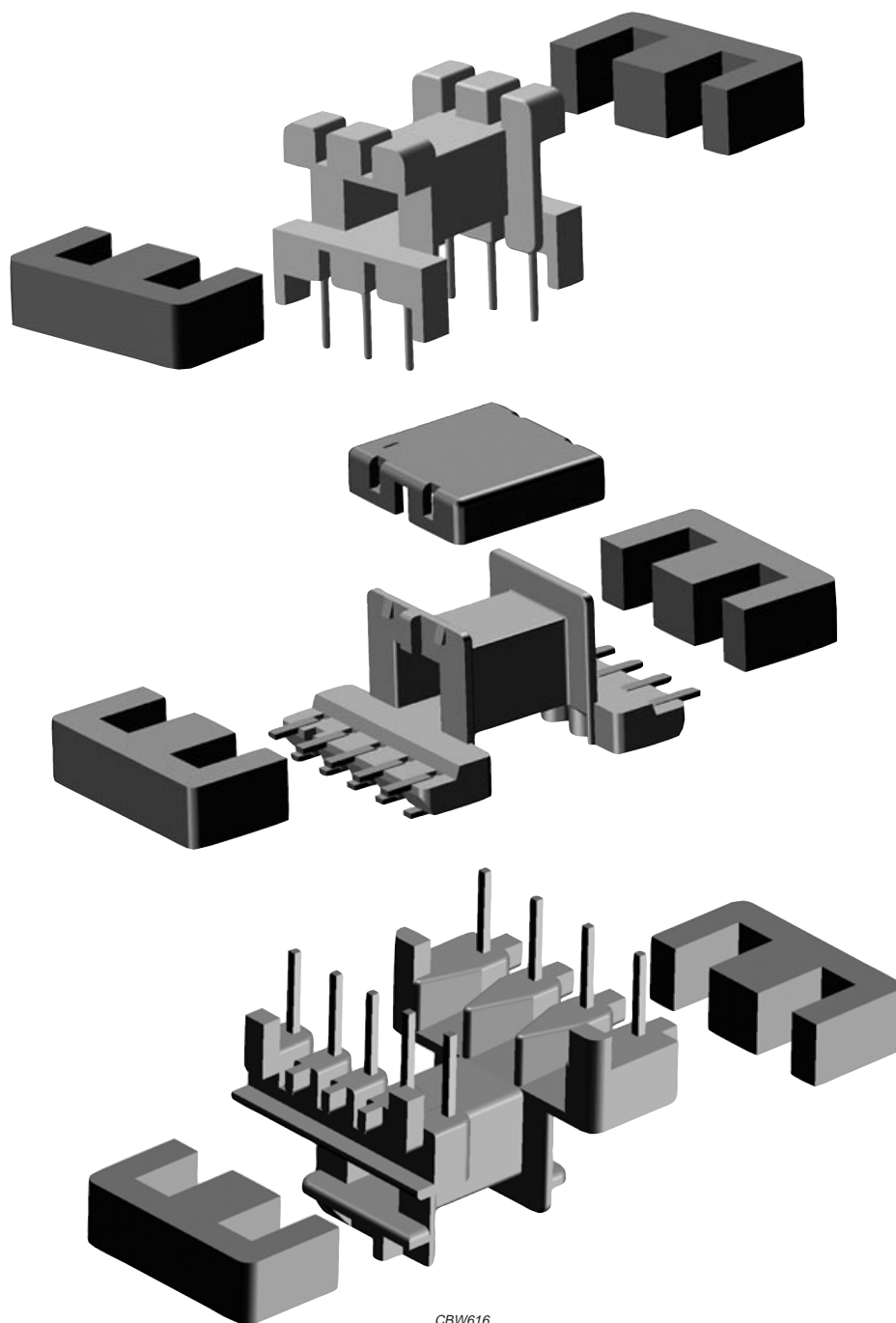


Soft Ferrites

E cores and accessories



For more information on Product Status Definitions, see page 3.

Soft Ferrites

E cores and accessories

PRODUCT OVERVIEW AND
TYPE NUMBER STRUCTURE

Product overview E cores

CORE TYPE	V_e (mm ³)	A_e (mm ²)	MASS (g)
E5.3/2.7/2	31.4	2.50	0.08
E6.3/2.9/2	40.6	3.30	0.12
E8.8/4.1/2	78.0	5.00	0.25
E13/6/3	281	10.1	0.7
E13/6/6	559	20.2	1.4
E13/7/4	369	12.4	0.9
E16/8/5	750	20.1	2.0
E16/12/5	1070	19.4	2.6
E19/8/5	900	22.6	2.3
E19/8/9	1650	41.3	4.0
E20/10/5	1340	31.2	4.0
E20/10/6	1490	32.0	3.7
E20/14/5	1513	24.4	4.2
E22/16/10	5143	86.0	14
E25/9/6	1860	38.4	4.8
E25/10/6	1930	37.0	4.8
E25/13/7	2990	52.0	8.0
E25/13/11	4500	78.4	11
E30/15/7	4000	60.0	11
E31/13/9	5150	83.2	13
E32/16/9	6180	83.0	16
E34/14/9	5590	80.7	14
E35/18/10	8070	100	15
E36/21/12	12160	126	31
E41/17/12	11500	149	30
E42/21/15	17300	178	44
E42/21/20	22700	233	56
E42/33/20	34200	236	82
E47/20/16	20800	234	53
E50/27/15	26900	225	68
E55/28/21	44000	353	108
E55/28/25	52000	420	130
E56/24/19	36000	337	90
E65/32/27	79000	540	205
E71/33/32	102000	683	260
E80/38/20	72300	392	180

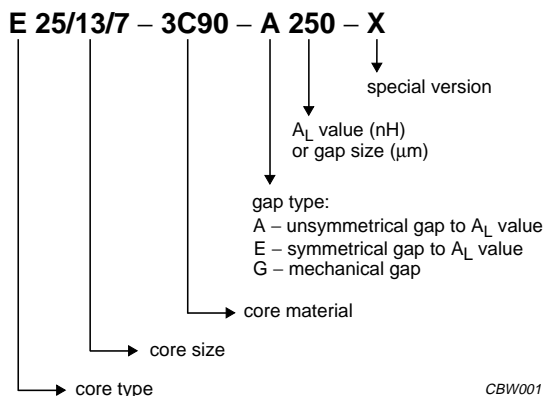


Fig.1 Type number structure for cores.

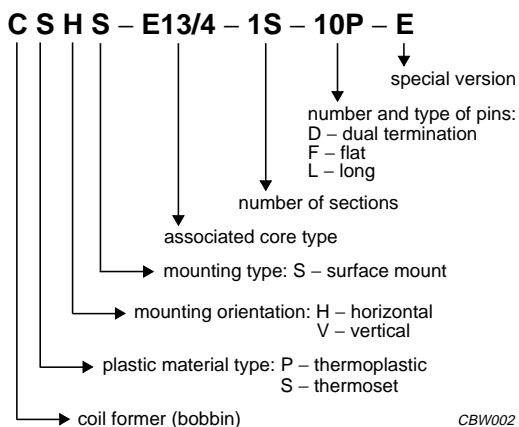


Fig.2 Type number structure for coil formers.

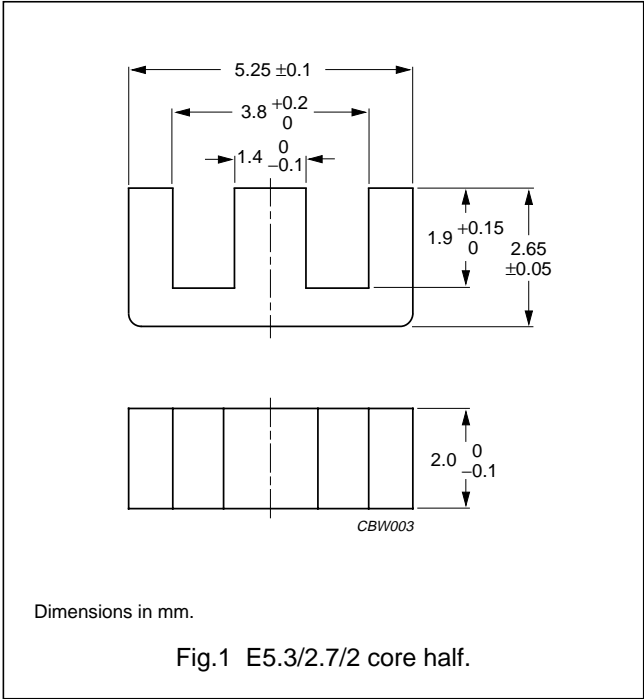
E cores and accessories

E5.3/2.7/2

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	4.70	mm^{-1}
V_e	effective volume	33.3	mm^3
l_e	effective length	12.5	mm
A_e	effective area	2.66	mm^2
A_{\min}	minimum area	2.63	mm^2
m	mass of core half	≈ 0.08	g



Core halves for general purpose transformers and power applications

Clamping force for A_L measurements, 5 ± 2 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C94 <small>des</small>	$300 \pm 25\%$	≈ 1120	≈ 0	E5.3/2.7/2-3C94
3C96 <small>prot</small>	$275 \pm 25\%$	≈ 1030	≈ 0	E5.3/2.7/2-3C96
3F3	$265 \pm 25\%$	≈ 990	≈ 0	E5.3/2.7/2-3F3
3F35 <small>prot</small>	$225 \pm 25\%$	≈ 840	≈ 0	E5.3/2.7/2-3F35
3F4 <small>des</small>	$165 \pm 25\%$	≈ 615	≈ 0	E5.3/2.7/2-3F4

Core halves of high permeability grades

Clamping force for A_L measurements, 5 ± 2 N, flux density $\hat{B} \leq 0.1$ mT.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3E5	$1400 +40/-30\%$	≈ 5240	≈ 0	E5.3/2.7/2-3E5
3E6	$1600 +40/-30\%$	≈ 5980	≈ 0	E5.3/2.7/2-3E6

E cores and accessories

E5.3/2.7/2

Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at		
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 100 kHz; \hat{B} = 100 mT; T = 100 °C	f = 100 kHz; \hat{B} = 200 mT; T = 100 °C	f = 400 kHz; \hat{B} = 50 mT; T = 100 °C
3C94	≥320	≤0.003	≈0.015	≈0.007
3C96	≥320	≤0.002	≈0.011	≈0.005
3F3	≥300	≤0.005	–	≤0.008
3F35	≥300	–	–	≈0.004
3F4	≥250	–	–	–

Properties of core sets under power conditions (continued)

GRADE	B (mT) at	CORE LOSS (W) at			
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 500 kHz; \hat{B} = 50 mT; T = 100 °C	f = 500 kHz; \hat{B} = 100 mT; T = 100 °C	f = 1 MHz; \hat{B} = 30 mT; T = 100 °C	f = 3 MHz; \hat{B} = 10 mT; T = 100 °C
3C94	≥320	–	–	–	–
3C96	≥320	–	–	–	–
3F3	≥300	–	–	–	–
3F35	≥300	≈0.006	≈0.04	–	–
3F4	≥250	–	–	≤0.006	≤0.010

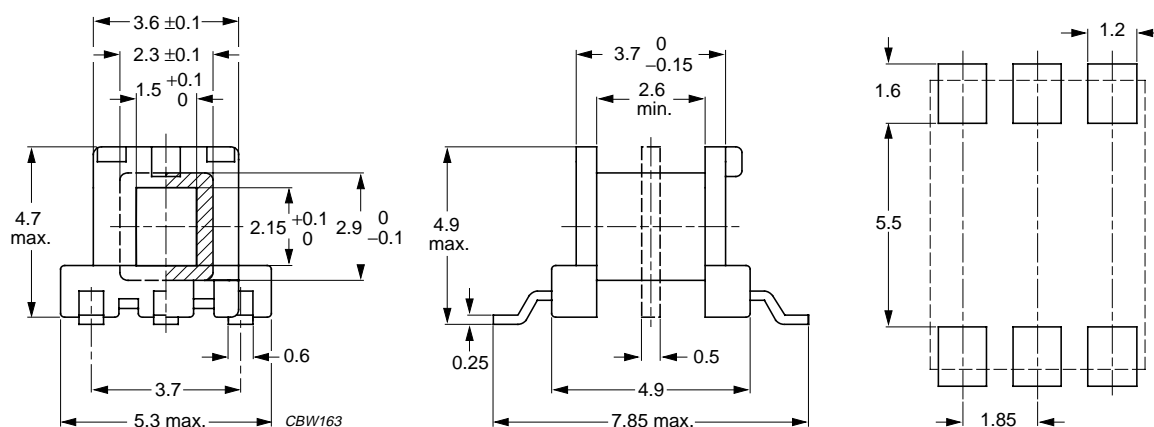
E cores and accessories

E5.3/2.7/2

COIL FORMERS

General data

PARAMETER	SPECIFICATION
Coil former material	liquid crystal polymer (LCP), glass reinforced, flame retardant in accordance with "UL 94V-0"; UL file number E54705(M)
Pin material	copper-tin alloy (CuSn), tin-lead alloy (SnPb) plated
Maximum operating temperature	155 °C, "IEC 60085", class F
Resistance to soldering heat	"IEC 60068-2-20", Part 2, Test Tb, method 1B: 350 °C, 3.5 s
Solderability	"IEC 60068-2-20", Part 2, Test Ta, method 1: 235 °C, 2 s



Dimensions in mm.

Fig.2 E5.3/2.7/2 coil former (SMD); 6-solder pads.

Winding data for E5.3/2.7/2 coil former (SMD) with 6 solder pads

NUMBER OF SECTIONS	WINDING AREA (mm ²)	MINIMUM WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	1.5	2.6	12.6	CPHS-E5.3/2-1S-4P
1	1.5	2.6	12.6	CPHS-E5.3/2-1S-6P
2	2 × 0.6	2 × 1.0	12.6	CPHS-E5.3/2-2S-6P

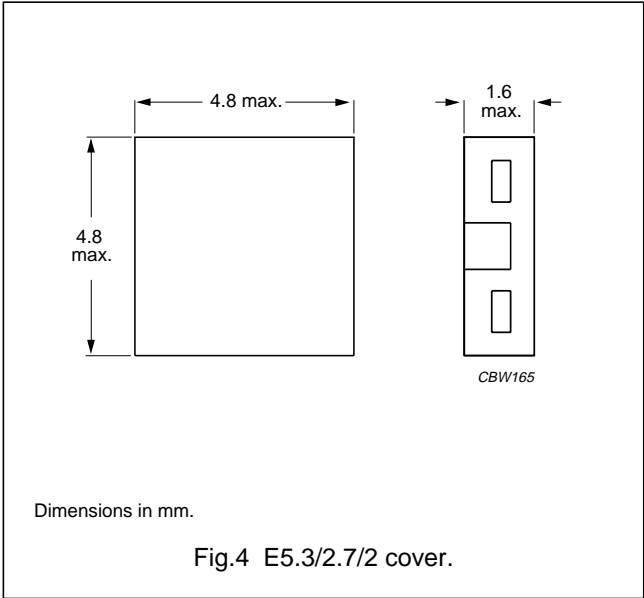
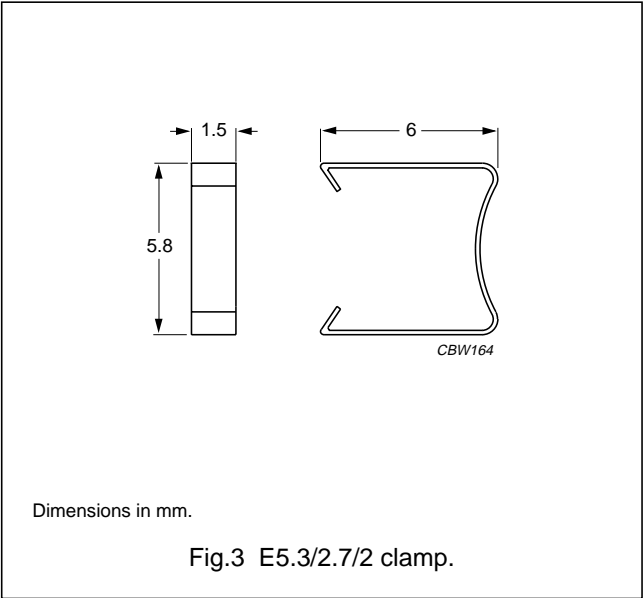
E cores and accessories

E5.3/2.7/2

MOUNTING PARTS

General data for mounting parts

ITEM	REMARKS	FIGURE	TYPE NUMBER
Clamp	stainless steel (CrNi); clamping force ≈ 5 N	3	CLM-E5.3/2
Cover	liquid crystal polymer (LCP)	4	COV-E5.3/2



E cores and accessories

E5.3/2.7/2

BLISTER TAPE AND REEL DIMENSIONS

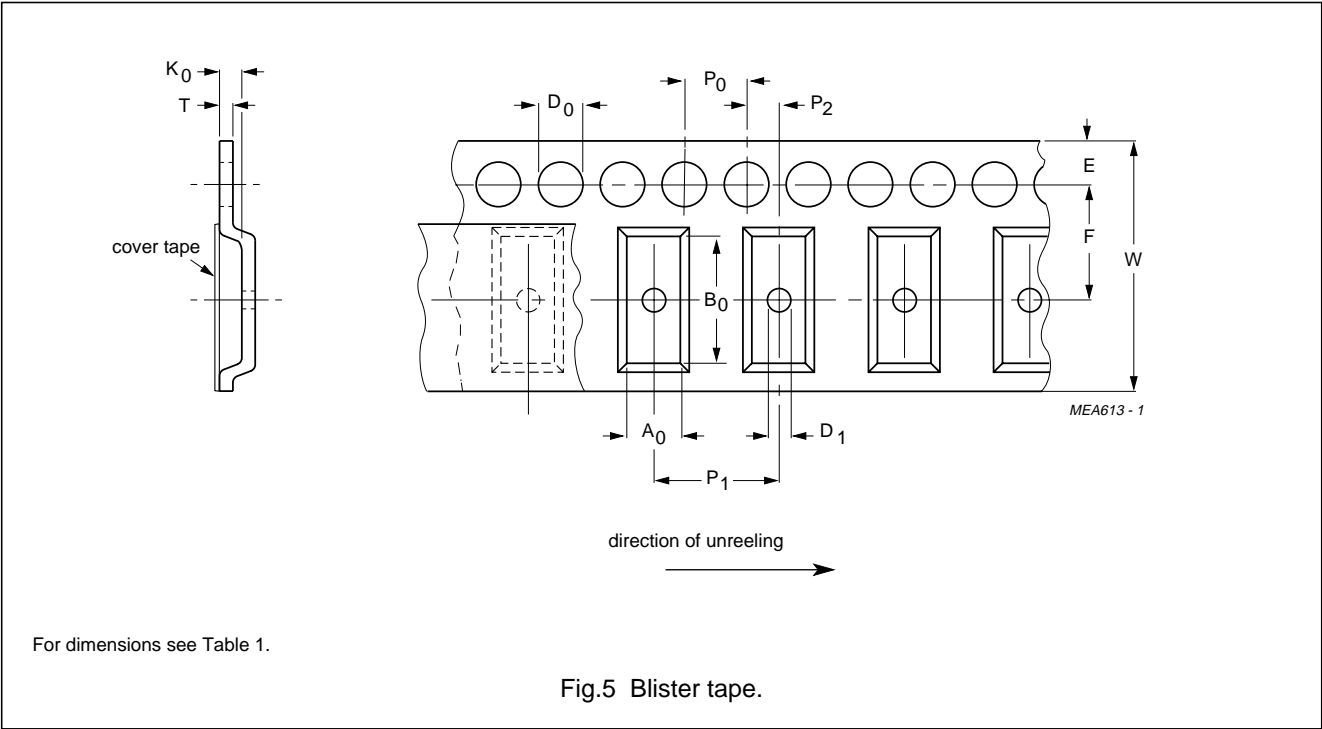


Table 1 Physical dimensions of blister tape; see Fig.5

SIZE	DIMENSIONS (mm)
A_0	3.0 ± 0.1
B_0	5.7 ± 0.1
K_0	2.2 ± 0.1
T	0.25 ± 0.05
W	12.0 ± 0.3
E	1.75 ± 0.1
F	5.5 ± 0.05
D_0	$1.5 + 0.1$
D_1	≥ 1.5
P_0	4.0 ± 0.1
P_1	8.0 ± 0.1
P_2	2.0 ± 0.1

E cores and accessories

E5.3/2.7/2

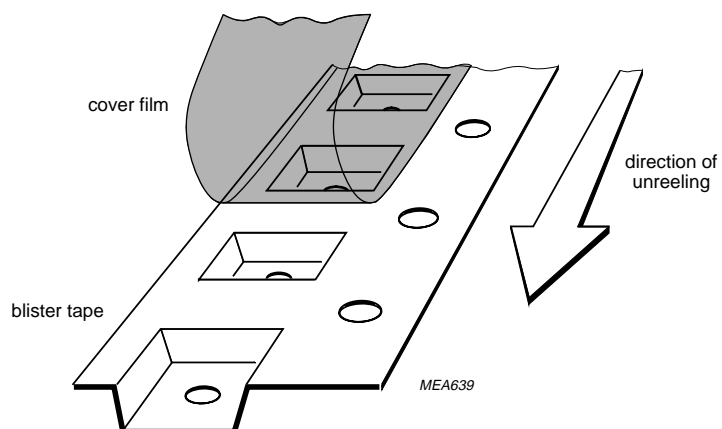
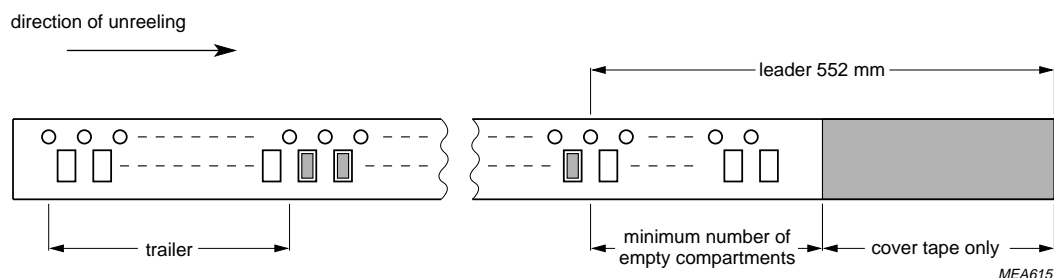


Fig.6 Construction of blister tape.



Leader: length of leader tape is 552 mm minimum covered with cover tape.

Trailer: 160 mm minimum (secured with tape).

Storage temperature range for tape: -25 to +45 °C.

Fig.7 Leader/trailer tape.

E cores and accessories

E5.3/2.7/2

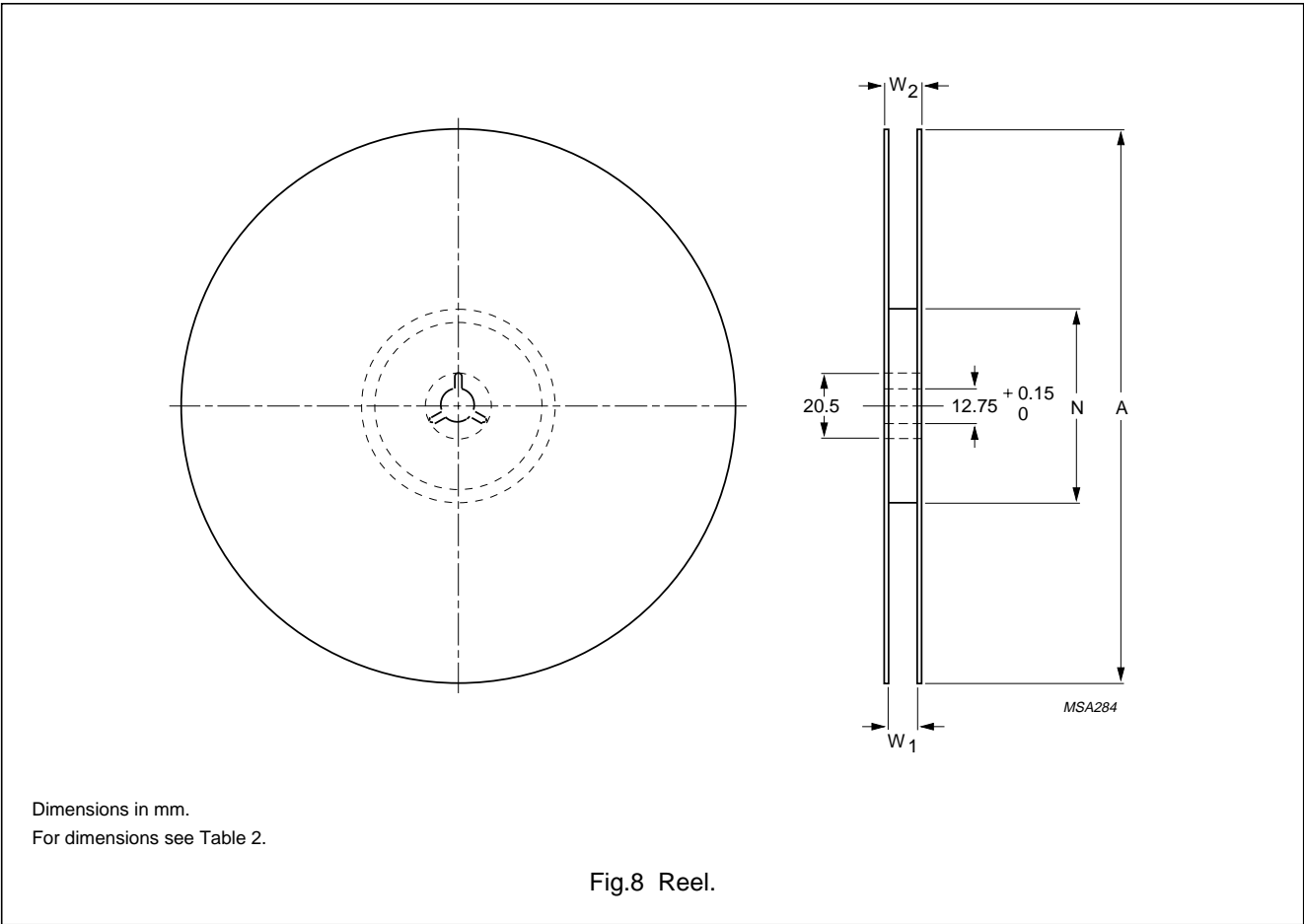


Table 2 Reel dimensions; see Fig.8

SIZE	DIMENSIONS (mm)			
	A	N	W ₁	W ₂
12	330	100 ±5	12.4	≤16.4

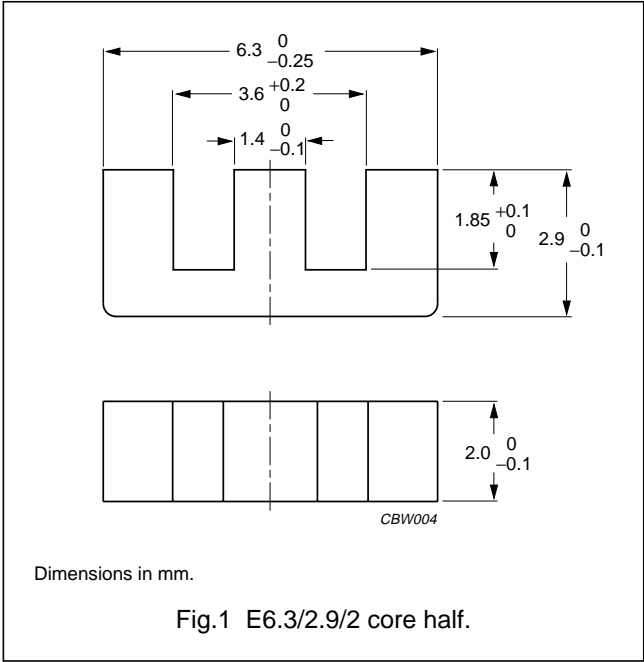
E cores and accessories

E6.3/2.9/2

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	3.67	mm ⁻¹
V_e	effective volume	40.6	mm ³
l_e	effective length	12.2	mm
A_e	effective area	3.3	mm ²
A_{min}	minimum area	2.6	mm ²
m	mass of core half	≈0.12	g



Core halves for general purpose transformers and power applications

Clamping force for A_L measurements, 5 ± 2 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C94 des	400 $\pm 25\%$	≈1170	≈0	E6.3/2.9/2-3C94
3C96 prot	380 $\pm 25\%$	≈1110	≈0	E6.3/2.9/2-3C96
3F3	360 $\pm 25\%$	≈1050	≈0	E6.3/2.9/2-3F3
3F35 prot	300 $\pm 25\%$	≈875	≈0	E6.3/2.9/2-3F35
3F4 des	225 $\pm 25\%$	≈660	≈0	E6.3/2.9/2-3F4

Core halves of high permeability grades

Clamping force for A_L measurements, 5 ± 2 N, flux density $\hat{B} \leq 0.1$ mT

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3E1 sup	700 $\pm 25\%$	≈2060	≈0	E6.3/2.9/2-3E1
3E5	1700 +40/−30%	≈5000	≈0	E6.3/2.9/2-3E5
3E6	2100 +40/−30%	≈6180	≈0	E6.3/2.9/2-3E6

E cores and accessories

E6.3/2.9/2

Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at		
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 100 kHz; \hat{B} = 100 mT; T = 100 °C	f = 100 kHz; \hat{B} = 200 mT; T = 100 °C	f = 400 kHz; \hat{B} = 50 mT; T = 100 °C
3C94	≥320	≤0.004	≈0.017	≈0.008
3C96	≥320	≈0.003	≈0.012	≈0.006
3F3	≥300	≤0.007	–	≤0.010
3F35	≥300	–	–	≈0.004
3F4	≥250	–	–	–

Properties of core sets under power conditions (continued)

GRADE	B (mT) at	CORE LOSS (W) at			
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 500 kHz; \hat{B} = 50 mT; T = 100 °C	f = 500 kHz; \hat{B} = 100 mT; T = 100 °C	f = 1 MHz; \hat{B} = 30 mT; T = 100 °C	f = 3 MHz; \hat{B} = 10 mT; T = 100 °C
3C94	≥320	–	–	–	–
3C96	≥320	–	–	–	–
3F3	≥300	–	–	–	–
3F35	≥300	≈0.007	≈0.05	–	–
3F4	≥250	–	–	≤0.008	≤0.013

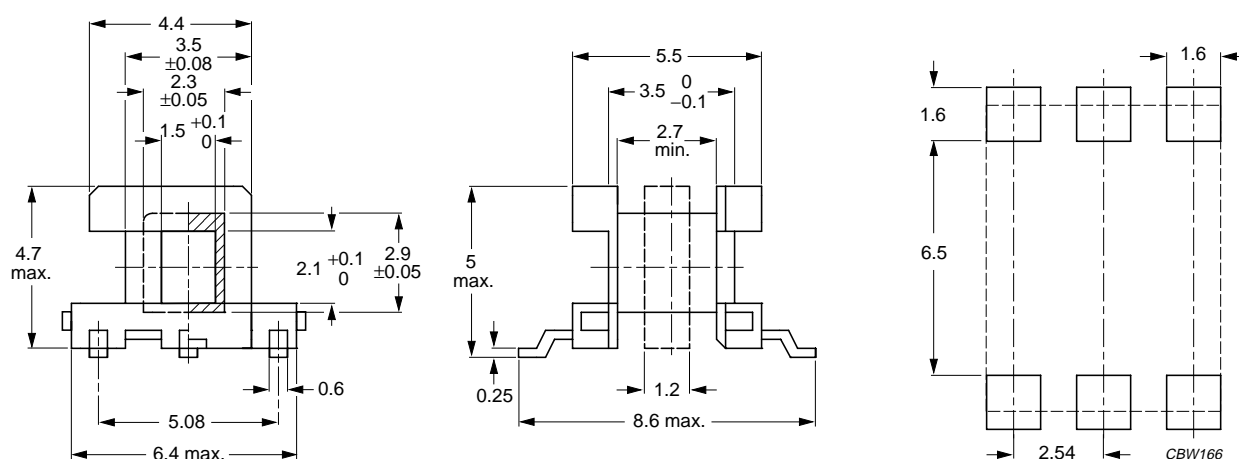
E cores and accessories

E6.3/2.9/2

COIL FORMERS

General data

PARAMETER	SPECIFICATION
Coil former material	liquid crystal polymer (LCP), glass reinforced, flame retardant in accordance with "UL 94V-0"; UL file number E54705(M)
Pin material	copper-tin alloy (CuSn), tin-lead alloy (SnPb) plated
Maximum operating temperature	155 °C, "IEC 60085", class F
Resistance to soldering heat	"IEC 60068-2-20", Part 2, Test Tb, method 1B: 350 °C, 3.5 s
Solderability	"IEC 60068-2-20", Part 2, Test Ta, method 1: 235 °C, 2 s



Dimensions in mm.

Fig.2 E6.3/2.9/2 coil former (SMD); 6-solder pads.

Winding data for E6.3/2.9/2 coil former (SMD) with 6 solder pads

NUMBER OF SECTIONS	WINDING AREA (mm ²)	MINIMUM WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	1.62	2.7	12.8	CPHS-E6.3/2-1S-4P
1	1.62	2.7	12.8	CPHS-E6.3/2-1S-6P
2	2 × 0.45	2 × 0.75	12.8	CPHS-E6.3/2-2S-6P

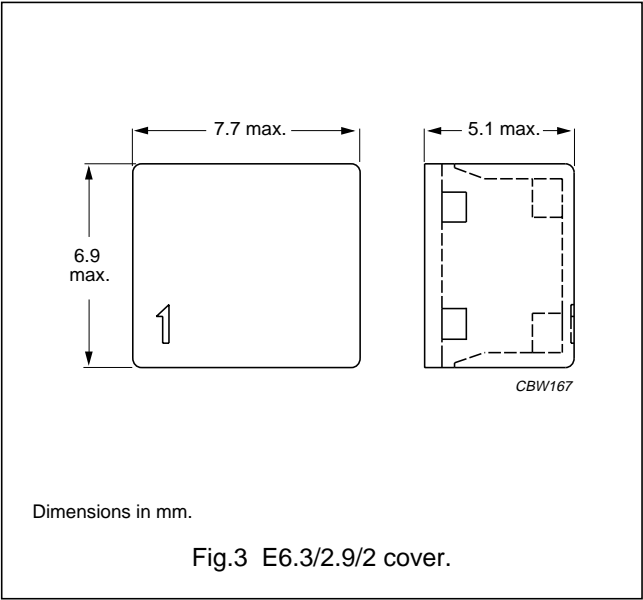
E cores and accessories

E6.3/2.9/2

MOUNTING PARTS

General data for mounting parts

ITEM	REMARKS	FIGURE	TYPE NUMBER
Cover	liquid crystal polymer (LCP)	3	COV-E6.3/2



E cores and accessories

E6.3/2.9/2

BLISTER TAPE AND REEL DIMENSIONS

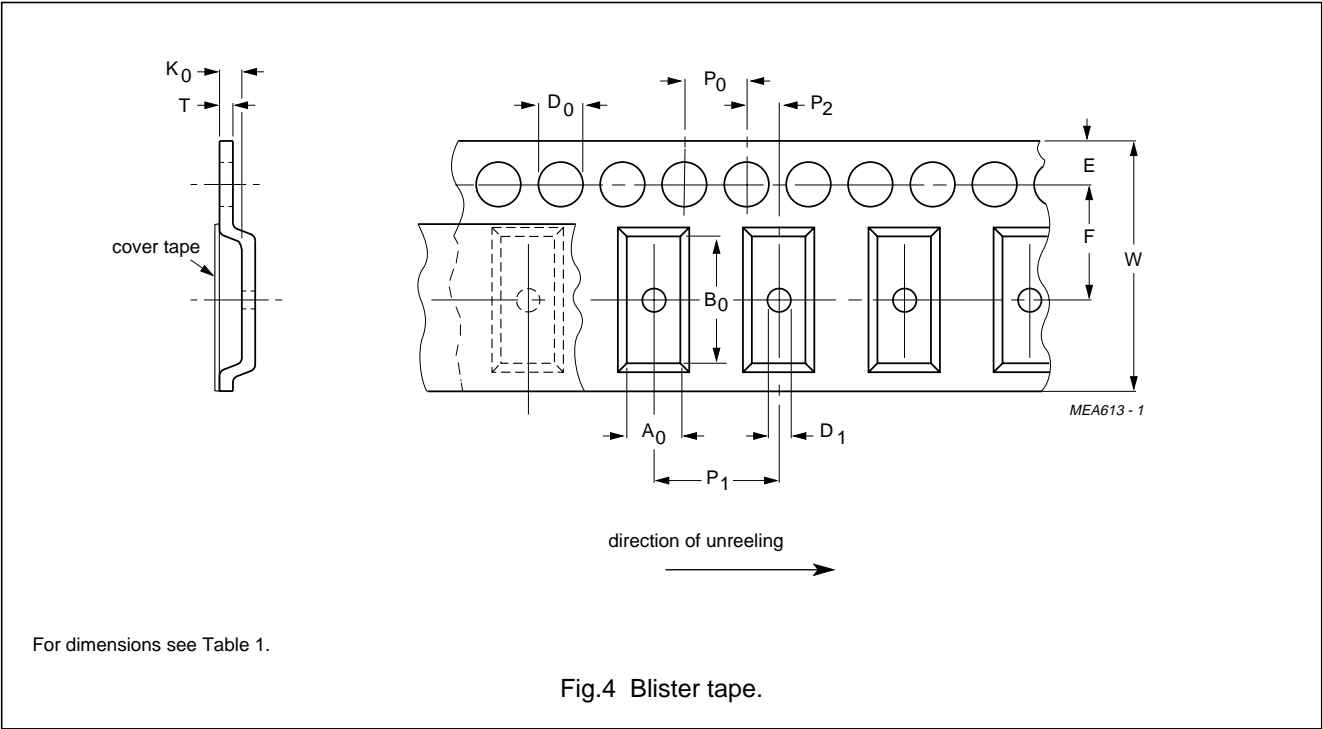


Table 1 Physical dimensions of blister tape; see Fig.4

SIZE	DIMENSIONS (mm)
A ₀	3.2 ±0.1
B ₀	6.6 ±0.1
K ₀	2.1 ±0.1
T	0.25 ±0.05
W	12.0 ±0.3
E	1.75 ±0.1
F	5.5 ±0.05
D ₀	1.5 +0.1
D ₁	≥1.5
P ₀	4.0 ±0.1
P ₁	8.0 ±0.1
P ₂	2.0 ±0.1

E cores and accessories

E6.3/2.9/2

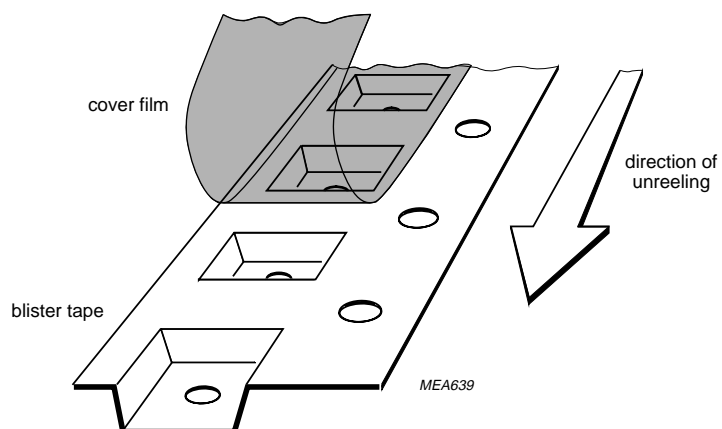
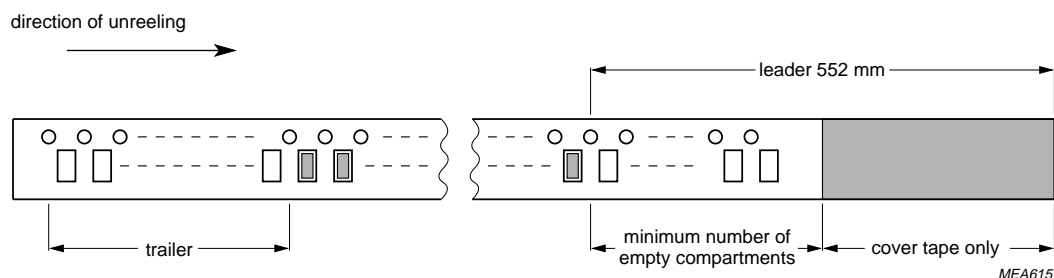


Fig.5 Construction of blister tape.



Leader: length of leader tape is 552 mm minimum covered with cover tape.

Trailer: 160 mm minimum (secured with tape).

Storage temperature range for tape: -25 to +45 °C.

Fig.6 Leader/trailer tape.

E cores and accessories

E6.3/2.9/2

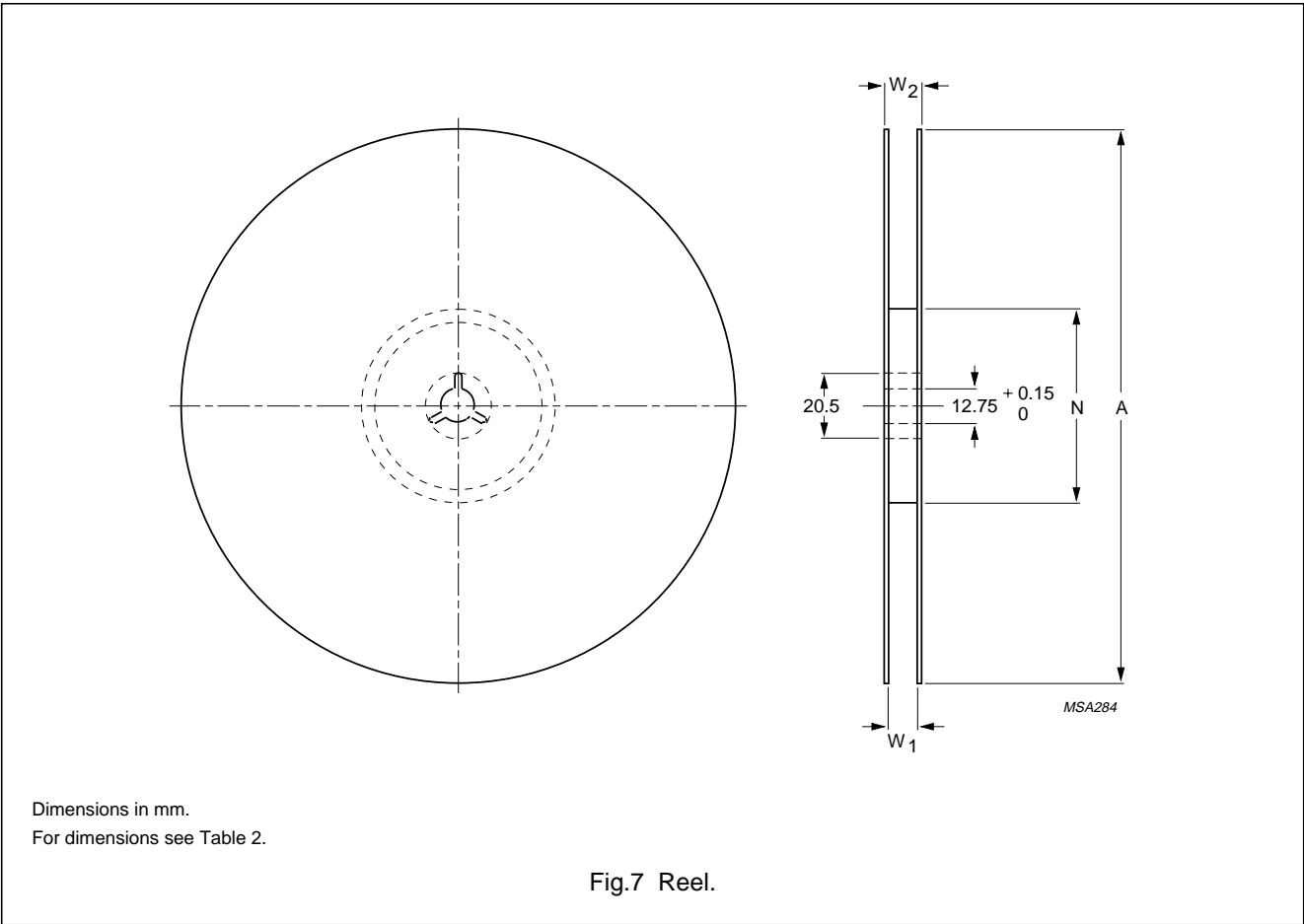


Table 2 Reel dimensions; see Fig.7

SIZE	DIMENSIONS (mm)			
	A	N	W ₁	W ₂
12	330	100 ±5	12.4	≤16.4

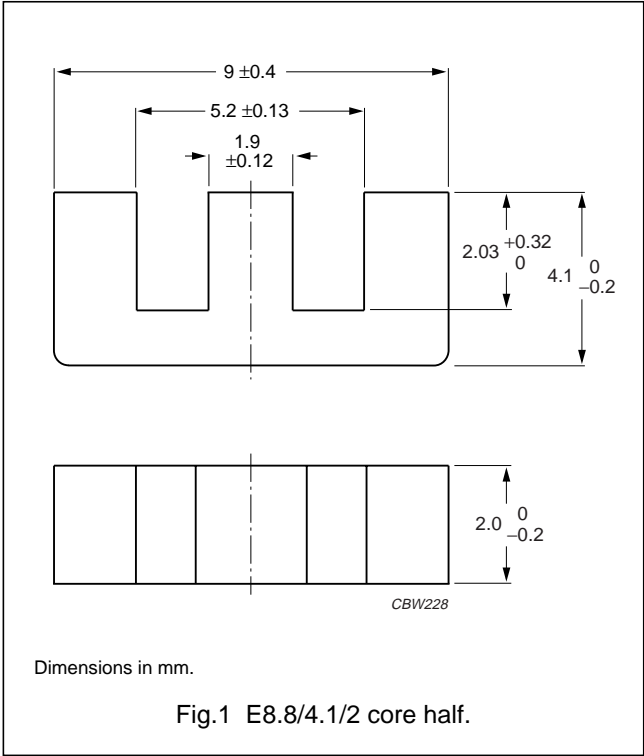
E cores and accessories

E8.8/4.1/2

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	3.13	mm^{-1}
V_e	effective volume	78	mm^3
l_e	effective length	15.6	mm
A_e	effective area	5.0	mm^2
A_{\min}	minimum area	3.6	mm^2
m	mass of core half	≈ 0.25	g



Core halves

A_L measured in combination with a non-gapped core half, clamping force for A_L measurements, 5 ± 2 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C94	$530 \pm 25\%$	≈ 1310	≈ 0	E8.8/4.1/2-3C94
3C96	$480 \pm 25\%$	≈ 1190	≈ 0	E8.8/4.1/2-3C96
3F3	$460 \pm 25\%$	≈ 1140	≈ 0	E8.8/4.1/2-3F3
3F35	$380 \pm 25\%$	≈ 940	≈ 0	E8.8/4.1/2-3F35
3F4	$280 \pm 25\%$	≈ 695	≈ 0	E8.8/4.1/2-3F4

Core halves of high permeability grades

A_L measured in combination with an non-gapped core half, clamping force for A_L measurements, 15 ± 5 N, flux density $\hat{B} \leq 0.1$ mT.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3E6	$2500 +40/-30\%$	≈ 6210	≈ 0	E8.8/4.1/2-3E6

E cores and accessories

E8.8/4.1/2

Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at		
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 100 kHz; \hat{B} = 100 mT; T = 100 °C	f = 100 kHz; \hat{B} = 200 mT; T = 100 °C	f = 400 kHz; \hat{B} = 50 mT; T = 100 °C
3C94	≥320	≤0.007	≈0.035	≈0.016
3C96	≥320	≈0.005	≈0.025	≈0.012
3F3	≥300	≤0.01	–	≤0.014
3F35	≥300	–	–	≈0.008
3F4	≥250	–	–	–

Properties of core sets under power conditions (continued)

GRADE	B (mT) at	CORE LOSS (W) at			
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 500 kHz; \hat{B} = 500 mT; T = 100 °C	f = 500 kHz; \hat{B} = 100 mT; T = 100 °C	f = 1 MHz; \hat{B} = 30 mT; T = 100 °C	f = 3 MHz; \hat{B} = 10 mT; T = 100 °C
3C94	≥320	–	–	–	–
3C96	≥320	–	–	–	–
3F3	≥300	–	–	–	–
3F35	≥300	≈0.012	≈0.095	–	–
3F4	≥250	–	–	≤0.016	≤0.025

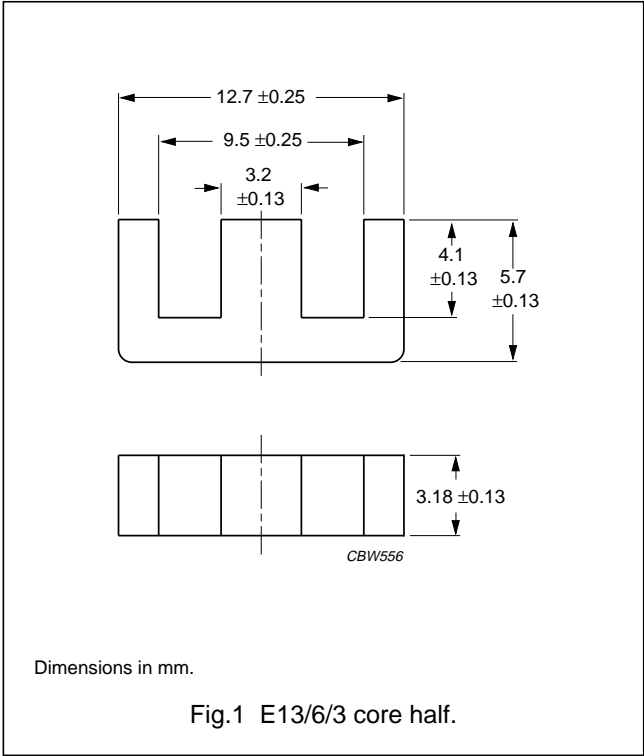
E cores and accessories

E13/6/3

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	2.74	mm^{-1}
V_e	effective volume	281	mm^3
l_e	effective length	27.8	mm
A_e	effective area	10.1	mm^2
A_{\min}	minimum area	10.1	mm^2
m	mass of core half	≈ 0.7	g



Core halves

A_L measured in combination with a non-gapped core half, clamping force for A_L measurements, 8 ± 4 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C90	$730 \pm 25\%$	≈ 1590	≈ 0	E13/6/3-3C90

Core halves of high permeability grades

A_L measured in combination with an non-gapped core half, clamping force for A_L measurements, 8 ± 4 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3E27	$1\,300 \pm 25\%$	≈ 2830	≈ 0	E13/6/3-3E27

Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at	
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 25 kHz; \hat{B} = 200 mT; T = 100 °C	f = 100 kHz; \hat{B} = 100 mT; T = 100 °C
3C90	≥ 320	≤ 0.03	≤ 0.03

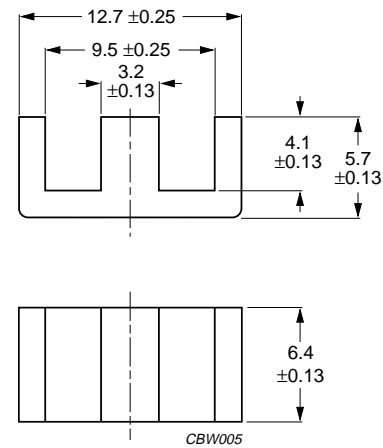
E cores and accessories

E13/6/6
(814E250)

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(I/A)$	core factor (C1)	1.37	mm ⁻¹
V_e	effective volume	559	mm ³
l_e	effective length	27.7	mm
A_e	effective area	20.2	mm ²
m	mass of core half	≈1.4	g



Dimensions in mm.

Fig.1 E13/6/6 core half.

Core halves

 A_L measured in combination with a non-gapped core half, clamping force for A_L measurements, 15 ± 5 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μ m)	TYPE NUMBER
3C81	63 \pm 3%	≈70	≈520	E13/6/6-3C81-A63
	100 \pm 3%	≈110	≈300	E13/6/6-3C81-A100
	160 \pm 3%	≈175	≈170	E13/6/6-3C81-A160
	250 \pm 5%	≈275	≈100	E13/6/6-3C81-A250
	315 \pm 10%	≈340	≈75	E13/6/6-3C81-A315
	1950 \pm 25%	≈2130	≈0	E13/6/6-3C81
3C90	63 \pm 3%	≈70	≈520	E13/6/6-3C90-A63
	100 \pm 3%	≈110	≈300	E13/6/6-3C90-A100
	160 \pm 3%	≈175	≈170	E13/6/6-3C90-A160
	250 \pm 5%	≈275	≈100	E13/6/6-3C90-A250
	315 \pm 10%	≈340	≈75	E13/6/6-3C90-A315
	1470 \pm 25%	≈1605	≈0	E13/6/6-3C90
3C94 des	1470 \pm 25%	≈1605	≈0	E13/6/6-3C94
3F3	63 \pm 3%	≈70	≈520	E13/6/6-3F3-A63
	100 \pm 3%	≈110	≈300	E13/6/6-3F3-A100
	160 \pm 3%	≈175	≈170	E13/6/6-3F3-A160
	250 \pm 5%	≈275	≈100	E13/6/6-3F3-A250
	315 \pm 10%	≈340	≈75	E13/6/6-3F3-A315
	1250 \pm 25%	≈1370	≈0	E13/6/6-3F3

E cores and accessories

E13/6/6
(814E250)**Core halves of high permeability grades**

A_L measured in combination with a non-gapped core half, clamping force for A_L measurements, 15 ± 5 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3E25 ^{sup}	$2600 \pm 25\%$	≈ 2840	≈ 0	E13/6/6-3E25
3E27	$2600 \pm 25\%$	≈ 2840	≈ 0	E13/6/6-3E27
3E5	≥ 3700	≥ 4040	≈ 0	E13/6/6-3E5

Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at			
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 25 kHz; \hat{B} = 200 mT; T = 100 °C	f = 100 kHz; \hat{B} = 100 mT; T = 100 °C	f = 100 kHz; \hat{B} = 200 mT; T = 100 °C	f = 400 kHz; \hat{B} = 50 mT; T = 100 °C
3C81	≥ 320	≤ 0.12	–	–	–
3C90	≥ 320	≤ 0.06	≤ 0.06	–	–
3C94	≥ 320	–	≤ 0.05	≈ 0.24	≈ 0.11
3F3	≥ 320	–	≤ 0.06	–	≤ 0.11

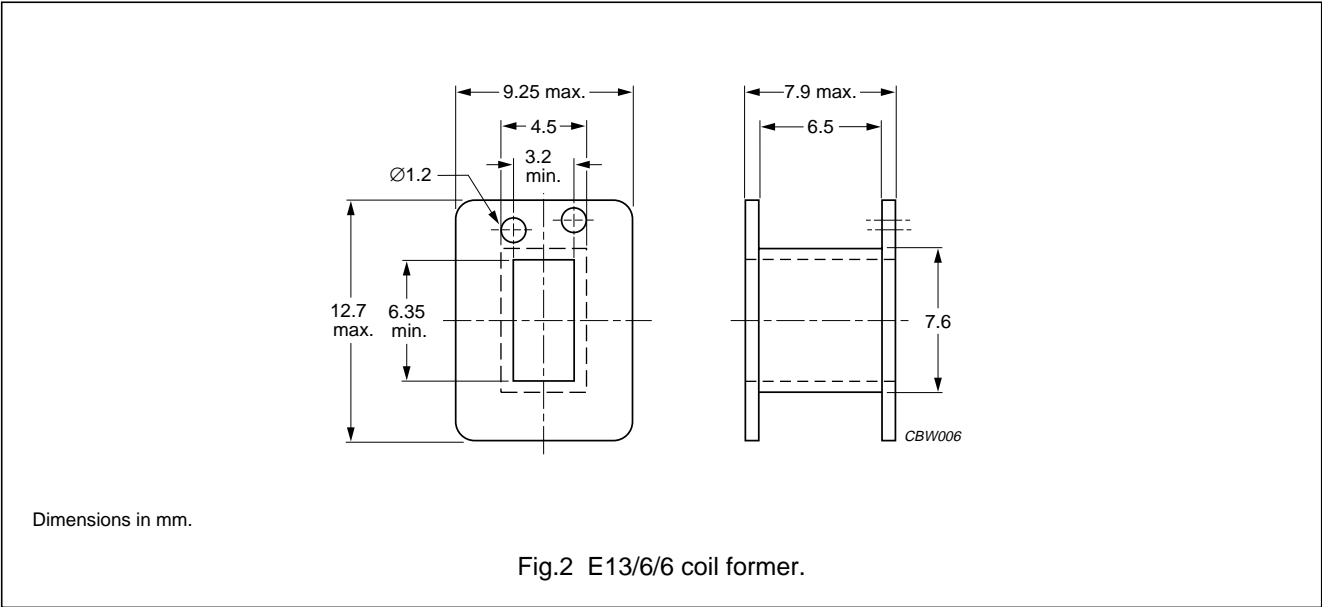
E cores and accessories

E13/6/6
(814E250)

COIL FORMERS

General data for E13/6/6 coil former

ITEM	SPECIFICATION
Coil former material	polyamide (PA6.6), glass reinforced, flame retardant in accordance with "UL 94V-2"; UL file number E41938(M)
Maximum operating temperature	130 °C, "IEC 60085", class B



Winding data for E13/6/6 coil former

NUMBER OF SECTIONS	MINIMUM WINDING AREA (mm ²)	NOMINAL WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	15.4	6.5	32.0	CP-E13/6/6-1S

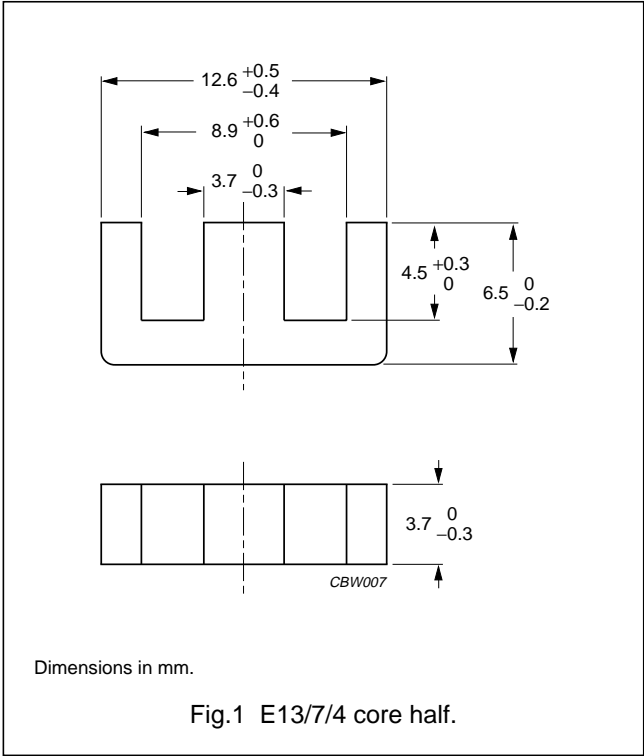
E cores and accessories

E13/7/4
(EF12.6)

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	2.39	mm ⁻¹
V_e	effective volume	369	mm ³
l_e	effective length	29.7	mm
A_e	effective area	12.4	mm ²
A_{min}	minimum area	12.2	mm ²
m	mass of core half	≈0.9	g



Core halves

A_L measured in combination with a non-gapped core half, clamping force for A_L measurements, 15 ±5 N.
Gapped cores are available on request.

GRADE	A_L (nH)	μ_e	AIR GAP (μ m)	TYPE NUMBER
3C90	800 ±25%	≈1 500	≈0	E13/7/4-3C90
3C94 ^{des}	800 ±25%	≈1 500	≈0	E13/7/4-3C94
3F3	700 ±25%	≈1 300	≈0	E13/7/4-3F3

Core halves of high permeability grades

Clamping force for A_L measurements, 15 ±5 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μ m)	TYPE NUMBER
3E1	1 200 ±25%	≈2 200	≈0	E13/7/4-3E1
3E25 ^{sup}	1 500 ±25%	≈2 800	≈0	E13/7/4-3E25
3E27	1 500 ±25%	≈2 800	≈0	E13/7/4-3E27

E cores and accessories

E13/7/4
(EF12.6)

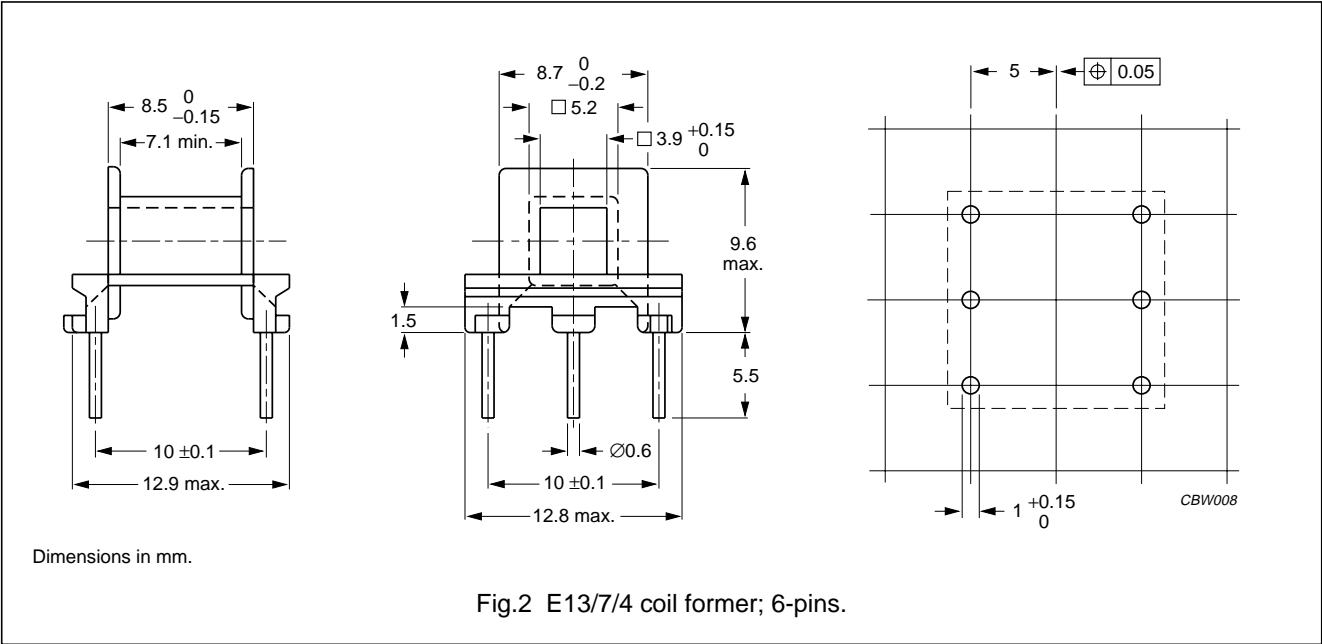
Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at			
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 25 kHz; Ḃ = 200 mT; T = 100 °C	f = 100 kHz; Ḃ = 100 mT; T = 100 °C	f = 100 kHz; Ḃ = 200 mT; T = 100 °C	f = 400 kHz; Ḃ = 50 mT; T = 100 °C
3C90	≥320	≤0.05	≤0.05	–	–
3C94	≥320	–	≤0.035	≈0.16	≈0.07
3F3	≥320	–	≤0.05	–	≤0.07

COIL FORMER

General data for 6-pins E13/7/4 coil former

PARAMETER	SPECIFICATION
Coil former material	polyamide (PA6.6), glass reinforced, flame retardant in accordance with "UL 94V-0"; UL file number E41871(M)
Pin material	copper-tin alloy (CuSn), tin-lead alloy (SnPb) plated
Maximum operating temperature	130 °C, "IEC 60085", class B
Resistance to soldering heat	"IEC 60068-2-20", Part 2, Test Tb, method 1B, 350 °C, 3.5 s
Solderability	"IEC 60068-2-20", Part 2, Test Ta, method 1, 235 °C, 2 s



Winding data 6-pins for E13/7/4 coil former

NUMBER OF SECTIONS	WINDING AREA (mm ²)	MINIMUM WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	11.6	7.1	24	CPH-E13/7/4-1S-6P

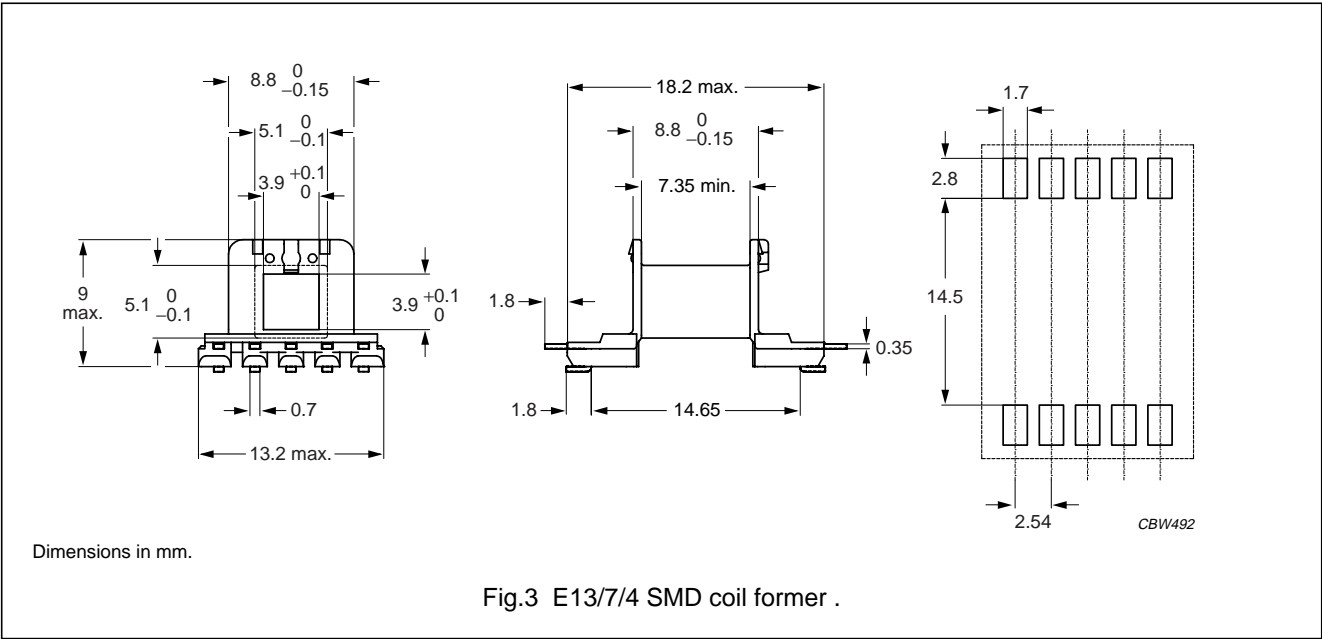
E cores and accessories

E13/7/4
(EF12.6)

COIL FORMER

General data for 10-pads E13/7/4 SMD coil former

PARAMETER	SPECIFICATION
Coil former material	phenolformaldehyde (PF), glass reinforced, flame retardant in accordance with "UL 94V-0"; UL file number E41429(M)
Pin material	copper-tin alloy (CuSn), tin-lead alloy (SnPb) plated
Maximum operating temperature	155 °C, "IEC 60085", class F
Resistance to soldering heat	"IEC 60068-2-20", Part 2, Test Tb, method 1B: 350 °C, 3.5 s
Solderability	"IEC 60068-2-20", Part 2, Test Ta, method 1



Winding data for E13/7/4 SMD coil former

NUMBER OF SECTIONS	WINDING AREA (mm ²)	MINIMUM WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	13.0	7.35	27.5	CSHS-E13/7/4-1S-10P

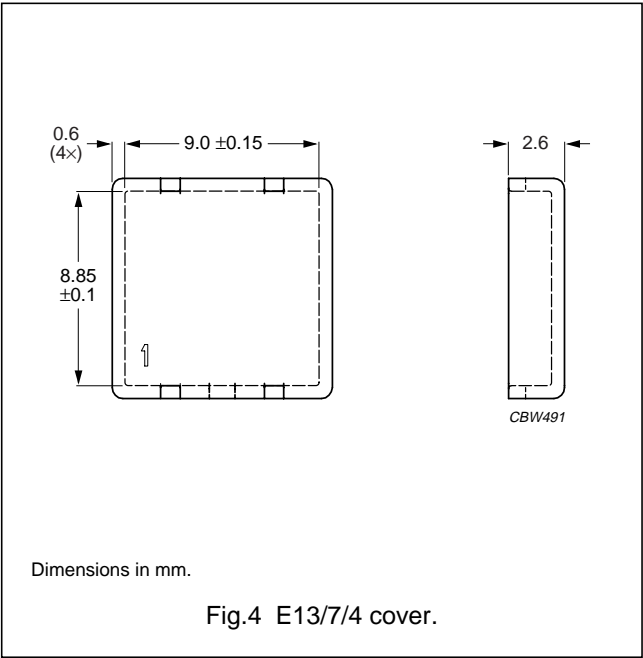
E cores and accessories

E13/7/4
(EF12.6)

MOUNTING PARTS

General data for mounting parts

ITEM	REMARKS	FIGURE	TYPE NUMBER
Cover	polyamide (PA), glass reinforced, flame retardant in accordance with "UL 94V-0"; UL file number E119177(M); maximum operating temperature 130 °C, "IEC 60085", class B	4	COV-E13/7/4



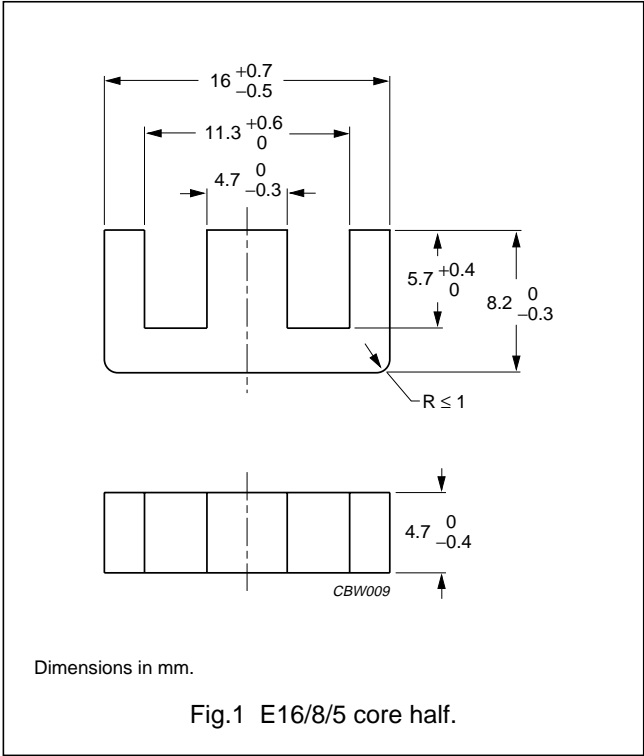
E cores and accessories

E16/8/5

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	1.87	mm ⁻¹
V_e	effective volume	750	mm ³
l_e	effective length	37.6	mm
A_e	effective area	20.1	mm ²
A_{min}	minimum area	19.3	mm ²
m	mass of core half	≈2.0	g



Core halves

A_L measured in combination with a non-gapped core half, clamping force for A_L measurements, 20 ±10 N.
Gapped cores available on request.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C90	1 100 ±25%	≈1 640	≈0	E16/8/5-3C90
3C94 ^{des}	1 100 ±25%	≈1 640	≈0	E16/8/5-3C94
3F3	980 ±25%	≈1 470	≈0	E16/8/5-3F3

Core halves of high permeability grades

Clamping force for A_L measurements, 20 ±10 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3E1	1 800 ±25%	≈2 700	≈0	E16/8/5-3E1
3E25 ^{sup}	2 200 ±25%	≈3 300	≈0	E16/8/5-3E25
3E27	2 200 ±25%	≈3 300	≈0	E16/8/5-3E27

E cores and accessories

E16/8/5

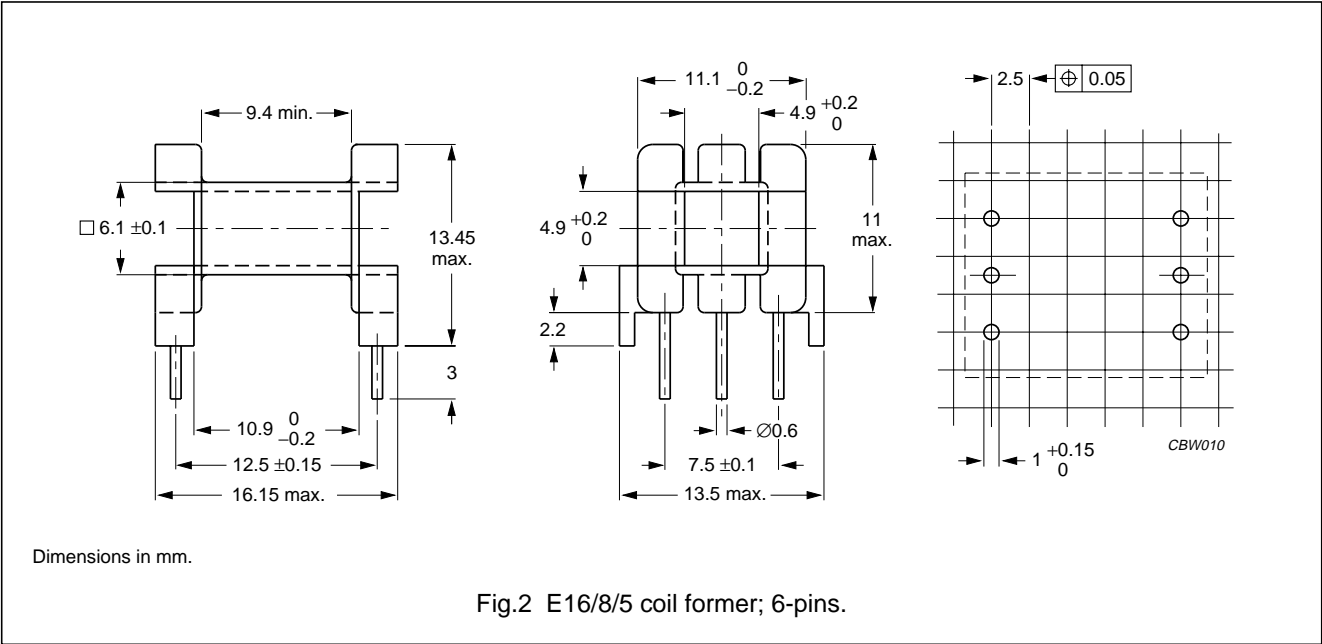
Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at			
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 25 kHz; Ḃ = 200 mT; T = 100 °C	f = 100 kHz; Ḃ = 100 mT; T = 100 °C	f = 100 kHz; Ḃ = 200 mT; T = 100 °C	f = 400 kHz; Ḃ = 50 mT; T = 100 °C
3C90	≥320	≤0.10	≤0.10	–	–
3C94	≥320	–	≤0.07	≈0.25	≈0.15
3F3	≥320	–	≤0.10	–	≤0.15

COIL FORMER

General data for 6-pins E16/8/5 coil former

PARAMETER	SPECIFICATION
Coil former material	polyamide (PA6.6), glass reinforced, flame retardant in accordance with "UL 94V-0"; UL file number E41871(M)
Pin material	copper-tin alloy (CuSn), tin-lead alloy (SnPb) plated
Maximum operating temperature	130 °C, "IEC 60085", class B
Resistance to soldering heat	"IEC 60068-2-20", Part 2, Test Tb, method 1B, 350 °C, 3.5 s
Solderability	"IEC 60068-2-20", Part 2, Test Ta, method 1, 235 °C, 2 s



Winding data for 6-pins E16/8/5 coil former

NUMBER OF SECTIONS	WINDING AREA (mm²)	MINIMUM WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	21.6	9.4	33	CPH-E16/8/5-1S-6P

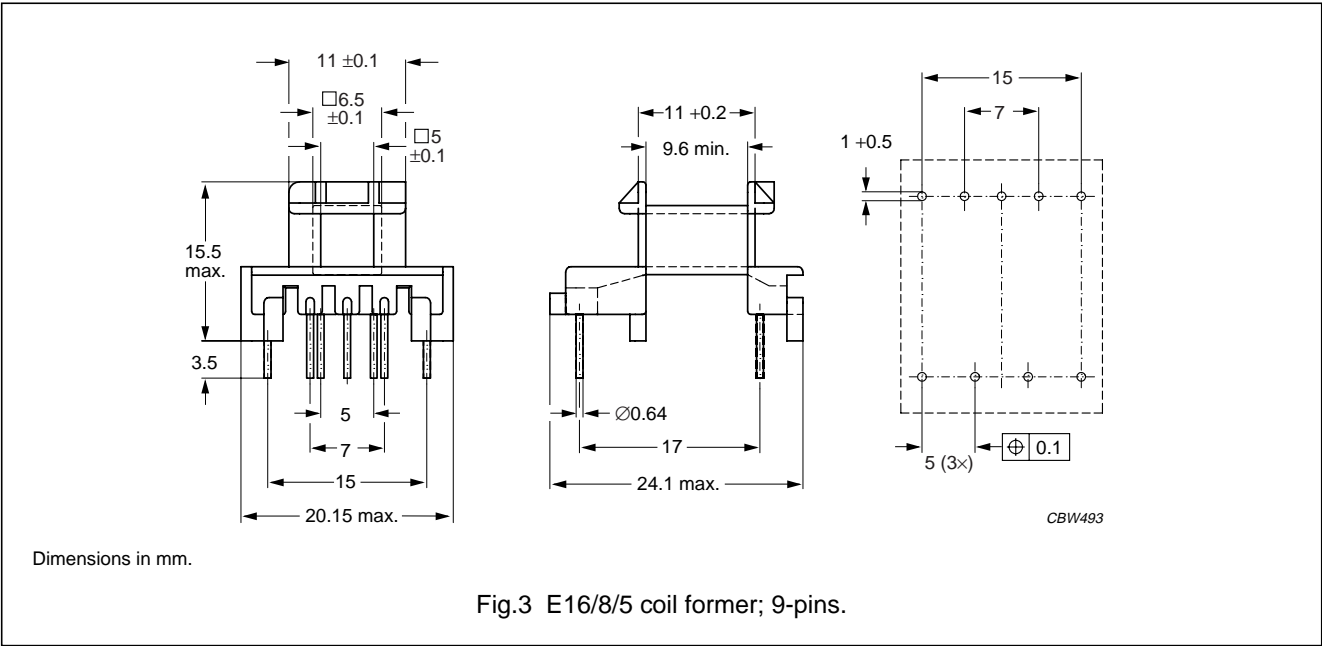
E cores and accessories

E16/8/5

COIL FORMER

General data for 9-pins E16/8/5 coil former

PARAMETER	SPECIFICATION
Coil former material	phenolformaldehyde (PF), glass reinforced, flame retardant in accordance with "UL 94V-0"; UL file number E41429 (M)
Pin material	copper-clad steel, tin-lead alloy (SnPb) plated
Maximum operating temperature	180 °C, "IEC 60085", class H
Resistance to soldering heat	"IEC 60068-2-20", Part 2, Test Tb, method 1B, 350 °C, 3.5 s
Solderability	"IEC 60068-2-20", Part 2, Test Ta, method 1, 235 °C, 2 s



Winding data 9-pins for E16/8/5 coil former; note 1

NUMBER OF SECTIONS	WINDING AREA (mm ²)	MINIMUM WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	20.6	9.6	35	CSH-E16/8/5-1S-9P

Note

1. This coil former is optimized for the use of triple-isolated wire. This wire is approved for safety isolation without the usual creepage distance.

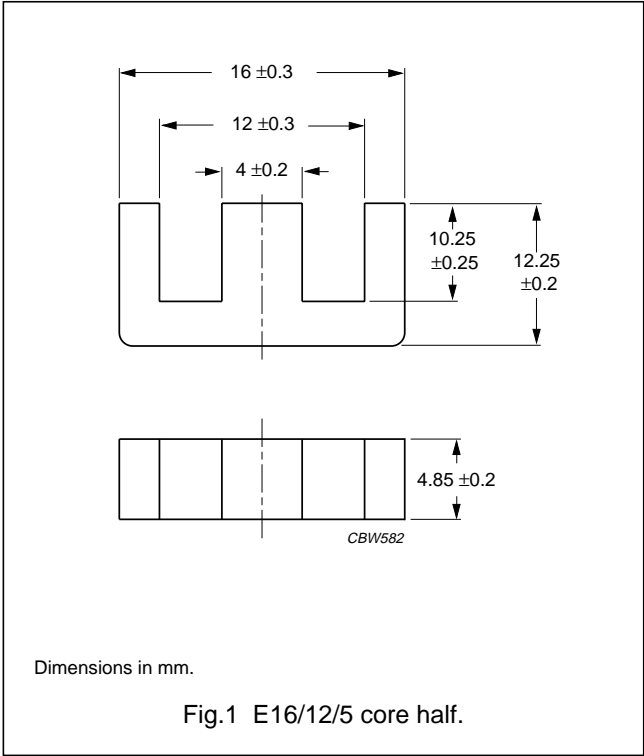
E cores and accessories

E16/12/5
(EL16)

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	2.85	mm ⁻¹
V_e	effective volume	1070	mm ³
l_e	effective length	55.3	mm
A_e	effective area	19.4	mm ²
A_{min}	minimum area	19.4	mm ²
m	mass of core half	≈2.6	g



Core halves

A_L measured in combination with a non-gapped core half, clamping force for A_L measurements, 20 ±10 N.
Gapped cores available on request.

GRADE	A_L (nH)	μ_e	AIR GAP (μ m)	TYPE NUMBER
3C90	800 ±25%	≈1810	≈0	E16/12/5-3C90

Core halves of high permeability grades

Clamping force for A_L measurements, 20 ±10 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μ m)	TYPE NUMBER
3E26	2000 ±25%	≈4530	≈0	E16/12/5-3E26

Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W)at	
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 25 kHz; \hat{B} = 200 mT; T = 100 °C	f = 100 kHz; \hat{B} = 100 mT; T = 100 °C
3C90	≥315	≤0.13	≤0.14

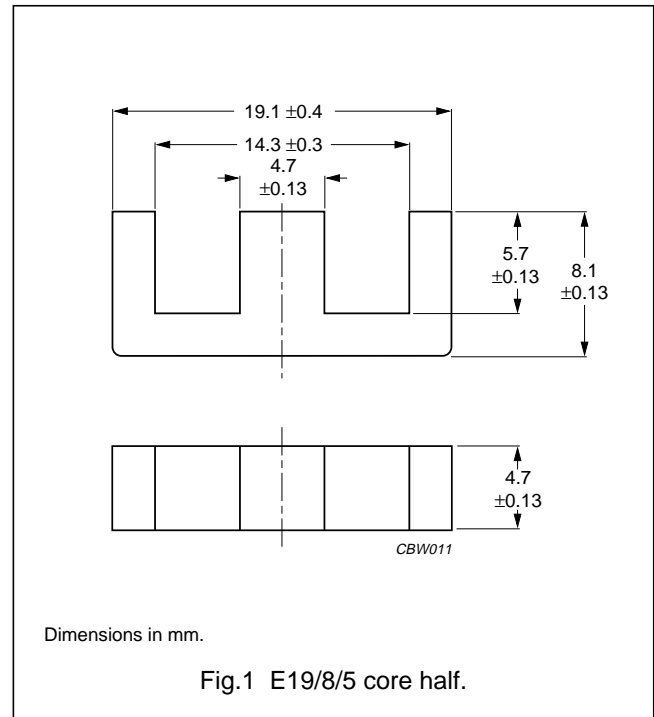
E cores and accessories

E19/8/5
(813E187)

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	1.77	mm ⁻¹
V_e	effective volume	900	mm ³
l_e	effective length	39.9	mm
A_e	effective area	22.6	mm ²
m	mass of core half	≈2.3	g



Core halves

A_L measured in combination with a non-gapped core half, clamping force for A_L measurements, 20 ± 10 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C81	63 $\pm 3\%$	≈90	≈590	E19/8/5-3C81-A63
	100 $\pm 3\%$	≈140	≈330	E19/8/5-3C81-A100
	160 $\pm 3\%$	≈225	≈190	E19/8/5-3C81-A160
	250 $\pm 5\%$	≈350	≈110	E19/8/5-3C81-A250
	315 $\pm 10\%$	≈440	≈80	E19/8/5-3C81-A315
	1500 $\pm 25\%$	≈2110	≈0	E19/8/5-3C81
3C90	63 $\pm 3\%$	≈90	≈590	E19/8/5-3C90-A63
	100 $\pm 3\%$	≈140	≈330	E19/8/5-3C90-A100
	160 $\pm 3\%$	≈225	≈190	E19/8/5-3C90-A160
	250 $\pm 5\%$	≈350	≈110	E19/8/5-3C90-A250
	315 $\pm 10\%$	≈440	≈80	E19/8/5-3C90-A315
	1170 $\pm 25\%$	≈1650	≈0	E19/8/5-3C90
3C94 des	1170 $\pm 25\%$	≈1650	≈0	E19/8/5-3C94
3F3	63 $\pm 3\%$	≈90	≈590	E19/8/5-3F3-A63
	100 $\pm 3\%$	≈140	≈330	E19/8/5-3F3-A100
	160 $\pm 3\%$	≈225	≈190	E19/8/5-3F3-A160
	250 $\pm 5\%$	≈350	≈110	E19/8/5-3F3-A250
	315 $\pm 10\%$	≈440	≈80	E19/8/5-3F3-A315
	995 $\pm 25\%$	≈1400	≈0	E19/8/5-3F3

E cores and accessories

E19/8/5
(813E187)

Core halves of high permeability grades
Clamping force for A_L measurements, 20 ± 10 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3E25 ^{sup}	$2300 \pm 25\%$	≈ 3230	≈ 0	E19/8/5-3E25
3E27	$2300 \pm 25\%$	≈ 3230	≈ 0	E19/8/5-3E27
3E5	≥ 3235	≥ 4540	≈ 0	E19/8/5-3E5

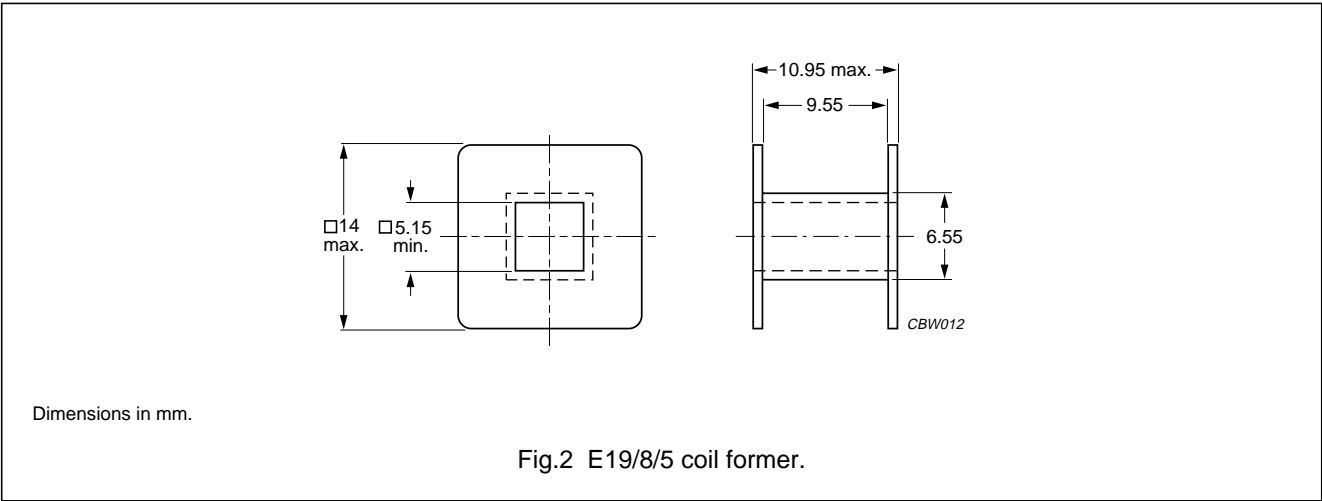
Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at			
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 25 kHz; \hat{B} = 200 mT; T = 100 °C	f = 100 kHz; \hat{B} = 100 mT; T = 100 °C	f = 100 kHz; \hat{B} = 200 mT; T = 100 °C	f = 400 kHz; \hat{B} = 50 mT; T = 100 °C
3C81	≥ 320	≤ 0.20	–	–	–
3C90	≥ 320	≤ 0.09	≤ 0.10	–	–
3C94	≥ 320	–	≤ 0.08	≈ 0.40	≈ 0.17
3F3	≥ 320	–	≤ 0.10	–	≤ 0.17

COIL FORMERS

General data for E19/8/5 coil former without pins

PARAMETER	SPECIFICATION
Coil former material	polyamide (PA6.6), glass reinforced, flame retardant in accordance with “UL 94V-2”; UL file number E41938(M)
Maximum operating temperature	130 °C, “IEC 60085”, class B



E cores and accessories

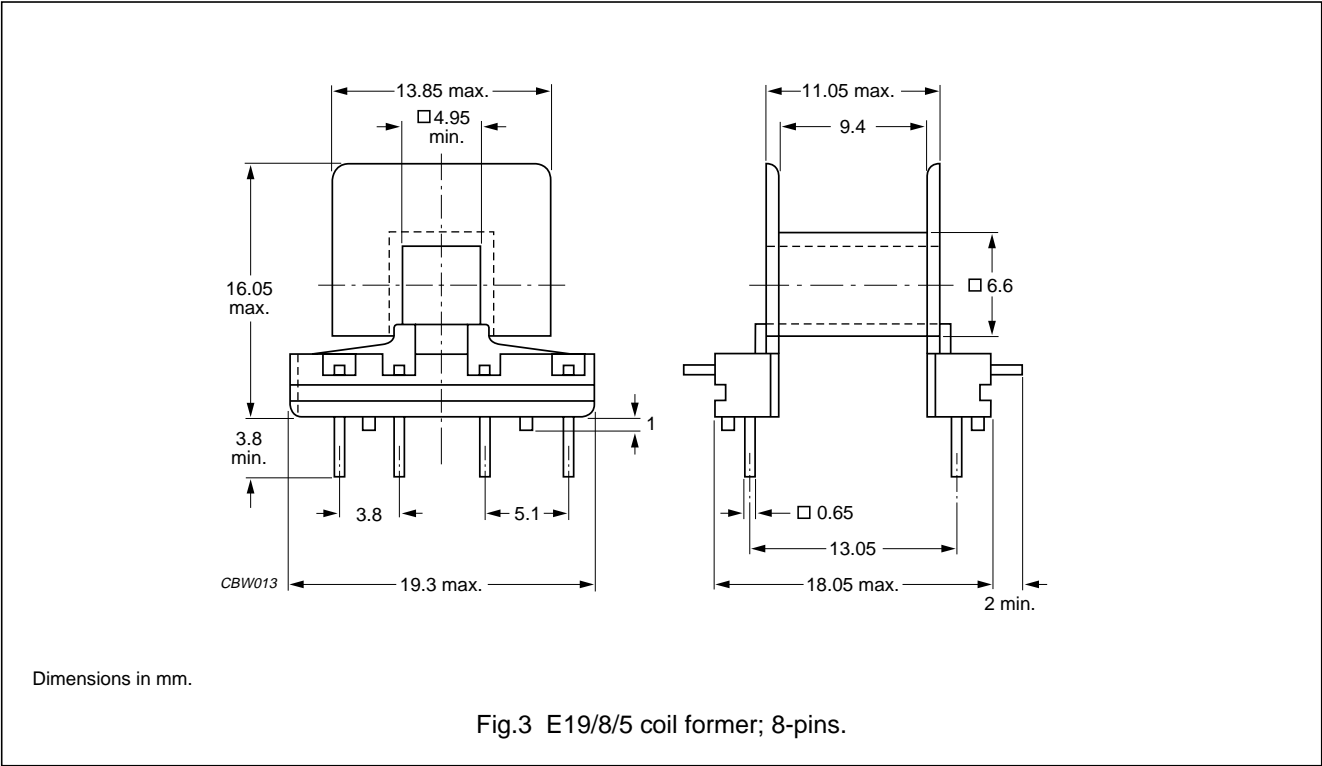
E19/8/5
(813E187)

Winding data for E19/8/5 coil forme without pins

NUMBER OF SECTIONS	MINIMUM WINDING AREA (mm ²)	NOMINAL WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	33.0	9.5	37.9	CP-E19/8/5-1S

General data for 8-pins E19/8/5 coil former

PARAMETER	SPECIFICATION
Coil former material	polyamide (PA6.6), glass reinforced, flame retardant in accordance with UL 94V-0; UL file number E41938(M)
Pin material	copper-zinc alloy (CuZn), tin-lead alloy (SnPb) plated
Maximum operating temperature	130 °C, "IEC 60085", class B
Resistance to soldering heat	"IEC 60068-2-20", Part 2, Test Tb, method 1B, 350 °C, 3.5 s
Solderability	"IEC 60068-2-20", Part 2, Test Ta, method 1, 235 °C, 2 s



Winding data for 8-pins E19/8/5 coil former

NUMBER OF SECTIONS	MINIMUM WINDING AREA (mm ²)	NOMINAL WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	32.3	9.4	40.9	CPH-E19/8/5-1S-8PD

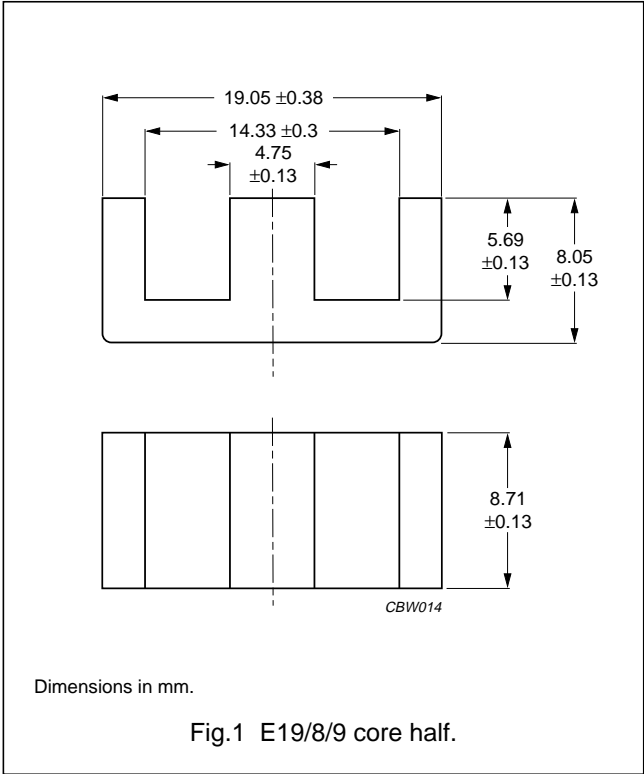
E cores and accessories

E19/8/9
(813E343)

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.960	mm ⁻¹
V_e	effective volume	1650	mm ³
l_e	effective length	39.9	mm
A_e	effective area	41.3	mm ²
m	mass of core half	≈4	g



Core halves

A_L measured in combination with a non-gapped core half, clamping force for A_L measurements, 20 ± 10 N, unless otherwise stated.

GRADE	A_L (nH)	μ_e	AIR GAP (μ m)	TYPE NUMBER
3C81	100 ± 3% ⁽¹⁾	≈75	≈650	E19/8/9-3C81-E100
	160 ± 3%	≈125	≈370	E19/8/9-3C81-A160
	250 ± 3%	≈190	≈220	E19/8/9-3C81-A250
	315 ± 3%	≈240	≈150	E19/8/9-3C81-A315
	400 ± 5%	≈310	≈120	E19/8/9-3C81-A400
	2740 ± 25%	≈2680	≈0	E19/8/9-3C81
3C90	100 ± 3% ⁽¹⁾	≈75	≈650	E19/8/9-3C90-E100
	160 ± 3%	≈125	≈370	E19/8/9-3C90-A160
	250 ± 3%	≈190	≈220	E19/8/9-3C90-A250
	315 ± 3%	≈240	≈150	E19/8/9-3C90-A315
	400 ± 5%	≈310	≈120	E19/8/9-3C90-A400
	2150 ± 25%	≈2100	≈0	E19/8/9-3C90
3C94 des	2150 ± 25%	≈2100	≈0	E19/8/9-3C94

E cores and accessories

E19/8/9
(813E343)

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3F3	$100 \pm 3\%^{(1)}$	≈ 75	≈ 650	E19/8/9-33F3-E100
	$160 \pm 3\%$	≈ 125	≈ 370	E19/8/9-33F3-A160
	$250 \pm 3\%$	≈ 190	≈ 220	E19/8/9-33F3-A250
	$315 \pm 3\%$	≈ 240	≈ 150	E19/8/9-33F3-A315
	$400 \pm 5\%$	≈ 310	≈ 120	E19/8/9-33F3-A400
	$1830 \pm 25\%$	≈ 1400	≈ 0	E19/8/9-33F3

Note

1. Measured in combination with an equal gapped core half, clamping force for A_L measurements, 20 ± 10 N.

Core halves of high permeability grades

Clamping force for A_L measurements, 20 ± 10 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3E25 ^{sup}	$4250 \pm 25\%$	≈ 3270	≈ 0	E19/8/9-3E25
3E27	$4250 \pm 25\%$	≈ 3270	≈ 0	E19/8/9-3E27
3E5	≥ 6300	≥ 4850	≈ 0	E19/8/9-3E5

Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at			
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 25 kHz; \hat{B} = 200 mT; T = 100 °C	f = 100 kHz; \hat{B} = 100 mT; T = 100 °C	f = 100 kHz; \hat{B} = 200 mT; T = 100 °C	f = 400 kHz; \hat{B} = 50 mT; T = 100 °C
3C90	≥ 320	≤ 0.17	≤ 0.18	–	–
3C94	≥ 320	–	≤ 0.15	≈ 0.71	≈ 0.31
3F3	≥ 320	–	≤ 0.18	–	≤ 0.31

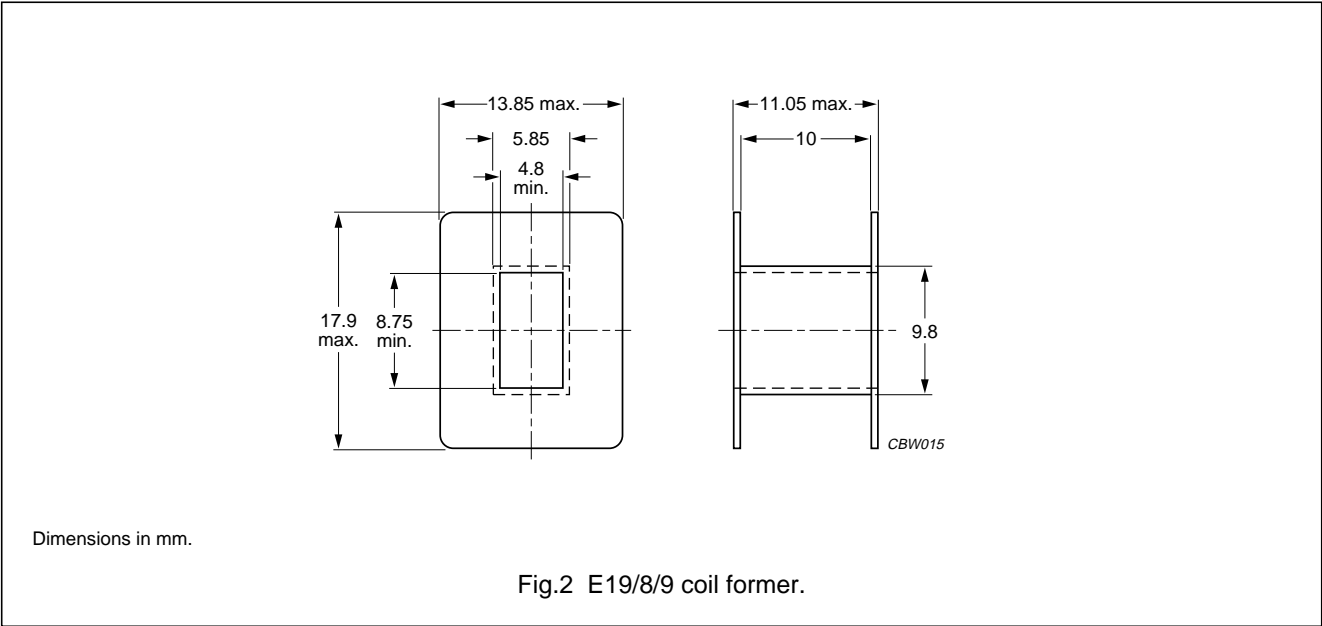
E cores and accessories

E19/8/9
(813E343)

COIL FORMER

General data for E19/8/9 coil former

PARAMETER	SPECIFICATION
Coil former material	polyamide (PA6.6), glass reinforced, flame retardant in accordance with "UL 94V-2"; UL file number E41938(M)
Maximum operating temperature	105 °C, "IEC 60085", class A



Winding data for E19/8/9 coil former

NUMBER OF SECTIONS	MINIMUM WINDING AREA (mm ²)	NOMINAL WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	39.7	10	45.2	CP-E19/8/9-1S

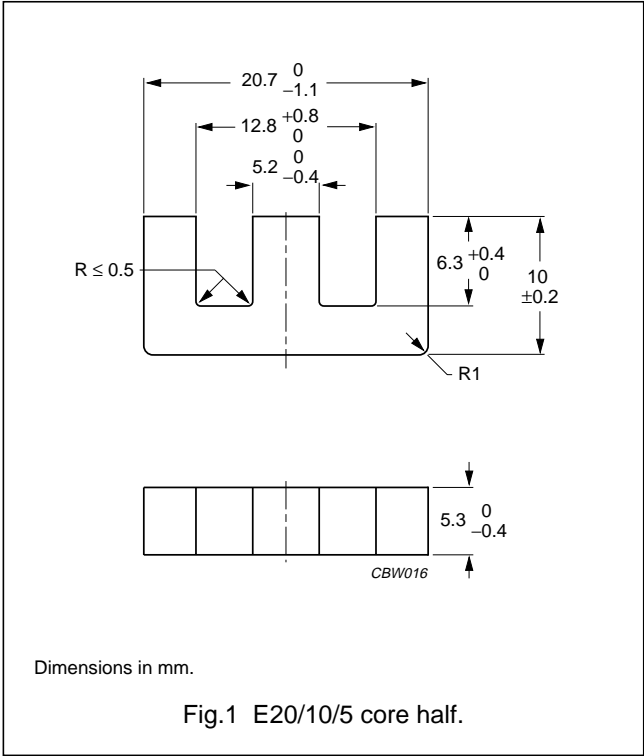
E cores and accessories

E20/10/5

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	1.37	mm^{-1}
V_e	effective volume	1340	mm^3
l_e	effective length	42.8	mm
A_e	effective area	31.2	mm^2
A_{\min}	minimum area	25.2	mm^2
m	mass of core half	≈ 4	g



Core halves

Clamping force for A_L measurements, 20 ± 10 N. Gapped cores are available on request.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C90	$1500 \pm 25\%$	≈ 1700	≈ 0	E20/10/5-3C90
3C94 des	$1500 \pm 25\%$	≈ 1700	≈ 0	E20/10/5-3C94
3F3	$1400 \pm 25\%$	≈ 1600	≈ 0	E20/10/5-3F3

Core halves of high permeability grades

Clamping force for A_L measurements, 20 ± 10 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C11	$2600 \pm 25\%$	≈ 2950	≈ 0	E20/10/5-3C11
3E25	$2800 \pm 25\%$	≈ 3100	≈ 0	E20/10/5-3E25

E cores and accessories

E20/10/5

Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at			
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 25 kHz; B̂ = 200 mT; T = 100 °C	f = 100 kHz; B̂ = 100 mT; T = 100 °C	f = 100 kHz; B̂ = 200 mT; T = 100 °C	f = 400 kHz; B̂ = 50 mT; T = 100 °C
3C90	≥330	≤0.15	≤0.17	–	–
3C94	≥320	–	≤0.12	≈0.58	≈0.26
3F3	≥320	–	≤0.16	–	≤0.28

COIL FORMER

General data for 6-pins E20/10/5 coil former

PARAMETER	SPECIFICATION
Coil former material	phenolformaldehyde (PF), glass reinforced, flame retardant in accordance with "UL 94V-0"; UL file number E167521(M)
Pin material	copper-tin alloy (CuSn), tin-lead alloy (SnPb) plated
Maximum operating temperature	180 °C, "IEC 60085", class H
Resistance to soldering heat	"IEC 60068-2-20", Part 2, Test Tb, method 1B: 350 °C, 3.5 s
Solderability	"IEC 60068-2-20", Part 2, Test Ta, method 1

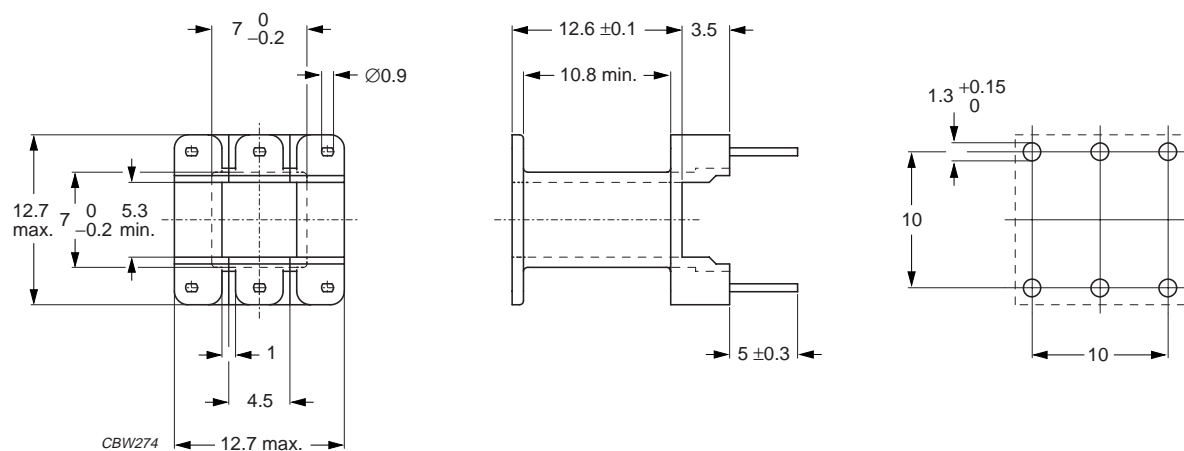


Fig.2 E20/10/5 coil former; 8-pins.

Winding data for 8-pins E20/10/5 coil former

NUMBER OF SECTIONS	WINDING AREA (mm ²)	MINIMUM WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	28.6	10.8	38.7	CPV-E20/10/5-1S-6P

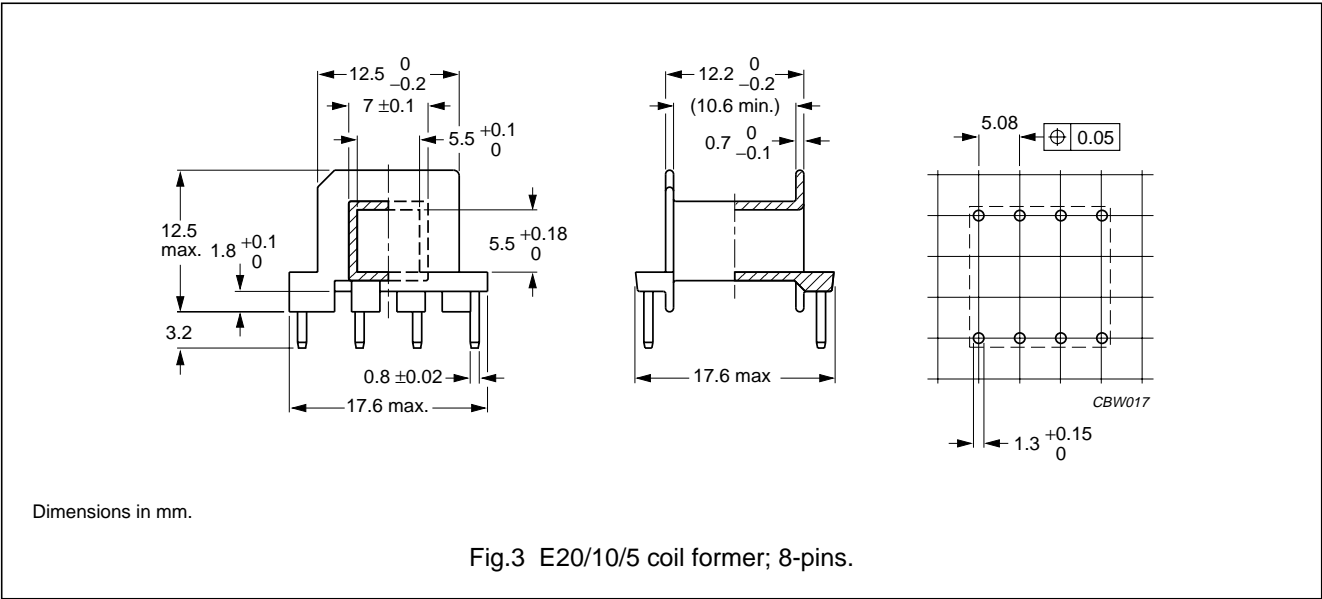
E cores and accessories

E20/10/5

COIL FORMER

General data for 8-pins E20/10/5 coil former

PARAMETER	SPECIFICATION
Coil former material	phenolformaldehyde (PF), glass reinforced, flame retardant in accordance with "UL 94V-0"; UL file number E167521(M)
Pin material	copper-tin alloy (CuSn), tin-lead alloy (SnPb) plated
Maximum operating temperature	180 °C, "IEC 60085", class H
Resistance to soldering heat	"IEC 60068-2-20", Part 2, Test Tb, method 1B: 350 °C, 3.5 s
Solderability	"IEC 60068-2-20", Part 2, Test Ta, method 1



Winding data for 8-pins E20/10/5 coil former

NUMBER OF SECTIONS	WINDING AREA (mm ²)	MINIMUM WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	27	10.6	38	CSH-E20/10/5-1S-8P

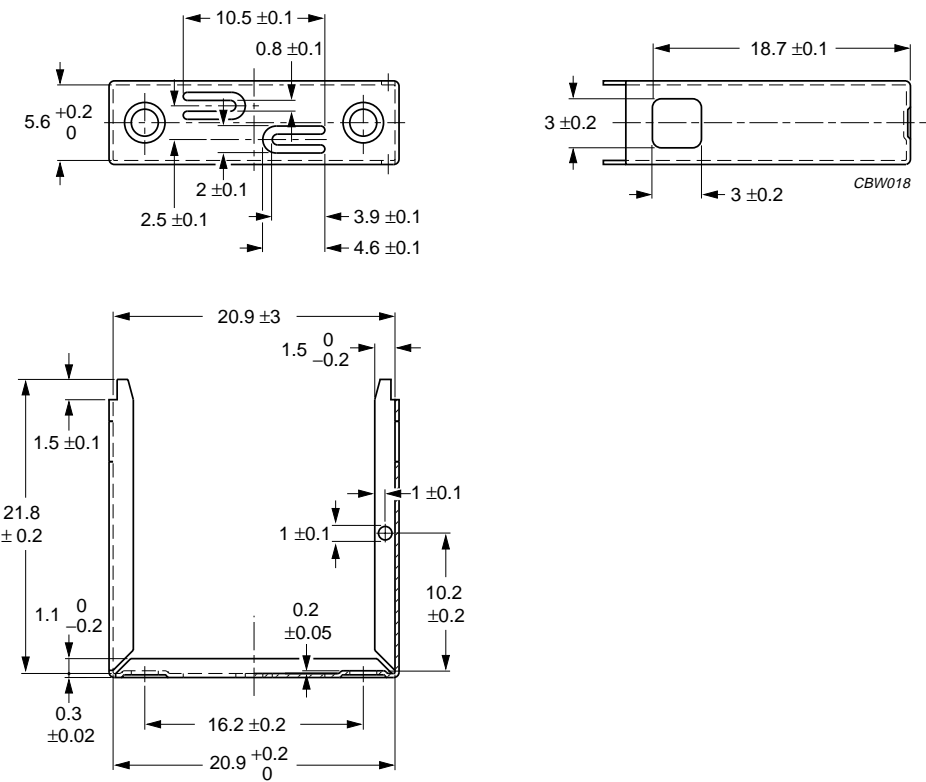
MOUNTING PARTS

General data and ordering information

ITEM	REMARKS	FIGURE	TYPE NUMBER
Clasp	copper-zinc alloy (CuSn), nickel (Ni) plated	4	CLA-E20/10/5
Spring	copper-tin alloy (CuSn), nickel (Ni) plated	5	SPR-E20/10/5

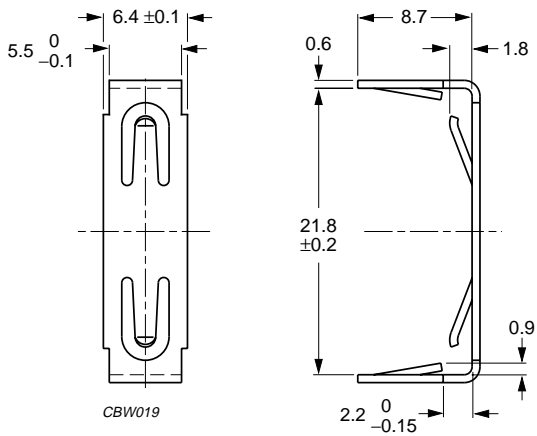
E cores and accessories

E20/10/5



Dimensions in mm.

Fig.4 E20/10/5 clasp.



Dimensions in mm.

Fig.5 E20/10/5 spring.

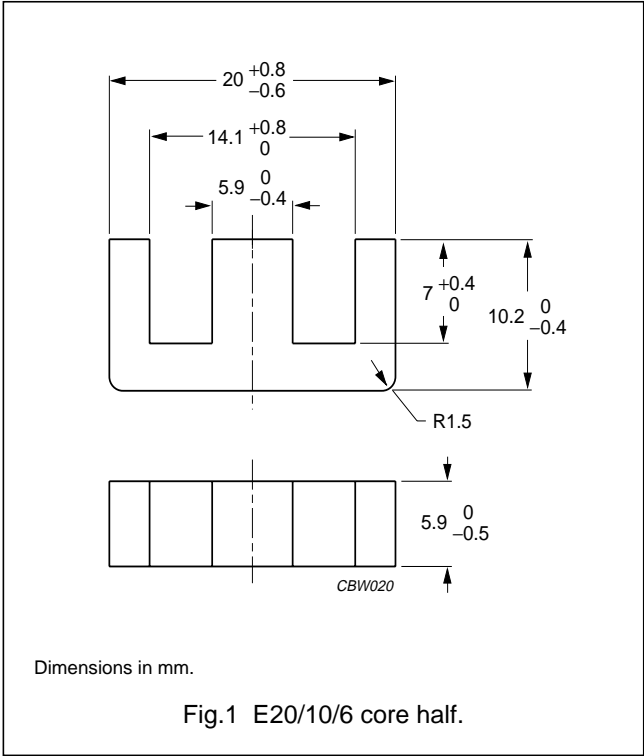
E cores and accessories

E20/10/6

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	1.45	mm^{-1}
V_e	effective volume	1490	mm^3
l_e	effective length	46.0	mm
A_e	effective area	32.0	mm^2
m	mass of core half	≈ 3.7	g



Core halves

Clamping force for A_L measurements, 20 ± 10 N. Gapped cores are available on request.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C90	$1450 \pm 25\%$	≈ 1730	≈ 0	E20/10/6-3C90
3C94 des	$1380 \pm 25\%$	≈ 1650	≈ 0	E20/10/6-3C94
3F3	$1350 \pm 25\%$	≈ 1600	≈ 0	E20/10/6-3F3

Core halves of high permeability grades

Clamping force for A_L measurements, 20 ± 10 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C11	$2600 \pm 25\%$	≈ 3000	≈ 0	E20/10/6-3C11
3E25	$2700 \pm 25\%$	≈ 3200	≈ 0	E20/10/6-3E25

E cores and accessories

E20/10/6

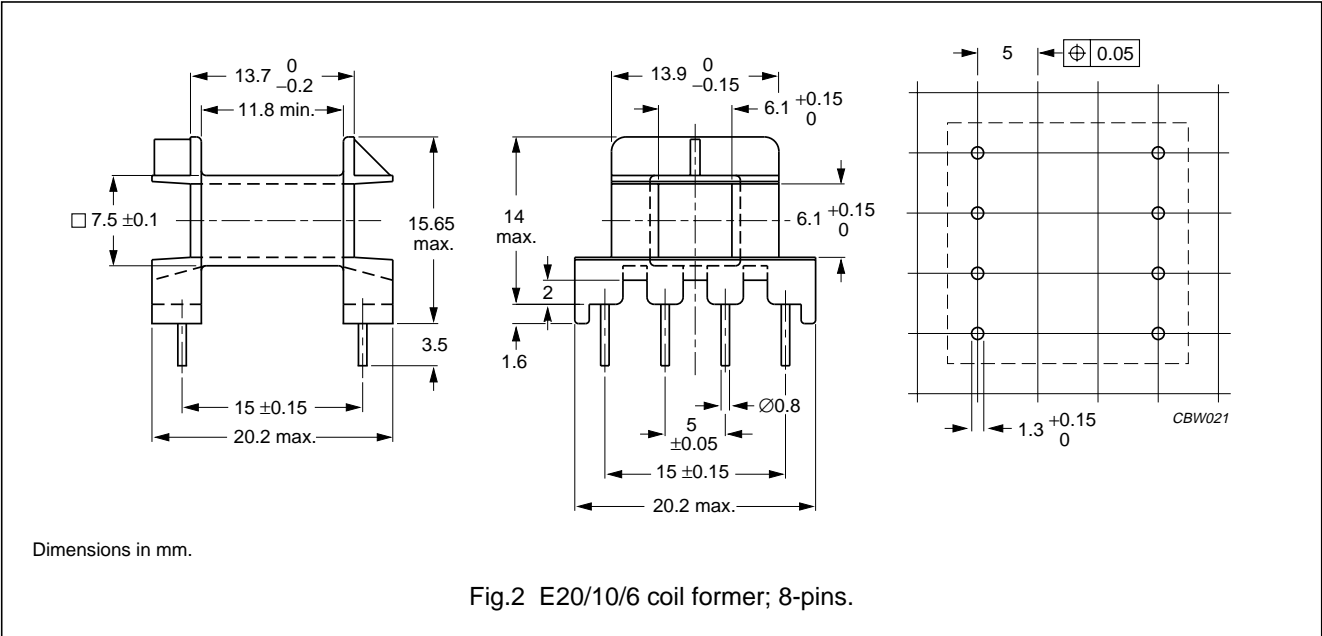
Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at			
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 25 kHz; Ḃ = 200 mT; T = 100 °C	f = 100 kHz; Ḃ = 100 mT; T = 100 °C	f = 100 kHz; Ḃ = 200 mT; T = 100 °C	f = 400 kHz; Ḃ = 50 mT; T = 100 °C
3C90	≥320	≤0.16	≤0.18	–	–
3C94	≥320	–	≤0.13	≈0.64	≈0.29
3F3	≥320	–	≤0.20	–	≤0.30

COIL FORMER

General data for 8-pins E20/10/6 coil former

PARAMETER	SPECIFICATION
Coil former material	polyamide (PA6.6), glass reinforced, flame retardant in accordance with "UL 94V-0"; UL file number E41871(M)
Pin material	copper-tin alloy (CuSn), tin-lead alloy (SnPb) plated
Maximum operating temperature	130 °C, "IEC 60085", class B
Resistance to soldering heat	"IEC 60068-2-20", Part 2, Test Tb, method 1B: 350 °C, 3.5 s
Solderability	"IEC 60068-2-20", Part 2, Test Ta, method 1: 235 °C, 2 s



Winding data for 8-pins E20/10/6 coil former

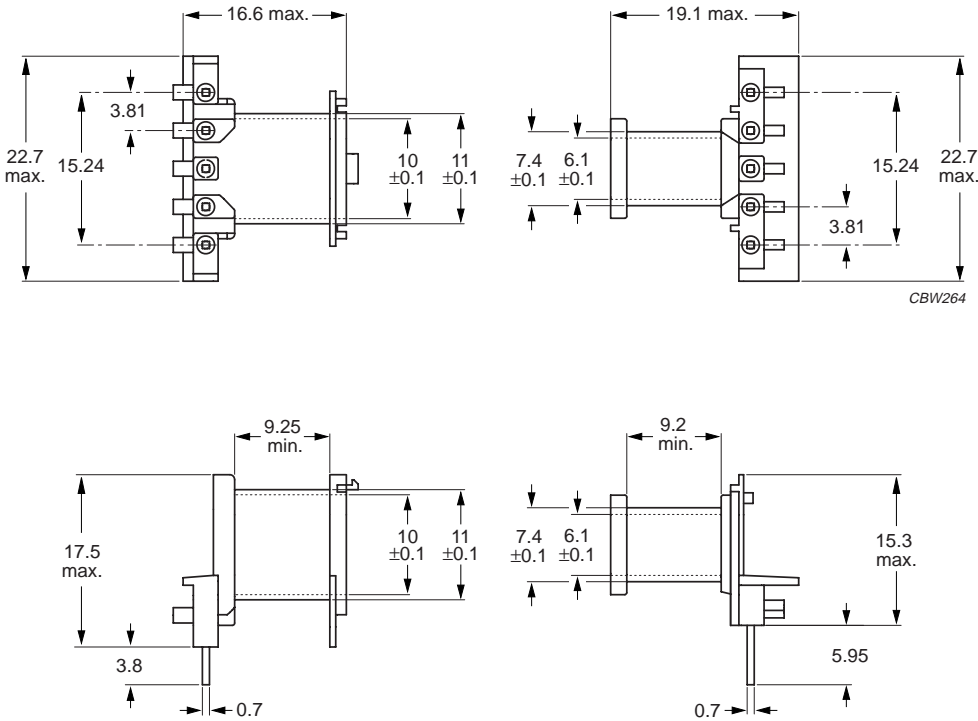
NUMBER OF SECTIONS	WINDING AREA (mm ²)	MINIMUM WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	35	11.8	39	CPH-E20/10/6-1S-8P

E cores and accessories

E20/10/6

General data 10-pins coaxial E20/10/6 coil former

PARAMETER	SPECIFICATION
Coil former material	polyamide (PA6.6), glass-reinforced, flame retardant in accordance with "UL 94V-0"; UL file number E41871(M)
Pin material	copper-tin alloy (CuSn), tin-lead alloy (SnPb) plated
Maximum operating temperature	130 °C, "IEC 60085", class B
Resistance to soldering heat	"IEC 60068-2-20", Part 2, Test Tb, method 1B: 350 °C, 3.5 s
Solderability	"IEC 60068-2-20", Part 2, Test Ta, method 1

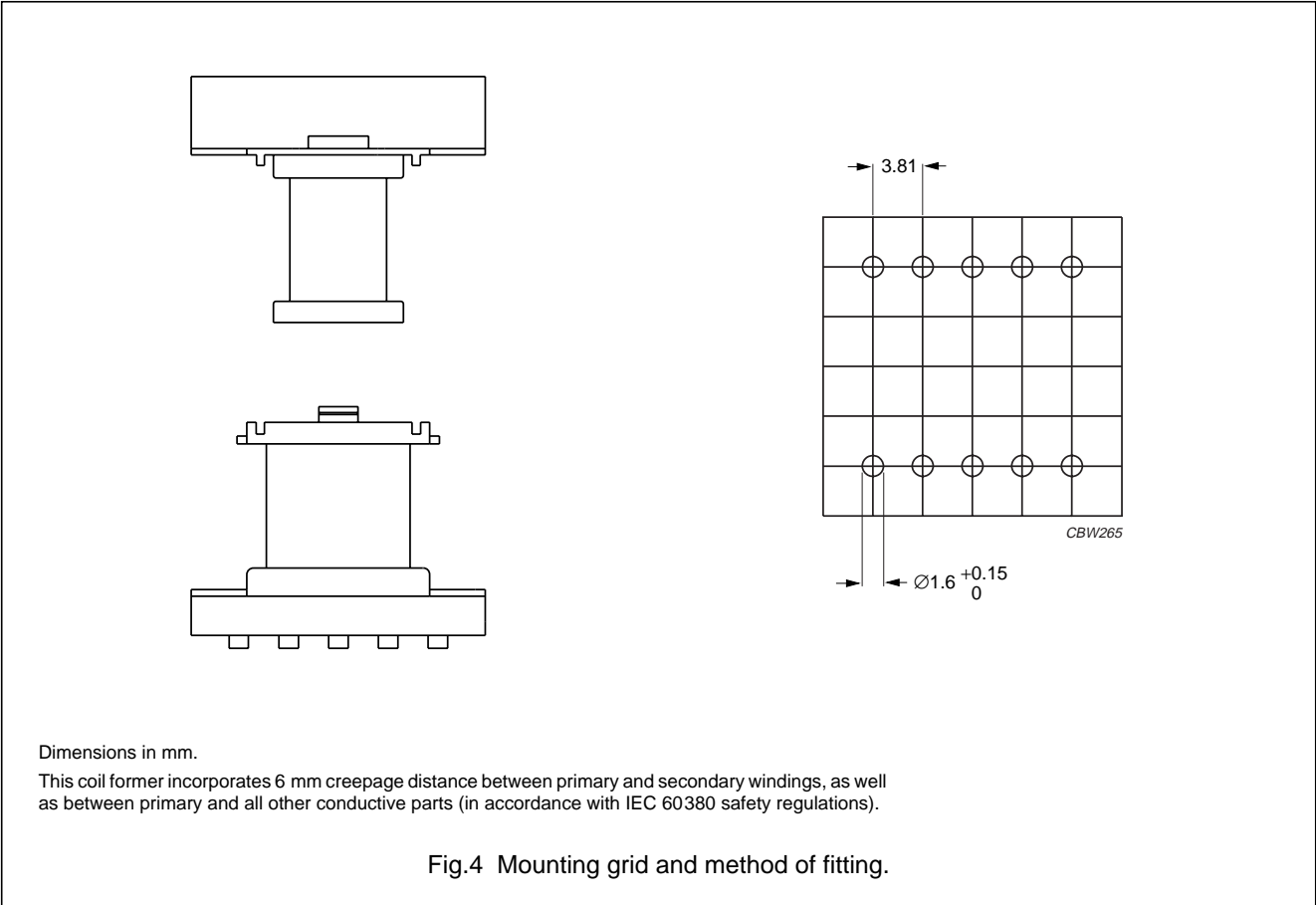


Dimensions in mm.
For mounting grid and method of fitting, see Fig.4.

Fig.3 Coaxial E20/10/6 coil former; 10-pins.

E cores and accessories

E20/10/6



Winding data for coaxial E20/10/6 coil former

NUMBER OF SECTIONS	WINDING AREA (mm ²)	MINIMUM WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	11.3	9.2	34.7	CPCI-E20/6-1S-5P-G; see note 1
1	13.1	9.25	50	CPCO-E20/6-1S-5P-G; see note 1

Note

1. Also available with post-inserted pins. Different number of pins available on request for all types.

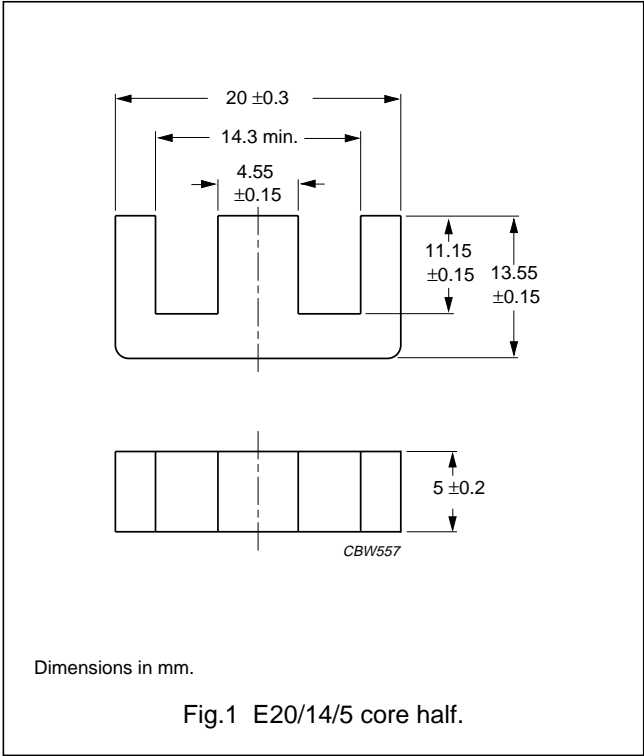
E cores and accessories

E20/14/5
(EC19)

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	2.54	mm^{-1}
V_e	effective volume	1513	mm^3
l_e	effective length	62.0	mm
A_e	effective area	24.4	mm^2
A_{\min}	minimum area	22.8	mm^2
m	mass of core half	≈ 4.3	g



Core halves

Clamping force for A_L measurements, 20 ± 10 N. Gapped cores are available on request.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C90	$900 \pm 25\%$	≈ 1820	≈ 0	E20/14/5-3C90

Core halves of high permeability grades

Clamping force for A_L measurements, 20 ± 10 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3E26	$2300 \pm 25\%$	≈ 4650	≈ 0	E20/14/5-3E26

Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at	
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 25 kHz; \hat{B} = 200 mT; T = 100 °C	f = 100 kHz; \hat{B} = 100 mT; T = 100 °C
3C90	≥ 330	≤ 0.16	≤ 0.18

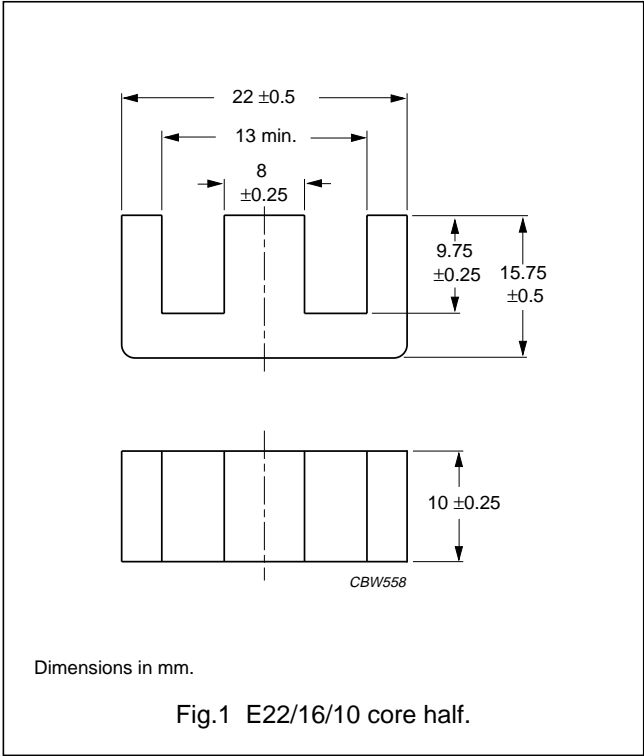
E cores and accessories

E22/16/10

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.695	mm^{-1}
V_e	effective volume	5143	mm^3
l_e	effective length	59.8	mm
A_e	effective area	86	mm^2
A_{\min}	minimum area	80	mm^2
m	mass of core half	≈ 14	g



Core halves

Clamping force for A_L measurements, 20 ± 10 N. Gapped cores are available on request.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C90	$3090 \pm 25\%$	≈ 1710	≈ 0	E22/16/10-3C90

Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at	
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 25 kHz; \hat{B} = 200 mT; T = 100 °C	f = 100 kHz; \hat{B} = 100 mT; T = 100 °C
3C90	≥ 330	≤ 0.55	≤ 0.60

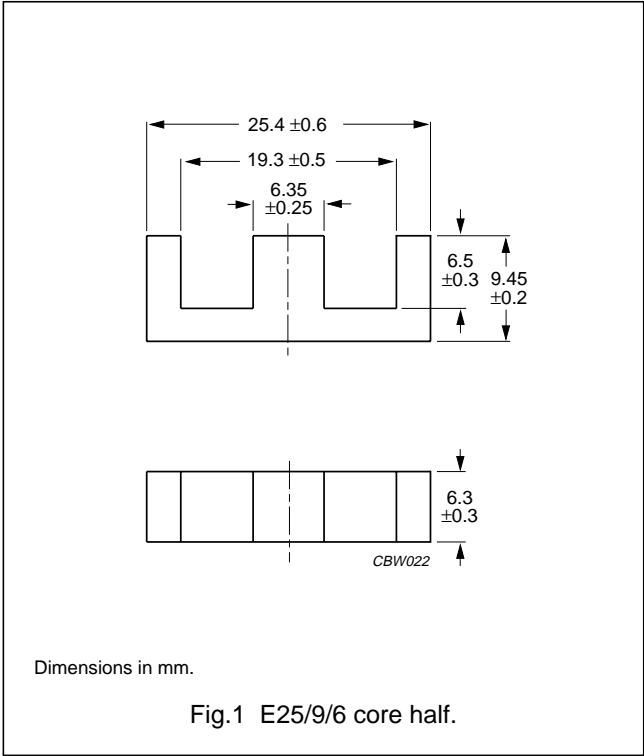
E cores and accessories

E25/9/6

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	1.23	mm^{-1}
V_e	effective volume	1860	mm^3
l_e	effective length	47.4	mm
A_e	effective area	38.4	mm^2
A_{\min}	minimum area	37.0	mm^2
m	mass of core half	≈ 4.8	g



Core halves

Clamping force for A_L measurements 20 ± 10 N. Gapped cores are available on request.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C90	$2000 \pm 25\%$	≈ 1950	≈ 0	E25/9/6-3C90
3C94 des	$1600 \pm 25\%$	≈ 1540	≈ 0	E25/9/6-3C94

Core halves of high permeability grades

Clamping force for A_L measurements 20 ± 10 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3E25 des	$3300 \pm 25\%$	≈ 3200	≈ 0	E25/9/6-3E25

Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at			
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 25 kHz; \hat{B} = 200 mT; T = 100 °C	f = 100 kHz; \hat{B} = 100 mT; T = 100 °C	f = 100 kHz; \hat{B} = 200 mT; T = 100 °C	f = 400 kHz; \hat{B} = 50 mT; T = 100 °C
3C90	≥ 330	≤ 0.20	≤ 0.22	—	—
3C94	≥ 330	—	≤ 0.17	≈ 0.80	≈ 0.35

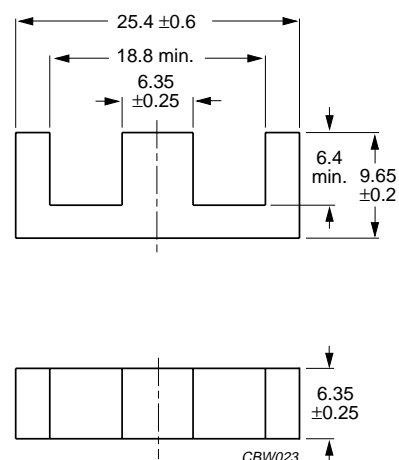
E cores and accessories

E25/10/6

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	1.24	mm ⁻¹
V_e	effective volume	1930	mm ³
l_e	effective length	49.0	mm
A_e	effective area	39.5	mm ²
A_{min}	minimum area	37.0	mm ²
m	mass of core half	≈4.8	g



Dimensions in mm.

Fig.1 E25/10/6 core half.

Core halves

A_L measured in combination with a non-gapped core half, clamping force for A_L measurements 20 ± 10 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μ m)	TYPE NUMBER
3C81	100 $\pm 3\%$	≈100	≈600	E25/10/6-3C81-A100
	160 $\pm 3\%$	≈165	≈340	E25/10/6-3C81-A160
	250 $\pm 3\%$	≈255	≈200	E25/10/6-3C81-A250
	315 $\pm 3\%$	≈320	≈150	E25/10/6-3C81-A315
	400 $\pm 5\%$	≈410	≈110	E25/10/6-3C81-A400
	2340 $\pm 25\%$	≈2390	≈0	E25/10/6-3C81
3C90	100 $\pm 3\%$	≈100	≈600	E25/10/6-3C90-A100
	160 $\pm 3\%$	≈165	≈340	E25/10/6-3C90-A160
	250 $\pm 3\%$	≈255	≈200	E25/10/6-3C90-A250
	315 $\pm 3\%$	≈320	≈150	E25/10/6-3C90-A315
	400 $\pm 5\%$	≈410	≈110	E25/10/6-3C90-A400
	1600 $\pm 25\%$	≈1600	≈0	E25/10/6-3C90
3C94 des	1600 $\pm 25\%$	≈1600	≈0	E25/10/6-3C94
3F3	100 $\pm 3\%$	≈100	≈600	E25/10/6-3F3-A100
	160 $\pm 3\%$	≈165	≈340	E25/10/6-3F3-A160
	250 $\pm 3\%$	≈255	≈200	E25/10/6-3F3-A250
	315 $\pm 3\%$	≈320	≈150	E25/10/6-3F3-A315
	400 $\pm 5\%$	≈410	≈110	E25/10/6-3F3-A400
	1470 $\pm 25\%$	≈1500	≈0	E25/10/6-3F3

E cores and accessories

E25/10/6

Core halves of high permeability grades

Clamping force for A_L measurements 20 ±10 N.

GRADE	A _L (nH)	μ _e	AIR GAP (μm)	TYPE NUMBER
3C11	2600 ±25%	≈2800	≈0	E25/10/6-3C11
3E25 des	3000 ±25%	≈3200	≈0	E25/10/6-3E25
3E27	3200 ±25%	≈3200	≈0	E25/10/6-3E27
3E5	≥5075	≥5075	≈0	E25/10/6-3E5

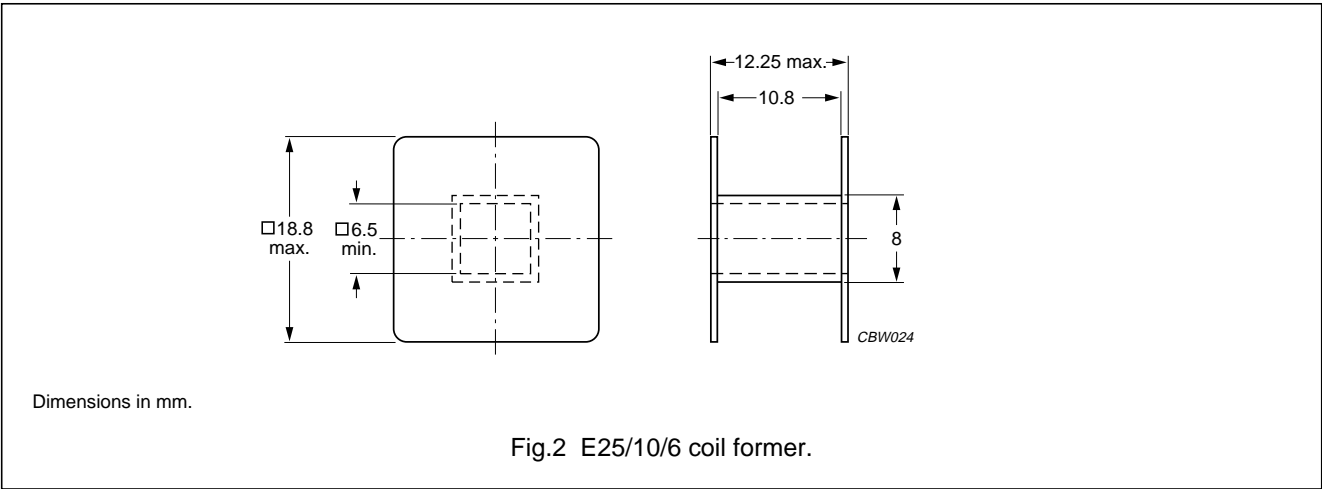
Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at			
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 25 kHz; B̂ = 200 mT; T = 100 °C	f = 100 kHz; B̂ = 100 mT; T = 100 °C	f = 100 kHz; B̂ = 200 mT; T = 100 °C	f = 400 kHz; B̂ = 50 mT; T = 100 °C
3C81	≥320	≤0.4	–	–	–
3C90	≥330	≤0.2	≤0.22	–	–
3C94	≥330	–	≤0.17	≈0.83	≈0.37
3F3	≥320	–	≤0.22	–	≤0.38

COIL FORMERS

General data for E25/10/6 coil former without pins

PARAMETER	SPECIFICATION
Coil former material	polyamide (PA6.6), glass reinforced, flame retardant in accordance with "UL 94V-2"
Maximum operating temperature	105 °C, "IEC 60085", class A



E cores and accessories

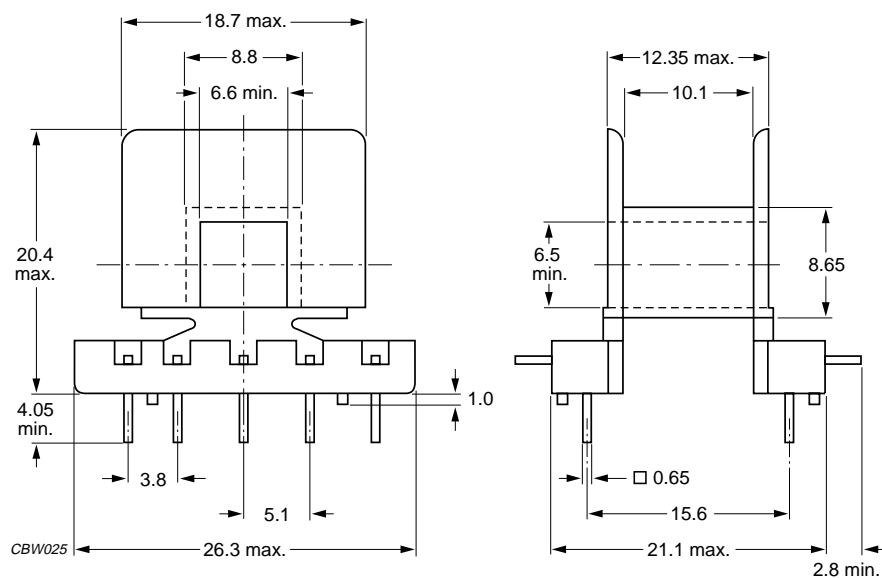
E25/10/6

Winding data for E25/10/6 coil former without pins

NUMBER OF SECTIONS	MINIMUM WINDING AREA (mm²)	NOMINAL WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	56.2	10.8	49.1	CP-E25/10/6-1S

General data for 10-pins E25/10/6 coil former

PARAMETER	SPECIFICATION
Coil former material	polyamide (PA), glass reinforced, flame retardant in accordance with "UL 94-HB"; UL file number E41938(M)
Maximum operating temperature	130 °C, "IEC 60085", class B
Resistance to soldering heat	"IEC 60068-2-20", Part 2, Test Tb, method 1B: 350 °C, 3.5 s
Solderability	"IEC 60068-2-20", Part 2, Test Ta, method 1: 235 °C, 2 s
Pin material	copper-zinc alloy (CuZn), tin-lead alloy (SnPb) plated



Dimensions in mm.

Fig.3 E25/10/6 coil former; 10-pins.

Winding data for 10-pins E25/10/6 coil former

NUMBER OF SECTIONS	MINIMUM WINDING AREA (mm²)	NOMINAL WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	47.4	10.1	53.1	CPH-E25/10/6-1S-10P

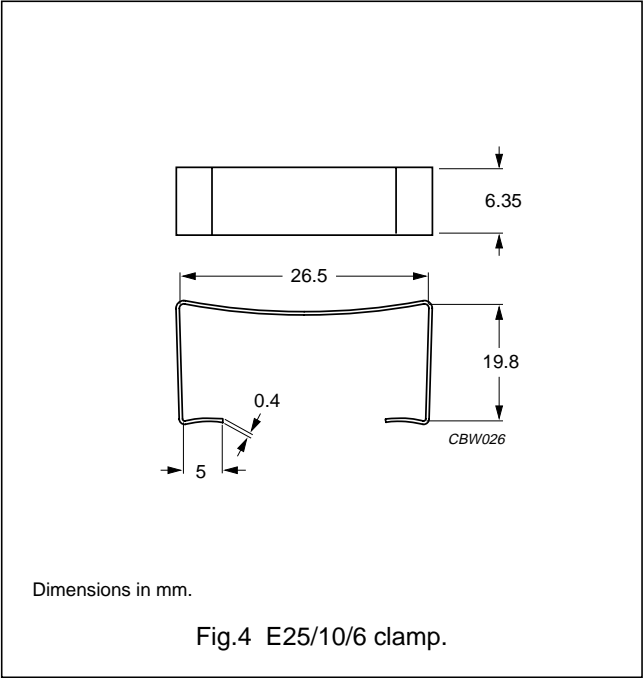
E cores and accessories

E25/10/6

MOUNTING PARTS

General data for mounting parts

ITEM	REMARKS	FIGURE	TYPE NUMBER
Clamp	stainless steel (CrNi); clamping force ≈30 N	4	CLM-E25/10/6



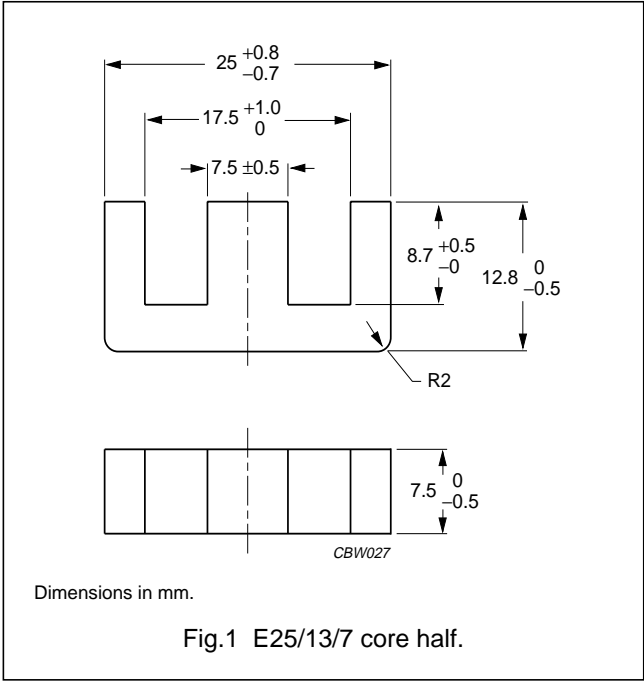
E cores and accessories

E25/13/7
(EF25)

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	1.11	mm^{-1}
V_e	effective volume	2990	mm^3
l_e	effective length	58.0	mm
A_e	effective area	52.0	mm^2
m	mass of core half	≈ 8	g



Core halves

A_L measured in combination with a non-gapped core half, clamping force for A_L measurements 20 ± 10 N unless otherwise stated.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C81	160 $\pm 3\%$	≈ 140	≈ 480	E25/13/7-3C81-A160
	250 $\pm 3\%$	≈ 220	≈ 270	E25/13/7-3C81-A250
	315 $\pm 3\%$	≈ 280	≈ 200	E25/13/7-3C81-A315
	400 $\pm 3\%$	≈ 355	≈ 150	E25/13/7-3C81-A400
	630 $\pm 5\%$	≈ 560	≈ 80	E25/13/7-3C81-A630
	2460 $\pm 25\%$	≈ 2170	≈ 0	E25/13/7-3C81
3C90	160 $\pm 3\%$	≈ 140	≈ 480	E25/13/7-3C90-A160
	250 $\pm 3\%$	≈ 220	≈ 270	E25/13/7-3C90-A250
	315 $\pm 3\%$	≈ 280	≈ 200	E25/13/7-3C90-A315
	400 $\pm 3\%$	≈ 355	≈ 150	E25/13/7-3C90-A400
	630 $\pm 5\%$	≈ 560	≈ 80	E25/13/7-3C90-A630
	1900 $\pm 25\%$	≈ 1700	≈ 0	E25/13/7-3C90
3C94 des	1900 $\pm 25\%$	≈ 1700	≈ 0	E25/13/7-3C94
3F3	160 $\pm 3\%$	≈ 140	≈ 480	E25/13/7-3F3-A160
	250 $\pm 3\%$	≈ 220	≈ 270	E25/13/7-3F3-A250
	315 $\pm 3\%$	≈ 280	≈ 200	E25/13/7-3F3-A315
	400 $\pm 3\%$	≈ 355	≈ 150	E25/13/7-3F3-A400
	630 $\pm 5\%$	≈ 560	≈ 80	E25/13/7-3F3-A630
	1650 $\pm 25\%$	≈ 1460	≈ 0	E25/13/7-3F3

E cores and accessories

E25/13/7
(EF25)

Core halves of high permeability grades

Clamping force for A_L measurements 20 ± 10 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C11	$3100 \pm 25\%$	≈ 2800	≈ 0	E25/13/7-3C11
3E25 ^{sup}	$4000 \pm 25\%$	≈ 3530	≈ 0	E25/13/7-3E25
3E27	$4000 \pm 25\%$	≈ 3530	≈ 0	E25/13/7-3E27

Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at			
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 25 kHz; $\hat{B} = 200$ mT; T = 100 °C	f = 100 kHz; $\hat{B} = 100$ mT; T = 100 °C	f = 100 kHz; $\hat{B} = 200$ mT; T = 100 °C	f = 400 kHz; $\hat{B} = 50$ mT; T = 100 °C
3C81	≥ 320	≤ 0.61	–	–	–
3C90	≥ 330	≤ 0.35	≤ 0.38	–	–
3C94	≥ 330	–	≤ 0.27	≈ 1.30	≈ 0.57
3F3	≥ 320	–	≤ 0.38	–	≤ 0.65

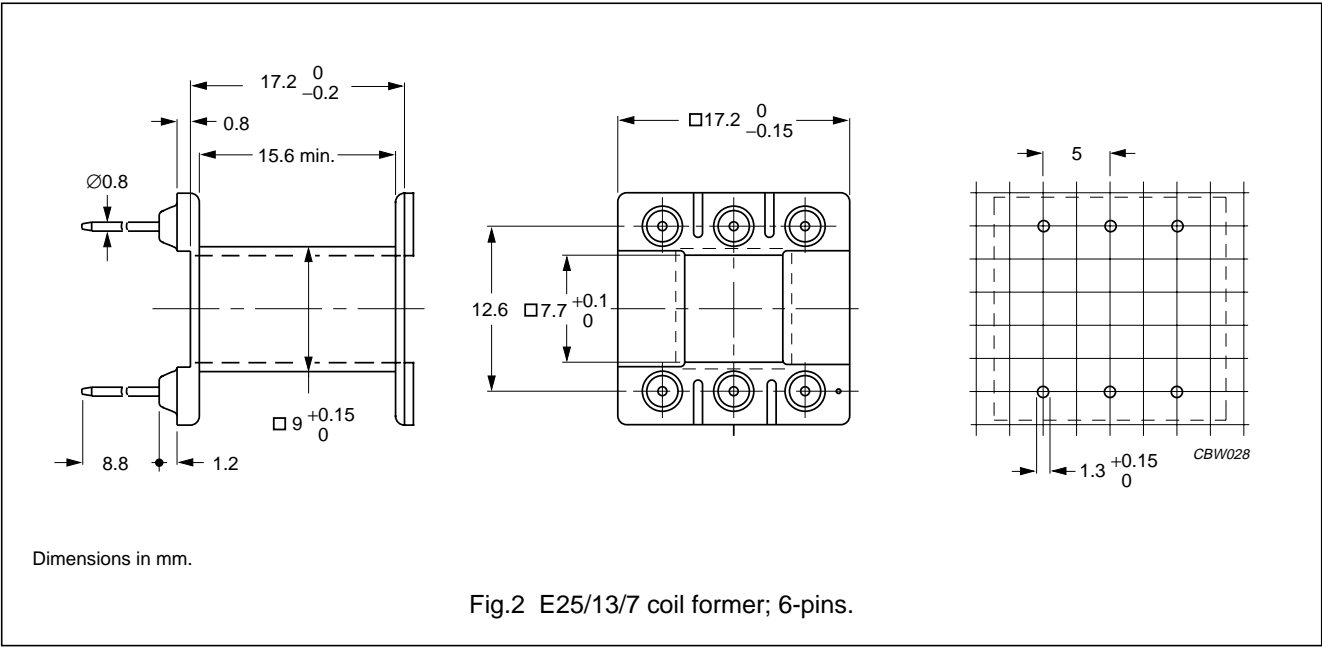
E cores and accessories

E25/13/7
(EF25)

COIL FORMER

General data for 6-pins E25/13/7 coil former

PARAMETER	SPECIFICATION
Coil former material	polybutyleneterephthalate (PBT), glass reinforced, flame retardant in accordance with "UL 94V-0"; UL file number E41871(M)
Pin material	copper-tin alloy (CuSn), tin-lead alloy (SnPb) plated
Maximum operating temperature	155 °C, "IEC 60085", class F
Resistance to soldering heat	"IEC 60068-2-20", Part 2, Test Tb, method 1B, 350 °C, 3.5 s
Solderability	"IEC 60068-2-20", Part 2, Test Ta, method 1, 235 °C, 2 s



Winding data for 6-pins E25/13/7 coil former

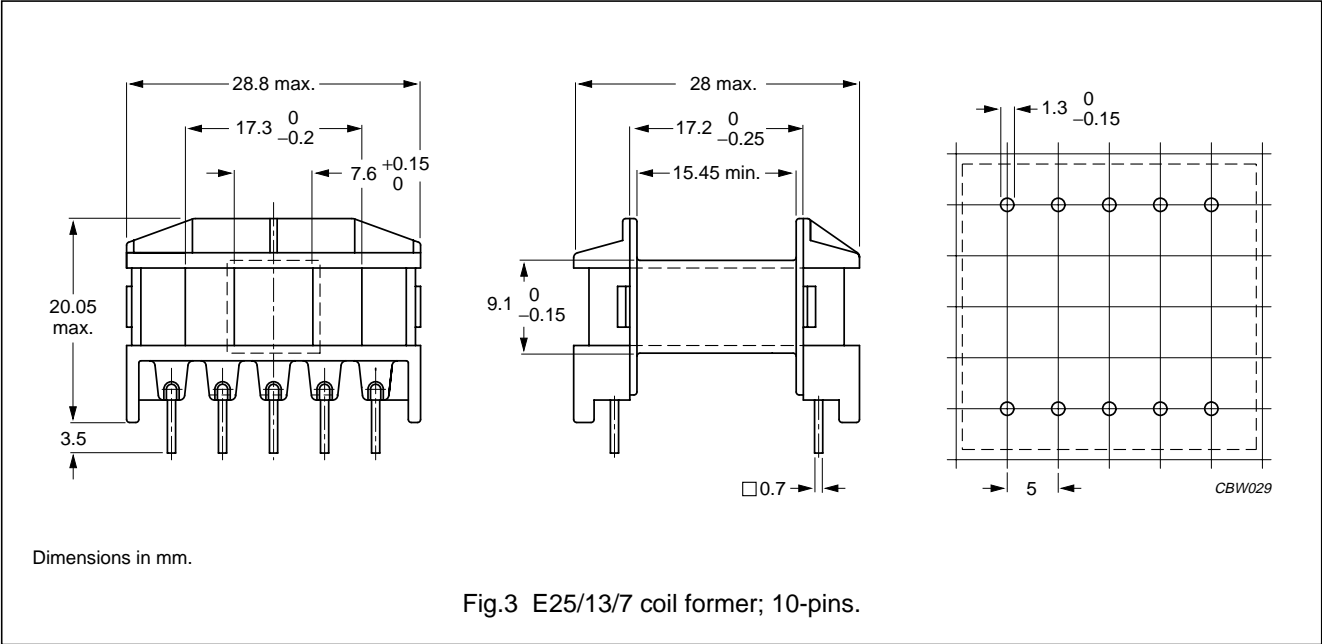
NUMBER OF SECTIONS	WINDING AREA (mm ²)	MINIMUM WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	56	15.6	49	CPV-E25/13/7-1S-6P

E cores and accessories

E25/13/7
(EF25)

General data for 10-pins E25/13/7 coil former

PARAMETER	SPECIFICATION
Coil former material	polybutyleneterephthalate (PBT), glass reinforced, flame retardant in accordance with "UL 94V-0"; UL file number E41871(M)
Pin material	copper-tin alloy (CuSn), tin-lead alloy (SnPb) plated
Maximum operating temperature	155 °C, "IEC 60085", class F
Resistance to soldering heat	"IEC 60068-2-20", Part 2, Test Tb, method 1B, 350 °C, 3.5 s
Solderability	"IEC 60068-2-20", Part 2, Test Ta, method 1, 235 °C, 2 s



Winding data for 10-pins E25/13/7 coil former

NUMBER OF SECTIONS	WINDING AREA (mm ²)	MINIMUM WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	63.3	15.45	52.8	CPH-E25/13/7-1S-10P

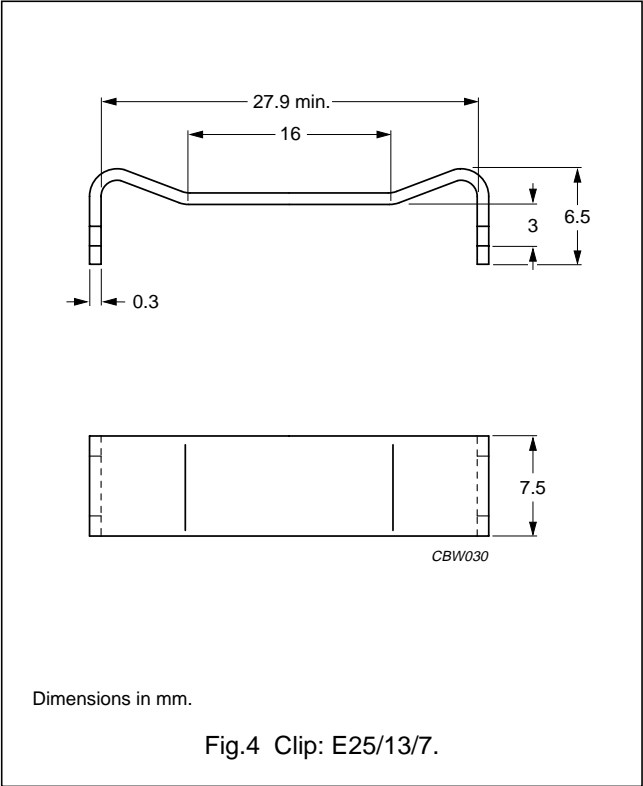
E cores and accessories

E25/13/7
(EF25)

MOUNTING PARTS

General data for mounting parts

ITEM	REMARKS	FIGURE	TYPE NUMBER
Clip	stainless steel (CrNi)	4	CLI-E25/13/7



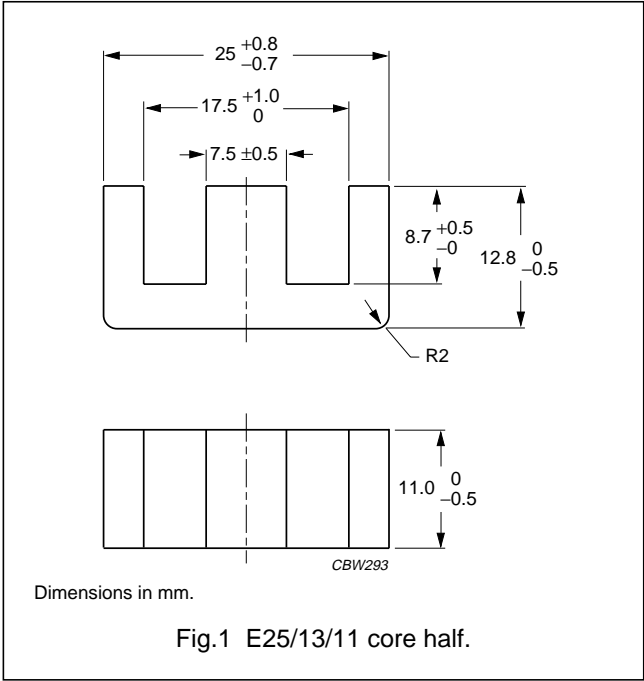
E cores and accessories

E25/13/11

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.733	mm ⁻¹
V_e	effective volume	4500	mm ³
l_e	effective length	57.5	mm
A_e	effective area	78.4	mm ²
m	mass of core half	≈11	g



Core halves

Gapped cores are available on request, clamping force for A_L measurements 20 ± 10 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μ m)	TYPE NUMBER
3C90	$2800 \pm 25\%$	≈1 780	≈0	E25/13/11-3C90
3C94 des	$2800 \pm 25\%$	≈1 780	≈0	E25/13/11-3C94
3F3	$2700 \pm 25\%$	≈1 660	≈0	E25/13/11-3F3

Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at			
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 25 kHz; \hat{B} = 200 mT; T = 100 °C	f = 100 kHz; \hat{B} = 100 mT; T = 100 °C	f = 100 kHz; \hat{B} = 200 mT; T = 100 °C	f = 400 kHz; \hat{B} = 50 mT; T = 100 °C
3C90	≥330	≤0.55	≤0.55	–	–
3C94	≥330	–	≤0.40	≈1.95	≈0.86
3F3	≥320	–	≤0.55	–	≤0.95

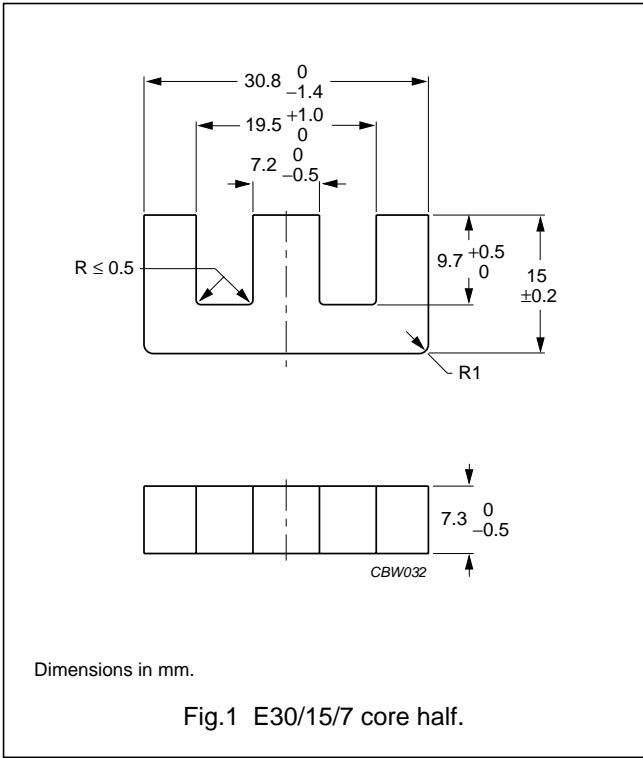
E cores and accessories

E30/15/7

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(I/A)$	core factor (C1)	1.12	mm^{-1}
V_e	effective volume	4000	mm^3
l_e	effective length	67.0	mm
A_e	effective area	60.0	mm^2
A_{\min}	minimum area	49.0	mm^2
m	mass of core half	≈ 11	g



Core halves

A_L measured in combination with a non-gapped core half, clamping force for A_L measurements 20 ± 10 N, unless stated otherwise.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C81	$160 \pm 3\%$	≈ 145	≈ 530	E30/15/7-3C81-A160
	$250 \pm 3\%$	≈ 225	≈ 300	E30/15/7-3C81-A250
	$315 \pm 3\%$	≈ 285	≈ 230	E30/15/7-3C81-A315
	$400 \pm 3\%$	≈ 365	≈ 170	E30/15/7-3C81-A400
	$630 \pm 5\%$	≈ 580	≈ 90	E30/15/7-3C81-A630
	$2500 \pm 25\%$	≈ 2270	≈ 0	E30/15/7-3C81
3C90	$160 \pm 3\%$	≈ 145	≈ 530	E30/15/7-3C90-A160
	$250 \pm 3\%$	≈ 225	≈ 300	E30/15/7-3C90-A250
	$315 \pm 3\%$	≈ 285	≈ 230	E30/15/7-3C90-A315
	$400 \pm 3\%$	≈ 365	≈ 170	E30/15/7-3C90-A400
	$630 \pm 5\%$	≈ 580	≈ 90	E30/15/7-3C90-A630
	$1900 \pm 25\%$	≈ 1700	≈ 0	E30/15/7-3C90
3C94 des	$2000 \pm 25\%$	≈ 1780	≈ 0	E30/15/7-3C94

E cores and accessories

E30/15/7

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3F3	$160 \pm 3\%$	≈ 145	≈ 530	E30/15/7-3F3-A160
	$250 \pm 3\%$	≈ 225	≈ 300	E30/15/7-3F3-A250
	$315 \pm 3\%$	≈ 285	≈ 230	E30/15/7-3F3-A315
	$400 \pm 3\%$	≈ 365	≈ 170	E30/15/7-3F3-A400
	$630 \pm 5\%$	≈ 580	≈ 90	E30/15/7-3F3-A630
	$1600 \pm 25\%$	≈ 1430	≈ 0	E30/15/7-3F3

Core halves of high permeability grades

Clamping force for A_L measurements 20 ± 10 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C11	$3300 \pm 25\%$	≈ 2900	≈ 0	E30/15/7-3C11
3E25 ^{sup}	$4100 \pm 25\%$	≈ 3650	≈ 0	E30/15/7-3E25
3E27	$4100 \pm 25\%$	≈ 3650	≈ 0	E30/15/7-3E27

Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at			
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 25 kHz; $\hat{B} = 200$ mT; T = 100 °C	f = 100 kHz; $\hat{B} = 100$ mT; T = 100 °C	f = 100 kHz; $\hat{B} = 200$ mT; T = 100 °C	f = 400 kHz; $\hat{B} = 50$ mT; T = 100 °C
3C81	≥ 320	≤ 0.82	–	–	–
3C90	≥ 330	≤ 0.45	≤ 0.48	–	–
3C94	≥ 330	–	≤ 0.36	≈ 1.8	≈ 0.76
3F3	≥ 320	–	≤ 0.47	–	≤ 0.80

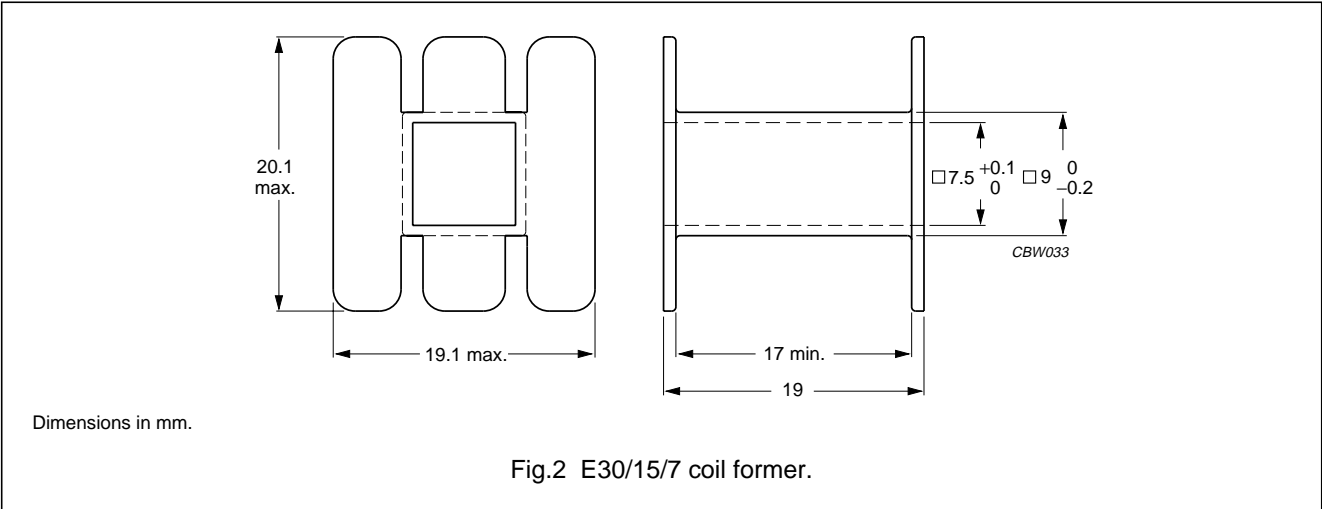
E cores and accessories

E30/15/7

COIL FORMERS

GENERAL DATA FOR E30/15/7 COIL FORMER WITHOUT PINS

PARAMETER	SPECIFICATION
Coil former material	polyamide (PA6.6), glass reinforced, flame retardant in accordance with "UL 94-HB"; UL file number E41613(M)
Maximum operating temperature	120 °C



WINDING DATA FOR E30/15/7 COIL FORMER WITHOUT PINS (E)

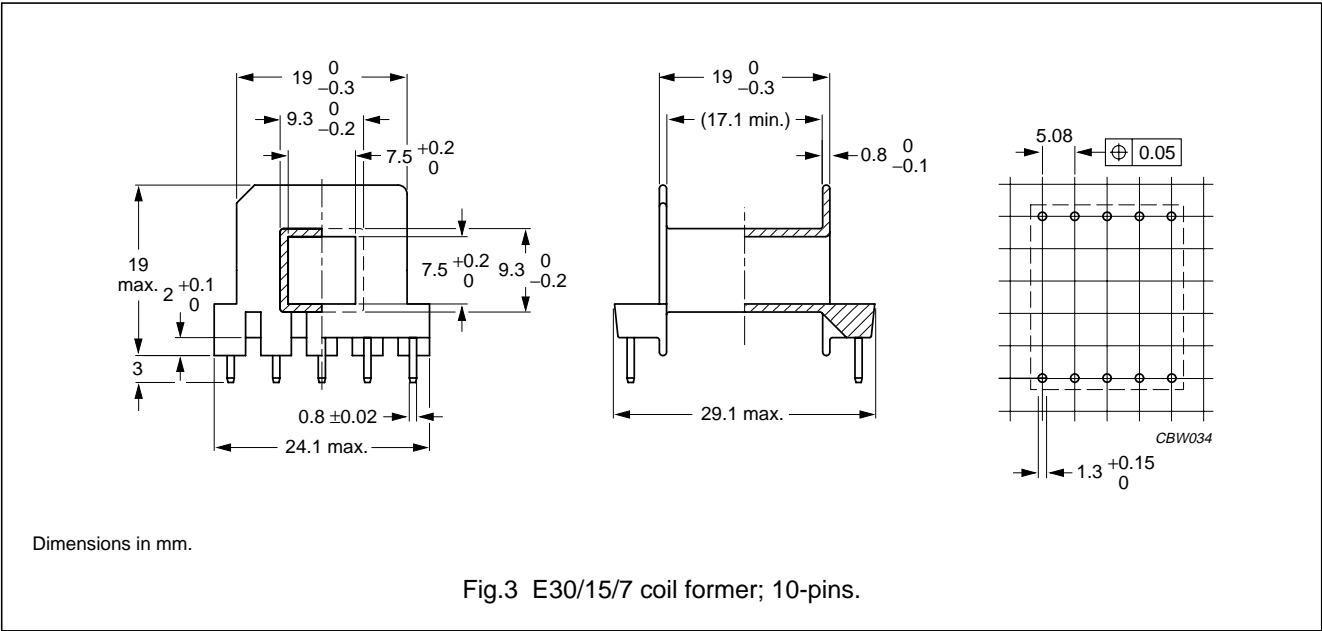
NUMBER OF SECTIONS	WINDING AREA (mm ²)	MINIMUM WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	80	16.8	56	CP-E30/15/7-1S

E cores and accessories

E30/15/7

GENERAL DATA FOR 10-PINS E30/15/7 COIL FORMER

PARAMETER	SPECIFICATION
Coil former material	phenolformaldehyde (PF), glass reinforced, flame retardant in accordance with "UL 94V-0"; UL file number E167521(M)
Pin material	copper-tin alloy (CuSn), tin-lead alloy (SnPb) plated
Maximum operating temperature	180 °C, "IEC 60085", class H
Resistance to soldering heat	"IEC 60068-2-20", Part 2, Test Tb, method 1B: 350 °C, 3.5 s
Solderability	"IEC 60068-2-20", Part 2, Test Ta, method 1: 235 °C, 2 s



WINDING DATA FOR 10-PINS E30/15/7 COIL FORMER (E)

NUMBER OF NECTIONS	WINDING AREA (mm ²)	MINIMUM WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	80	17.1	56	CSH-E30/7-1S-10P

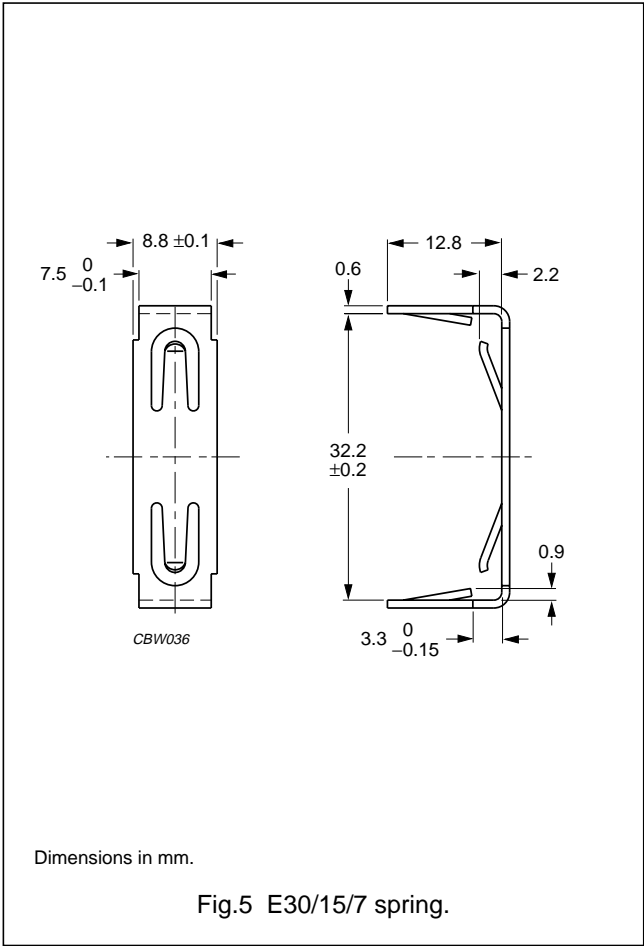
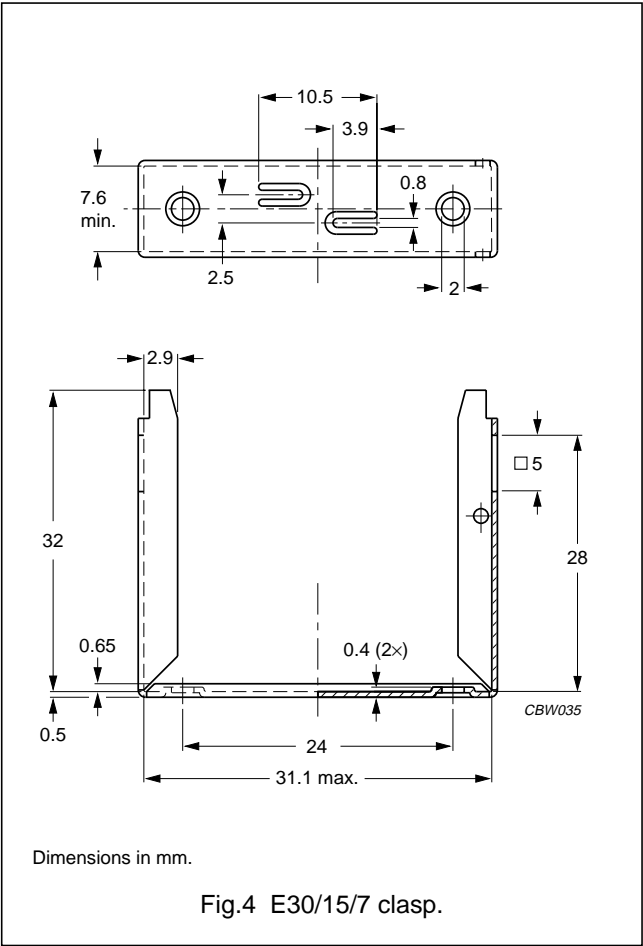
E cores and accessories

E30/15/7

MOUNTING PARTS

General data and ordering information

ITEM	REMARKS	FIGURE	TYPE NUMBER
Clasp	CuZn alloy, Ni plated	4	CLA-E30/15/7
Spring	stainless steel (CrNi)	5	SPR-E30/15/7



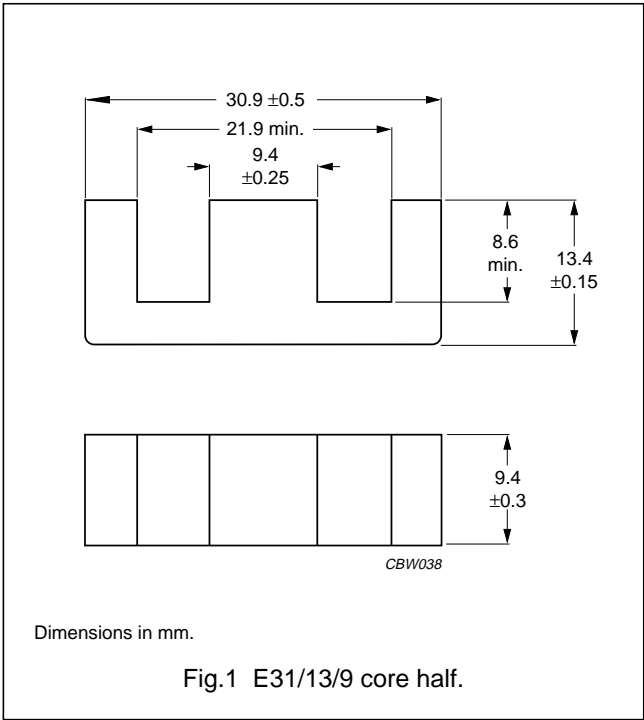
E cores and accessories

E31/13/9

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(I/A)$	core factor (C1)	0.740	mm^{-1}
V_e	effective volume	5150	mm^3
l_e	effective length	61.9	mm
A_e	effective area	83.2	mm^2
m	mass of core half	≈ 13	g



Core halves

A_L measured in combination with a non-gapped core half, clamping force for A_L measurements 40 ± 20 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C81	$250 \pm 3\%$	≈ 150	≈ 470	E31/13/9-3C81-A250
	$315 \pm 3\%$	≈ 190	≈ 350	E31/13/9-3C81-A315
	$400 \pm 3\%$	≈ 235	≈ 260	E31/13/9-3C81-A400
	$630 \pm 3\%$	≈ 375	≈ 150	E31/13/9-3C81-A630
	$1000 \pm 5\%$	≈ 590	≈ 80	E31/13/9-3C81-A1000
	$3735 \pm 25\%$	≈ 2200	≈ 0	E31/13/9-3C81
3C90	$250 \pm 3\%$	≈ 150	≈ 470	E31/13/9-3C90-A250
	$315 \pm 3\%$	≈ 190	≈ 350	E31/13/9-3C90-A315
	$400 \pm 3\%$	≈ 235	≈ 260	E31/13/9-3C90-A400
	$630 \pm 3\%$	≈ 375	≈ 150	E31/13/9-3C90-A630
	$1000 \pm 5\%$	≈ 590	≈ 80	E31/13/9-3C90-A1000
	$2970 \pm 25\%$	≈ 1750	≈ 0	E31/13/9-3C90
3C94 des	$2970 \pm 25\%$	≈ 1750	≈ 0	E31/13/9-3C94
3F3	$250 \pm 3\%$	≈ 150	≈ 470	E31/13/9-3F3-A250
	$315 \pm 3\%$	≈ 190	≈ 350	E31/13/9-3F3-A315
	$400 \pm 3\%$	≈ 235	≈ 260	E31/13/9-3F3-A400
	$630 \pm 3\%$	≈ 375	≈ 150	E31/13/9-3F3-A630
	$1000 \pm 5\%$	≈ 590	≈ 80	E31/13/9-3F3-A1000
	$2650 \pm 25\%$	≈ 1560	≈ 0	E31/13/9-3F3

E cores and accessories

E31/13/9

Core halves of high permeability gradesClamping force for A_L measurements 40 ± 20 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3E25 ^{sup}	$6790 \pm 25\%$	≈ 4000	≈ 0	E31/13/9-3E25
3E27	$6790 \pm 25\%$	≈ 4000	≈ 0	E31/13/9-3E27

Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at			
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 25 kHz; \hat{B} = 200 mT; T = 100 °C	f = 100 kHz; \hat{B} = 100 mT; T = 100 °C	f = 100 kHz; \hat{B} = 200 mT; T = 100 °C	f = 400 kHz; \hat{B} = 50 mT; T = 100 °C
3C81	≥ 320	≤ 1.1	–	–	–
3C90	≥ 320	≤ 0.52	≤ 0.58	–	–
3C94	≥ 320	–	≤ 0.46	≈ 2.2	≈ 0.98
3F3	≥ 320	–	≤ 0.57	–	≤ 0.98

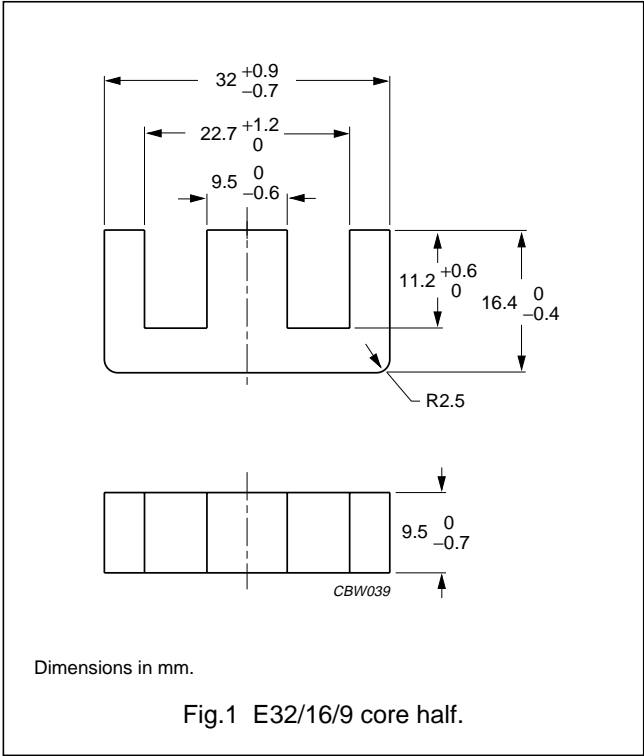
E cores and accessories

E32/16/9
(EF32)

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.894	mm ⁻¹
V_e	effective volume	6180	mm ³
l_e	effective length	74	mm
A_e	effective area	83	mm ²
m	mass of core half	≈16	g



Core halves

Clamping force for A_L measurements 20 ± 10 N. Gapped cores are available on request.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C90	$2500 \pm 25\%$	≈1850	≈0	E32/16/9-3C90
3C94 <small>des</small>	$2500 \pm 25\%$	≈1850	≈0	E32/16/9-3C94
3F3	$2300 \pm 25\%$	≈1700	≈0	E32/16/9-3F3

Core halves of high permeability grades

Clamping force for A_L measurements 20 ± 10 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C11	$4000 \pm 25\%$	≈2950	≈0	E32/16/9-3C11
3E25 <small>des</small>	$5000 \pm 25\%$	≈3700	≈0	E32/16/9-3E25

Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at			
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 25 kHz; B̂ = 200 mT; T = 100 °C	f = 100 kHz; B̂ = 100 mT; T = 100 °C	f = 100 kHz; B̂ = 200 mT; T = 100 °C	f = 400 kHz; B̂ = 50 mT; T = 100 °C
3C90	≥330	≤0.65	≤0.70	–	–
3C94	≥330	–	≤0.55	≈2.70	≈1.20
3F3	≥320	–	≤0.75	–	≤1.25

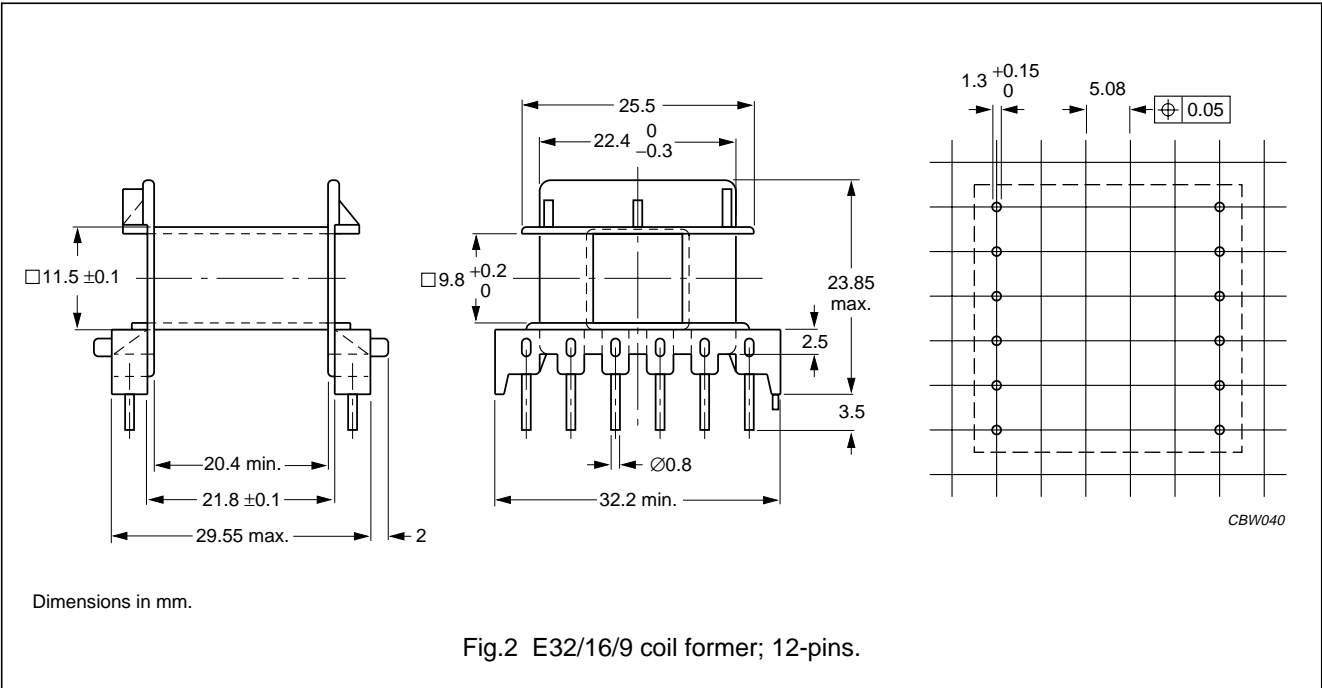
E cores and accessories

E32/16/9
(EF32)

COIL FORMER

General data for 12-pins E32/16/9 coil former

PARAMETER	SPECIFICATION
Coil former material	polyamide (PA6.6), glass reinforced, flame retardant in accordance with "UL 94V-0"; UL file number E41871(M)
Pin material	copper-tin alloy (CuSn), tin-lead alloy (SnPb) plated
Maximum operating temperature	130 °C, "IEC 60085", class B
Resistance to soldering heat	"IEC 60068-2-20", Part 2, Test Tb, method 1B: 350 °C, 3.5 s
Solderability	"IEC 60068-2-20", Part 2, Test Ta, method 1: 235 °C, 2 s



Winding data for 12-pins E32/16/9 coil former

NUMBER OF SECTIONS	WINDING AREA (mm ²)	MINIMUM WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	97	20.4	60	CPH-E32/16/9-1S-12P

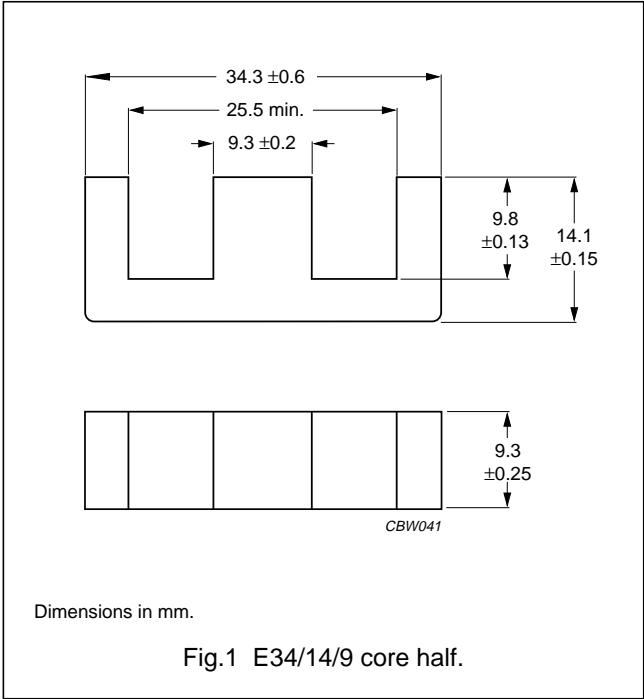
E cores and accessories

E34/14/9
(E375)

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.850	mm ⁻¹
V_e	effective volume	5590	mm ³
l_e	effective length	69.3	mm
A_e	effective area	80.7	mm ²
m	mass of core half	≈14	g



Core halves

A_L measured in combination with a non-gapped core half, clamping force for A_L measurements 40 ± 20 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C81	250 $\pm 3\%$	≈170	≈450	E34/14/9-3C81-A250
	315 $\pm 3\%$	≈215	≈340	E34/14/9-3C81-A315
	400 $\pm 3\%$	≈270	≈250	E34/14/9-3C81-A400
	630 $\pm 3\%$	≈430	≈140	E34/14/9-3C81-A630
	1000 $\pm 5\%$	≈680	≈70	E34/14/9-3C81-A1000
	3200 $\pm 25\%$	≈2170	≈0	E34/14/9-3C81
3C90	250 $\pm 3\%$	≈170	≈450	E34/14/9-3C90-A250
	315 $\pm 3\%$	≈215	≈340	E34/14/9-3C90-A315
	400 $\pm 3\%$	≈270	≈250	E34/14/9-3C90-A400
	630 $\pm 3\%$	≈430	≈140	E34/14/9-3C90-A630
	1000 $\pm 5\%$	≈680	≈70	E34/14/9-3C90-A1000
	2440 $\pm 25\%$	≈1660	≈0	E34/14/9-3C90
3C94 des	2440 $\pm 25\%$	≈1660	≈0	E34/14/9-3C94
3F3	250 $\pm 3\%$	≈170	≈450	E34/14/9-3F3-A250
	315 $\pm 3\%$	≈215	≈340	E34/14/9-3F3-A315
	400 $\pm 3\%$	≈270	≈250	E34/14/9-3F3-A400
	630 $\pm 3\%$	≈430	≈140	E34/14/9-3F3-A630
	1000 $\pm 5\%$	≈680	≈70	E34/14/9-3F3-A1000
	2125 $\pm 25\%$	≈1440	≈0	E34/14/9-3F3

E cores and accessories

E34/14/9
(E375)

Core halves of high permeability grades
Clamping force for A_L measurements 40 ± 20 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3E25 ^{sup}	$4695 \pm 25\%$	≈ 3190	≈ 0	E34/14/9-3E25
3E27	$4695 \pm 25\%$	≈ 3190	≈ 0	E34/14/9-3E27

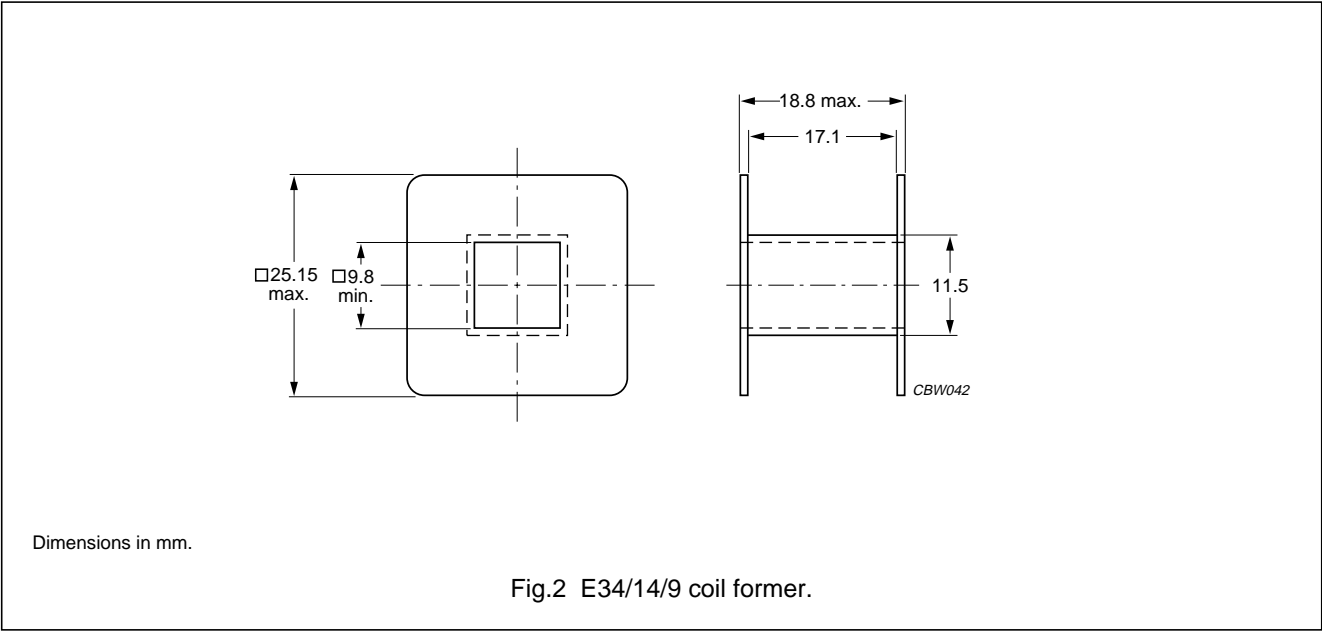
Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at			
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 25 kHz; \hat{B} = 200 mT; T = 100 °C	f = 100 kHz; \hat{B} = 100 mT; T = 100 °C	f = 100 kHz; \hat{B} = 200 mT; T = 100 °C	f = 400 kHz; \hat{B} = 50 mT; T = 100 °C
3C81	≥ 320	≤ 1.20	–	–	–
3C90	≥ 320	≤ 0.56	≤ 0.63	–	–
3C94	≥ 320	–	≤ 0.50	≈ 2.40	≈ 1.10
3F3	≥ 320	–	≤ 0.62	–	≤ 1.10

COIL FORMERS

General data for E34/14/9 coil former

PARAMETER	SPECIFICATION
Coil former material	polyamide (PA6.6), glass reinforced, flame retardant in accordance with “UL 94-HB”; UL file number E41938(M)
Maximum operating temperature	130 °C, “IEC 60085”, class B



E cores and accessories

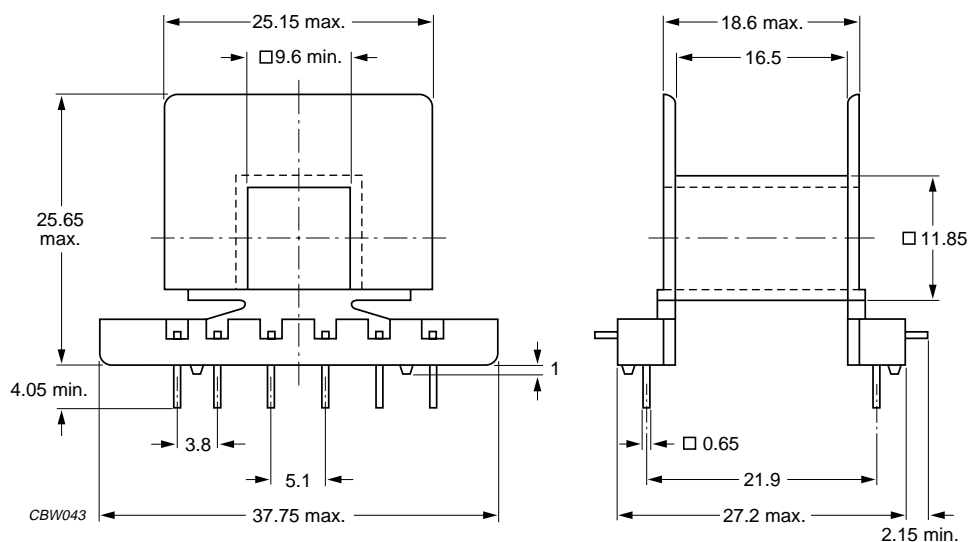
E34/14/9
(E375)

Winding data for E34/14/9 coil former without pins

NUMBER OF SECTIONS	MINIMUM WINDING AREA (mm ²)	NOMINAL WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	111	17.1	67.0	CP-E34/14/9-1S

General data for 12-pins E34/14/9 coil former

PARAMETER	SPECIFICATION
Coil former material	polyamide (PA6.6), glass reinforced, flame retardant in accordance with “UL 94-HB”; UL file number E41938(M)
Maximum operating temperature	130 °C, “IEC 60085”, class B
Pin material	copper-zinc alloy (CuZnP), tin-lead alloy (SnPb) plated
Resistance to soldering heat	“IEC 60068-2-20”, Part 2, Test Tb, method 1B: 350 °C, 3.5 s
Solderability	“IEC 60068-2-20”, Part 2, Test Ta, method 1: 235 °C, 2 s



Dimensions in mm.

Fig.3 E34/14/9 coil former: 12-pins.

Winding data for 12-pins E34/14/9 coil former

NUMBER OF SECTIONS	MINIMUM WINDING AREA (mm ²)	NOMINAL WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	102	16.5	69.0	CPH-E34/14/9-1S-12PD

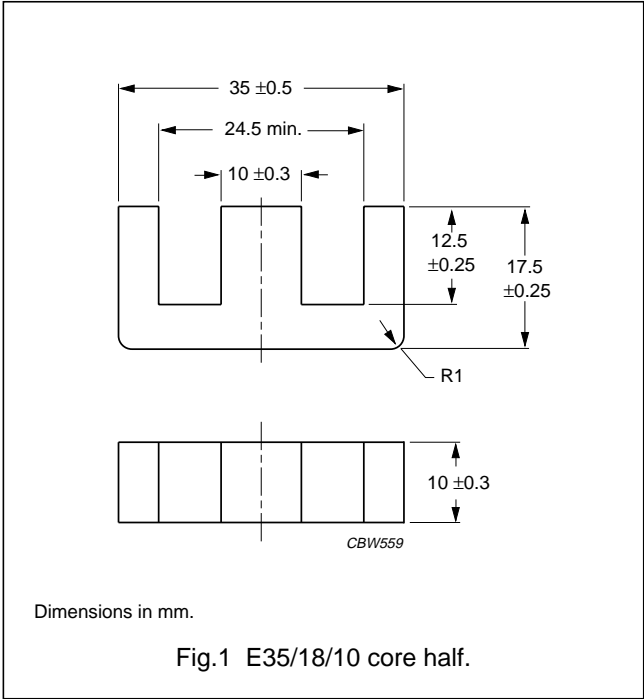
E cores and accessories

E35/18/10

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.807	mm^{-1}
V_e	effective volume	8070	mm^3
l_e	effective length	80.7	mm
A_e	effective area	100	mm^2
A_{min}	minimum area	100	mm^2
m	mass of core half	≈ 15	g



Core halves

A_L measured in combination with a non-gapped core half, clamping force for A_L measurements 30 ± 15 N.
Gapped cores are available on request.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C90	$2500 \pm 3\%$	≈ 1600	≈ 0	E35/18/10-3C90

Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at	
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 25 kHz; $\hat{B} = 200$ mT; T = 100 °C	f = 100 kHz; $\hat{B} = 100$ mT; T = 100 °C
3C90	≥ 330	≤ 0.95	≤ 1.10

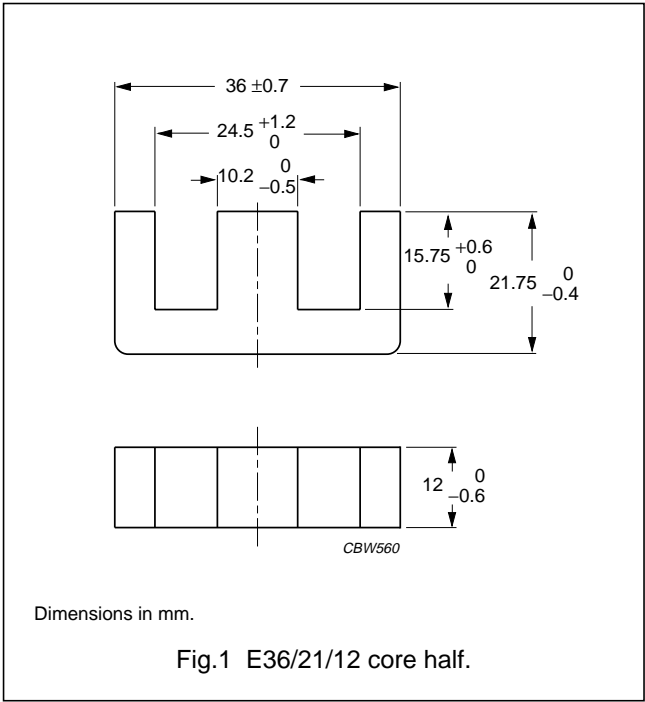
E cores and accessories

E36/21/12

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.762	mm^{-1}
V_e	effective volume	12160	mm^3
l_e	effective length	96	mm
A_e	effective area	126	mm^2
A_{\min}	minimum area	121	mm^2
m	mass of core half	≈ 31	g



Core halves

A_L measured in combination with a non-gapped core half, clamping force for A_L measurements 40 ± 20 N.
Gapped cores are available on request.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C90	$2650 \pm 3\%$	≈ 1610	≈ 0	E36/21/12-3C90

Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at	
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 25 kHz; \hat{B} = 200 mT; T = 100 °C	f = 100 kHz; \hat{B} = 100 mT; T = 100 °C
3C90	≥ 330	≤ 1.40	≤ 1.50

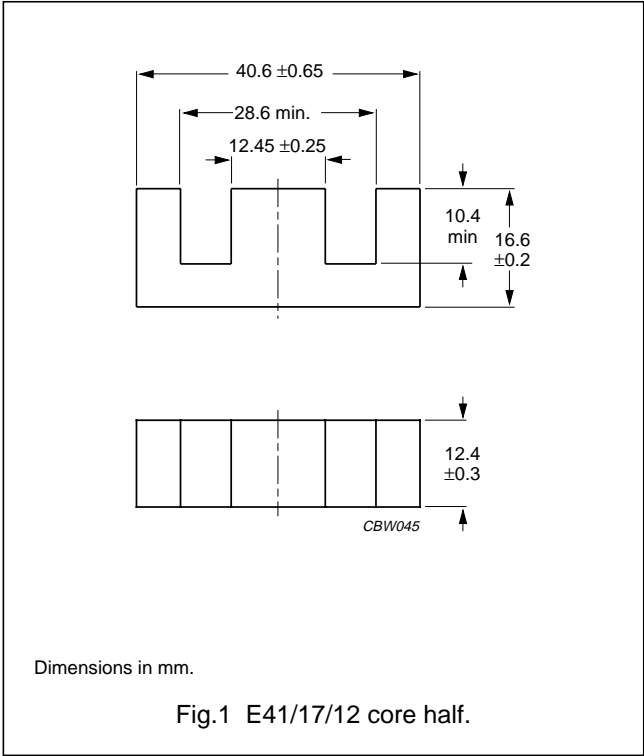
E cores and accessories

E41/17/12

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.517	mm^{-1}
V_e	effective volume	11500	mm^3
l_e	effective length	77.0	mm
A_e	effective area	149	mm^2
A_{min}	minimum area	142	mm^2
m	mass of core half	≈ 30	g



Core halves

A_L measured in combination with a non-gapped core half, clamping force for A_L measurements 40 ± 20 N, unless stated otherwise.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C81	$250 \pm 3\%^{(1)}$	≈ 105	≈ 880	E41/17/12-3C81-E250
	$315 \pm 5\%^{(1)}$	≈ 130	≈ 670	E41/17/12-3C81-E315
	$400 \pm 5\%$	≈ 165	≈ 500	E41/17/12-3C81-A400
	$630 \pm 10\%$	≈ 260	≈ 290	E41/17/12-3C81-A630
	$1000 \pm 10\%$	≈ 415	≈ 160	E41/17/12-3C81-A1000
	$5370 \pm 25\%$	≈ 2230	≈ 0	E41/17/12-3C81
3C90	$250 \pm 3\%^{(1)}$	≈ 105	≈ 880	E41/17/12-3C90-E250
	$315 \pm 5\%^{(1)}$	≈ 130	≈ 670	E41/17/12-3C90-E315
	$400 \pm 5\%$	≈ 165	≈ 500	E41/17/12-3C90-A400
	$630 \pm 10\%$	≈ 260	≈ 290	E41/17/12-3C90-A630
	$1000 \pm 10\%$	≈ 415	≈ 160	E41/17/12-3C90-A1000
	$4100 \pm 25\%$	≈ 1800	≈ 0	E41/17/12-3C90
3C94 des	$4100 \pm 25\%$	≈ 1800	≈ 0	E41/17/12-3C94

E cores and accessories

E41/17/12

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3F3	$250 \pm 3\%^{(1)}$	≈ 105	≈ 880	E41/17/12-3F3-E250
	$315 \pm 5\%^{(1)}$	≈ 130	≈ 670	E41/17/12-3F3-E315
	$400 \pm 5\%$	≈ 165	≈ 500	E41/17/12-3F3-A400
	$630 \pm 10\%$	≈ 260	≈ 290	E41/17/12-3F3-A630
	$1000 \pm 10\%$	≈ 415	≈ 160	E41/17/12-3F3-A1000
	$3575 \pm 25\%$	≈ 1470	≈ 0	E41/17/12-3F3

Note

1. Measured in combination with an equal gapped core half, clamping force for A_L measurements 40 ± 20 N.

Core halves of high permeability grades

Clamping force for A_L measurements 40 ± 20 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3E25 ^{sup}	$9400 \pm 25\%$	≈ 3870	≈ 0	E41/17/12-3E25
3E27	$9400 \pm 25\%$	≈ 3870	≈ 0	E41/17/12-3E27

Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at			
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 25 kHz; $\hat{B} = 200$ mT; T = 100 °C	f = 100 kHz; $\hat{B} = 100$ mT; T = 100 °C	f = 100 kHz; $\hat{B} = 200$ mT; T = 100 °C	f = 400 kHz; $\hat{B} = 50$ mT; T = 100 °C
3C81	≥ 320	≤ 2.40	–	–	–
3C90	≥ 330	≤ 1.30	≤ 1.45	–	–
3C94	≥ 330	–	≤ 1.10	≈ 5.00	≈ 2.30
3F3	≥ 320	–	≤ 1.40	–	≤ 2.20

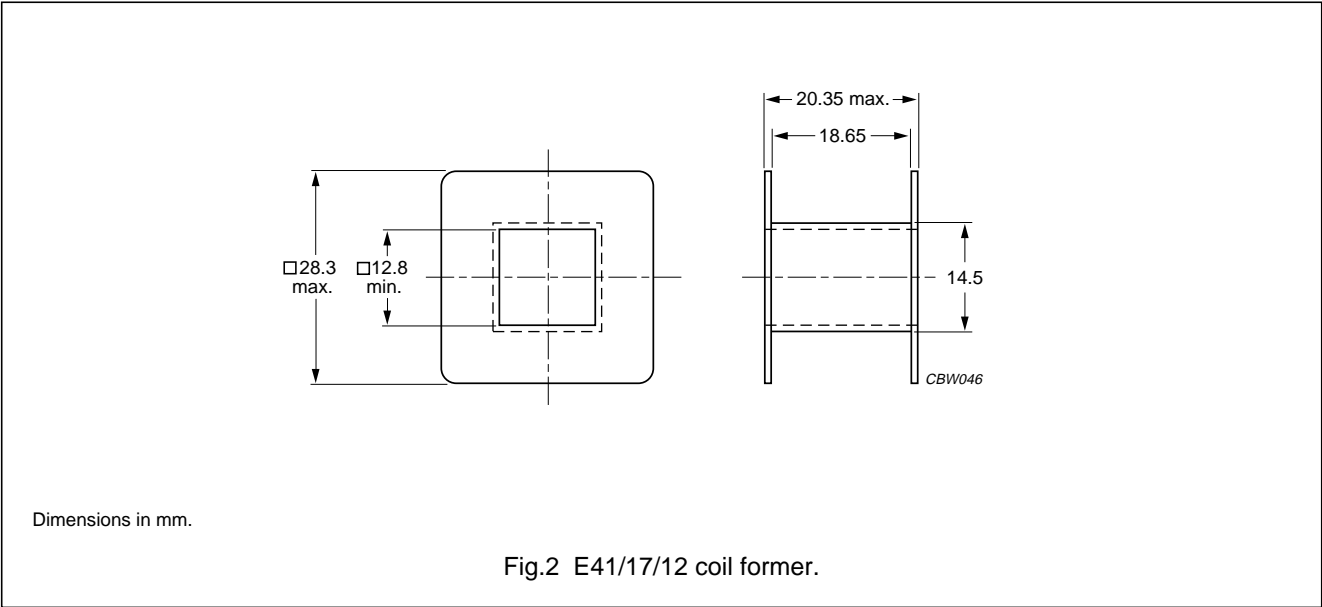
E cores and accessories

E41/17/12

COIL FORMERS

General data for E41/17/12 coil former without pins

PARAMETER	SPECIFICATION
Coil former material	polyamide (PA6.6), glass reinforced, flame retardant in accordance with "UL 94V-2"; UL file number E41938(M)
Maximum operating temperature	130 °C, "IEC 60085", class B



Winding data for E41/17/12 coil former without pins

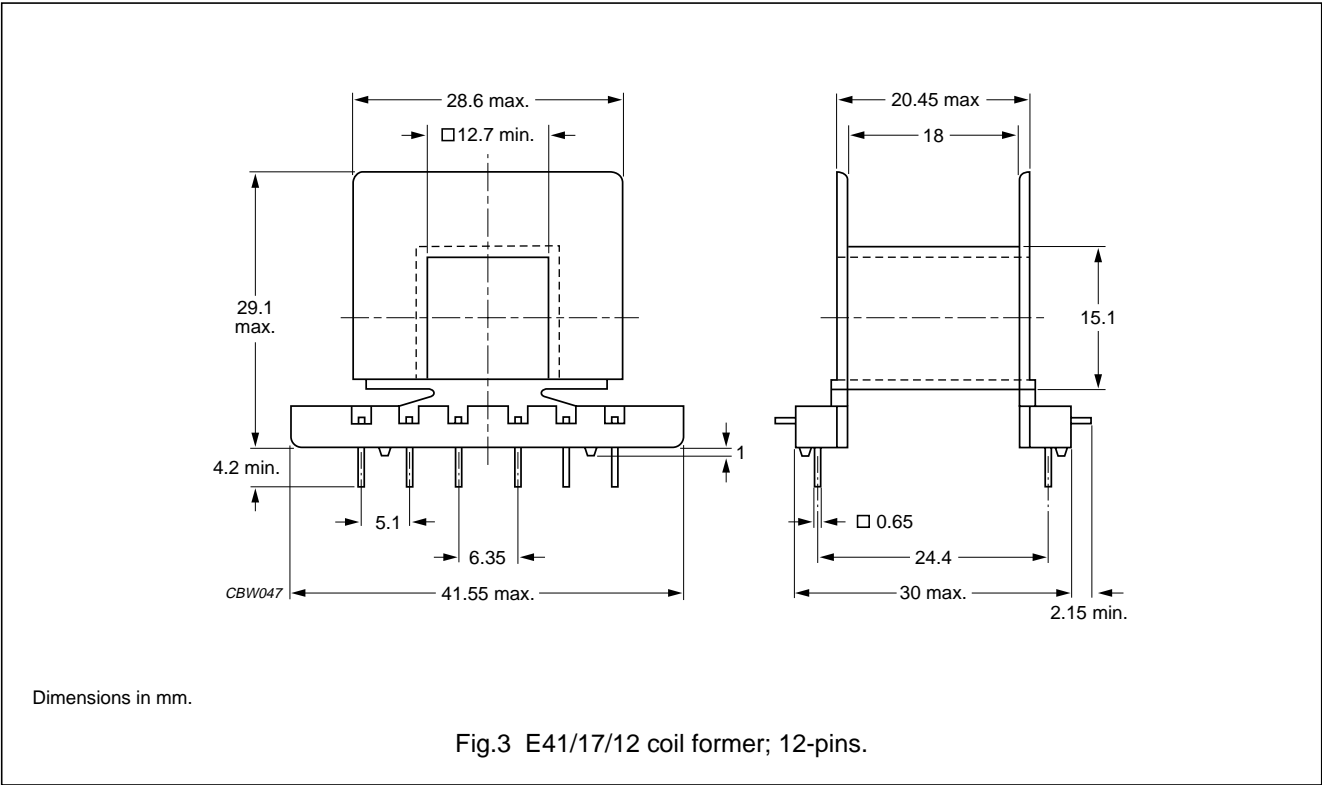
NUMBER OF SECTIONS	MINIMUM WINDING AREA (mm ²)	NOMINAL WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	120	18.6	79.6	CP-E41/17/12-1S

E cores and accessories

E41/17/12

General data for 12-pins E41/17/12 coil former

PARAMETER	SPECIFICATION
Coil former material	polyethyleneterephtalate (PET), glass reinforced, flame retardant in accordance with "UL 94V-0"; UL file number E69578
Pin material	copper-tin alloy (CuSn), tin-lead alloy (SnPb) plated
Maximum operating temperature	155 °C, "IEC 60085", class F
Resistance to soldering heat	"IEC 60068-2-20", Part 2, Test Tb, method 1B: 350 °C, 3.5 s
Solderability	"IEC 60068-2-20", Part 2, Test Ta, method 1: 235 °C, 2 s



Winding data for 12-pins E41/17/12 coil former

NUMBER OF SECTIONS	MINIMUM WINDING AREA (mm ²)	NOMINAL WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	114	18	81.2	CPH-E41/12-1S-12PD

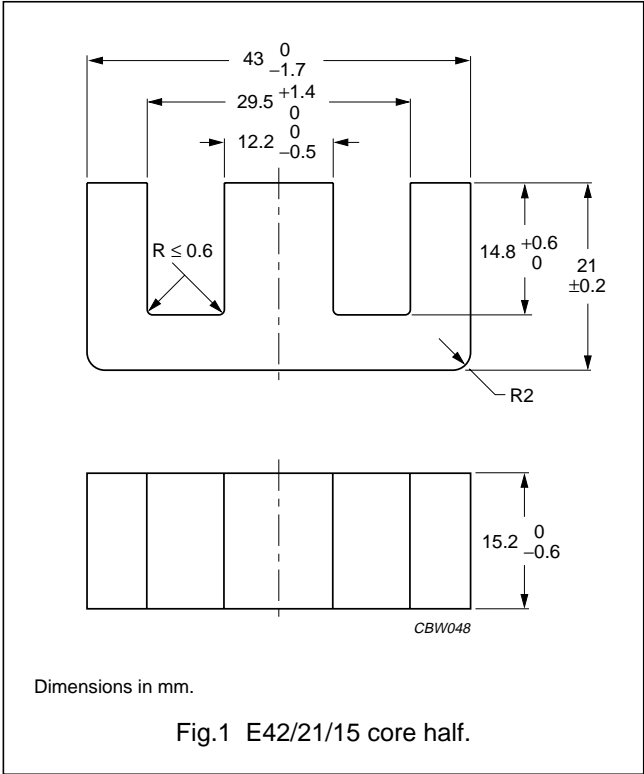
E cores and accessories

E42/21/15

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.548	mm^{-1}
V_e	effective volume	17300	mm^3
l_e	effective length	97.0	mm
A_e	effective area	178	mm^2
A_{\min}	minimum area	175	mm^2
m	mass of core half	≈ 44	g



Core halves

A_L measured in combination with a non gapped core half, clamping force for A_L measurements 40 ± 20 N, unless stated otherwise.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C81	$250 \pm 3\%^{(1)}$	≈ 110	≈ 1110	E42/21/15-3C81-E250
	$315 \pm 3\%^{(1)}$	≈ 135	≈ 840	E42/21/15-3C81-E315
	$400 \pm 5\%$	≈ 170	≈ 630	E42/21/15-3C81-A400
	$630 \pm 5\%$	≈ 270	≈ 360	E42/21/15-3C81-A630
	$1000 \pm 10\%$	≈ 430	≈ 200	E42/21/15-3C81-A1000
	$5300 \pm 25\%$	≈ 2300	≈ 0	E42/21/15-3C81
3C90	$250 \pm 3\%^{(1)}$	≈ 110	≈ 1110	E42/21/15-3C90-E250
	$315 \pm 3\%^{(1)}$	≈ 135	≈ 840	E42/21/15-3C90-E315
	$400 \pm 5\%$	≈ 170	≈ 630	E42/21/15-3C90-A400
	$630 \pm 5\%$	≈ 270	≈ 360	E42/21/15-3C90-A630
	$1000 \pm 10\%$	≈ 430	≈ 200	E42/21/15-3C90-A1000
	$3900 \pm 25\%$	≈ 1700	≈ 0	E42/21/15-3C90
3C94 des	$4100 \pm 25\%$	≈ 1780	≈ 0	E42/21/15-3C94

E cores and accessories

E42/21/15

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3F3	$250 \pm 3\%^{(1)}$	≈ 110	≈ 1110	E42/21/15-3F3-E250
	$315 \pm 3\%^{(1)}$	≈ 135	≈ 840	E42/21/15-3F3-E315
	$400 \pm 5\%$	≈ 170	≈ 630	E42/21/15-3F3-A400
	$630 \pm 5\%$	≈ 270	≈ 360	E42/21/15-3F3-A630
	$1000 \pm 10\%$	≈ 430	≈ 200	E42/21/15-3F3-A1000
	$3600 \pm 25\%$	≈ 1570	≈ 0	E42/21/15-3F3

Note

1. Measured in combination with an equal core half, clamping force for A_L measurements 40 ± 20 N.

Core halves of high permeability grades

Clamping force for A_L measurements 40 ± 20 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C11	$8000 \pm 25\%$	≈ 3490	≈ 0	E42/21/15-3C11
3E25 ^{sup}	$8000 \pm 25\%$	≈ 3490	≈ 0	E42/21/15-3E25
3E27	$8000 \pm 25\%$	≈ 3490	≈ 0	E42/21/15-3E27

Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at			
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 25 kHz; \dot{B} = 200 mT; T = 100 °C	f = 100 kHz; \dot{B} = 100 mT; T = 100 °C	f = 100 kHz; \dot{B} = 200 mT; T = 100 °C	f = 400 kHz; \dot{B} = 50 mT; T = 100 °C
3C81	≥ 320	≤ 3.60	–	–	–
3C90	≥ 330	≤ 1.90	≤ 2.20	–	–
3C94	≥ 330	–	≤ 1.80	≈ 7.40	≈ 4.00
3F3	≥ 320	–	≤ 2.20	–	≤ 3.80

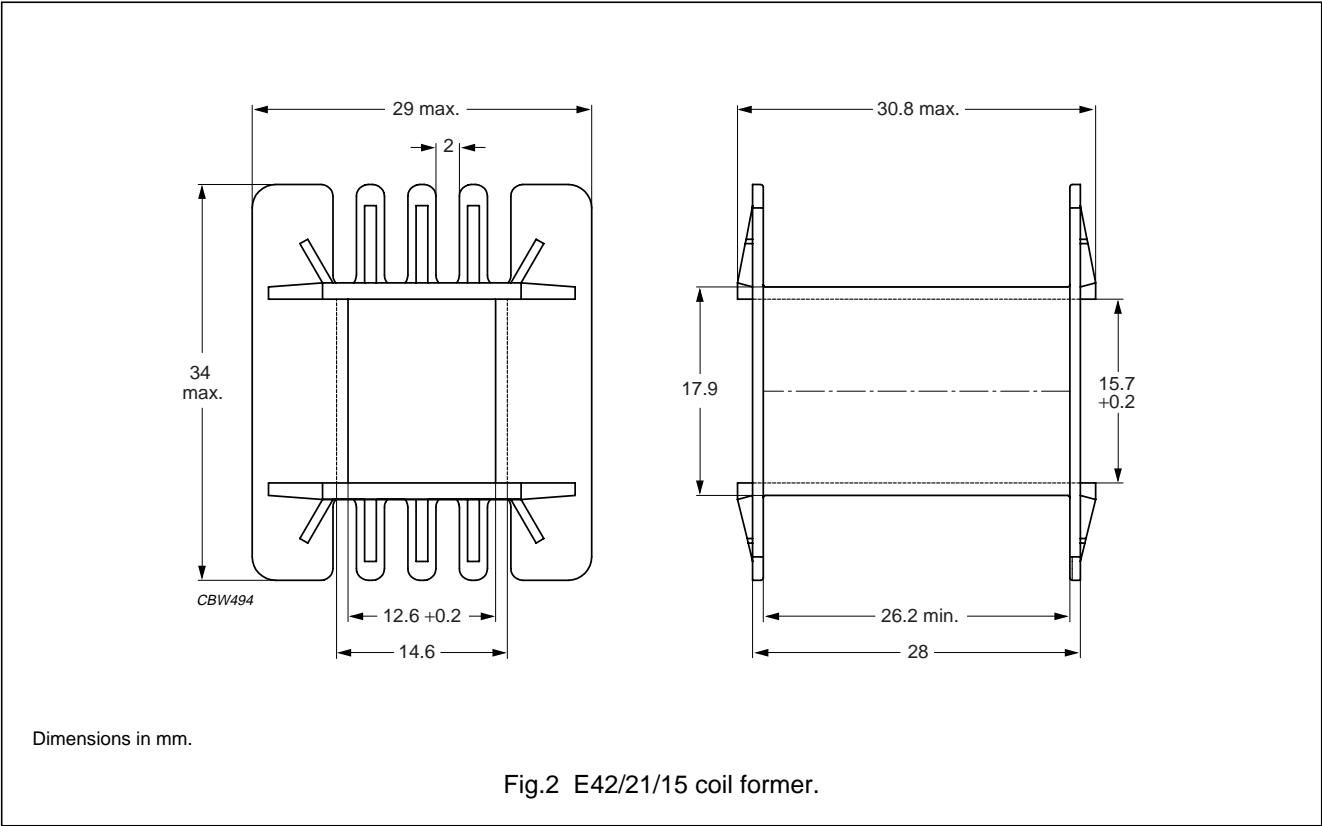
E cores and accessories

E42/21/15

COIL FORMERS

General data for E42/21/15 coil former without pins

PARAMETER	SPECIFICATION
Coil former material	polybutyleneterephthalate (PBT), glass reinforced, flame retardant in accordance with "UL 94V-0"; UL file number E45329(R)
Maximum operating temperature	155 °C, "IEC 60085", class F



Winding data for E42/21/15 coil former without pins

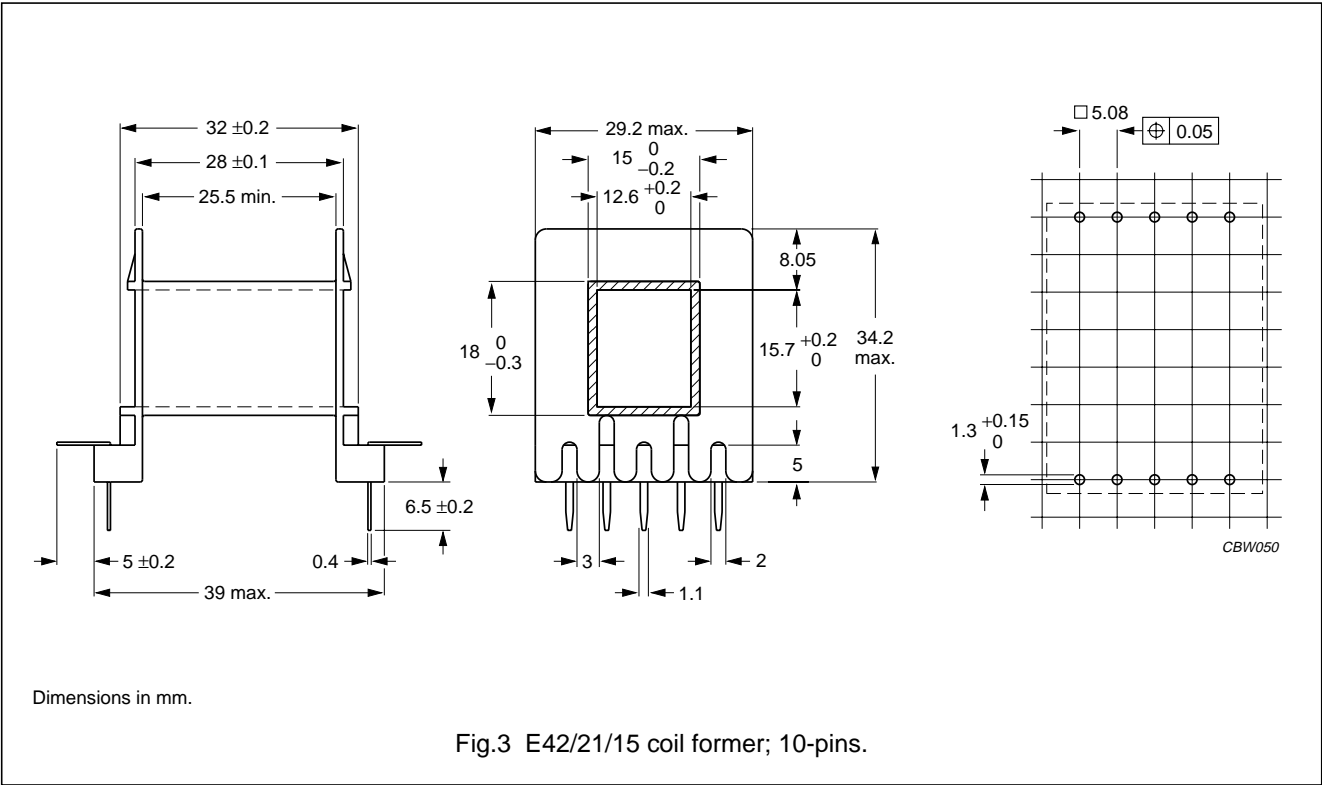
NUMBER OF SECTIONS	WINDING AREA (mm ²)	MINIMUM WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	178	26	93	CP-E42/21/15-1S

E cores and accessories

E42/21/15

General data for 10-pins E42/21/15 coil former

PARAMETER	SPECIFICATION
Coil former material	polyamide (PA6.6), glass reinforced, flame retardant in accordance with "UL 94-HB"; UL file number E41871(M)
Pin material	copper-tin alloy (CuSn), tin-lead alloy (SnPb) plated
Maximum operating temperature	120 °C, "IEC 60085", class E
Resistance to soldering heat	"IEC 60068-2-20", Part 2, Test Tb, method 1B: 350 °C, 3.5 s
Solderability	"IEC 60068-2-20", Part 2, Test Ta, method 1: 235 °C, 2 s



Winding data for 10-pins E42/21/15 coil former

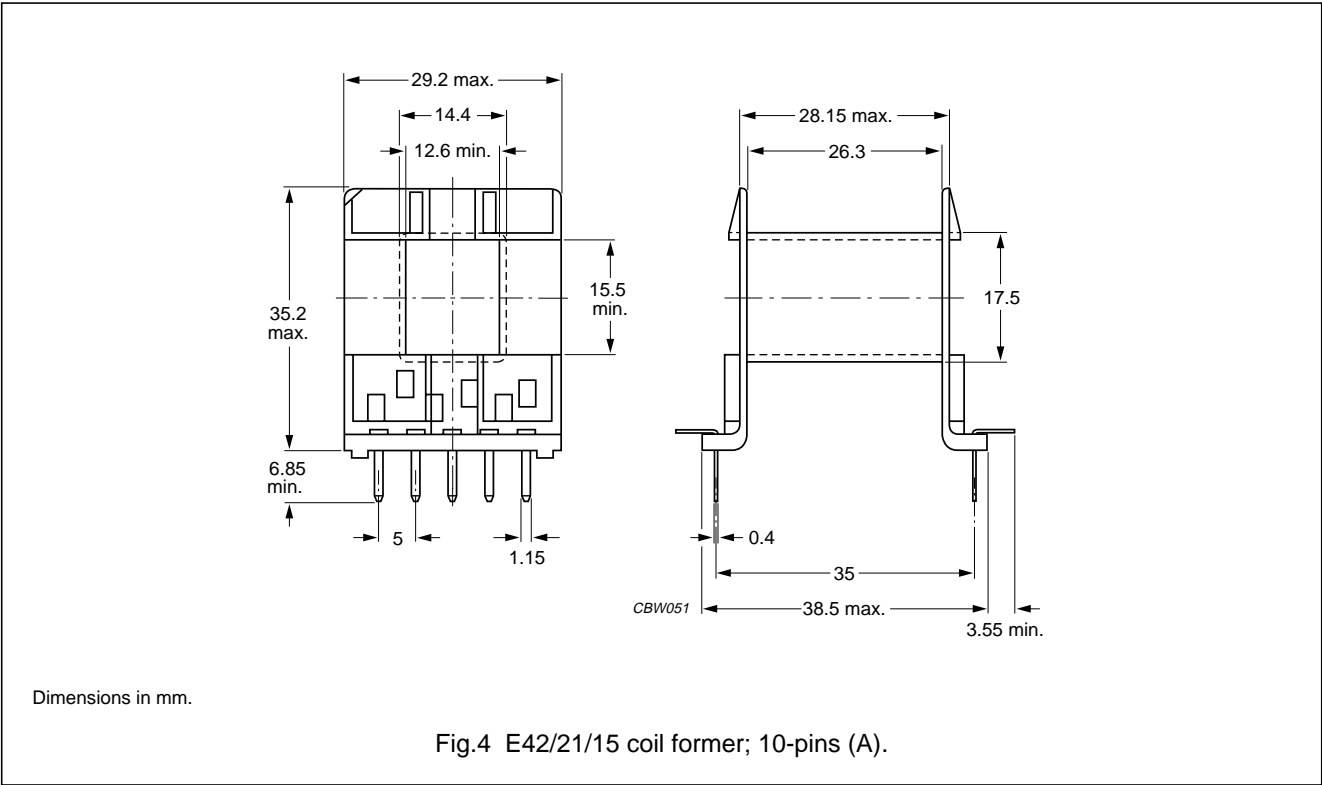
NUMBER OF SECTIONS	WINDING AREA (mm ²)	MINIMUM WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	178	25.5	93	CPH-E42/21/15-1S-10P

E cores and accessories

E42/21/15

General data for 10-pins E42/21/15 coil former (A)

PARAMETER	SPECIFICATION
Coil former material	polyamide (PA6.6), glass reinforced, flame retardant in accordance with "UL 94-HB"; UL file number E41938(M)
Pin material	copper-tin alloy (CuSn), tin-lead alloy (SnPb) plated
Maximum operating temperature	105 °C, "IEC 60085", class A
Resistance to soldering heat	"IEC 60068-2-20", Part 2, Test Tb, method 1B: 350 °C, 3.5 s
Solderability	"IEC 60068-2-20", Part 2, Test Ta, method 1: 235 °C, 2 s



Winding data for 10-pins E42/21/15 coil former

NUMBER OF SECTIONS	MINIMUM WINDING AREA (mm ²)	NOMINAL WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	180	26.3	87	CPH-E42/15-1S-10PD-A

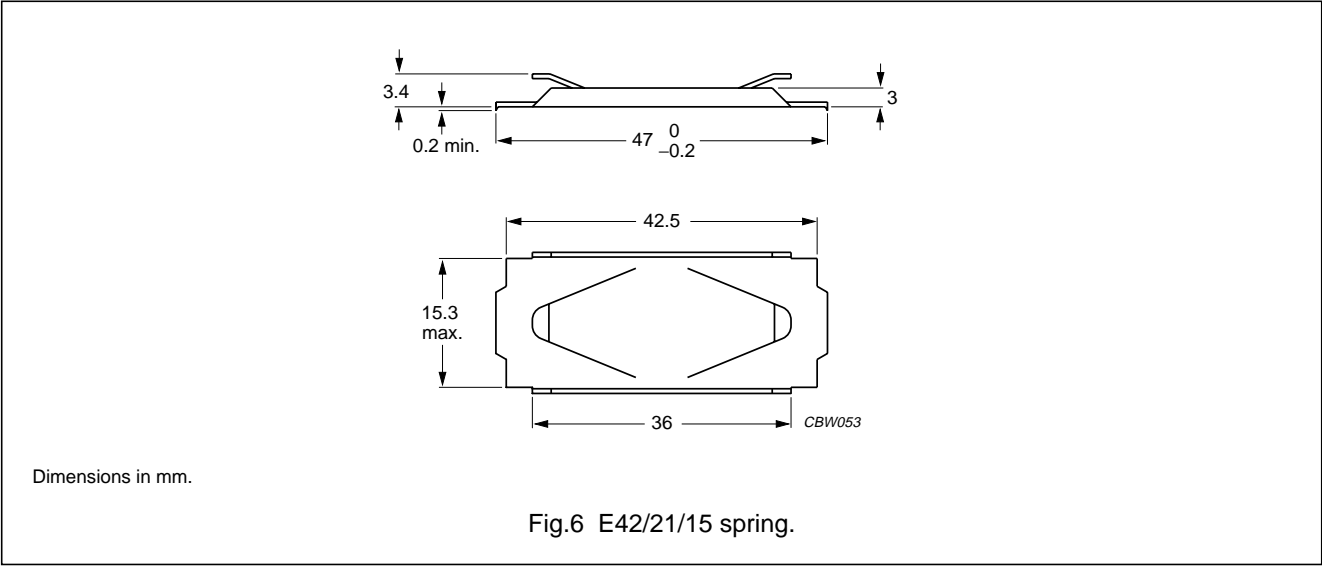
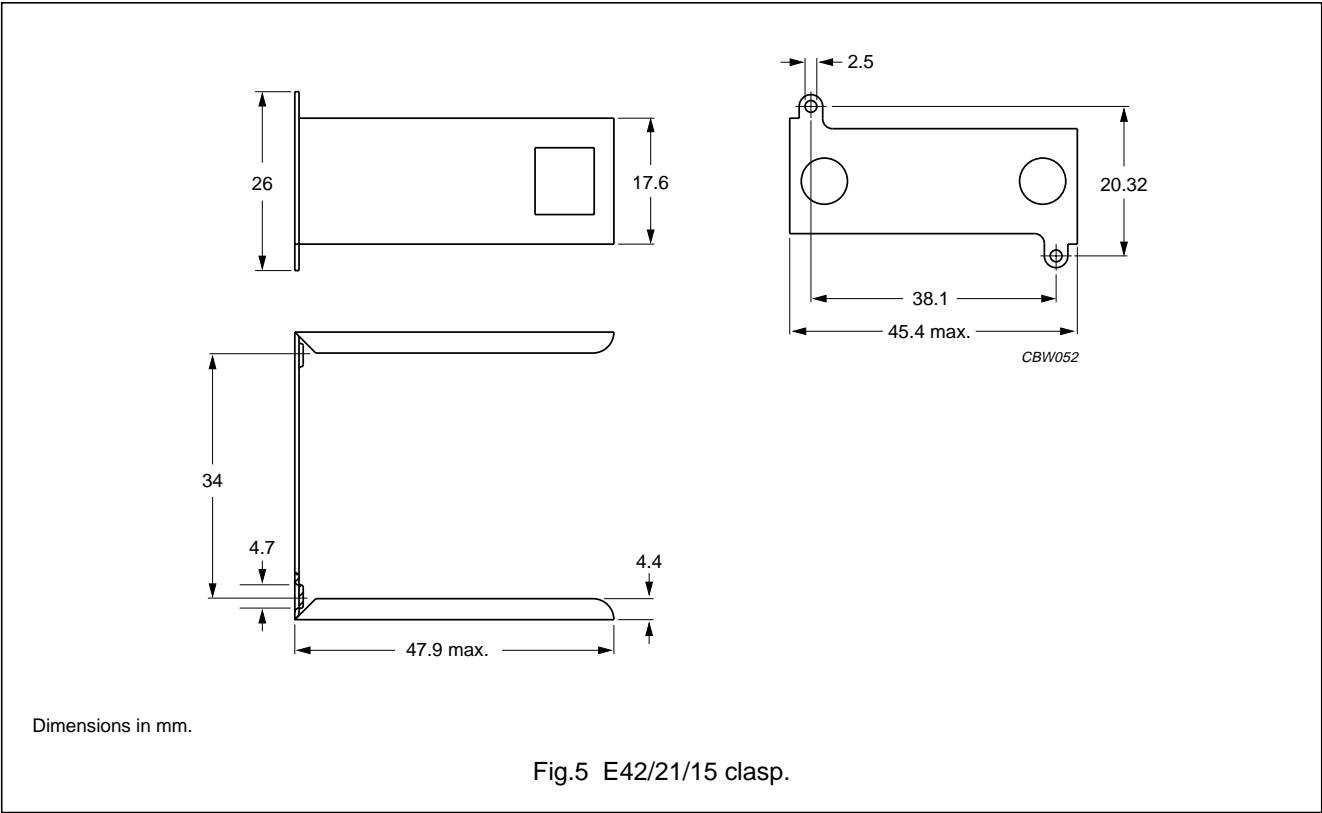
E cores and accessories

E42/21/15

MOUNTING PARTS

General data for mounting parts

ITEM	REMARKS	FIGURE	TYPE NUMBER
Clasp	steel, zinc (Zn) plated	5	CLA-E42/21/15
Spring	steel, zinc (Zn) plated	6	SPR-E42/21/15



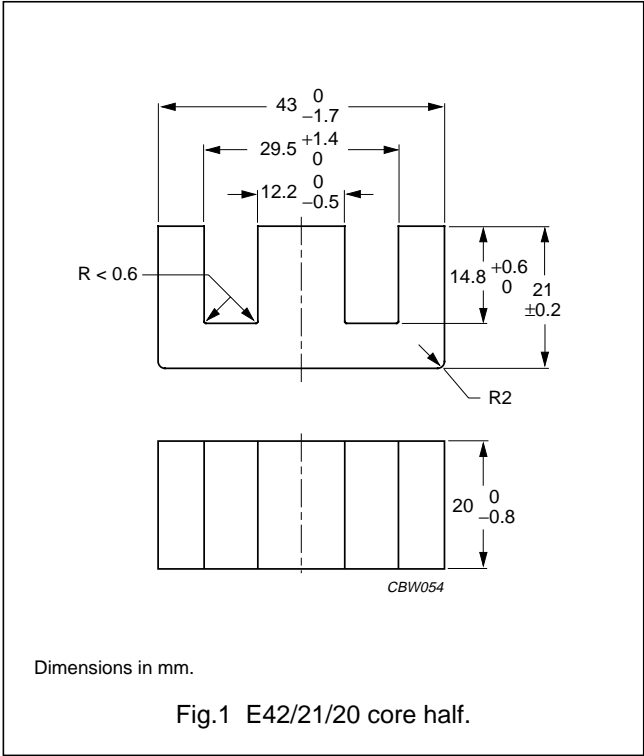
E cores and accessories

E42/21/20

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.417	mm^{-1}
V_e	effective volume	22700	mm^3
l_e	effective length	97.0	mm
A_e	effective area	233	mm^2
A_{\min}	minimum area	233	mm^2
m	mass of core half	≈ 56	g



Core halves

Gapped cores are available on request. Clamping force for A_L measurements 40 ± 20 N, unless stated otherwise.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C81	$250 \pm 3\%^{(1)}$	≈ 84	≈ 1470	E42/21/20-3C81-E250
	$315 \pm 3\%^{(1)}$	≈ 105	≈ 1110	E42/21/20-3C81-E315
	$400 \pm 3\%^{(1)}$	≈ 134	≈ 830	E42/21/20-3C81-E400
	$630 \pm 5\%$	≈ 211	≈ 480	E42/21/20-3C81-A630
	$1000 \pm 10\%$	≈ 334	≈ 270	E42/21/20-3C81-A1000
	$6950 \pm 25\%$	≈ 2300	≈ 0	E42/21/20-3C81
3C90	$250 \pm 3\%$	≈ 84	≈ 1470	E42/21/20-3C90-E250
	$315 \pm 3\%$	≈ 105	≈ 1110	E42/21/20-3C90-E315
	$400 \pm 3\%$	≈ 134	≈ 830	E42/21/20-3C90-E400
	$630 \pm 5\%$	≈ 211	≈ 480	E42/21/20-3C90-A630
	$1000 \pm 10\%$	≈ 334	≈ 270	E42/21/20-3C90-A1000
	$5000 \pm 25\%$	≈ 1660	≈ 0	E42/21/20-3C90
3C94 <small>des</small>	$5200 \pm 25\%$	≈ 1720	≈ 0	E42/21/20-3C94

E cores and accessories

E42/21/20

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3F3	$250 \pm 3\%^{(1)}$	≈ 84	≈ 1470	E42/21/20-3F3-E250
	$315 \pm 3\%^{(1)}$	≈ 105	≈ 1110	E42/21/20-3F3-E315
	$400 \pm 3\%^{(1)}$	≈ 134	≈ 830	E42/21/20-3F3-E400
	$630 \pm 5\%$	≈ 211	≈ 480	E42/21/20-3F3-A630
	$1000 \pm 10\%$	≈ 334	≈ 270	E42/21/20-3F3-A1000
	$4600 \pm 25\%$	≈ 1530	≈ 0	E42/21/20-3F3

Note

1. Measured in combination with an equal gapped core half, clamping force for A_L measurements 40 ± 20 N.

Core halves of high permeability grades

Clamping force for A_L measurements 40 ± 20 N.

GRADE	$A_L^{(1)}$ (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3E25 ^{sup}	$10500 \pm 25\%$	≈ 3520	≈ 0	E42/21/20-3E25
3E27	$10500 \pm 25\%$	≈ 3520	≈ 0	E42/21/20-3E27

Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at			
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 25 kHz; $\hat{B} = 200$ mT; T = 100 °C	f = 100 kHz; $\hat{B} = 100$ mT; T = 100 °C	f = 100 kHz; $\hat{B} = 200$ mT; T = 100 °C	f = 400 kHz; $\hat{B} = 50$ mT; T = 100 °C
3C81	≥ 320	≤ 4.7	–	–	–
3C90	≥ 330	≤ 2.4	≤ 2.9	–	–
3C94	≥ 330	–	≤ 2.5	≈ 10	≈ 5.6
3F3	≥ 320	–	≤ 2.7	–	≤ 5.0

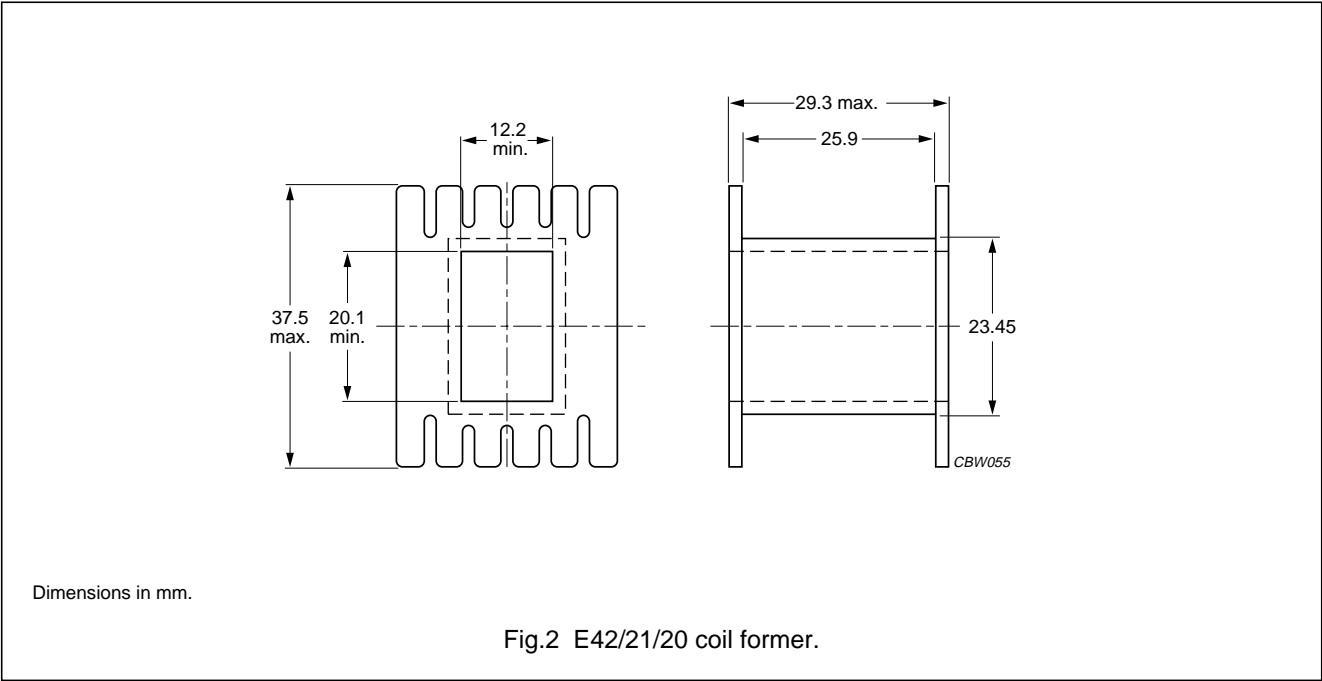
E cores and accessories

E42/21/20

COIL FORMER

General data for E42/21/20 coil former

PARAMETER	SPECIFICATION
Coil former material	polyamide (PA6.6), glass reinforced, flame retardant in accordance with "UL 94-HB"; UL file number E41938(M)
Maximum operating temperature	105 °C, "IEC 60085", class A



Winding data for E42/21/20 coil former without pins

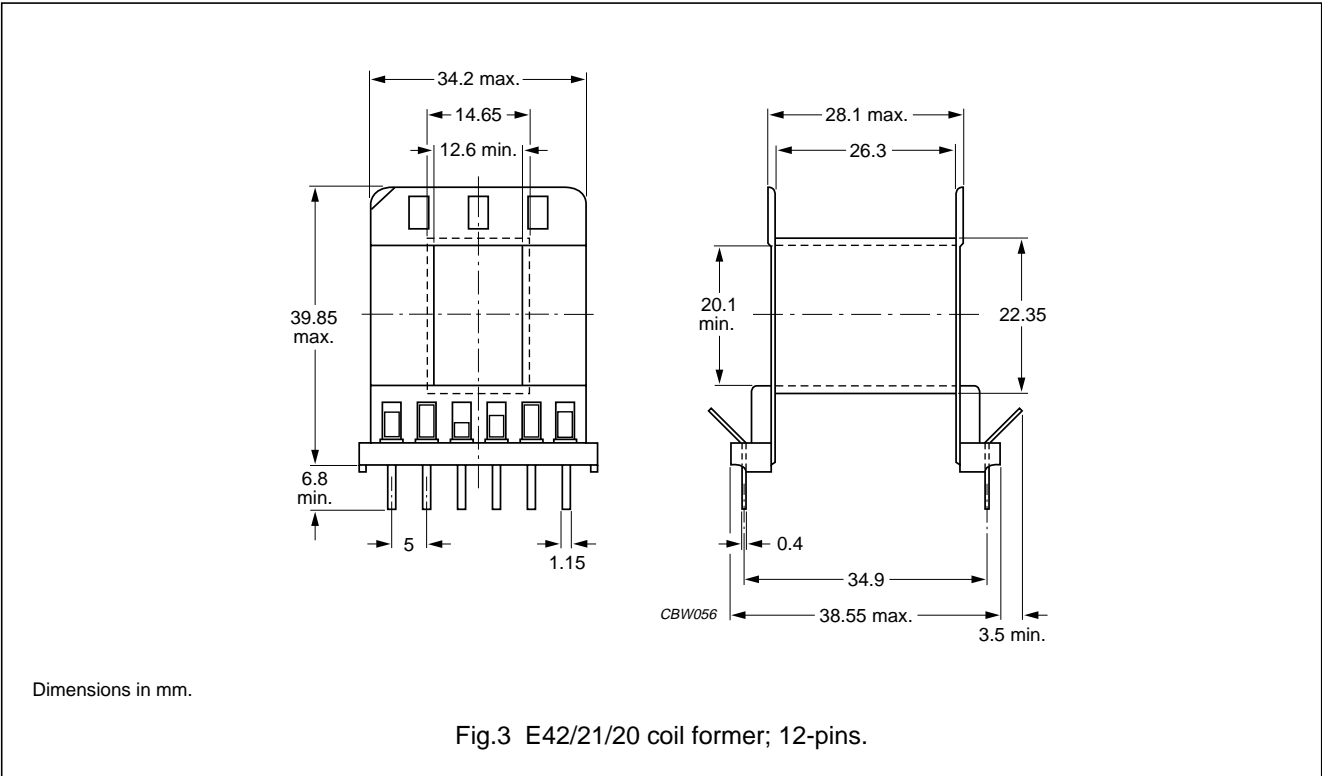
NUMBER OF SECTIONS	MINIMUM WINDING AREA (mm ²)	NOMINAL WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	173	25.9	100	CP-E42/21/20-1S

E cores and accessories

E42/21/20

General data for 12-pins E42/21/20 coil former

PARAMETER	SPECIFICATION
Coil former material	polyamide (PA6.6), glass reinforced, flame retardant in accordance with "UL 94-HB"; UL file number E41938(M)
Pin material	copper-tin alloy (CuSn), tin-lead alloy (SnPb) plated
Maximum operating temperature	105 °C, "IEC 60085", class A
Resistance to soldering heat	"IEC 60068-2-20", Part 2, Test Tb, method 1B: 350 °C, 3.5 s
Solderability	"IEC 60068-2-20", Part 2, Test Ta, method 1: 235 °C, 2 s



Winding data for 12-pins E42/21/20 coil former

NUMBER OF SECTIONS	MINIMUM WINDING AREA (mm ²)	NOMINAL WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	255	26.3	78.5	CPH-E42/20-1S-12PD

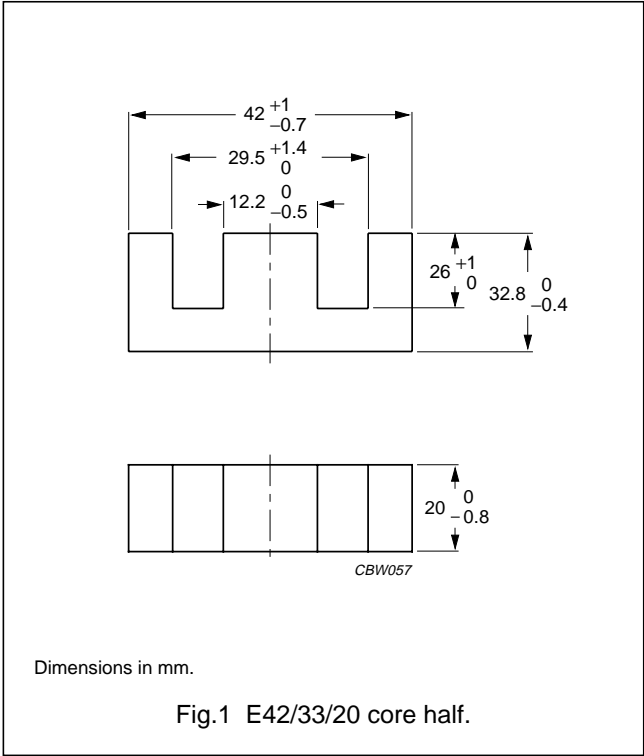
E cores and accessories

E42/33/20

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.614	mm^{-1}
V_e	effective volume	34200	mm^3
l_e	effective length	145	mm
A_e	effective area	236	mm^2
A_{\min}	minimum area	234	mm^2
m	mass of core half	≈ 82	g



Core halves

Clamping force for A_L measurements 40 ± 20 N. Gapped cores are available on request.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C90	$4000 \pm 25\%$	≈ 2000	≈ 0	E42/33/20-3C90
3C94 des	$4000 \pm 25\%$	≈ 2000	≈ 0	E42/33/20-3C94
3F3	$3700 \pm 25\%$	≈ 1850	≈ 0	E42/33/20-3F3

Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at			
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 25 kHz; \hat{B} = 200 mT; T = 100 °C	f = 100 kHz; \hat{B} = 100 mT; T = 100 °C	f = 100 kHz; \hat{B} = 200 mT; T = 100 °C	f = 400 kHz; \hat{B} = 50 mT; T = 100 °C
3C90	≥ 330	≤ 3.6	≤ 4.2	–	–
3C94	≥ 330	–	≤ 3.4	≈ 15	≈ 7.5
3F3	≥ 320	–	≤ 4.0	–	≤ 7.3

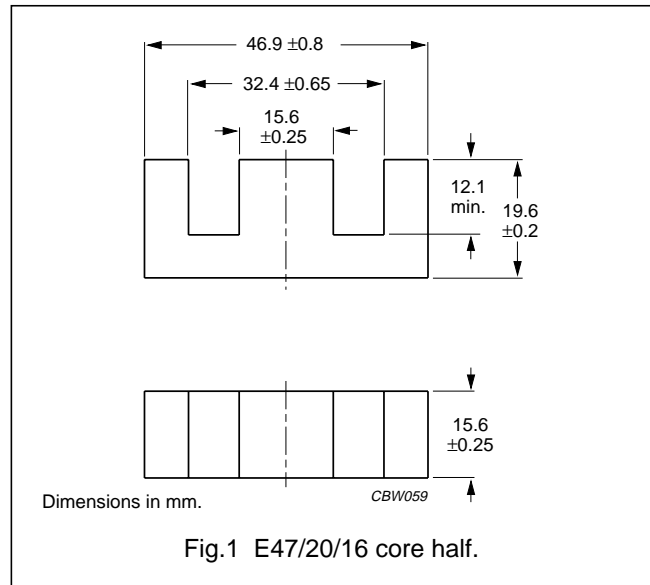
E cores and accessories

E47/20/16

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.380	mm ⁻¹
V_e	effective volume	20800	mm ³
l_e	effective length	88.9	mm
A_e	effective area	234	mm ²
A_{min}	minimum area	226	mm ²
m	mass of core half	≈53	g



Core halves

A_L measured in combination with a non gapped core half, clamping force for A_L measurements 40 ± 20 N, unless stated otherwise.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C81	$250 \pm 3\%^{(1)}$	≈76	≈1460	E47/20/16-3C81-E250
	$315 \pm 3\%^{(1)}$	≈95	≈1100	E47/20/16-3C81-E315
	$400 \pm 3\%^{(1)}$	≈121	≈830	E47/20/16-3C81-E400
	$630 \pm 5\%$	≈191	≈480	E47/20/16-3C81-A630
	$1000 \pm 10\%$	≈303	≈270	E47/20/16-3C81-A1000
	$7540 \pm 25\%$	≈2290	≈0	E47/20/16-3C81
3C90	$250 \pm 3\%^{(1)}$	≈76	≈1460	E47/20/16-3C90-E250
	$315 \pm 3\%^{(1)}$	≈95	≈1100	E47/20/16-3C90-E315
	$400 \pm 3\%^{(1)}$	≈121	≈830	E47/20/16-3C90-E400
	$630 \pm 5\%$	≈191	≈480	E47/20/16-3C90-A630
	$1000 \pm 10\%$	≈303	≈270	E47/20/16-3C90-A1000
	$5500 \pm 25\%$	≈1660	≈0	E47/20/16-3C90
3F3	$250 \pm 3\%^{(1)}$	≈76	≈1458	E47/20/16-3F3-E250
	$315 \pm 3\%^{(1)}$	≈95	≈1100	E47/20/16-3F3-E315
	$400 \pm 3\%^{(1)}$	≈121	≈830	E47/20/16-3F3-E400
	$630 \pm 5\%$	≈191	≈480	E47/20/16-3F3-A630
	$1000 \pm 10\%$	≈303	≈270	E47/20/16-3F3-A1000
	$5100 \pm 25\%$	≈1550	≈0	E47/20/16-3F3

Note

1. Measured in combination with an equal gapped core half, clamping force for A_L measurements 40 ± 20 N.

E cores and accessories

E47/20/16

Core halves of high permeability grades

Clamping force 40 ±20 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3E25 ^{sup}	11 475 ±25%	≈3480	≈0	E47/20/16-3E25
3E27	11 475 ±25%	≈3480	≈0	E47/20/16-3E27

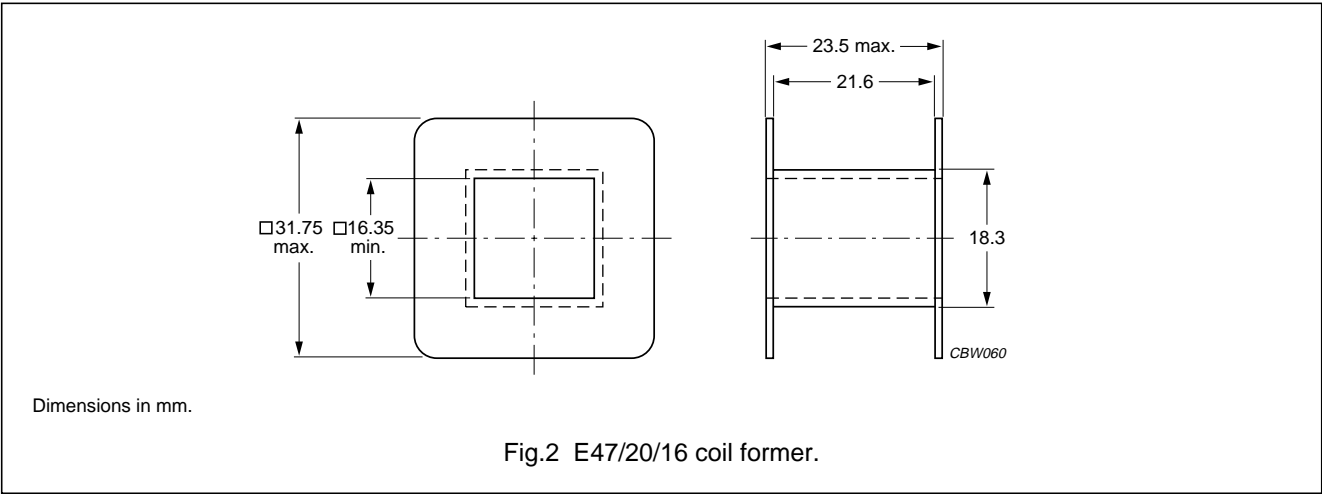
Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at		
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 25 kHz; B̂ = 200 mT; T = 100 °C	f = 100 kHz; B̂ = 100 mT; T = 100 °C	f = 400 kHz; B̂ = 50 mT; T = 100 °C
3C81	≥320	≤4.3	–	–
3C90	≥330	≤2.3	≤2.7	–
3F3	≥320	–	≤2.5	≤4.0

COIL FORMERS

General data for E47/20/16 coil former without pins

PARAMETER	SPECIFICATION
Coil former material	polyamide (PA6.6), glass reinforced, flame retardant in accordance with “UL 94V-2”; UL file number E41938(M)
Maximum operating temperature	130 °C, “IEC 60085”, class B



Winding data for E47/20/16 coil former without pins

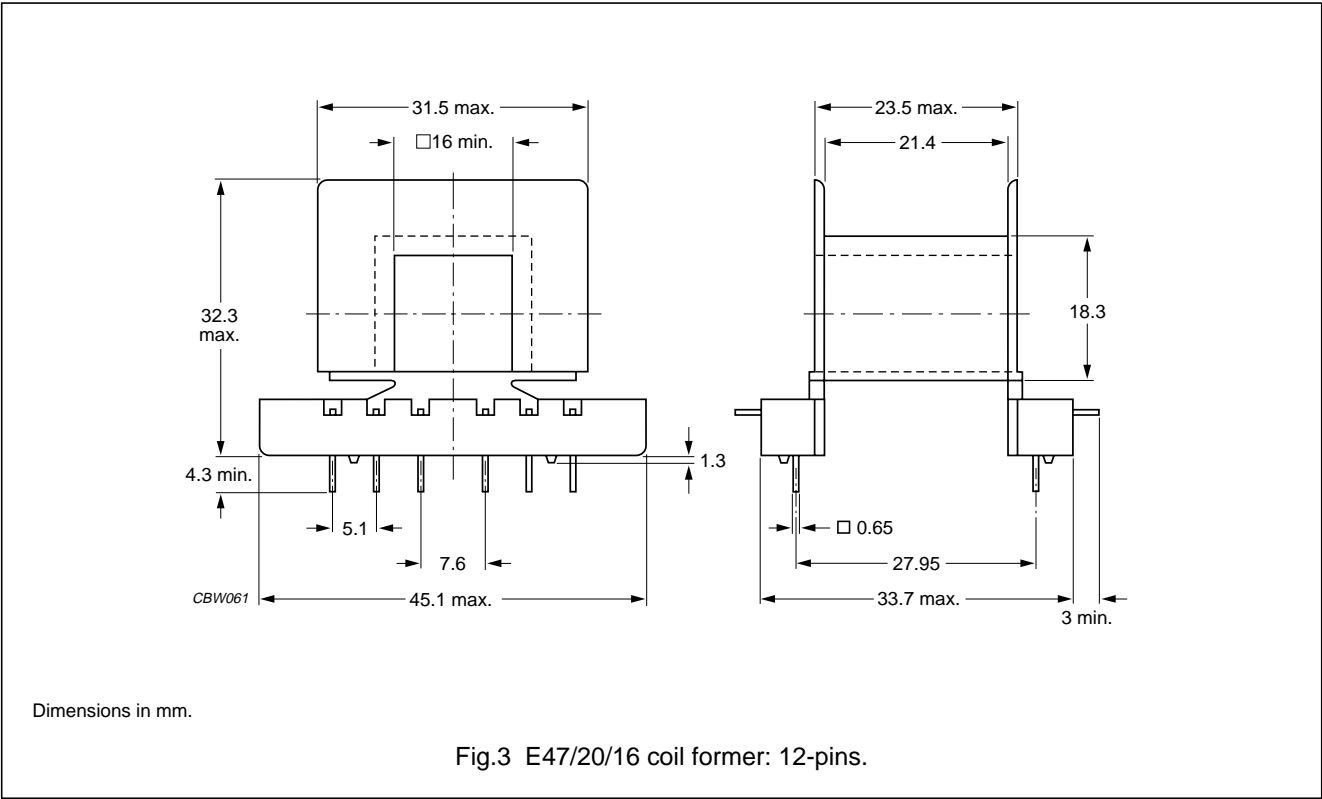
NUMBER OF SECTIONS	MINIMUM WINDING AREA (mm ²)	NOMINAL WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	130	21.6	93.3	CP-E47/20/16-1S

E cores and accessories

E47/20/16

General data for 12-pins E47/20/16 coil former

PARAMETER	SPECIFICATION
Coil former material	polyamide (PA6.6), glass reinforced, flame retardant in accordance with "UL 94-HB"; UL file number E41938(M)
Maximum operating temperature	130 °C, "IEC 60085", class B
Pin material	copper-zinc alloy (CuZn), tin-lead alloy (SnPb) plated
Resistance to soldering heat	"IEC 60068-2-20", Part 2, Test Tb, method 1B: 350 °C, 3.5 s
Solderability	"IEC 60068-2-20", Part 2, Test Ta, method 1: 235 °C, 2 s



Winding data for 12-pins E47/20/16 coil former

NUMBER OF SECTIONS	MINIMUM WINDING AREA (mm ²)	NOMINAL WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	131	21.4	94.7	CPH-E47/16-1S-12PD

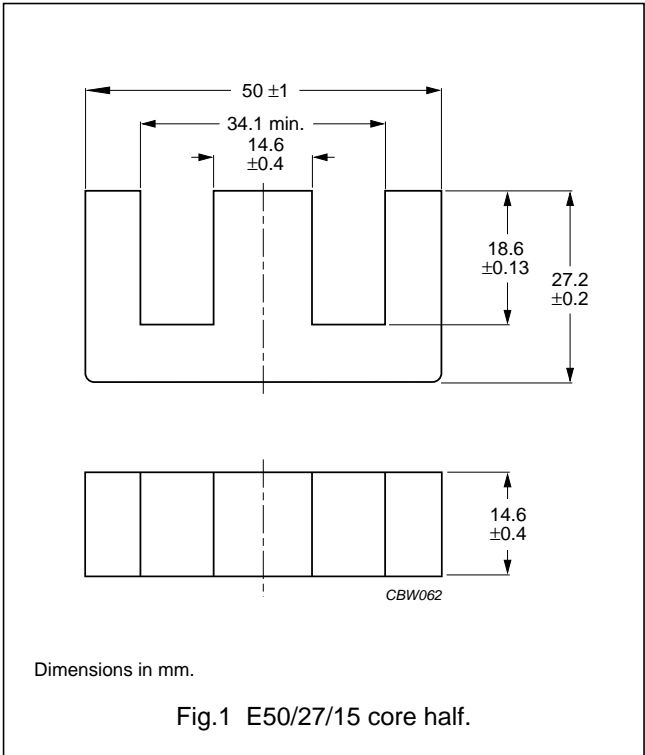
E cores and accessories

E50/27/15

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.530	mm^{-1}
V_e	effective volume	26900	mm^3
l_e	effective length	120	mm
A_e	effective area	225	mm^2
m	mass of core half	≈ 68	g



Core halves

A_L measured in combination with a non-gapped core half, clamping force for A_L measurements 40 ± 20 N, unless stated otherwise.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C81	$250 \pm 3\%^{(1)}$	≈ 106	≈ 1410	E50/27/15-3C81-E250
	$315 \pm 3\%^{(1)}$	≈ 133	≈ 1060	E50/27/15-3C81-E315
	$400 \pm 3\%^{(1)}$	≈ 169	≈ 790	E50/27/15-3C81-E400
	$630 \pm 5\%$	≈ 267	≈ 450	E50/27/15-3C81-A630
	$1000 \pm 10\%$	≈ 424	≈ 250	E50/27/15-3C81-A1000
	$5500 \pm 25\%$	≈ 2300	≈ 0	E50/27/15-3C81
3C90	$250 \pm 3\%^{(1)}$	≈ 106	≈ 1410	E50/27/15-3C90-E250
	$315 \pm 3\%^{(1)}$	≈ 133	≈ 1060	E50/27/15-3C90-E315
	$400 \pm 3\%^{(1)}$	≈ 169	≈ 790	E50/27/15-3C90-E400
	$630 \pm 5\%$	≈ 267	≈ 450	E50/27/15-3C90-A630
	$1000 \pm 10\%$	≈ 424	≈ 250	E50/27/15-3C90-A1000
	$4355 \pm 25\%$	≈ 1840	≈ 0	E50/27/15-3C90

Note

1. Measured in combination with an equal gapped core half, clamping force for A_L measurements 40 ± 20 N.

E cores and accessories

E50/27/15

Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at	
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 25 kHz; B̂ = 200 mT; T = 100 °C	f = 100 kHz; B̂ = 100 mT; T = 100 °C
3C81	≥320	≤5.5	–
3C90	≥320	≤2.7	≤3.4

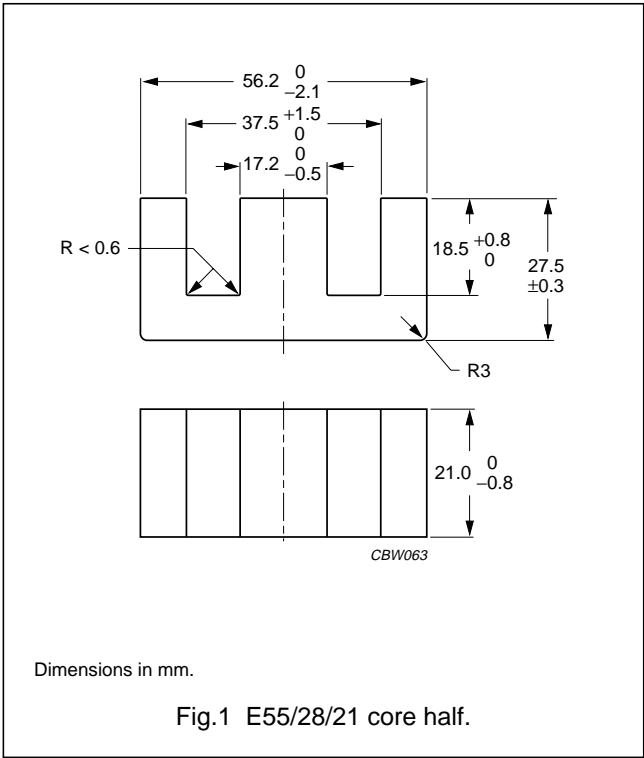
E cores and accessories

E55/28/21

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.350	mm ⁻¹
V_e	effective volume	44 000	mm ³
l_e	effective length	124	mm
A_e	effective area	353	mm ²
A_{min}	minimum area	345	mm ²
m	mass of core half	≈108	g



Core halves

A_L measured in combination with a non-gapped core half, clamping force for A_L measurements 40 ± 20 N, unless stated otherwise.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C81	$315 \pm 3\%^{(1)}$	≈88	≈1 740	E55/28/21-3C81-E315
	$400 \pm 3\%^{(1)}$	≈112	≈1 300	E55/28/21-3C81-E400
	$630 \pm 3\%^{(1)}$	≈176	≈750	E55/28/21-3C81-E630
	$1\,000 \pm 5\%$	≈280	≈430	E55/28/21-3C81-A1000
	$1\,600 \pm 10\%$	≈448	≈230	E55/28/21-3C81-A1600
	$8\,625 \pm 25\%$	≈2400	≈0	E55/28/21-3C81
3C90	$315 \pm 3\%^{(1)}$	≈88	≈1 740	E55/28/21-3C90-E315
	$400 \pm 3\%^{(1)}$	≈112	≈1 300	E55/28/21-3C90-E400
	$630 \pm 3\%^{(1)}$	≈176	≈750	E55/28/21-3C90-E630
	$1\,000 \pm 5\%$	≈280	≈430	E55/28/21-3C90-A1000
	$1\,600 \pm 10\%$	≈448	≈230	E55/28/21-3C90-A1600
	$6\,300 \pm 25\%$	≈1 750	≈0	E55/28/21-3C90

E cores and accessories

E55/28/21

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3F3	$315 \pm 3\%^{(1)}$	≈ 88	$\approx 1\,740$	E55/28/21-3F3-E315
	$400 \pm 3\%^{(1)}$	≈ 112	$\approx 1\,300$	E55/28/21-3F3-E400
	$630 \pm 3\%^{(1)}$	≈ 176	≈ 750	E55/28/21-3F3-E630
	$1\,000 \pm 5\%$	≈ 280	≈ 430	E55/28/21-3F3-A1000
	$1\,600 \pm 10\%$	≈ 448	≈ 230	E55/28/21-3F3-A1600
	$5\,700 \pm 25\%$	$\approx 1\,590$	≈ 0	E55/28/21-3F3

Note

1. Measured in combination with an equal gapped core half, clamping force for A_L measurements 40 ± 20 N.

Core halves of high permeability grades

Clamping force for A_L measurements 40 ± 20 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C11	$12\,800 \pm 25\%$	$\approx 3\,700$	≈ 0	E55/28/21-3C11
3E25 <small>des</small>	$14\,000 \pm 25\%$	$\approx 4\,000$	≈ 0	E55/28/21-3E25
3E27	$15\,400 \pm 25\%$	$\approx 4\,300$	≈ 0	E55/28/21-3E27

Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at		
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 25 kHz; \hat{B} = 200 mT; T = 100 °C	f = 100 kHz; \hat{B} = 100 mT; T = 100 °C	f = 400 kHz; \hat{B} = 50 mT; T = 100 °C
3C81	≥ 320	≤ 9.0	–	–
3C90	≥ 310	≤ 4.8	≤ 5.9	–
3F3	≥ 310	–	≤ 5.6	≤ 10.3

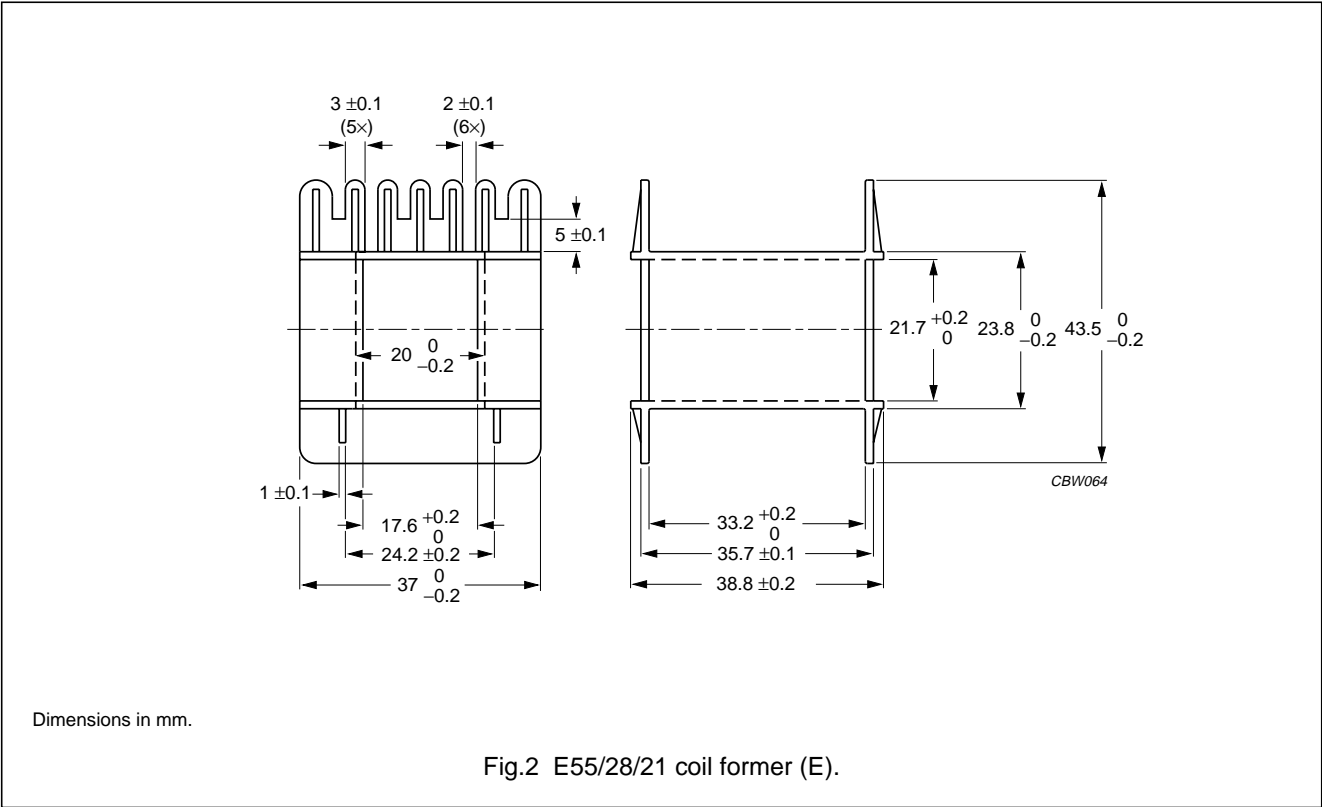
E cores and accessories

E55/28/21

COIL FORMERS

General data for E55/28/21 coil former without pins

PARAMETER	SPECIFICATION
Coil former material	polyamide (PA6.6), glass reinforced, flame retardant in accordance with "UL 94-HB"; UL file number E41613(M)
Maximum operating temperature	130 °C, "IEC 60085", class B



Winding data for E55/28/21 coil former without pins (E)

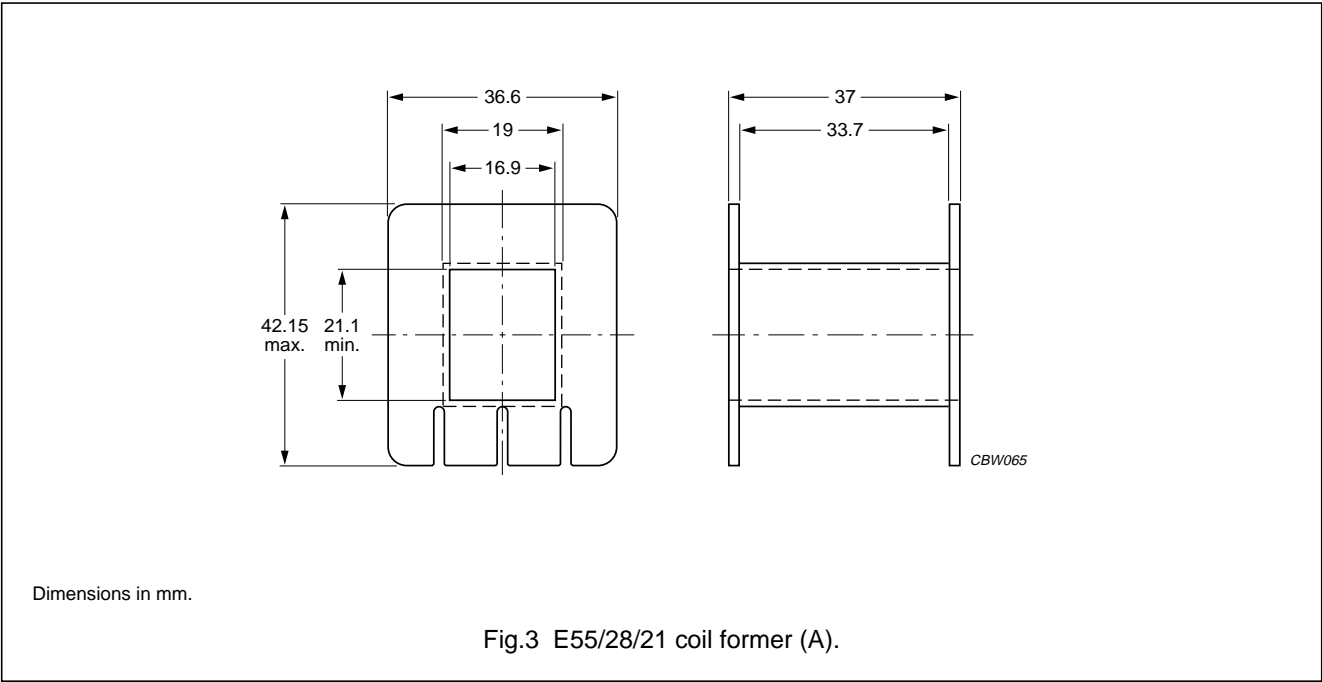
NUMBER OF SECTIONS	MINIMUM WINDING AREA (mm ²)	MINIMUM WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	250	33.2	116	CP-E55/28/21-1S

E cores and accessories

E55/28/21

General data for E55/28/21 coil former without pins (A)

PARAMETER	SPECIFICATION
Coil former material	polyamide (PA6.6), glass reinforced, flame retardant in accordance with "UL 94-HB"; UL file number E41938(M)
Maximum operating temperature	130 °C, "IEC 60085", class B



Winding data for E55/28/21 coil former without pins (A)

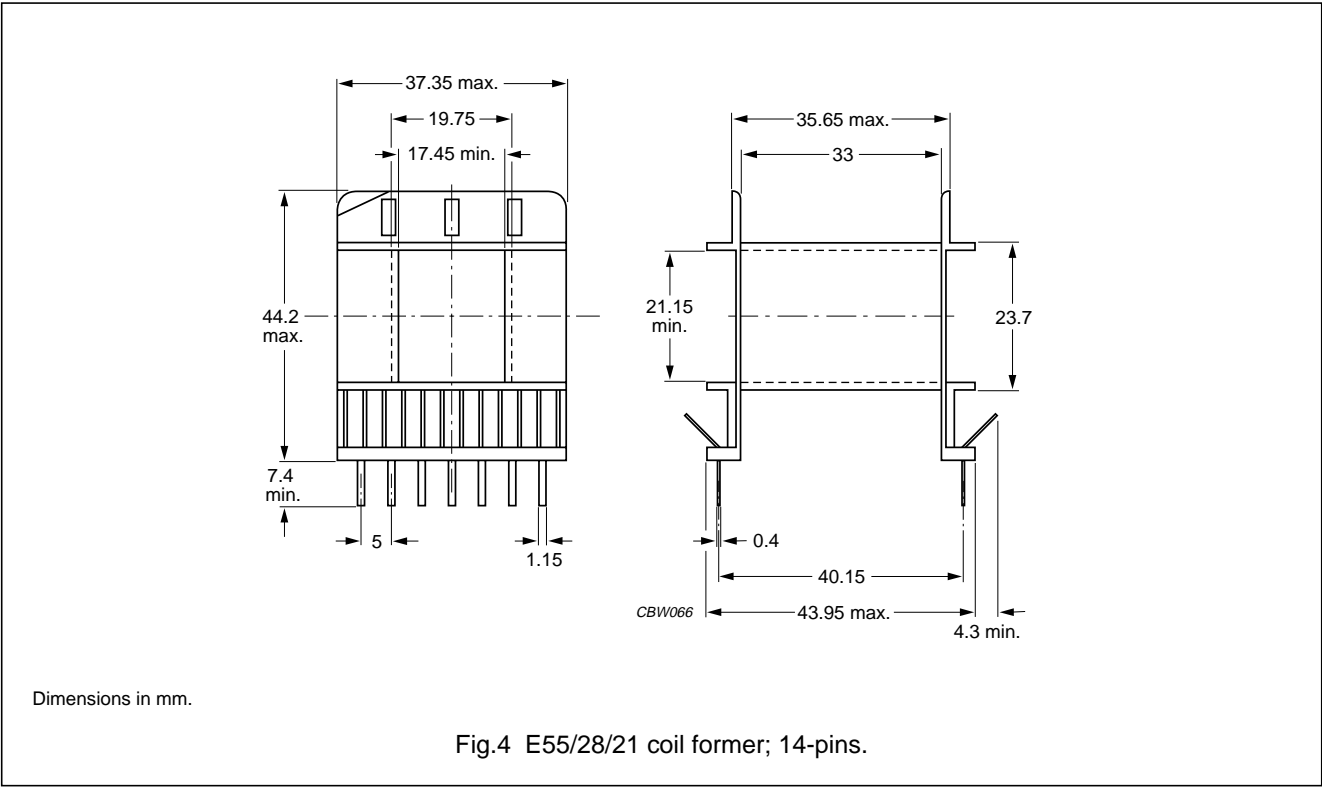
NUMBER OF SECTIONS	MINIMUM WINDING AREA (mm ²)	NOMINAL WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	277	33.7	113	CP-E55/28/21-1S-A

E cores and accessories

E55/28/21

General data for 14-pins E55/28/21 coil former

PARAMETER	SPECIFICATION
Coil former material	polyamide (PA6.6), glass reinforced, flame retardant in accordance with "UL 94-HB"; UL file number E41938(M)
Maximum operating temperature	105 °C, "IEC 60085", class A
Pin material	copper-zinc alloy (CuZn), tin-lead alloy (SnPb) plated
Resistance to soldering heat	"IEC 60068-2-20", Part 2, Test Tb, method 1B: 350 °C, 3.5 s
Solderability	"IEC 60068-2-20", Part 2, Test Ta, method 1: 235 °C, 2 s



Winding data for 14-pins E55/28/21 coil former

NUMBER OF SECTIONS	MINIMUM WINDING AREA (mm ²)	NOMINAL WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	278	33	119	CPH-E55/28/21-1S-14P

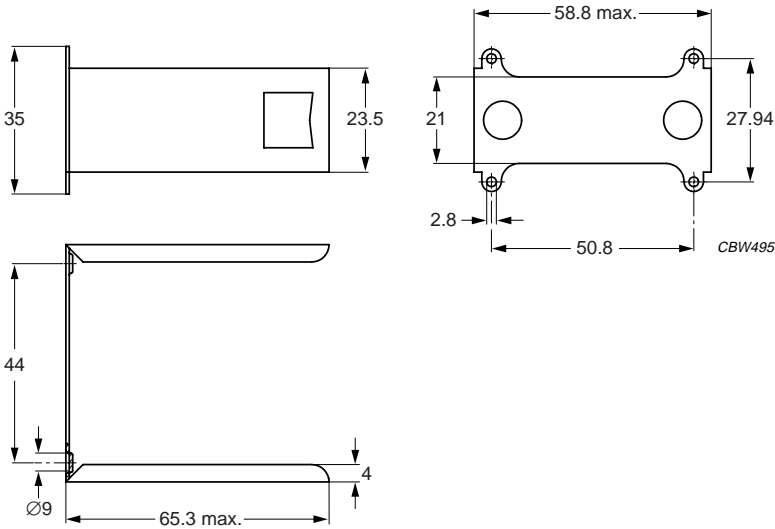
MOUNTING PARTS

GENERAL DATA FOR MOUNTING PARTS

ITEM	REMARKS	FIGURE	TYPE NUMBER
Clasp	steel, zinc (Zn) plated	5	CLA-E55/28/21
Spring	steel, zinc (Zn) plated	6	SPR-E55/28/21

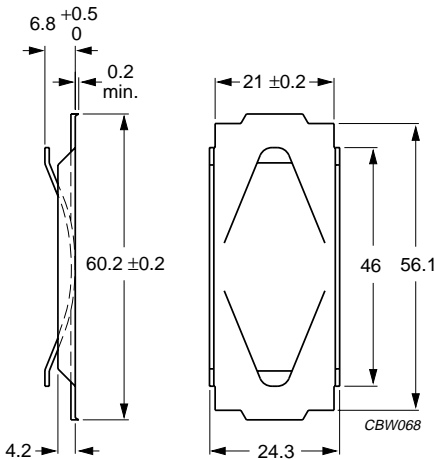
E cores and accessories

E55/28/21



Dimensions in mm.

Fig.5 E55/28/21 clasp.



Dimensions in mm.

Fig.6 E55/28/21 spring.

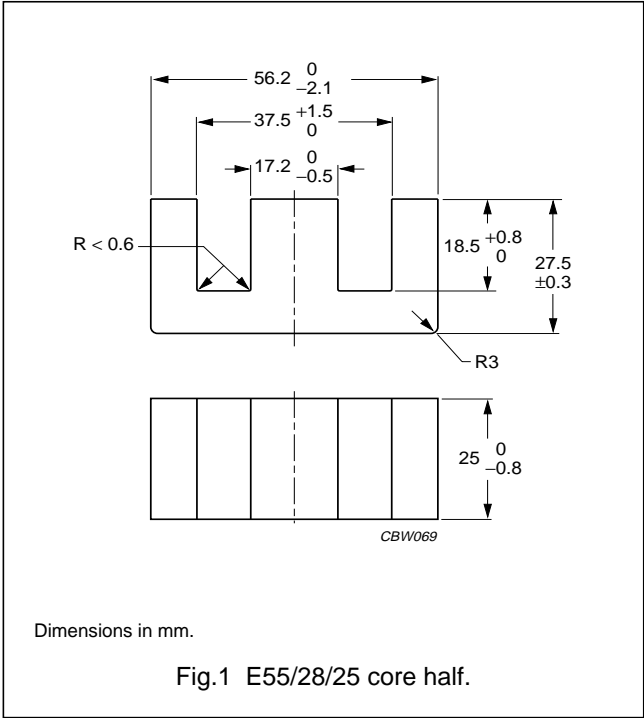
E cores and accessories

E55/28/25

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.239	mm ⁻¹
V_e	effective volume	52000	mm ³
l_e	effective length	123	mm
A_e	effective area	420	mm ²
A_{min}	minimum area	411	mm ²
m	mass of core half	≈130	g



Core halves

Clamping force for A_L measurements 40 ± 20 N. Gapped cores are available on request.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C90	$8000 \pm 25\%$	≈1950	≈0	E55/28/25-3C90
3F3	$7400 \pm 25\%$	≈1800	≈0	E55/28/25-3F3

Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at		
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 25 kHz; \hat{B} = 200 mT; T = 100 °C	f = 100 kHz; \hat{B} = 100 mT; T = 100 °C	f = 400 kHz; \hat{B} = 50 mT; T = 100 °C
3C90	≥330	≤5.7	≤7.3	—
3F3	≥310	—	≤6.6	≤12.7

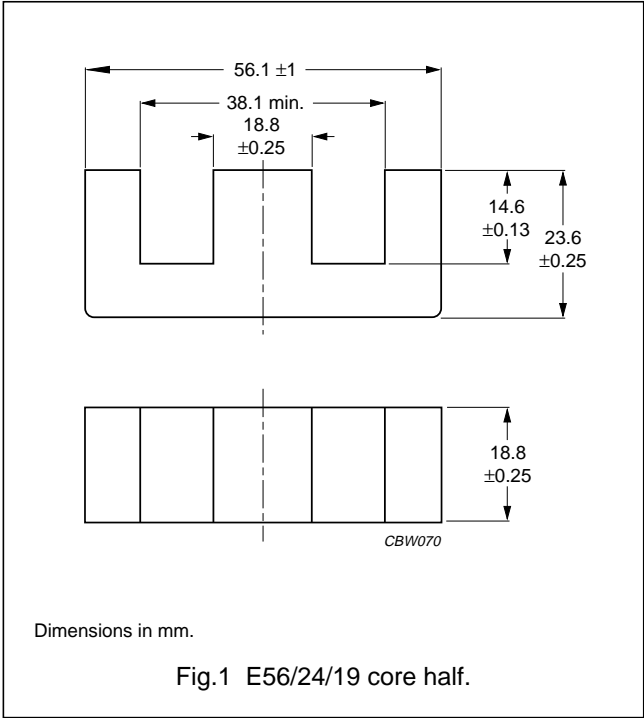
E cores and accessories

E56/24/19
(E75)

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(I/A)$	core factor (C1)	0.320	mm ⁻¹
V_e	effective volume	36000	mm ³
l_e	effective length	107	mm
A_e	effective area	337	mm ²
m	mass of core half	≈90	g



Core halves

A_L measured in combination with a non-gapped core half, clamping force for A_L measurements, 60 ±20 N, unless stated otherwise.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C81	315 ±3% ⁽¹⁾	≈79	≈1650	E56/24/19-3C81-E315
	400 ±3% ⁽¹⁾	≈101	≈1240	E56/24/19-3C81-E400
	630 ±3% ⁽¹⁾	≈158	≈720	E56/24/19-3C81-E630
	1000 ±5%	≈251	≈410	E56/24/19-3C81-A1000
	1600 ±10%	≈402	≈230	E56/24/19-3C81-A1600
	9500 ±25%	≈2380	≈0	E56/24/19-3C81
3C90	315 ±3% ⁽¹⁾	≈79	≈1650	E56/24/19-3C90-E315
	400 ±3% ⁽¹⁾	≈101	≈1240	E56/24/19-3C90-E400
	630 ±3% ⁽¹⁾	≈158	≈720	E56/24/19-3C90-E630
	1000 ±5%	≈251	≈410	E56/24/19-3C90-A1000
	1600 ±10%	≈402	≈230	E56/24/19-3C90-A1600
	6900 ±25%	≈1730	≈0	E56/24/19-3C90

Note

1. Measured in combination with an equal gapped core half, clamping force for A_L measurements, 60 ±20 N.

E cores and accessories

E56/24/19
(E75)

Core halves of high permeability grades
Clamping force for A_L measurements, 60 ± 20 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3E25 ^{sup}	$14580 \pm 25\%$	≈ 3660	≈ 0	E56/24/19-3E25
3E27	$14580 \pm 25\%$	≈ 3660	≈ 0	E56/24/19-3E27

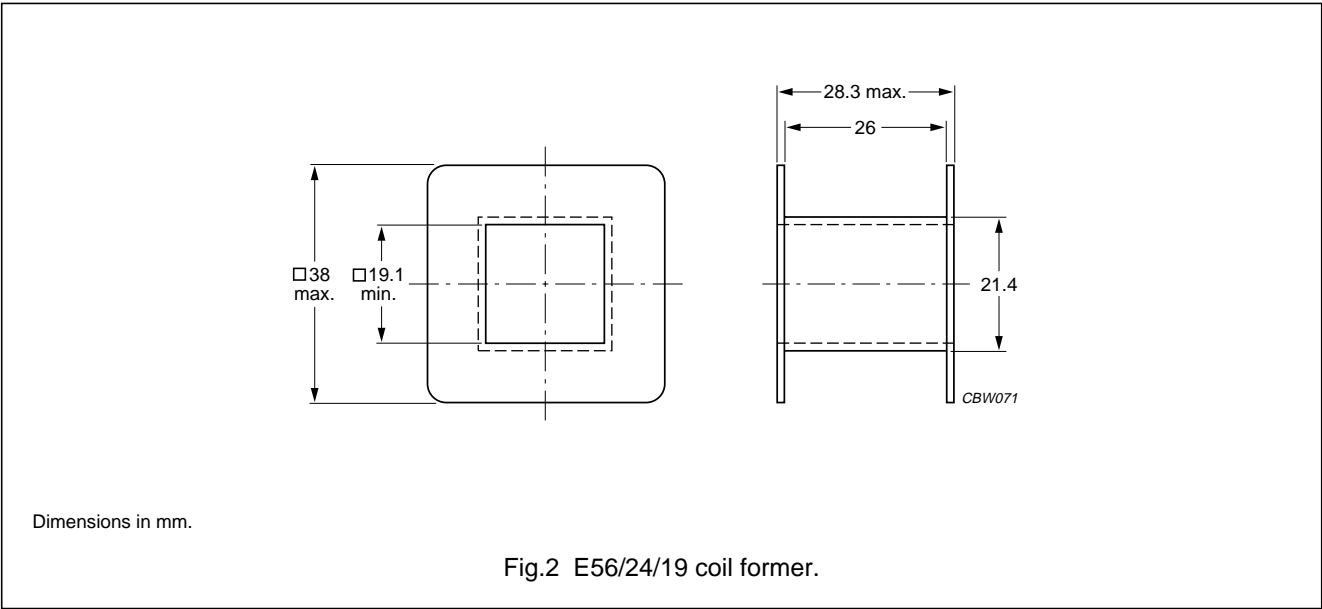
Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at	
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 25 kHz; \hat{B} = 200 mT; T = 100 °C	f = 100 kHz; \hat{B} = 100 mT; T = 100 °C
3C81	≥ 320	≤ 7.4	–
3C90	≥ 320	≤ 3.6	≤ 4.8

COIL FORMERS

General data for E56/24/19 coil former without pins

PARAMETER	SPECIFICATION
Coil former material	polyamide (PA6.6), glass reinforced, flame retardant in accordance with "UL 94V-2"; UL file number E41938(M)
Maximum operating temperature	130 °C, "IEC 60085", class B



E cores and accessories

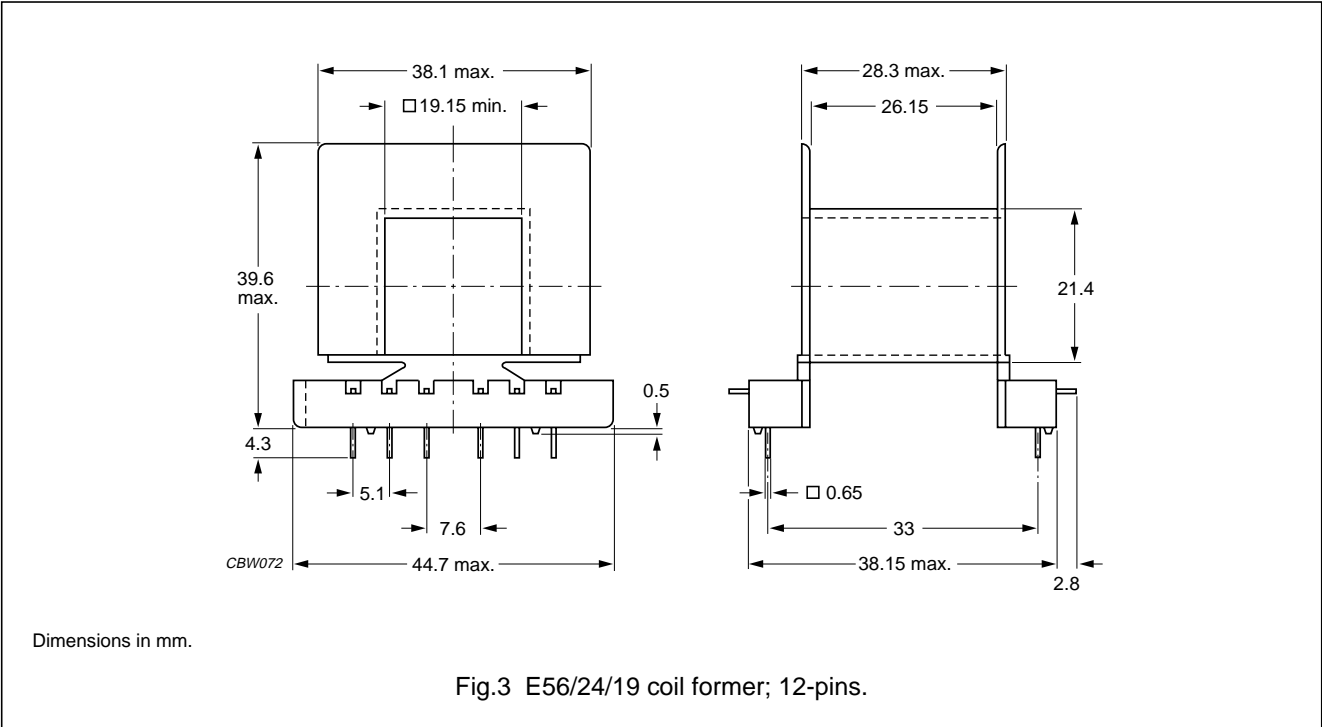
E56/24/19
(E75)

Winding data for E56/24/19 coil former without pins

NUMBER OF SECTIONS	MINIMUM WINDING AREA (mm ²)	NOMINAL WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	222	26.1	112	CP-E56/24/19-1S

General data for 12-pins E56/24/19 coil former

PARAMETER	SPECIFICATION
Coil former material	thermoplastic polyester, glass reinforced, flame retardant in accordance with "UL 94V-0";UL file number E69578(M)
Maximum operating temperature	155 °C, "IEC 60085", class F
Pin material	copper-zinc alloy (CuZn), tin-lead alloy (SnPb) plated
Resistance to soldering heat	"IEC 60068-2-20", Part 2, Test Tb, method 1B: 350 °C, 3.5 s
Solderability	"IEC 60068-2-20", Part 2, Test Ta, method 1: 235 °C, 2 s



Winding data for 12-pins E56/24/19 coil former

NUMBER OF SECTIONS	MINIMUM WINDING AREA (mm ²)	NOMINAL WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	205	26.2	114	CPH-E56/24/19-1S-12PD

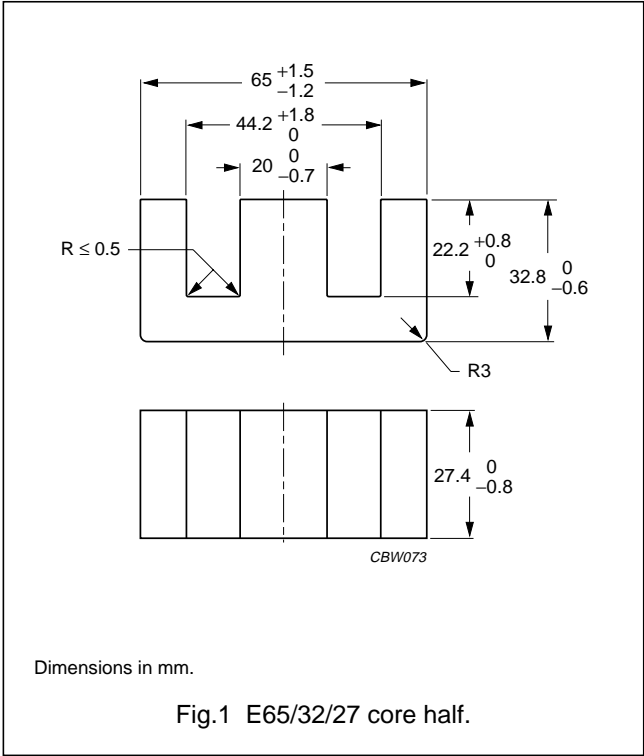
E cores and accessories

E65/32/27

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.274	mm^{-1}
V_e	effective volume	79000	mm^3
l_e	effective length	147	mm
A_e	effective area	540	mm^2
A_{\min}	minimum area	530	mm^2
m	mass of core half	≈ 205	g



Core halves

Gapped cores are available on request. Clamping force for A_L measurements, 60 ± 20 N, unless stated otherwise.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C90	$8600 \pm 25\%$	≈ 1900	≈ 0	E65/32/27-3C90
3F3	$7300 \pm 25\%$	≈ 1590	≈ 0	E65/32/27-3F3

Core halves of high permeability grades

Clamping force for A_L measurements, 60 ± 20 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C11	$16700 \pm 25\%$	≈ 3800	≈ 0	E65/32/27-3C11

Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at		
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 25 kHz; \hat{B} = 200 mT; T = 100 °C	f = 100 kHz; \hat{B} = 100 mT; T = 100 °C	f = 400 kHz; \hat{B} = 50 mT; T = 100 °C
3C90	≥ 330	≤ 9.1	≤ 12.0	—
3F3	≥ 310	—	≤ 10.5	≤ 21.0

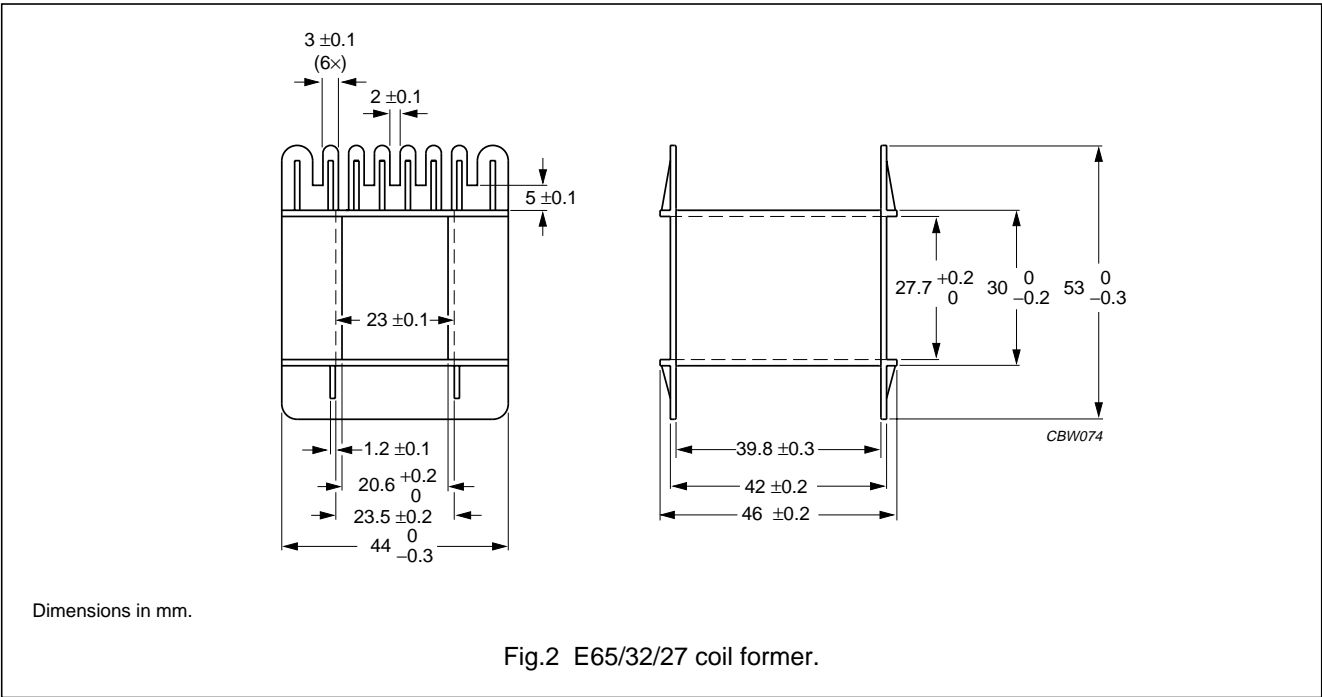
E cores and accessories

E65/32/27

COIL FORMER

General data for E65/32/27 coil former without pins

PARAMETER	SPECIFICATION
Coil former material	polyamide (PA6.6), glass reinforced, flame retardant in accordance with "UL 94-HB"; UL file number E41613(M)
Maximum operating temperature	130 °C, "IEC 60085", class B



Winding data for E65/32/27 coil former without pins (E)

NUMBER OF SECTIONS	MINIMUM WINDING AREA (mm ²)	NOMINAL WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	394	39.5	150	CP-E65/32/27-1S

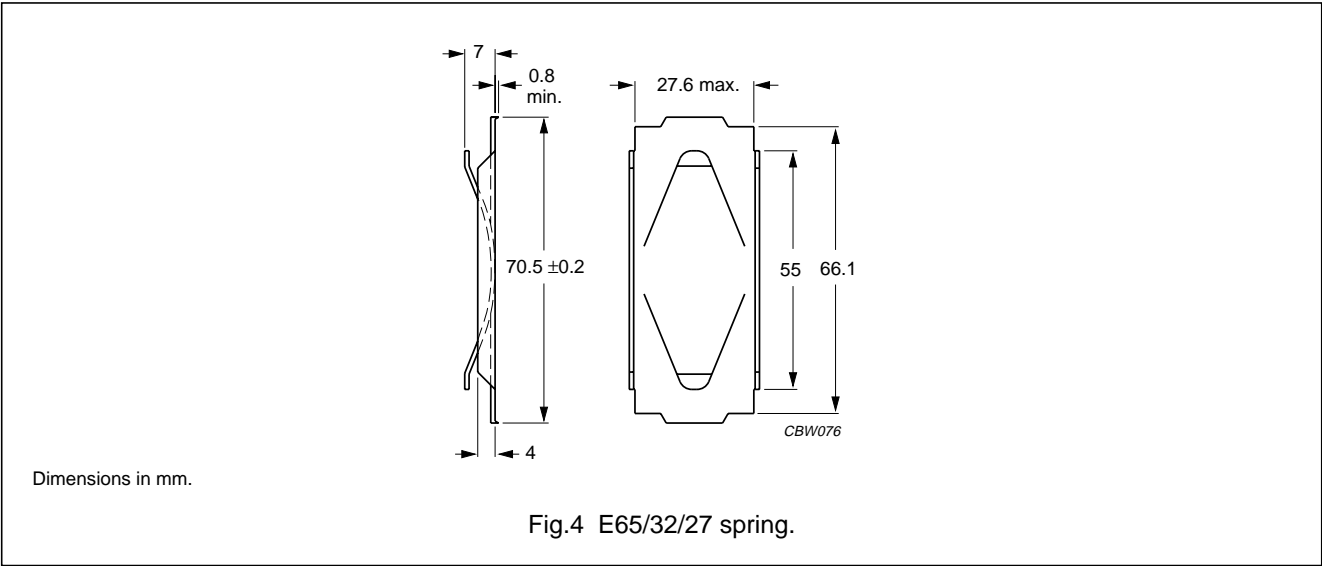
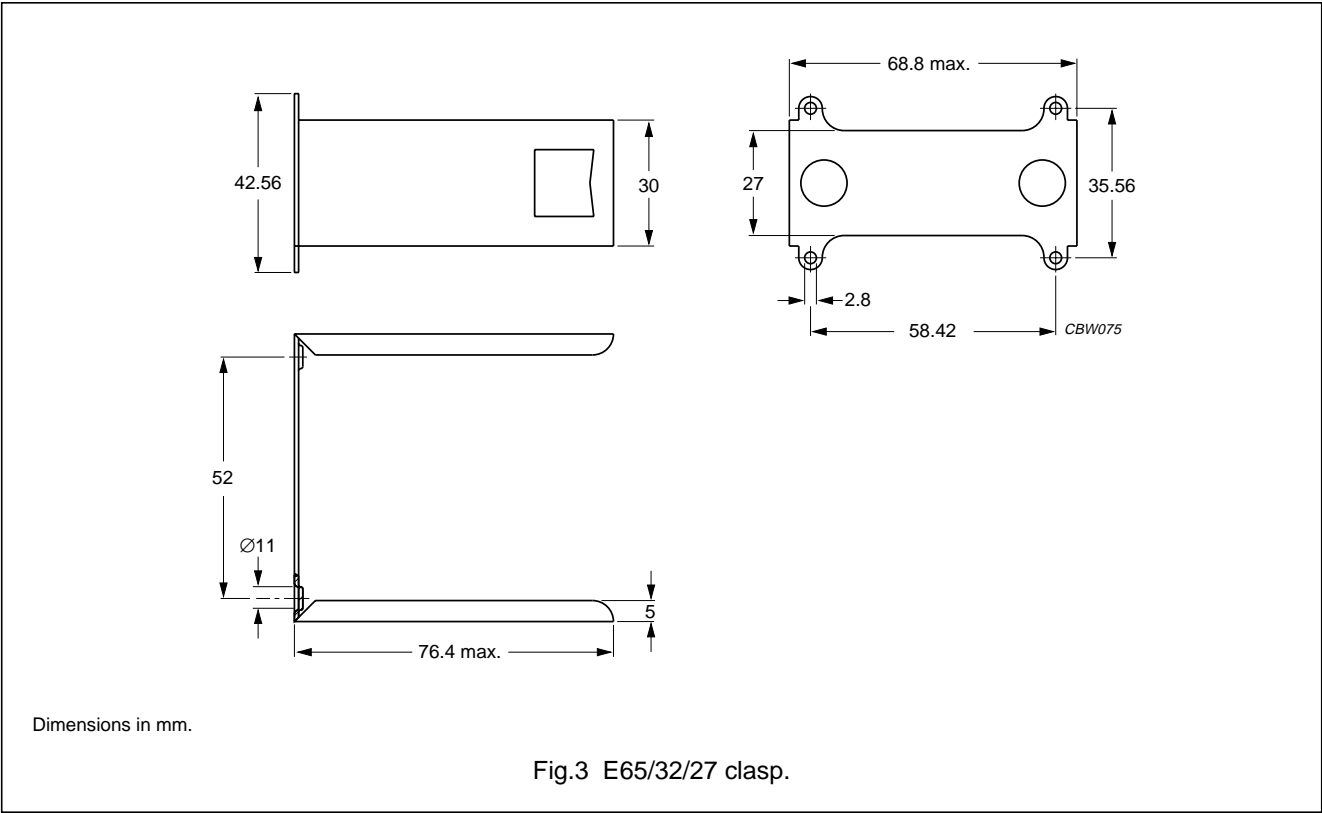
E cores and accessories

E65/32/27

MOUNTING PARTS

General data for mounting parts

ITEM	REMARKS	FIGURE	TYPE NUMBER
Clasp	steel, zinc (Zn) plated	3	CLA-E65/32/27
Spring	steel, zinc (Zn) plated	4	SPR-E65/32/27



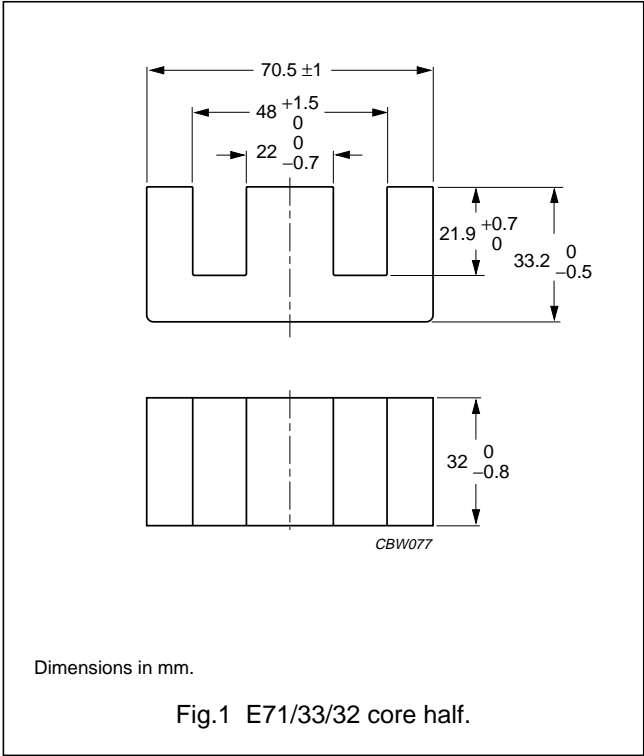
E cores and accessories

E71/33/32

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.218	mm^{-1}
V_e	effective volume	102000	mm^3
l_e	effective length	149	mm
A_e	effective area	683	mm^2
A_{\min}	minimum area	676	mm^2
m	mass of core half	≈ 260	g



Core halves

Clamping force for A_L measurements, 60 ± 20 N. Gapped cores are available on request.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C90	$10800 \pm 25\%$	≈ 1950	≈ 0	E71/33/32-3C90
3F3	$10000 \pm 25\%$	≈ 1800	≈ 0	E71/33/32-3F3

Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at		
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 25 kHz; \hat{B} = 200 mT; T = 100 °C	f = 100 kHz; \hat{B} = 100 mT; T = 100 °C	f = 400 kHz; \hat{B} = 50 mT; T = 100 °C
3C90	≥ 330	≤ 12.0	≤ 16.5	—
3F3	≥ 310	—	≤ 14.0	≤ 29.0

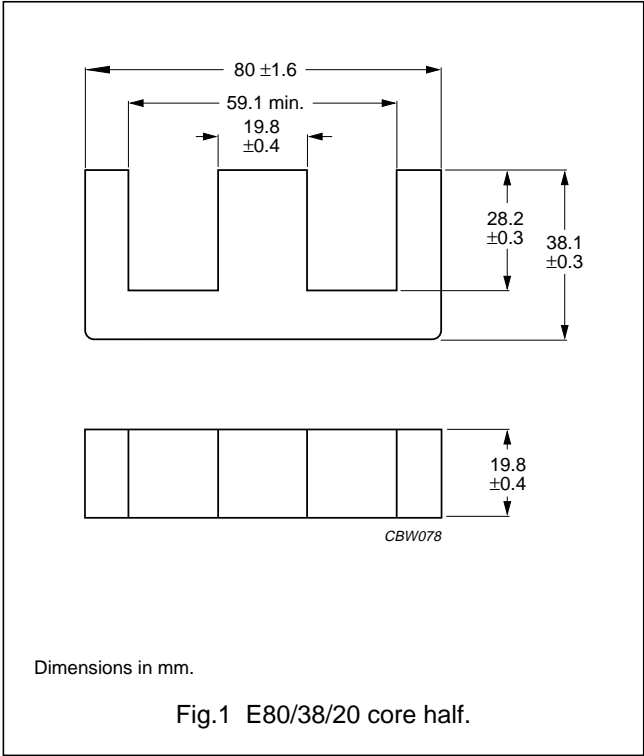
E cores and accessories

E80/38/20

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.470	mm^{-1}
V_e	effective volume	72300	mm^3
l_e	effective length	184	mm
A_e	effective area	392	mm^2
m	mass of core half	≈ 180	g



Core halves

A_L measured in combination with a non-gapped core half, clamping force for A_L measurements, 60 ± 20 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C81	$315 \pm 3\%^{(1)}$	≈ 118	≈ 1980	E80/38/20-3C81-E315
	$400 \pm 3\%^{(1)}$	≈ 150	≈ 1460	E80/38/20-3C81-E400
	$630 \pm 3\%^{(1)}$	≈ 236	≈ 830	E80/38/20-3C81-E630
	$1000 \pm 5\%$	≈ 374	≈ 460	E80/38/20-3C81-A1000
	$1600 \pm 10\%$	≈ 598	≈ 240	E80/38/20-3C81-A1600
	$6730 \pm 25\%$	≈ 2500	≈ 0	E80/38/20-3C81
3C90	$315 \pm 3\%^{(1)}$	≈ 118	≈ 1980	E80/38/20-3C90-E315
	$400 \pm 3\%^{(1)}$	≈ 150	≈ 1460	E80/38/20-3C90-E400
	$630 \pm 3\%^{(1)}$	≈ 236	≈ 830	E80/38/20-3C90-E630
	$1000 \pm 5\%$	≈ 374	≈ 460	E80/38/20-3C90-A1000
	$1600 \pm 10\%$	≈ 598	≈ 240	E80/38/20-3C90-A1600
	$5070 \pm 25\%$	≈ 1900	≈ 0	E80/38/20-3C90

E cores and accessories

E80/38/20

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3F3	$315 \pm 3\%^{(1)}$	≈ 118	≈ 1980	E80/38/20-3F3-E315
	$400 \pm 3\%^{(1)}$	≈ 150	≈ 1460	E80/38/20-3F3-E400
	$630 \pm 3\%^{(1)}$	≈ 236	≈ 830	E80/38/20-3F3-E630
	$1000 \pm 5\%$	≈ 374	≈ 460	E80/38/20-3F3-A1000
	$1600 \pm 10\%$	≈ 598	≈ 240	E80/38/20-3F3-A1600
	$4590 \pm 25\%$	≈ 1720	≈ 0	E80/38/20-3F3

Note

1. Measured in combination with an equal gapped core half, clamping force for A_L measurements, 60 ± 20 N.

Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at		
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 25 kHz; \hat{B} = 200 mT; T = 100 °C	f = 100 kHz; \hat{B} = 100 mT; T = 100 °C	f = 400 kHz; \hat{B} = 50 mT; T = 100 °C
3C81	≥ 320	≤ 14.8	—	—
3C90	≥ 320	≤ 7.2	≤ 10.0	—
3F3	≥ 320	—	≤ 8.0	≤ 13.8

