DATA SHEET

RM8/I

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

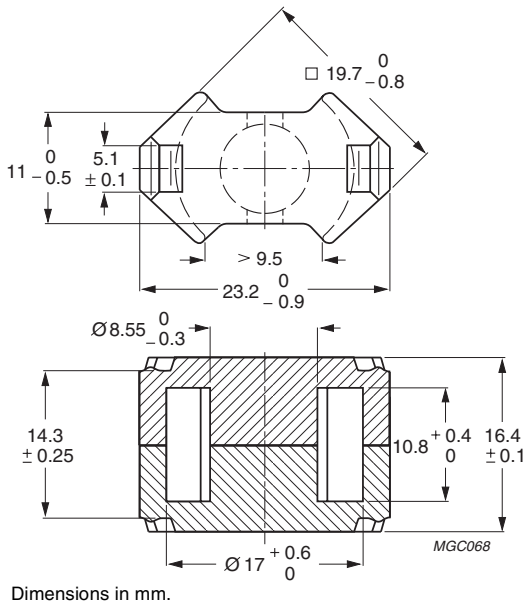
Supersedes data of September 2004 2008 Sep 01

FERROXCUBE
A YAGEO COMPANY

CORE SETS

Effective core parameters

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



Dimensions in mm.

Fig.1 RM8/I core set.

Core sets for filter applications

Clamping force for A_L measurements, 30 ±10 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3B46 des	5200 ± 25 %	≈ 2500	≈ 0	RM8/I-3B46
3D3	250 ±3%	≈ 121	≈ 360	RM8/I-3D3-A250
	315 ±5%	≈ 153	≈ 270	RM8/I-3D3-A315
	400 ±5%	≈ 194	≈ 200	RM8/I-3D3-A400
	1400 ±25%	≈ 675	≈ 0	RM8/I-3D3
3H3	400 ±3%	≈ 194	≈ 200	RM8/I-3H3-A400
	630 ±5%	≈ 306	≈ 115	RM8/I-3H3-A630
	1000 ±10%	≈ 485	≈ 65	RM8/I-3H3-A1000
	3250 ±25%	≈ 1560	≈ 0	RM8/I-3H3

Core sets for general purpose transformers and power applications

Clamping force for A_L measurements, 30 ±10 N.

GRADE	A_L (nH)	μ_e	TOTAL AIR GAP (μm)	TYPE NUMBER
3C81	100 ±3%	≈ 49	≈ 1100	RM8/I-3C81-E100
	160 ±3%	≈ 78	≈ 610	RM8/I-3C81-A160
	250 ±3%	≈ 121	≈ 360	RM8/I-3C81-A250
	315 ±3%	≈ 153	≈ 270	RM8/I-3C81-A315
	400 ±3%	≈ 194	≈ 200	RM8/I-3C81-A400
	4100 ±25%	≈ 1990	≈ 0	RM8/I-3C81
3C90	100 ±3%	≈ 49	≈ 1100	RM8/I-3C90-A100
	160 ±3%	≈ 78	≈ 610	RM8/I-3C90-A160
	250 ±3%	≈ 121	≈ 360	RM8/I-3C90-A250
	315 ±3%	≈ 153	≈ 270	RM8/I-3C90-A315
	400 ±3%	≈ 194	≈ 200	RM8/I-3C90-A400
	3300 ±25%	≈ 1600	≈ 0	RM8/I-3C90
3C91 des	4100 ±25%	≈ 1990	≈ 0	RM8/I-3C91
3C94	100 ±3%	≈ 49	≈ 1100	RM8/I-3C94-A100
	160 ±3%	≈ 78	≈ 610	RM8/I-3C94-A160
	250 ±3%	≈ 121	≈ 360	RM8/I-3C94-A250
	315 ±3%	≈ 153	≈ 270	RM8/I-3C94-A315
	400 ±3%	≈ 194	≈ 200	RM8/I-3C94-A400
	3300 ±25%	≈ 1600	≈ 0	RM8/I-3C94
3C95 des	4100 ±25%	≈ 1990	≈ 0	RM8/I-3C95
3C96 des	3000 ±25%	≈ 1440	≈ 0	RM8/I-3C96
3F3	100 ±3%	≈ 49	≈ 1100	RM8/I-3F3-A100
	160 ±3%	≈ 78	≈ 610	RM8/I-3F3-A160
	250 ±3%	≈ 121	≈ 360	RM8/I-3F3-A250
	315 ±3%	≈ 153	≈ 270	RM8/I-3F3-A315
	400 ±3%	≈ 194	≈ 200	RM8/I-3F3-A400
	3000 ±25%	≈ 1440	≈ 0	RM8/I-3F3
3F35 prot	2400 ±25%	≈ 1150	≈ 0	RM8/I-3F35
3F4 des	100 ±3%	≈ 49	≈ 1100	RM8/I-3F4-A100
	160 ±3%	≈ 78	≈ 610	RM8/I-3F4-A160
	250 ±3%	≈ 121	≈ 360	RM8/I-3F4-A250
	315 ±3%	≈ 153	≈ 270	RM8/I-3F4-A315
	400 ±3%	≈ 194	≈ 200	RM8/I-3F4-A400
	1700 ±25%	≈ 820	≈ 0	RM8/I-3F4
3F45 prot	1700 ±25%	≈ 820	≈ 0	RM8/I-3F45

Core sets of high permeability grades

Clamping force for A_L measurements, 30 ±10 N.

GRADE	A_L (nH)	μ_e	TYPE NUMBER
3E27	8000 ± 25%	≈ 3880	RM8/I-3E27
3E5	12500 +40/–30%	≈ 6060	RM8/I-3E5
3E6	15500 +40/–30%	≈ 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	≥315	≤ 0.56	–	–	–	–
3C90	≥320	≤ 0.30	≤ 0.31	–	–	–
3C91	≥315	–	≤ 0.17(1)	–	≤ 1.0[1)]	–
3C94	≥320	–	≤ 0.23	–	≤ 1.2	–
3C95	≥320	–	–	≤ 1.44	≤ 1.37	–
3C96	≥340	–	≤ 0.17	–	≤ 1.0	≤ 0.43
3F3	≥315	–	≤ 0.27	–	–	≤ 0.47
3F35	≥315	–	–	–	–	≤ 0.25
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; $\hat{B}$ = 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	≥340	≤ 0.9	–	–	–	–
3F3	≥315	–	–	–	–	–
3F35	≥315	≤ 0.37	≤ 2.6	–	–	–
3F4	≥250	–	–	≤ 0.74	–	≤ 1.2
3F45	≥250	–	–	≤ 0.56	≤ 2.1	≤ 1.0

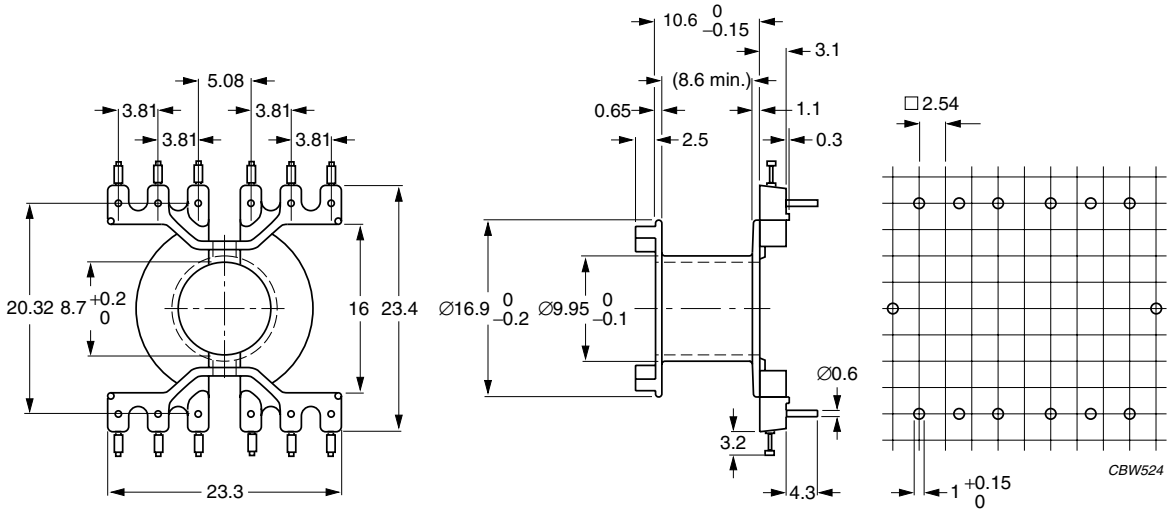
Note

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



Dimensions in mm.

Fig.2 RM8/I coil former (DIL).

Winding data and area product for RM8/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	42	30.9	8.6	1950	CPV-RM8/I-1S-12PD

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

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

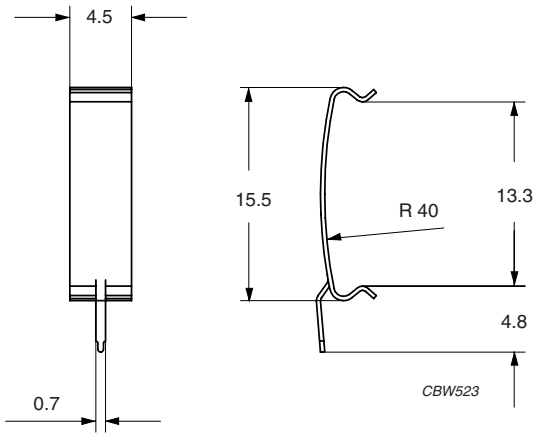
NUMBER OF SECTIONS	NUMBER OF PINS	PIN POSITIONS USED	AVERAGE LENGTH OF TURN (mm)	WINDING AREA (mm^2)	WINDING WIDTH (mm)	AREA PRODUCT Ae x Aw (mm^4)	TYPE NUMBER
1	8	1, 2, 5, 6, 7, 8, 11, 12	42	30	9.1	1890	CSV-RM8-1S-8P-G(1)
1	12	all	42	30	9.1	1890	CSV-RM8-1S-12P-G(1)
2	8	1, 2, 5, 6, 7, 8, 11, 12	42	2×13.5	2×4.3	2 x 850	CSV-RM8-2S-8P
2	12	all	42	2×13.5	2×4.3	2 x 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 x 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

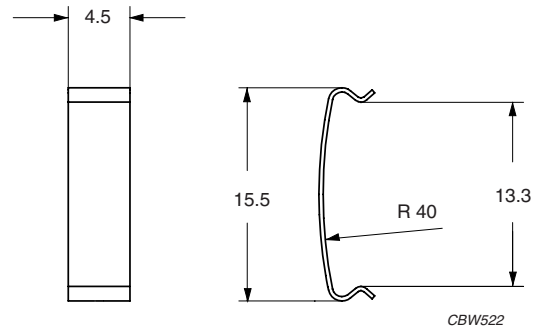


Dimensions in mm.

Fig.3 Mounting clip with earth pin for RM8/I.

General data

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



Dimensions in mm.

Fig.4 Mounting clip without earth pin for 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.
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