Materials - Manganese Zinc

Parameter	Symbol	Standard Conditions of Test	Unit	F58	P11	P12	F5	F5A	F5C	F44	F44A
Initial Permeability (nominal)	μ_i	B<0.1mT 10kHz 25°C	-	750 ±20%	2250 ±20%	2000 ±20%	2000 ±20%	2500 ±20%	3000 ±20%	1900 ±20%	2400 ±20%
Saturation Flux Density (typical)	B_{sat}	H=796 A/m = 10 Oe Static 25°C	mT	450	-	-	470	470	460	500	510
		100°C		-	-	-	350	350	330	400	-
Remanent Flux Density (typical)	B_r	H→0 (from near Saturation) 10kHz 25°C	mT	94	70	35	200	150	150	270	140
Coercivity (typical)	H_c	B→0 (from near Saturation) 10kHz 25°C	A/m	47	18	7	21	15	18	27	10
Loss Factor (maximum)	$\tan\delta/\mu_i$	B<0.1mT 25°C 10kHz	10^{-6}	-	1.5	0.8	-	-	-	-	-
		100kHz		<12	5	2.5	-	-	-	-	-
		200kHz		-	-	-	-	-	-	-	-
		500kHz		<20	-	-	-	-	-	-	-
		1MHz		-	-	-	-	-	-	-	-
		2MHz		-	-	-	-	-	-	-	-
		5MHz		-	-	-	-	-	-	-	-
		10MHz		-	-	-	-	-	-	-	-
Temperature Factor	α_F	B<0.1mT 10kHz +25°C to 55°C	10^{-6}/°C	0.5 - 2.3	0.5 - 1.5	0.4 – 1.0	-	-	-	-	-
Curie Temperature (minimum)	θ_C	B<0.1mT 10kHz	°C	200	150	150	200	200	180	230	210
Dis-accomodation Factor (max)	D_F	B<0.1mT 10kHz 50°C 10 to 100 mins	10^{-6}	<12	4	3	-	-	-	-	-
Hysteresis Material Constant (max)	η_B	B from 1.5 to 3mT 10kHz 25°C	10^{-6}/mT	<1.8	0.8	0.45	-	-	-	-	-
Resistivity (typical)	ρ	1 V/cm 25°C	ohm-cm	100	100	100	100	100	100	100	100
Amplitude Permeability (minimum)	μ_a	400mT 25°C	-	-	-	-	2400	2400	2400	2500	2500
		320mT 100°C		-	-	-	1825	1825	-	-	-
		340mT 100°C		-	-	-	-	-	-	1900	-
Total Power Loss Density (maximum)	P_v	200mT ; 16kHz 25°C	mW/cm³	-	-	-	120	120	120	-	-
		200mT ; 16kHz 60°C		-	-	-	110	110	120	-	-
		200mT ; 16kHz 100°C		-	-	-	110	110	110	-	-
		200mT ; 25kHz 25°C		-	-	-	-	-	-	200	-
		200mT ; 25kHz 60°C		-	-	-	190	190	190	-	-
		200mT ; 25kHz 100°C		-	-	-	190	190	210	130	-
		200mT ; 100kHz 100°C		-	-	-	-	-	-	750	380
		100mT ; 100kHz 25°C		-	-	-	-	-	-	250	-
		100mT ; 100kHz 100°C		-	-	-	-	-	-	160	80
		50mT ; 400kHz 25°C		-	-	-	-	-	-	-	-
		50mT ; 400kHz 100°C		-	-	-	-	-	-	-	-

F47	F48	F63	F49	F9	F9C/F82	F10	FT7	F39	FTA
1800 ±20%	2300 ±20%	3000 ± 25%	1000 ±20%	4400 ±20%	5000 ±20%	6000 ±20%	7500 ±20%	10000 ±30%	10000 ±30%
470 350	480 380	500 400	580 460	380 -	460 -	380 -	420 -	380 -	420 -
130	150	-	230	180	170	100	130	200	180
24	20	- -	20	13	13	11	10	16	8
- - - - - - - -	- - - - - - - -	- - - - - - - -	- 8 - - - - - -	- 20 - - - - - -	- 20 - - - - - -	- 20 - - - - - -	6 50 - - - - - -	- - - - - - - -	6 50 - - - - - -
-	-	-	-	0 to 2	-1 to 2	-1 to 2	-	-	-1 to 0
200	220	230	290	130	160	130	150	120	150
-	-	-	-	-	-	-	-	-	-
-	-	-	-	1.1	-	-	-	-	-
100	100	100	100	50	50	50	10	100	10
2000 2500 -	2500 2500 -	2500 2500 -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
- - - 120 - 100 - 110 80 150 150	- - - - - - 380 - 70 - -	- - - 150 - 120 340 - 120 - 170	- - - - 200 - - - - - -	- - - - - - - - - - -	- - - - - - - - - - -	- - - - - - - - - - -	- - - - - - - - - -	- - - - - - - - - - -	- - - - - - - - - - -

Materials - Nickel Zinc

Parameter	Symbol	Standard Conditions of Test	Unit	FF1	F53	F19	F19A	F52	F13	FA1	F24	F14	F16	F01[P]	F25[P]	F21[P]	F28[P]	F31[P]	F29[P]
Initial Permeability (nominal)	μ_i	B<0.1mT 10kHz 25°C	-	1500 ±20%	1050 ±20%	1000 ±20%	900 ±20%	850 ±20%	**650 ±20%**	370 ±20%	350 ±20%	220 ±20%	125 ±20%	120 ±20%	50 ±20%	40 ±20%	30 ±20%	15 ±20%	12 ±20%
Saturation Flux Density (typical)	B_{sat}	H=796 A/m = 10 Oe 25°C Static	mT	230	210	260	355	210	**320**	310	350	350	340	280	-	240	-	220	-
Remanent Flux Density (typical)	B_r	H→0 (from near Saturation) 10kHz 25°C	mT	175	130	165	190	130	**141**	217	200	270	165	190	-	155	-	135	-
Coercivity (typical)	H_c	B→0 (from near Saturation) 10kHz 25°C	A/m	30	50	53	20	50	**59**	60	65	172	200	30	-	1200	-	1600	-
Loss Factor (maximum)	$\tan\delta/\mu_i$	B<0.1mT 25°C 100kHz	10^{-6}	140	26	-	-	26	-	-	-	-	-	-	-	-	-	-	-
		400kHz		-	-	-	-	-	-	65	-	-	-	-	-	-	-	-	-
		500kHz		-	-	130	100	-	**65**	-	-	40	-	-	-	-	-	-	-
		1MHz		-	-	350	200	-	**130**	-	-	42	60	-	50	-	-	-	-
		2MHz		-	-	-	-	-	-	-	-	50	-	45	50	50	-	-	-
		3MHz		-	-	-	-	-	-	-	-	-	-	-	55	50	-	-	-
		5MHz		-	-	-	-	-	-	-	-	-	65	-	65	55	-	-	-
		10MHz		-	-	-	-	-	-	-	-	-	100	-	75	65	80	-	100
		15MHz		-	-	-	-	-	-	-	-	-	-	-	100	75	-	-	-
		20MHz		-	-	-	-	-	-	-	-	-	-	-	125	100	-	-	-
		40MHz		-	-	-	-	-	-	-	-	-	-	-	300	125	-	225	-
		100MHz		-	-	-	-	-	-	-	-	-	-	-	-	300	250	-	200
		200MHz		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1000
Temperature Factor	α_F	B<0.1mT 10kHz +25°C to 55°C	10^{-6}/°C	-	-	3 to 6.5	3 to 6.5	-	**1.5**	-	-	12 to 30	20 to 50	-	10 to 15	-	30	-	50
Curie Temperature (minimum)	θ_C	B<0.1mT 10kHz	°C	80	100	120	160	100	**180**	180	240	270	270	300	450	300	500	400	500
Resistivity (typical)	ρ	1 V/cm 25°C	ohm-cm	10^8	10^6	10^4	10^5	10^6	**3×10^4**	-	10^5	10^5	10^5	10^7	10^5	10^6	10^5	10^4	10^5

[P] Perminvar ferrites undergo irreversible changes to their electrical characteristics if subjected to strong magnetic fields or mechanical shock. The changes include an increase in permeability and loss factor. The increase in loss factor is especially pronounced at high frequency.

Data is derived from measurements on toroidal cores. These values cannot be directly transferred to products of another shape and size. The product –related data can be taken from the relevant product specifications.

Cross Reference List of Ferrite Materials

MMG India	Epcos	Cosmo	DGP	Ferrox Cube	Demeg	Samwha	Steward	Fair-Rite	Iskra
P12	N48	CF140		3H3					26G
P11				3H1		SM50			16G
F9	N30	CF195	HM040,HM045	3E28,3C11	RSK	PL-5, PL-7	34	75	19G
F9C	T65	CF265,CF255	MSQ-5C	3E27			35	75	
F10	T35/T36	CF197,CF275,CF190	HM070,HM060	3E25,3E27	R7K		37		22G,23G
F39	T38	CF199	MH100	3E55,3E5	R10K		40	76	12G
F5	N27	CF196			DMR40		32	77, 73	15G
F5A	N72	CF124		3C81					
F5C	N41	CF101,CF130	MSB-5S						25G
F44	N67	CF138	MSB-7C					78	
F48	N87	CF139,CF297	HP380,HP300,HP450	3C94,3C90		PL-F1			45G,65G
F47	N49		MSB-5F(H)	3F3					55G
F49	N92	CF292		3C92					
F63	N95	CF295		3C95					
F58	M33			3D3					10G
F19	K10,K8,K6			8C11,8C12			28,26	43	1C
F13				4A11					
F14	M11			4B1					2C,3C
F16	K1			4C65				61	3F