

# SD Series

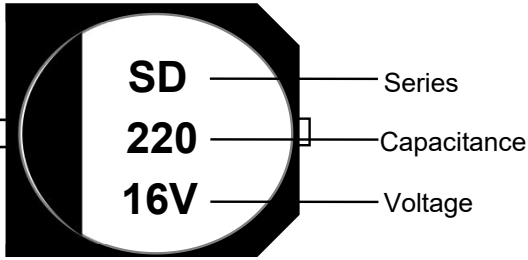
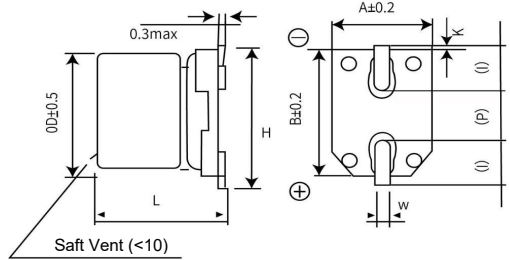
## Feature

- ◆ High-temperature lead-free reflow soldering products
- ◆ Guaranteed duration: 2000 hours at 105°C
- ◆ RoHS compliant

Items	Characteristics												
Temperature Range	-55°C ~ +105°C												
Rated Voltage Range	4V ~ 120V												
Capacitance Range	1 ~ 8200 μF												
Capacitance	±20% (20°C, 120Hz)												
Leakage Current	≤0.01CV or 3μA, Take the larger of the two values (after applying the rated working voltage for 2 minutes) CR: nominal capacitance (μ F) UR: rated voltage (V)												
Dissipation Factor (tg δ) (20°C, 120Hz)	UR (V)	4	6.3	10	16	25	35	50	63	80	100	120	
	tg δ	0.35	0.28	0.24	0.20	0.16	0.14	0.12	0.12	0.12	0.12	0.12	
	For capacitors with a capacitance greater than 1000μF, the dissipation factor increases by 0.02 for every additional 1000μF.												
Endurance	After the capacitor is subjected to its rated working voltage for 2000 hours at a temperature of 105°C and then recovered to 20°C, it shall meet the following respective requirements.												
	Capacitance Change	D ≥ 8 mm: Within ±20% of the initial value; D ≤ 6.3 mm: Within ±25% of the initial value											
	Dissipation Factor	D ≥ 8 mm: 200% of the initial rated value; D ≤ 6.3 mm: 300% of the initial rated value											
	Leakage Current	≤ initial rated value											
High Temperature Storage	After being stored for 1000 hours without voltage application in a 105°C environment and then recovered to 20°C, the capacitor shall meet the above endurance requirements.												
Low Temperature	UR (V)	4	6.3	10	16	25	35	50	63	80	100	120	
	Z(-25°C)/Z(+20°C)	5	5	4	3	2	2	2	2	2	3	3	
	Z(-55°C)/Z(+20°C)	12	12	8	6	4	4	4	4	4	4	4	
Resistance to soldering heat	The capacitor shall be maintained on a hot plate at 250°C for 30 seconds. After removal and recovery at room temperature, it shall meet the requirements listed on the right.								Capacitance Change		within ±10% of the initial value		
									Dissipation Factor (tg δ)		≤ initial rated value		
									Leakage Current		≤ initial rated value		

## Coefficient of Frequency for Rated Ripple Current

Frequency (Hz)	50Hz	120Hz	1KHz	10KHz~100KHz
Coefficient	0.80	1.00	1.25	1.40

Mark	Appearance & Dimension
 <p>SD — Series 220 — Capacitance 16V — Voltage</p>	 <p>Unit: mm</p>

ΦD	L	A, B	H	I	W	P	K
4	5.7±0.3	4.3	5.0	1.8	0.5~0.8	1.0	0.35 + 0.15 /- 0.20
5		5.3	5.9	2.1		1.3	
6.3		6.6	7.2	2.4		2.2	
8	7.7±0.3	8.3	9.0	3.4	0.8~1.1	3.1	0.70±0.20
	6.2±0.3						
	10.5±0.5						
10	12.5±0.5	10.3	11.1	3.5	0.7~1.3	4.5	
	7.7±0.3						
	10.5±0.5						
12.5	12.5±0.5	13.5	13.9	4.7	1.1~1.4	4.4	
	13.5±0.5						
16	16.5±0.5	17	17.8	5.5	1.1~1.4	6.4	
	21.5±0.5						
18	16.5±0.5	19	19.7	6.7	1.1~1.4	6.4	
	21.5±0.5						

## SD Characteristics Table

Rated Voltage (V.DC)	Capacitance (±20%) (µF)	Dimension(mm)		Electrical Characteristics		Minimum Packaging Quantity (PCS)
		ΦD	L	Rated Ripple Current (120Hz/105℃) (mA r.m.s)	tan δ (120Hz/20℃)	
4	22	4	5.7	22	0.35	2000
	33	5	5.7	30	0.35	1000
	47	5	5.7	36	0.35	1000
	100	6.3	5.7	60	0.35	1000
	150	6.3	5.7	86	0.35	1000
	220	6.3	7.7	102	0.35	1000
	330	6.3	7.7	105	0.35	1000
	470	8	10.5	210	0.35	500
	680	8	10.5	210	0.35	500
6.3	22	4	5.7	22	0.28	2000
	33	5	5.7	30	0.28	1000
	47	5	5.7	36	0.28	1000
	100	6.3	5.7	60	0.28	1000
	150	6.3	7.7	86	0.28	1000
	220	6.3	7.7	102	0.28	1000
	220	8	6.2	120	0.28	1000
	330	8	6.2	190	0.28	1000
	330	8	10.5	290	0.28	500
	470	8	10.5	340	0.28	500
	680	8	10.5	340	0.28	500
	1000	10	10.5	495	0.28	500
	2200	12.5	13.5	680	0.28	200
	3300	12.5	16.5	850	0.28	150
	4700	16	16.5	1000	0.28	125
	6800	18	16.5	1290	0.32	125
	8200	18	21.5	1450	0.34	75
10	22	5	5.7	27	0.38	1000
	33	5	5.7	35	0.42	1000
	47	6.3	5.7	46	0.24	1000
	100	6.3	5.7	60	0.24	1000
	100	8	6.2	90	0.24	1000
	150	6.3	7.7	86	0.24	1000
	220	6.3	7.7	105	0.24	1000
	220	8	6.2	105	0.24	1000
	330	8	10.5	290	0.24	500
	470	8	10.5	320	0.24	500
	470	10	7.7	320	0.24	500
	680	10	10.5	392	0.24	500
	1000	10	10.5	450	0.24	500
	2200	12.5	13.5	680	0.26	200
	3300	16	16.5	950	0.28	125
	4700	16	16.5	1000	0.30	125
	6800	18	16.5	1290	0.34	125
8200	18	21.5	1450	0.38	75	
16	10	4	5.7	18	0.20	2000
	22	5	5.7	30	0.20	1000
	33	6.3	5.7	40	0.20	1000
	47	6.3	5.7	50	0.20	1000
	100	6.3	5.7	60	0.20	1000
	100	8	6.2	125	0.20	1000
	150	6.3	7.7	95	0.20	1000
	220	6.3	7.7	105	0.20	1000
	330	8	10.5	290	0.20	500
	330	10	7.7	290	0.20	500
	470	8	10.5	320	0.20	500
	680	10	10.5	470	0.20	500
	1000	10	10.5	550	0.20	500
	2200	16	16.5	900	0.22	125
	3300	16	16.5	950	0.24	125
	4700	18	16.5	1225	0.26	125

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Rated Voltage (V.DC)	Capacitance (±20%) (µF)	Dimension(mm)		Electrical Characteristics		Minimum Packaging Quantity (PCS)
		ΦD	L	Rated Ripple Current (120Hz/105°C) (mA r.m.s)	tan δ (120Hz/20°C)	
25	10	4	5.7	13	0.16	2000
	22	5	5.7	23	0.16	1000
	33	6.3	5.7	38	0.16	1000
	47	6.3	5.7	48	0.16	1000
	47	8	6.2	79	0.16	1000
	100	6.3	7.7	100	0.16	1000
	100	8	6.2	145	0.16	1000
	150	6.3	7.7	91	0.16	1000
	220	8	10.5	240	0.16	500
	220	10	7.7	240	0.16	500
	330	8	10.5	320	0.16	500
	470	10	10.5	450	0.16	500
	680	10	10.5	490	0.16	500
	1000	12.5	16.5	550	0.16	150
	2200	16	16.5	900	0.18	125
	3300	18	16.5	1150	0.20	125
4700	18	21.5	1300	0.22	75	
35	4.7	4	5.7	16	0.14	2000
	10	5	5.7	27	0.14	1000
	22	6.3	5.7	44	0.14	1000
	33	6.3	7.7	59	0.14	1000
	33	8	6.2	76	0.14	1000
	47	6.3	7.7	80	0.14	1000
	47	8	6.2	105	0.14	1000
	100	6.3	7.7	100	0.14	1000
	150	8	10.5	260	0.14	500
	150	10	7.7	260	0.14	500
	220	10	10.5	450	0.14	500
	330	10	10.5	450	0.14	500
	470	10	10.5	480	0.14	500
	680	12.5	13.5	600	0.14	200
	1000	16	16.5	800	0.14	125
	2200	18	16.5	1050	0.16	125
50	1	4	5.7	6.3	0.12	2000
	2.2	4	5.7	11	0.12	2000
	3.3	4	5.7	14	0.12	2000
	4.7	5	5.7	19	0.12	1000
	10	6.3	5.7	30	0.12	1000
	22	6.3	7.7	51	0.12	1000
	22	8	6.2	67	0.12	1000
	33	6.3	7.7	60	0.12	1000
	47	6.3	7.7	63	0.12	1000
	100	8	10.5	230	0.12	500
	150	10	10.5	250	0.12	500
	220	10	10.5	375	0.12	500
	330	10	10.5	400	0.12	500
	470	12.5	13.5	490	0.12	200
	680	16	16.5	700	0.12	125
	1000	18	16.5	990	0.12	125

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Rated Voltage (V.DC)	Capacitance (±20%) (μF)	Dimension(mm)		Electrical Characteristics		Minimum Packaging Quantity (PCS)
		ΦD	L	Rated Ripple Current (120Hz/105℃) (mA r.m.s)	tan δ (120Hz/20℃)	
63	0.1	4	5.7	1	0.12	2000
	0.22	4	5.7	2.3	0.12	2000
	0.33	4	5.7	3.5	0.12	2000
	0.47	4	5.7	5	0.12	2000
	1	4	5.7	8	0.12	2000
	2.2	4	5.7	12	0.12	2000
	3.3	4	5.7	20	0.12	2000
	4.7	5	5.7	25	0.12	1000
	10	6.3	5.7	42	0.12	1000
	10	8	6.2	51	0.12	1000
	22	6.3	7.7	50	0.12	1000
	33	8	10.5	90	0.12	500
	47	8	10.5	100	0.12	500
	100	10	10.5	150	0.12	500
	150	10	10.5	170	0.12	500
	220	10	10.5	205	0.12	500
	220	12.5	13.5	250	0.12	200
	330	12.5	16.5	300	0.12	150
	470	16	16.5	450	0.12	125
	680	18	16.5	600	0.12	125
1000	18	21.5	800	0.12	75	
80	22	8	10.5	100	0.12	500
	33	8	10.5	100	0.12	500
	47	10	10.5	150	0.12	500
	100	10	10.5	180	0.12	500
	150	12.5	13.5	280	0.12	200
	220	16	16.5	410	0.12	125
	330	16	16.5	510	0.12	125
	470	18	16.5	560	0.12	125
100	1	4	5.7	10	0.12	2000
	2.2	5	5.7	32	0.12	1000
	3.3	5	5.7	35	0.12	1000
	4.7	5	5.7	40	0.12	1000
	4.7	6.3	5.7	45	0.12	1000
	10	6.3	5.7	47	0.12	1000
	10	6.3	7.7	60	0.12	1000
100	22	6.3	7.7	62	0.12	1000
	22	8	10.5	80	0.12	500
	33	8	10.5	90	0.12	500
	47	8	10.5	100	0.12	500
	47	10	10.5	130	0.12	500
	68	10	10.5	133	0.12	500
	100	12.5	13.5	220	0.12	200
	150	16	16.5	240	0.12	125
	220	16	16.5	410	0.12	125
	330	18	16.5	520	0.12	125
120	10	6.3	7.7	60	0.12	1000
	22	8	10.5	80	0.12	500