DATA SHEET

RM6S/ILP

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

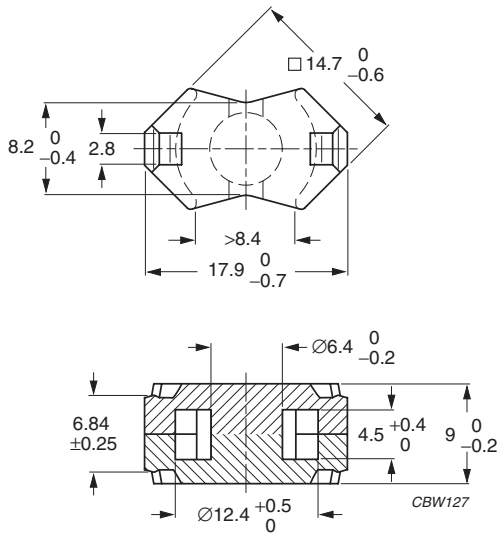
Supersedes data of September 2004 2008 Sep 01

FERROXCUBE
A YAGEO COMPANY

CORE SETS

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
Σ(l/A)	core factor (C1)	0.580	mm^{-1}
V_e	effective volume	820	mm^3
l_e	effective length	21.8	mm
A_e	effective area	37.5	mm^2
A_{min}	minimum area	31.2	mm^2
m	mass of set	≈ 4.4	g



Dimensions in mm.

Fig.1 RM6S/ILP core set.

Core sets for filter applications

Clamping force for A_L measurements, 20 ±10 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3B46 des	4000 ± 25 %	≈ 1850	≈0	RM6S/ILP-3B46
3D3	160 ±3%	≈74	≈310	RM6S/ILP-3D3-A160
	250 ±5%	≈116	≈180	RM6S/ILP-3D3-A250
	315 ±5%	≈146	≈130	RM6S/ILP-3D3-A315
	1350 ±25%	≈625	≈0	RM6S/ILP-3D3
3H3	315 ±3%	≈146	≈150	RM6S/ILP-3H3-A315
	400 ±5%	≈185	≈120	RM6S/ILP-3H3-A400
	630 ±8%	≈291	≈70	RM6S/ILP-3H3-A630
	2900 ±25%	≈1340	≈0	RM6S/ILP-3H3

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
3C90	3175 ±25%	≈1470	≈0	RM6S/ILP-3C90
3C94	3175 ±25%	≈1470	≈0	RM6S/ILP-3C94
3C95 des	3730 ±25%	≈1725	≈0	RM6S/ILP-3C95
3C96 des	2900 ±25%	≈1340	≈0	RM6S/ILP-3C96
3F3	2700 ±25%	≈1250	≈0	RM6S/ILP-3F3

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3F35 prot	2200 ±25%	≈1020	≈0	RM6S/ILP-3F35
3F4 des	1600 ±25%	≈740	≈0	RM6S/ILP-3F4
3F45 prot	1600 ±25%	≈740	≈0	RM6S/ILP-3F45

Core sets of high permeability grades

Clamping force for A_L measurements, 20 ±10 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μm)	TYPE NUMBER
3E5	10500 +40/–30%	≈ 4860	≈ 0	RM6S/ILP-3E5
3E6	13000 +40/–30%	≈ 6010	≈ 0	RM6S/ILP-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
3C90	≥320	≤ 0.10	≤ 0.11	–	–	–
3C94	≥320	–	≤ 0.08	–	≤ 0.45	–
3C95	≥320	–	–	≤ 0.45	≤ 0.43	–
3C96	≥340	–	≤ 0.06	–	≤ 0.35	≤ 0.15
3F3	≥300	–	≤ 0.10	–	–	≤ 0.15
3F35	≥300	–	–	–	–	≤ 0.08
3F4	≥250	–	–	–	–	–

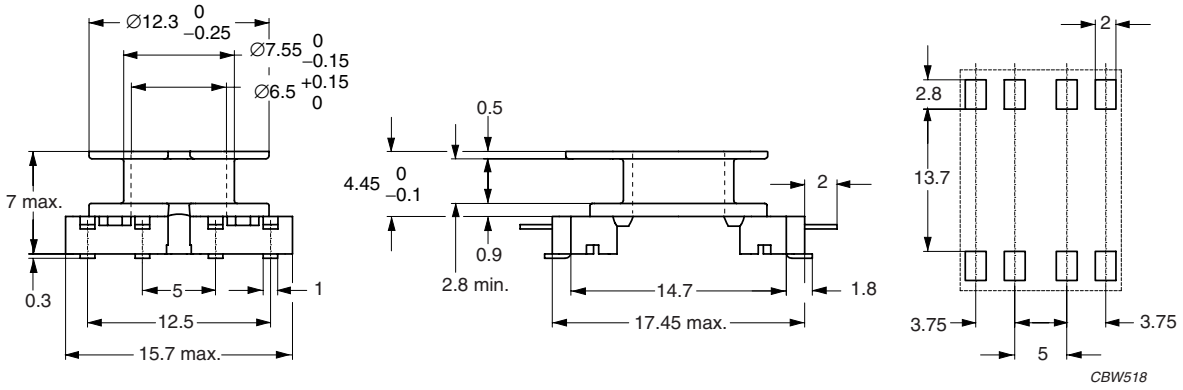
Properties of core sets under power conditions (continued)

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
3C90	≥320	–	–	–	–	–
3C94	≥320	–	–	–	–	–
3C95	≥320	–	–	–	–	–
3C96	≥340	≤ 0.3	–	–	–	–
3F3	≥300	–	–	–	–	–
3F35	≥300	≤ 0.15	≤ 1.0	–	–	–
3F4	≥250	–	–	≤ 0.25	–	≤ 0.4
3F45	≥250	–	–	≤ 0.19	≤ 0.7	≤ 0.33

COIL FORMERS

General data

PARAMETER	DESCRIPTION
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.

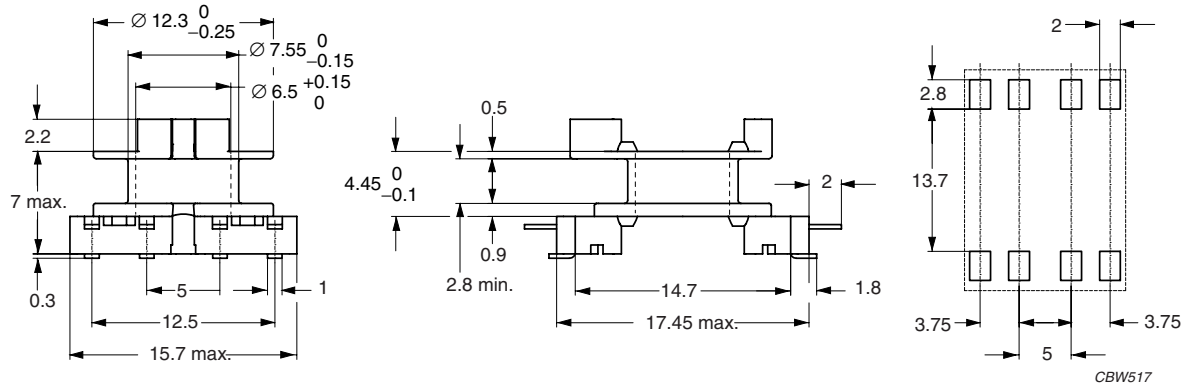
Fig.2 SMD coil former for RM6S/ILP.

Winding data and area product for RM6S/ILP 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	6.3	2.85	31.0	236	CSVS-RM6S/LP-1S-8P

General data (continued)

PARAMETER	DESCRIPTION
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/ILP.

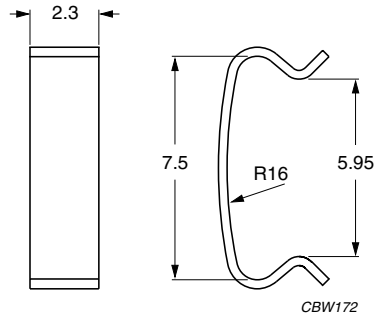
Winding data and area product for RM6S/ILP coil former (SMD)

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	6.4	2.85	31.4	240	CSVS-RM6S/LP-1S-8P-B

MOUNTING PARTS

General data

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



Dimensions in mm.

Fig.4 Mounting clip for RM6/ILP.

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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Life support applications — These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Ferroxcube customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Ferroxcube for any damages resulting from such application.

PRODUCT STATUS DEFINITIONS

STATUS	INDICATION	DEFINITION
Prototype	prot	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	des	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	sup	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.