

# DATA SHEET

## **RM12/** RM cores and accessories

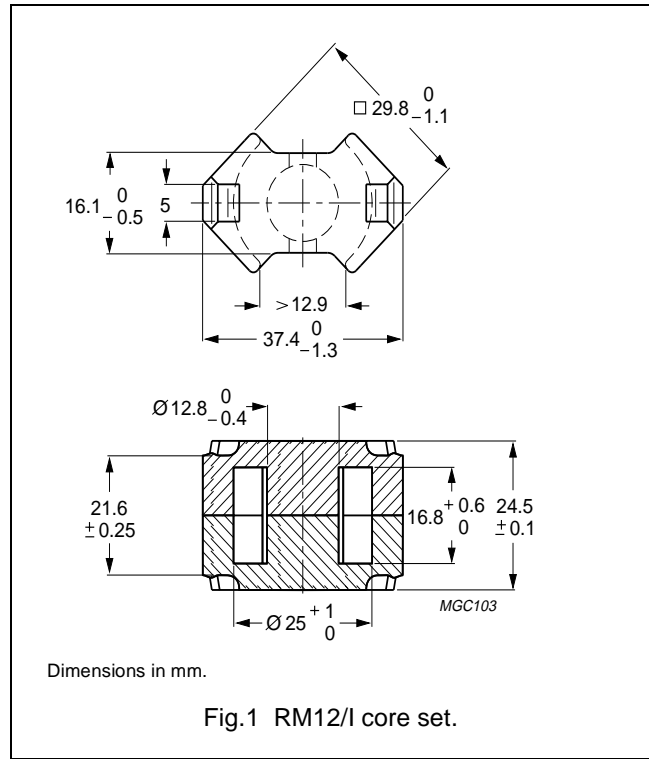
Supersedes data of February 2002

2004 Sep 01

**CORE SETS**

**Effective core parameters**

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.388	mm <sup>-1</sup>
$V_e$	effective volume	8340	mm <sup>3</sup>
$l_e$	effective length	56.6	mm
$A_e$	effective area	146	mm <sup>2</sup>
$A_{min}$	minimum area	125	mm <sup>2</sup>
$m$	mass of set	≈ 46	g



**Core sets for general purpose transformers and power applications**

Clamping force for  $A_L$  measurements, 70 ±20 N.

GRADE	$A_L$ (nH)	$\mu_e$	AIR GAP ( $\mu\text{m}$ )	TYPE NUMBER
3C90	160 ±3%	≈ 49	≈ 1570	RM12/I-3C90-A160
	250 ±3%	≈ 77	≈ 900	RM12/I-3C90-A250
	315 ±5%	≈ 97	≈ 680	RM12/I-3C90-A315
	400 ±5%	≈ 123	≈ 510	RM12/I-3C90-A400
	630 ±5%	≈ 194	≈ 300	RM12/I-3C90-A630
	5600 ±25%	≈ 1730	≈ 0	RM12/I-3C90
3C94	160 ±3%	≈ 49	≈ 1570	RM12/I-3C94-A160
	250 ±3%	≈ 77	≈ 900	RM12/I-3C94-A250
	315 ±5%	≈ 97	≈ 680	RM12/I-3C94-A315
	400 ±5%	≈ 123	≈ 510	RM12/I-3C94-A400
	630 ±5%	≈ 194	≈ 300	RM12/I-3C94-A630
	5600 ±25%	≈ 1730	≈ 0	RM12/I-3C94
3C96 <small>des</small>	5050 ±25%	≈ 1560	≈ 0	RM12/I-3C96

## RM cores and accessories

## RM12/I

GRADE	$A_L$ (nH)	$\mu_e$	AIR GAP ( $\mu\text{m}$ )	TYPE NUMBER
3F3	160 $\pm$ 3%	$\approx$ 49	$\approx$ 1570	RM12/I-3F3-A160
	250 $\pm$ 3%	$\approx$ 77	$\approx$ 900	RM12/I-3F3-A250
	315 $\pm$ 5%	$\approx$ 97	$\approx$ 680	RM12/I-3F3-A315
	400 $\pm$ 5%	$\approx$ 123	$\approx$ 510	RM12/I-3F3-A400
	630 $\pm$ 5%	$\approx$ 194	$\approx$ 300	RM12/I-3F3-A630
	5050 $\pm$ 25%	$\approx$ 1560	$\approx$ 0	RM12/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	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	$\geq$ 315	$\leq$ 1.0	$\leq$ 1.1	–	–
3C94	$\geq$ 315	–	$\leq$ 0.8	$\leq$ 4.5	–
3C96	$\geq$ 340	–	$\leq$ 0.6	$\leq$ 3.6	$\leq$ 1.5
3F3	$\geq$ 315	–	$\leq$ 0.92	–	$\leq$ 1.6

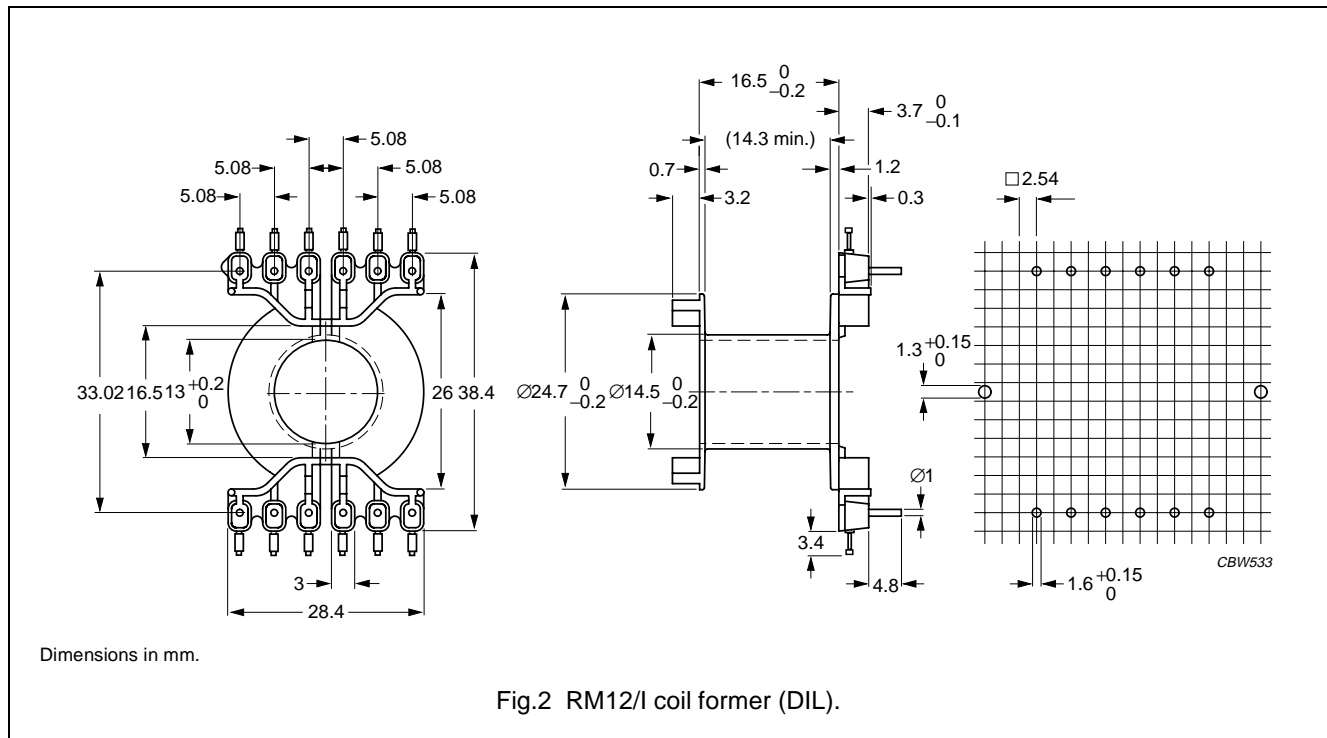
## Properties of core sets under power conditions (continued)

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	$\geq$ 340	$\leq$ 3.0	–	–	–
3F3	$\geq$ 315	–	–	–	–

**COIL FORMER**

**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-lead alloy (SnPb) plated, transition to lead-free (Sn) ongoing
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



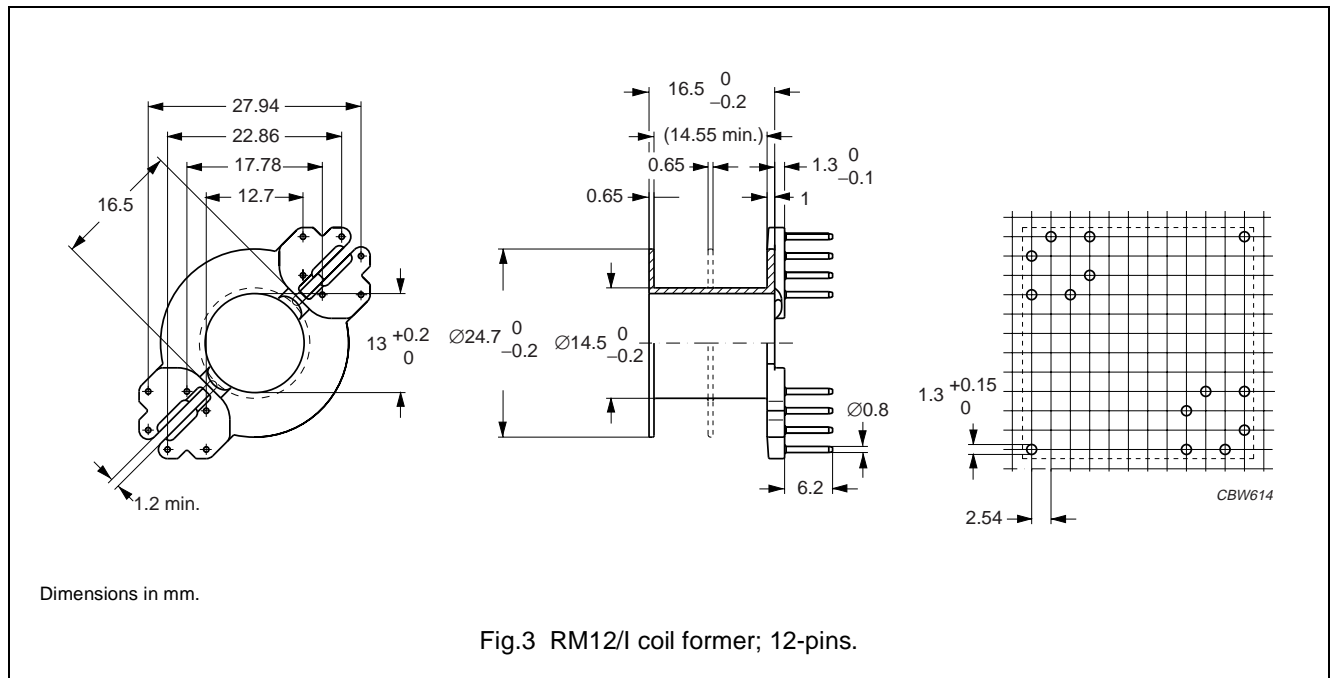
**Winding data for RM12/I coil former (DIL)**

NUMBER OF SECTIONS	AVERAGE LENGTH OF TURN (mm)	WINDING AREA (mm <sup>2</sup> )	WINDING WIDTH (mm)	TYPE NUMBER
1	61	75.0	14.3	CPV-RM12/I-1S-12PD

**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-lead alloy (SnPb) plated, transition to lead-free (Sn) ongoing
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



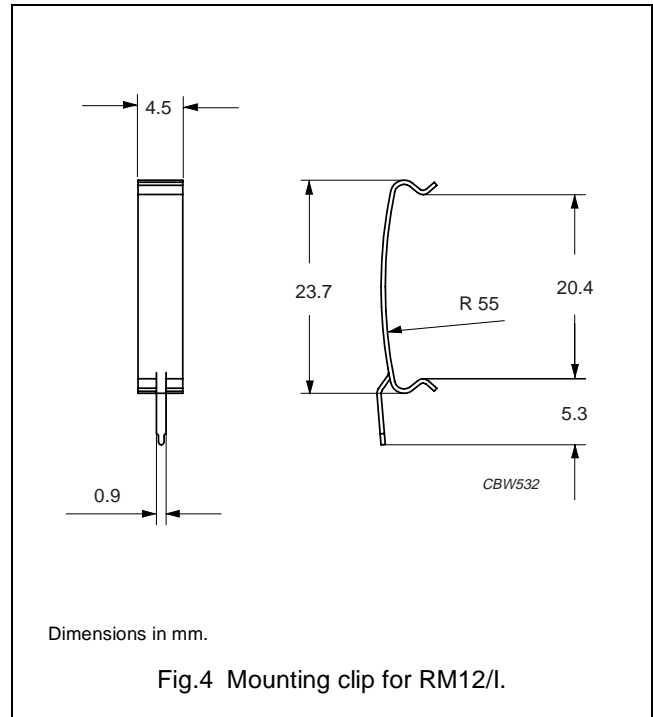
**Winding data for RM12/I coil former with 12-pins**

NUMBER OF SECTIONS	WINDING AREA (mm <sup>2</sup> )	MINIMUM WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	72	14.4	61	CSV-RM12-1S-12P

**MOUNTING PARTS**

**General data**

ITEM	SPECIFICATION
Clamping force	≈ 35 N
Clip material	stainless steel
Clip plating	tin-lead alloy (SnPb), transition to lead-free (Sn) ongoing
Solderability	"IEC 60068-2-20", Part 2, Test Ta, method 1
Type number	CLI/P-RM12/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.

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<b>Design-in</b>		These products are recommended for new designs.
<b>Preferred</b>		These products are recommended for use in current designs and are available via our sales channels.
<b>Support</b>		These products are <b>not</b> recommended for new designs and may not be available through all of our sales channels. Customers are advised to check for availability.