

# Ferrite for Telecommunication

RM cores

RM series

Issue date: February 2010

- All specifications are subject to change without notice.
- Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

# Ferrite for Telecommunication

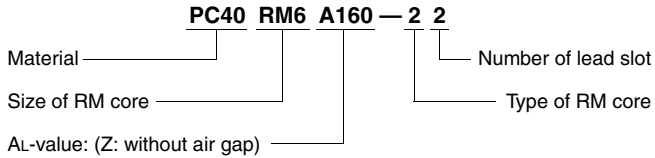
## RM Series

RM cores are popularly used in place of pot cores where high-density mounting is required. RM cores follow the recommendations of IEC publication 60431.

As shown in figure, the RM core effectively utilizes the mounting area on the PC-board. The bobbin is designed for convenient PC-board mounting.

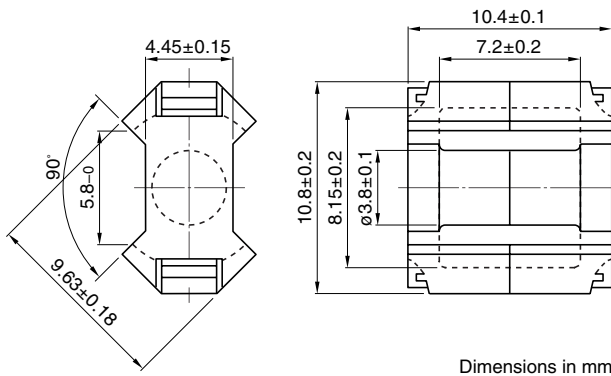


### ORDERING CODE SYSTEMS



## RM4 CORES

Based on IEC Publication 60431, DIN 41980 and JIS C 2516.



### TYPICAL CHARACTERISTICS

Part No.	AL-value (nH/N <sup>2</sup> )	Effective permeability(μe)
<b>Without air gap</b>		
<b>H5ARM4Z-12</b>	1240±25%	1599
<b>H5C2RM4Z-12</b>	4950±30%	6381[at 32.4mT]
	3000+40/-30%	3870*[at 0.5mT]
<b>PC40RM4Z-12</b>	680 min.	877 min.
<b>With air gap</b>		
<b>PC40RM4A63-22</b>	63±3%	81
<b>PC40RM4A100-22</b>	100±3%	129
<b>PC40RM4A160-22</b>	160±3%	206

\* Reference specification when 0.5mT is applied to cores.

Measuring conditions:

Coil ø0.18mm, 2UEW, 100Ts

Frequency 1kHz

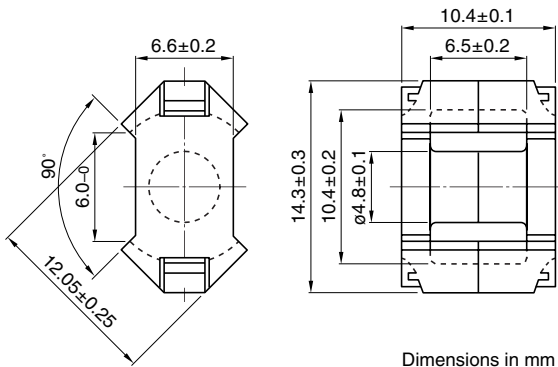
Current level 0.5mA

### PARAMETER

Parameter	Symbol	Unit	Value
Core factor	C <sub>1</sub>	mm <sup>-1</sup>	1.62
Effective magnetic path length	ℓ <sub>e</sub>	mm	22.7
Effective cross-sectional area	A <sub>e</sub>	mm <sup>2</sup>	14.0
Effective core volume	V <sub>e</sub>	mm <sup>3</sup>	318
Cross-sectional center pole area	A <sub>cp</sub>	mm <sup>2</sup>	11.3
Minimum cross-sectional area	A <sub>cp min.</sub>	mm <sup>2</sup>	10.8
Cross-sectional winding area of core	A <sub>cw</sub>	mm <sup>2</sup>	15.7
Weight (approx.)		g	1.7

## RM5 CORES

Based on IEC Publication 60431, DIN 41980 and JIS C 2516.



Dimensions in mm

### TYPICAL CHARACTERISTICS

Part No.	AL-value (nH/N <sup>2</sup> )	Effective permeability(μe)
<b>Without air gap</b>		
<b>H5ARM5Z-12</b>	2220±25%	1661
<b>H5C3RM5Z-12</b>	7700 min.*	5760 min.*
<b>PC40RM5Z-12</b>	1250 min.	935 min.
<b>With air gap</b>		
<b>PC40RM5A63-22</b>	63±3%	47
<b>PC40RM5A100-22</b>	100±3%	75
<b>PC40RM5A160-22</b>	160±3%	120

Measuring conditions:

Coil  $\phi 0.20$ mm, 2UEW, 100Ts

Frequency 1kHz

Current level 0.5mA

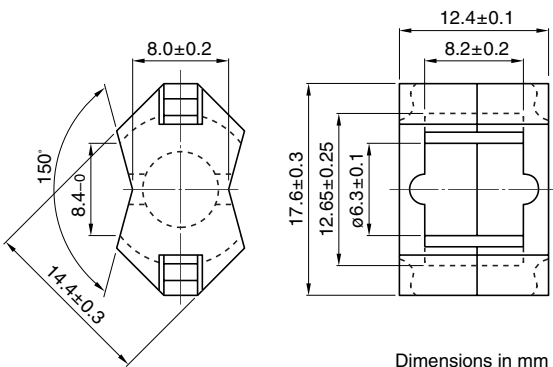
\* 100Ts, 10kHz, 10mV (for H5C3 only)

### PARAMETER

Parameter	Symbol	Unit	Value
Core factor	C <sub>1</sub>	mm <sup>-1</sup>	0.94
Effective magnetic path length	ℓ <sub>e</sub>	mm	22.4
Effective cross-sectional area	A <sub>e</sub>	mm <sup>2</sup>	23.7
Effective core volume	V <sub>e</sub>	mm <sup>3</sup>	530
Cross-sectional center pole area	A <sub>cp</sub>	mm <sup>2</sup>	18.1
Minimum cross-sectional area	A <sub>cp min.</sub>	mm <sup>2</sup>	17.3
Cross-sectional winding area of core	A <sub>cw</sub>	mm <sup>2</sup>	18.2
Weight (approx.)	g		3.0

## RM6 CORES

Based on IEC Publication 60431, DIN 41980 and JIS C 2516.



Dimensions in mm

### TYPICAL CHARACTERISTICS

Part No.	AL-value (nH/N <sup>2</sup> )	Effective permeability (μe)
<b>Without air gap</b>		
<b>H5ARM6Z-12</b>	3300±25%	2258
<b>H5C3RM6Z-12</b>	9100 min.*	5648 min.*
<b>PC40RM6Z-12</b>	1600 min.	1520
<b>With air gap</b>		
<b>PC40RM6A100-22</b>	100±3%	62
<b>PC40RM6A160-22</b>	160±3%	99
<b>PC40RM6A250-22</b>	250±3%	155

Measuring conditions:

Coil  $\phi 0.26$ mm, 2UEW, 100Ts

Frequency 1kHz

Current level 0.5mA

\* 100Ts, 10kHz, 10mV (for H5C3 only)

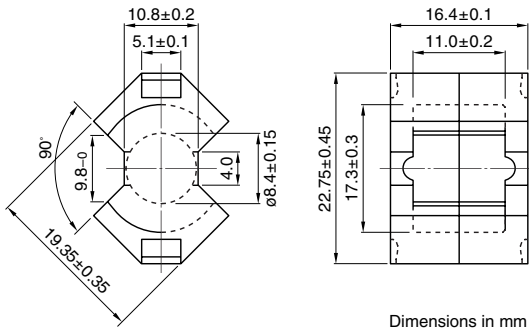
### PARAMETER

Parameter	Symbol	Unit	Value
Core factor	C <sub>1</sub>	mm <sup>-1</sup>	0.78
Effective magnetic path length	ℓ <sub>e</sub>	mm	28.6
Effective cross-sectional area	A <sub>e</sub>	mm <sup>2</sup>	36.6
Effective core volume	V <sub>e</sub>	mm <sup>3</sup>	1050
Cross-sectional center pole area	A <sub>cp</sub>	mm <sup>2</sup>	31.2
Minimum cross-sectional area	A <sub>cp min.</sub>	mm <sup>2</sup>	30.2
Cross-sectional winding area of core	A <sub>cw</sub>	mm <sup>2</sup>	26.0
Weight (approx.)	g		5.5

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## RM8 CORES

Based on IEC Publication 60431, DIN 41980 and JIS C 2516.



Dimensions in mm

### TYPICAL CHARACTERISTICS

Part No.	AL-value (nH/N <sup>2</sup> )	Effective permeability ( $\mu e$ )
<b>Without air gap</b>		
<b>H5ARM8Z-12</b>	4300±25%	2019
<b>H5C2RM8Z-12</b>	17100±30%	8029[at 20.3mT]
	15200+40/-30%	7137*[at 0.5mT]
<b>PC40RM8Z-12</b>	1950 min.	916 min.
<b>With air gap</b>		
<b>PC40RM8A100-22</b>	100±3%	47
<b>PC40RM8A160-22</b>	160±3%	75
<b>PC40RM8A250-22</b>	250±3%	117

\* Reference specification when 0.5mT is applied to cores.

Measuring conditions:

Coil ø0.40mm, 2UEW, 100Ts

Frequency 1kHz

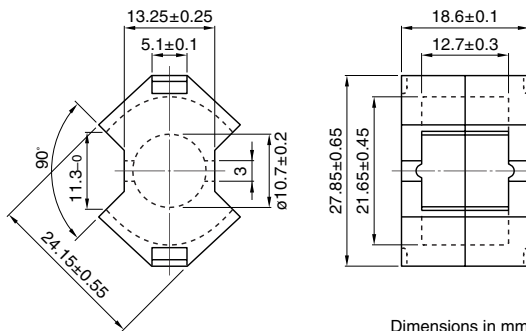
Current level 0.5mA

### PARAMETER

Parameter	Symbol	Unit	Value
Core factor	$C_1$	mm <sup>-1</sup>	0.59
Effective magnetic path length	$\ell e$	mm	38
Effective cross-sectional area	$A_e$	mm <sup>2</sup>	64
Effective core volume	$V_e$	mm <sup>3</sup>	2430
Cross-sectional center pole area	$A_{cp}$	mm <sup>2</sup>	55
Minimum cross-sectional area	$A_{cp \text{ min.}}$	mm <sup>2</sup>	53
Cross-sectional winding area of core	$A_{cw}$	mm <sup>2</sup>	49
Weight (approx.)	$g$		13

## RM10 CORES

Based on IEC Publication 60431, DIN 41980 and JIS C 2516.



Dimensions in mm

### TYPICAL CHARACTERISTICS

Part No.	AL-value (nH/N <sup>2</sup> )	Effective permeability ( $\mu e$ )
<b>Without air gap</b>		
<b>H5ARM10Z-12</b>	6220±25%	2475
<b>H5C2RM10Z-12</b>	20900±30%	8316[at 17.8mT]
	17500+40/-30%	6963*[at 0.5mT]
<b>PC40RM10Z-12</b>	4850±25%	1737
<b>With air gap</b>		
<b>PC40RM10A160-22</b>	160±3%	57
<b>PC40RM10A250-22</b>	250±3%	90
<b>PC40RM10A400-22</b>	400±3%	143

\* Reference specification when 0.5mT is applied to cores.

Measuring conditions:

Coil ø0.40mm, 2UEW, 100Ts

Frequency 1kHz

Current level 0.5mA

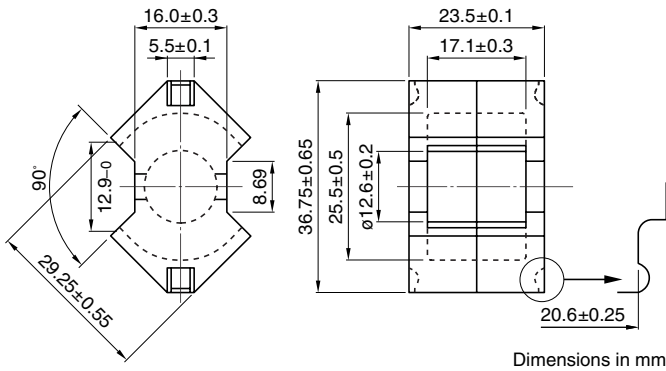
### PARAMETER

Parameter	Symbol	Unit	Value
Core factor	$C_1$	mm <sup>-1</sup>	0.45
Effective magnetic path length	$\ell e$	mm	44
Effective cross-sectional area	$A_e$	mm <sup>2</sup>	98
Effective core volume	$V_e$	mm <sup>3</sup>	4310
Cross-sectional center pole area	$A_{cp}$	mm <sup>2</sup>	97
Minimum cross-sectional area	$A_{cp \text{ min.}}$	mm <sup>2</sup>	87
Cross-sectional winding area of core	$A_{cw}$	mm <sup>2</sup>	71
Weight (approx.)	$g$		23

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## RM12 CORES

Based on IEC Publication 60431 and JIS C 2516.



Dimensions in mm

### TYPICAL CHARACTERISTICS

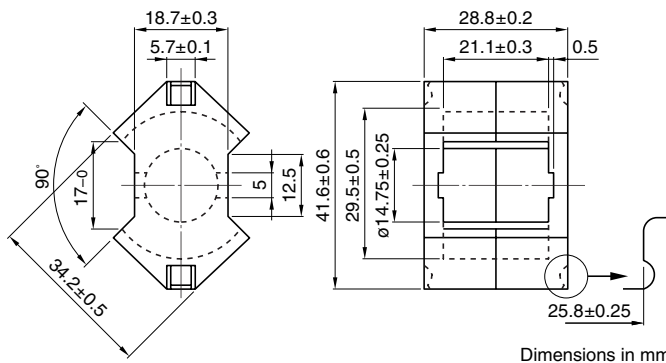
Part No.	AL-value (nH/N <sup>2</sup> )	Effective permeability ( $\mu$ e)
<b>Without air gap</b>		
PC40RM12Z-12	4150 min.	1321 min.
<b>With air gap</b>		
PC40RM12A160-22	160±3%	51
PC40RM12A250-22	250±3%	80
PC40RM12A400-22	400±3%	127

### PARAMETER

Parameter	Symbol	Unit	Value
Core factor	$C_1$	mm <sup>-1</sup>	0.4
Effective magnetic path length	$l_e$	mm	56.9
Effective cross-sectional area	$A_e$	mm <sup>2</sup>	140
Effective core volume	$V_e$	mm <sup>3</sup>	7960
Cross-sectional center pole area	$A_{cp}$	mm <sup>2</sup>	125
Minimum cross-sectional area	$A_{cp \text{ min.}}$	mm <sup>2</sup>	121
Cross-sectional winding area of core	$A_{cw}$	mm <sup>2</sup>	109
Weight (approx.)	$g$		42

## RM14 CORES

Based on IEC Publication 60431, DIN 41980 and JIS C 2516.



Dimensions in mm

### TYPICAL CHARACTERISTICS

Part No.	AL-value (nH/N <sup>2</sup> )	Effective permeability ( $\mu$ e)
<b>Without air gap</b>		
PC40RM14Z-12	4600 min.	1354 min.
<b>With air gap</b>		
PC40RM14A160-22	160±3%	47
PC40RM14A250-22	250±3%	74
PC40RM14A400-22	400±3%	118

### PARAMETER

Parameter	Symbol	Unit	Value
Core factor	$C_1$	mm <sup>-1</sup>	0.37
Effective magnetic path length	$l_e$	mm	69
Effective cross-sectional area	$A_e$	mm <sup>2</sup>	188
Effective core volume	$V_e$	mm <sup>3</sup>	13000
Cross-sectional center pole area	$A_{cp}$	mm <sup>2</sup>	171
Minimum cross-sectional area	$A_{cp \text{ min.}}$	mm <sup>2</sup>	165
Cross-sectional winding area of core	$A_{cw}$	mm <sup>2</sup>	156
Weight (approx.)	$g$		70

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