

SEK Type

+105°C Single-ended lead aluminum electrolytic capacitors for the rated voltage up to 450V.

- . Lower-cost capacitors expressly intended for high density printed circuit board.
- . Very high volumetric efficiency.
- . Ideally suited for general-purpose applications, coupling, decoupling, by pass, and filtering circuit in entertainment electronics.
- . Feature high CV product with moderate cost.

Diagram of Dimensions (Unit = mm)

PERFORMANCE CHARACTERISTICS (continued)

1. General Characteristics

1.1 Marking

Capacitors shall be marked with YAGEO mark ; rated capacitance ; rated DC working voltage range. and the date code of manufacture. The cathode lead will be identified with minus signs (-) on the side of the case.

1.2 Operating Temperature Range

These capacitors are designed to operate over a temperature range from -40°C to +105°C , for the rated voltage up to 250 V, while 350V to 450V operating temperature range within -25°C to +105°C.

1.2.1 At -40(-25) °C, capacitors shall retain at least 70% of their original 25°C measured capacitance. At +105°C. capacitance shall increase to no more than 120% of their original 25°C measured capacitance.

1.2.2 At -40(-25) °C, impedance shall increase to no more than the following table.

TEMPERATURE CHARACTERISTIC (@ 120Hz)

Working Voltage (WV)	6.3	10	16	25	35-100	160-250	315-350	400-450
Impedance Z-25°C/ Z+20°C	8	6	5	3	3	7	10	15
Impedance Z-40°C/ Z+20°C	10	8	6	4	3	7	-	-

1.3 Vent Test (applies only to those capacitors with vents.)

During and after the applicable test below (1.3.1 or 1.3.2.) there shall be no explosion, flash, flame or expulsion of particles of the core or container. In addition, the case shall not be expelled from the core. If the capacitor under test is a multisection unit, this test shall apply to the input section only.

1.3.1 AC Test. Capacitors with DC Rating Over 100 Volts

The capacitor under test shall be connected to a 120 volt RMS 60Hz, 100 ampere service through a 30 ampere thermal breaker and a 0.5 ohm, low inductance, series resistor. The capacitor shall be connected to this circuit for 5 minutes after the initial setting of the breaker or until the breaker has opened 3 times. If the breaker opens, it shall be reset not sooner than 30 seconds nor longer than 60 seconds from the time it opened.

1.3.2 DC Test. Capacitors with DC Rating 100 Volts or Less

Both of the following tests shall be performed, but on separate test units.

PERFORMANCE CHARACTERISTICS (continued)

1.3.2.1 Forward Bias Test.

The capacitor under test shall be connected to a DC power supply that has sufficient voltage to supply a constant direct current of 500 milliamperes with the positive terminal of the capacitor connected to the positive supply terminal and the negative capacitor terminal connected to the negative supply terminal. The constant current shall be maintained until (1) the capacitor vents, (2) 300 seconds have elapsed, or (3) the capacitor under test open circuits.

1.3.2.2 Reverse Bias Test.

The capacitor under test shall be connected to a power supply with sufficient voltage to provide a constant direct current of 500 milliamperes when the positive capacitor terminal is connected to the negative supply terminal and the negative capacitor terminal to the positive supply terminal. The constant current shall be maintained until (1) the capacitor vents, (2)300 seconds have elapsed, or (3) The capacitor open circuits.

2. Mechanical Characteristics

2.1 Lead Pull test

Capacitor leads shall withstand a steady pull of 1 Kg applied axially to the leads for 5 seconds.

3. Electrical Characteristics

3.1 Standard Test Conditions

Unless otherwise specified all tests shall be performed at, or referred to, an ambient temperature of 25°C and a relative humidity not greater than 50%.

3.2 Capacitance and Dissipation Factor

Measurements shall be made on a capacitance bridge capable of +/-2% accuracy on capacitance and dissipation factor measurements. Measurements shall be made at 120 Hz The RMS value of the AC measuring voltage shall not exceed 1.0 volt.

3.3 Leakage Current

3.3.1 Pre-conditioning. Rated working voltage shall be applied to capacitors for a minimum period of 15 minutes duration at least 24 hours and not more than 48 hours before test.

3.3.2 Test. Measurements shall be made after a 2 minute charge at rated working voltage at 25°C with an application of a steady source of power. Such as a regular power supply, with a 1000 ohm resistance to limit the charging current, connected in series with each capacitor under test.

3.4 Surge Voltage

The surge DC rating is the maximum voltage to which the capacitor should be subjected under any conditions. This includes transients and peak ripple at the highest line voltage.

3.4.1 Capacitors, connected in series with 1000 ohm resistors, shall withstand the surge test voltage applied at the rated of 1/2 minute on, 5 1/2 minutes off, for 1000 successive test cycles at 25°C.(see the following table)

PERFORMANCE CHARACTERISTICS (continued)

Rated Voltage 6.3 10 16 25 35 50 63 80 100 160 200 250 350 450

Surge Voltage 8 13 20 32 44 63 75 100 125 200 250 300 400 500

3.4.2 After the test, the capacitors shall meet the requirement specified in the following table.

Test	Value after test
Leakage Current	Not more than the initial value specified
Capacitance Change	More than 85% of the value before test
Dissipation Factor	Not more than 175% of the initial value specified

3.5 Humidity Test

Capacitors shall be subjected to a temperature of 40±2°C at a relative humidity of 90-95% for a period of 500 hours, then air dried for 1 hour. Following this conditioning, capacitors shall meet the specified requirements for dissipation factor and DC leakage current, and the capacitance value shall not change more than 10%.

4. Life And Reliability Test

4.1 Life Test

4.1.1 Rated voltage shall be applied to the capacitors for a period of 1000 hours while units are maintained at an ambient temperature of +105°C.

4.1.2 Capacitors shall then be removed from the test chamber and return to room temperature.

4.1.3 The capacitance shall then be measured in accordance with section 3.2 It shall not decrease to less than 80% of the capacitance at 25°C, measured prior to the test, nor shall it increase to more than 120% of the original 25°C value.

4.1.4 The dissipation factor shall be measured in accordance with section 3.2 The dissipation factor shall not exceed 200% of the initial requirement.

4.1.5 At the conclusion of the test, the leakage current shall not exceed the initial DC leakage current requirement. Measurements shall be made in accordance with section 3.3

4.2 Shelf Test

After storage for 500 hours at 105°C with no voltage applied, the capacitance change within 20% of initial value at 25°C and dissipation factor shall meet the initial requirements of section 4.1.4; the DC leakage current, measured in accordance with section 3.3, shall not exceed 200% of the initial requirement for the capacitor.

GUIDE TO APPLICATION

1. Maximum Ripple Current

1.1 Maximum rms ripple current at 105/85C 120Hz is given in the table 1.

1.2 When capacitors are operated at temperatures other than 105/85°C, and frequency other than 120 Hz, the maximum rms ripple currents must be multiplied by the factors shown in below table.

COMPENSATION FACTOR OF RIPPLE CURRENT VERSUS FREQUENCY

uF / Frequency	50	120	300	1K	10K-100K (Hz)
0.47 - 68	0.75	1	1.2	1.3	1.45
100 - 680	0.80	1	1.1	1.15	1.25
1000 - 15000	0.80	1	1.05	1.10	1.15

FACTOR OF RIPPLE CURRENT VS. TEMPERATURE

Temperature	65	85	105 (°C)
FACTOR	1.8	1.4	1

2. Ripple voltage

Ripple voltage must not exceed the following:

The sum of the DC voltage plus the AC ripple voltage must not exceed the rated DC voltage. The DC voltage plus the peak AC voltage must not cause a voltage reversal more than 1.5 volts.

3. Insulating

General types of aluminum electrolytic capacitors are covered with a vinyl sleeve or the like. And this sleeve is used for marking. When the internal element or the container is needed to be insulated, capacitors specially designed for insulation requirement are recommended to be used.

4. Soldering

4-1 When soldering a printed circuit board with various components, too high soldering temperature or too long dipping times may cause secondary shrinking of the sleeve which unnecessarily exposes the container. Soldering is allowed to performed at less than 260°C for less than 10 seconds.

4-2 Soldering may melt or break the sleeve, if the sleeve is contacted with circuit patterns. To avoid this trouble ,the capacitors are recommended to be slightly apart from the circuit boards.

GUIDE TO APPLICATION (continued)

5. Vent

The capacitors are provided with a pressure resistive controlled safety vent formed on the bottom of the container. The vent is designed to rupture in the event that higher internal pressure is developed by circuit multifunction or capacitor mis-use.

6. High Altitude

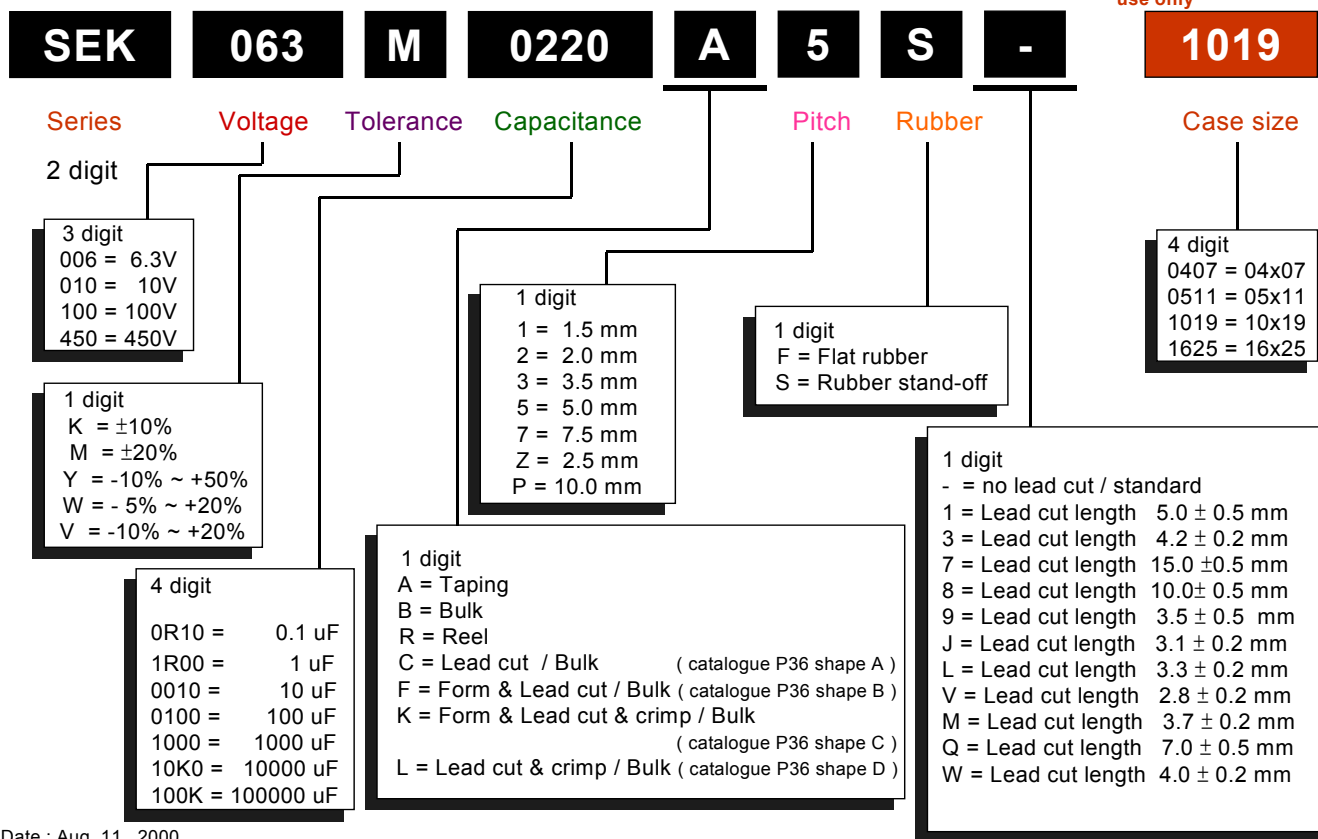
These capacitors are capable of withstanding in transit conditions where storage temperature may range from -40°C to +105°C and the altitude may reach 200,000 feet.

7. Cleaning agents

Halogenated hydrocarbon cleaning solvents are not recommended for use in cleaning capacitors supplied with exposed end seals. Where cleaning with a halogenated solvent is desired, capacitors should be ordered with a Epoxy-coated end seal.

YAGEO Radial-Type E/C Ordering Code

1. For worldwide customers use only
2. For standard specification



Date : Aug. 11 , 2000

YAGEO Radial-Type E/C Ordering Code (16 Digit)

SEK		063		M		0220		A		5		S		-		AK			
Diameter	Code	Length	Code	SIZE	Code	SIZE	Code	SIZE	Code	SIZE	Code	SIZE	Code	SIZE	Code	SIZE	Code		
03	3	05	A	0405	4A	1220	BL	2220	GL	2520	HL	0407	4B	1225	BN	2225	GN	2525	HN
04	4	07	B	0505	5A	1230	BQ	2230	GQ	2530	HQ	0507	5B	1235	BS	2235	GS	2535	HS
05	5	09	C	0611	6E	1330	CQ	2240	GX	2540	HX	0607	6B	1325	CN	2245	GY	2545	HY
06	6	10	D	0805	8A	1340	CX	2250	GZ	2550	HZ	0807	8B	1616	DJ	3025	WN	3525	XN
08	8	11	E	0809	8C	1625	DN	3030	WQ	3530	XQ	0811	8E	1632	DR	3035	WS	3535	XS
10 A		12	F	0814	8G	1636	DT	3040	WX	3540	XX	0815	8H	1640	DX	3045	WY	3545	XY
12 B		14	G	0816	8J	1645	DY	3050	WZ	3550	XZ	0820	8L	1815	EH				
13 C		15	H	1012	AF	1820	EL					1015	AH	1825	EN				
16 D		16	J	1016	AJ	1832	ER					1019	AK	1836	ET				
18 E		19	K	1020	AL	1840	EY					1022	AM	2235	GS				
20 F		20 L		1025	AN	2240	GX					1025	AN	2240	GX				
22 G		22 M		1030	AQ	2245	GY					1030	AQ	2245	GY				
25 H		25 N																	
30 W		27 P																	
35 X		30 Q																	
40 Y		32 R																	
45 Z		35 S																	
		36 T																	
		40 X																	
		45 Y																	
		50 Z																	

Date : MAR.23 , 2001

Table 1-1 SEK Type, Standard Ratings and Catalog Number

Catalog Number	Capacitance (uF)	Rated Voltage (V.DC)	Size (mm) D X L	Leakage Current (uA)	Dissipation Factor (Tan δ)	Ripple 120 Hz (mA)
SE006M0100B2F-0511	100	6.3	5X11	9	0.26	100
SE006M0150B2F-0511	150	6.3	5X11	12	0.26	120
SE006M0220B2F-0511	220	6.3	5X11	16	0.26	165
SE006M0220BZF-0611	220	6.3	6X11	16	0.26	165
SE006M0330BZF-0611	330	6.3	6X11	23	0.26	200
SE006M0330B3F-0811	330	6.3	8X11	23	0.26	200
SE006M0470B3F-0811	470	6.3	8X11	31	0.26	280
SE006M0680B5S-1012	680	6.3	10X12	44	0.26	320
SE006M1000B5S-1012	1000	6.3	10X12	63	0.26	470
SE006M1500B5S-1015	1500	6.3	10X15	93	0.26	600
SE006M2200B5S-1019	2200	6.3	10X19	135	0.28	930
SE006M2200B5S-1320	2200	6.3	13X20	135	0.28	930
SE006M3300B5S-1019	3300	6.3	10X19	201	0.30	1100
SE006M3300B5S-1320	3300	6.3	13X20	201	0.30	1100
SE006M4700B5S-1325	4700	6.3	13X25	285	0.32	1320
SE006M4700B7F-1625	4700	6.3	16X25	285	0.32	1320
SE006M6800B5S-1325	6800	6.3	13X25	411	0.36	1490
SE006M6800B7F-1625	6800	6.3	16X25	411	0.36	1490
SE006M10K0B7F-1625	10000	6.3	16X25	603	0.44	1830
SE006M10K0B7F-1632	10000	6.3	16X32	603	0.44	1830
SE006M15K0B7F-1836	15000	6.3	18X36	903	0.54	2280
SE010M0047B2F-0511	47	10	5X11	8	0.22	75
SE010M0068B2F-0511	68	10	5X11	10	0.22	80
SE010M0100B2F-0511	100	10	5X11	13	0.22	110
SE010M0150BZF-0611	150	10	6X11	18	0.22	130
SE010M0220BZF-0611	220	10	6X11	25	0.22	180
SE010M0330B3F-0811	330	10	8X11	36	0.22	255
SE010M0470B3F-0811	470	10	8X11	50	0.22	305
SE010M0680B5S-1012	680	10	10X12	71	0.22	420
SE010M1000B5S-1012	1000	10	10X12	103	0.22	570
SE010M1000B5S-1015	1000	10	10X15	103	0.22	570
SE010M1500B5S-1019	1500	10	10X19	153	0.22	750
SE010M2200B5S-1019	2200	10	10X19	223	0.24	1010
SE010M2200B5S-1320	2200	10	13X20	223	0.24	1010
SE010M3300B5S-1320	3300	10	13X20	333	0.26	1220
SE010M3300B5S-1325	3300	10	13X25	333	0.26	1220
SE010M4700B5S-1325	4700	10	13X25	473	0.28	1410
SE010M4700B7F-1625	4700	10	16X25	473	0.28	1410
SE010M6800B7F-1625	6800	10	16X25	683	0.32	1610
SE010M6800B7F-1632	6800	10	16X32	683	0.32	1610
SE010M10K0B7F-1636	10000	10	16X36	1000	0.40	1980

SE010M10K0B7F-1836	10000	10	18X36	1000	0.40	1980
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Table 1-2 SEK Type, Standard Ratings and Catalog Number

Catalog Number	Capacitance (uF)	Rated Voltage (V.DC)	Size (mm) D X L	Leakage Current (uA)	Dissipation Factor (Tan δ)	Ripple 120 Hz (mA)
SE016M0022B2F-0511	22	16	5X11	7	0.18	54
SE016M0033B2F-0511	37	16	5X11	8	0.18	70
SE016M0047B2F-0511	47	16	5X11	11	0.18	85
SE016M0068B2F-0511	68	16	5X11	14	0.18	100
SE016M0100B2F-0511	100	16	5X11	19	0.18	135
SE016M0100BZF-0611	100	16	6X11	19	0.18	135
SE016M0150B3F-0811	150	16	8X11	27	0.18	180
SE016M0220BZF-0611	220	16	6X11	38	0.18	235
SE016M0220B3F-0811	220	16	8X11	38	0.18	235
SE016M0330B3F-0811	330	16	8X11	56	0.18	285
SE016M0470B3F-0811	470	16	8X11	78	0.18	395
SE016M0470B5S-1012	470	16	10X12	78	0.18	395
SE016M0680B5S-1015	680	16	10X15	112	0.18	530
SE016M1000B5S-1015	1000	16	10X15	163	0.18	700
SE016M1000B5S-1019	1000	16	10X19	163	0.18	700
SE016M1500B5S-1320	1500	16	13X20	243	0.18	860
SE016M2200B5S-1320	2200	16	13X20	355	0.20	1150
SE016M2200B5S-1325	2200	16	13X25	355	0.20	1150
SE016M3300B5S-1325	3300	16	13X25	531	0.22	1350
SE016M3300B7F-1625	3300	16	16X25	531	0.22	1350
SE016M4700B7F-1625	4700	16	16X25	755	0.24	1560
SE016M4700B7F-1632	4700	16	16X32	755	0.24	1560
SE016M6800B7F-1636	6800	16	16X36	1088	0.28	1790
SE016M6800B7F-1836	6800	16	18X36	1088	0.28	1790
SE025M0022B2F-0511	22	25	5X11	9	0.16	60
SE025M0033B2F-0511	33	25	5X11	11	0.16	75
SE025M0047B2F-0511	47	25	5X11	15	0.16	90
SE025M0068BZF-0611	68	25	6X11	20	0.16	125
SE025M0100BZF-0611	100	25	6X11	28	0.16	145
SE025M0150B3F-0811	150	25	8X11	41	0.16	200
SE025M0220B3F-0811	220	25	8X11	58	0.16	250
SE025M0220B5S-1012	220	25	10X12	58	0.16	250
SE025M0330B5S-1012	330	25	10X12	86	0.16	355
SE025M0470B5S-1012	470	25	10X12	120	0.16	470
SE025M0470B5S-1015	470	25	10X15	120	0.16	470
SE025M0680B5S-1019	680	25	10X19	173	0.16	650
SE025M1000B5S-1019	1000	25	10X19	253	0.16	855
SE025M1000B5S-1320	1000	25	13X20	253	0.16	855
SE025M1500B5S-1325	1500	25	13X25	378	0.16	1020

SE025M2200B5S-1325	2200	25	13X25	553	0.18	1230
SE025M2200B7F-1625	2200	25	16X25	553	0.18	1230

Table 1-3 SEK Type, Standard Ratings and Catalog Number

Catalog Number	Capacitance (uF)	Rated Voltage (V.DC)	Size (mm) D X L	Leakage Current (uA)	Dissipation Factor (Tan δ)	Ripple 120 Hz (mA)
SE025M3300B7F-1625	3300	25	16X25	828	0.20	1450
SE025M3300B7F-1632	3300	25	16X32	828	0.20	1450
SE025M4700B7F-1632	4700	25	16X32	1175	0.22	1690
SE025M4700B7F-1836	4700	25	18X36	1175	0.22	1690
SE035M0010B2F-0511	10	35	5X11	7	0.14	30
SE035M0015B2F-0511	15	35	5X11	8	0.14	40
SE035M0022B2F-0511	22	35	5X11	11	0.14	65
SE035M0033B2F-0511	33	35	5X11	15	0.14	85
SE035M0047B2F-0511	47	35	5X11	19	0.14	115
SE035M0047BZF-0611	47	35	6X11	19	0.14	115
SE035M0068B3F-0811	68	35	8X11	27	0.14	130
SE035M0100B3F-0811	100	35	8X11	38	0.14	190
SE035M0150B5S-1012	150	35	10X12	56	0.14	240
SE035M0220B5S-1012	220	35	10X12	80	0.14	315
SE035M0330B5S-1012	330	35	10X12	119	0.14	440
SE035M0330B5S-1015	330	35	10X15	119	0.14	440
SE035M0470B5S-1015	470	35	10X15	168	0.14	580
SE035M0470B5S-1320	470	35	13X20	168	0.14	580
SE035M0680B5S-1320	680	35	13X20	241	0.14	730
SE035M1000B5S-1320	1000	35	13X20	353	0.14	995
SE035M1000B5S-1325	1000	35	13X25	353	0.14	995
SE035M1500B7F-1625	1500	35	16X25	528	0.14	1110
SE035M2200B7F-1625	2200	35	16X25	773	0.16	1450
SE035M2200B7F-1632	2200	35	16X32	773	0.16	1450
SE035M3300B7F-1636	3300	35	16X36	1155	0.18	1660
SE035M3300B7F-1836	3300	35	18X36	1155	0.18	1660
SE050M0R47B2F-0511	0.47	50	5X11	3	0.12	7
SE050M1R00B2F-0511	1	50	5X11	4	0.12	12
SE050M2R20B2F-0511	2.2	50	5X11	4	0.12	18
SE050M3R30B2F-0511	3.3	50	5X11	5	0.12	25
SE050M4R70B2F-0511	4.7	50	5X11	5	0.12	30
SE050M6R80B2F-0511	6.8	50	5X11	6	0.12	30
SE050M0010B2F-0511	10	50	5X11	8	0.12	50
SE050M0015B2F-0511	15	50	5X11	11	0.12	50
SE050M0022B2F-0511	22	50	5X11	14	0.12	75
SE050M0033BZF-0611	33	50	6X11	20	0.12	105
SE050M0047BZF-0611	47	50	6X11	27	0.12	125
SE050M0047B3F-0811	47	50	8X11	27	0.12	125

SE050M0068B3F-0811	68	50	8X11	37	0.12	159
SE050M0100B3F-0811	100	50	8X11	53	0.12	210
SE050M0100B5S-1012	100	50	10X12	53	0.12	210
SE050M0150B5S-1012	150	50	10X12	78	0.12	289
SE050M0220B5S-1015	220	50	10X15	113	0.12	400

Table 1-4 SEK Type, Standard Ratings and Catalog Number

Catalog Number	Capacitance (uF)	Rated Voltage (V.DC)	Size (mm) D X L	Leakage Current (uA)	Dissipation Factor (Tan δ)	Ripple 120 Hz (mA)
SE050M0330B5S-1015	330	50	10X15	168	0.12	535
SE050M0330B5S-1019	330	50	10X19	168	0.12	535
SE050M0470B5S-1320	470	50	13X20	238	0.12	730
SE050M0680B5S-1325	680	50	13X25	343	0.12	860
SE050M1000B5S-1325	1000	50	13X25	503	0.12	1110
SE050M1000B7F-1625	1000	50	16X25	503	0.12	1110
SE050M1500B7F-1632	1500	50	16X32	750	0.12	1350
SE050M2200B7F-1636	2200	50	16X36	1100	0.14	1530
SE050M2200B7F-1836	2200	50	18X36	1100	0.14	1530
SE063M0R47B2F-0511	0.47	63	5X11	3	0.10	8
SE063M1R00B2F-0511	1	63	5X11	4	0.10	12
SE063M2R20B2F-0511	2.2	63	5X11	4	0.10	20
SE063M3R30B2F-0511	3.3	63	5X11	5	0.10	24
SE063M4R70B2F-0511	4.7	63	5X11	6	0.10	34
SE063M6R80B2F-0511	6.8	63	5X11	7	0.10	37
SE063M0010B2F-0511	10	63	5X11	9	0.10	55
SE063M0015B2F-0511	15	63	5X11	12	0.10	65
SE063M0022BZF-0611	22	63	6X11	17	0.10	90
SE063M0033BZF-0611	33	63	6X11	24	0.10	110
SE063M0033B3F-0811	33	63	8X11	24	0.10	110
SE063M0047B3F-0811	47	63	8X11	33	0.10	155
SE063M0068B5S-1012	68	63	10X12	46	0.10	198
SE063M0100B5S-1012	100	63	10X12	66	0.10	260
SE063M0150B5S-1015	150	63	10X15	98	0.10	330
SE063M0220B5S-1015	220	63	10X15	142	0.10	465
SE063M0220B5S-1019	220	63	10X19	142	0.10	465
SE063M0330B5S-1019	330	63	10X19	211	0.10	650
SE063M0330B5S-1320	330	63	13X20	211	0.10	650
SE063M0470B5S-1325	470	63	13X25	299	0.10	800
SE063M0680B7F-1625	680	63	16X25	431	0.10	1000
SE063M1000B7F-1625	1000	63	16X25	633	0.10	1200
SE063M1500B7F-1636	1500	63	16X36	948	0.10	1450
SE080M0R47B2F-0511	0.47	80	5X11	3	0.10	8
SE080M1R00B2F-0511	1	80	5X11	4	0.10	12
SE080M2R20B2F-0511	2.2	80	5X11	5	0.10	21

SE080M3R30B2F-0511	3.3	80	5X11	6	0.10	25
SE080M4R70B2F-0511	4.7	80	5X11	7	0.10	36
SE080M6R80B2F-0511	6.8	80	5X11	8	0.10	42
SE080M0010BZF-0611	10	80	6X11	11	0.10	55
SE080M0015BZF-0611	15	80	6X11	15	0.10	75
SE080M0022B3F-0811	22	80	8X11	21	0.10	99
SE080M0033B3F-0811	33	80	8X11	29	0.10	133

Table 1-5 SEK Type, Standard Ratings and Catalog Number

Catalog Number	Capacitance	Rated Voltage	Size (mm)	Leakage Current	Dissipation Factor	Ripple
	(μ F)	(V.DC)	D X L	(μ A)	($\text{Tan } \delta$)	120 Hz (mA)
SE080M0047B5S-1012	47	80	10X12	41	0.10	158
SE080M0068B5S-1012	68	80	10X12	57	0.10	219
SE080M0100B5S-1015	100	80	10X15	83	0.10	280
SE080M0150B5S-1019	150	80	10X19	123	0.10	364
SE080M0220B5S-1320	220	80	13X20	179	0.10	480
SE080M0330B5S-1325	330	80	13X25	267	0.10	675
SE080M0470B7F-1625	470	80	16X25	379	0.10	825
SE080M0680B7F-1632	680	80	16X32	547	0.10	1100
SE080M1000B7F-1836	1000	80	18X36	800	0.10	1300
SE100M0R47B2F-0511	0.47	100	5X11	4	0.10	10
SE100M1R00B2F-0511	1	100	5X11	4	0.10	15
SE100M2R20B2F-0511	2.2	100	5X11	5	0.10	22
SE100M3R30B2F-0511	3.3	100	5X11	6	0.10	29
SE100M4R70B2F-0511	4.7	100	5X11	8	0.10	37
SE100M6R80B2F-0511	6.8	100	5X11	10	0.10	46
SE100M0010BZF-0611	10	100	6X11	13	0.10	65
SE100M0015B3F-0811	15	100	8X11	18	0.10	82
SE100M0022B3F-0811	22	100	8X11	25	0.10	115
SE100M0033B3F-0811	33	100	8X11	36	0.10	160
SE100M0033B5S-1012	33	100	10X12	36	0.10	160
SE100M0047B5S-1012	47	100	10X12	50	0.10	210
SE100M0047B5S-1015	47	100	10X15	50	0.10	210
SE100M0068B5S-1015	68	100	10X15	71	0.10	241
SE100M0100B5S-1019	100	100	10X19	103	0.10	385
SE100M0150B5S-1320	150	100	13X20	153	0.10	414
SE100M0220B5S-1325	220	100	13X25	223	0.10	590
SE100M0330B5S-1325	330	100	13X25	333	0.10	720
SE100M0330B7F-1625	330	100	16X25	333	0.10	720
SE100M0470B7F-1625	470	100	16X25	473	0.10	875
SE100M0470B7F-1632	470	100	16X32	473	0.10	875
SE100M0680B7F-1636	680	100	16X36	683	0.10	1200
SE160M0R47B2F-0511	0.47	160	5X11	12	0.15	12
SE160M1R00B2F-0511	1	160	5X11	15	0.15	17

SE160M2R20BZF-0611	2.2	160	6X11	21	0.15	25
SE160M3R30BZF-0611	3.3	160	6X11	26	0.15	36
SE160M3R30B3F-0811	3.3	160	8X11	26	0.15	36
SE160M4R70BZF-0611	4.7	160	6X11	33	0.15	43
SE160M4R70B3F-0811	4.7	160	8X11	33	0.15	43
SE160M6R80B5S-1012	6.8	160	10X12	43	0.15	54
SE160M0010B3F-0811	10	160	8X11	58	0.15	70
SE160M0010B5S-1012	10	160	10X12	58	0.15	70
SE160M0015B5S-1015	15	160	10X15	82	0.15	90

Table 1-6 SEK Type, Standard Ratings and Catalog Number

Catalog Number	Capacitance (uF)	Rated Voltage (V.DC)	Size (mm)	Leakage Current (uA)	Dissipation Factor (Tan δ)	Ripple 120 Hz (mA)
			D X L			
SE160M0022B5S-1015	22	160	10X15	116	0.15	130
SE160M0033B5S-1019	33	160	10X19	168	0.15	180
SE160M0047B5S-1320	47	160	13X20	236	0.15	270
SE160M0068B5S-1325	68	160	13X25	336	0.15	270
SE160M0100B5S-1325	100	160	13X25	490	0.15	330
SE160M0100B7F-1625	100	160	16X25	490	0.15	330
SE160M0150B7F-1632	150	160	16X32	720	0.15	435
SE160M0220B7F-1632	220	160	16X32	1056	0.15	500
SE160M0220B7F-1636	220	160	16X36	1056	0.15	500
SE160M0330B7F-1836	330	160	18X36	1594	0.15	850
SE160M0330B7F-1840	330	160	18X40	1594	0.15	850
SE160M0470BPF-2240	470	160	22X40	2266	0.15	980
SE200M0R47B2F-0511	0.47	200	5X11	13	0.15	12
SE200M1R00B2F-0511	1	200	5X11	16	0.15	17
SE200M2R20BZF-0611	2.2	200	6X11	23	0.15	25
SE200M2R20B3F-0811	2.2	200	8X11	23	0.15	25
SE200M3R30BZF-0611	3.3	200	6X11	30	0.15	36
SE200M3R30B3F-0811	3.3	200	8X11	30	0.15	36
SE200M4R70B3F-0811	4.7	200	8X11	38	0.15	50
SE200M4R70B5S-1012	4.7	200	10X12	38	0.15	50
SE200M6R80B5S-1012	6.8	200	10X12	51	0.15	60
SE200M0010B5S-1015	10	200	10X15	70	0.15	80
SE200M0015B5S-1015	15	200	10X15	100	0.15	110
SE200M0022B5S-1015	22	200	10X15	142	0.15	140
SE200M0033B5S-1019	33	200	10X19	208	0.15	190
SE200M0047B5S-1320	47	200	13X20	292	0.15	220
SE200M0047B5S-1325	47	200	13X25	292	0.15	220
SE200M0068B5S-1325	68	200	13X25	418	0.15	270
SE200M0100B7F-1625	100	200	16X25	610	0.15	335
SE200M0150B7F-1636	150	200	16X36	900	0.15	450
SE200M0220B7F-1836	220	200	18X36	1320	0.15	515

SE200M0220B7F-1840	220	200	18X40	1320	0.15	515
SE200M0330BPF-2240	330	200	22X40	1990	0.15	920
SE250M0R47B2F-0511	0.47	250	5X11	14	0.15	12
SE250M1R00BZF-0611	1	250	6X11	18	0.15	17
SE250M2R20BZF-0611	2.2	250	6X11	27	0.15	29
SE250M2R20B3F-0811	2.2	250	8X11	27	0.15	29
SE250M3R30B3F-0811	3.3	250	8X11	35	0.15	42
SE250M3R30B5S-1012	3.3	250	10X12	35	0.15	42
SE250M4R70B3F-0811	4.7	250	8X11	45	0.15	50
SE250M4R70B5S-1012	4.7	250	10X12	45	0.15	50
SE250M6R80B5S-1012	6.8	250	10X12	61	0.15	60

Table 1-7 SEK Type, Standard Ratings and Catalog Number

Catalog Number	Capacitance (uF)	Rated Voltage (V.DC)	Size (mm)	Leakage Current (uA)	Dissipation Factor (Tan δ)	Ripple 120 Hz (mA)
			D X L			
SE250M0010B5S-1015	10	250	10X15	85	0.15	88
SE250M0015B5S-1015	15	250	10X15	122	0.15	120
SE250M0022B5S-1019	22	250	10X19	175	0.15	155
SE250M0033B5S-1320	33	250	13X20	258	0.15	190
SE250M0033B5S-1325	33	250	13X25	258	0.15	190
SE250M0047B5S-1325	47	250	13X25	362	0.15	230
SE250M0068B7F-1625	68	250	16X25	510	0.15	300
SE250M0100B7F-1632	100	250	16X32	750	0.15	340
SE250M0150B7F-1840	150	250	18X40	1135	0.15	460
SE250M0220BPF-2240	220	250	22X40	1660	0.15	525
SE350M0R47B2F-0511	0.47	350	5X11	15	0.20	14
SE350M1R00BZF-0611	1	350	6X11	21	0.20	20
SE350M2R20B3F-0811	2.2	350	8X11	33	0.20	35
SE350M3R30B5S-1012	3.3	350	10X12	45	0.20	47
SE350M4R70B5S-1012	4.7	350	10X12	59	0.20	55
SE350M4R70B5S-1015	4.7	350	10X15	59	0.20	55
SE350M6R80B5S-1015	6.8	350	10X15	81	0.20	65
SE350M0010B5S-1015	10	350	10X15	115	0.20	95
SE350M0015B5S-1019	15	350	10X19	168	0.20	140
SE350M0022B5S-1320	22	350	13X20	241	0.20	165
SE350M0033B5S-1325	33	350	13X25	356	0.20	195
SE350M0047B7F-1625	47	350	16X25	496	0.20	240
SE350M0068B7F-1632	68	350	16X32	714	0.20	320
SE350M0100B7F-1836	100	350	18X36	1060	0.20	360
SE350M0150BPF-2240	150	350	22X40	1585	0.20	480
SE400M0R47BZF-0611	0.47	400	6X11	16	0.20	14
SE400M1R00BZF-0611	1	400	6X11	22	0.20	20
SE400M1R00B3F-0811	1	400	8X11	22	0.20	20
SE400M2R20B3F-0811	2.2	400	8X11	40	0.20	35

SE400M2R20B5S-1012	2.2	400	10X12	40	0.20	35
SE400M3R30B5S-1015	3.3	400	10X15	50	0.20	50
SE400M4R70B5S-1015	4.7	400	10X15	66	0.20	57
SE400M6R80B5S-1019	6.8	400	10X19	91	0.20	75
SE400M0010B5S-1019	10	400	10X19	130	0.20	97
SE400M0010B5S-1320	10	400	13X20	130	0.20	97
SE400M0022B5S-1325	22	400	13X25	274	0.20	175
SE400M0033B7F-1625	33	400	16X25	406	0.20	205
SE400M0047B7F-1625	47	400	16X25	574	0.20	250
SE400M0047B7F-1636	47	400	16X36	574	0.20	250
SE400M0068B7F-1840	68	400	18X40	826	0.20	330

Table 1-8 SEK Type, Standard Ratings and Catalog Number

Catalog Number	Capacitance (uF)	Rated Voltage (V.DC)	Size (mm) D X L	Leakage Current (uA)	Dissipation Factor (Tan δ)	Ripple 120 Hz (mA)
SE450M0R47BZF-0611	0.47	450	6X11	16	0.20	14
SE450M1R00B3F-0811	1	450	8X11	24	0.20	20
SE450M2R20B5S-1012	2.2	450	10X12	40	0.20	35
SE450M3R30B5S-1015	3.3	450	10X15	55	0.20	54
SE450M4R70B5S-1015	4.7	450	10X15	74	0.20	60
SE450M6R80B5S-1019	6.8	450	10X19	102	0.20	80
SE450M0010B5S-1320	10	450	13X20	145	0.20	100
SE450M0010B5S-1325	10	450	13X25	145	0.20	100
SE450M0015B7F-1625	15	450	16X25	212	0.20	160
SE450M0022B7F-1625	22	450	16X25	307	0.20	180
SE450M0022B7F-1632	22	450	16X32	307	0.20	180
SE450M0033B7F-1636	33	450	16X36	455	0.20	210
SE450M0047B7F-1840	47	450	18X40	645	0.20	260
SE450M0068BPF-2240	68	450	22X40	928	0.20	340

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