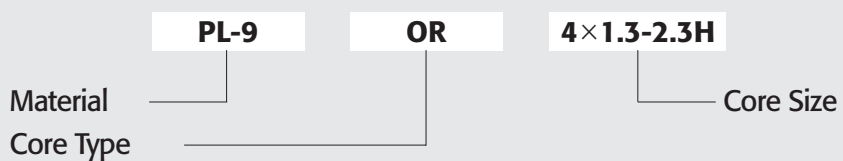




TOROID CORES

OR2~OR78

Ordering Code System

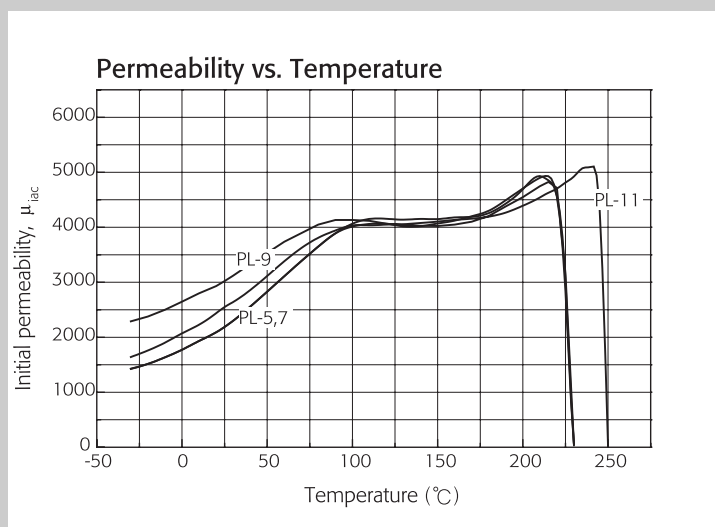
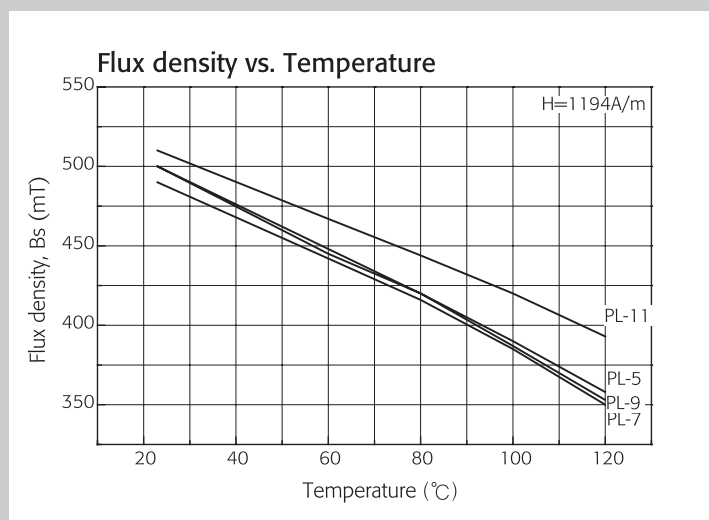
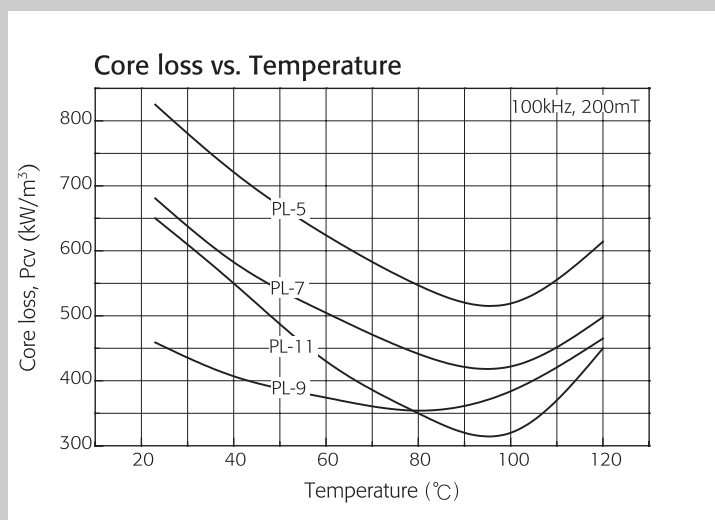


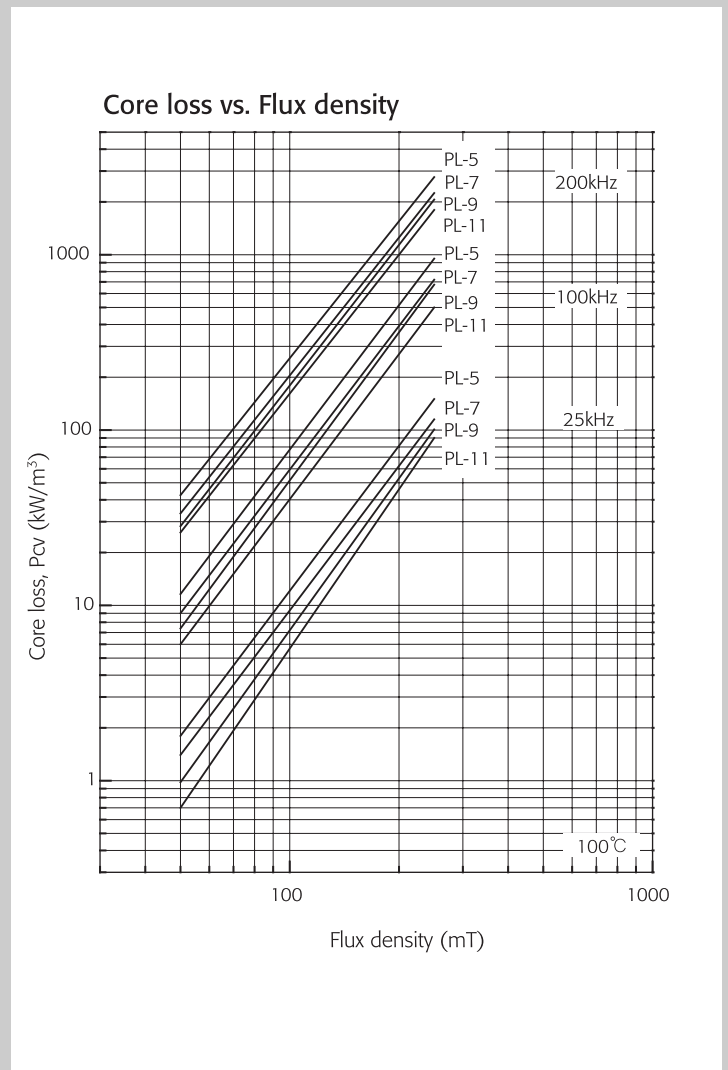
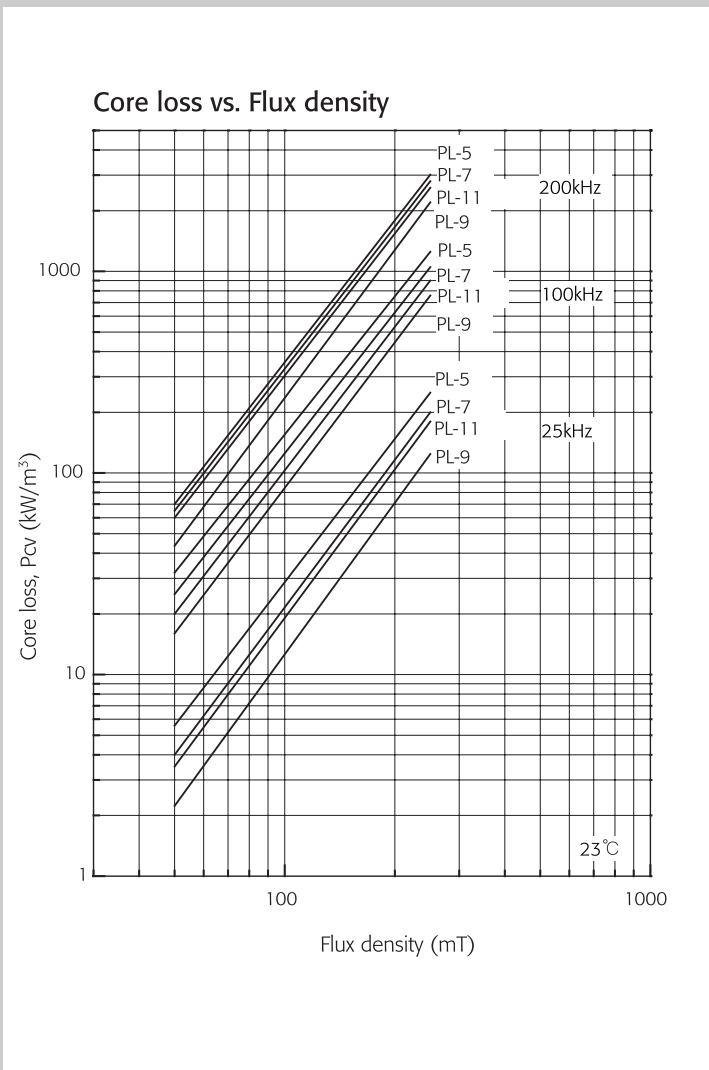
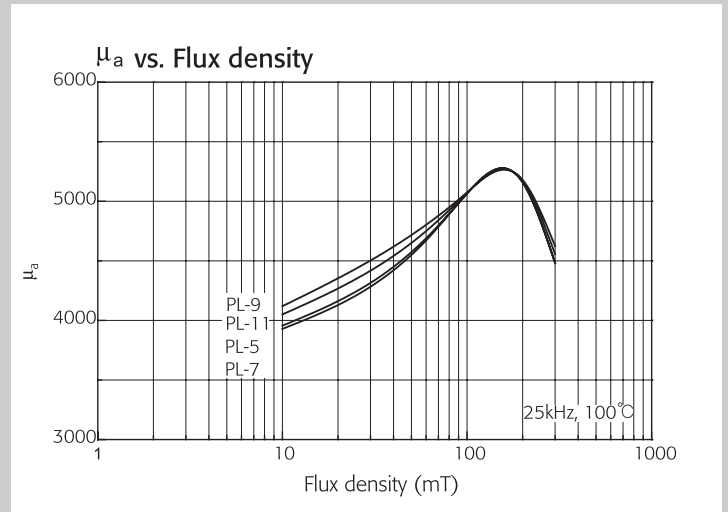
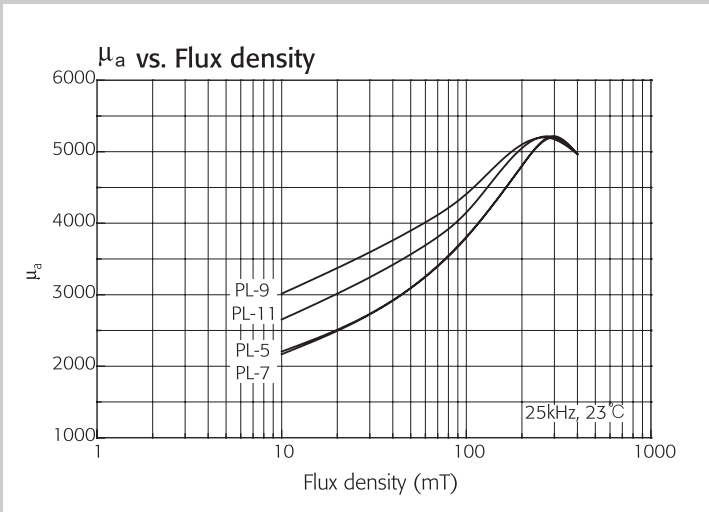
MATERIAL CHARACTERISTICS

Power Materials

Materials			PL-5	PL-7	PL-9	PL-11	
Initial permeability	μ_{iac}		2400±25%	2400±25%	3000±25%	2500±25%	
Core loss (100kHz, 200mT)	P _{cv}	kW/m ³	23°C	800	650	450	650
			80°C	550	450	350	350
			100°C	500	410	390	320
Saturation flux density (1194A/m)	B _s	mT	23°C	500	490	500	510
			100°C	390	380	380	420
Remanence	B _r	mT	23°C	180	150	150	130
Coercivity	H _c	A/m	23°C	15	12	10	10
Curie temperature	T _c	°C	> 220	> 220	> 220	> 220	
Density	d	kg/m ³	4.85×10 ³	4.85×10 ³	4.85×10 ³	4.85×10 ³	
Resistivity	ρ	$\Omega \cdot m$	6	5	7	5	

Note: 1) Typical values
 2) The values were obtained with toroidal cores(30×8-20H) at room temperature unless indicated otherwise.

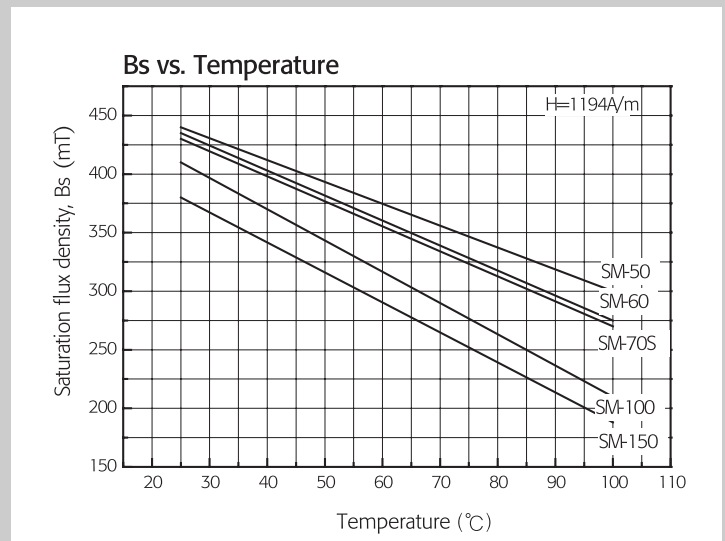
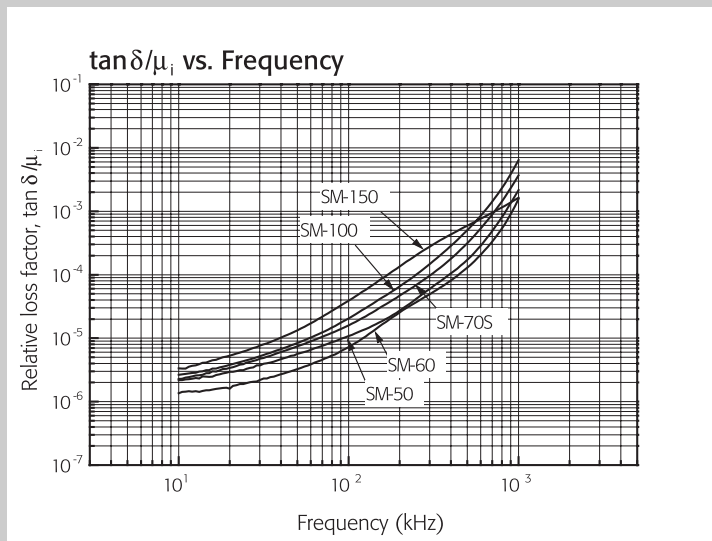
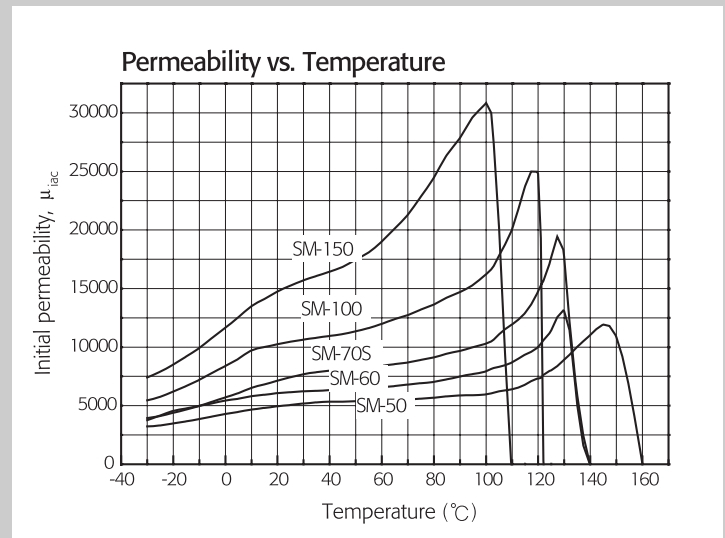
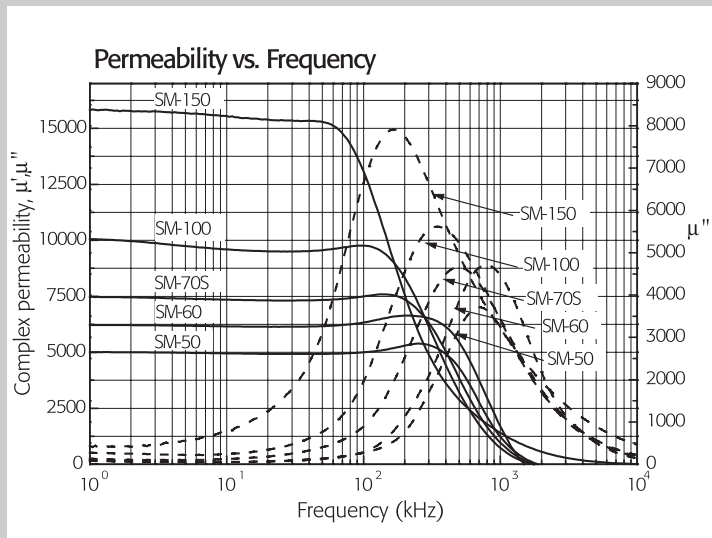




High Permeability Materials

Materials			SM-50	SM-60	SM-70S	SM-100	SM-150
Initial permeability	μ_{iac}		5000±25%	6000±25%	7500±25%	10000±30%	15000±30%
Relative loss factor	$\tan \delta / \mu_{iac}$	$\times 10^{-6}$	< 10(f:100kHz)	< 10(f:100kHz)	< 20(f:100kHz)	< 3(f:10kHz)	< 5(f:10kHz)
Saturation flux density (1194A/m)	Bs	mT	440	430	430	410	360
Remanence	Br	mT	110	100	100	90	90
Coercivity	Hc	A/m	10	6	6	5	4.5
Relative temp. factor (20~60°C)	$\alpha_{\mu r}$	$\times 10^{-6}/^{\circ}\text{C}$	-0.15~1.0	-0.1~1.0	-0.1~1.0	-0.15~2.0	-0.5~2.0
Curie temperature	Tc	°C	> 150	> 130	> 130	> 120	> 100
Density	d	kg/m ³	4.85 × 10 ³	4.90 × 10 ³	4.90 × 10 ³	4.90 × 10 ³	4.90 × 10 ³
Resistivity	ρ	$\Omega \cdot \text{m}$	1	1	0.3	0.2	0.15

Note: 1) Typical values
 2) The values were obtained with toroidal cores(30×8-20H) at room temperature unless indicated otherwise.

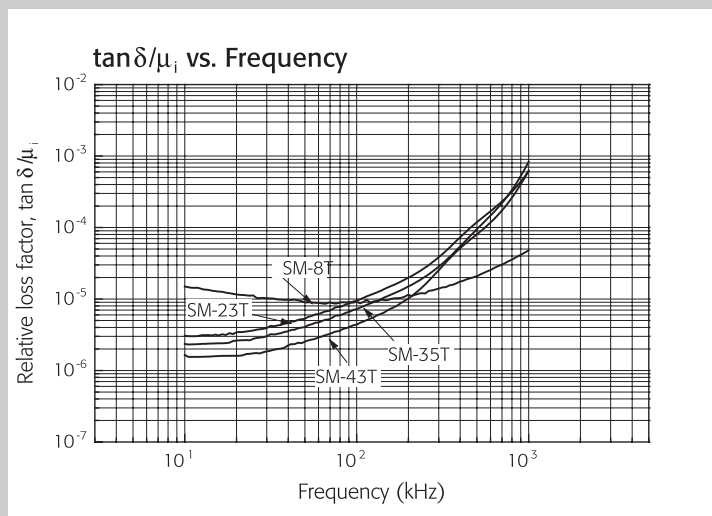
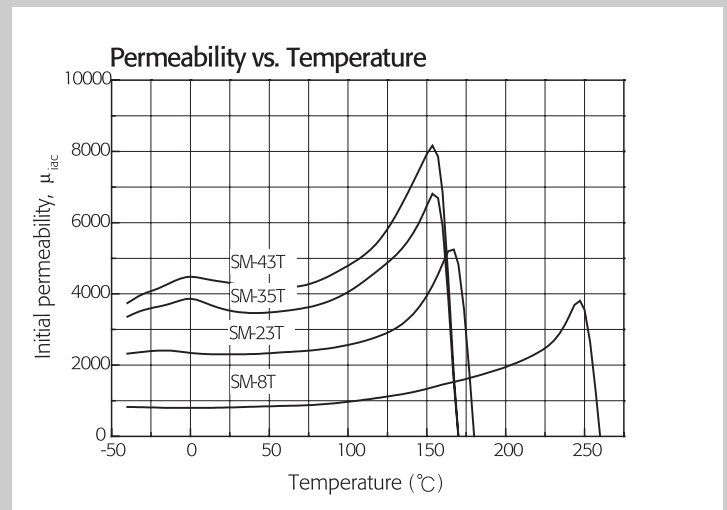
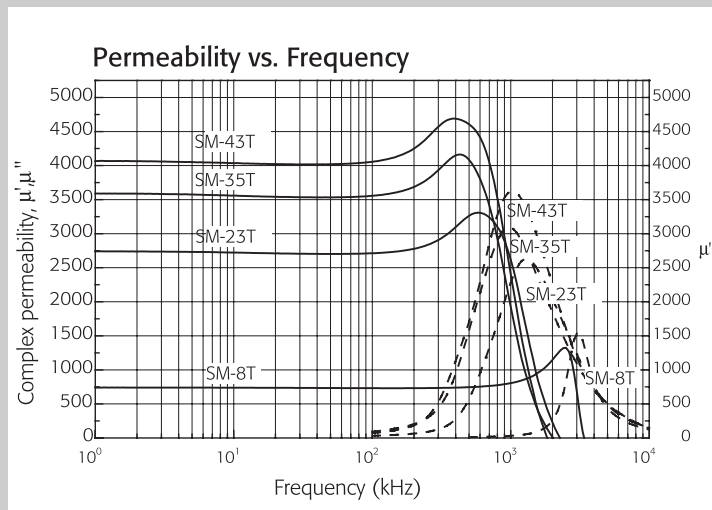


MATERIAL CHARACTERISTICS

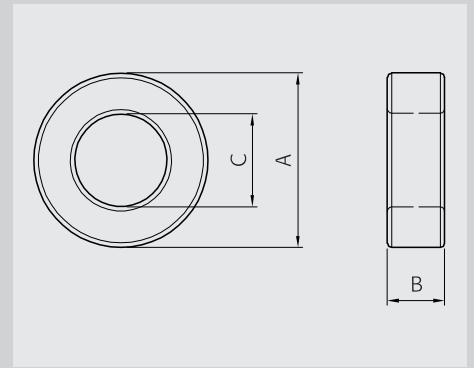
High Q Materials

Materials			SM-8T	SM-23T	SM-35T	SM-43T	
Initial permeability	μ_{iac}		800 \pm 20%	2300 \pm 25%	3500 \pm 25%	4300 \pm 25%	
Relative loss factor	$\tan \delta / \mu_{iac}$	$\times 10^{-6}$	< 25(f:500kHz)	< 3(f:100kHz)	< 5(f:100kHz)	< 5(f:100kHz)	
Saturation flux density (1194A/m)	Bs	mT	480	460	450	450	
Remanence	Br	mT	270	100	100	100	
Coercivity	Hc	A/m	40	10	10	10	
Relative temp. factor	$\alpha_{\mu r}$	$\times 10^{-6}/^{\circ}\text{C}$	-30~20 $^{\circ}\text{C}$	-0.5~0.5	-0.5~0.5	-0.5~0.5	-0.5~0.5
			0~20 $^{\circ}\text{C}$		-0.5~0.5		0~1.0
			20~70 $^{\circ}\text{C}$	1.0~2.0	0~1.0	0~1.0	0~1.0
Curie temperature	Tc	$^{\circ}\text{C}$	> 250	> 170	> 160	> 160	
Density	d	kg/m ³	4.70 $\times 10^3$	4.80 $\times 10^3$	4.80 $\times 10^3$	4.80 $\times 10^3$	
Resistivity	ρ	$\Omega \cdot \text{m}$	3	10	5	5	

Note: 1) Typical values
2) The values were obtained with toroidal cores(30 \times 8-20H) at room temperature unless indicated otherwise.



OR CORES



Dimensions in mm

Part No.	A	B	C
OR2.5×1.3-1.3H	2.54 ±0.30	1.27 ±0.15	1.27 ±0.10
OR3.2×2-1.6H	3.20 ±0.20	2.00 ±0.15	1.60 ±0.10
OR3.4×1.78-1.78H	3.43 ±0.20	1.78 ±0.13	1.78 ±0.13
OR4×1-2H	4.00 ±0.20	1.00 ±0.20	2.00 ±0.20
OR4×1.3-2.3H	3.94 ±0.20	1.27 ±0.20	2.24 ±0.20
OR4×1.6-2H	4.00 ±0.20	1.60 ±0.20	2.00 ±0.20
OR4×2-2H	4.00 ±0.20	2.00 ±0.20	2.00 ±0.20
OR5×0.95-1.52H	5.00 ±0.20	0.95 ±0.06	1.52 ±0.12
OR5.8×1.5-3H	5.80 ±0.30	1.50 ±0.30	3.00 ±0.30
OR5.8×2.5-3H	5.80 ±0.30	2.50 ±0.30	3.00 ±0.30
OR5.8×3-3H	5.80 ±0.30	3.00 ±0.30	3.00 ±0.30
OR6×1-3H	6.00 ±0.30	1.00 ±0.30	3.00 ±0.30
OR6×1.5-3H	6.00 ±0.30	1.50 ±0.30	3.00 ±0.30
OR6×2-3H	6.00 ±0.30	2.00 ±0.30	3.00 ±0.30
OR6×2.5-3H	6.00 ±0.30	2.50 ±0.30	3.00 ±0.30
OR6×3-3H	6.00 ±0.30	3.00 ±0.30	3.00 ±0.30
OR8×2-4H	8.00 ±0.30	2.00 ±0.20	4.00 ±0.30
OR8×3-4H	8.00 ±0.30	3.00 ±0.30	4.00 ±0.30
OR8×4-4H	8.00 ±0.30	4.00 ±0.30	4.00 ±0.30
OR8×6-4H	8.00 ±0.30	6.00 ±0.30	4.00 ±0.30
OR9×3-5H	9.00 ±0.30	3.00 ±0.20	5.00 ±0.20
OR9.5×4.77-4.75H	9.53 ±0.38	4.78 ±0.20	4.75 ±0.20
OR10×4-6H	10.00 ±0.30	4.00 ±0.25	6.00 ±0.30
OR10×5-5H	10.00 ±0.20	5.00 ±0.30	5.00 ±0.20
OR10×6-6H	10.00 ±0.30	6.00 ±0.30	6.00 ±0.30
OR12×4-6H	12.00 ±0.30	4.00 ±0.25	6.00 ±0.30
OR12.5×5-7.4H	12.50 ±0.25	5.00 ±0.25	7.40 ±0.25
OR12.7×3.1-8.1H	12.70 ±0.25	3.10 ±0.25	8.10 ±0.20

Core Set Parameters

C1(mm ⁻¹)	Le(mm)	Ae(mm ²)	Ve(mm ³)	Aw(mm ²)	W(g)
7.140	5.5	0.8	4.3	1.3	0.1
4.530	7.0	1.5	11	2.0	0.1
5.390	7.6	1.4	11	2.5	0.1
9.060	8.7	1.0	8.4	3.1	0.1
8.760	9.2	1.1	10	3.9	0.1
5.670	8.7	1.5	13	3.1	0.1
4.530	8.7	1.9	17	3.1	0.1
5.550	8.2	1.5	12	1.8	0.1
6.350	12.9	2.0	26	7.1	0.1
3.810	12.9	3.4	43	7.1	0.2
3.180	12.9	4.1	52	7.1	0.3
9.060	13.1	1.4	19	7.1	0.1
6.040	13.1	2.2	28	7.1	0.2
4.530	13.1	2.9	38	7.1	0.2
3.630	13.1	3.6	47	7.1	0.2
3.020	13.1	4.3	57	7.1	0.3
4.530	17.4	3.8	67	12.6	0.4
3.020	17.4	5.8	100	12.6	0.5
2.270	17.4	7.7	134	12.6	0.7
1.510	17.4	11.5	201	12.6	1.0
3.560	20.8	5.8	121	19.6	0.6
1.890	20.7	11.0	227	17.7	1.2
3.080	24.1	7.8	188	28.3	1.0
1.810	21.8	12.0	262	19.6	1.4
2.050	24.1	11.7	283	28.3	1.5
2.270	26.1	11.5	301	28.3	1.6
2.400	29.9	12.5	372	43.0	1.9
4.510	31.6	7.0	222	51.5	1.2

Note : 1) Core loss

- Unit : Watt max.
- Measuring conditions
- PL-7, PL-11 : 100 kHz, 200 mT, at 100°C
- PL-9 : 100 kHz, 200 mT, at 80°C

2) AL value

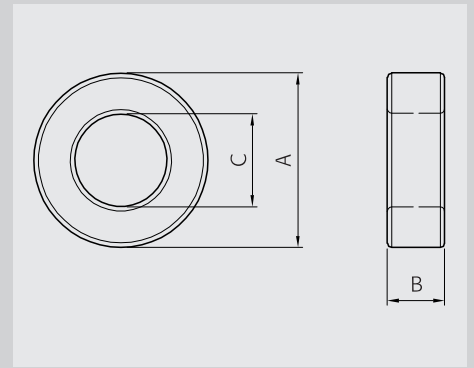
- Unit : nH/N²
- Measuring conditions : 1 kHz, 0.1 V, 10Ts, 23°C
- Tolerance: ±25% (SM-100, SM-150 : ±30%)

3) Coating

- Toroid cores can be coated with epoxy or parylene.
- Isolation voltage : epoxy - DC 1000 V min., parylene - DC 750 V min.

Part No.	Electrical Characteristics											Core loss		
	AL value											PL-7	PL-9	PL-11
	PL-7	PL-9	PL-11	SM-8T	SM-23T	SM-43T	SM-50	SM-60	SM-70S	SM-100	SM-150	PL-7	PL-9	PL-11
OR2.5×1.3-1.3H	420	530	440	140	410	760	880	1060	1320	1760	2600	0.002	0.002	0.002
OR3.2×2-1.6H	670	830	690	220	640	1200	1400	1700	2100	2800	4200	0.01	0.01	0.01
OR3.4×1.78-1.78H	560	700	580	190	540	1000	1200	1400	1700	2300	3500	0.01	0.01	0.01
OR4×1-2H	330	420	350	110	320	600	690	830	1000	1400	2100	0.004	0.004	0.004
OR4×1.3-2.3H	340	430	360	110	330	620	720	860	1100	1400	2200	0.00	0.00	0.00
OR4×1.6-2H	530	670	550	180	510	950	1110	1300	1700	2200	3300	0.01	0.01	0.01
OR4×2-2H	670	830	690	220	640	1200	1400	1700	2100	2800	4200	0.01	0.01	0.01
OR5×0.95-1.52H	540	680	570	180	520	970	1130	1360	1700	2300	3400	0.01	0.01	0.01
OR5.8×1.5-3H	470	590	490	160	460	850	990	1190	1500	2000	3000	0.01	0.01	0.01
OR5.8×2.5-3H	790	990	820	260	760	1400	1600	2000	2500	3300	4900	0.02	0.02	0.02
OR5.8×3-3H	950	1190	990	320	910	1700	2000	2400	3000	4000	5900	0.03	0.02	0.02
OR6×1-3H	330	420	350	110	320	600	690	830	1000	1400	2100	0.01	0.01	0.01
OR6×1.5-3H	500	620	520	170	480	890	1040	1250	1600	2100	3100	0.01	0.01	0.01
OR6×2-3H	670	830	690	220	640	1200	1400	1700	2100	2800	4200	0.02	0.02	0.02
OR6×2.5-3H	830	1040	870	280	800	1500	1700	2100	2600	3500	5200	0.02	0.02	0.02
OR6×3-3H	1000	1250	1040	330	960	1800	2100	2500	3100	4200	6200	0.03	0.03	0.03
OR8×2-4H	670	830	690	220	640	1200	1400	1700	2100	2800	4200	0.03	0.03	0.03
OR8×3-4H	1000	1250	1040	330	960	1800	2100	2500	3100	4200	6200	0.05	0.05	0.05
OR8×4-4H	1300	1700	1400	440	1300	2400	2800	3300	4200	5500	8300	0.07	0.06	0.06
OR8×6-4H	2000	2500	2100	670	1900	3600	4200	5000	6200	8300	12500	0.10	0.09	0.09
OR9×3-5H	800	1100	900	280	800	1500	1800	2100	2600	3500	5300	0.06	0.06	0.06
OR9.5×4.77-4.75H	1600	2000	1700	530	1500	2900	3300	4000	5000	6700	10000	0.11	0.10	0.10
OR10×4-6H	1000	1200	1000	330	900	1800	2000	2400	3100	4100	6100	0.09	0.09	0.09
OR10×5-5H	1700	2100	1700	560	1600	3000	3500	4200	5200	6900	10400	0.13	0.12	0.12
OR10×6-6H	1500	1800	1500	490	1400	2600	3100	3700	4600	6100	9200	0.14	0.13	0.13
OR12×4-6H	1300	1700	1400	440	1300	2400	2800	3300	4200	5500	8300	0.15	0.14	0.14
OR12.5×5-7.4H	1300	1600	1300	420	1200	2300	2600	3100	3900	5200		0.19	0.17	0.17
OR12.7×3.1-8.1H	700	800	700	220	600	1200	1400	1700	2100	2800		0.11	0.10	0.10

OR CORES



Dimensions in mm

Part No.	A	B	C
OR12.7×4.7-7.1H	12.70 ±0.30	4.70 ±0.25	7.10 ±0.30
OR12.7×6-8.1H	12.70 ±0.25	6.00 ±0.25	8.10 ±0.25
OR12.7×6.35-7.92H	12.70 ±0.25	6.35 ±0.25	7.92 ±0.20
OR12.7×6.35-8.1H	12.70 ±0.25	6.35 ±0.25	8.10 ±0.25
OR13×5-8H	13.00 ±0.50	5.00 ±0.30	8.00 $^{+0}_{-1.00}$
OR13×5.4-7H	12.90 ±0.25	5.40 ±0.20	7.00 ±0.20
OR13×6-8H	13.00 ±0.50	6.00 ±0.30	8.00 $^{+0}_{-1.00}$
OR13×6.5-8H	13.00 ±0.50	6.50 ±0.30	8.00 $^{+0}_{-1.00}$
OR14×4-8H	14.00 ±0.20	4.00 ±0.20	8.00 ±0.20
OR14×4-7.5H	14.00 ±0.30	4.00 ±0.30	7.50 ±0.30
OR14×5-7.5H	14.00 ±0.30	5.00 ±0.30	7.50 ±0.30
OR14×5-9H	14.00 ±0.30	5.00 ±0.30	9.00 ±0.30
OR14×6.5-7.5H	14.00 ±0.30	6.50 ±0.30	7.50 ±0.30
OR14×7-7.5H	14.00 ±0.30	7.00 ±0.30	7.50 ±0.30
OR14×7-8H	14.00 ±0.20	7.00 ±0.20	8.00 ±0.20
OR16×4-9.6H	16.00 ±0.30	4.00 ±0.30	9.60 ±0.30
OR16×4-12H	16.00 ±0.30	4.00 ±0.30	12.00 ±0.30
OR16×4.3-12H	16.00 ±0.30	4.30 ±0.30	12.00 ±0.30
OR16×5-9.6H	16.00 ±0.30	5.00 ±0.30	9.60 ±0.30
OR16×5-12H	16.00 ±0.30	5.00 ±0.30	12.00 ±0.30
OR16×6.3-9.6H	16.00 ±0.30	6.30 ±0.30	9.60 ±0.30
OR16×8-8H	16.00 ±0.50	8.00 ±0.40	8.00 ±0.40
OR16×8-12H	16.00 ±0.30	8.00 ±0.30	12.00 ±0.30
OR16×8-12HT	15.80 ±0.30	8.00 ±0.30	11.90 ±0.30
OR16×11-8H	16.00 ±0.50	11.00 ±0.40	8.00 ±0.40
OR19×5-10H	19.00 ±0.30	5.00 ±0.30	9.80 ±0.40
OR19×6-13H	19.00 ±0.30	6.00 ±0.20	13.00 ±0.30
OR19×10-10H	19.00 ±0.40	10.30 ±0.30	9.80 ±0.40

Core Set Parameters

C1(mm ⁻¹)	Le(mm)	Ae(mm ²)	Ve(mm ³)	Aw(mm ²)	W(g)
2.300	29.4	12.8	376	39.6	2.0
2.330	31.6	13.6	429	51.5	2.2
2.100	31.2	14.9	465	49.2	2.4
2.200	31.6	14.4	454	51.5	2.4
2.590	31.7	12.3	389	50.2	2.0
1.900	29.4	15.4	454	38.5	2.4
2.160	31.7	14.7	467	50.2	2.4
1.990	31.7	15.9	506	50.2	2.6
2.810	32.8	11.7	384	50.2	2.0
2.520	31.7	12.6	399	44.2	2.1
2.010	31.7	15.7	498	44.2	2.6
2.840	35.0	12.3	430	63.6	2.2
1.550	31.7	20.5	648	44.2	3.4
1.440	31.7	22.0	698	44.2	3.6
1.600	32.8	20.5	672	50.2	3.5
3.080	38.5	12.5	482	72.3	2.5
5.460	43.4	8.0	345	113.0	1.8
5.080	43.4	8.5	371	113.0	1.9
2.460	38.5	15.7	603	72.3	3.1
4.370	43.4	9.9	431	113.0	2.2
1.950	38.5	19.7	760	72.3	4.0
1.130	34.8	30.7	1071	50.2	5.9
2.730	43.4	15.9	689	113.0	3.6
2.790	42.9	15.4	661	111.2	3.4
0.820	34.8	42.3	1472	50.2	7.6
1.900	42.1	22.2	934	75.4	4.9
2.760	49.1	17.8	873	132.7	4.5
0.920	42.1	45.7	1923	75.4	10

Note : 1) Core loss

- Unit : Watt max.
- Measuring conditions
- PL-7, PL-11 : 100 kHz, 200 mT, at 100°C
- PL-9 : 100 kHz, 200 mT, at 80°C

2) AL value

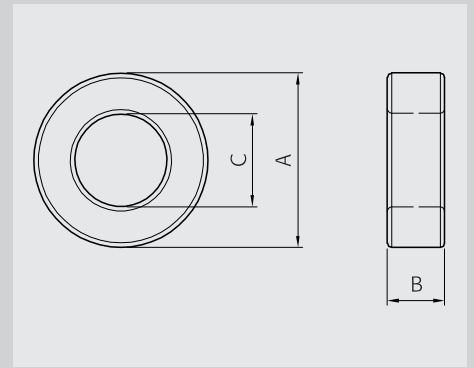
- Unit : nH/N²
- Measuring conditions : 1 kHz, 0.1 V, 10Ts, 23°C
- Tolerance: ±25% (SM-100 : ±30%)

3) Coating

- Toroid cores can be coated with epoxy or parylene.
- Isolation voltage : epoxy - DC 1000 V min., parylene - DC 750 V min.

Part No.	Electrical Characteristics										Core loss		
	AL value										PL-7	PL-9	PL-11
	PL-7	PL-9	PL-11	SM-8T	SM-23T	SM-43T	SM-50	SM-60	SM-70S	SM-100			
OR12.7×4.7-7.1H	1300	1600	1400	440	1300	2400	2700	3300	4100	5500	0.19	0.17	0.17
OR12.7×6-8.1H	1300	1600	1300	430	1200	2300	2700	3200	4000	5400	0.21	0.19	0.19
OR12.7×6.35-7.92H	1400	1800	1500	480	1400	2600	3000	3600	4500	6000	0.23	0.21	0.21
OR12.7×6.35-8.1H	1400	1700	1400	460	1300	2500	2900	3400	4300	5700	0.23	0.20	0.20
OR13×5-8H	1200	1500	1200	390	1100	2100	2400	2900	3600	4900	0.19	0.18	0.18
OR13×5.4-7H	1600	2000	1700	530	1500	2800	3300	4000	5000	6600	0.23	0.20	0.20
OR13×6-8H	1400	1700	1500	470	1300	2500	2900	3500	4400	5800	0.23	0.21	0.21
OR13×6.5-8H	1500	1900	1600	510	1500	2700	3200	3800	4700	6300	0.25	0.23	0.23
OR14×4-8H	1100	1300	1100	360	1000	1900	2200	2700	3400	4500	0.19	0.17	0.17
OR14×4-7.5H	1200	1500	1200	400	1100	2100	2500	3000	3700	5000	0.20	0.18	0.18
OR14×5-7.5H	1500	1900	1600	500	1400	2700	3100	3800	4700	6300	0.25	0.22	0.22
OR14×5-9H	1100	1300	1100	350	1000	1900	2200	2700	3300	4400	0.22	0.19	0.19
OR14×6.5-7.5H	1900	2400	2000	650	1900	3500	4100	4900	6100	8100	0.32	0.29	0.29
OR14×7-7.5H	2100	2600	2200	700	2000	3800	4400	5200	6500	8700	0.35	0.31	0.31
OR14×7-8H	1900	2400	2000	630	1800	3400	3900	4700	5900	7900	0.34	0.31	0.31
OR16×4-9.6H	1000	1200	1000	330	900	1800	2000	2400	3100	4100	0.24	0.22	0.22
OR16×4-12H	600	700	600	180	500	1000	1200	1400	1700	2300	0.17	0.16	0.16
OR16×4.3-12H	600	700	600	200	600	1100	1200	1500	1900	2500	0.19	0.17	0.17
OR16×5-9.6H	1200	1500	1300	410	1200	2200	2600	3100	3800	5100	0.30	0.27	0.27
OR16×5-12H	700	900	700	230	700	1200	1400	1700	2200	2900	0.22	0.19	0.19
OR16×6.3-9.6H	1500	1900	1600	520	1500	2800	3200	3900	4800	6400	0.38	0.34	0.34
OR16×8-8H	2700	3300	2800	890	2600	4800	5600	6700	8300	11100	0.55	0.49	0.49
OR16×8-12H	1100	1400	1200	370	1100	2000	2300	2800	3500	4600	0.34	0.31	0.31
OR16×8-12HT	1100	1400	1100	360	1000	1900	2300	2700	3400	4500	0.34	0.30	0.30
OR16×11-8H	3700	4600	3800	1230	3500	6600	7700	9200	11500	15300	0.75	0.68	0.68
OR19×5-10H	1600	2000	1700	530	1500	2800	3300	4000	5000	6600	0.47	0.42	0.42
OR19×6-13H	1100	1400	1100	360	1000	2000	2300	2700	3400	4600	0.44	0.39	0.39
OR19×10-10H	3300	4100	3400	1090	3100	5900	6800	8200	10200	13700	0.96	0.87	0.87

OR CORES



Dimensions in mm

Part No.	A	B	C
OR19×11-13H	19.00 ±0.30	11.00 ±0.20	13.00 ±0.30
OR20×7-10H	20.00 ±0.40	7.00 ±0.30	10.00 ±0.30
OR20×7.25-10H	20.00 ±0.40	7.25 ±0.30	10.00 ±0.30
OR20×8-10H	20.00 ±0.40	8.00 ±0.30	10.00 ±0.30
OR20×10-10H	20.00 ±0.40	10.00 ±0.30	10.00 ±0.30
OR22×8-14H	22.00 ±0.40	8.00 ±0.35	14.00 ±0.35
OR22.1×6.35-13.7H	22.10 ±0.40	6.35 ±0.25	13.70 ±0.30
OR22.1×8-13.7H	22.10 ±0.40	8.00 ±0.25	13.70 ±0.30
OR22.1×11-13.7H	22.10 ±0.40	11.00 ±0.25	13.70 ±0.30
OR22.1×12.7-13.7H	22.10 ±0.40	12.75 ±0.25	13.70 ±0.30
OR25×6-15H	25.00 ±0.30	6.00 ±0.30	15.00 ±0.30
OR25×10-15H	25.00 ±0.30	10.00 ±0.30	15.00 ±0.30
OR25×12-15H	25.00 ±0.30	12.00 ±0.30	15.00 ±0.30
OR25×12.5-15H	25.00 ±0.30	12.00 ±0.30	15.00 ±0.30
OR25×12.7-15H	25.00 ±0.30	12.70 ±0.30	15.00 ±0.30
OR25×13-15H	25.00 ±0.30	13.00 ±0.30	15.00 ±0.30
OR25×15-15H	25.00 ±0.30	15.00 ±0.30	15.00 ±0.30
OR26×15-16H	26.00 ±0.40	15.00 ±0.30	16.00 ±0.30
OR28×13-16H	28.00 ±0.40	13.00 ±0.30	16.00 ±0.40
OR28×16-16H	28.00 ±0.40	16.00 ±0.30	16.00 ±0.40
OR29×7.5-19H	29.00 ±0.75	7.50 ±0.55	19.00 ±0.75
OR29×12.5-19HU	29.00 ±0.50	12.50 ±0.55	19.00 ±0.75
OR29×15-19H	29.00 ±0.50	15.00 ±0.55	19.00 ±0.75
OR29×15-19HU	29.00 ±0.50	15.00 ±0.55	19.00 ±0.75
OR29×15.2-19H	29.00 ±0.75	15.20 ±0.55	19.00 ±0.75
OR29×16-19H	29.00 ±0.75	16.00 ±0.55	19.00 ±0.75
OR31×13-19H	31.00 $\begin{smallmatrix} +0.50 \\ -0.70 \end{smallmatrix}$	13.00 ±0.40	19.00 ±0.50
OR31×17-19H	31.00 $\begin{smallmatrix} +0.50 \\ -0.70 \end{smallmatrix}$	17.00 ±0.40	19.00 ±0.50

Core Set Parameters

C1(mm ⁻¹)	Le(mm)	Ae(mm ²)	Ve(mm ³)	Aw(mm ²)	W(g)
1.510	49.1	32.6	1600	132.7	8.3
1.290	43.6	33.6	1465	78.5	7.6
1.250	43.6	34.8	1517	78.5	7.9
1.130	43.6	38.4	1674	78.5	8.7
0.910	43.6	48.1	2092	78.5	10.9
1.740	54.7	31.5	1720	153.9	8.9
2.070	54.2	26.2	1417	147.3	7.4
1.640	54.2	33.0	1785	147.3	9.3
1.190	54.2	45.3	2454	147.3	13
1.030	54.2	52.5	2845	147.3	15
2.050	60.2	29.4	1767	176.6	9
1.230	60.2	48.9	2944	176.6	15
1.030	60.2	58.7	3533	176.6	18
0.980	60.2	61.2	3681	176.6	19
0.970	60.2	62.1	3739	176.6	19
0.950	60.2	63.6	3828	176.6	20
0.820	60.2	73.4	4417	176.6	23
0.860	63.5	73.5	4666	201.0	24
0.860	65.6	76.0	4988	201.0	26
0.700	65.6	93.5	6139	201.0	32
1.980	73.2	37.0	2704	283.4	14
1.190	73.2	61.6	4507	283.4	22
0.990	73.2	73.9	5409	283.4	28
0.990	73.2	73.9	5409	283.4	28
0.980	73.2	74.9	5481	283.4	29
0.930	73.2	78.8	5769	283.4	30
0.990	75.5	76.5	5772	283.4	30
0.760	75.5	100.0	7550	283.4	39

Note : 1) Core loss

- Unit : Watt max.
- Measuring conditions
- PL-7, PL-11 : 100 kHz, 200 mT, at 100°C
- PL-9 : 100 kHz, 200 mT, at 80°C

2) AL value

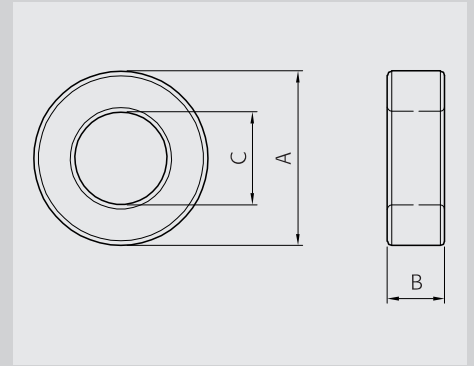
- Unit : nH/N²
- Measuring conditions : 1 kHz, 0.1 V, 10Ts, 23°C
- Tolerance: ±25% (SM-100 : ±30%)

3) Coating

- Toroid cores can be coated with epoxy or parylene.
- Isolation voltage : epoxy - DC 1000 V min., parylene - DC 750 V min.

Part No.	Electrical Characteristics										Core loss		
	AL value										PL-7	PL-9	PL-11
	PL-7	PL-9	PL-11	SM-8T	SM-23T	SM-43T	SM-50	SM-60	SM-70S	SM-100			
OR19×11-13H	2000	2500	2100	670	1900	3600	4200	5000	6200	8300	0.80	0.72	0.72
OR20×7-10H	2300	2900	2400	780	2200	4200	4900	5800	7300	9700	0.73	0.66	0.66
OR20×7.25-10H	2400	3000	2500	800	2300	4300	5000	6000	7500	10100	0.76	0.68	0.68
OR20×8-10H	2700	3300	2800	890	2600	4800	5600	6700	8300	11100	0.84	0.75	0.75
OR20×10-10H	3300	4200	3500	1110	3200	5900	6900	8300	10400	13800	1.05	0.94	0.94
OR22×8-14H	1700	2200	1800	580	1700	3100	3600	4300	5400	7200	0.86	0.77	0.77
OR22.1×6.35-13.7H	1500	1800	1500	490	1400	2600	3000	3600	4600	6100	0.71	0.64	0.64
OR22.1×8-13.7H	1800	2300	1900	610	1800	3300	3800	4600	5700	7700	0.89	0.80	0.80
OR22.1×11-13.7H	2500	3200	2600	850	2400	4500	5300	6300	7900	10600	1.23	1.11	1.11
OR22.1×12.7-13.7H	2900	3700	3100	980	2800	5200	6100	7300	9200	12200	1.42	1.28	1.28
OR25×6-15H	1500	1800	1500	490	1400	2600	3100	3700	4600	6100	0.88	0.80	0.80
OR25×10-15H	2500	3100	2600	820	2400	4400	5100	6100	7700	10200	1.47	1.33	1.33
OR25×12-15H	2900	3700	3100	980	2800	5200	6100	7300	9200	12200	1.77	1.59	1.59
OR25×12.5-15H	3100	3800	3200	1030	2900	5500	6400	7700	9000	12800	1.84	1.66	1.66
OR25×12.7-15H	3100	3900	3200	1040	3000	5600	6500	7800	9700	13000	1.87	1.68	1.68
OR25×13-15H	3200	4000	3300	1060	3100	5700	6600	7900	9900	13200	1.91	1.72	1.72
OR25×15-15H	3700	4600	3800	1230	3500	6600	7700	9200	11500	15300	2.21	1.99	1.99
OR26×15-16H	3500	4400	3700	1170	3400	6300	7300	8800	11000	14600	2.33	2.10	2.10
OR28×13-16H	3500	4400	3700	1170	3300	6300	7300	8800	11000	14600	2.49	2.25	2.25
OR28×16-16H	4300	5400	4500	1440	4100	7700	9000	10800	13500	18000	3.07	2.76	2.76
OR29×7.5-19H	1500	1900	1600	510	1500	2700	3200	3800	4800	6300	1.35	1.22	1.22
OR29×12.5-19HU	2500	3200	2600	850	2400	4500	5300	6300	7900	10600	2.30	2.07	2.07
OR29×15-19H	3000	3800	3200	1020	2900	5500	6300	7600	9500	12700	2.70	2.43	2.43
OR29×15-19HU	3000	3800	3200	1020	2900	5500	6300	7600	9500	12700	2.76	2.49	2.49
OR29×15.2-19H	3100	3900	3200	1030	3000	5500	6400	7700	9600	12800	2.74	2.47	2.47
OR29×16-19H	3200	4100	3400	1080	3100	5800	6800	8100	10100	13500	2.88	2.60	2.60
OR31×13-19H	3000	3800	3200	1020	2900	5500	6300	7600	9500	12700	2.89	2.60	2.60
OR31×17-19H	4000	5000	4100	1320	3800	7100	8300	9900	12400	16500	3.85	3.47	3.47

OR CORES



Dimensions in mm

Part No.	A	B	C
OR31.8×11.5-19H	31.75 ±0.60	11.50 ±0.40	19.00 ±0.50
OR36×10-23H	36.00 ±0.50	10.00 ±0.30	23.00 ±0.50
OR36×10-23HU	36.00 ±0.50	10.00 ±0.30	23.00 ±0.50
OR36×15-23H	36.00 ±0.50	15.00 ±0.30	23.00 ±0.50
OR36×15-23HU	36.00 ±0.50	15.00 ±0.30	23.00 ±0.50
OR38×13-19H	38.00 ±0.60	12.70 ±0.30	19.05 ±0.60
OR48×15-30H	48.00 ±0.80	15.00 ±0.50	30.00 ±0.80
OR48×15.2-30H	48.00 ±0.80	15.20 ±0.50	30.00 ±0.80
OR48×15.9-30H	48.00 ±0.80	15.90 ±0.50	30.00 ±0.80
OR48×16-30H	48.00 ±0.80	16.00 ±0.50	30.00 ±0.80
OR49×10-34HU	49.10 ±0.70	10.00 ±0.35	33.80 ±0.75
OR49×16-34H	49.10 ±0.70	15.90 ±0.30	33.80 ±0.75
OR49×16-34HU	49.10 ±0.70	15.90 ±0.35	33.80 ±0.75
OR60×18-40H	60.00 ±0.80	18.00 ±0.50	40.00 ±0.70
OR60×19.5-40H	60.00 ±0.80	19.50 ±0.50	40.00 ±0.70
OR60×25-40H	60.00 ±0.80	25.00 ±0.50	40.00 ±0.70
OR63×25-38H	63.00 ±1.34	25.00 ±0.50	38.00 ±0.90
OR74×13-39H	73.66 ±1.47	12.70 ±0.60	38.86 ±1.32
OR78×20-51H	78.00 ±1.00	20.00 ±1.00	50.50 ±1.00
OR78×22-51H	78.00 ±1.00	22.00 ±1.00	50.50 ±1.00

Core Set Parameters

C1(mm ⁻¹)	Le(mm)	Ae(mm ²)	Ve(mm ³)	Aw(mm ²)	W(g)
1.060	76.3	71.7	5474	283.4	28
1.400	89.7	63.9	5731	415.3	30
1.400	89.7	63.9	5731	415.3	30
0.930	89.7	95.9	8596	415.3	43
0.940	89.6	95.8	8583	415.3	42
0.720	82.9	115.7	9585	284.9	50
0.890	118.1	132.5	15657	706.5	81
0.880	118.1	134.3	15865	706.5	83
0.840	118.1	140.5	16596	706.5	86
0.840	118.1	141.4	16700	706.5	87
1.680	127.2	75.6	9616	896.8	42
1.060	127.2	120.2	15298	896.8	80
1.060	127.2	120.2	15298	896.8	76
0.860	152.9	177.6	27140	1256.0	141
0.790	152.9	192.4	29402	1256.0	153
0.620	152.9	246.6	37695	1256.0	196
0.490	152.0	306.0	46512	1133.5	240
0.770	165.3	213.6	35298	1185.4	190
0.720	195.6	270.7	52958	2001.9	275
0.660	195.6	297.8	58254	2001.9	303

Note : 1) Core loss

- Unit : Watt max.
- Measuring conditions
 - PL-7, PL-11 : 100 kHz, 200 mT, at 100°C
 - PL-9 : 100 kHz, 200 mT, at 80°C

2) AL value

- Unit : nH/N²
- Measuring conditions : 1 kHz, 0.1 V, 10Ts, 23°C
- Tolerance: ±25% (SM-100 : ±30%)

3) Coating

- Toroid cores can be coated with epoxy or parylene.
- Isolation voltage : epoxy - DC 1000 V min., parylene - DC 750 V min.

Part No.	Electrical Characteristics										Core loss		
	AL value										PL-7	PL-9	PL-11
	PL-7	PL-9	PL-11	SM-8T	SM-23T	SM-43T	SM-50	SM-60	SM-70S	SM-100			
OR31.8×11.5-19H	2800	3600	3000	950	2700	5100	5900	7100	8900	11900	2.74	2.46	2.46
OR36×10-23H	2200	2700	2200	720	2100	3900	4500	5400	6700	9000	2.87	2.58	2.58
OR36×10-23HU	2200	2700	2200	720	2100	3900	4500	5400	6700	9000	2.92	2.64	2.64
OR36×15-23H	3200	4100	3400	1080	3100	5800	6800	8100	10100	13500	4.30	3.87	3.87
OR36×15-23HU	3200	4000	3300	1070	3100	5800	6700	8000	10000	13400	4.38	3.95	3.95
OR38×13-19H	4200	5200	4400	1400	4000	7500	8700	10500	13100	17500	4.79	4.31	4.31
OR48×15-30H	3400	4200	3500	1130	3200	6100	7100	8500	10600	14100	7.83	7.05	7.05
OR48×15.2-30H	3400	4300	3600	1140	3300	6100	7100	8600	10700	14300	7.93	7.14	7.14
OR48×15.9-30H	3600	4500	3700	1200	3400	6400	7500	9000	11200	15000	8.30	7.47	7.47
OR48×16-30H	3600	4500	3700	1200	3400	6400	7500	9000	11200	15000	8.35	7.52	7.52
OR49×10-34HU	1800	2200	1900	600	1700	3200	3700	4500	5600	7500	4.90	4.42	4.42
OR49×16-34H	2800	3600	3000	950	2700	5100	5900	7100	8900	11900	7.65	6.88	6.88
OR49×16-34HU	2800	3600	3000	950	2700	5100	5900	7100	8900	11900	7.80	7.04	7.04
OR60×18-40H	3500	4400	3700	1170	3400	6300	7300	8800	11000	14600	13.57	12.21	12.21
OR60×19.5-40H	3800	4800	4000	1270	3700	6800	8000	9500	11900	15900	14.70	13.23	13.23
OR60×25-40H	4900	6100	5100	1620	4700	8700	10100	12200	15200	20300	18.85	16.96	16.96
OR63×25-38H	6200	7700	6400	2050	5900	11000	12800	15400	19200	25700	23.72	21.40	21.40
OR74×13-39H	3900	4900	4100	1310	3800	7000	8200	9800	12200	16300	18.00	16.24	16.24
OR78×20-51H	4200	5200	4400	1400	4000	7500	8700	10500	13100	17500	26.48	23.83	23.83
OR78×22-51H	4600	5700	4800	1520	4400	8200	9500	11400	14300	19000	29.13	26.21	26.21