

DATA SHEET

RM5/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)	0.935	mm ⁻¹
V_e	effective volume	574	mm ³
l_e	effective length	23.2	mm
A_e	effective area	24.8	mm ²
A_{min}	minimum area	18.1	mm ²
m	mass of set	≈ 3.2	g

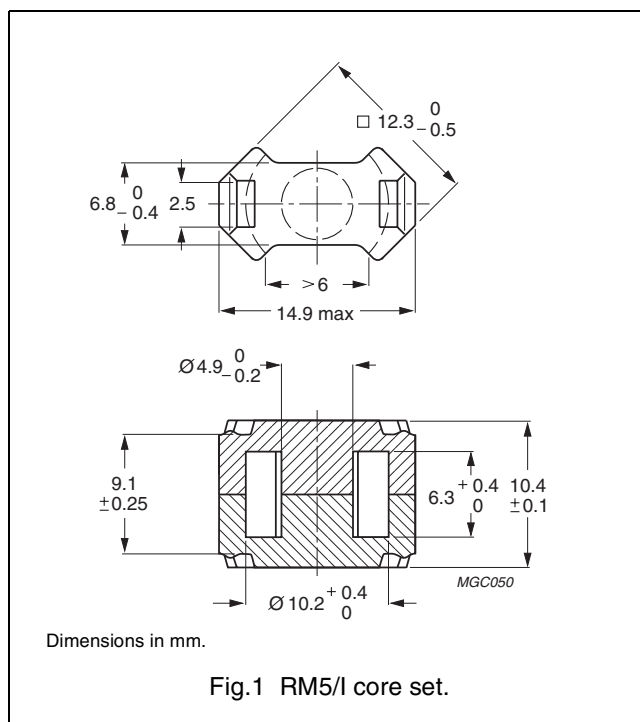


Fig.1 RM5/I core set.

Core sets for general purpose

Clamping force for A_L measurements, 12 ± 5 N.

GRADE	A_L (nH)	μ_e	AIR GAP (µm)	TYPE NUMBER
3C90	63 ± 3%	≈ 47	≈ 680	RM5/I-3C90-A63
	100 ± 3%	≈ 74	≈ 380	RM5/I-3C90-A100
	160 ± 3%	≈ 119	≈ 220	RM5/I-3C90-A160
	250 ± 3%	≈ 186	≈ 130	RM5/I-3C90-A250
	315 ± 5%	≈ 234	≈ 100	RM5/I-3C90-A315
	2000 ± 25%	≈ 1490	≈ 0	RM5/I-3C90
3C94	63 ± 3%	≈ 47	≈ 680	RM5/I-3C94-A63
	100 ± 3%	≈ 74	≈ 380	RM5/I-3C94-A100
	160 ± 3%	≈ 119	≈ 220	RM5/I-3C94-A160
	250 ± 3%	≈ 186	≈ 130	RM5/I-3C94-A250
	315 ± 5%	≈ 234	≈ 100	RM5/I-3C94-A315
	2000 ± 25%	≈ 1490	≈ 0	RM5/I-3C94
3C95 <small>des</small>	2350 ± 25%	≈ 1750	≈ 0	RM5/I-3C95
3C96 <small>des</small>	1800 ± 25%	≈ 1340	≈ 0	RM5/I-3C96
3F3	63 ± 3%	≈ 47	≈ 680	RM5/I-3F3-A63
	100 ± 3%	≈ 74	≈ 380	RM5/I-3F3-A100
	160 ± 3%	≈ 119	≈ 220	RM5/I-3F3-A160
	250 ± 3%	≈ 186	≈ 130	RM5/I-3F3-A250
	315 ± 5%	≈ 234	≈ 100	RM5/I-3F3-A315
	1700 ± 25%	≈ 1270	≈ 0	RM5/I-3F3

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GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3F35 prot	1300 $\pm 25\%$	≈ 970	≈ 0	RM5/I-3F35
3F4 des	100 $\pm 3\%$	≈ 74	≈ 360	RM5/I-3F4-A100
	160 $\pm 3\%$	≈ 119	≈ 200	RM5/I-3F4-A160
	250 $\pm 3\%$	≈ 186	≈ 110	RM5/I-3F4-A250
	900 $\pm 25\%$	≈ 670	≈ 0	RM5/I-3F4
3F45 prot	900 $\pm 25\%$	≈ 670	≈ 0	RM5/I-3F45

Core sets of filter and high permeability grades

Clamping force for A_L measurements, 12 \pm 5 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3B46 des	2800 $\pm 25\%$	≈ 2080	≈ 0	RM5/I-3B46
3E27	4975 $\pm 25\%$	≈ 3700	≈ 0	RM5/I-3E27
3E5	6700 +40/-30%	≈ 4990	≈ 0	RM5/I-3E5
3E6	8500 +40/-30%	≈ 6330	≈ 0	RM5/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; 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
3C90	≥ 320	≤ 0.07	≤ 0.08	–	–	–
3C94	≥ 320	–	≤ 0.06	–	≤ 0.32	–
3C95	≥ 320	–	–	≤ 0.32	≤ 0.3	–
3C96	≥ 340	–	≤ 0.04	–	≤ 0.24	≤ 0.11
3F3	≥ 315	–	≤ 0.08	–	–	≤ 0.11
3F35	≥ 300	–	–	–	–	≤ 0.06
3F4	≥ 250	–	–	–	–	–

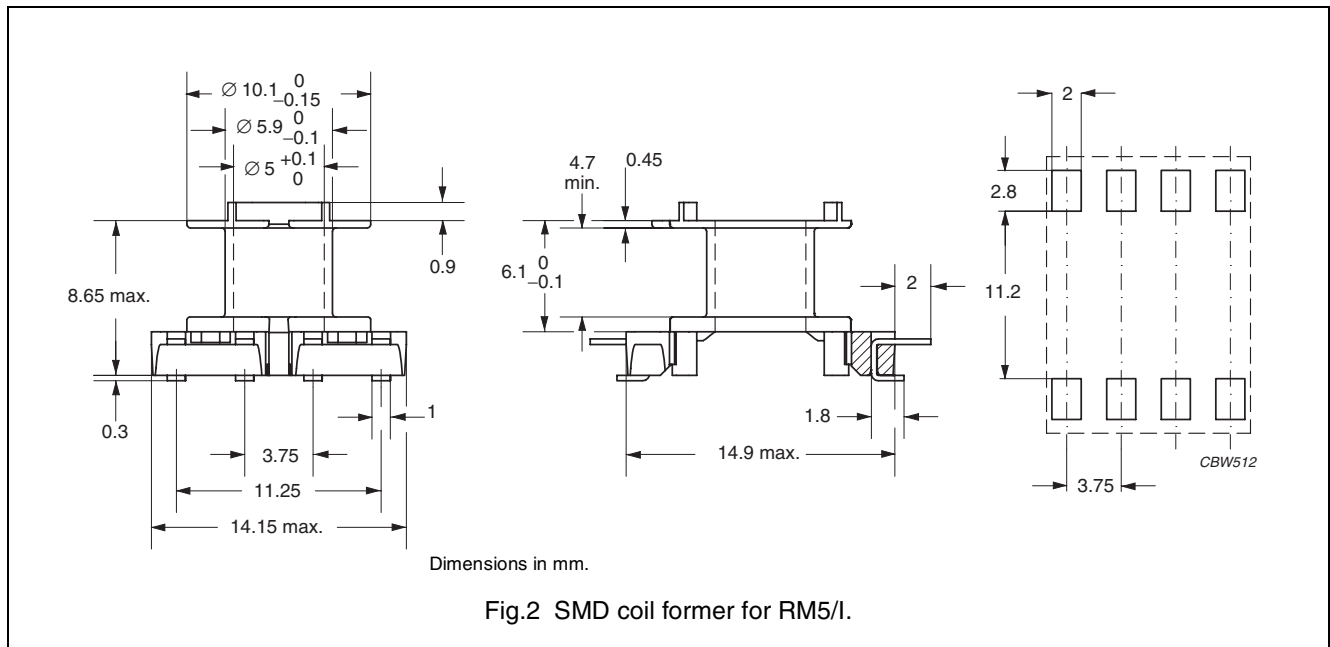
Properties of core sets under power conditions (continued)

GRADE	B (mT) at	CORE LOSS (W) at				
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 500 kHz; B = 50 mT; T = 100 °C	f = 500 kHz; B = 100 mT; T = 100 °C	f = 1 MHz; B = 30 mT; T = 100 °C	f = 1 MHz; B = 50 mT; T = 100 °C	f = 3 MHz; B = 10 mT; T = 100 °C
3C90	≥ 320	–	–	–	–	–
3C94	≥ 320	–	–	–	–	–
3C95	≥ 320	–	–	–	–	–
3C96	≥ 340	≤ 0.22	–	–	–	–
3F3	≥ 315	–	–	–	–	–
3F35	≥ 300	≤ 0.08	≤ 0.7	–	–	–
3F4	≥ 250	–	–	≤ 0.17	–	≤ 0.27
3F45	≥ 250	–	–	≤ 0.13	≤ 0.48	≤ 0.23

COIL FORMERS

General data SMD coil former

PARAMETER	SPECIFICATION
Coil former material	phenolformaldehyde (PF), glass-reinforced, flame retardant in accordance with "UL 94V-0"; UL file number E41429 (M)
Solder pad material	copper-clad steel, 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 RM5/I coil former (SMD)

NUMBER OF SECTIONS	NUMBER OF SOLDER PADS	WINDING AREA (mm ²)	WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	AREA PRODUCT Ae x Aw (mm ⁴)	TYPE NUMBER
1	8	9.5	4.7	24.9	236	CSV5-RM5-1S-8P

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RM5/I

Additional coil formers are those of "RM5", but "area product" is different.

Winding data and area product (for RM5/I) for 4-pins RM5 coil former

NUMBER OF SECTIONS	NUMBER OF PINS	PIN POSITIONS USED	WINDING AREA (mm ²)	WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	AREA PRODUCT Ae x Aw (mm ⁴)	TYPE NUMBER
1	4	all	9.5	4.8	25	236	CSV-RM5-1S-4P
2	4	all	2 × 4.35	2 × 2.2	25	2 x 108	CSV-RM5-2S-4P

Winding data and area product (for RM5/I) for 6-pins RM5 coil former

NUMBER OF SECTIONS	NUMBER OF PINS	PIN POSITIONS USED	WINDING AREA (mm ²)	WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	AREA PRODUCT Ae x Aw (mm ⁴)	TYPE NUMBER
1	6	all	9.2	4.68	24.9	228	CSV-RM5-1S-6P-G ⁰
1	5	1, 2, 3, 5, 6	9.2	4.68	24.9	228	CSV-RM5-1S-5P-G ⁰
1	4	2, 3, 5, 6	9.2	4.68	24.9	228	CSV-RM5-1S-4P-G ⁰
2	6	all	2 × 4.15	2 × 2.06	24.9	2 x 103	CSV-RM5-2S-6P-G ⁰
2	5	1, 2, 3, 5, 6	2 × 4.15	2 × 2.06	24.9	2 x 103	CSV-RM5-2S-5P-G ⁰

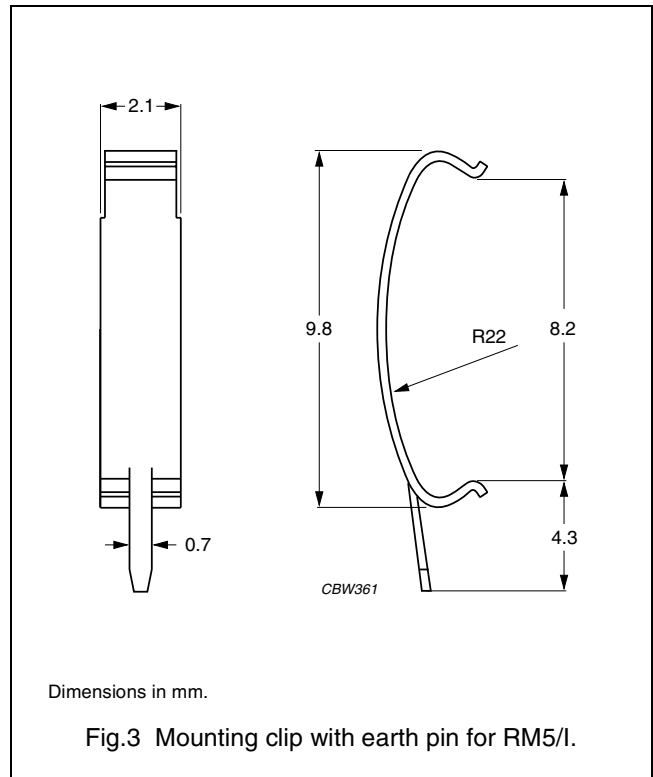
Note

Also available with post-inserted pins.

MOUNTING PARTS

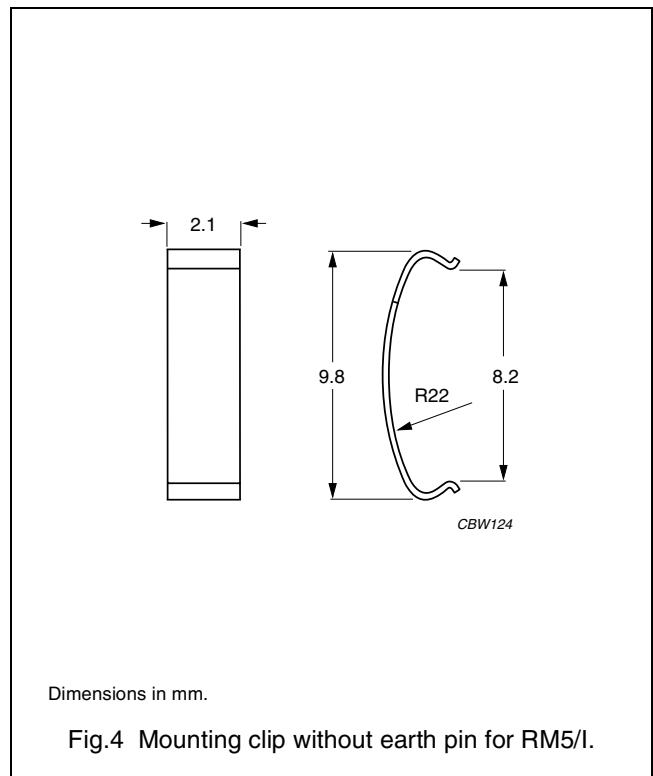
General data mounting clip with earth pin

ITEM	SPECIFICATION
Clamping force	≈6 N
Clip material	stainless steel (CrNi)
Clip plating	tin (Sn)
Solderability	"IEC 60068-2-20", Part 2, Test Ta, method 1
Type number	CLI/P-RM4/5/I



General data mounting clip without earth pin

ITEM	SPECIFICATION
Clamping force	≈5 N
Clip material	stainless steel (CrNi)
Type number	CLI-RM4/5/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
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.