

# DATA SHEET

## **RM8/I**

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

Supersedes data of September 2004

2008 Sep 01

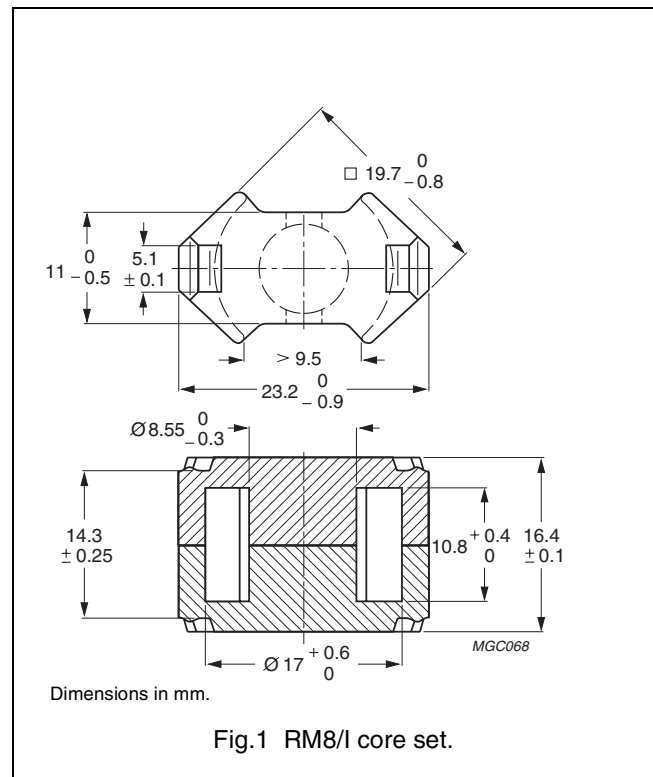


**FERROXCUBE**  
A YAGEO COMPANY

**CORE SETS**

**Effective core parameters**

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.604	mm <sup>-1</sup>
$V_e$	effective volume	2440	mm <sup>3</sup>
$l_e$	effective length	38.4	mm
$A_e$	effective area	63.0	mm <sup>2</sup>
$A_{min}$	minimum area	55.4	mm <sup>2</sup>
m	mass of set	≈ 13	g



**Core sets for filter applications**

Clamping force for  $A_L$  measurements,  $30 \pm 10$  N.

GRADE	$A_L$ (nH)	$\mu_e$	AIR GAP ( $\mu\text{m}$ )	TYPE NUMBER
3B46 <small>des</small>	$5200 \pm 25 \%$	≈ 2500	≈ 0	RM8/I-3B46
3D3	$250 \pm 3\%$	≈ 121	≈ 360	RM8/I-3D3-A250
	$315 \pm 5\%$	≈ 153	≈ 270	RM8/I-3D3-A315
	$400 \pm 5\%$	≈ 194	≈ 200	RM8/I-3D3-A400
	$1400 \pm 25\%$	≈ 675	≈ 0	RM8/I-3D3
3H3	$400 \pm 3\%$	≈ 194	≈ 200	RM8/I-3H3-A400
	$630 \pm 5\%$	≈ 306	≈ 115	RM8/I-3H3-A630
	$1000 \pm 10\%$	≈ 485	≈ 65	RM8/I-3H3-A1000
	$3250 \pm 25\%$	≈ 1560	≈ 0	RM8/I-3H3

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

## RM8/I

**Core sets for general purpose transformers and power applications**Clamping force for  $A_L$  measurements,  $30 \pm 10$  N.

GRADE	$A_L$ (nH)	$\mu_e$	TOTAL AIR GAP ( $\mu\text{m}$ )	TYPE NUMBER
3C81	100 $\pm 3\%$	$\approx 49$	$\approx 1100$	RM8/I-3C81-E100
	160 $\pm 3\%$	$\approx 78$	$\approx 610$	RM8/I-3C81-A160
	250 $\pm 3\%$	$\approx 121$	$\approx 360$	RM8/I-3C81-A250
	315 $\pm 3\%$	$\approx 153$	$\approx 270$	RM8/I-3C81-A315
	400 $\pm 3\%$	$\approx 194$	$\approx 200$	RM8/I-3C81-A400
	4100 $\pm 25\%$	$\approx 1990$	$\approx 0$	RM8/I-3C81
3C90	100 $\pm 3\%$	$\approx 49$	$\approx 1100$	RM8/I-3C90-A100
	160 $\pm 3\%$	$\approx 78$	$\approx 610$	RM8/I-3C90-A160
	250 $\pm 3\%$	$\approx 121$	$\approx 360$	RM8/I-3C90-A250
	315 $\pm 3\%$	$\approx 153$	$\approx 270$	RM8/I-3C90-A315
	400 $\pm 3\%$	$\approx 194$	$\approx 200$	RM8/I-3C90-A400
	3300 $\pm 25\%$	$\approx 1600$	$\approx 0$	RM8/I-3C90
3C91 <b>des</b>	4100 $\pm 25\%$	$\approx 1990$	$\approx 0$	RM8/I-3C91
3C94	100 $\pm 3\%$	$\approx 49$	$\approx 1100$	RM8/I-3C94-A100
	160 $\pm 3\%$	$\approx 78$	$\approx 610$	RM8/I-3C94-A160
	250 $\pm 3\%$	$\approx 121$	$\approx 360$	RM8/I-3C94-A250
	315 $\pm 3\%$	$\approx 153$	$\approx 270$	RM8/I-3C94-A315
	400 $\pm 3\%$	$\approx 194$	$\approx 200$	RM8/I-3C94-A400
	3300 $\pm 25\%$	$\approx 1600$	$\approx 0$	RM8/I-3C94
3C95 <b>des</b>	4100 $\pm 25\%$	$\approx 1990$	$\approx 0$	RM8/I-3C95
3C96 <b>des</b>	3000 $\pm 25\%$	$\approx 1440$	$\approx 0$	RM8/I-3C96
3F3	100 $\pm 3\%$	$\approx 49$	$\approx 1100$	RM8/I-3F3-A100
	160 $\pm 3\%$	$\approx 78$	$\approx 610$	RM8/I-3F3-A160
	250 $\pm 3\%$	$\approx 121$	$\approx 360$	RM8/I-3F3-A250
	315 $\pm 3\%$	$\approx 153$	$\approx 270$	RM8/I-3F3-A315
	400 $\pm 3\%$	$\approx 194$	$\approx 200$	RM8/I-3F3-A400
	3000 $\pm 25\%$	$\approx 1440$	$\approx 0$	RM8/I-3F3
3F35 <b>prot</b>	2400 $\pm 25\%$	$\approx 1150$	$\approx 0$	RM8/I-3F35
3F4 <b>des</b>	100 $\pm 3\%$	$\approx 49$	$\approx 1100$	RM8/I-3F4-A100
	160 $\pm 3\%$	$\approx 78$	$\approx 610$	RM8/I-3F4-A160
	250 $\pm 3\%$	$\approx 121$	$\approx 360$	RM8/I-3F4-A250
	315 $\pm 3\%$	$\approx 153$	$\approx 270$	RM8/I-3F4-A315
	400 $\pm 3\%$	$\approx 194$	$\approx 200$	RM8/I-3F4-A400
	1700 $\pm 25\%$	$\approx 820$	$\approx 0$	RM8/I-3F4
3F45 <b>prot</b>	1700 $\pm 25\%$	$\approx 820$	$\approx 0$	RM8/I-3F45

**Core sets of high permeability grades**Clamping force for  $A_L$  measurements,  $30 \pm 10$  N.

GRADE	$A_L$ (nH)	$\mu_e$	TYPE NUMBER
3E27	$8000 \pm 25\%$	$\approx 3880$	RM8/I-3E27
3E5	$12500 +40/-30\%$	$\approx 6060$	RM8/I-3E5
3E6	$15500 +40/-30\%$	$\approx 7520$	RM8/I-3E6

**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 = 25 °C	f = 100 kHz; $\hat{B} = 200$ mT; T = 100 °C	f = 400 kHz; $\hat{B} = 50$ mT; T = 100 °C
3C81	$\geq 315$	$\leq 0.56$	–	–	–	–
3C90	$\geq 320$	$\leq 0.30$	$\leq 0.31$	–	–	–
3C91	$\geq 315$	–	$\leq 0.17^{(1)}$	–	$\leq 1.0^{(1)}$	–
3C94	$\geq 320$	–	$\leq 0.23$	–	$\leq 1.2$	–
3C95	$\geq 320$	–	–	$\leq 1.44$	$\leq 1.37$	–
3C96	$\geq 340$	–	$\leq 0.17$	–	$\leq 1.0$	$\leq 0.43$
3F3	$\geq 315$	–	$\leq 0.27$	–	–	$\leq 0.47$
3F35	$\geq 315$	–	–	–	–	$\leq 0.25$
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 = 1 MHz; $\hat{B} = 50$ mT; T = 100 °C	f = 3 MHz; $\hat{B} = 10$ mT; T = 100 °C
3C96	$\geq 340$	$\leq 0.9$	–	–	–	–
3F3	$\geq 315$	–	–	–	–	–
3F35	$\geq 315$	$\leq 0.37$	$\leq 2.6$	–	–	–
3F4	$\geq 250$	–	–	$\leq 0.74$	–	$\leq 1.2$
3F45	$\geq 250$	–	–	$\leq 0.56$	$\leq 2.1$	$\leq 1.0$

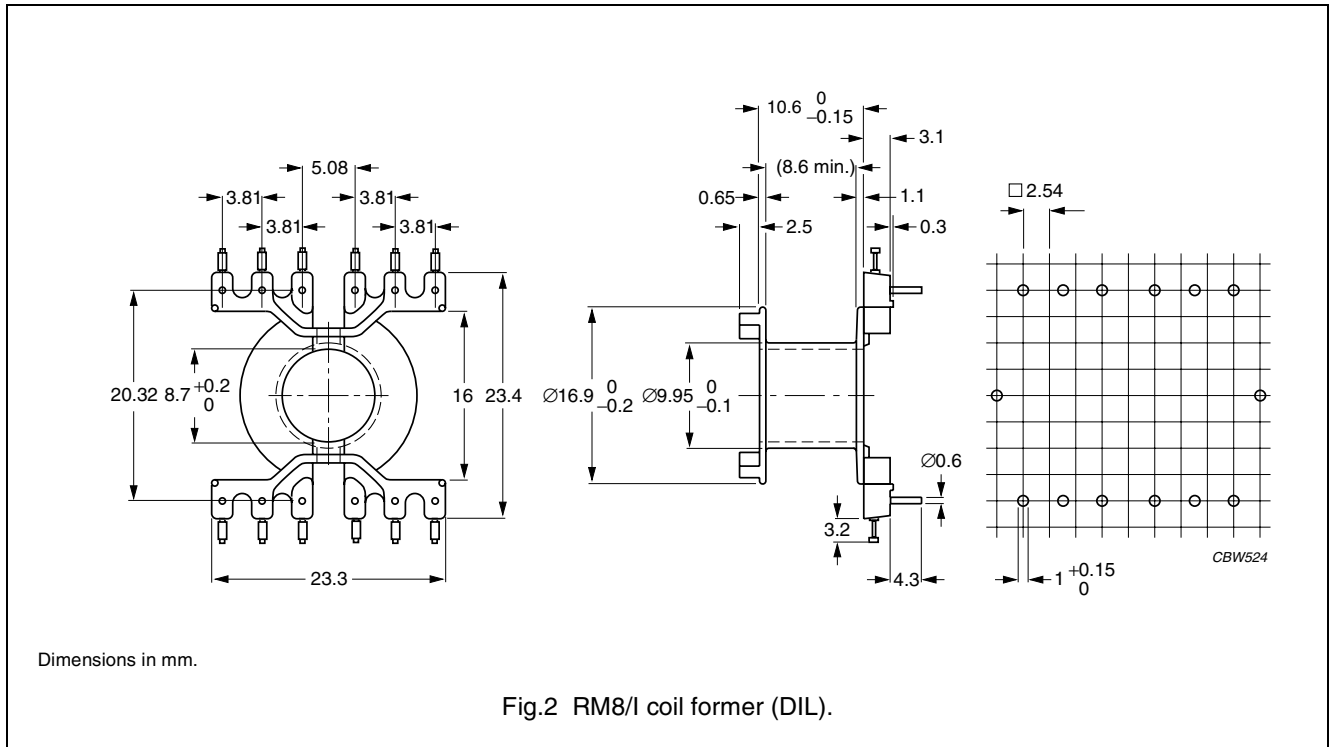
**Note**

1. Measured at 60 °C.

**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 RM8/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	42	30.9	8.6	1950	CPV-RM8/I-1S-12PD

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

RM8/I

Additional coilformers are those of "RM8", but "area product" is different.

## Winding data and area product (for RM8/I) for RM8 coil former

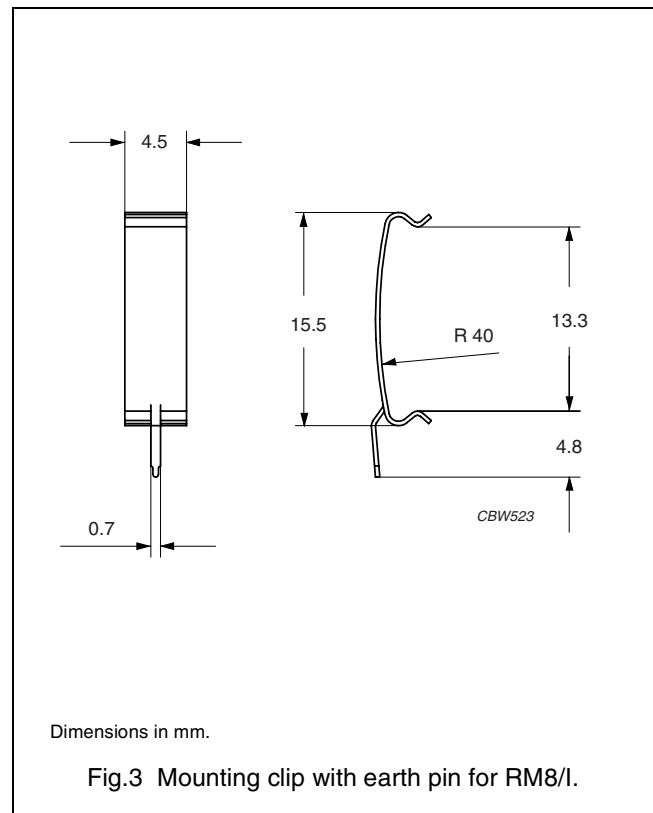
NUMBER OF SECTIONS	NUMBER OF PINS	PIN POSITIONS USED	AVERAGE LENGTH OF TURN (mm)	WINDING AREA (mm <sup>2</sup> )	WINDING WIDTH (mm)	AREA PRODUCT $A_e \times A_w$ (mm <sup>4</sup> )	TYPE NUMBER
1	8	1, 2, 5, 6, 7, 8, 11, 12	42	30	9.1	1890	CSV-RM8-1S-8P-G <sup>(1)</sup>
1	12	all	42	30	9.1	1890	CSV-RM8-1S-12P-G <sup>(1)</sup>
2	8	1, 2, 5, 6, 7, 8, 11, 12	42	2 × 13.5	2 × 4.3	2 × 850	CSV-RM8-2S-8P
2	12	all	42	2 × 13.5	2 × 4.3	2 × 850	CSV-RM8-2S-12P-G
1	4	3, 4, 9, 10	42	30	9.1	1890	CSV-RM8-1S-4P
1	5	1, 2, 5, 8, 11	42	30	9.1	1890	CSV-RM8-1S-5P
2	5	1, 2, 5, 8, 11	42	2 × 13.5	2 × 4.3	2 × 850	CSV-RM8-2S-5P

**Note 1.** Also available with post-inserted pins.

**MOUNTING PARTS**

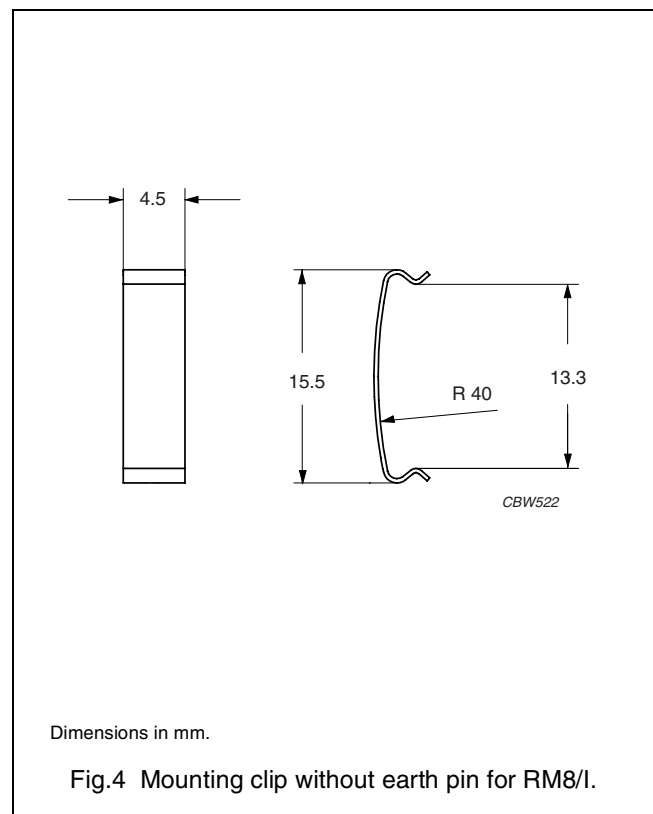
**General data**

ITEM	SPECIFICATION
Clamping force	≈15 N
Clip material	stainless steel
Clip plating	tin (Sn)
Solderability	"IEC 60068-2-20", Part 2, Test Ta, method 1
Type number	CLI/P-RM8/I



**General data**

ITEM	SPECIFICATION
Clamping force	≈15 N
Clip material	stainless steel
Type number	CLI-RM8/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.