

DATA SHEET

RM14/I
RM, RM/I, RM/ILP cores and
accessories

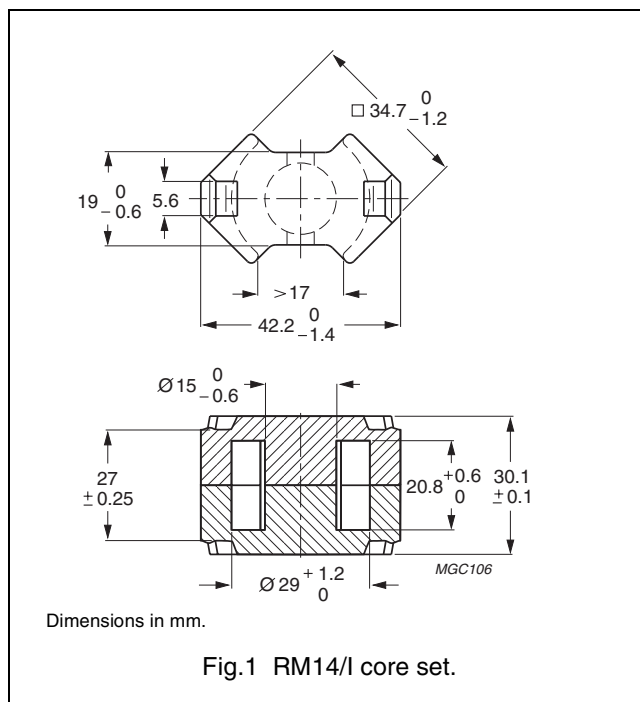
Supersedes data of September 2004

2008 Sep 01

CORE SETS

Effective core parameters

| SYMBOL | PARAMETER | VALUE | UNIT |
|---------------|------------------|-------|------------------|
| $\Sigma(I/A)$ | core factor (C1) | 0.353 | mm ⁻¹ |
| V_e | effective volume | 13900 | mm ³ |
| l_e | effective length | 70.0 | mm |
| A_e | effective area | 198 | mm ² |
| A_{min} | minimum area | 168 | mm ² |
| m | mass of set | ≈ 69 | g |



Core sets for general purpose transformers and power applications

Clamping force for A_L measurements, 80 ±20 N.

| GRADE | A_L (nH) | μ_e | AIR GAP (μ m) | TYPE NUMBER |
|-------------------------|------------|---------|--------------------|-------------------|
| 3C90 | 250 ±3% | ≈ 70 | ≈ 1270 | RM14/I-3C90-A250 |
| | 315 ±3% | ≈ 89 | ≈ 950 | RM14/I-3C90-A315 |
| | 400 ±3% | ≈ 113 | ≈ 710 | RM14/I-3C90-A400 |
| | 630 ±5% | ≈ 177 | ≈ 410 | RM14/I-3C90-A630 |
| | 1000 ±5% | ≈ 281 | ≈ 240 | RM14/I-3C90-A1000 |
| | 6600 ±25% | ≈ 1850 | ≈ 0 | RM14/I-3C90 |
| 3C94 | 250 ±3% | ≈ 70 | ≈ 1270 | RM14/I-3C94-A250 |
| | 315 ±3% | ≈ 89 | ≈ 950 | RM14/I-3C94-A315 |
| | 400 ±3% | ≈ 113 | ≈ 710 | RM14/I-3C94-A400 |
| | 630 ±5% | ≈ 177 | ≈ 410 | RM14/I-3C94-A630 |
| | 1000 ±5% | ≈ 281 | ≈ 240 | RM14/I-3C94-A1000 |
| | 6600 ±25% | ≈ 1850 | ≈ 0 | RM14/I-3C94 |
| 3C95 <small>des</small> | 8130 ±25% | ≈ 2290 | ≈ 0 | RM14/I-3C95 |
| 3C96 <small>des</small> | 5700 ±25% | ≈ 1600 | ≈ 0 | RM14/I-3C96 |
| 3F3 | 250 ±3% | ≈ 70 | ≈ 1270 | RM14/I-3F3-A250 |
| | 315 ±3% | ≈ 89 | ≈ 950 | RM14/I-3F3-A315 |
| | 400 ±3% | ≈ 113 | ≈ 710 | RM14/I-3F3-A400 |
| | 630 ±5% | ≈ 177 | ≈ 410 | RM14/I-3F3-A630 |
| | 1000 ±5% | ≈ 281 | ≈ 240 | RM14/I-3F3-A1000 |
| | 5700 ±25% | ≈ 1600 | ≈ 0 | RM14/I-3F3 |

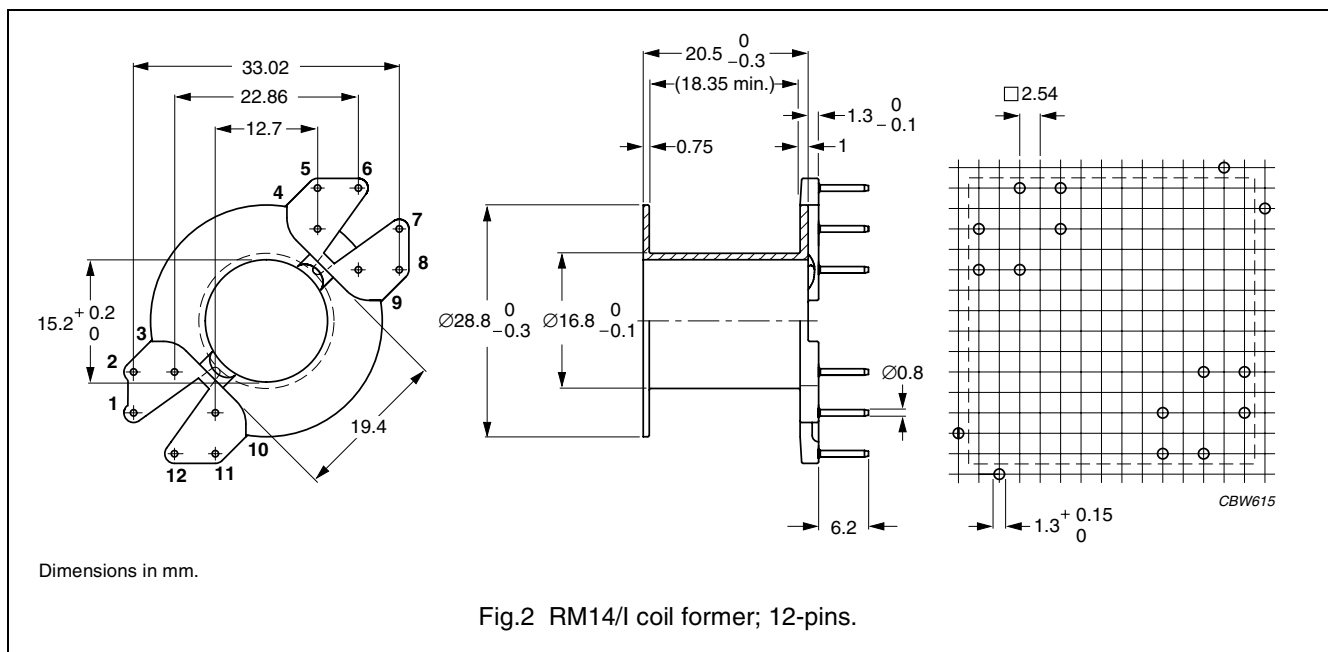
Properties of core sets under power conditions

| GRADE | B (mT) at | CORE LOSS (W) at | | | | | |
|-------|---|--|---|--|---|--|--|
| | H = 250 A/m; f = 25 kHz; T = 100 °C | f̂ = 25 kHz; B̂ = 200 mT; T = 100 °C | f̂ = 100 kHz; B̂ = 100 mT; T = 100 °C | f̂ = 100 kHz; B̂ = 200 mT; T = 25 °C | f̂ = 100 kHz; B̂ = 200 mT; T = 100 °C | f̂ = 400 kHz; B̂ = 50 mT; T = 100 °C | f̂ = 500 kHz; B̂ = 50 mT; T = 100 °C |
| 3C90 | ≥315 | ≤ 1.67 | ≤ 1.76 | – | – | – | – |
| 3C94 | ≥315 | – | ≤ 1.4 | – | ≤ 7.4 | – | – |
| 3C95 | ≥315 | – | – | ≤ 8.76 | ≤ 8.34 | – | – |
| 3C96 | ≥340 | – | ≤ 1.1 | – | ≤ 5.6 | ≤ 2.6 | ≤ 5.2 |
| 3F3 | ≥315 | – | ≤ 1.55 | – | – | ≤ 2.65 | – |

COIL FORMERS

General data

| 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 (Sn) 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 |

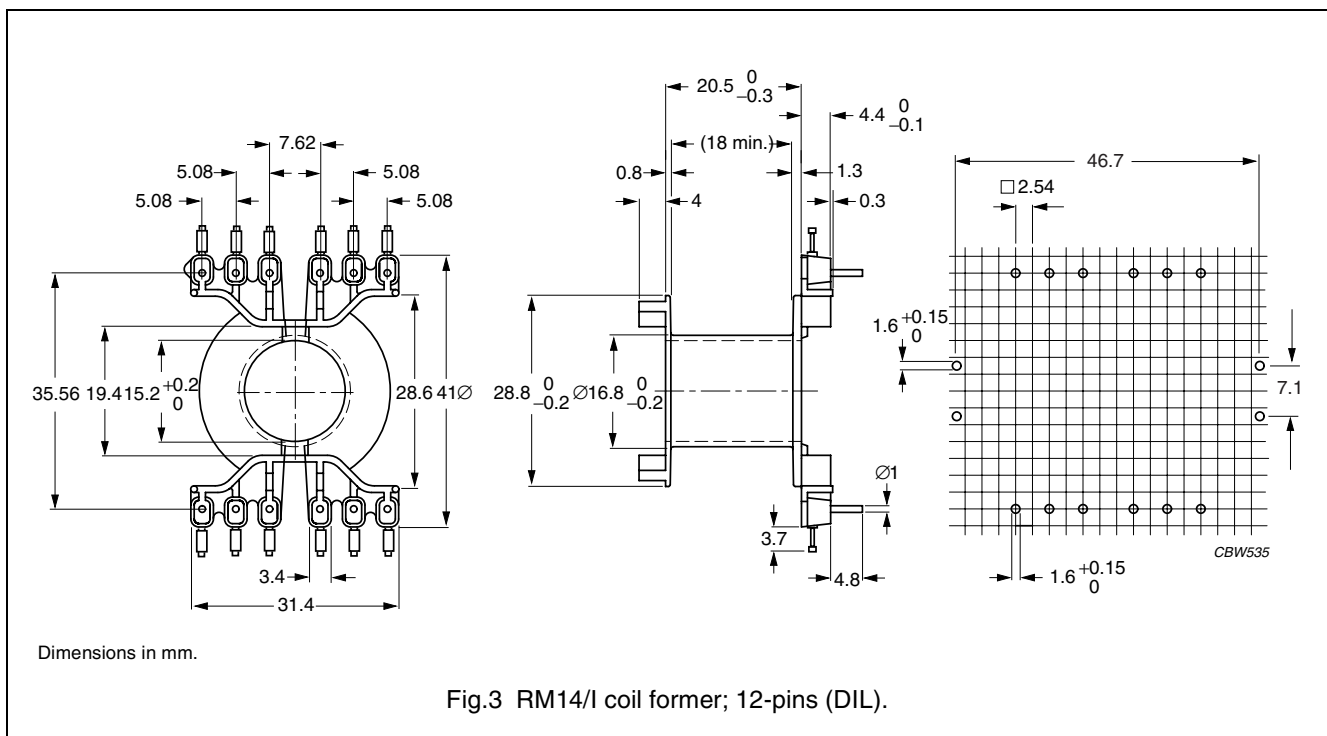


Winding data and area product for 12-pins RM14/I coil former

| NUMBER OF SECTIONS | NUMBER OF PINS | PIN POSITIONS USED | AVERAGE LENGTH OF TURN (mm) | WINDING AREA (mm ²) | WINDING WIDTH (mm) | AREA PRODUCT Ae x Aw (mm ⁴) | TYPE NUMBER |
|--------------------|----------------|---------------------------------|-----------------------------|---------------------------------|--------------------|---|-----------------|
| 1 | 10 | 1, 2, 3, 4, 6, 7, 9, 10, 11, 12 | 71 | 112 | 18.4 | 22200 | CSV-RM14-1S-10P |
| 1 | 12 | all | 71 | 112 | 18.4 | 22200 | CSV-RM14-1S-12P |

General data

| PARAMETER | SPECIFICATION |
|-------------------------------|--|
| Coil former material | polybutyleneterephthalate (PBT), glass-reinforced, flame retardant in accordance with "UL 94V-0"; UL file number E45329(R) |
| Pin material | copper-tin alloy (CuSn), tin (Sn) 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 |



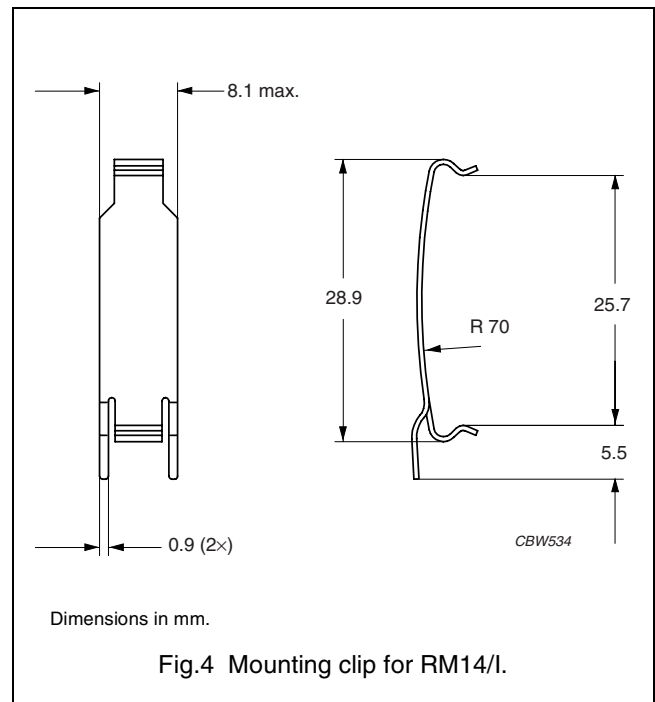
Winding data and area product for 12-pins RM14/I coil former (DIL)

| NUMBER OF SECTIONS | AVERAGE LENGTH OF TURN (mm) | WINDING AREA (mm ²) | WINDING WIDTH (mm) | AREA PRODUCT Ae x Aw (mm ⁴) | TYPE NUMBER |
|--------------------|-----------------------------|---------------------------------|--------------------|---|--------------------|
| 1 | 71 | 111 | 18.0 | 22000 | CPV-RM14/I-1S-12PD |

MOUNTING PARTS

General data mounting clip with earth pin

| ITEM | SPECIFICATION |
|----------------|--|
| Clamping force | ≈40 N |
| Clip material | stainless steel |
| Clip plating | tin (Sn) |
| Solderability | "IEC 60068-2-20", Part 2, Test Ta, method 1 |
| Type number | CLI/P-RM14/I |






DATA SHEET STATUS DEFINITIONS

| DATA SHEET STATUS | PRODUCT STATUS | DEFINITIONS |
|---------------------------|----------------|--|
| Preliminary specification | Development | This data sheet contains preliminary data. Ferroxcube reserves the right to make changes at any time without notice in order to improve design and supply the best possible product. |
| Product specification | Production | This data sheet contains final specifications. Ferroxcube reserves the right to make changes at any time without notice in order to improve design and supply the best possible product. |

DISCLAIMER

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PRODUCT STATUS DEFINITIONS

| STATUS | INDICATION | DEFINITION |
|------------------|---|--|
| Prototype |  | These are products that have been made as development samples for the purposes of technical evaluation only. The data for these types is provisional and is subject to change. |
| Design-in |  | These products are recommended for new designs. |
| Preferred | | These products are recommended for use in current designs and are available via our sales channels. |
| Support |  | These products are not recommended for new designs and may not be available through all of our sales channels. Customers are advised to check for availability. |