

High Performance K Series RFI Line Filters for SMPS Emission Control

SK Series



UL Recognized
CSA Certified
VDE Approved



SK Series

- Designed to reduce conducted noise to acceptable limits for equipment that must comply with FCC / EN specifications
- Utilizes significantly higher element values than the general purpose K Series which makes them better suited for equipment with Line to Ground and Line to Line conducted emissions including those with switching power supplies
- ESK6C and VSK6C incorporate separate ground circuit inductor to isolate the equipment chassis from power line ground at RF frequencies

Ordering Information



*IEC 60320-1 C14 inlet mates with C13 connector

Specifications

Maximum leakage current each Line to Ground:

	VSK Models	ESK Models
3, 6 & 10A		
@120 VAC 60 Hz:	.4 mA	.21 mA
@250 VAC 50 Hz:	.7 mA	.36 mA
20, 30 & 40A		
@120 VAC 60 Hz:	.75 mA	.3 mA
@250 VAC 50 Hz:	1.25 mA	.5 mA

Hipot rating (one minute):

Line to Ground:	2250 VDC
Line to Line:	1450 VDC

Rated Voltage (max):

250 VAC

Operating Frequency:

50/60 Hz

Rated Current:

3 to 40A

Operating Ambient Temperature Range

(at rated current I_r): -10°C to +40°C
In an ambient temperature (T_a) higher than +40°C the maximum operating current (I_o) is calculated as follows: $I_o = I_r \sqrt{(85-T_a)/45}$

Available Part Numbers

3VSK1	3ESK1	20ESK6
3VSK3	3ESK3	20VSK6
3VSK7	3ESK7	30ESK6
3VSK7M	3ESK7M	30ESK6C
6VSK1	6ESK1	30VSK6
6VSK3	6ESK3	30VSK6C
6VSK7	6ESK7	40VSK6
6VSK7M	6ESK7M	
10VSK1	10ESK1	
10VSK3	10ESK3	
10VSK7	10ESK7	
10VSK7M	10ESK7M	

High Performance K Series Filters for SMPS Emission Control *(continued)*

SK Series

Electrical Schematic



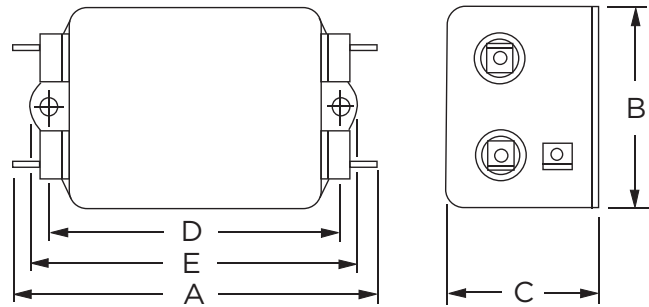
Accessories

GA400: NEMA 5-15P to IEC 60320-1 C-13 line cord



Case Styles

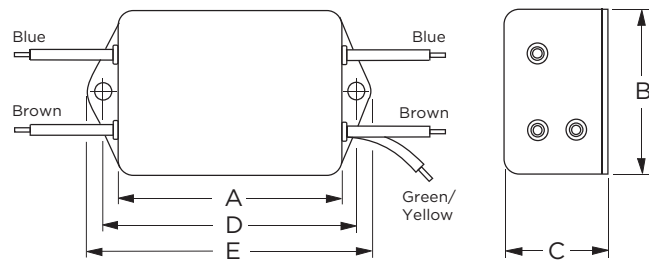
SK1



Typical Dimensions:

- Line/Load Terminals (4): .250 [6.3] with .07 [1.8] Dia. hole
- Ground Terminal (1): .250 [6.3] with .07 x .16 [1.8 x 3.8] slot
- Mounting Holes (2): .188 [4.78] Dia.

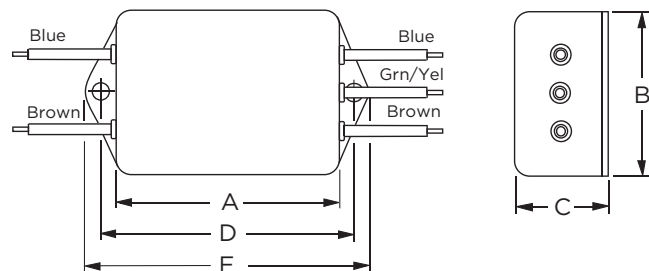
SK3 (3A)



Typical Dimensions:

- Wire Leads (5): 4.0 [101.6] Min., AWG18
- Mounting Holes (2): .188 [4.78] Dia.

SK3 (6 & 10A)



Typical Dimensions:

- Wire Leads (5): 4.0 [101.6] Min., AWG18 (AWG16 for 10A)
- Mounting Holes (2): .188 [4.78] Dia.

High Performance K Series Filters for SMPS Emission Control *(continued)*

SK Series

Case Styles *(continued)*

SK6 (20A)



Typical Dimensions:
 Terminals (5): 8-32, Torque 18 lbf-in. [2.03 N-m] max. ± 2 [.22]
 Mounting Holes (2): .188 [4.78] Dia.

SK6 (30A)



Typical Dimensions:
 Terminals (5): 10-32, Torque 27 lbf-in. [3.05 N-m] max. ± 2 [.22]
 Mounting Slots (4): .250 x .156 [6.35 x 3.96] Dia.

SK6C (30A)



Typical Dimensions:
 Terminals (5): 10-32, Torque 27 lbf-in. [3.05 N-m] max. ± 2 [.22]
 Mounting Slots (4): .250 x .156 [6.35 x 3.96] Dia.

SK6 (40A)



Typical Dimensions:
 Terminals (5): 10-32, Torque 27 lbf-in. [3.05 N-m] max. ± 2 [.22]
 Mounting Slots (4): .203 x .156 [5.15 x 3.96] Dia.

SK7 & SK7M



Typical Dimensions:
 Load Terminals (2): .250 [6.3] with .07 [1.8] Dia. hole
 Ground Terminal (1): .250 [6.3] with .07 x .16 [1.8 x 3.8] slot
 Line Inlet (1): IEC 60320-1 C14
 K7 Tapped Inserts (2): 6-32 x 1/4
 K7M Tapped Inserts (2): M3 x .5

Recommended Panel Cutout



Tolerance $\pm .005$ [0.13]
 Back Mount Only



RFI Power Line Filters

High Performance K Series Filters for SMPS Emission Control *(continued)*

SK Series

Case Dimensions

Part No.	A (max)	B (max)	C (max)	D $\pm .015$ $\pm .38$	E (max)
3VSK1,	3.85	2.07	1.16	2.938	3.35
3ESK1	<i>97.8</i>	<i>52.6</i>	<i>29.5</i>	<i>74.63</i>	<i>85.1</i>
3VSK3,	2.56	2.07	1.16	2.938	3.35
3ESK3	<i>65.0</i>	<i>52.6</i>	<i>29.5</i>	<i>74.63</i>	<i>85.1</i>
3VSK7/7M,	3.21	2.25	1.53	1.575	0.63*
3ESK7/7M	<i>81.5</i>	<i>57.2</i>	<i>38.9</i>	<i>40.01</i>	<i>16.0*</i>
6VSK1,	4.34	2.25	1.28	3.427	3.83
6ESK1	<i>110.2</i>	<i>57.2</i>	<i>32.5</i>	<i>87.05</i>	<i>97.3</i>
6VSK3,	3.05	2.25	1.28	3.427	3.83
6ESK3	<i>77.5</i>	<i>57.2</i>	<i>32.5</i>	<i>87.05</i>	<i>97.3</i>
6VSK7/7M,	3.21	2.25	1.78	1.575	0.63*
6ESK7/7M	<i>81.5</i>	<i>57.2</i>	<i>45.2</i>	<i>40.01</i>	<i>16.0*</i>
10VSK1,	4.97	2.25	1.78	4.063	4.46
10ESK1	<i>126.2</i>	<i>57.2</i>	<i>45.2</i>	<i>103.2</i>	<i>113.3</i>
10VSK3,	3.69	2.25	1.78	4.063	4.46
10ESK3	<i>93.7</i>	<i>57.2</i>	<i>45.2</i>	<i>103.2</i>	<i>113.3</i>
10VSK7/7M,	4.34	2.25	1.78	1.575	0.63*
10ESK7/7M	<i>110.0</i>	<i>57.2</i>	<i>45.2</i>	<i>40.01</i>	<i>16.0*</i>
20VSK6,	5.09	2.25	1.78	4.063	4.46
20ESK6	<i>127.3</i>	<i>57.2</i>	<i>45.2</i>	<i>103.2</i>	<i>129.3</i>
Part No.	A (max)	B (max)	C (max)	D $\pm .020$ $\pm .51$	E (max)
30VSK6,	4.92	3.12	2.75	3.437	4.00
30ESK6	<i>125.0</i>	<i>79.25</i>	<i>69.85</i>	<i>87.3</i>	<i>101.6</i>
30VSK6C,	4.92	3.12	2.75	3.437	4.00
30ESK6C	<i>125.0</i>	<i>79.25</i>	<i>69.85</i>	<i>87.3</i>	<i>101.6</i>
40VSK6	6.45	3.12	2.18	3.50	3.96
	<i>163.83</i>	<i>79.25</i>	<i>55.4</i>	<i>88.9</i>	<i>100.6</i>

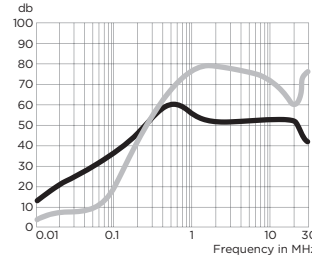
*±0.02 [0.5]

Performance Data

Typical Insertion Loss

Measured in closed 50 Ohm system

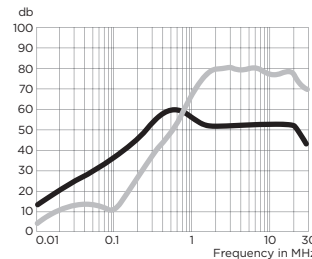
3 & 6VSK



3 & 6ESK



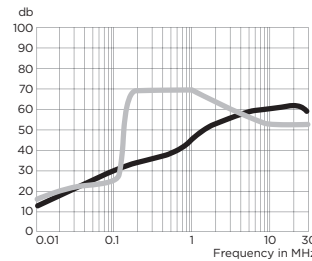
10 & 20VSK



10 & 20ESK



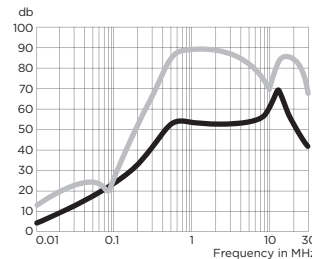
30VSK



30ESK



40VSK



— Common Mode / Asymmetrical (L-G)
- - - Differential Mode / Symmetrical (L-L)

High Performance K Series Filters for SMPS Emission Control *(continued)*

SK Series

Performance Data *(continued)*

Minimum Insertion Loss

Measured in closed 50 Ohm system

Common Mode / Asymmetrical (Line to Ground)

Current Rating	Frequency – MHz								
	.01	.08	.1	.15	.5	1	5	10	30
VSK Models									
3A, 6A	4	23	25	29	43	44	42	42	30
10A	4	23	25	29	43	44	42	42	30
20A	7	23	25	29	43	44	48	48	48
30A	2	13	14	15	27	31	46	51	39
40A	2	15	18	22	40	43	45	50	30
ESK Models									
3A, 6A	4	22	24	28	42	40	36	36	27
10A	4	22	24	28	42	40	36	36	27
20A	7	22	24	28	35	38	45	45	45
30A	2	13	15	15	27	31	40	41	36

Differential Mode / Symmetrical (Line to Line)

Current Rating	Frequency – MHz								
	.01	.08	.1	.15	.5	1	5	10	30
VSK Models									
3A, 6A	1	3	10	25	59	65	62	40	40
10A	1	3	3	10	55	65	65	50	50
20A	1	10	8	8	45	60	65	60	60
30A	5	13	13	13	60	60	51	43	43
40A	7	14	16	30	65	65	65	57	50
ESK Models									
3A, 6A	1	3	10	25	59	65	62	40	40
10A	1	3	3	10	55	65	65	65	45
20A	1	10	8	8	45	60	65	60	60
30A	5	12	12	13	60	60	51	43	43



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