

FINEMET™
EMC Components



FT-3KM F series

Common mode choke cores for low audible noise

FT-3KM F series cores for low audible noise type common mode chokes are made from a nanocrystalline soft magnetic material called FINEMET™ FT-3M. FT-3M has near zero magnetostriction and high permeability, which allows significant reduction of audible noise emission and excellent performance in RF noise suppression.



Materials Mag!c
Hitachi Metals

1. Features

1. FINEMET FT-3 has lower magnetostriction than FT-1 and as a result has less audible noise emission.
2. FINEMET FT-3 has excellent audible and RF noise suppression performance due to its high impedance relative permeability, when compared to Mn-Zn and Ni-Zn ferrite cores at frequency range of 10kHz to 100MHz.
3. FINEMET FT-3 has stable temperature characteristics for relative permeability μ_r (less than $\pm 10\%$ at temperature range of -40°C to 130°C) and its aging effects are very small when compared to Co-based amorphous metal.

2. Major applications

Inverters, applications using inverters (elevator, liquid pump, air conditioner, robot, machine tool, welding equipment, etc.), AC servo, switch mode power supply for networking, medical equipment, UPS, etc.

3. Example of noise level chart

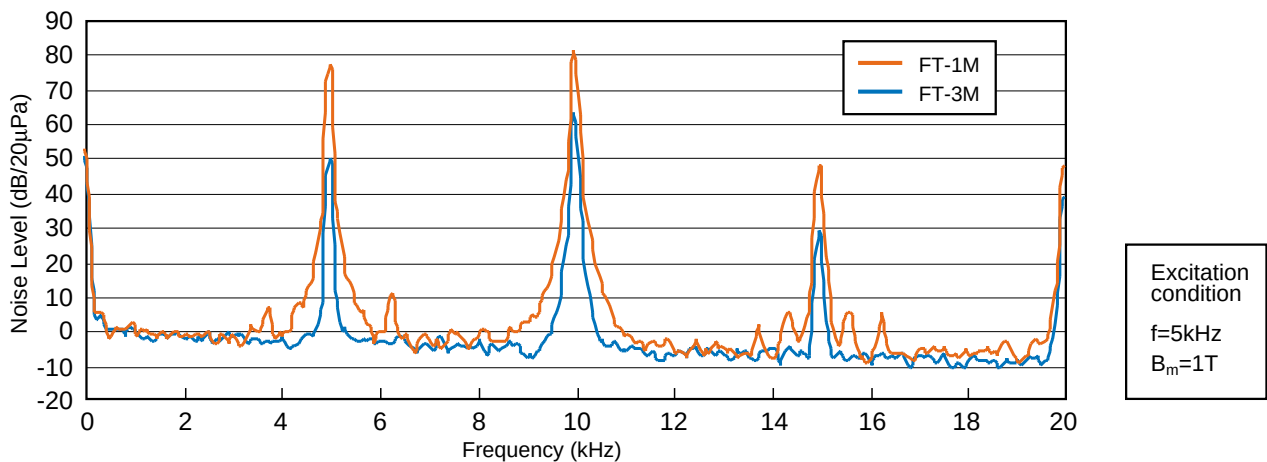


Fig. 1 Noise level at audio frequency drive

4. Frequency dependence of impedance relative permeability μ_{rz}

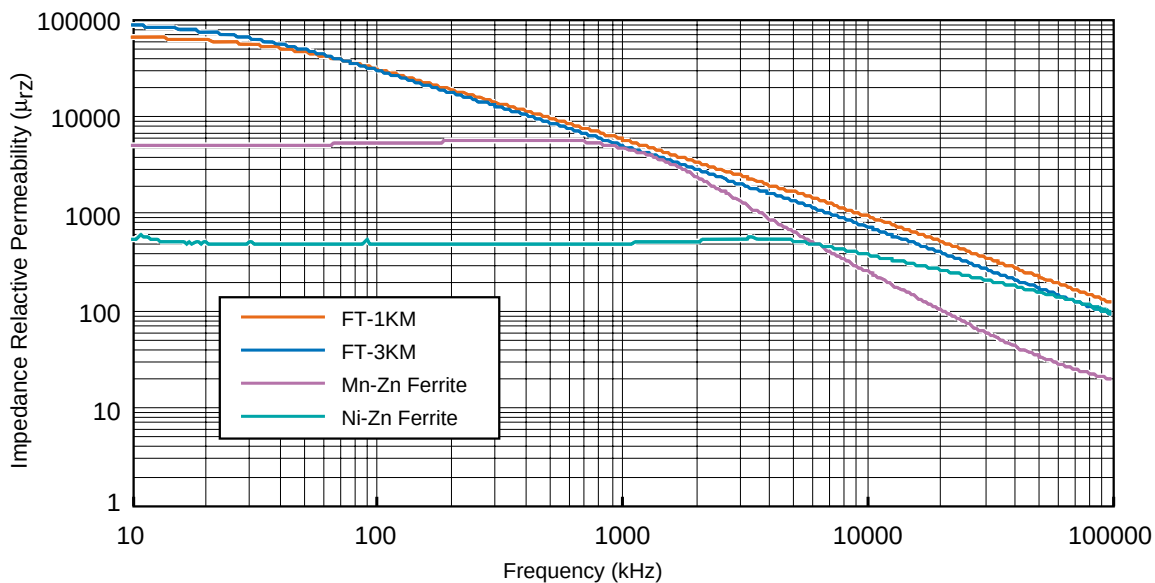


Fig. 2 permeability μ_{rz}

5. Standard specifications

Table 1 P/N and specifications (for toroidal type)

Product code	P/N	Finished dimentions (mm)			A _e (mm ²) TYP.	l _e (mm) TYP.	Weight (g) TYP.	AL Value (μH/N ²)	
		A	B	C				10kHz	100kHz
F1AH0047	FT-3KM F2515D	28.0 ±0.5	16.8 ±0.7	12.8 ±0.5	46.9	62.8	25	42.0 ~ 100	16.9 ±30%
F1AH0048	FT-3KM F3320E	35.8 ±0.5	17.5 ±0.7	17.3 ±0.5	73.1	83.3	49	49.7 ~ 120	19.9 ±30%
F1AH0049	FT-3KM F3724E	40.0±0.5	17.6 ±0.7	21.1 ±0.5	73.1	95.8	59	43.0 ~ 100	17.3 ±30%
F1AH0050	FT-3KM F4424G	46.5 ±0.6	22.8 ±0.6	21.5 ±0.5	142.5	106.8	123	75.4 ~ 180	30.2 ±30%
F1AH0018	FT-3KM F4535G	49.0 ±0.5	25.0 ±0.7	31.0 ±0.5	75.0	125.7	89	34.0 ~ 80	13.5 ±30%
F1AH0051	FT-3KM F4627H	50.0 ±0.7	28.2 ±1.0	23.4 ±0.5	178.1	114.7	168	89.2 ~ 210	35.1 ±30%
F1AH0019	FT-3KM F6045G	64.0 ±0.7	25.0 ±1.0	41.0 ±0.7	112.5	164.9	162	39.0 ~ 90	15.4 ±30%
F1AH0020	FT-3KM F7555G	79.0 ±0.7	25.0 ±0.7	51.0 ±0.7	150.0	204.2	267	42.0 ~ 100	16.6 ±30%
F1AH0052	FT-3KM F10080G	104.0 ±0.7	25.0 ±0.7	76.0 ±0.7	138.8	285.1	336	30.0 ~ 65	12.0 ±30%
F1AH0023	FT-3KM F140100	144.0 ±1.0	35.0 ±1.0	96.0 ±0.7	427.5	380.1	1335	63.0 ~ 150	24.8 ±30%
F1AH0024	FT-3KM F200160	204.0 ±1.0	35.0 ±1.0	156.0 ±1.0	427.5	568.6	1875	42.0 ~ 100	15.1 +50%, -30%

Table 2 P/N and specifications (base combined & base plate type)

Product code	P/N	Finished dimentions (mm)								
		A MAX.	B MAX.	C MAX.	D ±0.5	E ±0.3	F ±0.5	G ±0.5	H ±0.5	K MIN.
F1AH0026	FT-3KM F6045GB	95.0	26.0	78.0	80.0	12.5	72.0	50.0	7.0	39.5
F1AH0027	FT-3KM F7555GB	121.0	30.0	100.0	100.0	—	—	—	—	50.0
F1AH0053	FT-3KM F10080GB	161.0	32.0	122.0	140.0	—	—	—	—	75.0
F1AH0029	FT-3KM F11080GB	181.0	26.0	131.0	150.0	12.5	124.0	100.0	20.0	74.0
F1AH0031	FT-3KM F140100PB	181.0	42.0	162.0	160.0	—	—	—	—	95.0
F1AH0032	FT-3KM F200160PB	241.0	42.0	217.0	220.0	—	—	—	—	155.0

		A _e (mm ²) TYP.	l _e (mm) TYP.	Weight (g) TYP.	Applied screw		AL value (μH/N ²)		Shape
					I	J	10kHz	100kHz	
F1AH0026	FT-3KM F6045GB	112.5	164.9	193	M4	M5	39.0 ~ 90	15.4 ±30%	Fig. 4
F1AH0027	FT-3KM F7555GB	150.0	204.2	377	—	M6	42.0 ~ 100	16.6 ±30%	Fig. 5
F1AH0053	FT-3KM F10080GB	138.8	285.1	516	—	M6	30.0 ~ 65	12.0 ±30%	Fig. 5
F1AH0029	FT-3KM F11080GB	213.8	300.8	613	M5	M6	40.2 ~ 95	16.1 ±30%	Fig. 4
F1AH0031	FT-3KM F140100PB	427.5	380.1	1595	—	M6	63.0 ~ 150	24.8 ±30%	Fig. 5
F1AH0032	FT-3KM F200160PB	427.5	568.6	2235	—	M6	42.0 ~ 100	15.1 +50%, -30%	Fig. 5

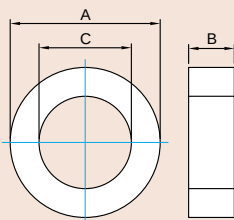


Fig.3 Toroidal type

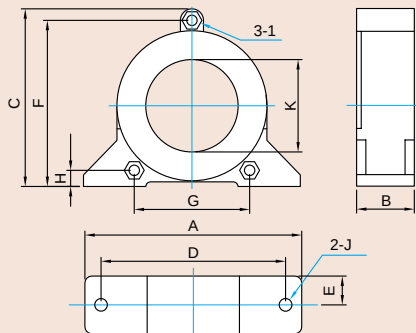


Fig.4 Base combined type

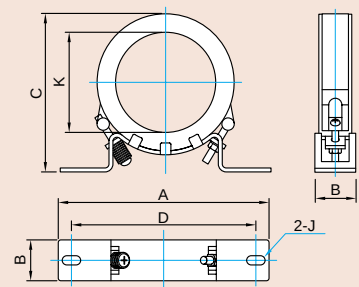


Fig.5 Base plate type

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