

DATA SHEET

RM6S/I

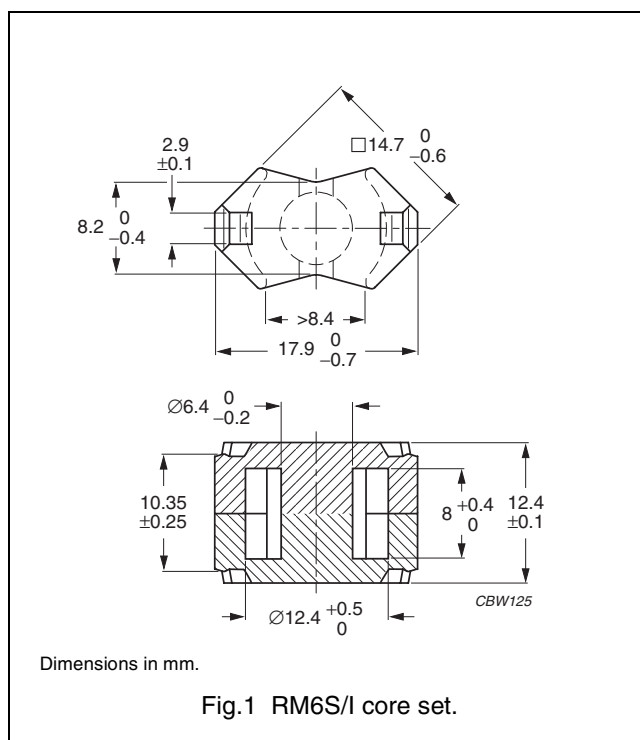
**RM, RM/I, RM/ILP cores and
accessories**

Supersedes data of September 2004

2008 Sep 01

CORE SETS**Effective core parameters**

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.784	mm ⁻¹
V_e	effective volume	1090	mm ³
l_e	effective length	29.2	mm
A_e	effective area	37.0	mm ²
A_{min}	minimum area	31.2	mm ²
m	mass of set	≈ 5.5	g

**Core sets for filter applications**Clamping force for A_L measurements, 20 ± 10 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μ m)	TYPE NUMBER
3B46 des	$3650 \pm 25 \%$	≈ 2280	≈ 0	RM6S/I-3B46
3D3	$160 \pm 3\%$	≈ 100	≈ 300	RM6S/I-3D3-A160
	$250 \pm 5\%$	≈ 156	≈ 170	RM6S/I-3D3-A250
	$315 \pm 8\%$	≈ 197	≈ 120	RM6S/I-3D3-A315
	$1050 \pm 25\%$	≈ 655	≈ 0	RM6S/I-3D3
3H3	$315 \pm 3\%$	≈ 198	≈ 150	RM6S/I-3H3-A315
	$400 \pm 3\%$	≈ 251	≈ 110	RM6S/I-3H3-A400
	$630 \pm 5\%$	≈ 396	≈ 65	RM6S/I-3H3-A630
	$2350 \pm 25\%$	≈ 1470	≈ 0	RM6S/I-3H3

Core sets for general purpose transformers and power applicationsClamping force for A_L measurements, 20 ± 10 N.

GRADE	A_L (nH)	μ_e	TOTAL AIR GAP (μ m)	TYPE NUMBER
3C81	$63 \pm 3\%$	≈ 40	≈ 1080	RM6S/I-3C81-E63
	$100 \pm 3\%$	≈ 63	≈ 600	RM6S/I-3C81-A100
	$160 \pm 3\%$	≈ 100	≈ 340	RM6S/I-3C81-A160
	$250 \pm 3\%$	≈ 157	≈ 200	RM6S/I-3C81-A250
	$315 \pm 3\%$	≈ 198	≈ 150	RM6S/I-3C81-A315
	$3000 \pm 25\%$	≈ 1870	≈ 0	RM6S/I-3C81

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GRADE	A_L (nH)	μ_e	TOTAL AIR GAP (μm)	TYPE NUMBER
3C90	63 $\pm 3\%$	≈ 40	≈ 1080	RM6S/I-3C90-A63
	100 $\pm 3\%$	≈ 63	≈ 600	RM6S/I-3C90-A100
	160 $\pm 3\%$	≈ 100	≈ 340	RM6S/I-3C90-A160
	250 $\pm 3\%$	≈ 157	≈ 200	RM6S/I-3C90-A250
	315 $\pm 3\%$	≈ 198	≈ 150	RM6S/I-3C90-A315
	400 $\pm 3\%$	≈ 251	≈ 110	RM6S/I-3C90-A400
	630 $\pm 5\%$	≈ 396	≈ 65	RM6S/I-3C90-A630
	2600 $\pm 25\%$	≈ 1630	≈ 0	RM6S/I-3C90
3C91 	3000 $\pm 25\%$	≈ 1880	≈ 0	RM6S/I-3C91
3C94	63 $\pm 3\%$	≈ 40	≈ 1080	RM6S/I-3C94-A63
	100 $\pm 3\%$	≈ 63	≈ 600	RM6S/I-3C94-A100
	160 $\pm 3\%$	≈ 100	≈ 340	RM6S/I-3C94-A160
	250 $\pm 3\%$	≈ 157	≈ 200	RM6S/I-3C94-A250
	315 $\pm 3\%$	≈ 198	≈ 150	RM6S/I-3C94-A315
	400 $\pm 3\%$	≈ 251	≈ 110	RM6S/I-3C94-A400
	630 $\pm 5\%$	≈ 396	≈ 65	RM6S/I-3C94-A630
	2600 $\pm 25\%$	≈ 1630	≈ 0	RM6S/I-3C94
3C95 	3000 $\pm 25\%$	≈ 1880	≈ 0	RM6S/I-3C95
3C96 	2350 $\pm 25\%$	≈ 1470	≈ 0	RM6S/I-3C96
3F3	63 $\pm 3\%$	≈ 40	≈ 1080	RM6S/I-3F3-A63
	100 $\pm 3\%$	≈ 63	≈ 600	RM6S/I-3F3-A100
	160 $\pm 3\%$	≈ 100	≈ 340	RM6S/I-3F3-A160
	250 $\pm 3\%$	≈ 157	≈ 200	RM6S/I-3F3-A250
	315 $\pm 3\%$	≈ 198	≈ 150	RM6S/I-3F3-A315
	2150 $\pm 25\%$	≈ 1350	≈ 0	RM6S/I-3F3
3F35 	1750 $\pm 25\%$	≈ 1100	≈ 0	RM6S/I-3F35
3F4 	63 $\pm 3\%$	≈ 39	≈ 1040	RM6S/I-3F4-A63
	100 $\pm 3\%$	≈ 62	≈ 570	RM6S/I-3F4-A100
	160 $\pm 3\%$	≈ 100	≈ 310	RM6S/I-3F4-A160
	250 $\pm 3\%$	≈ 156	≈ 170	RM6S/I-3F4-A250
	315 $\pm 3\%$	≈ 197	≈ 130	RM6S/I-3F4-A315
	1250 $\pm 25\%$	≈ 780	≈ 0	RM6S/I-3F4
3F45 	1250 $\pm 25\%$	≈ 780	≈ 0	RM6S/I-3F45

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

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Core sets of high permeability grades

Clamping force for A_L measurements, 20 ± 10 N.

GRADE	A_L (nH)	μ_e	TYPE NUMBER
3E27	6000 $\pm$ 25%	$\approx$ 3770	RM6S/I-3E27
3E5	8600 +40/-30%	$\approx$ 5400	RM6S/I-3E5
3E6	11000 +40/-30%	$\approx$ 6910	RM6S/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	≥ 320	≤ 0.25	–	–	–	–
3C90	≥ 320	≤ 0.13	≤ 0.14	–	–	–
3C91	≥ 315	–	$\leq 0.08^{(1)}$	–	$\leq 0.4^{(1)}$	–
3C94	≥ 320	–	≤ 0.11	–	≤ 0.6	–
3C95	≥ 320	–	–	≤ 0.64	≤ 0.61	–
3C96	≥ 340	–	≤ 0.08	–	≤ 0.4	≤ 0.2
3F3	≥ 315	–	≤ 0.14	–	–	≤ 0.2
3F35	≥ 315	–	–	–	–	≤ 0.12
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	≤ 0.5	–	–	–	–
3F3	≥ 315	–	–	–	–	–
3F35	≥ 315	≤ 0.16	≤ 1.3	–	–	–
3F4	≥ 250	–	–	≤ 0.33	–	≤ 0.53
3F45	≥ 250	–	–	≤ 0.25	≤ 0.94	≤ 0.44

Note

1. Measured at 60 °C.

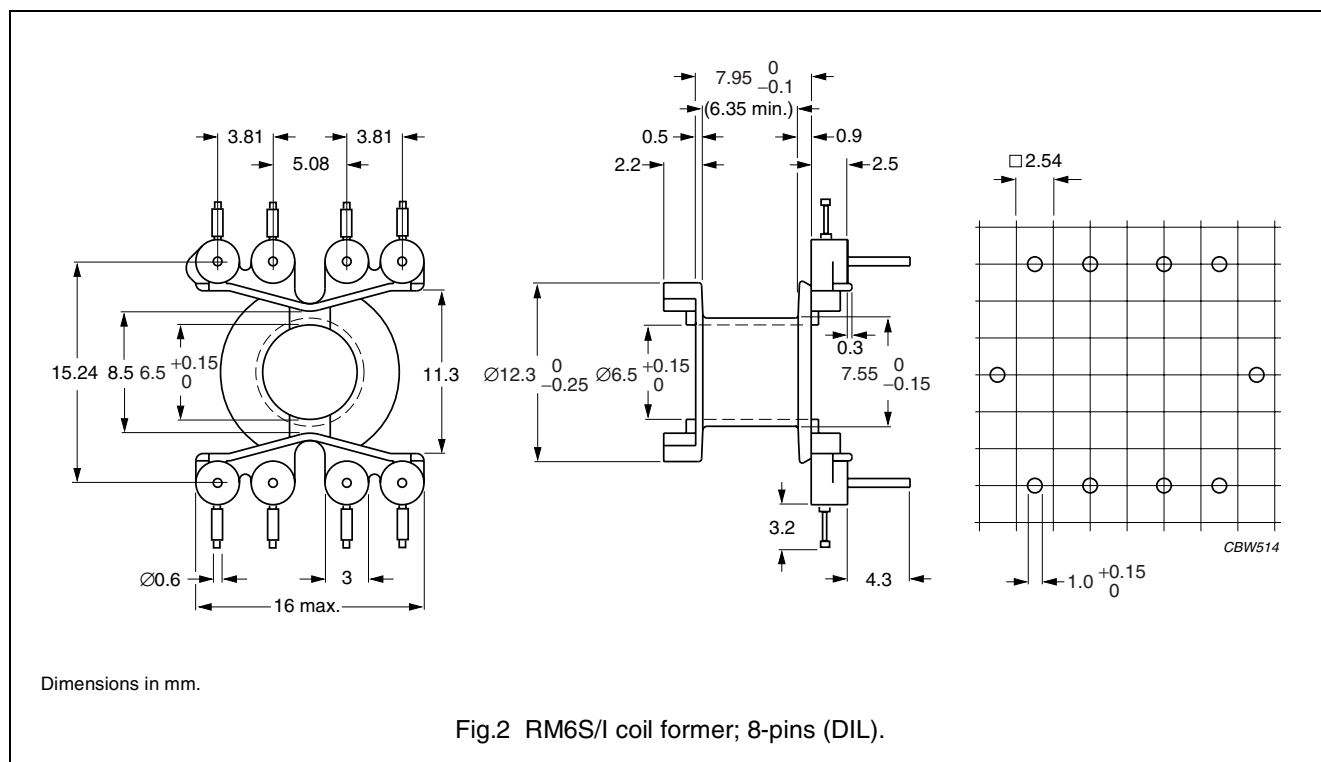
RM, RM/I, RM/ILP cores and accessories

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COIL FORMERS

General data

PARAMETER	DESCRIPTION
Coil former material	polybutyleneterephthalate (PBT), glass-reinforced, flame retardant in accordance with "UL 94V-0"; UL file number E45329(M)
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 8-pins RM6S/I coil former (DIL)

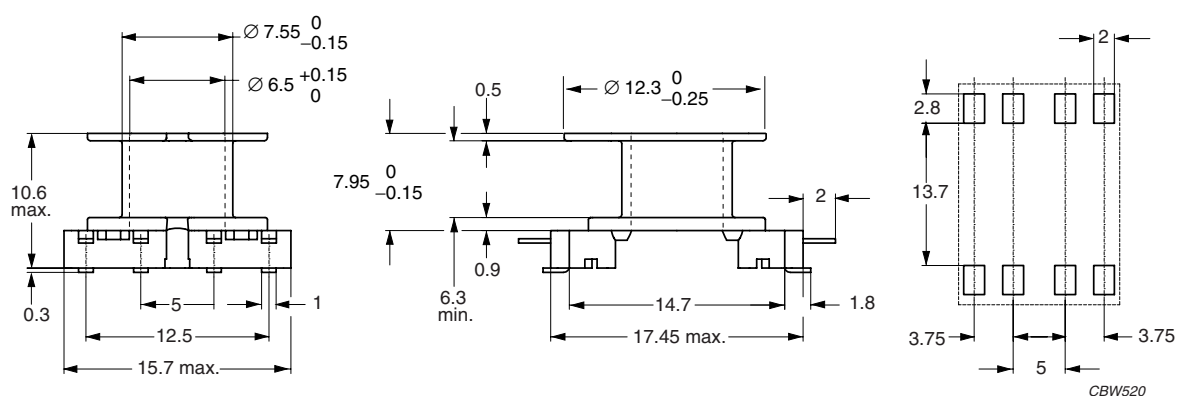
NUMBER OF SECTIONS	WINDING AREA (mm ²)	WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	AREA PRODUCT Ae x Aw (mm ⁴)	TYPE NUMBER
1	15.7	6.2	31	5.81	CPV-RM6S/I-1S-8PD

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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-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.3 SMD coil former for RM6S/I.

Winding data and area product for RM6S/I coil former (SMD)

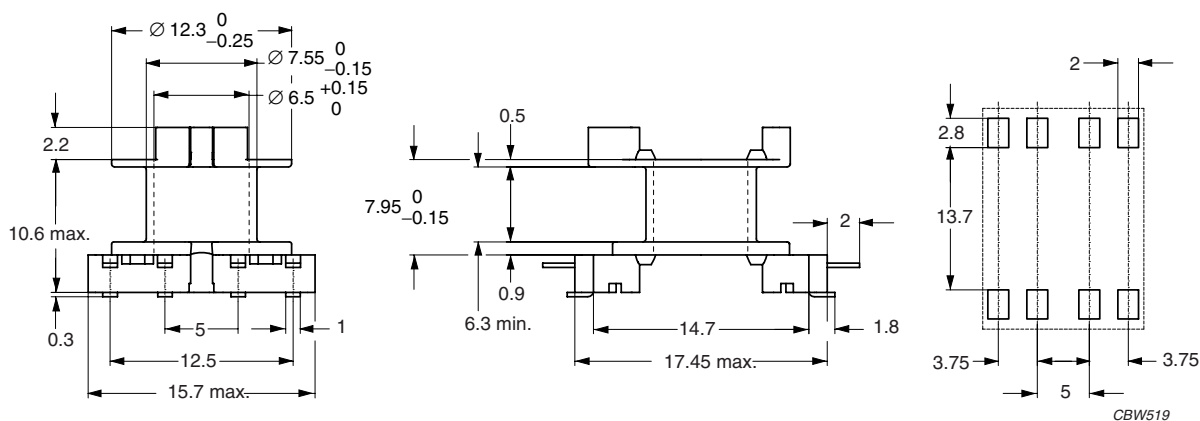
NUMBER OF SECTIONS	NUMBER OF SOLDER PADS	WINDING AREA (mm ²)	WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	AREA PRODUCT Ae x Aw (mm ⁴)	TYPE NUMBER
1	8	14	6.3	31	518	CSVS-RM6S-1S-8P

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

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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-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.4 SMD coil former for RM6S/I.

Winding data and area product for RM6S/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	14.2	6.3	31.4	525	CSVS-RM6S-1S-8P-B

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

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Additional coil formers are those of "RM6S", but "area product" is different..

Winding data and area product (for RM6S/I) for 4-pins RM6S 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	15	6.4	30	555	CSV-RM6S/R-1S-4P
2	4	all	2 × 7.0	2 × 3.0	30	2 x 259	CSV-RM6S/R-2S-4P

Winding data and area product (for RM6S/I) for RM6S 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	15.0	6.3	30.0	555	CSV-RM6S-1S-6P-G ⁽¹⁾
1	5	1, 2, 3, 5, 6	15.0	6.3	30.0	555	CSV-RM6S-1S-5P-G ⁽¹⁾
1	4	2, 3, 5, 6	15.0	6.3	30.0	555	CSV-RM6S-1S-4P-G ⁽¹⁾
2	6	all	2 × 7.0	2 × 3	30.0	2 x 259	CSV-RM6S-2S-6P-G ⁽¹⁾

Note 1

Also available with post-inserted pins.

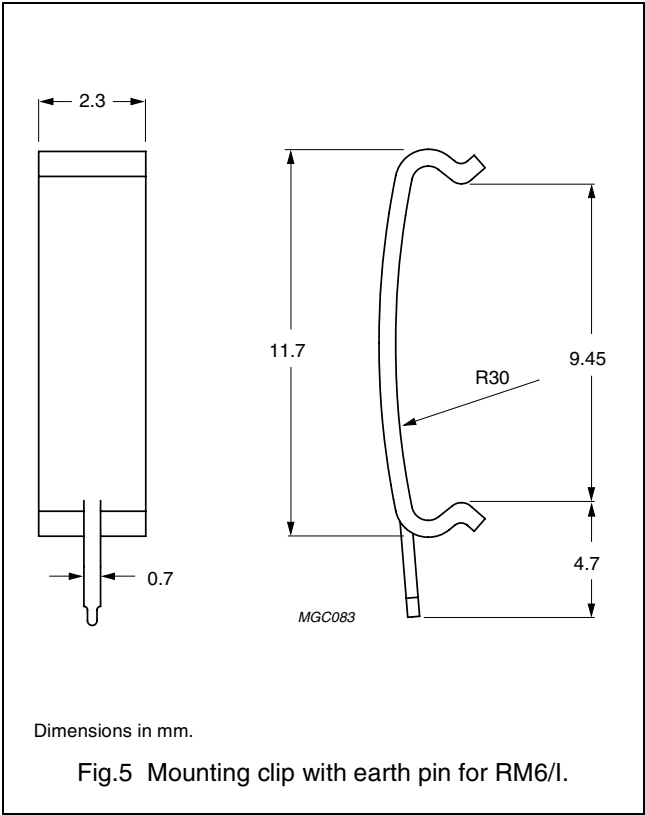
Winding data and area product (for RM6S/I) for RM6S coil former

NUMBER OF SECTIONS	NUMBER OF PINS	WINDING AREA (mm ²)	WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	AREA PRODUCT Ae x Aw (mm ⁴)	TYPE NUMBER
1	8	14.5	6.26	30.7	536	CSV-RM6S-1S-8P

MOUNTING PARTS

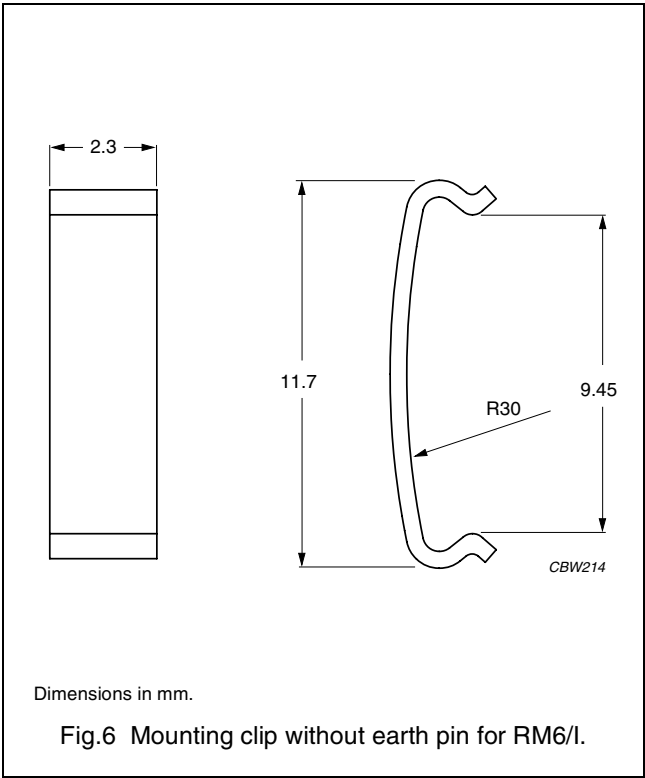
General data

ITEM	SPECIFICATION
Clamping force	≈10 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-RM6/I



General data mounting clip without earth pin

ITEM	SPECIFICATION
Clamping force	≈10 N
Clip material	stainless steel (CrNi)
Type number	CLI-RM6/I



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

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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.

DISCLAIMER

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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.