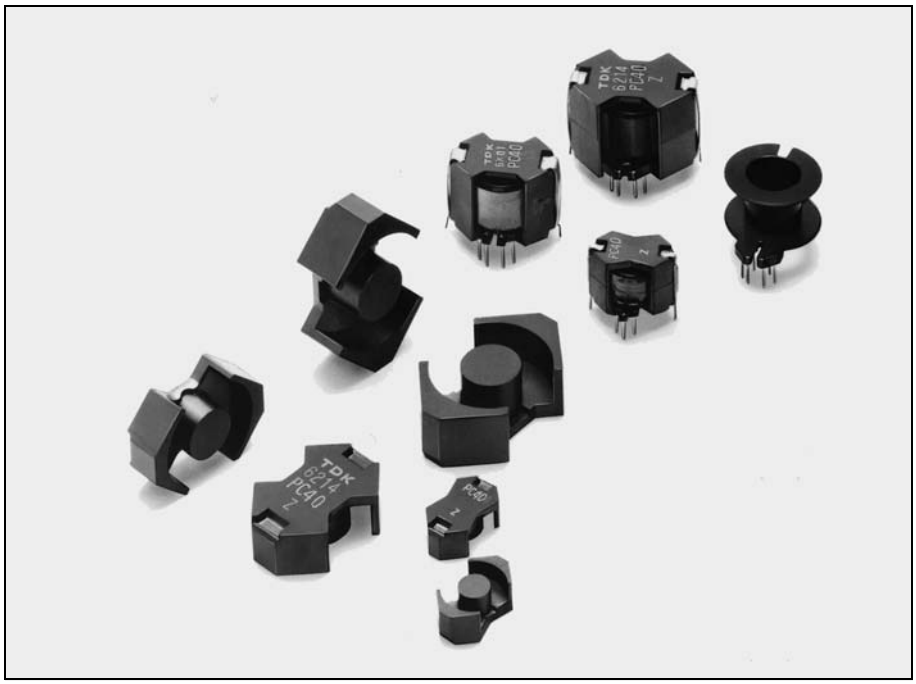
Ferrite for Switching Power Supplies
RM Series

Cores
RM4 to RM14

Bobbins
BRM4 to BRM14

Accessories
FRM4 to FRM14



Ordering Code System

Cores

PC40 RM6 A160 – 12

- PC40 — Material
- RM6 — Size of RM core
- A160 — AL-value(Z: without air gap)
- 12 — Number of Lead Slot Type

Bobbins

B RM6 – 714 CPFR

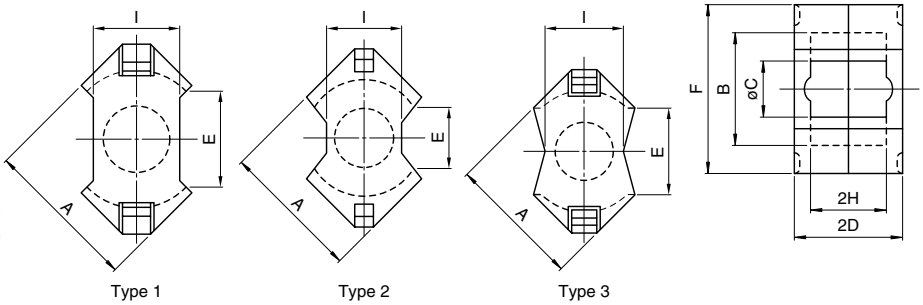
- B — Symbol of Bobbin
- RM6 — Size of RM core
- 7 — Code of Bobbin Material
- 1 — Number of Section
- 4 — Number of Terminal Pin
- CPFR — Type of Terminal Pin

Accessories

F RM6 – AFR

- F — Symbol of Accessory
- RM6 — Size of RM core
- AFR — Type of Accessory

RM CORES



Type 1 Type 2 Type 3

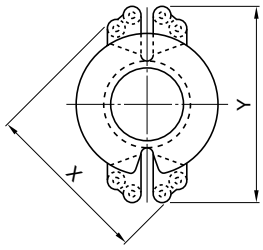
Part No.	Type	Dimensions in mm							
		A	B	øC	2D	E min.	F	2H	I
PC40RM4Z-12 **PC50RM4Z-12**	1	9.63±0.18	8.15±0.2	3.8±0.1	10.4±0.1	5.8	10.8±0.2	7.2±0.2	4.45±0.15
PC40RM5Z-12 **PC50RM5Z-12**	1	12.05±0.25	10.4±0.2	4.8±0.1	10.4±0.1	6.0	14.3±0.3	6.5±0.2	6.6±0.2
PC40RM6Z-12 **PC50RM6Z-12**	3	14.4±0.3	12.65±0.25	6.3±0.1	12.4±0.1	8.4	17.6±0.3	8.2±0.2	8.0±0.2
PC40RM8Z-12	2	19.35±0.35	17.3±0.3	8.4±0.15	16.4±0.1	9.8	22.75±0.45	11.0±0.2	10.8±0.2
PC40RM10Z-12	2	24.15±0.55	21.65±0.45	10.7±0.2	18.6±0.1	11.3	27.85±0.65	12.7±0.3	13.25±0.25
PC40RM12Z-12	2	29.25±0.55	25.5±0.5	12.6±0.2	23.5±0.1	12.9	36.75±0.65	17.1±0.3	16.0±0.3
PC40RM14Z-12	1	34.2±0.5	29.5±0.5	14.75±0.25	28.8±0.2	17.0	41.6±0.6	21.1±0.3	18.7±0.3

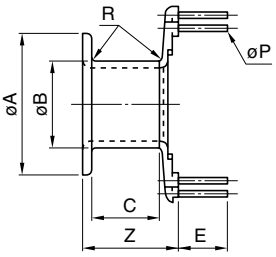
Part No.	Effective parameter				Electrical characteristics			Wt (g)	Bobbin item
					AL-value (nH/N²)*		Core loss (W) max.		
	C1 (mm⁻¹)	Ae (mm²)	ℓe (mm)	Ve (mm³)	Without air gap	With air gap	100kHz, 200mT, 100°C		
PC40RM4Z-12 **PC50RM4Z-12**	1.62	14.0	22.7	318	680 min. 960±25%	63±3% 100±3% 160±3%	0.12 0.036**	1.7	BRM4-714SDFR BRM4-716SDFR
PC40RM5Z-12 **PC50RM5Z-12**	0.940	23.7	22.4	530	1250 min. 1340±25%	63±3% 100±3% 160±3%	0.18 0.053**	3.0	BRM5-714CPFR BRM5-716CPFR
PC40RM6Z-12 **PC50RM6Z-12**	0.781	36.6	28.6	1050	2450±25% 1700±25%	100±3% 160±3% 250±3%	0.41 0.11**	5.5	BRM6-714CPFR BRM6-716CPFR
PC40RM8Z-12	0.594	64.0	38.0	2430	1950 min.	100±3% 160±3% 250±3%	0.97	13	BRM8-718CPFR BRM8-7112CPFR
PC40RM10Z-12	0.450	98.0	44.0	4310	4850±25%	160±3% 250±3% 400±3%	1.8	23	BRM10-7110SDNFR BRM10-7112SDFR
PC40RM12Z-12	0.406	140	56.9	7970	4150 min.	160±3% 250±3% 400±3%	3.3	42	BRM12-7111CPFR BRM12-7112CPFR
PC40RM14Z-12	0.393	178	70.0	12500	4600 min.	160±3% 250±3% 400±3%	4.75	70	BRM14-7110CPFR BRM14-7112CPFR

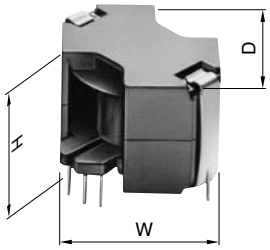
* *AL-value: 1kHz, 0.5mA, 100Ts*
** *Core loss: 500kHz, 50mT, 100°C*

RM BOBBINS







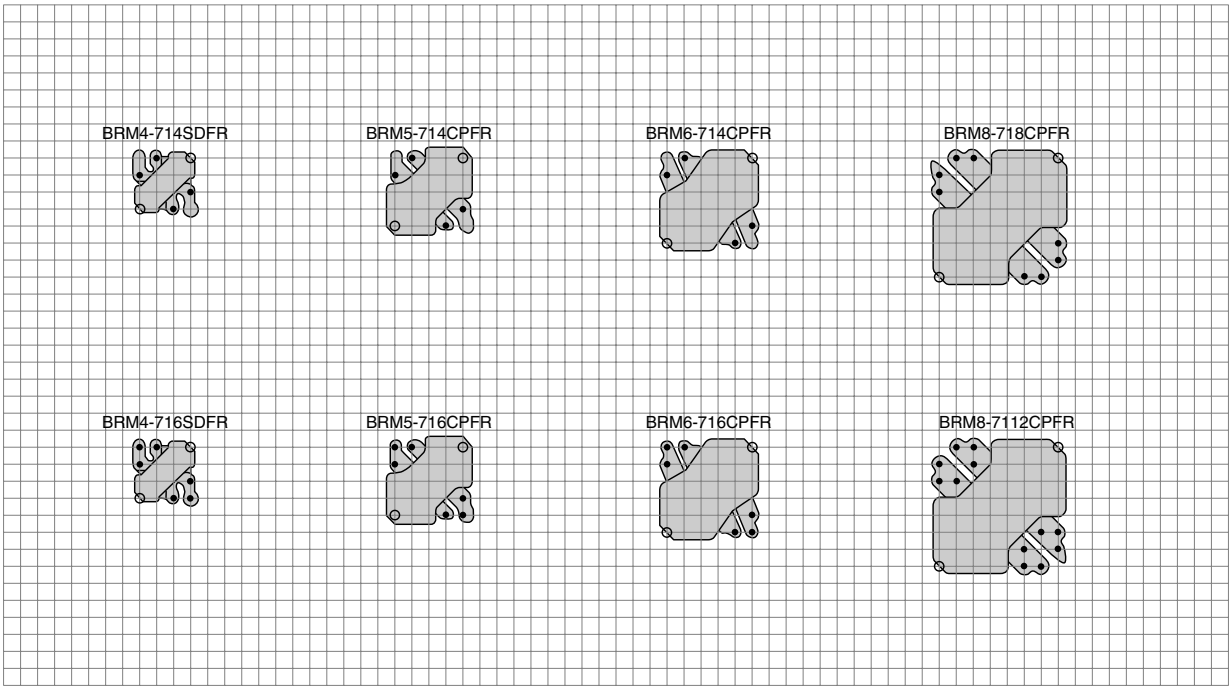


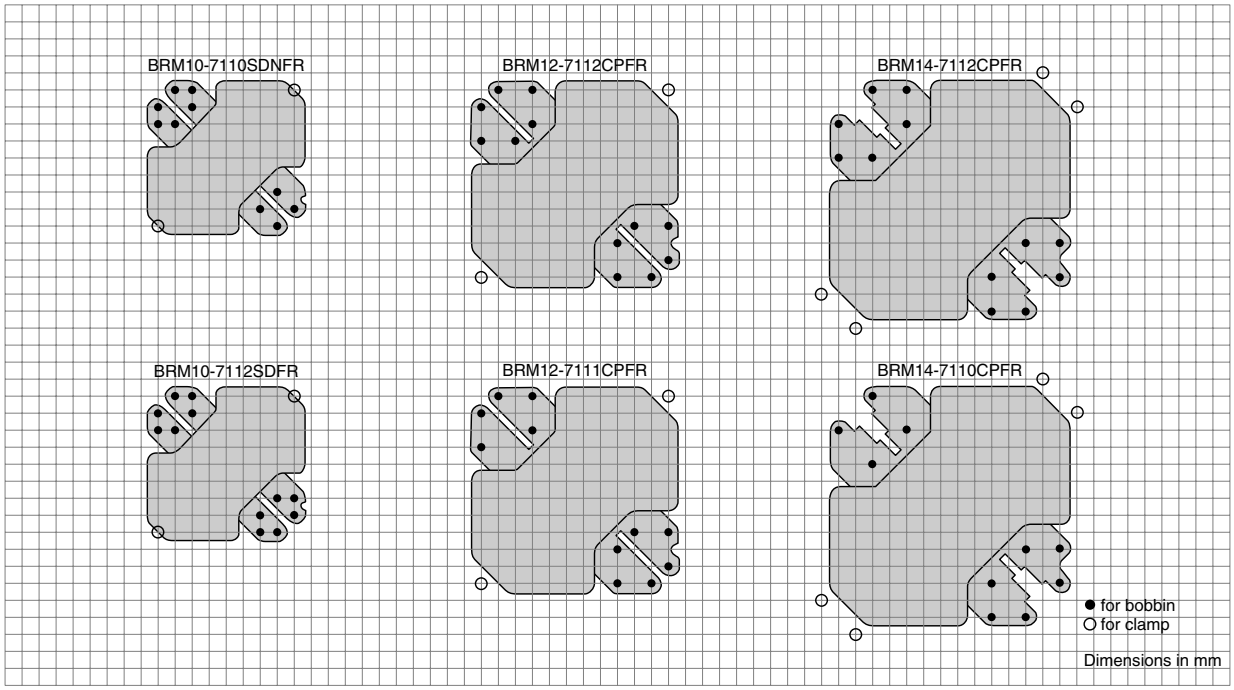
Part No.	Dimensions in mm							
	øA	**øB**	**C**	**E**	**X**	**Y**	**Z**	**t***
BRM4-716SDFR	7.75	4.85	5.55	4.40	9.52	4.3	7.55	0.30
BRM5-716CPFR	10.00	5.90	4.88	5.00	12.5	16.2	7.9	0.35
BRM6-716CPFR	12.20	7.35	6.35	4.50	15.0	20.0	9.6	0.30
BRM8-718CPFR	16.80	9.85	9.05	5.60	20.24	24.6	12.7	0.425
BRM10-7112SDFR	20.90	12.40	10.60	4.78	22.5	27.75	13.40	0.50
BRM12-7112CPFR	24.60	14.40	14.70	6.35	30.0	38.00	18.9	0.55
BRM14-7112CPFR	28.70	16.70	18.55	6.35	35.56	41.90	22.9	0.60

Part No.	Dimensions in mm			Parameter		Wt (g)	Other bobbins' item	Accessory item
	øP (mm)	**Terminal pins**	**W D (mm) H**	**Aw (mm²)**	**ℓw (mm)**			
BRM4-716SDFR	□0.45	6	10.0 10.0 10.5	8.05	19.8	0.23	BRM4-714SDFR	FRM4-AFR
BRM5-716CPFR	0.50	6	12.5 12.5 10.5	10.1	25	0.26	BRM5-714CPFR	FRM5-AFR
BRM6-716CPFR	0.60	6	15.0 15.0 12.5	15.5	31	0.43	BRM6-714CPFR	FRM6-AFR
BRM8-718CPFR	0.60	8	20.0 20.0 16.5	31.0	42	1.00	BRM8-7112CPFR	FRM8-AFR
BRM10-7112SDFR	□0.51	12	24.7 24.7 18.7	45.7	53	1.6	BRM10-7110SDNFR	FRM10-AFR
BRM12-7112CPFR	0.80	12	30.0 30.0 23.6	75.5	55	2.7	BRM12-7111CPFR	FRM12-AFR
BRM14-7112CPFR	0.80	12	35.6 35.6 29.0	113	72	3.8	BRM14-7110CPFR	FRM14-AFR

UL Grade: 94V-0, Material: FR phenol
Pin material: CPFR type is steel wire (solder plated)
SDFR and SDNFR types are phospnor bronz wire(solder plated)
Maximum number of turns N that can be wound on bobbins, see section of "Maximum number of Turns on Bobbins".
* *Minimum thickness of bobbin inside which core is placed, including flanges.*

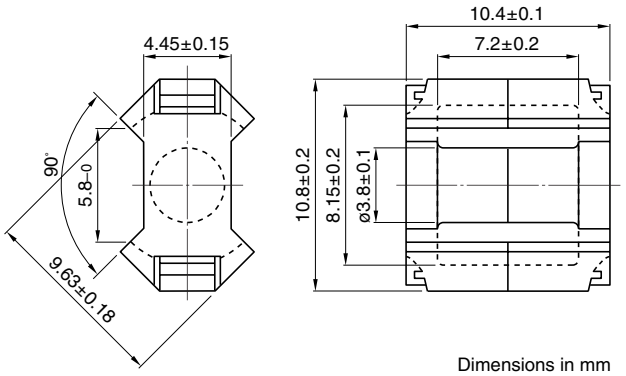
Connecting Pin Patterns (2.54mm/0.1 inch grids) View in mounting direction





RM Series RM4 Cores

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



Dimensions in mm

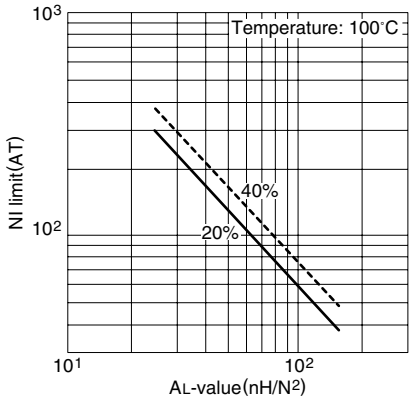
Parameter

Core factor	C1	mm^{-1}	1.62
Effective magnetic path length	ℓe	mm	22.7
Effective cross-sectional area	Ae	mm^2	14.0
Effective core volume	Ve	mm^3	318
Cross-sectional center pole area	Acp	mm^2	11.3
Minimum cross-sectional center pole area	Acp min.	mm^2	10.7
Cross-sectional winding area of core	Acw	mm^2	15.6
Weight (approx.)		g	1.7

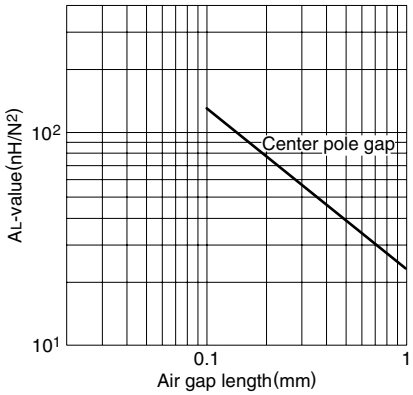
Part No.	AL-value (nH/N2)	Core loss (W) at 100°C		Calculated output power (forward converter mode)
		100kHz, 200mT	500kHz, 50mT	
PC40RM4Z-12	680 min. (1kHz, 0.5mA)* 1650 min. (100kHz, 200mT)	0.12 max.		6.9W (100kHz)
PC50RM4Z-12	960±25% (1kHz, 0.5mA)*		0.036 max.	21W (500kHz)

* *Coil: ø0.18 2UEW 100Ts*

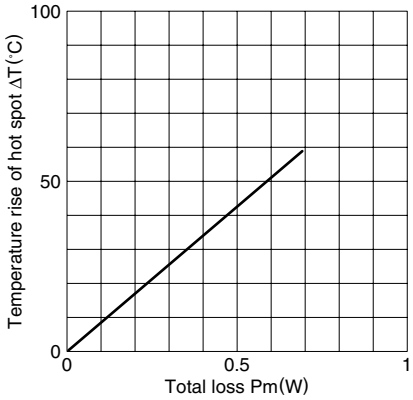
NI limit vs. AL-value for PC40RM4 gapped core (Typical)



AL-value vs. Air gap length for PC40RM4 core (Typical)

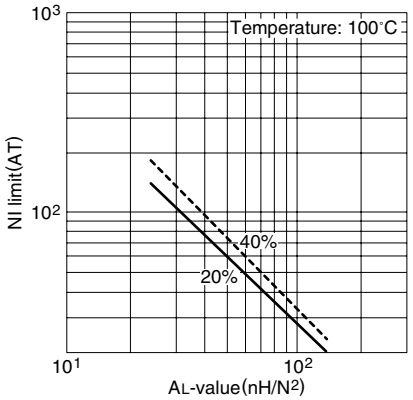


Temperature rise vs. Total loss for RM4 core (Typical) (Ambient temperature: 25°C)



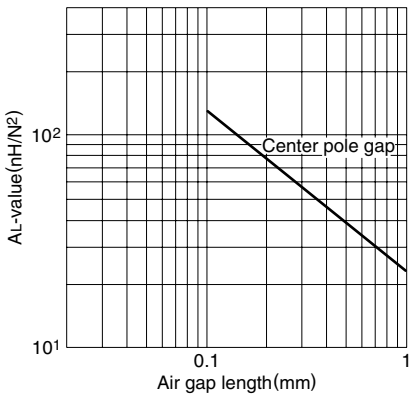
Note: The temperature rise is measured in the room whose temperature and humidity are fixed to 25°C and 45(%)RH. respectively. (approx. 400×300×300cm)

NI limit vs. AL-value for PC50RM4 gapped core (Typical)

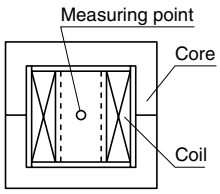


Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

AL-value vs. Air gap length for PC50RM4 core (Typical)

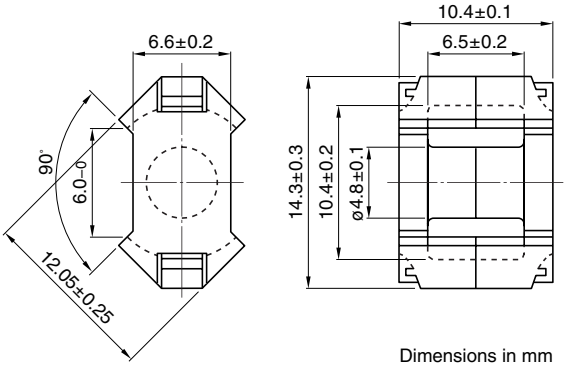


Measuring conditions • Coil: ø0.18 2UEW 100Ts
• Frequency: 1kHz
• Level: 0.5mA



RM Series RM5 Cores

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



Dimensions in mm

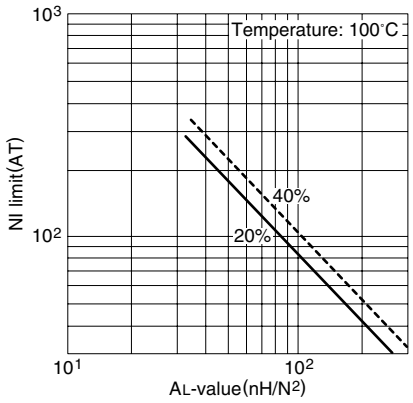
Parameter

Core factor	C1	mm−1	0.940
Effective magnetic path length	ℓe	mm	22.4
Effective cross-sectional area	Ae	mm²	23.7
Effective core volume	Ve	mm³	530
Cross-sectional center pole area	Acp	mm²	18.1
Minimum cross-sectional center pole area	Acp min.	mm²	17.3
Cross-sectional winding area of core	Acw	mm²	18.2
Weight (approx.)		g	3.0

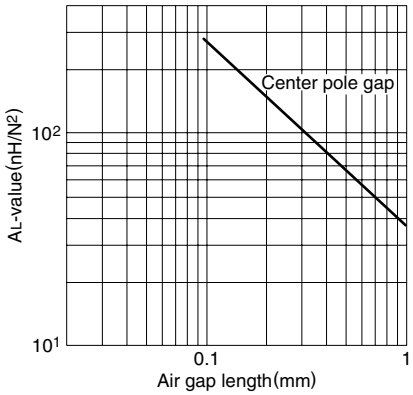
Part No.	AL-value (nH/N²)	Core loss (W) at 100°C		Calculated output power (forward converter mode)
		100kHz, 200mT	500kHz, 50mT	
PC40RM5Z-12	1250 min. (1kHz, 0.5mA)* 3340 min. (100kHz, 200mT)	0.18 max.		16W (100kHz)
PC50RM5Z-12	1340±25% (1kHz, 0.5mA)*		0.053 max.	34W (500kHz)

* *Coil: ø0.2 2UEW 100Ts*

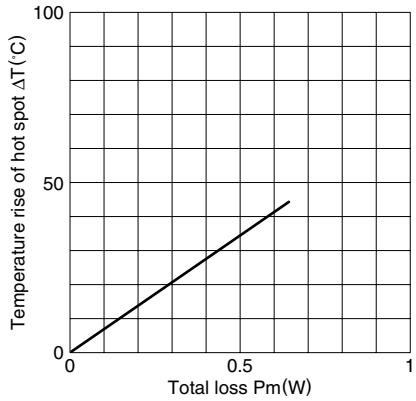
NI limit vs. AL-value for PC40RM5 gapped core (Typical)



AL-value vs. Air gap length for PC40RM5 core (Typical)

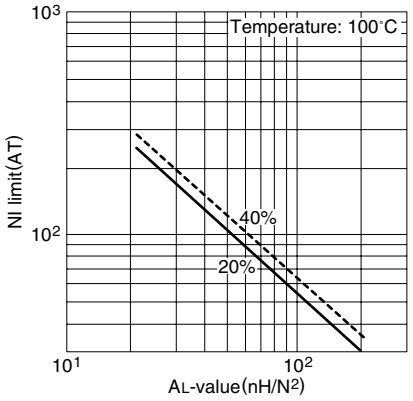


Temperature rise vs. Total loss for RM5 core (Typical) (Ambient temperature: 25°C)



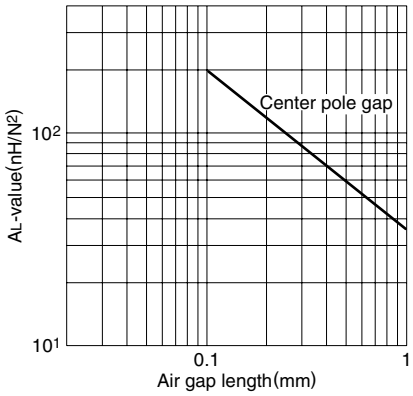
Note: The temperature rise is measured in the room whose temperature and humidity are fixed to 25°C and 45(%)RH. respectively. (approx. 400×300×300cm)

NI limit vs. AL-value for PC50RM5 gapped core (Typical)

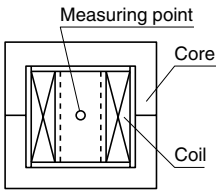


Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

AL-value vs. Air gap length for PC50RM5 core (Typical)

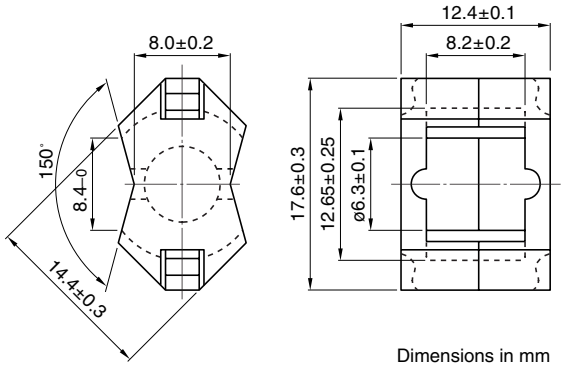


Measuring conditions
- *Coil: ø0.2 2UEW 100Ts*
- *Frequency: 1kHz*
- *Level: 0.5mA*



RM Series RM6 Cores

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



Dimensions in mm

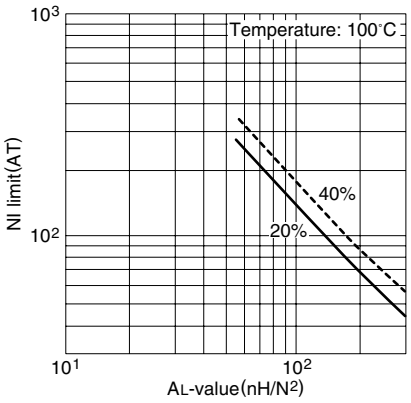
Parameter

Core factor	C1	mm^{-1}	0.781
Effective magnetic path length	ℓe	mm	28.6
Effective cross-sectional area	Ae	mm^2	36.6
Effective core volume	Ve	mm^3	1050
Cross-sectional center pole area	Acp	mm^2	31.2
Minimum cross-sectional center pole area	Acp min.	mm^2	30.2
Cross-sectional winding area of core	Acw	mm^2	26.0
Weight (approx.)		g	5.5

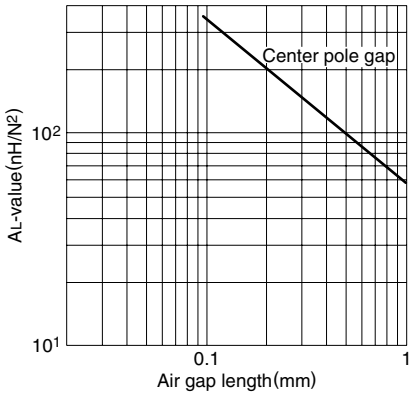
Part No.	AL-value (nH/N^2)	Core loss (W) at 100°C		Calculated output power (forward converter mode)
		100kHz, 200mT	500kHz, 50mT	
PC40RM6Z-12	2450±25% (1kHz, 0.5mA)* 4030 min. (100kHz, 200mT)	0.41 max.		27W (100kHz)
PC50RM6Z-12	1700±25% (1kHz, 0.5mA)*		0.11 max.	55W (500kHz)

* *Coil: ø0.26 2UEW 100Ts*

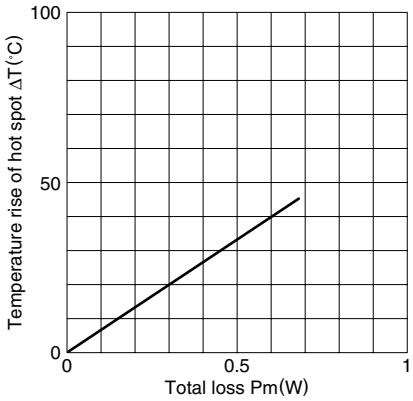
NI limit vs. AL-value for PC40RM6 gapped core (Typical)



AL-value vs. Air gap length for PC40RM6 core (Typical)

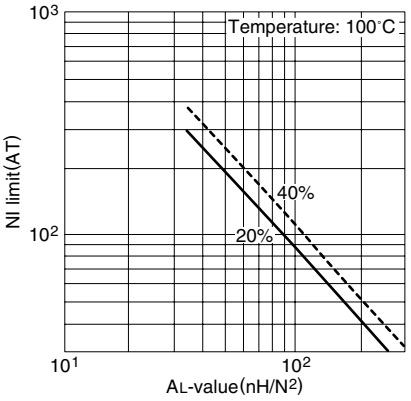


Temperature rise vs. Total loss for RM6 core (Typical) (Ambient temperature: 25°C)



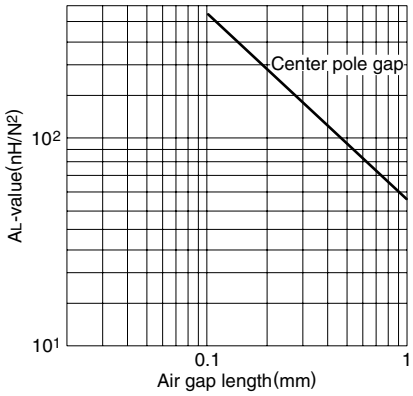
Note: The temperature rise is measured in the room whose temperature and humidity are fixed to 25°C and 45(%)RH. respectively. (approx. 400×300×300cm)

NI limit vs. AL-value for PC50RM6 gapped core (Typical)

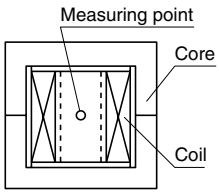


Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

AL-value vs. Air gap length for PC50RM6 core (Typical)

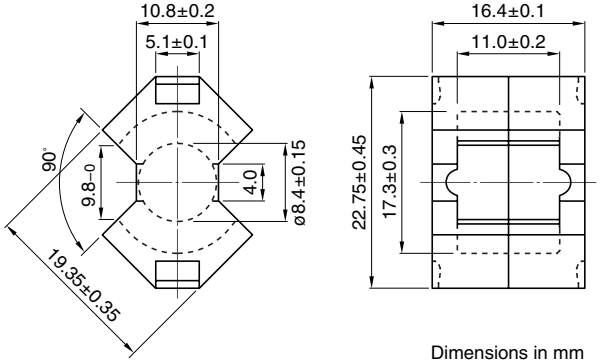


Measuring conditions
- *Coil: ø0.26 2UEW 100Ts*
- *Frequency: 1kHz*
- *Level: 0.5mA*



RM Series RM8 Cores

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



Dimensions in mm

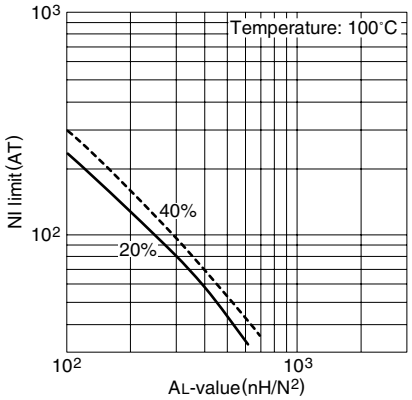
Parameter

Core factor	C1	mm^{-1}	0.594
Effective magnetic path length	ℓe	mm	38.0
Effective cross-sectional area	Ae	mm^2	64.0
Effective core volume	Ve	mm^3	2430
Cross-sectional center pole area	Acp	mm^2	55.4
Minimum cross-sectional center pole area	Acp min.	mm^2	53.5
Cross-sectional winding area of core	Acw	mm^2	48.9
Weight (approx.)		g	13

Part No.	AL-value (nH/N^2)	Core loss (W) at 100°C 100kHz, 200mT	Calculated output power (forward converter mode)
PC40RM8Z-12	1950 min. (1kHz, 0.5mA)* 5290 min. (100kHz, 200mT)	0.97 max.	67W (100kHz)

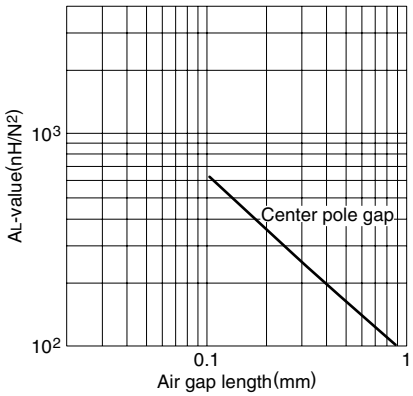
* *Coil: ø0.4 2UEW 100Ts*

NI limit vs. AL-value for PC40RM8 gapped core (Typical)



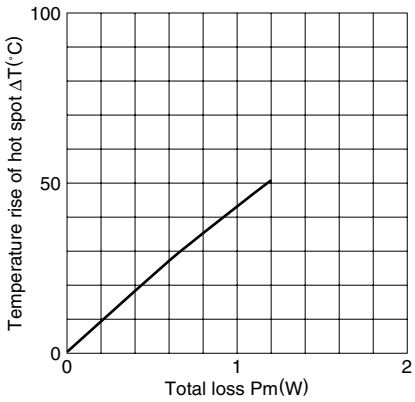
Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

AL-value vs. Air gap length for PC40RM8 core (Typical)

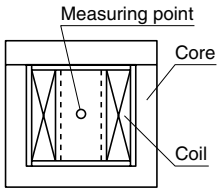


Measuring conditions • Coil: ø0.4 2UEW 100Ts
• Frequency: 1kHz
• Level: 0.5mA

Temperature rise vs. Total loss for RM8 core (Typical) (Ambient temperature: 25°C)

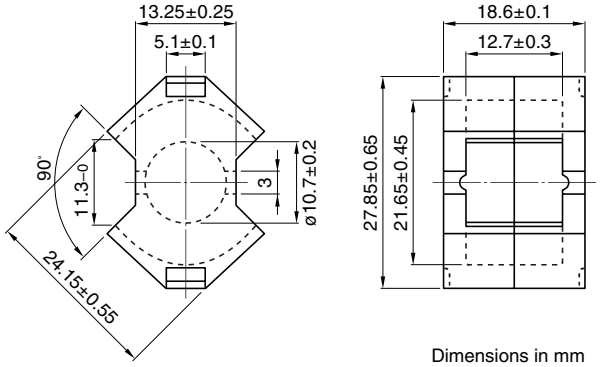


Note: The temperature rise is measured in the room whose temperature and humidity are fixed to 25°C and 45(%)RH. respectively. (approx. 400×300×300cm)



RM Series RM10 Cores

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



Dimensions in mm

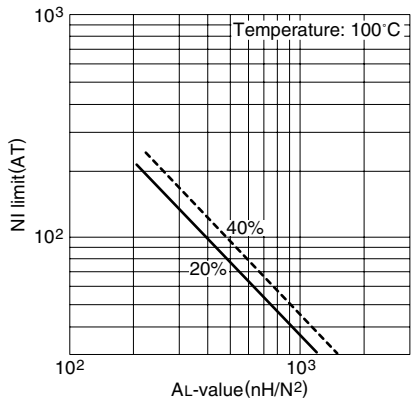
Parameter

Core factor	C1	mm^{-1}	0.450
Effective magnetic path length	ℓe	mm	44.0
Effective cross-sectional area	Ae	mm^2	98.0
Effective core volume	Ve	mm^3	4310
Cross-sectional center pole area	Acp	mm^2	89.9
Minimum cross-sectional center pole area	Acp min.	mm^2	86.6
Cross-sectional winding area of core	Acw	mm^2	69.5
Weight (approx.)		g	23

Part No.	AL-value (nH/N^2)	Core loss (W) at 100°C 100kHz, 200mT	Calculated output power (forward converter mode)
PC40RM10Z-12	4850±25% (1kHz, 0.5mA)* 7000 min. (100kHz, 200mT)	1.8 max.	130W (100kHz)

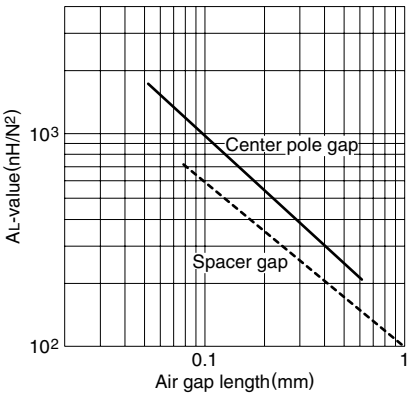
* *Coil: ø0.4 2UEW 100Ts*

NI limit vs. AL-value for PC40RM10 gapped core (Typical)



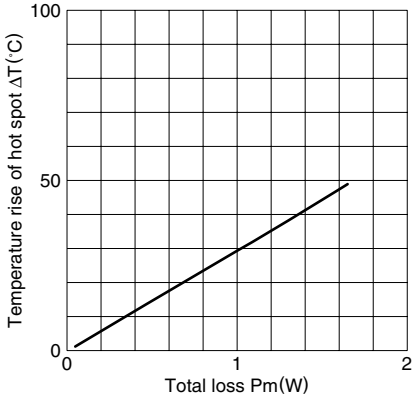
Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

AL-value vs. Air gap length for PC40RM10 core (Typical)

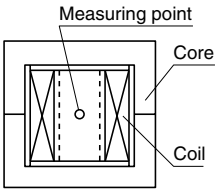


Measuring conditions • Coil: ø0.4 2UEW 100Ts
• Frequency: 1kHz
• Level: 0.5mA

Temperature rise vs. Total loss for RM10 core (Typical) (Ambient temperature: 25°C)

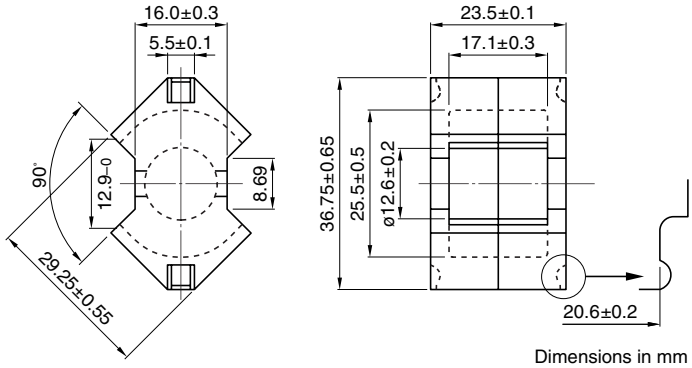


Note: The temperature rise is measured in the room whose temperature and humidity are fixed to 25°C and 45(%)RH. respectively. (approx. 400×300×300cm)



RM Series RM12 Cores

Based on JIS C 2516, IEC Publication 60431.



Dimensions in mm

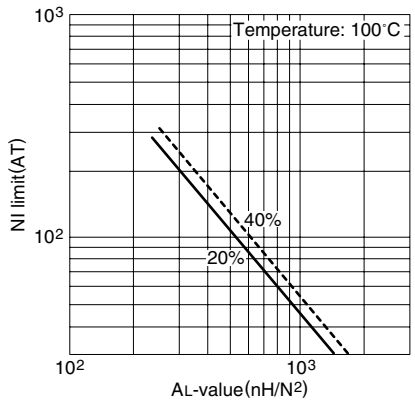
Parameter

Core factor	C1	mm^{-1}	0.406
Effective magnetic path length	ℓe	mm	56.9
Effective cross-sectional area	Ae	mm^2	140
Effective core volume	Ve	mm^3	7960
Cross-sectional center pole area	Acp	mm^2	125
Minimum cross-sectional center pole area	Acp min.	mm^2	121
Cross-sectional winding area of core	Acw	mm^2	110
Weight (approx.)		g	42

Part No.	AL-value (nH/N^2)	Core loss (W) at 100°C 100kHz, 200mT	Calculated output power (forward converter mode)
PC40RM12Z-12	4150 min. (1kHz, 0.5mA)* 9290 min. (100kHz, 200mT)	3.3 max.	344W (100kHz)

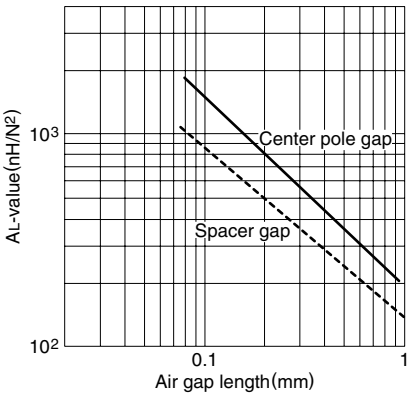
* *Coil: ø0.4 2UEW 100Ts*

NI limit vs. AL-value for PC40RM12 gapped core (Typical)



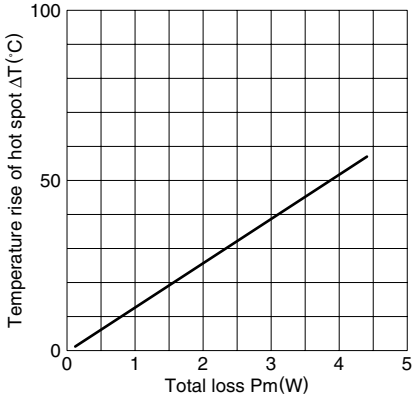
Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

AL-value vs. Air gap length for PC40RM12 core (Typical)

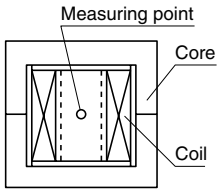


Measuring conditions • Coil: ø0.4 2UEW 100Ts
• Frequency: 1kHz
• Level: 0.5mA

Temperature rise vs. Total loss for RM12 core (Typical) (Ambient temperature: 25°C)

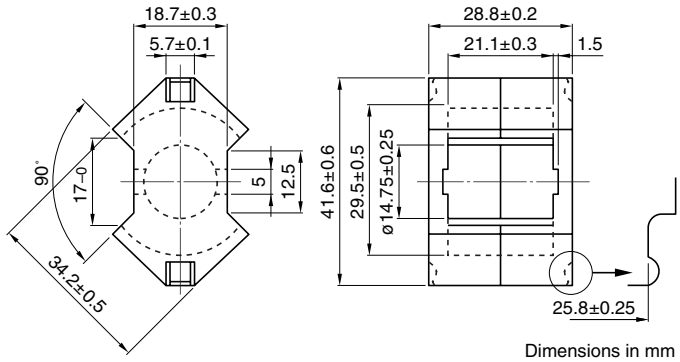


Note: The temperature rise is measured in the room whose temperature and humidity are fixed to 25°C and 45(%)RH. respectively. (approx. 400×300×300cm)



RM Series RM14 Cores

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



Dimensions in mm

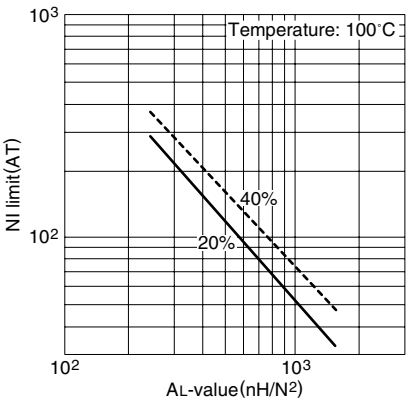
Parameter

Core factor	C1	mm^{-1}	0.393
Effective magnetic path length	ℓe	mm	70.0
Effective cross-sectional area	Ae	mm^2	178
Effective core volume	Ve	mm^3	12500
Cross-sectional center pole area	Acp	mm^2	171
Minimum cross-sectional center pole area	Acp min.	mm^2	165
Cross-sectional winding area of core	Acw	mm^2	155
Weight (approx.)		g	70

Part No.	AL-value (nH/N^2)	Core loss (W) at 100°C 100kHz, 200mT	Calculated output power (forward converter mode)
PC40RM14Z-12	4600 min. (1kHz, 0.5mA)* 9590 min. (100kHz, 200mT)	4.75 max.	376W (100kHz)

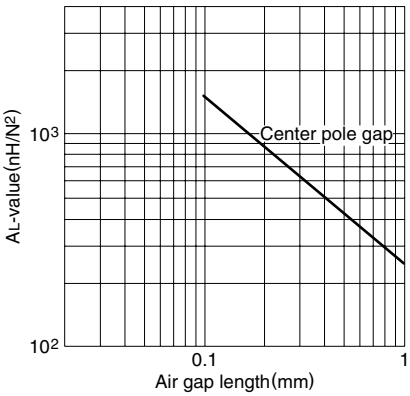
* *Coil: ø0.4 2UEW 100Ts*

NI limit vs. AL-value for PC40RM14 gapped core (Typical)



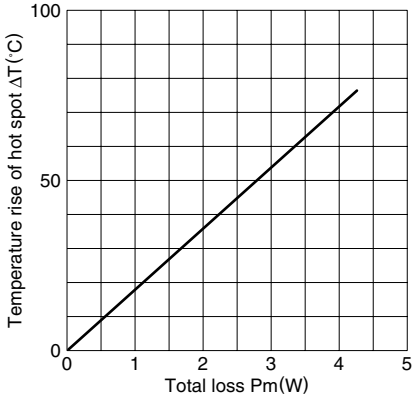
Note: NI limit shows the point where the exciting current is 20% and 40% away from its extended linear part.

AL-value vs. Air gap length for PC40RM14 core (Typical)



Measuring conditions • Coil: ø0.4 2UEW 100Ts
• Frequency: 1kHz
• Level: 0.5mA

Temperature rise vs. Total loss for RM14 core (Typical) (Ambient temperature: 25°C)



Note: The temperature rise is measured in the room whose temperature and humidity are fixed to 25°C and 45(%)RH. respectively. (approx. 400×300×300cm)