note (1) In this type designation, the symbol denoting material is omitted.

Table 5. Construction and Dimension of ER-Core

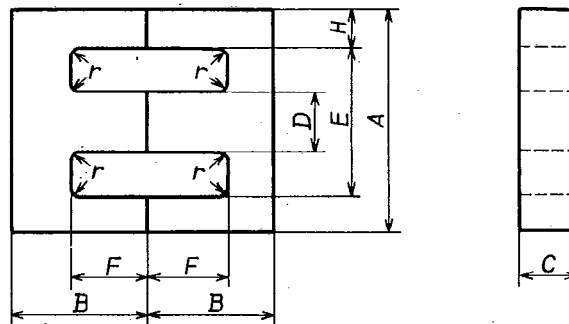


Unit: mm

Type designation ⁽¹⁾	Abbreviation	A	B	C	D	E	F	H	r
FER-25.5-9.30-7.50	FER 25.5 A	25.5±0.6	9.30±0.25	7.50±0.25	7.50±0.25	19.7 min.	6.20±0.25	2.60±0.25	0.5 max.
FER-25.5-15.5-7.50	FER 25.5 B	25.5±0.6	15.5±0.3	7.50±0.25	7.50±0.25	19.7 min.	12.4±0.3	2.60±0.25	
FER-28.5-14.0-11.4	FER 28.5 A	28.5±0.6	14.0±0.3	11.4±0.3	9.90±0.30	21.1 min.	9.60±0.30	3.40±0.25	
FER-28.5-16.9-11.4	FER 28.5 B	28.5±0.6	16.9±0.3	11.4±0.3	9.90±0.30	21.1 min.	12.5±0.3	3.40±0.25	
FER-34.2-17.3-10.8	FER 34.2	34.2±0.8	17.3±0.3	10.8±0.3	10.8±0.3	25.6 min.	12.1±0.3	3.95±0.25	0.6 max.
FER-35.0-20.7-11.3	FER 35 A	35.0±0.8	20.7±0.3	11.3±0.3	11.3±0.3	25.3 min.	14.7±0.3	4.45±0.25	
FER-35.0-24.4-11.3	FER 35 B	35.0±0.9	24.4±0.4	11.3±0.3	11.3±0.3	25.2 min.	18.4±0.4	4.45±0.25	
FER-39.0-22.2-12.8	FER 39	39.0±0.8	22.2±0.4	12.8±0.3	12.8±0.3	28.4 min.	17.0±0.4	4.90±0.25	
FER-39.1-19.8-12.5	FER 39.1	39.1±0.9	19.8±0.3	12.5±0.3	12.5±0.3	29.3 min.	14.6±0.3	4.50±0.25	
FER-40.0-27.3-13.3	FER 40	40.0±1.0	27.3±0.4	13.3±0.3	13.3±0.3	28.5 min.	20.3±0.4	5.25±0.30	
FER-42.0-21.2-15.2	FER 42	42.0±0.9	21.2±0.4	15.2±0.4	15.2±0.4	30.1 min.	15.3±0.4	5.50±0.25	
FER-44.0-22.3-14.8	FER 44	44.0±1.0	22.3±0.4	14.8±0.4	14.8±0.4	32.5 min.	16.5±0.4	5.35±0.25	
FER-45.0-24.0-14.8	FER 45	45.0±1.0	24.0±0.4	14.8±0.4	14.8±0.4	32.2 min.	16.5±0.4	6.00±0.25	
FER-48.7-24.7-16.3	FER 48.7	48.7±1.1	24.7±0.4	16.3±0.4	16.3±0.4	36.1 min.	18.1±0.4	5.85±0.25	
FER-49.0-31.2-17.2	FER 49	49.0±1.1	31.2±0.4	17.2±0.4	17.2±0.4	36.0 min.	22.7±0.4	5.95±0.25	
FER-50.0-33.3-16.5	FER 50	50.0±1.2	33.3±0.4	16.5±0.4	16.5±0.4	35.8 min.	25.0±0.4	6.50±0.30	

Note (1) In this type designation, the symbol denoting material is omitted.

Table 6. Construction and Dimension of EE-Core



Unit: mm

Type designation ⁽²⁾	Abbreviation	A	B×2	C	D	E	F×2	H	r
FEE-8.30-8.00-3.60	FEE 8.3	8.30 ^{+0.30} _{-0.20}	8.00±0.20	3.60±0.20	1.80±0.20	6.10 min.	6.00±0.20	1.00±0.15	0.2 max.
FEE-10.2-11.0-4.70	FEE 10.2	10.2 ^{+0.3} _{-0.2}	11.0±0.3	4.70±0.20	2.40±0.20	7.60 min.	8.40±0.30	1.20±0.15	
FEE-12.5-14.8-5.00	FEE 12.5	12.5±0.3	14.8±0.4	5.00±0.20	2.40±0.20	9.00 min.	10.2±0.4	1.60±0.20	0.3 max.
FEE-12.7-12.8-3.50	FEE 12.7	12.7±0.3	12.8±0.3	3.50±0.20	3.50±0.20	8.90 min.	9.30±0.30	1.70±0.15	
FEE-16.0-14.4-4.80	FEE 16 A	16.0±0.3	14.4±0.4	4.80±0.20	4.00±0.20	11.7 min.	10.4±0.4	2.00±0.20	
FEE-16.0-24.4-4.80	FEE 16 B	16.0±0.3	24.4±0.4	4.80±0.20	4.00±0.20	11.7 min.	20.4±0.4	2.00±0.20	0.4 max.
FEE-19.0-16.0-5.00	FEE 19 A	19.0 ^{+0.4} _{-0.3}	16.0±0.4	5.00±0.20	4.50±0.20	14.2 min.	11.2±0.4	2.25±0.20	
FEE-19.0-26.8-5.00	FEE 19 B	19.0 ^{+0.4} _{-0.3}	26.8±0.6	5.00±0.20	4.50±0.20	14.2 min.	22.0±0.6	2.25±0.20	
FEE-22.0-18.8-5.80	FEE 22 A	22.0 ^{+0.5} _{-0.4}	18.8±0.4	5.80±0.30	5.80±0.30	15.6 min.	10.8±0.4	3.00±0.20	
FEE-22.0-29.2-5.80	FEE 22 B	22.0 ^{+0.5} _{-0.4}	29.2±0.6	5.80±0.30	5.80±0.30	15.6 min.	21.2±0.6	3.00±0.20	0.5 max.
FEE-25.4-19.0-6.35	FEE 25.4 A	25.4 ^{+0.5} _{-0.4}	19.0±0.4	6.35±0.30	6.35±0.30	18.6 min.	12.8±0.4	3.20±0.20	
FEE-25.4-32.0-6.35	FEE 25.4 B	25.4 ^{+0.5} _{-0.4}	32.0±0.6	6.35±0.30	6.35±0.30	18.6 min.	25.8±0.6	3.20±0.20	
FEE-28.0-33.6-10.7	FEE 28	28.0 ^{+0.6} _{-0.5}	33.6±0.6	10.7±0.3	7.20±0.30	18.5 min.	24.6±0.6	4.50±0.20	
FEE-30.0-26.4-10.7	FEE 30 A	30.0 ^{+0.6} _{-0.5}	26.4±0.6	10.7±0.3	10.7±0.3	19.5 min.	16.4±0.6	5.00±0.25	0.6 max.
FEE-30.0-42.6-10.7	FEE 30 B	30.0 ^{+0.7} _{-0.5}	42.6±0.6	10.7±0.3	10.7±0.3	19.5 min.	32.6±0.6	5.00±0.25	
FEE-33.0-27.6-12.7	FEE 33 A	33.0 ^{+0.6} _{-0.5}	27.6±0.6	12.7±0.3	9.70±0.30	23.1 min.	18.6±0.6	4.70±0.25	
FEE-33.0-46.6-12.7	FEE 33 B	33.0 ^{+0.7} _{-0.5}	46.6±0.6	12.7±0.3	9.70±0.30	23.1 min.	38.2±0.6	4.70±0.25	
FEE-35.0-31.0-10.0	FEE 35 A	35.0 ^{+0.7} _{-0.5}	31.0±0.6	10.0±0.3	10.0±0.3	24.5 min.	19.0±0.6	5.00±0.25	0.6 max.
FEE-35.0-48.4-10.0	FEE 35 B	35.0 ^{+0.7} _{-0.5}	48.4±0.6	10.0±0.3	10.0±0.3	24.5 min.	36.4±0.6	5.00±0.25	
FEE-35.0-48.4-11.7	FEE 35 C	35.0 ^{+0.7} _{-0.5}	48.4±0.6	11.7±0.3	10.0±0.3	24.5 min.	36.4±0.6	5.00±0.25	
FEE-40.0-34.0-10.7	FEE 40 A	40.0 ^{+0.7} _{-0.5}	34.0±0.6	10.7±0.3	10.7±0.3	27.5 min.	20.6±0.6	6.00±0.25	
FEE-40.0-54.6-11.7	FEE 40 B	40.0 ^{+0.9} _{-0.6}	54.6±0.6	11.7±0.3	11.7±0.3	27.0 min.	40.6±0.8	6.20±0.25	0.6 max.
FEE-42.0-42.0-15.0	FEE 42 A	42.0 ^{+0.9} _{-0.7}	42.0±0.6	15.0±0.4	12.0±0.3	29.5 min.	30.2±0.6	6.00±0.25	
FEE-42.0-42.0-19.6	FEE 42 B	42.0 ^{+0.9} _{-0.7}	42.0±0.6	19.6±0.4	12.0±0.3	29.5 min.	30.2±0.6	6.00±0.25	
FEE-44.0-60.6-15.0	FEE 44	44.0 ^{+0.9} _{-0.6}	60.6±0.8	15.0±0.4	11.7±0.3	31.2 min.	46.6±0.8	6.10±0.25	
FEE-50.0-42.6-14.6	FEE 50 A	50.0 ^{+1.0} _{-0.7}	42.6±0.6	14.6±0.4	14.6±0.4	34.3 min.	25.6±0.6	7.50±0.25	0.6 max.
FEE-50.0-66.6-14.6	FEE 50 B	50.0 ^{+1.0} _{-0.7}	66.6±0.8	14.6±0.4	14.6±0.4	34.3 min.	49.6±0.8	7.50±0.25	
FEE-55.0-55.0-20.7	FEE 55	55.0 ^{+1.1} _{-0.8}	55.0±0.8	20.7±0.4	17.0±0.4	37.2 min.	37.8±0.8	8.50±0.25	
FEE-60.0-44.6-15.6	FEE 60 A	60.0 ^{+1.1} _{-0.8}	44.6±0.6	15.6±0.4	15.6±0.4	43.7 min.	28.0±0.6	7.75±0.25	
FEE-60.0-72.0-15.6	FEE 60 B	60.0 ^{+1.2} _{-0.8}	72.0±1.0	15.6±0.4	15.6±0.4	43.7 min.	56.0±1.0	7.75±0.25	

Note ⁽²⁾ In this type designation, the symbols denoting inductance factor and material are omitted.