

# DATA SHEET

**RM12/I**  
RM, RM/I, RM/ILP cores and  
accessories

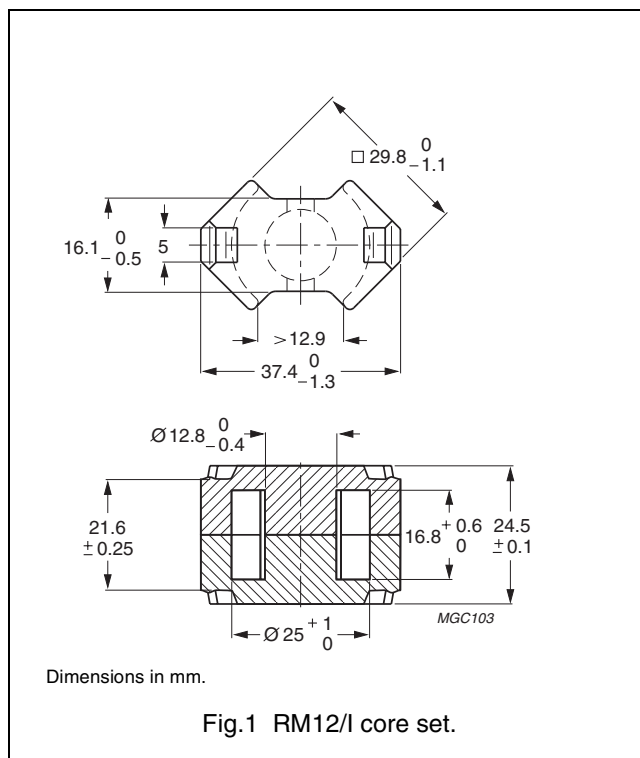
Supersedes data of September 2004

2008 Sep 01

**CORE SETS**

**Effective core parameters**

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	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 (μm)	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
3C95 <small>des</small>	6790 ±25%	≈ 2095	≈ 0	RM12/I-3C95
3C96 <small>des</small>	5050 ±25%	≈ 1560	≈ 0	RM12/I-3C96

## RM, RM/I, RM/ILP 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

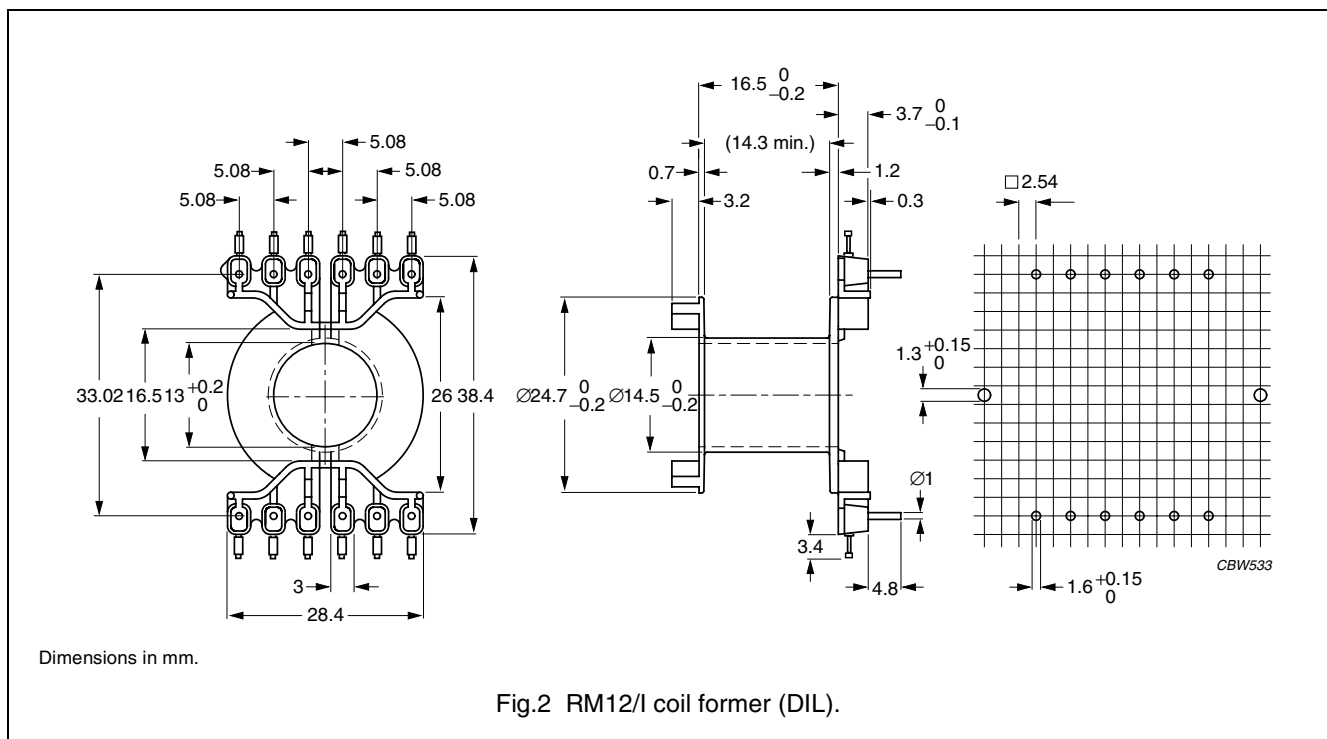
## Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at					
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 25 kHz; B = 200 mT; T = 100 °C	f = 100 kHz; B = 100 mT; T = 100 °C	f = 100 kHz; B = 200 mT; T = 25 °C	f = 100 kHz; B = 200 mT; T = 100 °C	f = 400 kHz; B = 50 mT; T = 100 °C	f = 500 kHz; B = 50 mT; T = 100 °C
3C90	$\geq 315$	$\leq 1.0$	$\leq 1.1$	–	–	–	–
3C94	$\geq 315$	–	$\leq 0.8$	–	$\leq 4.5$	–	–
3C95	$\geq 315$	–	–	$\leq 4.92$	$\leq 4.67$	–	–
3C96	$\geq 340$	–	$\leq 0.6$	–	$\leq 3.6$	$\leq 1.5$	$\leq 3.0$
3F3	$\geq 315$	–	$\leq 0.92$	–	–	$\leq 1.6$	–

**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 (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



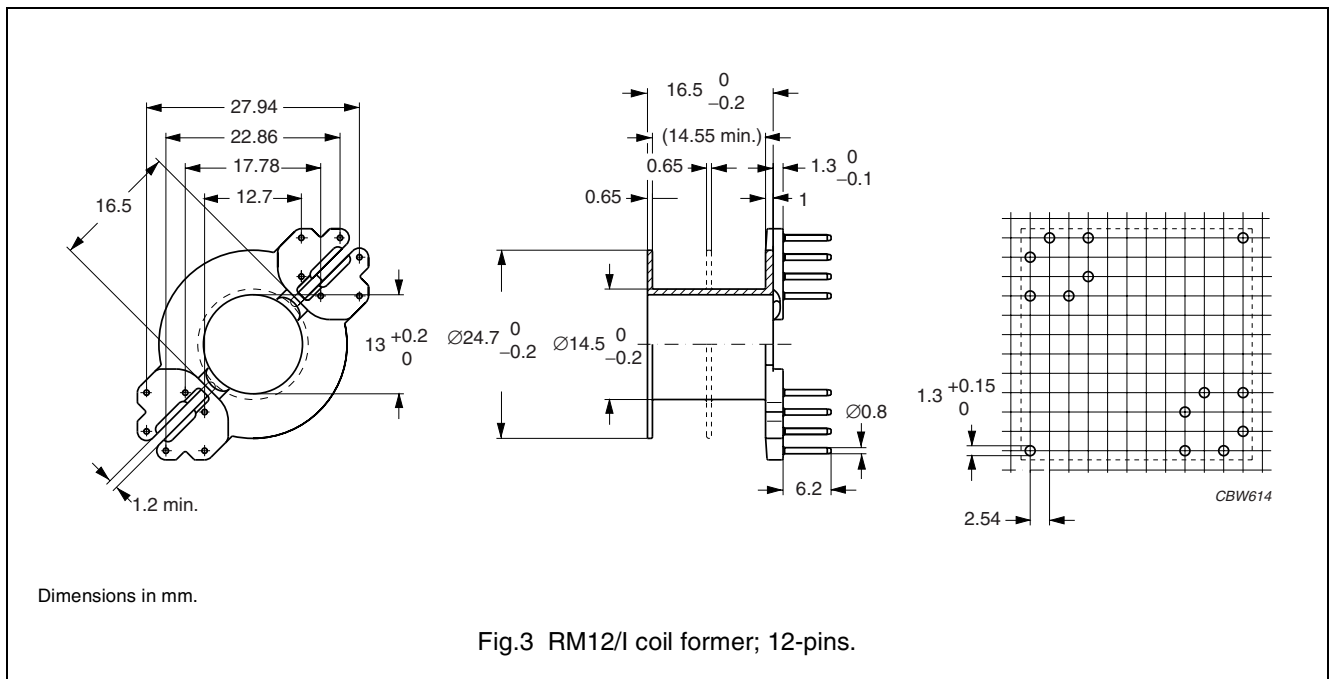
**Winding data and area product for RM12/I coil former (DIL)**

NUMBER OF SECTIONS	AVERAGE LENGTH OF TURN (mm)	WINDING AREA (mm <sup>2</sup> )	WINDING WIDTH (mm)	AREA PRODUCT Ae x Aw (mm <sup>4</sup> )	TYPE NUMBER
1	61	75.0	14.3	10950	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 (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: 235 °C, 2 s



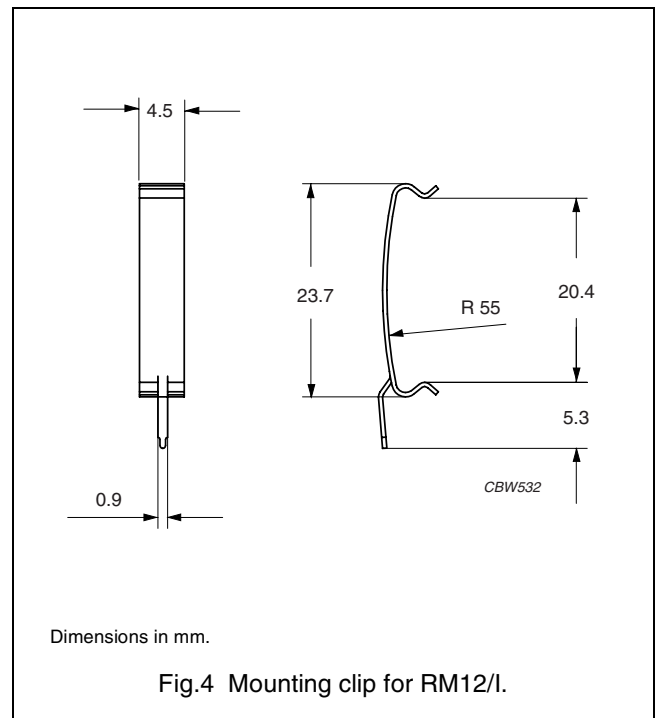
**Winding data and area product for RM12/I coil former with 12-pins**

NUMBER OF SECTIONS	WINDING AREA (mm <sup>2</sup> )	MINIMUM WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	AREA PRODUCT Ae x Aw (mm <sup>4</sup> )	TYPE NUMBER
1	72.0	14.4	61	10500	CSV-RM12-1S-12P

**MOUNTING PARTS**

**General data**

ITEM	SPECIFICATION
Clamping force	≈ 35 N
Clip material	stainless steel
Clip plating	tin (Sn)
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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**PRODUCT STATUS DEFINITIONS**

STATUS	INDICATION	DEFINITION
<b>Prototype</b>		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.
<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.