DATA SHEET

RM6S/I
RM cores and accessories

Product specification
Supersedes data of January 1999
File under Ferrite Ceramics, MA01

1999 Dec 23

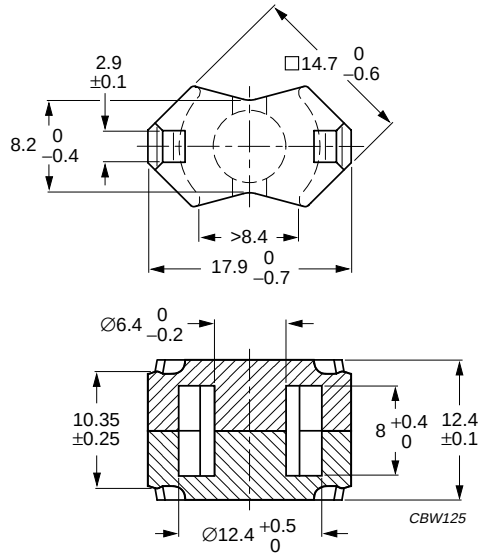
Philips
Components

PHILIPS

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	≈4.9	g



Dimensions in mm.

Fig.1 RM6S/I core set.

Core sets for general purpose transformers and power applications

Clamping force for A_L measurements, 20 ±10 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C81	63 ±3%	≈39	≈950	RM6S/I-3C81-E63
	100 ±3%	≈62	≈500	RM6S/I-3C81-A100
	160 ±3%	≈100	≈300	RM6S/I-3C81-A160
	250 ±3%	≈156	≈200	RM6S/I-3C81-A250
	315 ±3%	≈197	≈150	RM6S/I-3C81-A315
	3000 ±25%	≈1870	≈0	RM6S/I-3C81
3C90	63 ±3%	≈39	≈950	RM6S/I-3C90-A63
	100 ±3%	≈62	≈500	RM6S/I-3C90-A100
	160 ±3%	≈100	≈300	RM6S/I-3C90-A160
	250 ±3%	≈156	≈200	RM6S/I-3C90-A250
	315 ±3%	≈197	≈150	RM6S/I-3C90-A315
	400 ±3%	≈250	≈120	RM6S/I-3C90-A400
	630 ±5%	≈390	≈70	RM6S/I-3C90-A630
	2600 ±25%	≈1630	≈0	RM6S/I-3C90
3C91 prot	3000 ±25%	≈1870	≈0	RM6S/I-3C91

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3C94 des	63 ±3%	≈39	≈950	RM6S/I-3C94-A63
	100 ±3%	≈62	≈500	RM6S/I-3C94-A100
	160 ±3%	≈100	≈300	RM6S/I-3C94-A160
	250 ±3%	≈156	≈200	RM6S/I-3C94-A250
	315 ±3%	≈197	≈150	RM6S/I-3C94-A315
	400 ±3%	≈250	≈120	RM6S/I-3C94-A400
	630 ±5%	≈390	≈70	RM6S/I-3C94-A630
	2600 ±25%	≈1630	≈0	RM6S/I-3C94
3C96 prot	2350 ±3%	≈1470	≈950	RM6S/I-3C96
3D3 sup	160 ±3%	≈100	≈300	RM6S/I-3D3-A160
	250 ±5%	≈156	≈200	RM6S/I-3D3-A250
	315 ±8%	≈197	≈150	RM6S/I-3D3-A315
	1050 ±25%	≈655	≈0	RM6S/I-3D3
3F3	63 ±3%	≈39	≈950	RM6S/I-3F3-A63
	100 ±3%	≈62	≈500	RM6S/I-3F3-A100
	160 ±3%	≈100	≈300	RM6S/I-3F3-A160
	250 ±3%	≈156	≈200	RM6S/I-3F3-A250
	315 ±3%	≈197	≈150	RM6S/I-3F3-A315
	2150 ±25%	≈1350	≈0	RM6S/I-3F3
3F35 prot	1750 ±25%	≈1100	≈0	RM6S/I-3F35
3F4 sup	63 ±3%	≈39	≈950	RM6S/I-3F4-A63
	100 ±3%	≈62	≈500	RM6S/I-3F4-A100
	160 ±3%	≈100	≈300	RM6S/I-3F4-A160
	250 ±3%	≈156	≈200	RM6S/I-3F4-A250
	315 ±3%	≈197	≈150	RM6S/I-3F4-A315
	1250 ±25%	≈780	≈0	RM6S/I-3F4
3H3 sup	315 ±3%	≈197	≈150	RM6S/I-3H3-A315
	400 ±3%	≈250	≈120	RM6S/I-3H3-A400
	630 ±5%	≈390	≈70	RM6S/I-3H3-A630
	2350 ±25%	≈1470	≈0	RM6S/I-3H3

Core sets of high permeability grades

Clamping force for A_L measurements, 20 ±10 N.

GRADE	A_L (nH)	μ_e	TYPE NUMBER
3E1 sup	4100 ±25%	≈2600	RM6S/I-3E1
3E27	6000 ±25%	≈3800	RM6S/I-3E27
3E4 sup	5750 +40/–30%	≈3590	RM6S/I-3E4
3E5	8600 +40/–30%	≈5370	RM6S/I-3E5
3E6	11000 +40/–30%	≈6850	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 = 100 °C	f = 400 kHz; $\hat{B}$ = 50 mT; T = 100 °C
3C81	≥320	≤0.25	–	–	–
3C90	≥320	≤0.13	≤0.14	–	–
3C91	≥315	–	≈0.11	≈0.65	–
3C94	≥320	–	≤0.11	≈0.47	≈0.23
3C96	≥320	–	≈0.08	≈0.33	≈0.16
3F3	≥315	–	≤0.14	–	≤0.20
3F35	≥315	–	–	–	≈0.11
3F4	≥250	–	–	–	–

Properties of core sets under power conditions (continued)

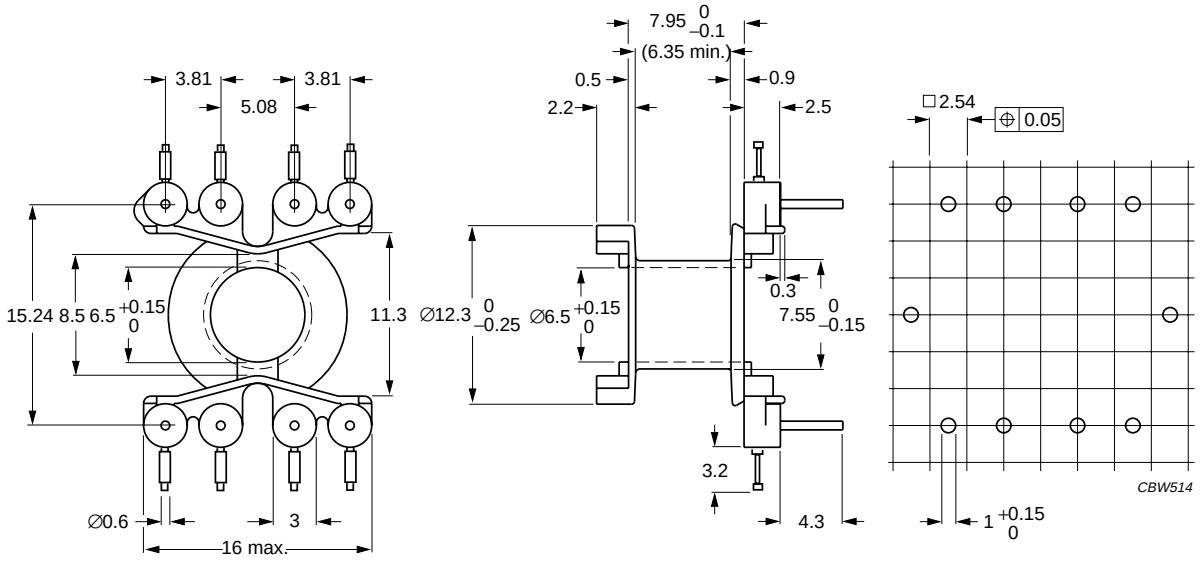
GRADE	B (mT) at	CORE LOSS (W) at			
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 500 kHz; $\hat{B}$ = 50 mT; T = 100 °C	f = 500 kHz; $\hat{B}$ = 100 mT; T = 100 °C	f = 1 MHz; $\hat{B}$ = 30 mT; T = 100 °C	f = 3 MHz; $\hat{B}$ = 10 mT; T = 100 °C
3C81	≥320	–	–	–	–
3C90	≥320	–	–	–	–
3C91	≥315	–	–	–	–
3C94	≥320	–	–	–	–
3C96	≥320	–	–	–	–
3F3	≥315	–	–	–	–
3F35	≥315	≈0.18	≈1.3	–	–
3F4	≥250	–	–	≤0.22	≤0.35

COIL FORMERS

General data

For the information on other coil formers suitable for RM6S/I, see data sheet *"RM6S"*.

PARAMETER	DESCRIPTION
Coil former material	polybutyleneterephthalate (PBT), glass-reinforced, flame retardant in accordance with *"UL 60094V-0"*; UL file number E45329(M)
Pin material	copper-tin alloy (CuSn), tin-lead alloy (SnPb) 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.

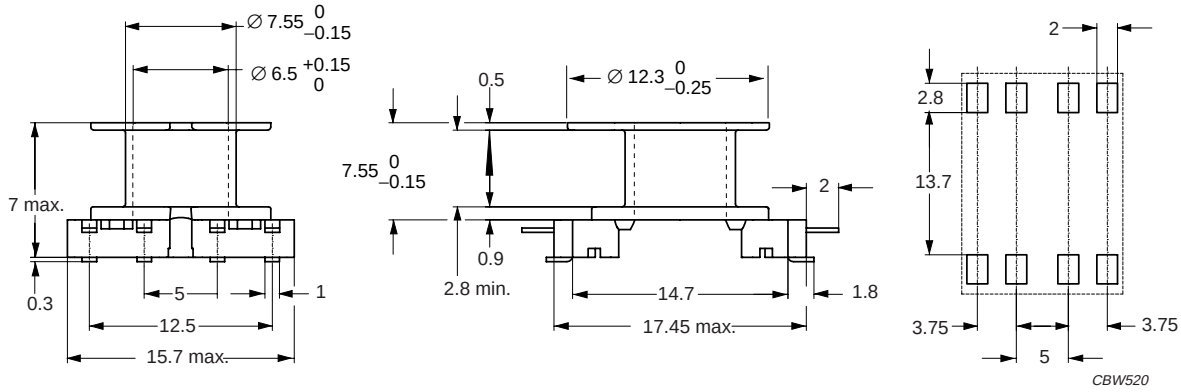
Fig.2 RM6S/I coil former; 8-pins (DIL).

Winding data for 8-pins RM6S/I coil former (DIL)

NUMBER OF SECTIONS	WINDING AREA (mm^2)	WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	15.7	6.2	31	CPV-RM6S/I-1S-8PD

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-lead alloy (SnPb) 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.

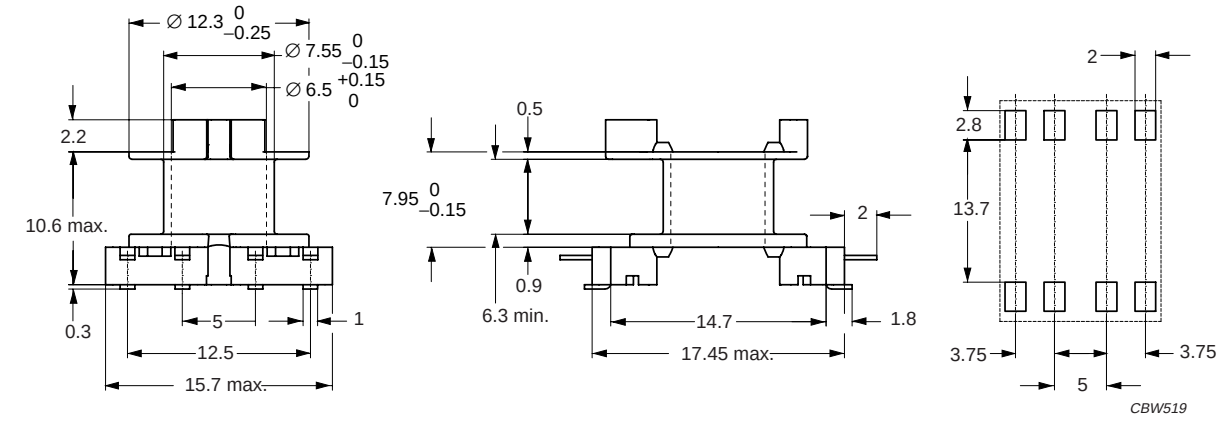
Fig.3 SMD coil former for RM6S/I.

Winding data 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)	TYPE NUMBER
1	8	14	6.3	31	CSVS-RM6S-1S-8P

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-lead alloy (SnPb) 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.

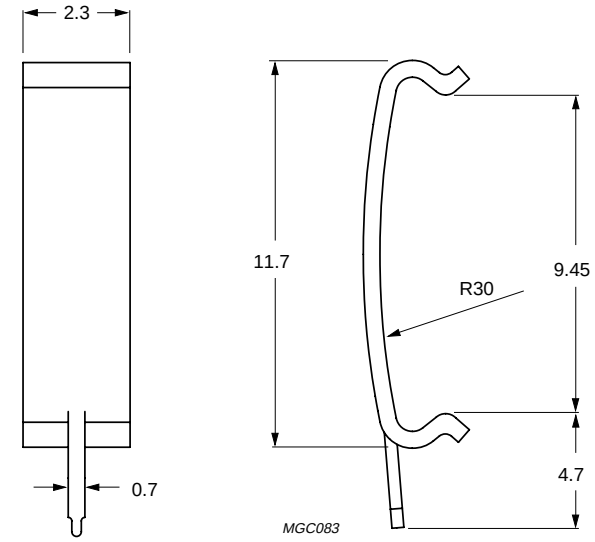
Winding data for RM6S/I coil former (SMD)

NUMBER OF SECTIONS	NUMBER OF SOLDER PADS	WINDING AREA (mm^2)	WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	8	14.2	6.3	31.4	CSVS-RM6S-1S-8P-B

MOUNTING PARTS

General data

ITEM	SPECIFICATION
Clamping force	≈10 N
Clip material	stainless steel (CrNi)
Clip plating	tin-lead alloy (SnPb)
Solderability	*"IEC 60068-2-20"*, Part 2, Test Ta, method 1
Type number	CLI/P-RM6/I

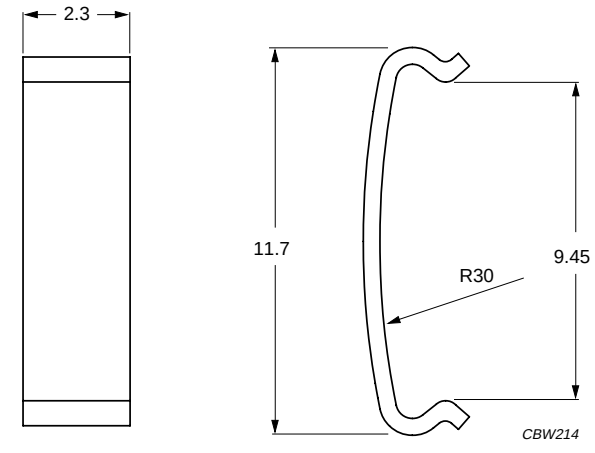


Dimensions in mm.

Fig.5 Mounting clip with earth pin for 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



Dimensions in mm.

Fig.6 Mounting clip without earth pin for RM6/I.