

Approvals & Compliances



Features:

- Rated currents Up to 30 A
- Designed for easy and fast chassis mounting
- Filters offer an optimized filter range for high performance AC & DC applications
- Very high differential and common-mode attenuation
- Various terminal options allow you to select the desired pulse connection style
- Optional like medical, Safety, Surge and Enhanced Versions

Applications:

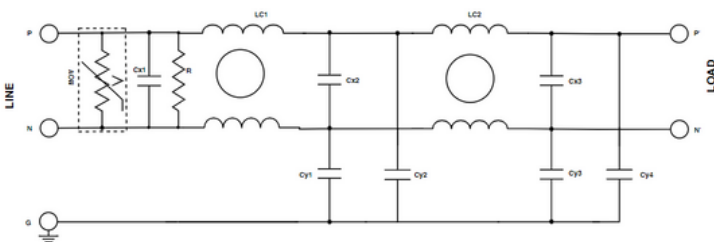
- Power Systems
- Electronic Equipment
- Frequency Convertors
- UPS/Inverters
- Medical Equipment

DATASHEET

SINGLE PHASE EMI FILTER - SMF2233

These series of filters designed for motor and power drive systems which can provide superior attenuation performance and suppress conducted noise even when high interference level are present

Type Circuit Diagram:

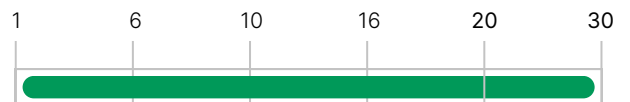


Surge Option is available for Standard, Medical, Safety and Enhanced Versions

Performance Indicator:

Standard	High	Very High

Rated Current (A):



Technical Specifications:

Maximum Continuous Operating Voltage	: 250 VAC, 50/60Hz (UL Approval) 250VDC
Operating Frequency	: DC to 400Hz
Current ratings	: 1A to 30A @40°C
High Potential test voltage	: P to N 1075 VDC for 2 Sec(Except P Type) P to G 2250VDC for 2 Sec P to G 1500VAC for 2 Sec (M Types)
Overload Capability	: 4x rated current at switch on, 1.5 x rated current for 1 minute, once per hour
Design Corresponding to	: UL 60939-3, CSA 22.2 No.8 and IEC 60939-1&2
Flammability corresponding to	: UL 94 V-0
Temperature range	: -25°C to +100°C
Climatic Category	: 25/100/21
Protection category	: IP20

Ordering Information

Standard Version										
Model Number	Part Number	Model Number	Part Number	Current Rating @40°C(A)	Leakage Current @250 VAC/50Hz (mA)	Power loss @25°C / 50Hz (W)	Termination			Min. Weight (g)
SMF2233-1-4	E108266-1	SMF2233P-1-4	E115091-1	1	0.25	2	-4	-	-	100
SMF2233-1-5	E108266-2	SMF2233P-1-5	E115092-1	1	0.25	2	-	-5	-	100
SMF2233-3-4	E108267-1	SMF2233P-3-4	E115093-1	3	0.25	4	-4	-	-	200
SMF2233-3-5	E108267-2	SMF2233P-3-5	E115094-1	3	0.25	4	-	-5	-	200
SMF2233-4-4	E108268-1	SMF2233P-4-4	E115095-1	4	0.25	6.5	-4	-	-	250
SMF2233-4-5	E108268-2	SMF2233P-4-5	E115096-1	4	0.25	6.5	-	-5	-	250
SMF2233-6-4	E108269-1	SMF2233P-6-4	E115097-1	6	0.35	7.5	-4	-	-	250
SMF2233-6-5	E108269-2	SMF2233P-6-5	E115098-1	6	0.35	7.5	-	-5	-	250
SMF2233-6-1	E108269-3	SMF2233P-6-1	E115099-1	6	0.35	7.5	-	-	-1	250
SMF2233-8-4	E108270-1	SMF2233P-8-4	E115100-1	8	0.35	8	-4	-	-	350
SMF2233-8-5	E108270-2	SMF2233P-8-5	E115101-1	8	0.35	8	-	-5	-	350
SMF2233-10-4	E108271-1	SMF2233P-10-4	E115102-1	10	0.35	8.5	-4	-	-	500
SMF2233-10-5	E108271-2	SMF2233P-10-5	E115103-1	10	0.35	8.5	-	-5	-	500
SMF2233-10-1	E108271-3	SMF2233P-10-1	E115104-1	10	0.35	8.5	-	-	-1	500
SMF2233-12-4	E108272-1	SMF2233P-12-4	E115105-1	12	0.85	12.5	-4	-	-	500
SMF2233-12-5	E108272-2	SMF2233P-12-5	E115106-1	12	0.85	12.5	-	-5	-	500
SMF2233-12-1	E108272-3	SMF2233P-12-1	E115107-1	12	0.85	12.5	-	-	-1	500
SMF2233-16-4	E108273-1	SMF2233P-16-4	E115108-1	16	0.85	11	-4	-	-	550
SMF2233-16-5	E108273-2	SMF2233P-16-5	E115109-1	16	0.85	11	-	-5	-	550
SMF2233-20-4	E108274-1	SMF2233P-20-4	E115110-1	20	0.85	8.5	-4	-	-	600
SMF2233-20-1	E108274-2	SMF2233P-20-1	E115111-1	20	0.85	8.5	-	-	-1	600
SMF2233-30-1	E108275-1	SMF2233P-30-1	E115112-1	30	0.85	10.5	-	-	-1	600

Safety Version

Model Number	Part Number	Model Number	Part Number	Current Rating @40°C(A)	Leakage Current @250 VAC/50Hz (mA)	Power loss @25°C / 50Hz (W)	Termination			Min.Weight (g)
										
SMF2233S-1-4	E108276-1	SMF2233SP-1-4	E115113-1	1	0.1	2	-4	-	-	100
SMF2233S-1-5	E108276-2	SMF2233SP-1-5	E115114-1	1	0.1	2	-	-5	-	100
SMF2233S-3-4	E108277-1	SMF2233SP-3-4	E115115-1	3	0.1	4	-4	-	-	200
SMF2233S-3-5	E108277-2	SMF2233SP-3-5	E115116-1	3	0.1	4	-	-5	-	200
SMF2233S-4-4	E108278-1	SMF2233SP-4-4	E115117-1	4	0.1	6.5	-4	-	-	250
SMF2233S-4-5	E108278-2	SMF2233SP-4-5	E115118-1	4	0.1	6.5	-	-5	-	250
SMF2233S-6-4	E108279-1	SMF2233SP-6-4	E115119-1	6	0.1	7.5	-4	-	-	250
SMF2233S-6-5	E108279-2	SMF2233SP-6-5	E115120-1	6	0.1	7.5	-	-5	-	250
SMF2233S-6-1	E108279-3	SMF2233SP-6-1	E115121-1	6	0.1	7.5	-	-	-1	250
SMF2233S-8-4	E108280-1	SMF2233SP-8-4	E115122-1	8	0.1	8	-4	-	-	350
SMF2233S-8-5	E108280-2	SMF2233SP-8-5	E115123-1	8	0.1	8	-	-5	-	350
SMF2233S-10-4	E108281-1	SMF2233SP-10-4	E115124-1	10	0.1	8.5	-4	-	-	500
SMF2233S-10-5	E108281-2	SMF2233SP-10-5	E115125-1	10	0.1	8.5	-	-5	-	500
SMF2233S-10-1	E108281-3	SMF2233SP-10-1	E115126-1	10	0.1	8.5	-	-	-1	500
SMF2233S-12-4	E108282-1	SMF2233SP-12-4	E115127-1	12	0.1	12.5	-4	-	-	500
SMF2233S-12-5	E108282-2	SMF2233SP-12-5	E115128-1	12	0.1	12.5	-	-5	-	500
SMF2233S-12-1	E108282-3	SMF2233SP-12-1	E115129-1	12	0.1	12.5	-	-	-1	500
SMF2233S-16-4	E108283-1	SMF2233SP-16-4	E115130-1	16	0.1	11	-4	-	-	550
SMF2233S-16-5	E108283-2	SMF2233SP-16-5	E115131-1	16	0.1	11	-	-5	-	550
SMF2233S-20-4	E108284-1	SMF2233SP-20-4	E115132-1	20	0.1	8.5	-4	-	-	600
SMF2233S-20-1	E108284-2	SMF2233SP-20-1	E115133-1	20	0.1	8.5	-	-	-1	600
SMF2233S-30-1	E108296-1	SMF2233SP-20-1	E115134-1	30	0.1	10.5	-	-	-1	600

Medical Version

Model Number	Part Number	Model Number	Part Number	Current Rating @40°C(A)	Leakage Current @250 VAC/50Hz (mA)	Power loss @25°C / 50Hz (W)	Termination			Min.Weight (g)
										
SMF2233M-1-4	E108297-1	SMF2233MP-1-4	E115135-1	1	0	2	-4	-	-	100
SMF2233M-1-5	E108297-2	SMF2233MP-1-5	E115136-1	1	0	2	-	-5	-	100
SMF2233M-3-4	E108298-1	SMF2233MP-3-4	E115137-1	3	0	4	-4	-	-	200
SMF2233M-3-5	E108298-2	SMF2233MP-3-5	E115138-1	3	0	4	-	-5	-	200
SMF2233M-4-4	E108299-1	SMF2233MP-4-4	E115139-1	4	0	6.5	-4	-	-	250
SMF2233M-4-5	E108299-2	SMF2233MP-4-5	E115140-1	4	0	6.5	-	-5	-	250
SMF2233M-6-4	E108300-1	SMF2233MP-6-4	E115141-1	6	0	7.5	-4	-	-	250
SMF2233M-6-5	E108300-2	SMF2233MP-6-5	E115142-1	6	0	7.5	-	-5	-	250
SMF2233M-6-1	E108300-3	SMF2233MP-6-1	E115143-1	6	0	7.5	-	-	-1	250
SMF2233M-8-4	E108301-1	SMF2233MP-8-4	E115144-1	8	0	8	-4	-	-	350
SMF2233M-8-5	E108301-2	SMF2233MP-8-5	E115145-1	8	0	8	-	-5	-	350
SMF2233M-10-4	E108302-1	SMF2233MP-10-4	E115146-1	10	0	8.5	-4	-	-	500
SMF2233M-10-5	E108302-2	SMF2233MP-10-5	E115147-1	10	0	8.5	-	-5	-	500
SMF2233M-10-1	E108302-3	SMF2233MP-10-1	E115148-1	10	0	8.5	-	-	-1	500
SMF2233M-12-4	E108303-1	SMF2233MP-12-4	E115149-1	12	0	12.5	-4	-	-	500
SMF2233M-12-5	E108303-2	SMF2233MP-12-5	E115150-1	12	0	12.5	-	-5	-	500
SMF2233M-12-1	E108303-3	SMF2233MP-12-1	E115151-1	12	0	12.5	-	-	-1	500

Medical Version

Model Number	Part Number	Model Number	Part Number	Current Rating @40°C(A)	Leakage Current @250 VAC/50Hz (mA)	Power loss @25°C / 50Hz (W)	Termination			Min. Weight (g)
										
SMF2233M-16-4	E108304-1	SMF2233MP-16-4	E115152-1	16	0	11	-4	-	-	550
SMF2233M-16-5	E108304-2	SMF2233MP-16-5	E115153-1	16	0	11	-	-5	-	550
SMF2233M-20-4	E108305-1	SMF2233MP-20-4	E115154-1	20	0	8.5	-4	-	-	600
SMF2233M-20-1	E108305-2	SMF2233MP-20-1	E115155-1	20	0	8.5	-	-	-1	600
SMF2233M-30-1	E108306-1	SMF2233MP-30-1	E115156-1	30	0	10.5	-	-	-1	600

Enhanced Version

Model Number	Part Number	Model Number	Part Number	Current Rating @40°C(A)	Leakage Current @250 VAC/50Hz (mA)	Power loss @25°C / 50Hz (W)	Termination			Min.Weight (g)
										
SMF2233N-1-4	E108307-1	SMF2233NP-1-4	E115157-1	1	3.4	2	-4	-	-	100
SMF2233N-1-5	E108307-2	SMF2233NP-1-5	E115158-1	1	3.4	2	-	-5	-	100
SMF2233N-3-4	E108308-1	SMF2233NP-3-4	E115159-1	3	15.71	4	-4	-	-	200
SMF2233N-4-4	E108309-1	SMF2233NP-4-4	E115160-1	4	15.71	6.5	-4	-	-	250
SMF2233N-6-4	E108310-1	SMF2233NP-6-4	E115161-1	6	15.71	7.5	-4	-	-	250
SMF2233N-8-4	E108311-1	SMF2233NP-8-4	E115162-1	8	15.71	8	-4	-	-	350
SMF2233N-10-4	E108312-1	SMF2233NP-10-4	E115163-1	10	5.1	8.5	-4	-	-	500
SMF2233N-10-1	E108312-2	SMF2233NP-10-1	E115164-1	10	5.1	8.5	-	-	-1	500
SMF2233N-12-4	E108313-1	SMF2233NP-12-4	E115165-1	12	5.1	12.5	-4	-	-	500
SMF2233N-12-1	E108313-2	SMF2233NP-12-1	E115166-1	12	5.1	12.5	-	-	-1	500
SMF2233N-16-4	E108314-1	SMF2233NP-16-4	E115167-1	16	5.1	11	-4	-	-	550
SMF2233N-20-4	E108315-1	SMF2233NP-20-4	E115168-1	20	5.1	8.5	-4	-	-	600
SMF2233N-20-1	E108315-2	SMF2233NP-20-1	E115169-1	20	5.1	8.5	-	-	-1	600
SMF2233N-30-1	E108316-1	SMF2233NP-30-1	E115170-1	30	5.1	10.5	-	-	-1	600

Note: Maximum leakage current is according to IEC 60939-3 under normal AC operating conditions. The worst leakage current could double the value if the neutral is interrupted.

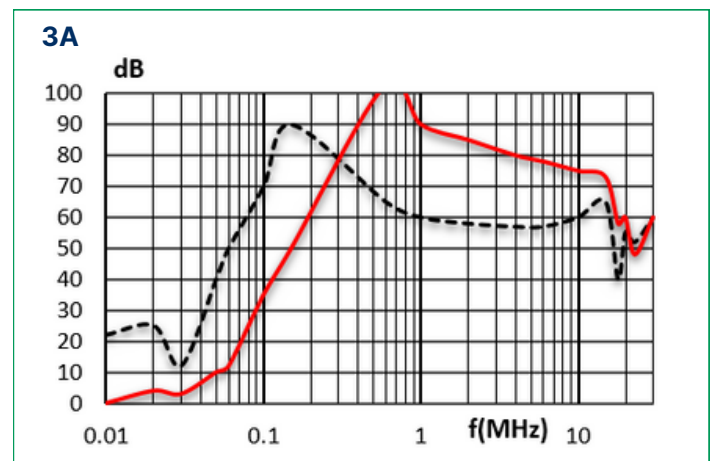
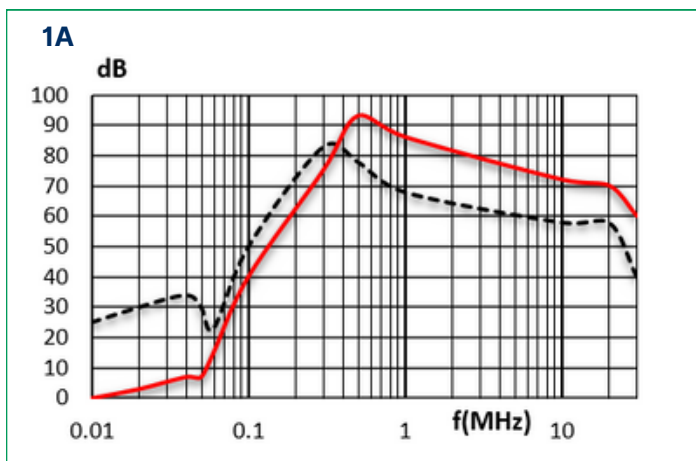
For surge pulse protection, please add P(e.g. SMF2233P-10-04, SMF2233MP-20-4).

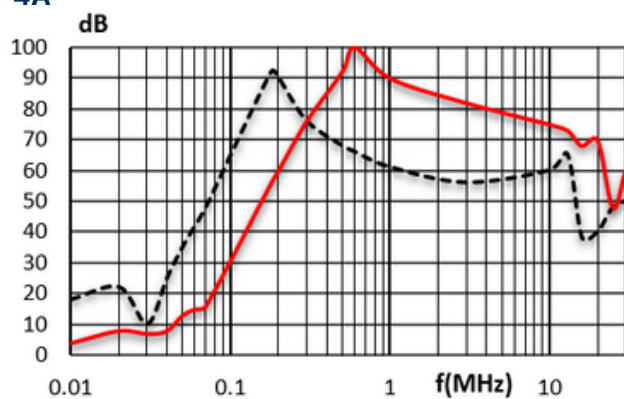
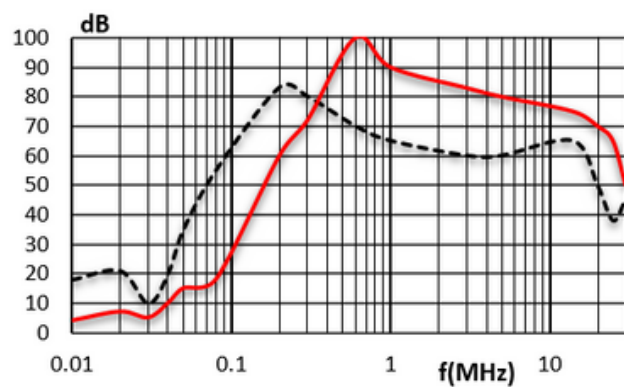
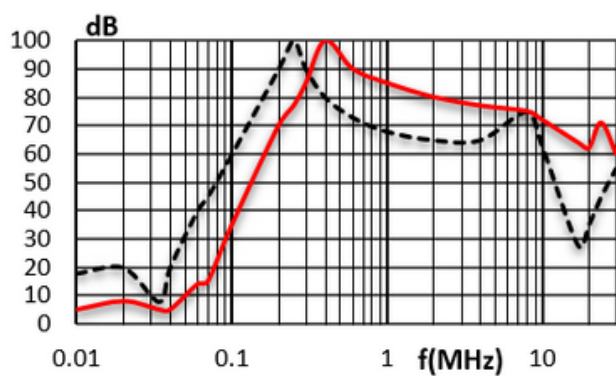
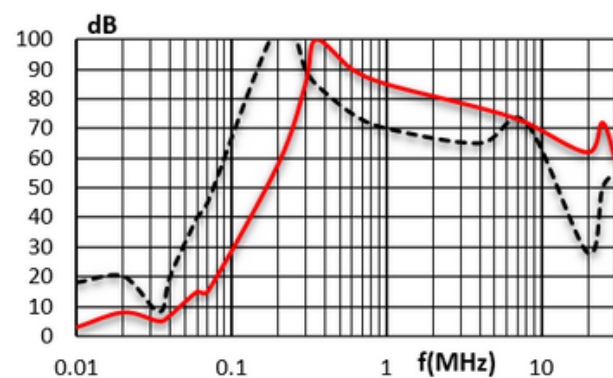
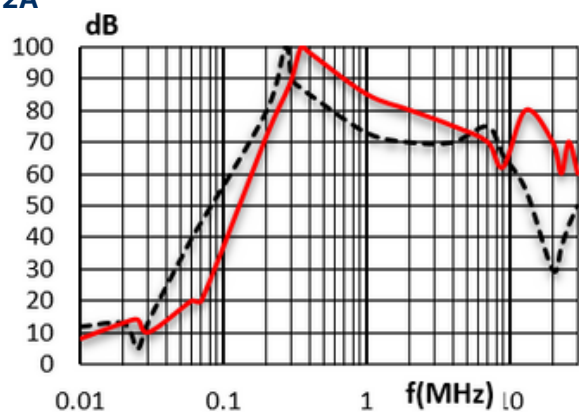
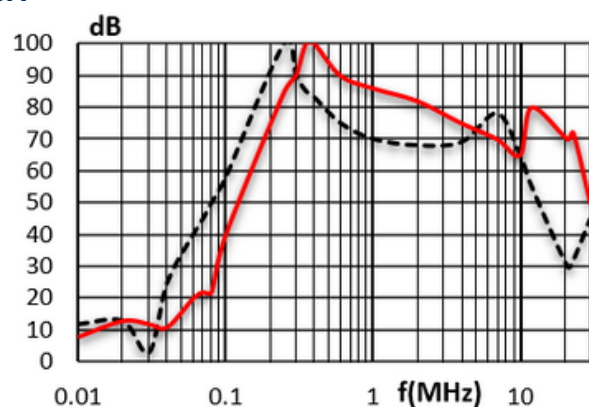
Insertion Loss

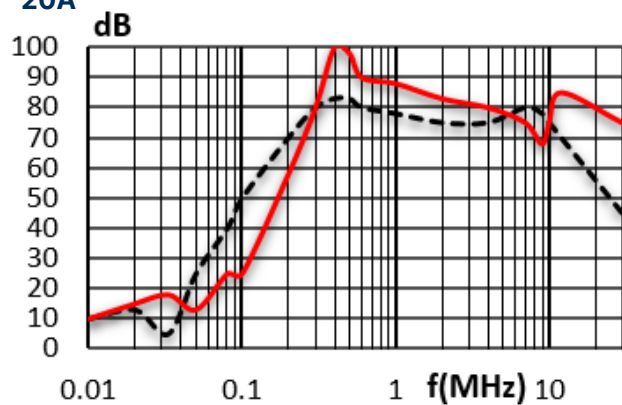
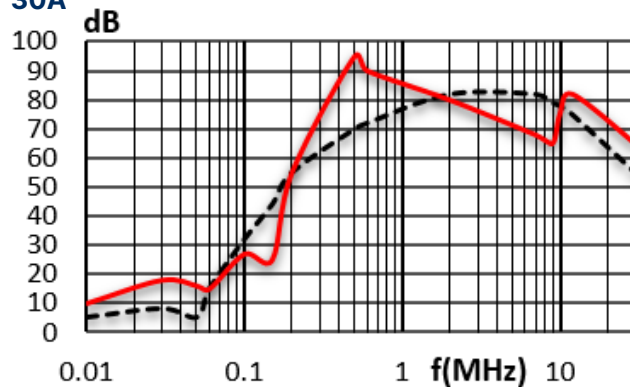
..... Common mode _____ Differential Mode

Per CISPR 17; C=50Ω/50Ω D=50Ω/50Ω

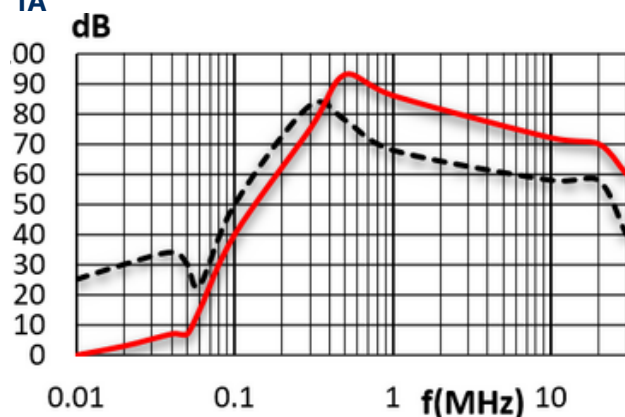
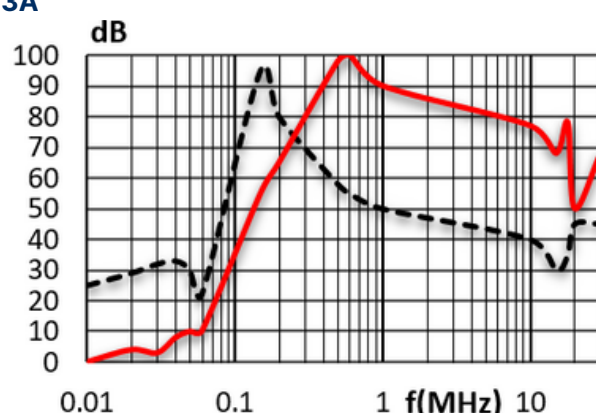
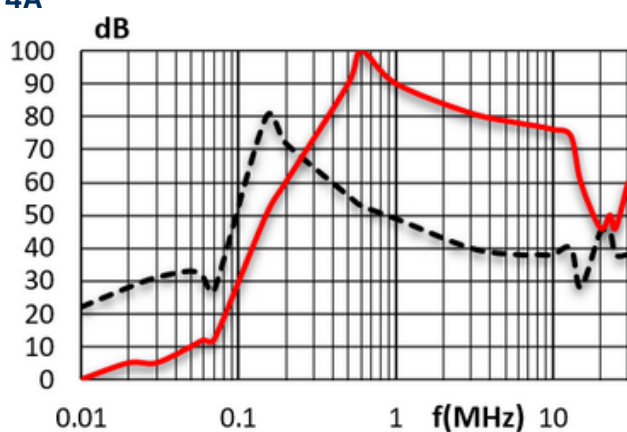
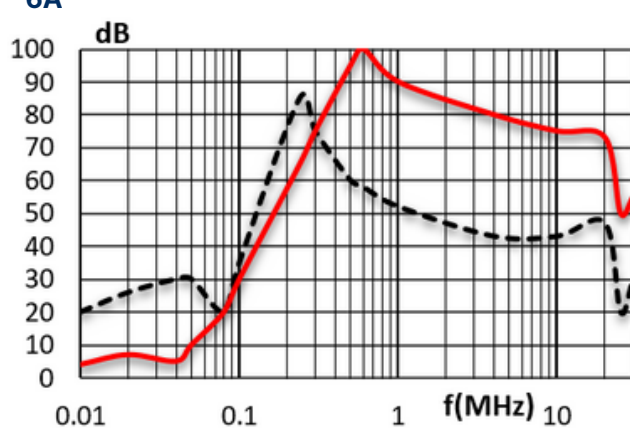
Standard Version



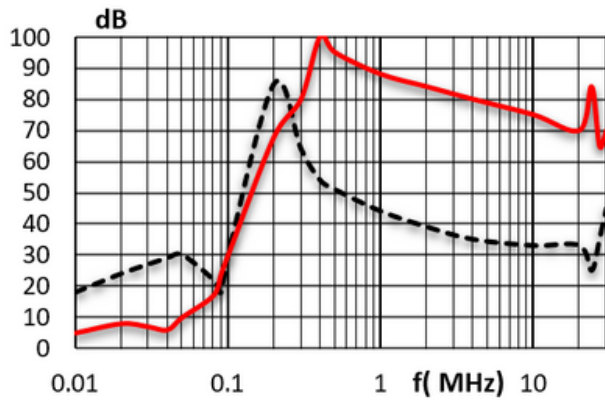
4A**6A****8A****10A****12A****16A**

20A**30A**

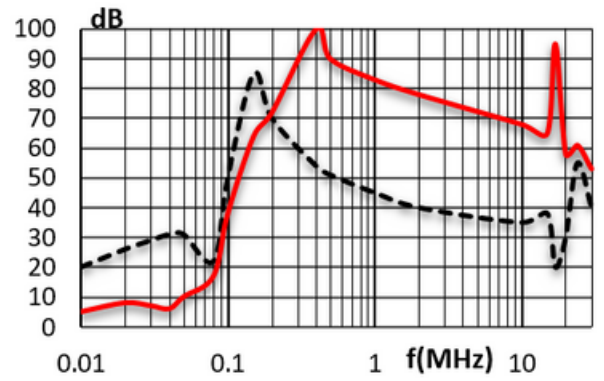
Safety Version

1A**3A****4A****6A**

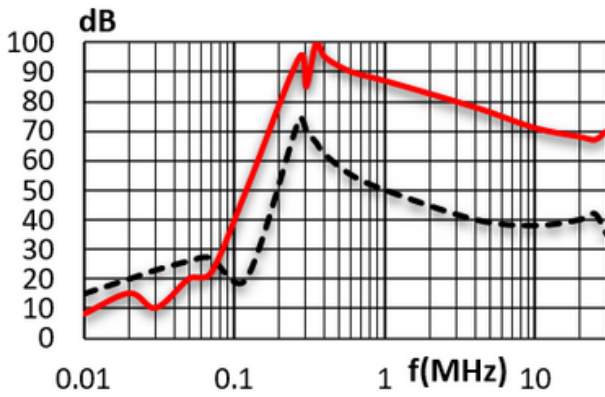
8A



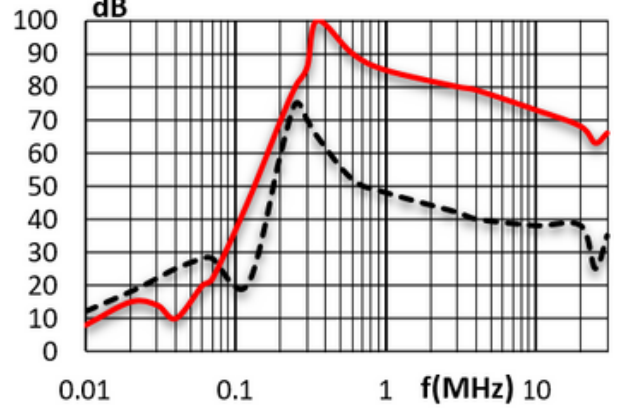
10A



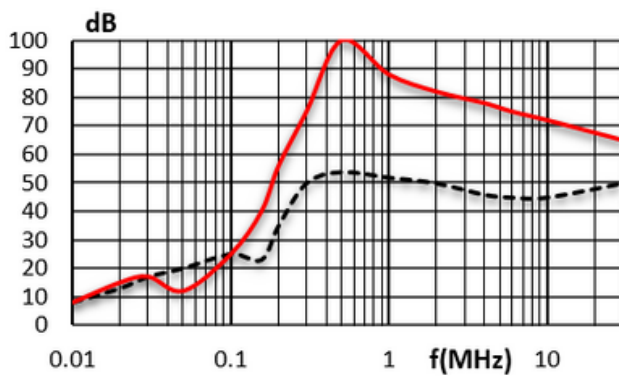
12A



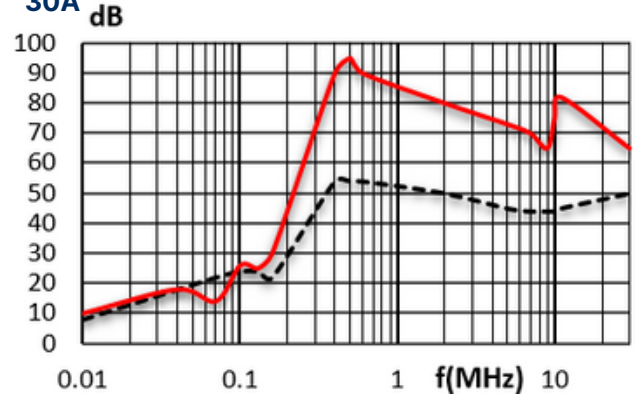
16A

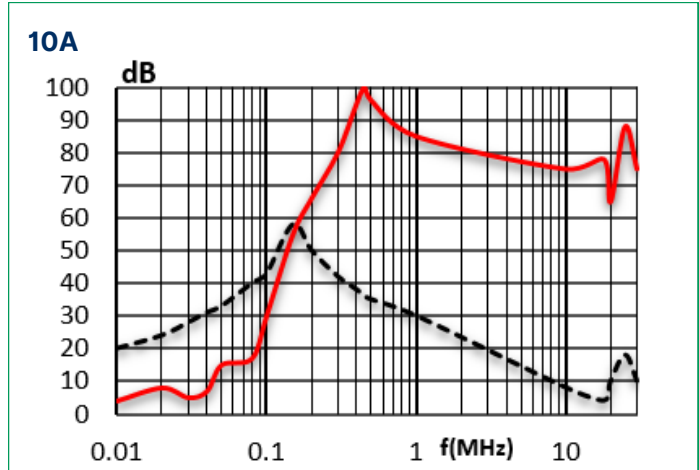
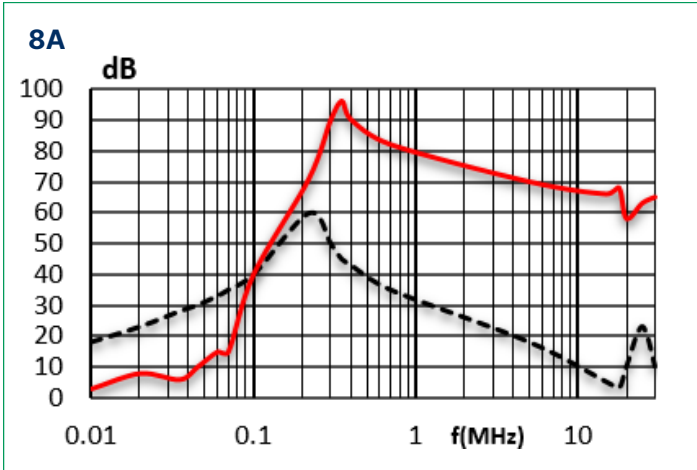
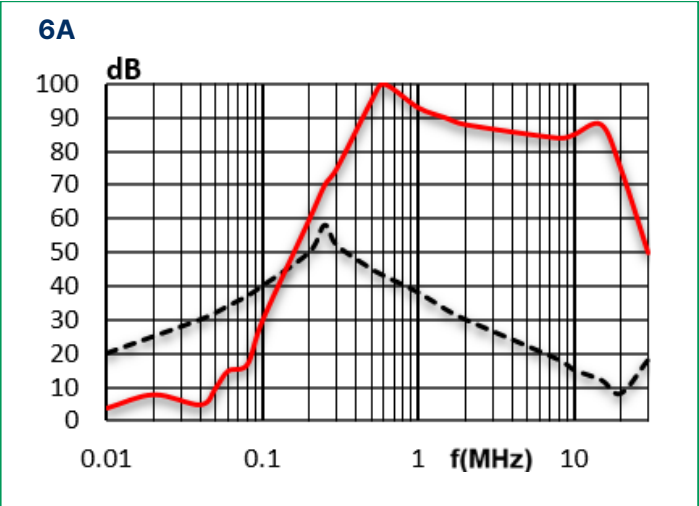
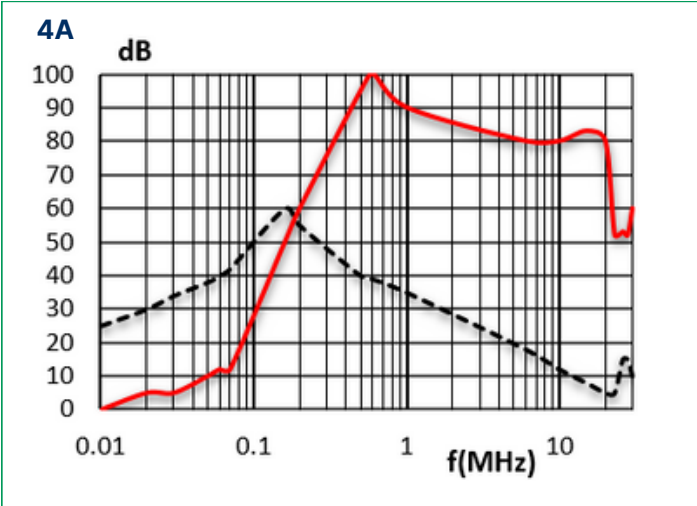
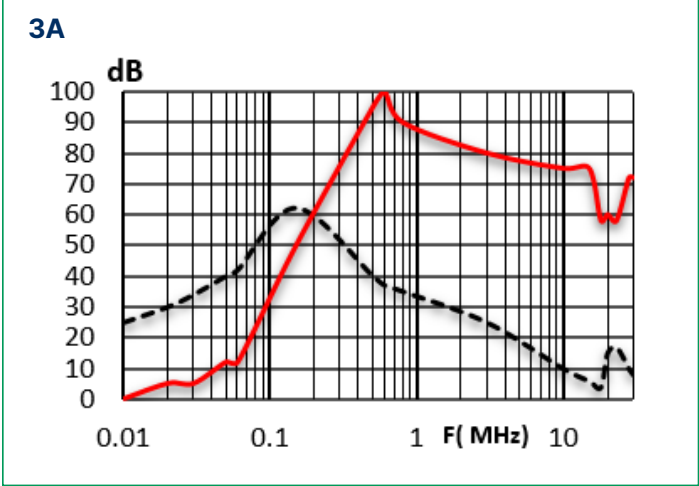
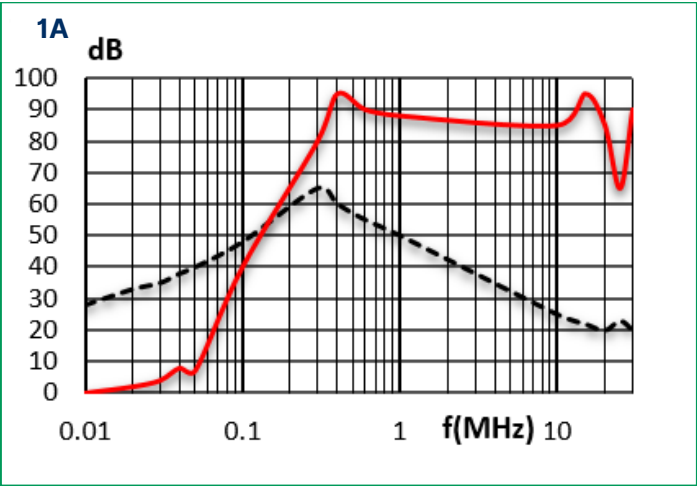


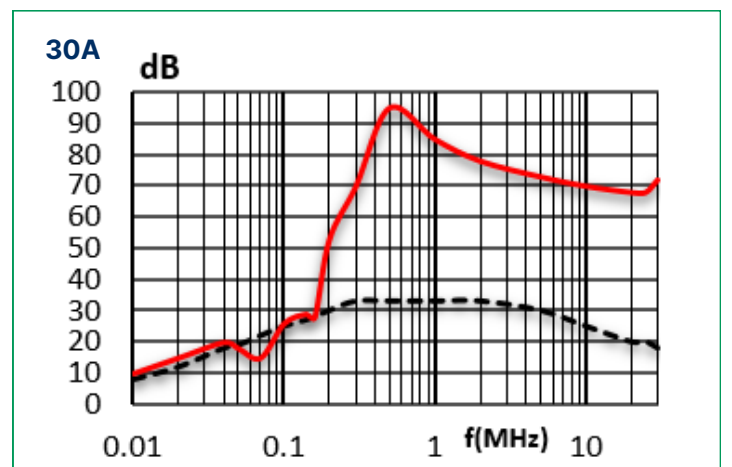
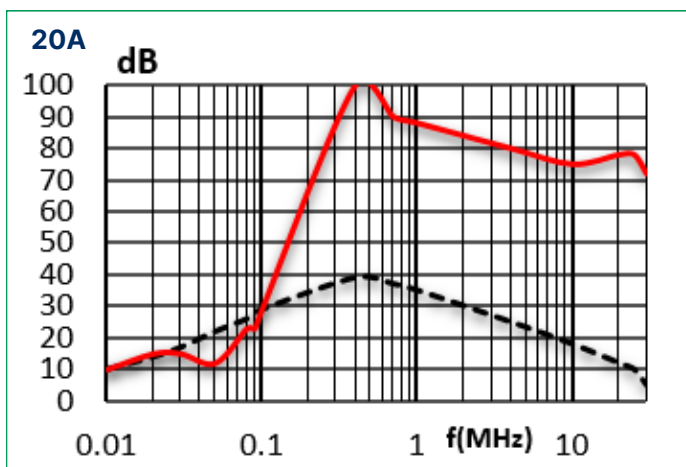
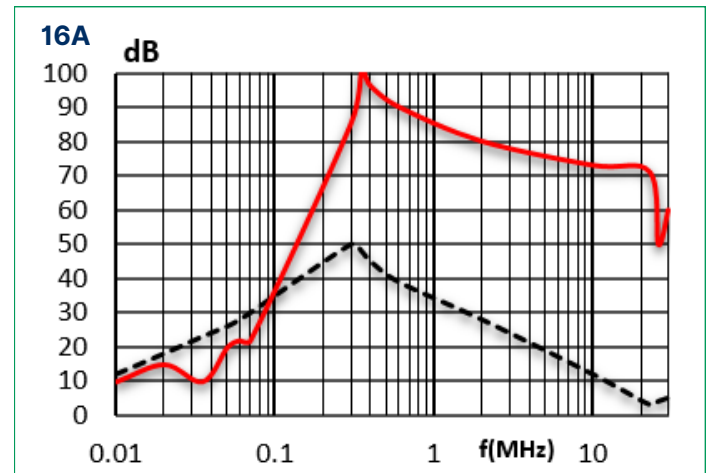
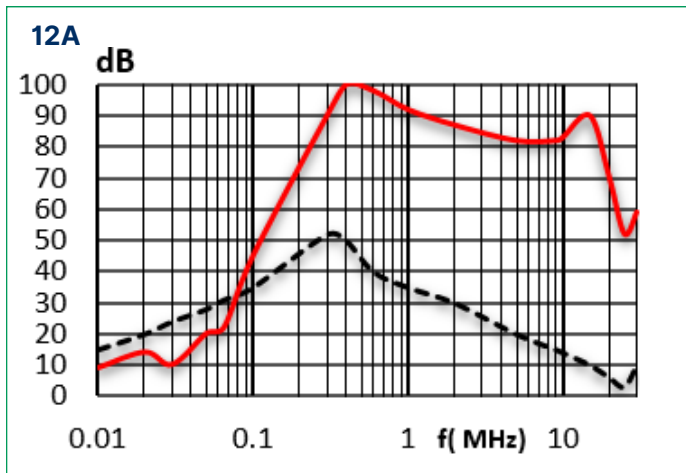
20A



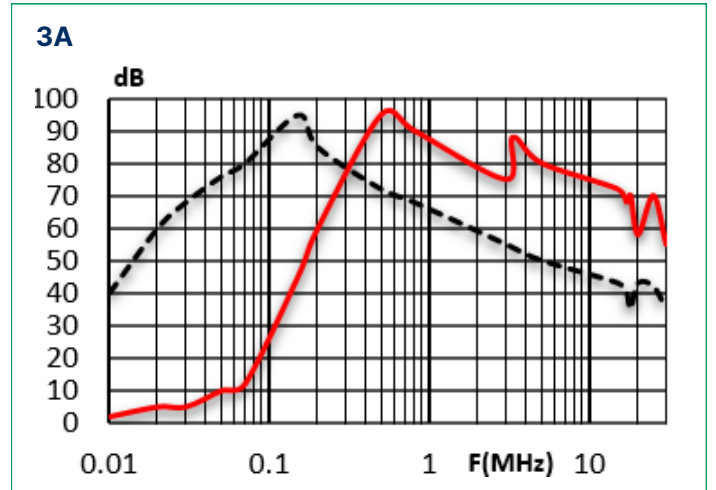
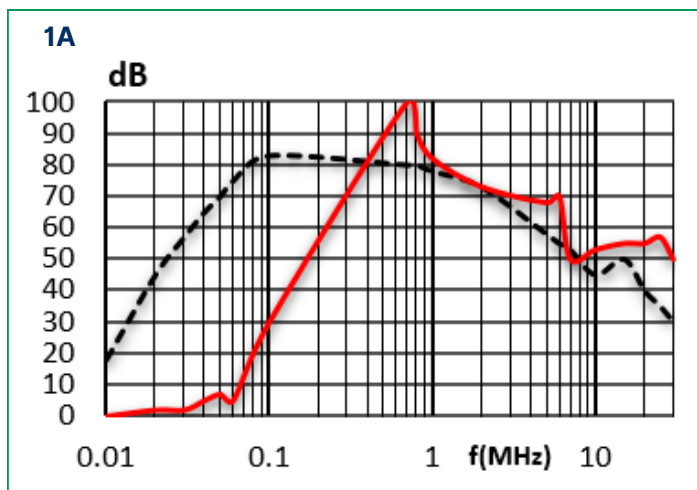
30A

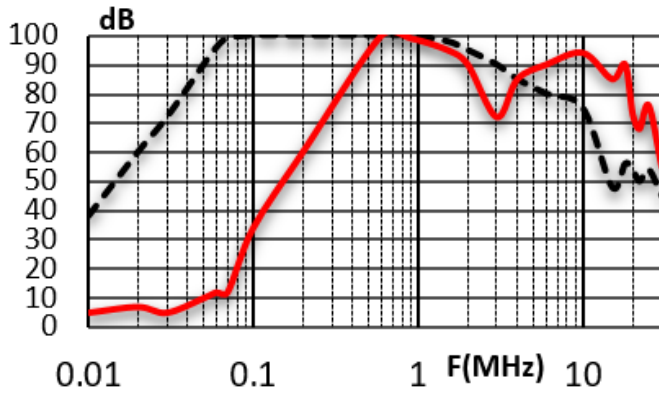
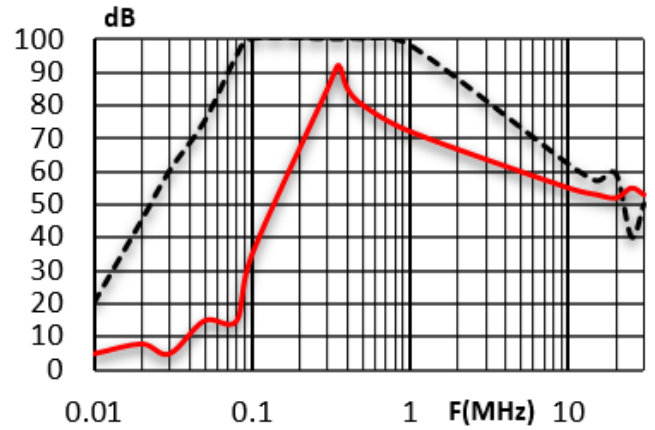
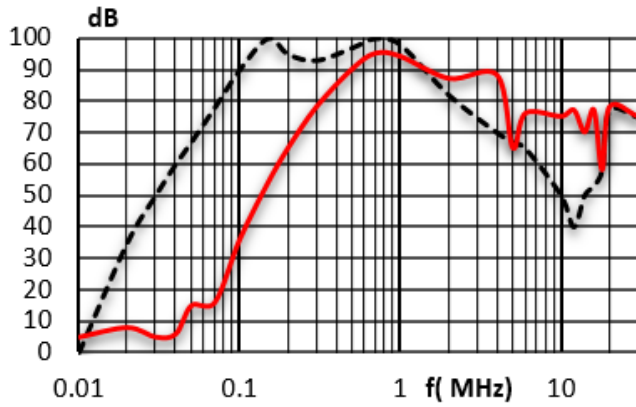
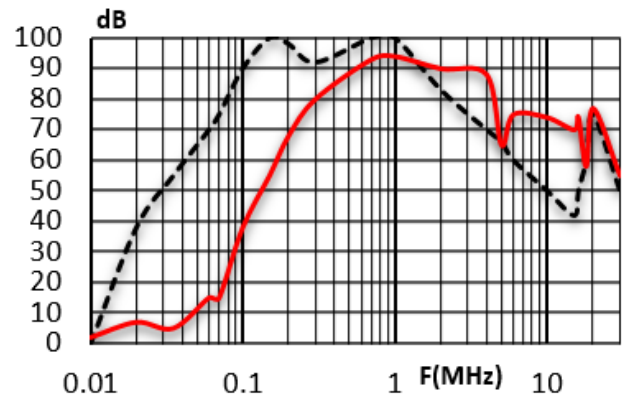
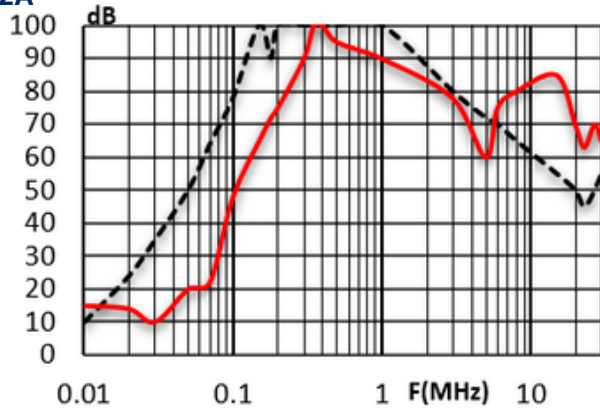
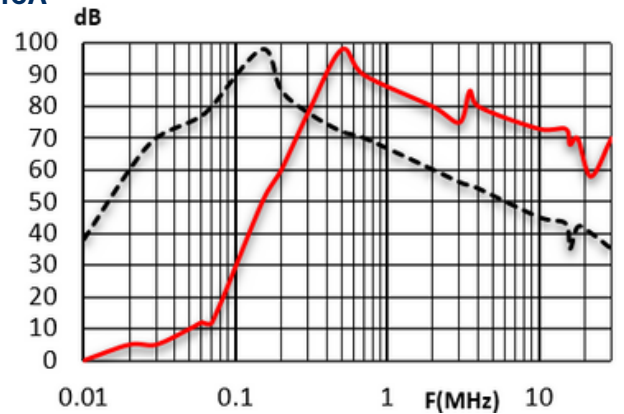




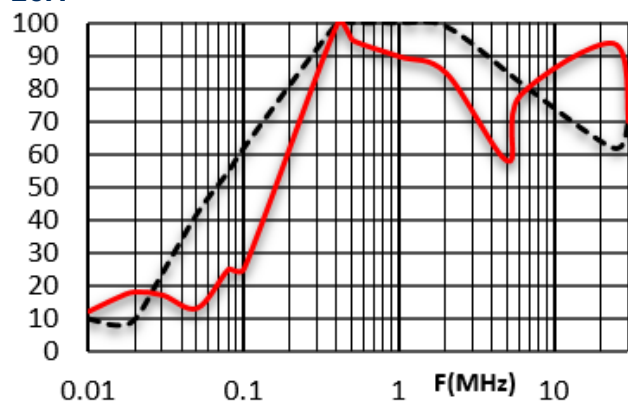


Enhanced Version

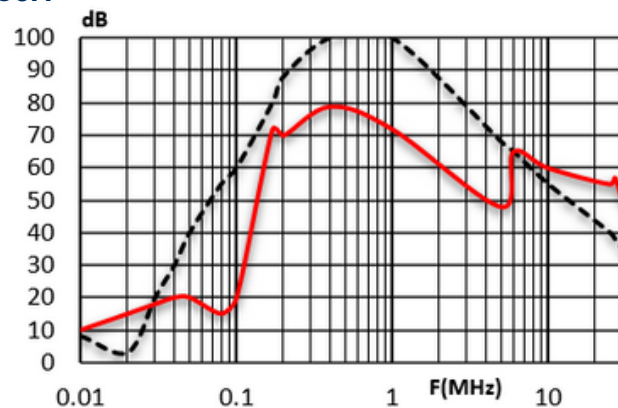


4A**6A****8A****10A****12A****16A**

20A

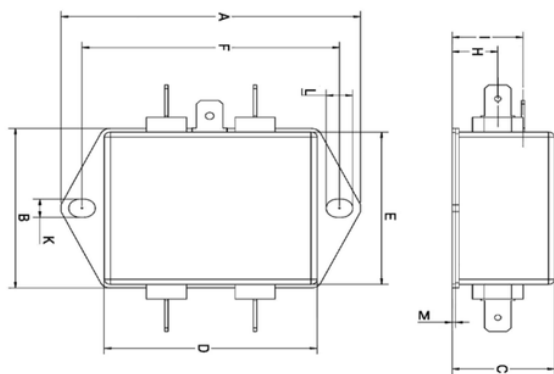


30A

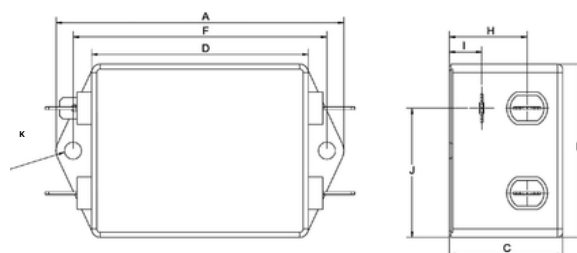


Mechanical Drawing:

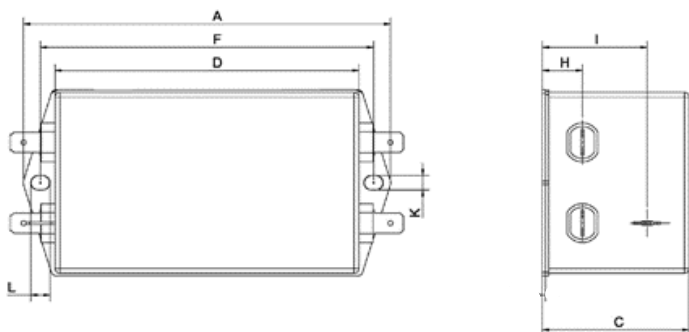
Connection Style - 04, 1A Type



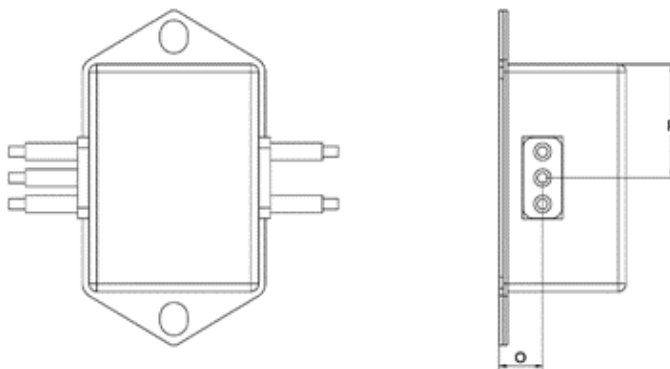
Connection Style - 04, 3A to 6A Type



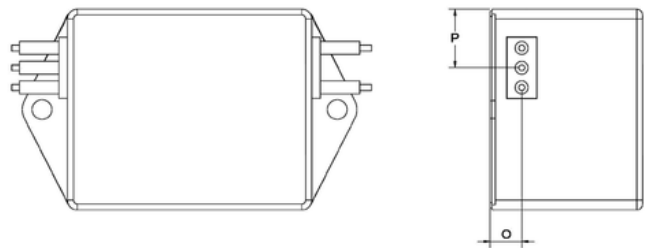
Connection Style - 04, 8A to 30 Type



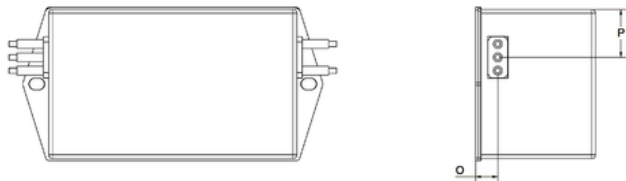
**Connection Style - 05, 1A Type
(same dimension as style -04)**



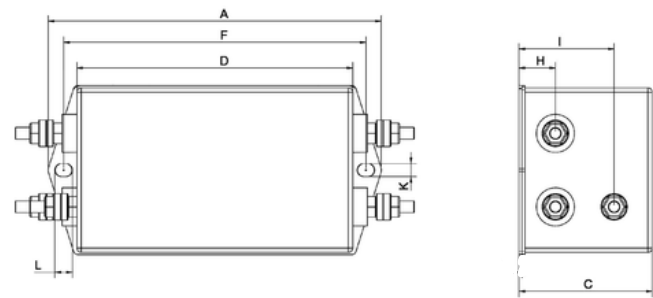
**Connection Style - 05, 3A to 6A Type
(same dimension as style -04)**



**Connection Style - 05, 8A to 30A Type
(same dimension as style -04)**



**Connection Style - 01, 6A, 10A, 12A, 20A and
30A Type**



Mechanical Dimensions:

	1A	3A	4A	6A	8A	10A	12A	16A	20A	30A
A	71±1	85±1	85±1	85±1	113.5±1	113.5±1	113.5±1	113.5±1	113.5±1	113.5±1
B	46.6±1	51±1	51±1	51±1	57.5±1	57.5±1	57.5±1	57.5±1	57.5±1	57.5±1
C	22.3±1	32.5±1	32.5±1	32.5±1	45.4±1	45.4±1	45.4±1	45.4±1	45.4±1	45.4±1
D	50.5±1	64±1	64±1	64±1	94±1	94±1	94±1	94±1	94±1	94±1
E	44.5	-	-	-	56	56	56	56	56	56
F	61	75	75	75	103	103	103	103	103	103
H	10.8±1	21.5±1	21.5±1	21.5±1	12.4±1	12.4±1	12.4±1	12.4±1	12.4±1	12.4±1
I	16.8±1	9±1	9±1	9±1	32.4±1	32.4±1	32.4±1	32.4±1	32.4±1	32.4±1
K	5.3	5	5	5	4.4	4.4	4.4	4.4	4.4	4.4
L	6.3	-	-	-	6	6	6	6	6	6
Connection Style-04	6.3x0.8	6.3X0.8	6.3X0.8	6.3X0.8	6.3X0.8	6.3X0.8	6.3X0.8	6.3X0.8	-	-
Connection Style-05	-	-	-	-	-	-	-	-	-	-
O	8.3	8.3	8.3	8.3	8.4	8.4	8.4	8.4	-	-
P	14	14.9	14.9	14.9	18	18	18	18	-	-
AWG Type Wire	AWG 20	AWG 20	AWG 20	AWG 18	AWG 18	AWG 18	AWG 16	AWG 16	-	-
Wire Length	140	140	140	140	140	140	140	140	-	-
Connection Style-01	-	-	-	-	-	M4	M4	M4	M4	M4
Recommended torque (Nm)	-	-	-	-	-	1.2-1.3	1.2-1.3	1.2-1.3	1.2-1.3	1.2-1.3
Recommended torque (Nm)	-	-	-	-	-	1.5-1.7	1.5-1.7	1.5-1.7	1.5-1.7	1.5-1.7

All dimensions in mm; Tolerances according to ISO 2768-C