

FERROXCUBE 3F37

Material Data Sheet

September 22nd, 2025

Ferroxcube's 3F37 is a high-performance MnZn ferrite material engineered for power conversion applications operating in the frequency range of 300 kHz to 1 MHz. It delivers optimal performance around 500 kHz, making it particularly suitable for next-generation high-efficiency converters and compact power modules. Characterized by its low core losses and remarkable thermal stability, 3F37 maintains a flat loss profile across a wide temperature range. Additionally, its high saturation flux density (Bsat) supports compact designs with elevated power densities, ensuring reliable operation under demanding electrical and thermal conditions.

Ferroxcube 3F37			
SYMBOL	CONDITIONS	VALUE	UNIT
μ_i	25°C; 10kHz; 0.25mT	1600 $\pm$ 20%	
μ_a	100°C; 100kHz; 200mT	$\approx$ 2750	
B	25°C; 10kHz; 1200A/m	$\approx$ 520	mT
	100°C; 10kHz; 1200A/m	$\approx$ 420	
	140°C; 10kHz; 1200A/m	$\approx$ 360	
Pv	100°C; 400kHz; 100mT	$\approx$ 350	kW/m ³
	100°C; 500kHz; 100mT	$\approx$ 550	
Pv	25°C; 500kHz; 50mT	$\approx$ 60	kW/m ³
	100°C; 500kHz; 50mT	$\approx$ 60	
	140°C; 500kHz; 50mT	$\approx$ 95	
Pv	100°C; 800kHz; 50mT	$\approx$ 150	kW/m ³
	100°C; 1000kHz; 50mT	$\approx$ 270	
ρ_{DC}	25°C	$\approx$ 12	Ω m
Tc		$\geq$ 260	°C
Density		$\approx$ 4800	kg/m ³
Measured on T25/15/8			

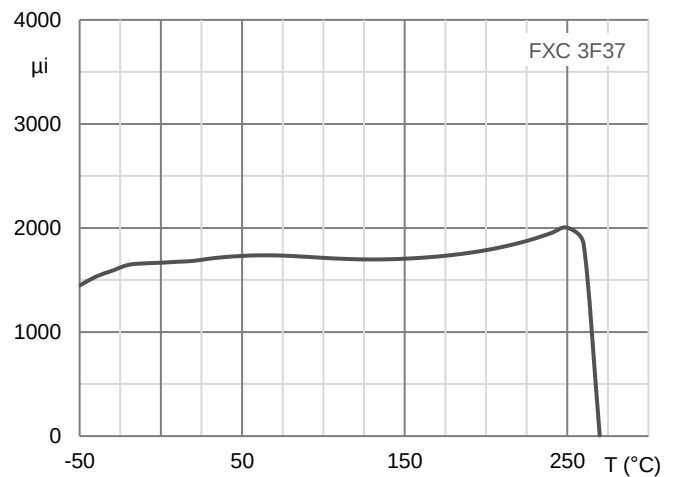


Fig. 1: Initial permeability vs temperature

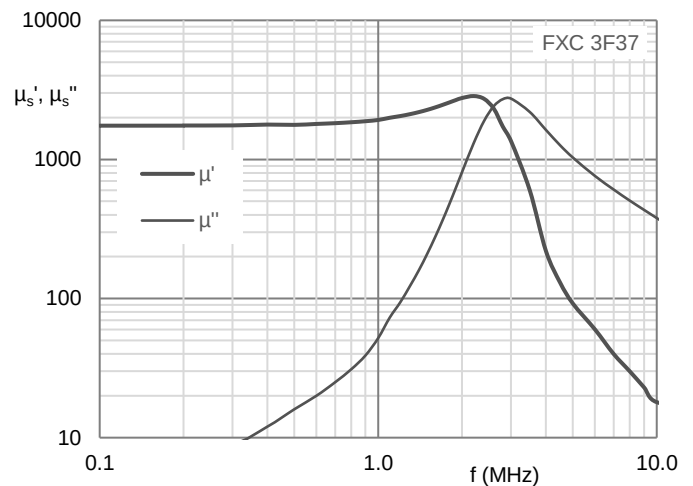


Fig. 2: Complex permeability vs frequency

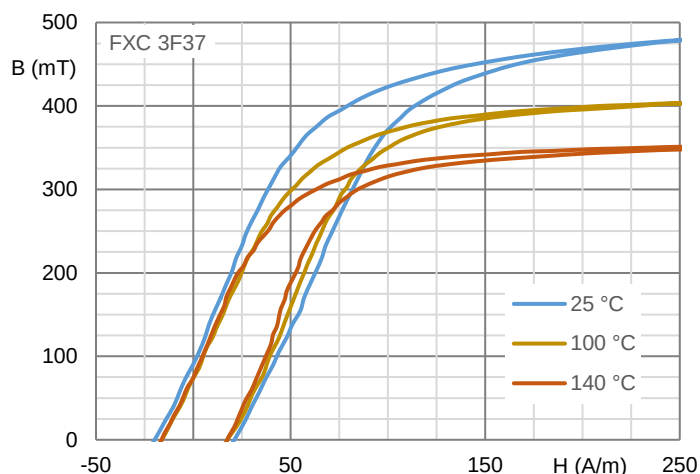


Fig. 3: Typical B-H loops at 10 kHz, 250 A/m

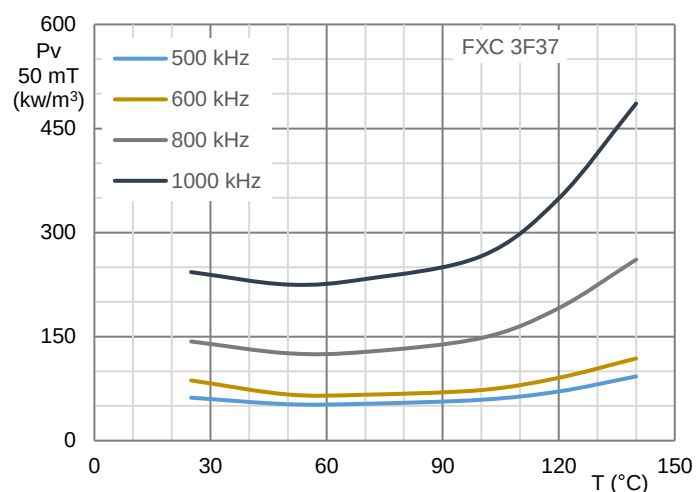


Fig. 4: Specific power loss at 50 mT vs temperature

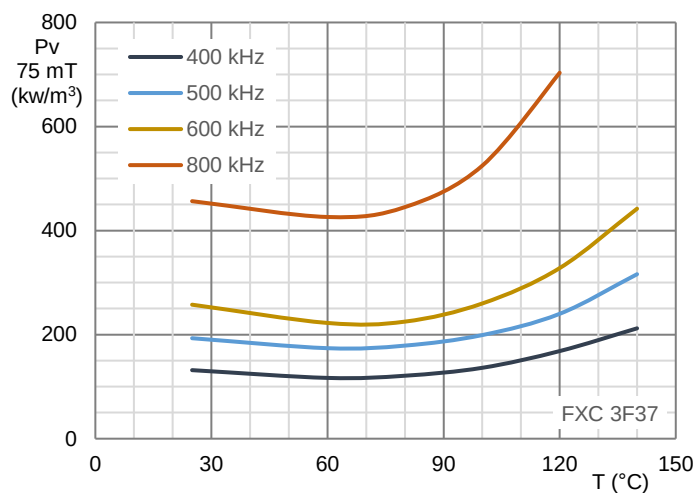


Fig. 5: Specific power loss at 75 mT vs temperature

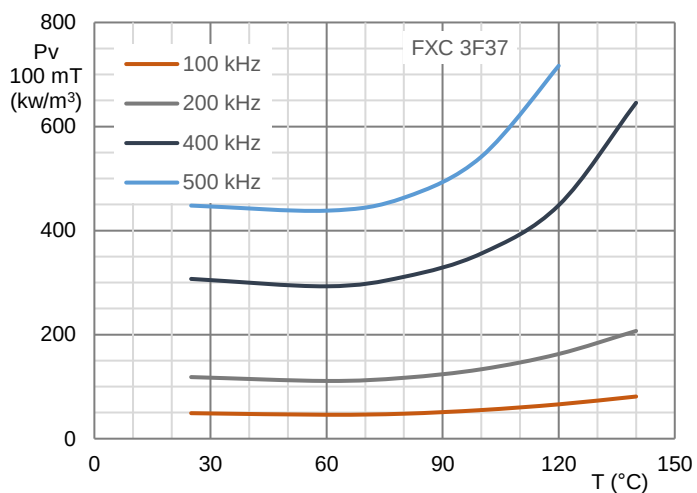


Fig. 6: Specific power loss at 100 mT vs temperature

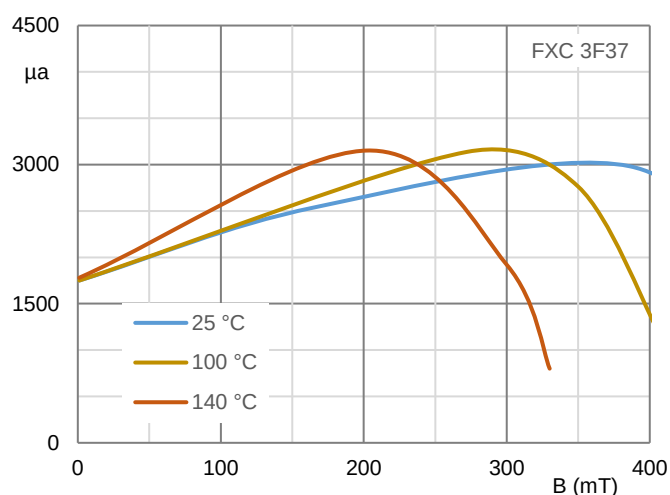


Fig. 7: Amplitude permeability vs peak flux density at 100 kHz

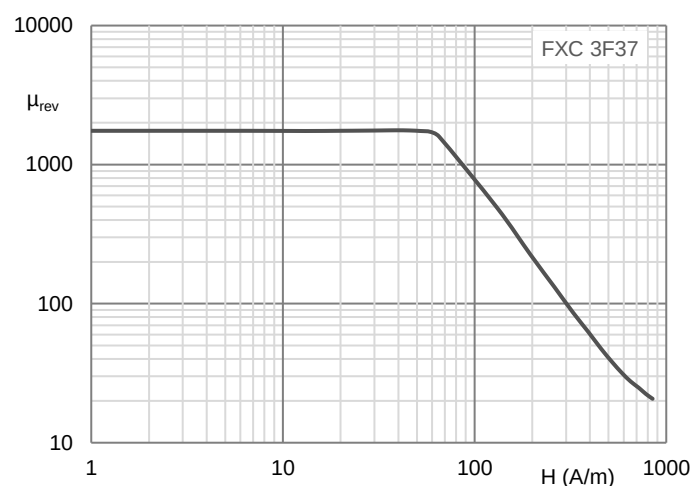
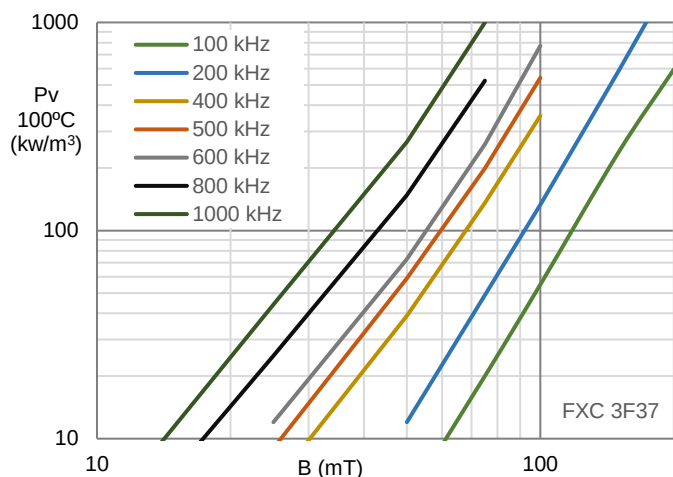
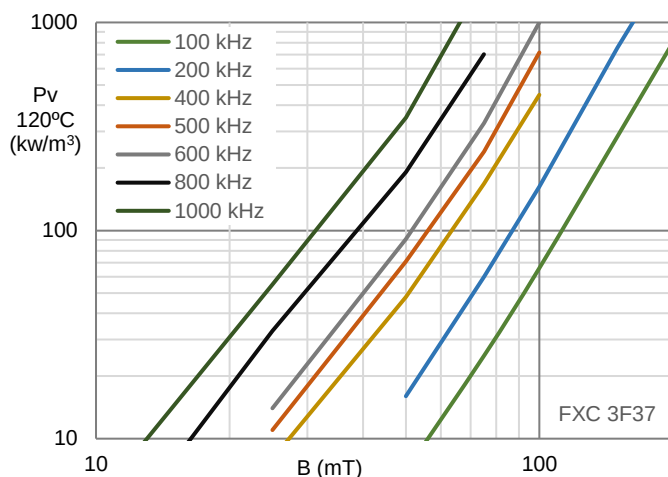


Fig. 8: Reversible permeability vs magnetic field strength

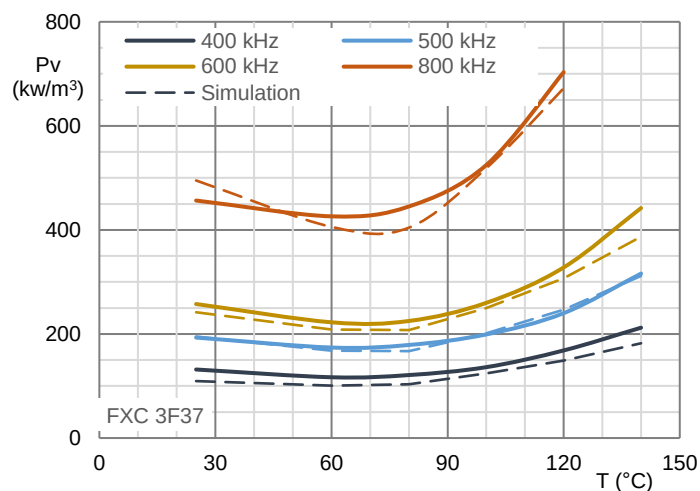
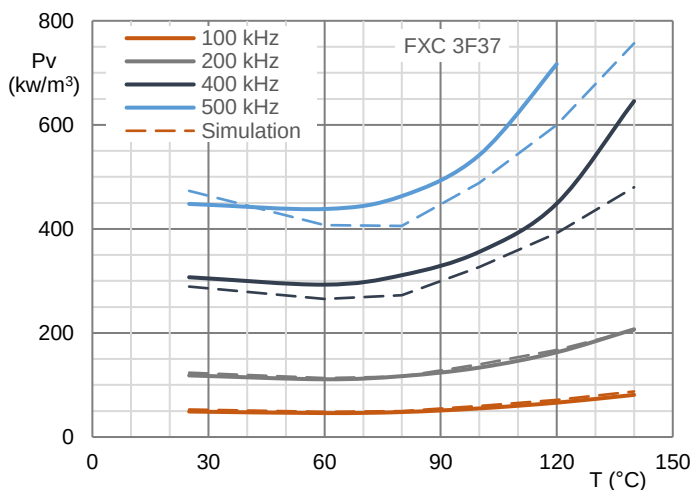
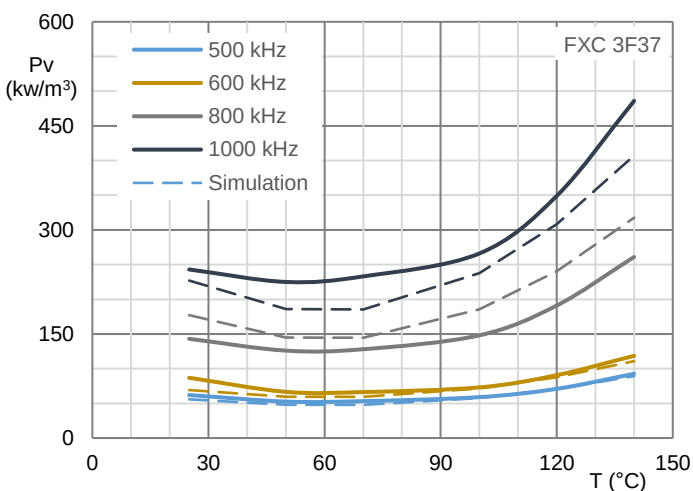
Fig. 9: Specific power loss at **100°C** vs flux densityFig. 10: Specific power loss at **120°C** vs flux density

Ferroxcube 3F37 Steinmetz Coefficients						
Frequency Range (kHz)	Cm	x	y	Ct2	Ct1	Ct
100 to 450	0.1017	1.227	3.369	1.067	9.53E-03	8.86E-05
451 to 700	0.1001	1.188	3.085	1.249	1.41E-02	1.16E-04
701 to 1000	0.0984	1.114	2.537	1.314	1.81E-02	1.50E-04

The Steinmetz coefficients provided are derived from Pv measurements on T25/15/8 samples and are intended for reference only. In practical applications, actual core performance may deviate due to factors such as eddy currents, flux concentration at corners, and mechanical stress introduced during machining or handling. These effects typically result in higher power losses than those indicated by the coefficients.

$$P_v = C_m \times f^x \times B^y \times (C_{t2} \times T^2 - C_{t1} \times T + C_t) \quad [f: \text{Hz}, B: \text{T}, T: ^\circ\text{C}]$$

Table 2: Steinmetz coefficients calculated on T25/15/8

Fig. 12: Steinmetz simulation vs measurement at **75 mT**Fig. 11: Steinmetz simulation vs measurement at **100 mT**Fig. 13: Steinmetz simulation vs measurement at **50 mT**