

DATA SHEET

EFD10

EFD cores and accessories

Product specification
Supersedes data of November 1997
File under Ferrite Ceramics, MA01

2000 Apr 25

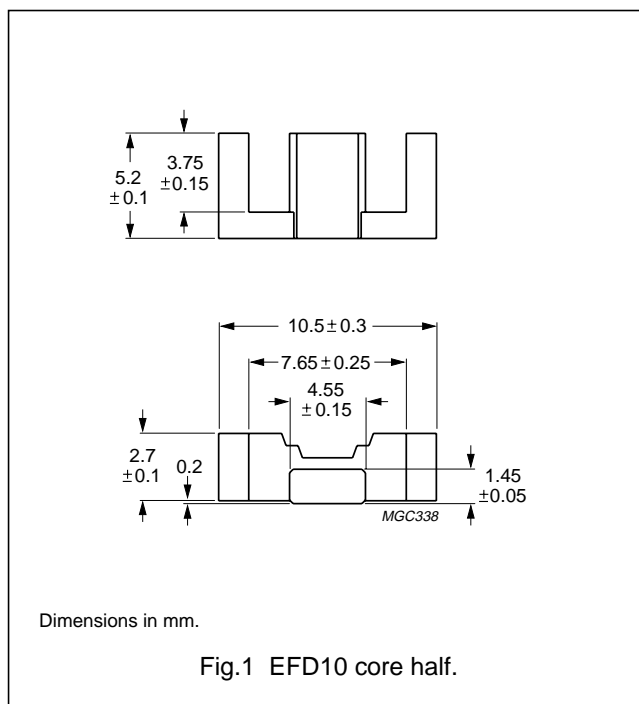
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CORES

Effective core parameters

| SYMBOL | PARAMETER | VALUE | UNIT |
|---------------|-------------------|-------|------------------|
| $\Sigma(I/A)$ | core factor (C1) | 3.29 | mm ⁻¹ |
| V_e | effective volume | 171 | mm ³ |
| l_e | effective length | 23.7 | mm |
| A_e | effective area | 7.2 | mm ² |
| A_{min} | minimum area | 6.5 | mm ² |
| m | mass of core half | ≈0.45 | g |



Core sets

Clamping force for A_L measurements, 10 ± 5 N.

| GRADE | A_L (nH) | μ_e | AIR GAP (μ m) | TYPE NUMBER |
|--------------------------|------------|---------|--------------------|------------------|
| 3C90 | 25 ± 5% | ≈ 66 | ≈ 540 | EFD10-3C90-A25-S |
| | 40 ± 8% | ≈ 105 | ≈ 300 | EFD10-3C90-A40-S |
| | 63 ± 10% | ≈ 165 | ≈ 170 | EFD10-3C90-A63-S |
| | 585 ± 25% | ≈ 1510 | ≈ 0 | EFD10-3C90-S |
| 3C94 <small>des</small> | 25 ± 5% | ≈ 66 | ≈ 540 | EFD10-3C94-A25-S |
| | 40 ± 8% | ≈ 105 | ≈ 300 | EFD10-3C94-A40-S |
| | 63 ± 10% | ≈ 165 | ≈ 170 | EFD10-3C94-A63-S |
| | 585 ± 25% | ≈ 1510 | ≈ 0 | EFD10-3C94-S |
| 3C96 <small>prot</small> | 525 ± 25% | ≈ 1360 | ≈ 0 | EFD10-3C96-S |
| 3F3 | 25 ± 5% | ≈ 66 | ≈ 540 | EFD10-3F3-A25-S |
| | 40 ± 8% | ≈ 105 | ≈ 300 | EFD10-3F3-A40-S |
| | 63 ± 10% | ≈ 165 | ≈ 170 | EFD10-3F3-A63-S |
| | 500 ± 25% | ≈ 1290 | ≈ 0 | EFD10-3F3-S |
| 3F35 <small>prot</small> | 400 ± 25% | ≈ 1030 | ≈ 0 | EFD10-3F35-S |

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| GRADE | A_L (nH) | μ_e | AIR GAP (μm) | TYPE NUMBER |
|--------------------|---------------|----------------|------------------------------|-----------------|
| 3F4 ^{des} | 25 \pm 5% | \approx 66 | \approx 520 | EFD10-3F4-A25-S |
| | 40 \pm 8% | \approx 105 | \approx 280 | EFD10-3F4-A40-S |
| | 63 \pm 10% | \approx 165 | \approx 150 | EFD10-3F4-A63-S |
| | 280 \pm 25% | \approx 730 | \approx 0 | EFD10-3F4-S |
| 3E4 ^{sup} | 1400 +40/-30% | \approx 3670 | \approx 0 | EFD10-3E4-S |
| 3E5 ^{des} | 2000 +40/-30% | \approx 5240 | \approx 0 | EFD10-3E5-S |

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 |
| 3C90 | \geq 320 | \leq 0.019 | – | – |
| 3C94 | \geq 320 | \leq 0.015 | \approx 0.074 | \approx 0.033 |
| 3C96 | \geq 320 | \approx 0.011 | \approx 0.052 | \approx 0.023 |
| 3F35 | \geq 300 | – | – | \approx 0.017 |
| 3F3 | \geq 315 | \leq 0.020 | – | \leq 0.035 |
| 3F4 | \geq 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 |
| 3C90 | \geq 320 | – | – | – | – |
| 3C94 | \geq 320 | – | – | – | – |
| 3C96 | \geq 320 | – | – | – | – |
| 3F35 | \geq 300 | \approx 0.028 | \approx 0.200 | – | – |
| 3F3 | \geq 315 | – | – | – | – |
| 3F4 | \geq 250 | – | – | \leq 0.034 | \leq 0.055 |

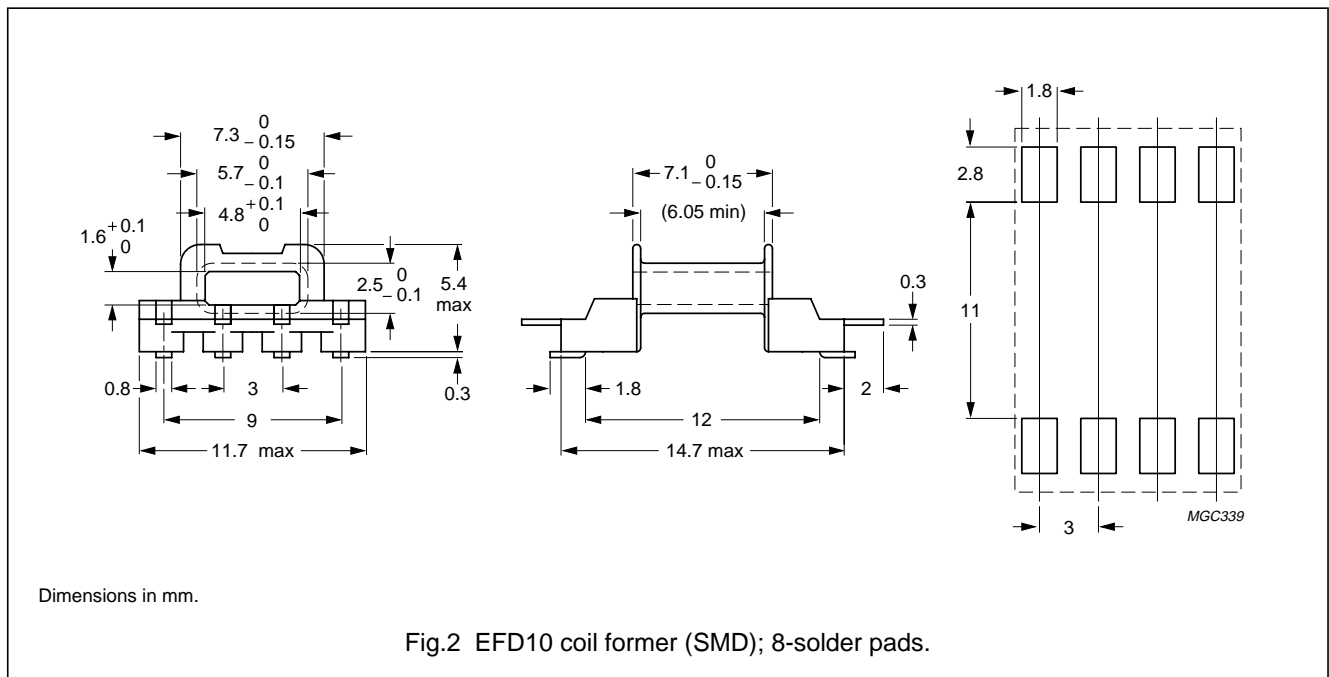
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COIL FORMERS

General data

| PARAMETER | SPECIFICATION |
|-------------------------------|---|
| Coil former material | liquid crystal polymer (LCP), glass reinforced, flame retardant in accordance with "UL 94V-0"; UL file number E83005(M) |
| Solder pad 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 EFD10 coil former (SMD) with 8-solder pads

| NUMBER OF SECTIONS | NUMBER OF SOLDER PADS | MINIMUM WINDING AREA (mm ²) | MINIMUM WINDING WIDTH (mm) | AVERAGE LENGTH OF TURN (mm) | TYPE NUMBER |
|--------------------|-----------------------|---|----------------------------|-----------------------------|------------------|
| 1 | 8 | 4.2 | 6.05 | 14.8 | CPHS-EFD10-1S-8P |

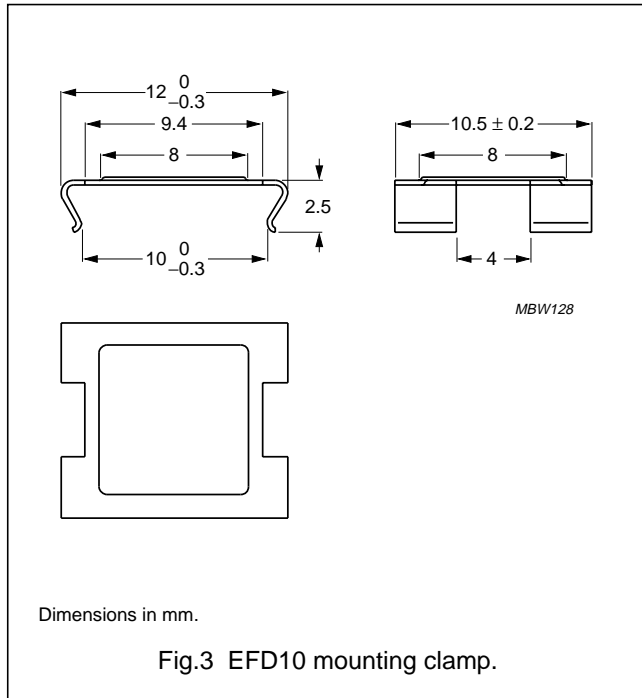
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MOUNTING PARTS

General data

| ITEM | REMARKS | FIGURE | TYPE NUMBER |
|-------|---|--------|-------------|
| Clamp | stainless steel (CrNi); clamping force ≈ 15 N | 3 | CLM-EFD10 |



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DATA SHEET STATUS DEFINITIONS

| DATA SHEET STATUS | PRODUCT STATUS | DEFINITIONS |
|---------------------------|----------------|--|
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