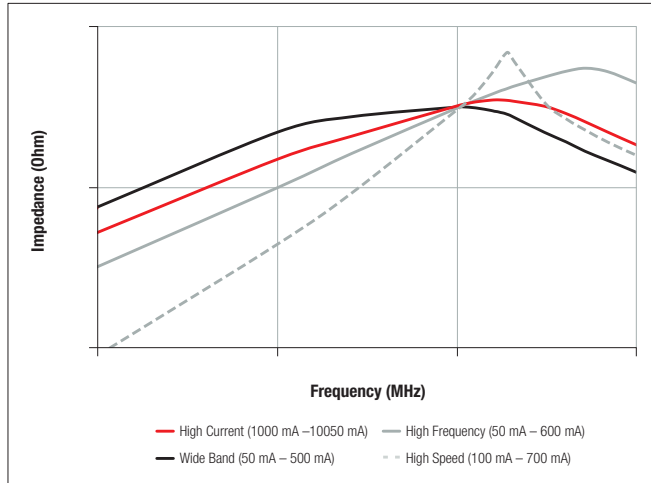# SMD EMI Suppression Ferrite Beads

Characterisation

High Speed
SMD Ferrites - -
Have lower impedance in the lower frequency ranges. Therefore they have only a low attenuation on fast signals. Application e.g. USB, IEEE 1394, LVDS

High Current
SMD Ferrites ▬
Are designed for high current (over 1 A). The rated current refers to 40 K self-heating. Application e.g. power supply, DC/DC converter.

Wide Band
SMD Ferrites ▬
Show already high impedance in low frequency range. Therefore they are wide band through the whole spectrum. Application e.g. control signals, RS232, RS422, DC/DC converter.

High Frequency
SMD Ferrites ▬
Have, due to a modified internal layout, an increased effective suppression frequency range. Consequently the impedance at 1 GHz is up to 3 times higher. Application e.g. HDD, fast bus signals and clock signals.
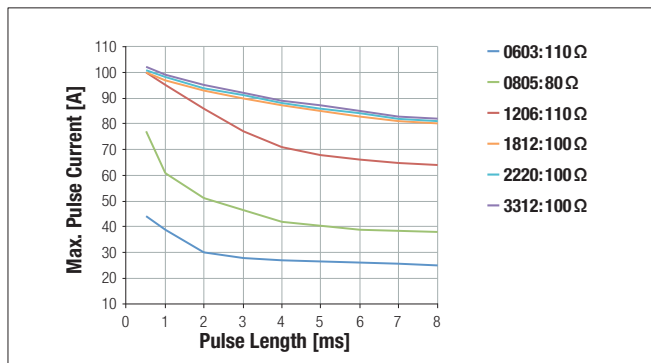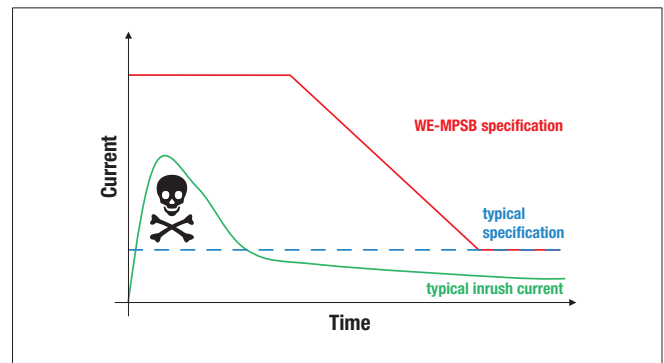
WE-MPSB
Multilayer Power Suppression

- Peak current is up to 20-times higher than rated current
- Up to 40 % higher rated current compared with similar products

huge **peak**
strong **bead!**

The maximum allowed current varies with pulse length

Specified inrush peak current rating protects and extends the life of your application
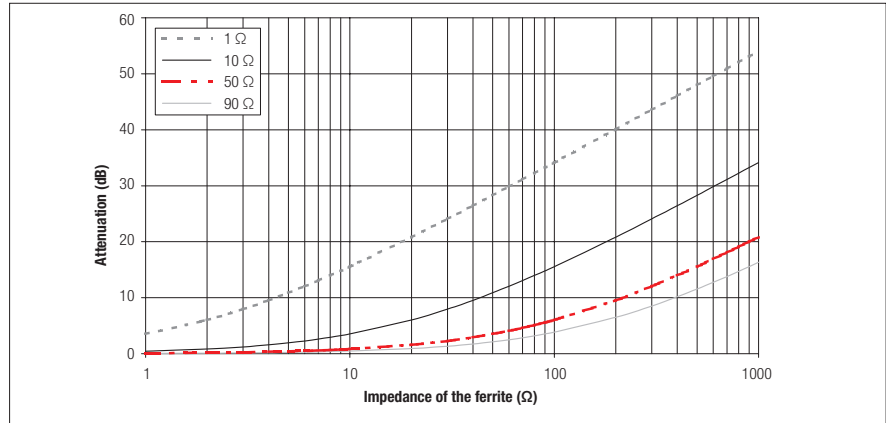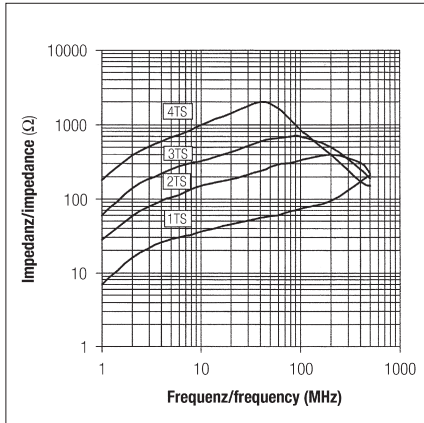

Wired SMT Ferrite generally resistant to peak current up to a pulse length of 100 ms with 100 A. Check WE-PBF, WE-CMS and WE-SUKW.
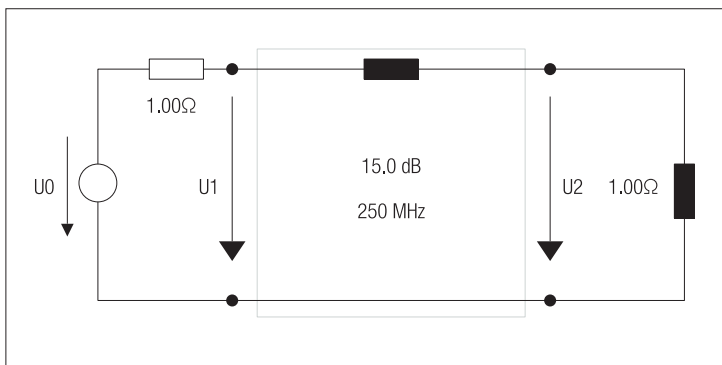
More information:
www.we-online.com/mpsb

Impedance vs. Frequency Cable Ferrites

See all ferrites with different turns
Go to REDEXPERT:
www.we-online.com/redexpert-different-turns

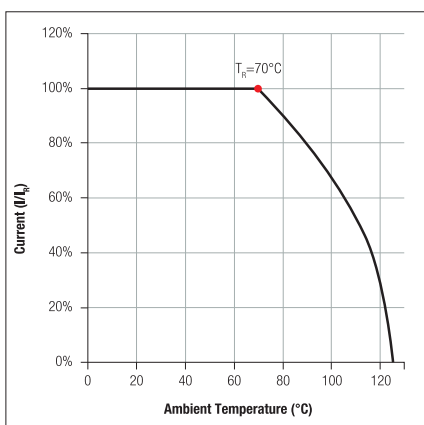## Impedance Determination in REDEXPERT

Relationship between the number of winding turns and the impedance across the frequency spectrum

$$A \text{ (dB)} = 20 \log_{10} \frac{Z_A + Z_F + Z_B}{Z_A + Z_B}$$

Determine the needed
impedance in REDEXPERT:
www.we-online.com/re-impedance

Derating Curve – Interpretation

Rated Current	@ 70 °C	I_s	0.9	A	max.
Operating Temperature		-40 °C up to +125 °C			
Temperature Rise < 55K					

Rated Temperature T_R

Max. temperature allowed T_{max}

$\Delta T = T_{max} - T_R$

Example of use: The maximum ambient temperature at maximum current is 70 °C . At a higher ambient temperature the current capabilities sink. For an ambient temperature of 90 °C the current should not be over 80 % of IR (0.9 Amps).

Derating curves for
CMC in REDEXPERT:
www.we-online.com/
redexpert-derating-
curves-cmc