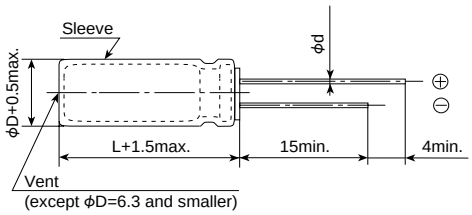
SXE Series

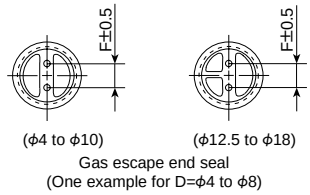
●Low impedance capacitors, operating temperature range from −55 to 105℃
●Solvent-proof type (see PRECAUTIONS AND GUIDELINES)

◆SPECIFICATIONS

Items	Characteristics									
Category Temperature Range	−55 to +105℃									
Rated Voltage Range	6.3 to 100Vdc									
Capacitance Tolerance	±20%(M) (at 20℃, 120Hz)									
Leakage Current	I=0.03CV (after 1 minute at 20℃) Where: I:Max. leakage current (μA), C:Nominal capacitance (μF), V:Rated voltage (V) I=0.01CV (after 2 minutes at 20℃)									
Dissipation factor (tanδ)	Rated voltage(Vdc)	6.3	10	16	25	35	50	63	80	100
	tanδ (Max.)	0.22	0.19	0.16	0.14	0.12	0.10	0.08	0.08	0.07
	When nominal capacitance exceeds 1000μF, add 0.02 to the value above for each 1000μF increase. (at 20℃, 120Hz)									
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for the specified period of lifetime at 105℃.									
	Lifetime	1,000 hours (φ4 to 8)	2,000 hours (φ10 to 18)							
	Capacitance change	≦±20% of the initial value	≦±20% of the initial value							
	D.F. (tanδ)	≦200% of the initial specified value	≦200% of the initial specified value							
	Leakage current	≦the initial specified value	≦the initial specified value							
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied.									
	Capacitance change	≦±20% of the initial value								
	D.F. (tanδ)	≦150% of the initial specified value								
	Leakage current	≦the initial specified value								

◆DIMENSIONS (Radial Lead Type=VB) [mm]





φD	4	5	6.3	8	10 & 12.5	16 & 18
φd	0.45	0.5*	0.5*	0.6	0.6	0.8
F	1.5	2.0	2.5	3.5	5.0	7.5

*For L=7mm, φd is 0.45

◆PART NUMBERING SYSTEM

SXE 10 VB 1000 M K15

Case code
Cap tolerance (±20%)
Nominal cap code
Radial lead type
Rated voltage in volts
Series name

Capacitance	Code
3.3μF	3R3
10μF	10
100μF	100
470μF	470
1000μF	1000

◆CASE CODE

L(mm) / φD(mm)	7	11.5	12	12.5	15	20	25	30	35	40
4	D07	D11								
5	E07	E11			E15					
6.3	F07	F11			F15					
8			H12		H15	H20				
10				J12	J15	J20	J25	J30		
12.5					K15	K20	K25	K30	K35	K40
16					L15	L20	L25	L30	L35	L40
18					M15	M20	M25	M30	M35	M40

SXE Series

◆STANDARD RATINGS

Vdc	6.3					10					16				
Case size φDXL (mm) \ Items	Capacitance (µF)	Impedance (Ωmax) (20℃/100kHz)	Impedance (Ωmax) (−10℃/100kHz)	Rated ripple current (mArms) (105℃/100kHz)	Rated ripple current (mArms) (105℃/120Hz)	Capacitance (µF)	Impedance (Ωmax) (20℃/100kHz)	Impedance (Ωmax) (−10℃/100kHz)	Rated ripple current (mArms) (105℃/100kHz)	Rated ripple current (mArms) (105℃/120Hz)	Capacitance (µF)	Impedance (Ωmax) (20℃/100kHz)	Impedance (Ωmax) (−10℃/100kHz)	Rated ripple current (mArms) (105℃/100kHz)	Rated ripple current (mArms) (105℃/120Hz)
4×7	27	5.5	14.3	50	25	22	5.4	14.0	50	25	15	5.3	13.8	50	25
4×11.5	68	2.2	5.7	102	74	47	2.2	5.6	102	74	33	2.1	5.5	102	51
5×7	56	3.4	8.8	75	68	39	3.3	8.6	75	68	27	3.3	8.6	75	49
5×11.5	120	1.3	3.4	154	108	82	1.3	3.4	154	108	56	1.3	3.4	154	108
5×15	150	0.92	2.4	210	147	120	0.91	2.4	210	147	82	0.89	2.3	210	147
6.3×7	120	1.4	3.6	140	98	82	1.4	3.6	140	98	56	1.4	3.6	140	98
6.3×11.5	220	0.61	1.6	260	182	180	0.59	1.5	260	182	120	0.58	1.5	260	182
6.3×15	330	0.40	1.0	350	245	270	0.39	1.0	350	245	180	0.38	0.99	350	245
8×12	390	0.34	0.88	400	320	330	0.33	0.86	400	280	220	0.33	0.86	400	280
8×15	560	0.24	0.62	500	400	470	0.24	0.62	500	400	330	0.23	0.60	500	350
8×20	820	0.19	0.49	650	520	560	0.18	0.47	650	520	470	0.18	0.47	650	520
10×12.5	470	0.28	0.73	510	410	390	0.27	0.70	510	410	270	0.27	0.70	510	360
10×15	680	0.22	0.57	635	510	560	0.22	0.57	635	510	390	0.21	0.55	635	510
10×20	1,200	0.14	0.36	860	775	820	0.14	0.36	860	690	680	0.14	0.36	860	690
10×25	1,500	0.12	0.31	1,030	930	1,200	0.12	0.31	1,030	930	820	0.12	0.31	1,030	825
10×30	2,200	0.095	0.25	1,150	1,035	1,500	0.093	0.24	1,150	1,035	1,000	0.091	0.24	1,150	920
12.5×15	1,200	0.12	0.31	970	875	1,000	0.12	0.31	970	780	680	0.12	0.31	970	780
12.5×20	2,200	0.089	0.23	1,120	1,010	1,800	0.087	0.23	1,120	1,010	1,200	0.086	0.22	1,120	1,010
12.5×25	2,700	0.075	0.20	1,320	1,190	2,200	0.073	0.19	1,320	1,190	1,500	0.072	0.19	1,320	1,190
12.5×30	3,900	0.065	0.17	1,540	1,390	2,700	0.064	0.17	1,540	1,390	2,200	0.063	0.16	1,540	1,390
12.5×35	4,700	0.053	0.14	1,770	1,595	3,300	0.052	0.14	1,770	1,595	2,700	0.051	0.13	1,770	1,595
12.5×40	5,600	0.046	0.12	1,980	1,785	3,900	0.045	0.12	1,980	1,785	3,300	0.045	0.12	1,980	1,785
16×15	2,200	0.10	0.26	1,100	990	1,500	0.10	0.26	1,100	990	1,200	0.099	0.26	1,100	990
16×20	3,900	0.076	0.20	1,370	1,235	3,300	0.075	0.20	1,370	1,235	2,200	0.073	0.19	1,370	1,235
16×25	5,600	0.066	0.17	1,570	1,415	3,900	0.065	0.17	1,570	1,415	2,700	0.064	0.17	1,570	1,415
16×30	6,800	0.055	0.14	1,810	1,630	4,700	0.054	0.14	1,810	1,630	3,900	0.053	0.14	1,810	1,630
16×35	8,200	0.047	0.12	2,030	1,830	6,800	0.046	0.12	2,030	1,830	4,700	0.046	0.12	2,030	1,830
16×40	10,000	0.039	0.10	2,320	2,090	8,200	0.038	0.099	2,320	2,090	5,600	0.037	0.096	2,320	2,090
18×15	3,300	0.081	0.21	1,280	1,155	2,200	0.080	0.21	1,280	1,150	1,500	0.078	0.20	1,280	1,155
18×20	5,600	0.063	0.16	1,580	1,425	3,900	0.062	0.16	1,580	1,425	3,300	0.060	0.16	1,580	1,425
18×25	6,800	0.054	0.14	1,830	1,650	4,700	0.053	0.14	1,830	1,650	3,900	0.052	0.14	1,830	1,650
18×30	10,000	0.047	0.12	2,030	1,830	6,800	0.046	0.12	2,030	1,830	4,700	0.046	0.12	2,030	1,830
18×35	12,000	0.042	0.11	2,240	2,020	8,200	0.041	0.11	2,240	2,020	6,800	0.040	0.10	2,240	2,020
18×40	15,000	0.037	0.096	2,460	2,215	10,000	0.037	0.096	2,460	2,215	8,200	0.036	0.094	2,460	2,215

Vdc	25					35					50				
Case size φDXL (mm) \ Items	Capacitance (µF)	Impedance (Ωmax) (20℃/100kHz)	Impedance (Ωmax) (−10℃/100kHz)	Rated ripple current (mArms) (105℃/100kHz)	Rated ripple current (mArms) (105℃/120Hz)	Capacitance (µF)	Impedance (Ωmax) (20℃/100kHz)	Impedance (Ωmax) (−10℃/100kHz)	Rated ripple current (mArms) (105℃/100kHz)	Rated ripple current (mArms) (105℃/120Hz)	Capacitance (µF)	Impedance (Ωmax) (20℃/100kHz)	Impedance (Ωmax) (−10℃/100kHz)	Rated ripple current (mArms) (105℃/100kHz)	Rated ripple current (mArms) (105℃/120Hz)
4×7	10	5.3	13.7	50	25	6.8	5.2	13.4	50	25	4.7	5.0	13.0	50	20
4×11.5	22	2.1	5.5	102	51	15	2.1	5.4	102	51	10	2.0	5.2	102	51
5×7	22	3.3	8.6	75	45	12	3.2	8.3	75	38	8.2	3.1	8.1	75	38
5×11.5	39	1.3	3.3	154	108	27	1.2	3.1	154	77	18	1.2	3.1	154	77
5×15	56	0.88	2.3	210	147	39	0.87	2.3	210	147	27	0.84	2.2	210	105
6.3×7	39	1.4	3.6	140	98	27	1.3	3.4	140	70	18	1.3	3.4	140	70
6.3×11.5	82	0.58	1.5	260	182	56	0.57	1.5	260	182	39	0.55	1.4	260	182
6.3×15	120	0.38	0.99	350	245	82	0.37	0.96	350	245	56	0.36	0.94	350	245
8×12	150	0.33	0.86	400	280	100	0.32	0.83	400	280	68	0.31	0.81	400	280
8×15	220	0.23	0.60	500	350	150	0.23	0.60	500	350	82	0.22	0.57	500	350
8×20	270	0.18	0.47	650	455	220	0.18	0.47	650	455	120	0.17	0.44	650	455
10×12.5	180	0.26	0.68	510	360	120	0.26	0.68	510	360	82	0.25	0.65	510	360
10×15	270	0.21	0.55	635	445	180	0.21	0.55	635	445	100	0.20	0.52	635	445
10×20	470	0.14	0.36	860	690	330	0.13	0.34	860	605	180	0.13	0.34	860	605
10×25	560	0.12	0.31	1,030	825	390	0.11	0.29	1,030	825	220	0.11	0.29	1,030	725
10×30	680	0.090	0.23	1,150	920	470	0.089	0.23	1,150	920	330	0.086	0.22	1,150	805
12.5×15	470	0.12	0.31	970	780	330	0.11	0.29	970	680	180	0.11	0.29	970	680
12.5×20	820	0.085	0.22	1,120	900	560	0.083	0.22	1,120	900	330	0.081	0.22	1,120	785
12.5×25	1,000	0.071	0.18	1,320	1,060	680	0.070	0.18	1,320	1,060	470	0.068	0.19	1,320	1,060
12.5×30	1,500	0.062	0.16	1,540	1,390	1,000	0.061	0.16	1,540	1,390	560	0.059	0.16	1,540	1,235
12.5×35	1,800	0.050	0.13	1,770	1,595	1,200	0.049	0.13	1,770	1,595	680	0.048	0.14	1,770	1,420
12.5×40	2,200	0.044	0.11	1,980	1,785	1,500	0.043	0.11	1,980	1,785	820	0.042	0.12	1,980	1,585
16×15	820	0.098	0.25	1,100	880	560	0.096	0.25	1,100	880	330	0.093	0.20	1,100	770
16×20	1,500	0.072	0.19	1,370	1,235	1,000	0.071	0.18	1,370	1,100	680	0.069	0.15	1,370	1,100
16×25	1,800	0.063	0.16	1,570	1,415	1,200	0.062	0.16	1,570	1,415	820	0.060	0.13	1,570	1,260
16×30	2,700	0.053	0.14	1,810	1,630	1,800	0.052	0.14	1,810	1,630	1,000	0.050	0.13	1,810	1,450
16×35	3,300	0.045	0.12	2,030	1,830	2,200	0.044	0.11	2,030	1,830	1,200	0.043	0.11	2,030	1,830
16×40	3,900	0.037	0.096	2,320	2,090	2,700	0.036	0.094	2,320	2,090	1,500	0.035	0.091	2,320	2,090
18×15	1,200	0.078	0.20	1,280	1,155	820	0.076	0.20	1,280	1,155	470	0.074	0.19	1,280	1,025
18×20	2,200	0.060	0.16	1,580	1,425	1,500	0.059	0.15	1,580	1,425	820	0.057	0.15	1,580	1,265
18×25	2,700	0.051	0.13	1,830	1,650	1,800	0.050	0.13	1,830	1,650	1,000	0.049	0.13	1,830	1,465
18×30	3,300	0.045	0.12	2,030	1,830	2,200	0.044	0.11	2,030	1,830	1,500	0.043	0.11	2,030	1,830
18×35	3,900	0.040	0.10	2,240	2,020	2,700	0.039	0.10	2,240	2,020	1,800	0.038	0.099	2,240	2,020
18×40	4,700	0.036	0.094	2,460	2,215	3,300	0.035	0.091	2,460	2,215	2,200	0.034	0.088	2,460	2,215

SXE Series

◆STANDARD RATINGS

63 Vdc

Case size φDXL (mm)	Capacitance (µF)	Impedance (Ωmax) (20℃/100kHz)	Impedance (Ωmax) (−10℃/100kHz)	Rated ripple current (mArms) (105℃/100kHz)	Rated ripple current (mArms) (105℃/120Hz)
4×7	3.3	11.2	30.2	38	15
4×11.5	6.8	4.3	11.6	73	37
5×7	5.6	5.1	13.8	61	31
5×11.5	12	2.0	5.4	124	62
5×15	18	1.4	3.8	170	85
6.3×7	12	3.0	8.1	95	48
6.3×11.5	27	1.2	3.2	180	90
6.3×15	39	0.66	1.8	270	190
8×12	47	0.56	1.5	305	215
8×15	68	0.36	0.97	410	290
8×20	82	0.22	0.57	605	425
10×12.5	56	0.50	1.4	380	270
10×15	68	0.35	0.95	500	350
10×20	120	0.27	0.74	620	435
10×25	150	0.20	0.53	795	560
10×30	180	0.16	0.42	955	670
12.5×15	150	0.25	0.67	640	450
12.5×20	220	0.16	0.42	890	625
12.5×25	270	0.14	0.38	1,040	730
12.5×30	390	0.11	0.29	1,270	1,020
12.5×35	470	0.091	0.25	1,450	1,160
12.5×40	560	0.080	0.22	1,610	1,290
16×15	220	0.15	0.41	960	675
16×20	390	0.12	0.32	1,240	995
16×25	470	0.091	0.25	1,440	1,155
16×30	680	0.065	0.18	1,790	1,435
16×35	820	0.056	0.15	2,000	1,600
16×40	1,000	0.049	0.13	2,200	1,780
18×15	330	0.13	0.35	1,130	795
18×20	560	0.091	0.25	1,450	1,160
18×25	680	0.078	0.21	1,650	1,320
18×30	820	0.065	0.18	1,850	1,480
18×35	1,000	0.061	0.16	1,990	1,595
18×40	1,200	0.046	0.12	2,370	2,135

80 Vdc

Case size φDXL (mm)	Capacitance (µF)	Impedance (Ωmax) (20℃/100kHz)	Impedance (Ωmax) (−10℃/100kHz)	Rated ripple current (mArms) (105℃/100kHz)	Rated ripple current (mArms) (105℃/120Hz)
4×7	2.2	11.0	29.7	38	15
4×11.5	4.7	4.2	11.3	73	29
5×7	3.9	5.0	13.5	61	24
5×11.5	8.2	1.9	5.2	124	62
5×15	12	1.4	3.7	170	85
6.3×7	8.2	2.9	7.8	95	48
6.3×11.5	18	1.1	3.0	180	90
6.3×15	27	0.64	1.7	270	135
8×12	33	0.54	1.5	305	155
8×15	47	0.36	0.97	410	290
8×20	56	0.28	0.74	605	425
10×12.5	39	0.49	1.3	380	270
10×15	56	0.34	0.90	500	350
10×20	82	0.26	0.71	620	435
10×25	100	0.19	0.51	795	560
10×30	150	0.15	0.41	955	670
12.5×15	100	0.24	0.64	640	450
12.5×20	150	0.15	0.41	890	625
12.5×25	180	0.14	0.37	1,040	730
12.5×30	270	0.10	0.28	1,270	890
12.5×35	330	0.088	0.24	1,450	1,015
12.5×40	390	0.076	0.21	1,610	1,290
16×15	180	0.14	0.38	960	675
16×20	270	0.11	0.31	1,240	870
16×25	330	0.088	0.24	1,440	1,010
16×30	470	0.063	0.17	1,790	1,435
16×35	560	0.054	0.15	2,000	1,600
16×40	680	0.048	0.13	2,200	1,780
18×15	220	0.13	0.34	1,130	795
18×20	390	0.088	0.24	1,450	1,160
18×25	470	0.075	0.20	1,650	1,320
18×30	680	0.063	0.17	1,850	1,480
18×35	820	0.060	0.16	1,990	1,595
18×40	1,000	0.044	0.12	2,370	1,900

100 Vdc

Case size φDXL (mm)	Capacitance (µF)	Impedance (Ωmax) (20℃/100kHz)	Impedance (Ωmax) (−10℃/100kHz)	Rated ripple current (mArms) (105℃/100kHz)	Rated ripple current (mArms) (105℃/120Hz)
4×7	1.5	10.8	29.2	38	15
4×11.5	3.3	4.1	11.1	73	29
5×7	2.7	4.9	13.2	61	24
5×11.5	5.6	1.9	5.1	124	62
5×15	8.2	1.3	3.6	170	85
6.3×7	5.6	2.8	7.6	95	48
6.3×11.5	12	1.1	3.0	180	90
6.3×15	18	0.62	1.7	270	135
8×12	22	0.53	1.4	305	155
8×15	33	0.35	0.95	410	205
8×20	39	0.27	0.73	605	425
10×12.5	27	0.48	1.3	380	190
10×15	33	0.33	0.89	500	250
10×20	56	0.26	0.70	620	435
10×25	68	0.19	0.50	795	560
10×30	100	0.15	0.40	955	670
12.5×15	68	0.23	0.63	640	450
12.5×20	100	0.15	0.40	890	625
12.5×25	120	0.13	0.36	1,040	730
12.5×30	180	0.10	0.27	1,270	890
12.5×35	220	0.087	0.23	1,450	1,015
12.5×40	270	0.074	0.20	1,610	1,130
16×15	120	0.14	0.38	960	675
16×20	180	0.11	0.30	1,240	870
16×25	220	0.086	0.23	1,440	1,010
16×30	330	0.062	0.17	1,790	1,255
16×35	390	0.059	0.16	1,990	1,595
16×40	470	0.047	0.13	2,200	1,780
18×15	150	0.12	0.33	1,130	795
18×20	270	0.086	0.23	1,450	1,015
18×25	330	0.074	0.20	1,650	1,155
18×30	390	0.062	0.17	1,850	1,480
18×35	560	0.053	0.14	2,000	1,600
18×40	680	0.043	0.12	2,370	1,900

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Capacitance (µF) \ Frequency (Hz)	50	120	300	1k	10k	100k
1.5 to 4.7	0.30	0.40	0.50	0.70	0.80	1.00
5.6 to 33	0.40	0.50	0.60	0.80	0.90	1.00
39 to 330	0.60	0.70	0.80	0.90	0.95	1.00
390 to 1,000	0.65	0.80	0.90	0.98	1.00	1.00
1,200	0.80	0.90	0.95	0.98	1.00	1.00