



## **2-line filters**

### **SIFI-G for enhanced insertion loss**

250 V, 50/60 Hz, 3 ... 36 A

<b>Ordering code:</b>	<b>B84112G0000*</b>
Date:	2008-03-17
Version:	07

### Construction

- 2-line filter
- Metal case
- Polyurethane potting (UL 94 V-0)

### Features

- Easy to install
- Compact design
- Cost optimized construction
- Medical version with low leakage current
- ENEC10, UL and cUL approval



### Applications

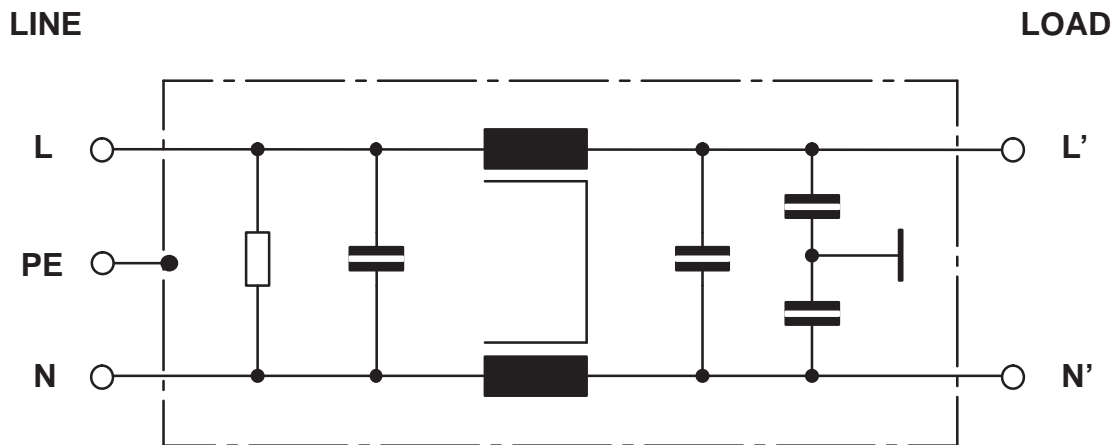
- Switched-mode power supplies for
  - industrial electronics
  - telecom systems
  - data systems
- DC applications
- Medical engineering Type M

### Terminals

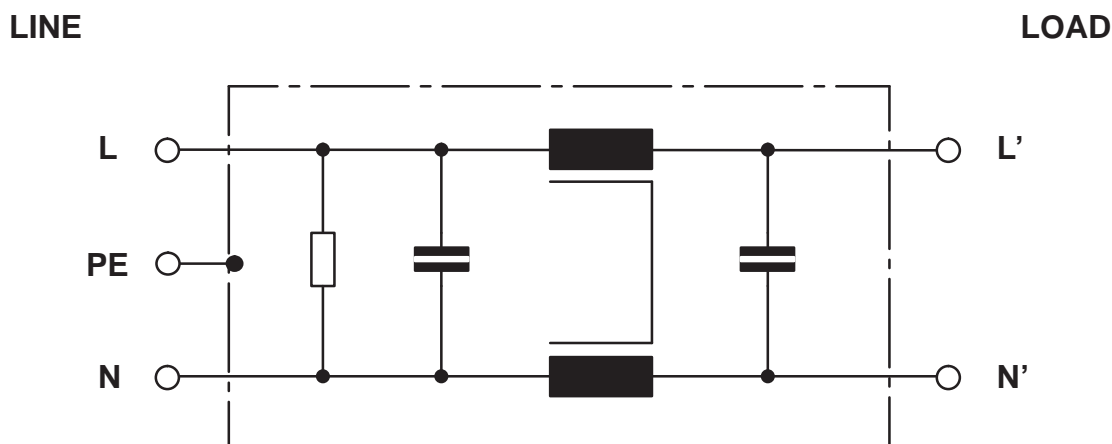
- Case style B: tab connectors 6.3 x 0.8 mm for filters up to 16A mounting tabs on face ends
- Case style G: threaded studs M5 for filters from 20A to 36A

### Marking

- Marking on component: manufacturer's logo, ordering code, rated voltage, rated current, rated temperature, climatic category, date code
- Minimum marking on packaging: manufacturer's logo, ordering code, date code, quantity




**Typical circuit diagram of B84112G0000B\* and B84112G0000G\***

**Technical data and measuring conditions of B84112G0000B\* and B84112G0000G\***

Rated voltage	$U_R$	250	V AC
Rated frequency	$f_R$	50/60	Hz
Test voltage line to line for 2 s	$U_{test}$	1770	V DC
Test voltage line to case for 2 s	$U_{test}$	2700	V DC
Rated temperature	$T_R$	40	°C
Overload capability (thermal) for 3 min per hour or for 30 s per hour		$1.5 \times I_R$ $2.5 \times I_R$	
Climatic category (IEC 60068-1)		25/100/21	
Leakage current at $V_R$ , 50 Hz	$I_{leak}$	< 0,5	mA




**Typical circuit diagram of B84112G0000M\* (for medical applications)**

**Technical data and measuring conditions of B84112G0000M\***

Rated voltage	$U_R$	250	V AC
Rated frequency	$f_R$	50/60	Hz
Test voltage line to line for 2 s	$U_{test}$	1770	V DC
Test voltage line to case for 2 s	$U_{test}$	2500	V AC
Rated temperature	$T_R$	40	°C
Overload capability (thermal) for 3 min per hour or for 30 s per hour		$1.5 \times I_R$ $2.5 \times I_R$	
Climatic category (IEC 60068-1)		25/100/21	
Leakage current at $V_R$ , 50 Hz	$I_{leak}$	< 2	$\mu A$

**Characteristics and ordering codes of B84112G0000B\* and B84112G0000G\***

I <sub>R</sub>	C <sub>R</sub>	L <sub>R</sub>	I <sub>leak</sub> <sup>2)</sup>	Case style	Approx. weight	Ordering code	Approvals		
									
A		mH	mA		g				
3	2 x 0,22 µF (X2) 2 x 4700 pF (Y2)	2 x 10	< 0,5	1	200	B84112G0000B030	X	X	X
6	2 x 0,47 µF (X2) 2 x 4700 pF (Y2)	2 x 3,3	< 0,5	1	200	B84112G0000B060	X	X	X
10	2 x 0,68 µF (X2) 2 x 4700 pF (Y2)	2 x 1,8	< 0,5	1	200	B84112G0000B110	X	X	X
16	2 x 0,47 µF (X2) 2 x 4700 pF (Y2)	2 x 1,8	< 0,5	1	210	B84112G0000B116	X	X	X
20	2 x 1,0 µF (X2) 2 x 4700 pF (Y2)	2 x 1,8	< 0,5	2	440	B84112G0000G120	X	X	X
25	2 x 1,0 µF (X2) 2 x 4700 pF (Y2)	2 x 1,6	< 0,5	2	440	B84112G0000G125	X	X	X
36	2 x 1,5 µF (X2) 2 x 4700 pF (Y2)	2 x 0,8	< 0,5	2	470	B84112G0000G136	X	X	X

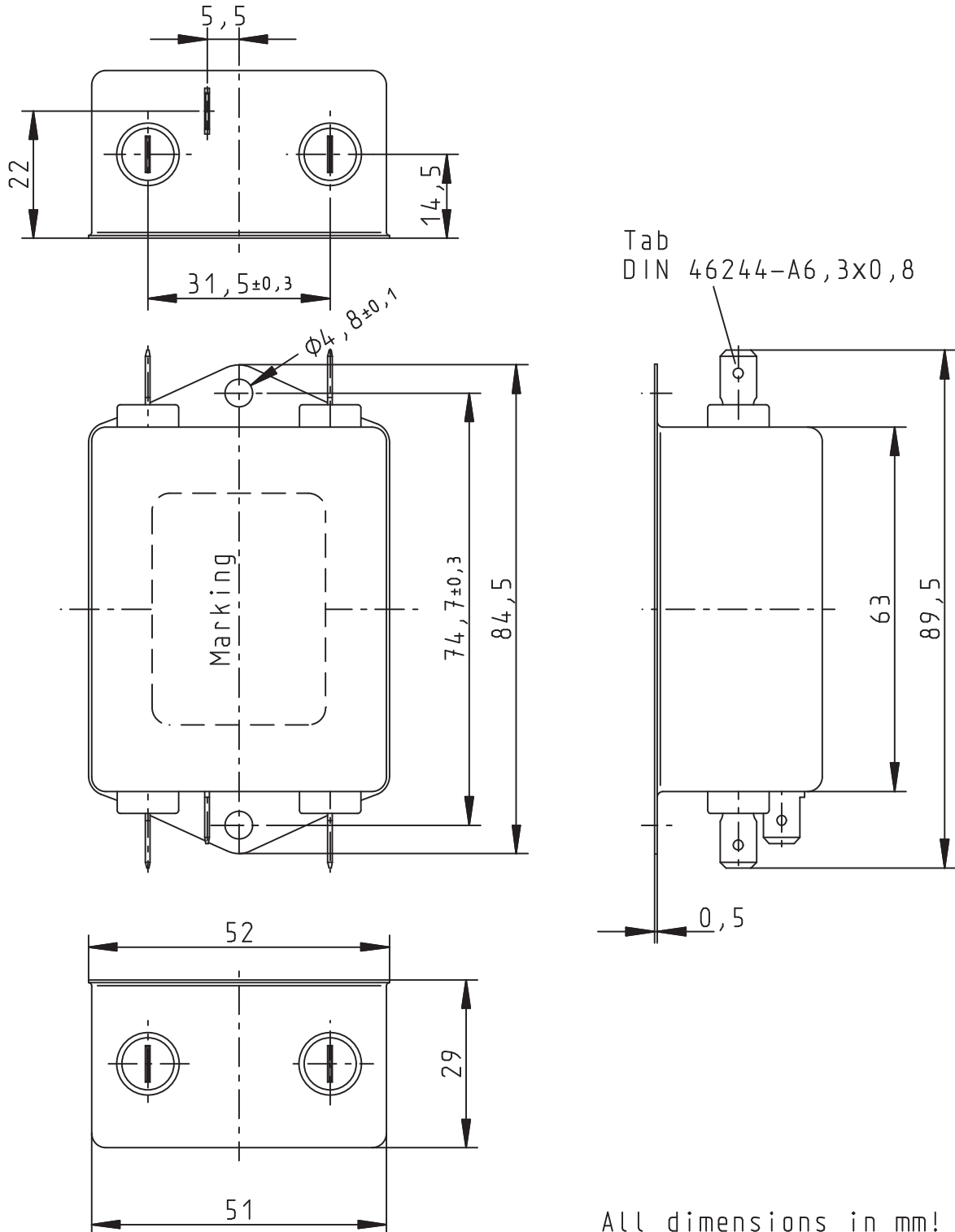
**Characteristics and ordering codes of B84112G0000M\***

I <sub>R</sub>	C <sub>R</sub>	L <sub>R</sub>	I <sub>leak</sub> <sup>2)</sup>	Case style	Approx. weight	Ordering code	Approvals		
									
A		mH	µA		g				
3	2 x 0,22 µF (X2)	2 x 10	< 2	1	200	B84112G0000M030	X	X	X
6	2 x 0,47 µF (X2)	2 x 3,3	< 2	1	200	B84112G0000M060	X	X	X
10	2 x 0,68 µF (X2)	2 x 1,8	< 2	1	200	B84112G0000M110	X	X	X
16	2 x 0,47 µF (X2)	2 x 1,8	< 2	1	210	B84112G0000M116	X	X	X
20	2 x 1,0 µF (X2)	2 x 1,8	< 2	2	440	B84112G0000M120	X	X	X
25	2 x 1,0 µF (X2)	2 x 1,6	< 2	2	440	B84112G0000M125	X	X	X
36	2 x 1,5 µF (X2)	2 x 0,8	< 2	2	470	B84112G0000M136	X	X	X

X = approval granted

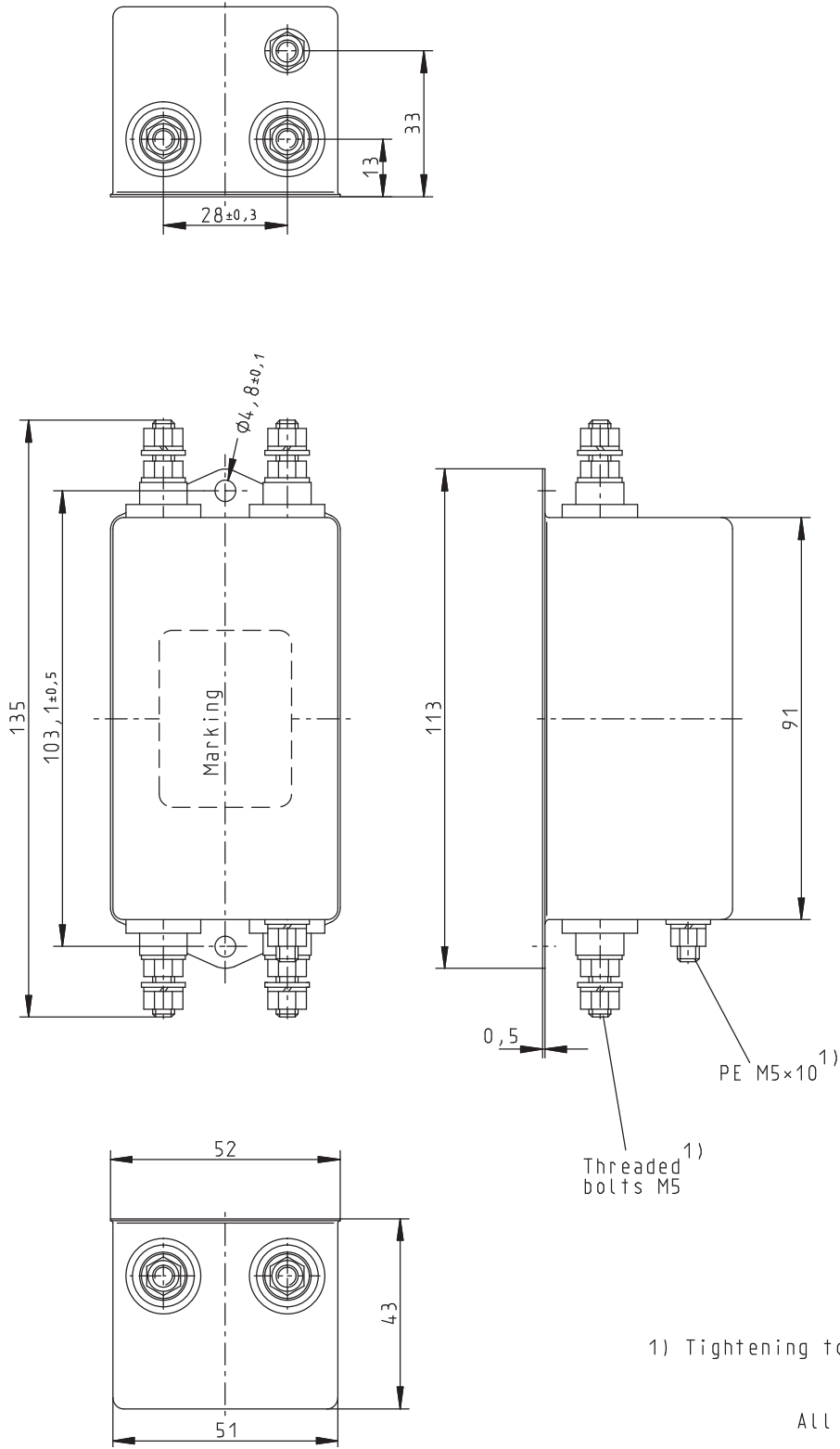
2) maximum voltage = U<sub>R</sub>; frequency = 50 Hz without harmonics; tolerance of capacitors -20%/ 0%; worst case positioning of the components

**Dimensional drawing** (case style 1)  
 B84112G0000B030...B84112G0000B116  
 B84112G0000M030...B84112G0000M116



All dimensions in mm!

**Dimensional drawing** (case style 2)  
 B84112G0000G120...B84112G0000G136  
 B84112G0000M120...B84112G0000M136



1) Tightening torque 2,6...3,0 Nm!

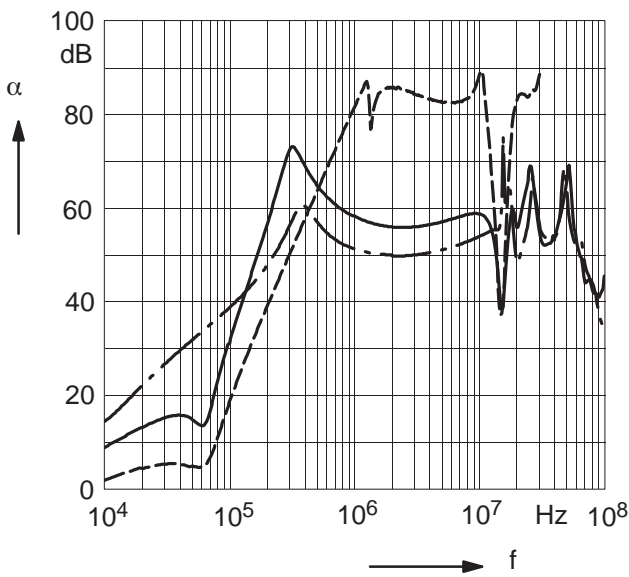
All dimensions in mm!

SIFI-G for enhanced insertion loss

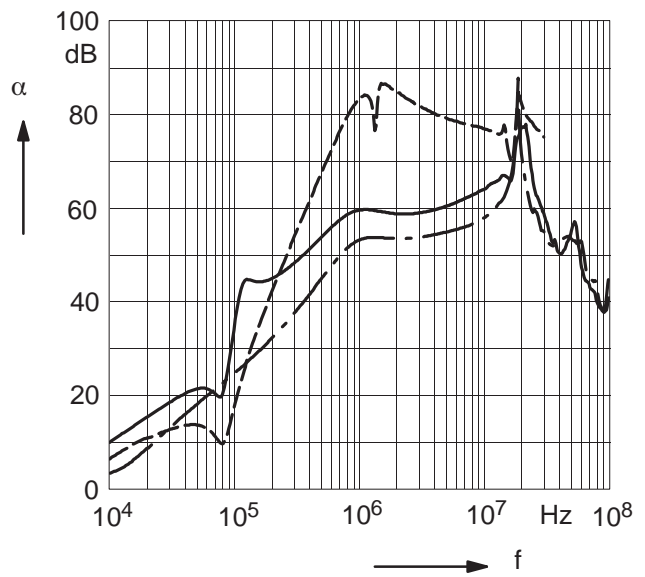
Insertion loss (typical values at  $Z = 50 \Omega$ )

- unsymmetrical, adjacent branches terminated
- · - common mode, all branches in parallel (asymmetrical)
- - - differential mode (symmetrical)

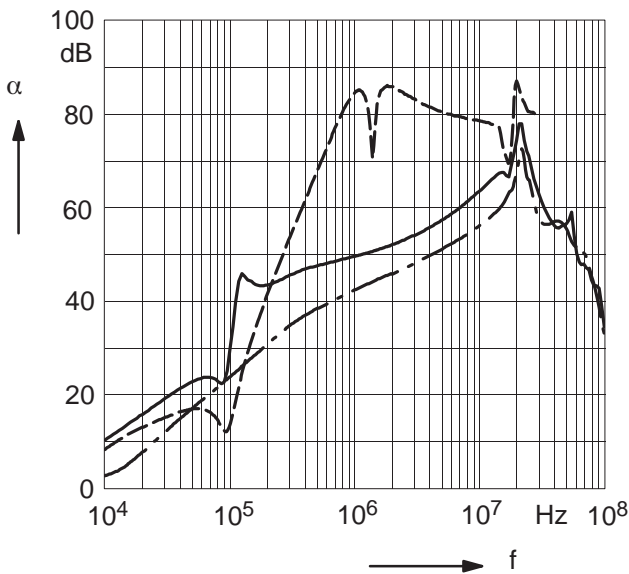
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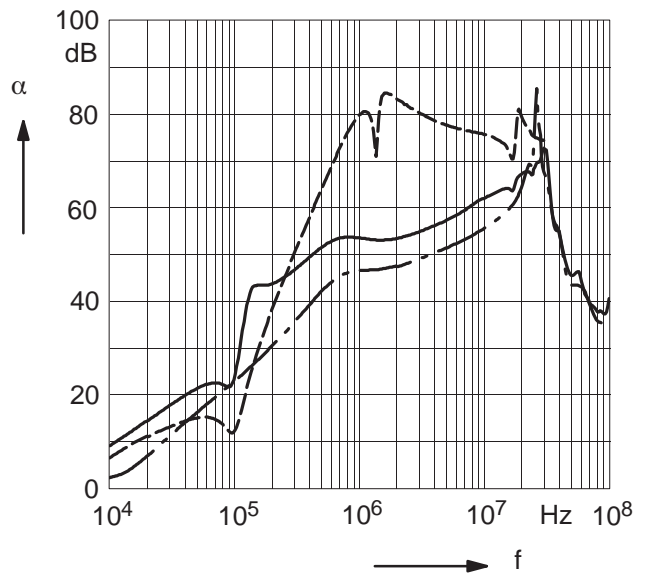
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B84112G0000B110



B84112G0000B116



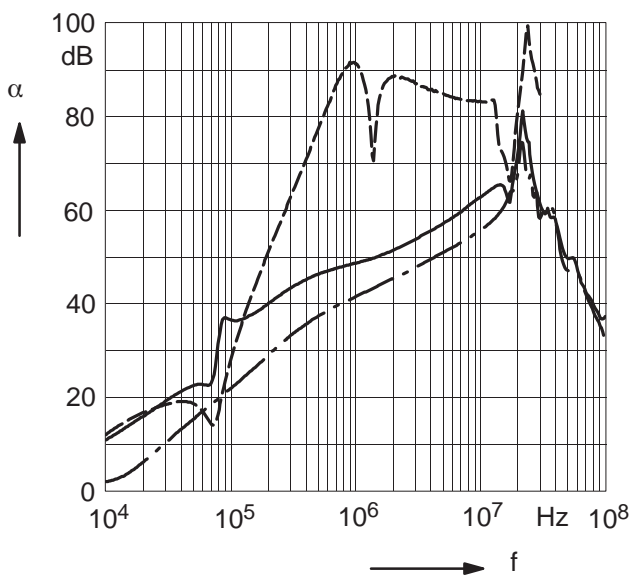


SIFI-G for enhanced insertion loss

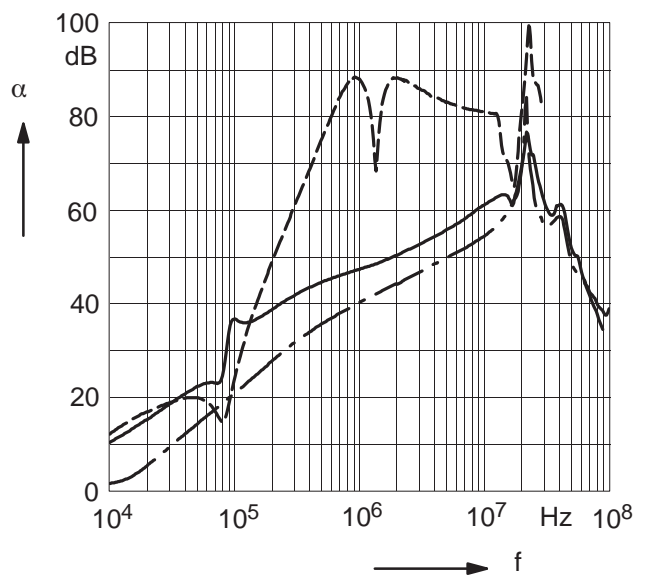
Insertion loss (typical values at  $Z = 50 \Omega$ )

- unsymmetrical, adjacent branches terminated
- · - common mode, all branches in parallel (asymmetrical)
- - - differential mode (symmetrical)

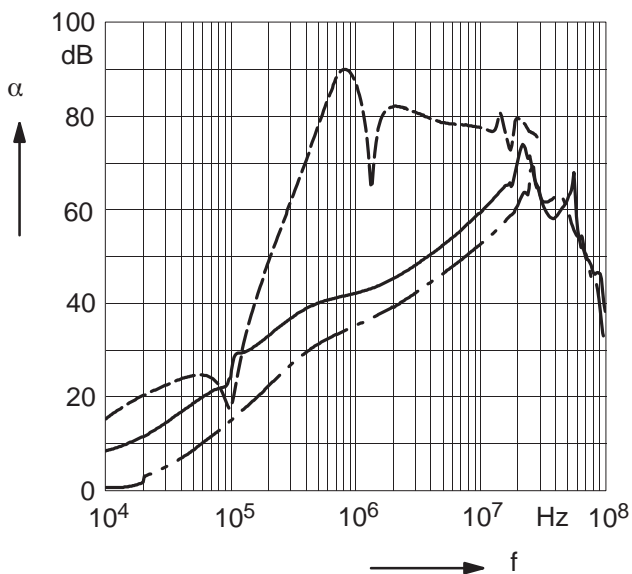
B84112G0000G120



B84112G0000G125



B84112G0000G136

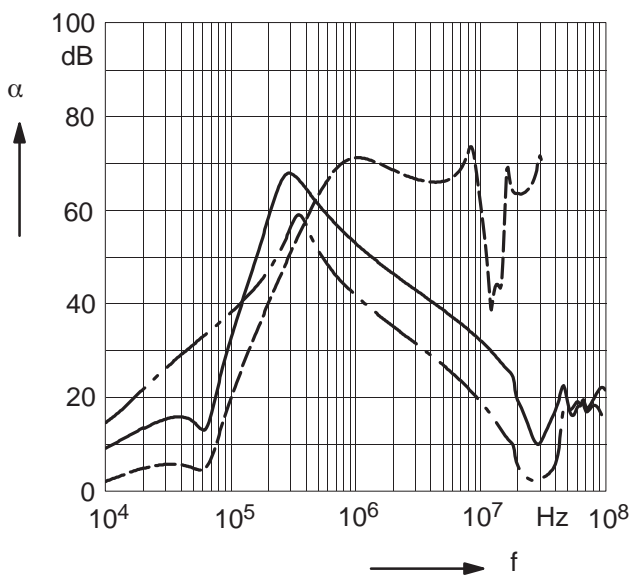


SIFI-G for enhanced insertion loss

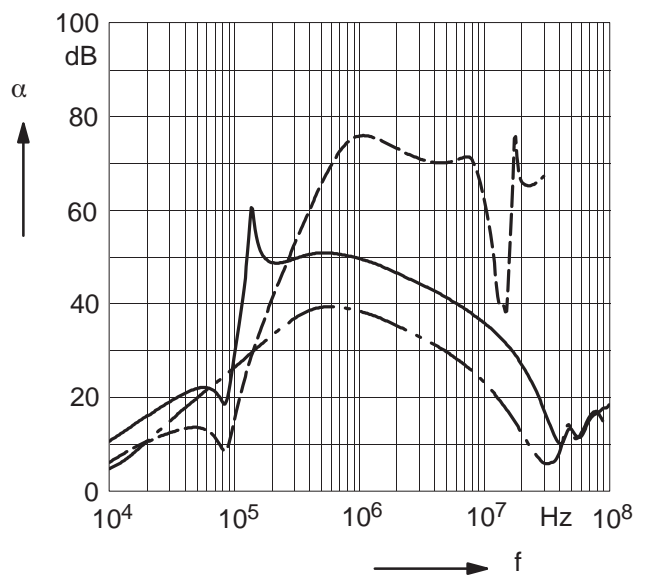
Insertion loss (typical values at  $Z = 50 \Omega$ )

- unsymmetrical, adjacent branches terminated
- .- common mode, all branches in parallel (asymmetrical)
- - - differential mode (symmetrical)

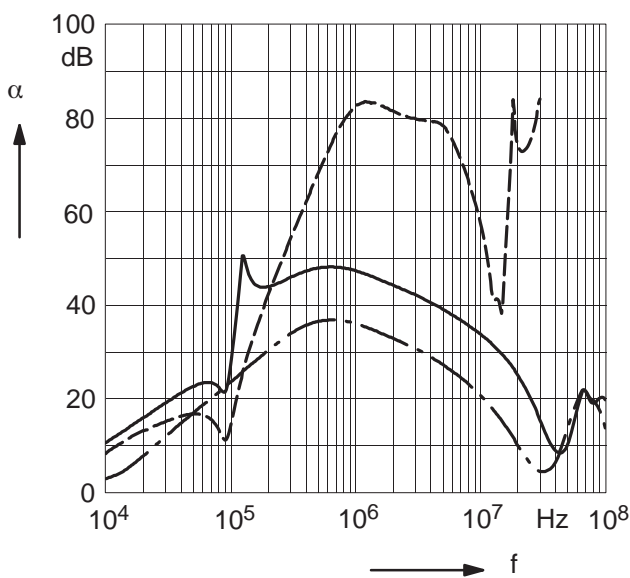
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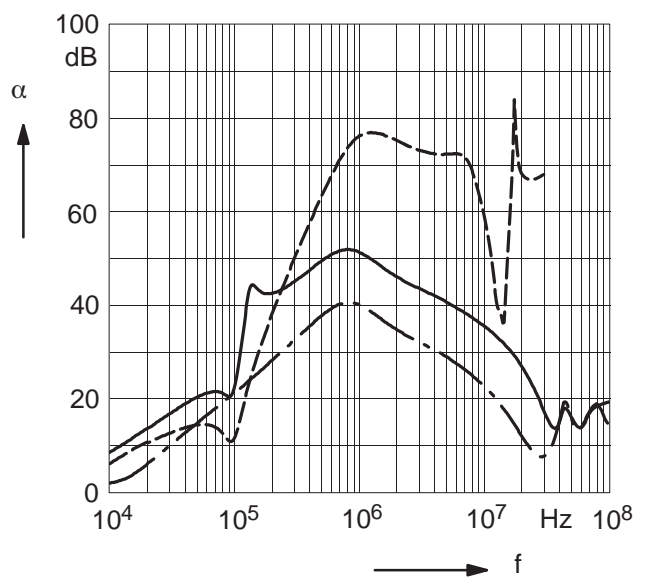
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B84112G0000M110



B84112G0000M116

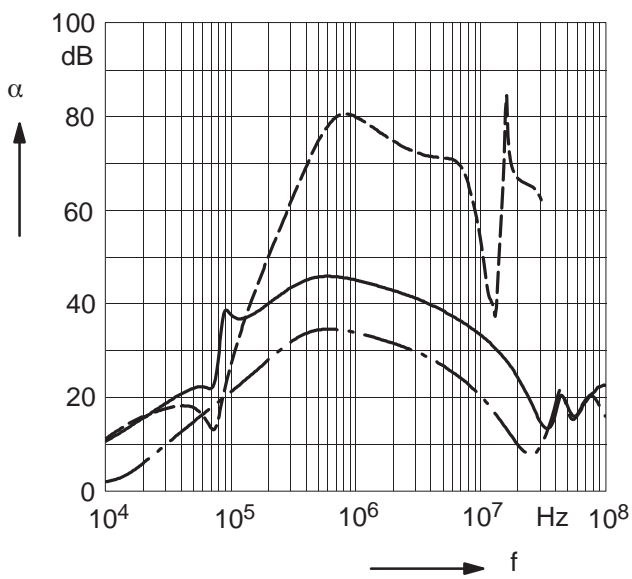


SIFI-G for enhanced insertion loss

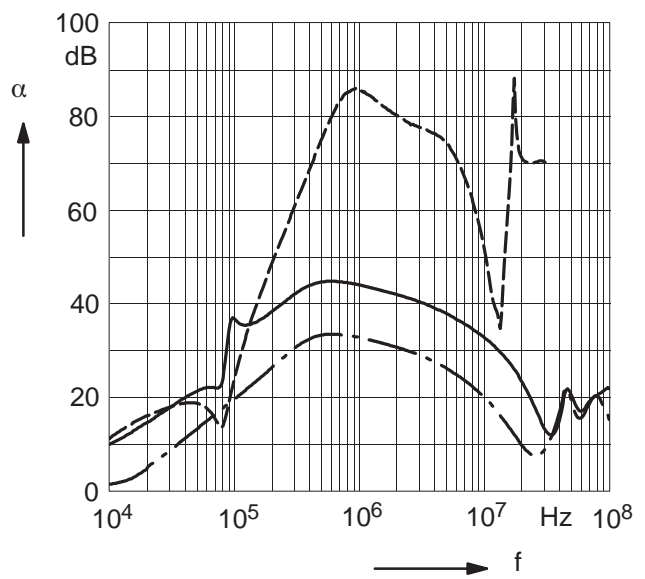
Insertion loss (typical values at  $Z = 50 \Omega$ )

- unsymmetrical, adjacent branches terminated
- · - common mode, all branches in parallel (asymmetrical)
- - - differential mode (symmetrical)

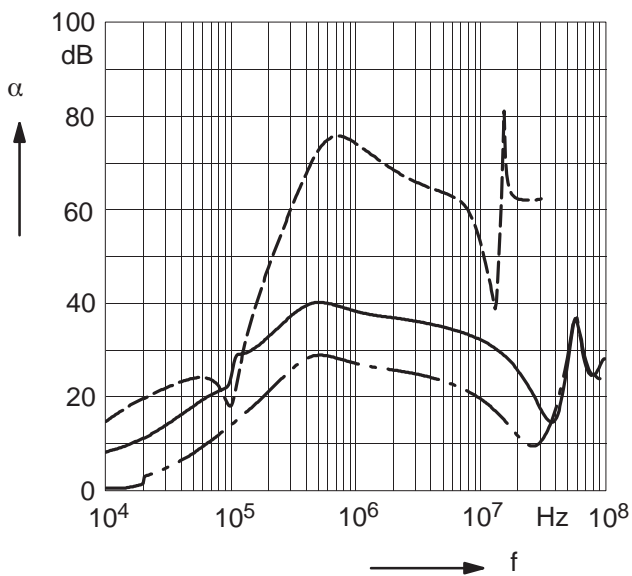
B84112G0000M120



B84112G0000M125



B84112G0000M136



### Caution and warnings

- Please note the advices in our data book “EMC Filters” (latest edition); attention should be paid to the chapter “General safety notes”.
- It shall be ensured that only qualified persons (electricity specialists) are engaged on work such as planning, assembly, installation, operation, repair and maintenance. They must be provided with the corresponding documentation.
- Danger of electric shock. EMC filters contain components that store an electric charge. Dangerous voltages can continue to exist at the filter terminals for longer than five minutes even after the power has been switched off.
- The protective earth connections shall be the first to be made when the EMC filter is installed and the last to be disconnected. Depending on the magnitude of the leakage currents, the particular specifications for making the protective–earth connection must be observed.
- Impermissible overloading of the EMC filter, such as with circuits able to cause resonances, impermissible voltages at higher frequencies etc. can lead to bodily injury and death as well as cause substantial material damages (e.g. destruction of the filter housing).
- EMC filters must be protected in the application against impermissible exceeding of the rated currents by overcurrent protective.
- In case of leakage currents  $> 3.5 \text{ mA}$  you shall mount the PE conductor stationary with the required cross section before beginning of operation and save it against disconnecting. For leakage currents  $I_L^{4)} < 10 \text{ mA}$  the PE conductor must have a KU value <sup>3)</sup> of 4.5; for leakage currents  $I_L \geq 10 \text{ mA}$  the PE conductor must have a KU value of 6.

3) The KU value (symbol KU) is a classification parameter of safety–referred failure types designed to ensure protection against hazardous body currents and excessive heating.

A value of KU = 4.5 with respect to interruptions is attained:

– with a permanently connected protective earth circuit  $\geq 1.5 \text{ mm}^2$

– with a protective earth circuit  $\geq 2.5 \text{ mm}^2$  connected via shroud connectors (IEC 60309–2).

KU = 6 with respect to interruptions is achieved for fixed–connection lines  $\geq 10 \text{ mm}^2$  where the type of connection and line layout correspond to the requirements for PEN conductors as specified in relevant standards.

4)  $I_L$  = leakage current let–go

## Important notes

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