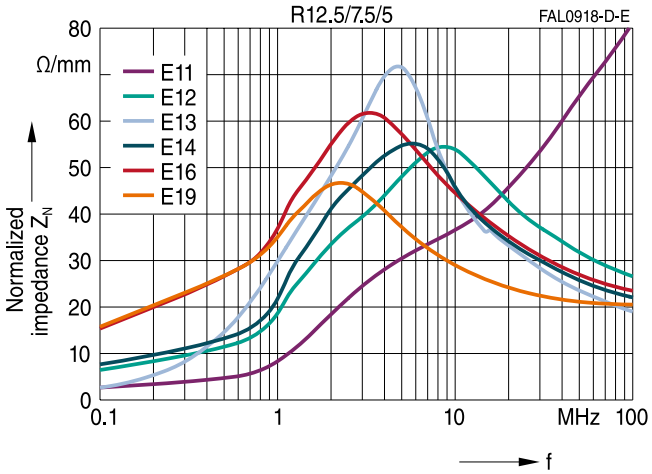
Product Brief 2024

Ferrites – E Series Materials

The new TDK E1x ferrite material series is a cost-efficient answer to increasing market demands for EMI suppression solutions. Based on MnZn ferrite powder, the E1x series is an alternative to NiZn ferrites, nanocrystalline cores, and iron powder cores. The E1x series includes 5 materials that cover EMI market requirements such as high permeability and high impedance for the low-frequency range, high saturation for common and differential mode chokes, as well as cost-efficient solutions for frequencies up to 300 MHz.

The new materials are available in standard core sizes and shapes, coated (epoxy) and uncoated. Oval and split cores for bus bar filtering, low profile E and U cores as well as customized shapes can be provided upon request.

- E11
  Wide frequency filtering ranges from 30 to 300 MHz
- E12
  Flat μ_i over temperature up to 30 MHz
- E13 and E14
  High saturation meets high impedance up to 30 MHz.
- E16 and E19
  High permeability for superior noise suppression in the low frequency range, below 10 MHz for common mode chokes.



ES France - Département Composants & Modules
127 rue de Buzenval BP 26 - 92380 Garches
Tél. 01 47 95 99 89
Fax. 01 47 01 16 22
e-mail : comp@es-france.com
Site Web : www.es-france.com

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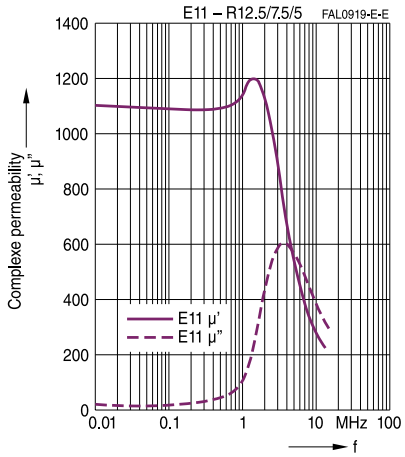
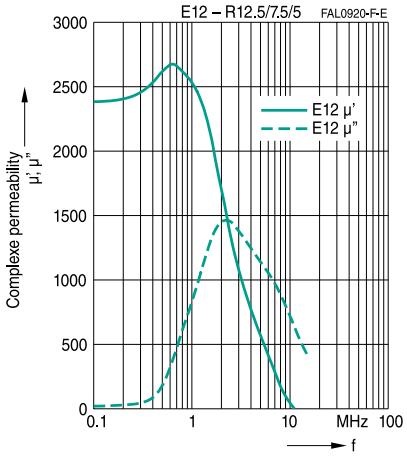
E11



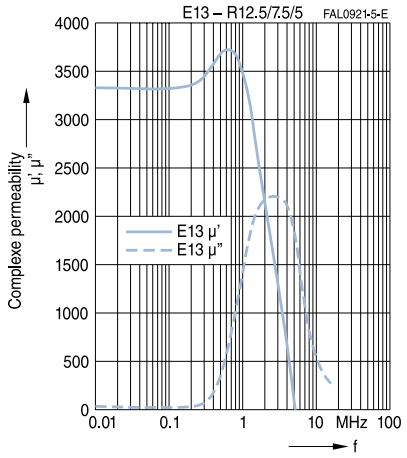
E11 offers a cost-efficient solution for high-frequency EMI suppression over nanocrystalline and NiZn ferrite cores in the frequency range of 30 MHz to 300 MHz. Curie temperatures above +150 °C qualify the material for automotive applications.

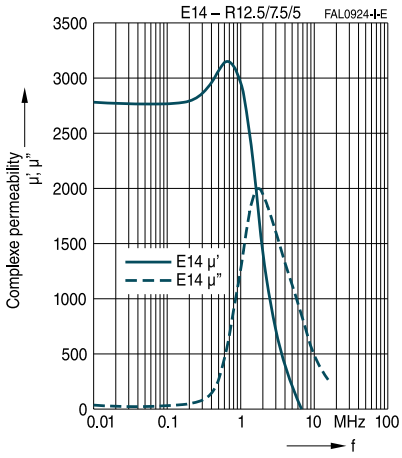
E12



E12 provides flat μ_i over the temperature with a Curie temperature above +170 °C.

E13, E14





E13 and E14 as new materials bring together high saturation and high impedance up to 30 MHz for high-temperature applications. The Curie temperature exceeds +220 °C for E13 and +255 °C for E14.

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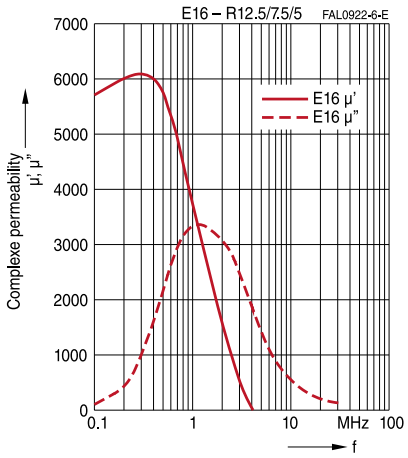
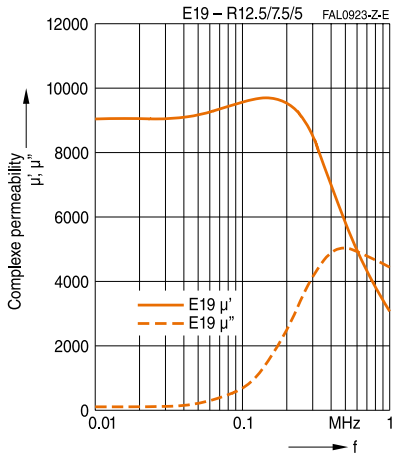
E16, E19





E16 and E19 are developed to address low-frequency EMI suppression reaching into the MHz frequency with extended Curie temperatures above +150 °C for industrial and automotive applications.

				E19	E16	E14	E13	E12	E11
μ_i	10 kHz	0.25 mT	25 °C	9000	6000	3300	3100	2400	1100
B_S [mT]	10 kHz	1200 A/m	25 °C	440	460	550	520	440	400
			100 °C	320	320	435	410	290	270
Z_N [Ω/mm]	0.3 MHz	0.25 mT	25 °C	23					
	1 MHz			35	40				
	3 MHz			45	60	60	42		
	5 MHz					70	47	48	
	10 MHz							55	
	30 MHz								50
	100 MHz								80
	300 MHz								90
T_C [°C]				>150	>150	>255	>220	>170	>150

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