Ferrite Materials

			INDUCTORS & POWER TRANSFORMERS					EMI/RFI FILTERS & BROADBAND TRANSFORMERS			LINEAR FILTERS & SENSORS		
MATERIAL			**L**	**R**	**P**	**F**	**T**	**J**	**W**	**M**	**C**	**E**	**V**
Initial Permeability	μ_i		900 ±25%	2,300 ±25%	2,500 ±25%	3,000 ±20%	3,000 ±25%	5,000 ±20%	10,000 ±30%	15,000 ±30%	900 ±25%	2,000 ±25%	2,300 ±25%
Maximum Usable Frequency (50% roll-off)	f	MHz	≤6	≤1.8	≤1.8	≤1.5	≤1.5	≤0.7	≤0.5	≤0.12	≤8	≤3	≤1.5
Relative Loss Factor X 10^{-6} 25°C		tan δ/μ_{iac}						≤15 100 kHz	≤7 10 kHz	≤10 10 kHz	≤10 300 kHz	≤3 100 kHz	≤5 100 kHz
Curie Temperature	T_c	°C	>300	>210	>210	>210	>220	>145	>135	>130	> 200	>160	>170
Flux Density @ 1,194 A/m (15 Oe) 25°C	B_m 10 kHz	G mT	4,200 420	4,700 470	4,700 470	4,700 470	5,300 530	4,300 430	3,900 390	4,700 470	3,800 380	3,600 360	4,400 440
Remanence 25°C	B_r	G mT	1,500 150	1,600 160	1,600 160	1,500 150	1,500 150	1,000 100	800 80	2,700 270	1,500 150	700 70	1,500 150
Power Loss (PL) Sine Wave in mW/cm³ (typical)	25 kHz 200 mT (2,000 G)	@25°C		90	180	60	80						
		@60°C		65	110	55	75						
		@100°C		60	65	90	70						
		@120°C		65	110	125	75						
	100 kHz 100 mT (1,000 G)	@25°C		87	70	70	65						
		@60°C		64	50	65	57						
		@100°C		58	65	110	55						
		@120°C		64	45	150	58						
	500 kHz 50 mT (500 G)	@25°C	290										
		@60°C	150										
		@100°C	115	175	300		150						
		@120°C	130										
Resistivity	ρ	Ω-m	10	5	5	5	5	0.5	0.1	0.5	2	2	1
Density	δ	g/cm³	4.8	4.8	4.8	4.8	4.8	4.8	4.9	5.0	4.7	4.7	4.8

TYPICAL MECHANICAL PROPERTIES OF FERRITE MATERIALS

MECHANICAL DATA		UNITS	THERMAL DATA		UNITS
Bulk Density	4.85	gm/cm³	Coefficient of Linear Expansion	$10.5x10^{-6}$	$°C^{-1}$
Tensile Strength	$5.0, 7.0x10^3$	$kgf.mm^{-2}$, $lbs.in^{-2}$	Specific Heat (25°)	800	J/kgK
Compressive Strength	$45, 63x10^3$	$kgf.mm^{-2}$, $lbs.in^{-2}$	Thermal Conductivity (25-85°C)	3500-4300	$\mu W.mm^{-1}.°C^{-1}$
Youngs Modulus	$12.4x10^3, 1.8x10^7$	$kgf.mm^{-2}$, $lbs.in^{-2}$		35-43	$mW.cm^{-1}.°C^{-1}$
Hardness (Knoop)	650 Typical			.0083-.010	$cal.s^{-1}.cm^{-1}.°C^{-1}$
Resistivity	10^2-10^3	ohm-cm