

A1 series

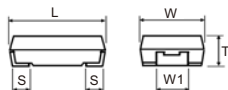
- Endurance: 2,000 hours at 105°C
- Low ESR
- Recommended Applications: System Board, Display Card, Small Charger and intelligent TV
- RoHS Compliant and lead-free

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SPECIFICATIONS

Items	Characteristics											
Category Temperature Range	-55~+105°C											
Rated Working Voltage Range	2~25 Vdc											
Nominal Capacitance Range	2.2~470μF											
Capacitance Tolerance	±20%(M) -35%~+10%(L) (at 20°C,120Hz)											
DC Leakage Current	I≤0.1CV Where, I: Leakage current (μA),C:Nominal capacitance (μF),V: Rated voltage (V) (at 20°C after 2 minutes)											
Dissipation Factor (tanδ)	Rated Voltage(Vdc)	2	2.5	4	6.3	7.5	10	12.5	16	20	25	(at 20°C,120Hz)
	Dissipation Factor (max.)	0.06						0.10				
ESR(100kHz, 20°C)	Value in characteristics table											
Temperature Characteristics (Impedance Ratio at 100kHz)	Z(+105°C)/Z(+20°C)≤1.25 Z(-55°C)/Z(+20°C)≤1.25											
Endurance	After applying rated voltage for 2,000 hours at 105°C,the capacitors shall meet the following requirements.											
	Appearance	No significant damage										
	Capacitance Change	≤±20% of the initial value										
	Dissipation Factor	≤150% of the initial specified value										
	ESR	≤150% of the initial specified value										
	Leakage Current	≤The initial specified value										
Humidity Test	After subjecting to 90%~95% RH for 500 hours at 60°C(no voltage), the capacitors shall meet the requirement as Endurance.											
	Rated Voltage(Vdc)	2~2.5			4			6.3~7.5			8~16	25
	Capacitance Change	+70,-20%			+60,-20%			+50,-20%			+40,-20%	
	D.F. (tanδ)	≤200% of the initial specified value										
	Leakage Current	≤The initial specified value										
Surge Test	After subjecting to 1,000 cycles each consisting of charge with the surge voltage specified at normal temperature for 30 seconds through a protective resistor and discharge for 5 minutes 30 seconds, the capacitors shall meet the following requirements.											
	Appearance	No significant damage										
	Capacitance Change	≤±20% of the initial value										
	Dissipation Factor	≤150% of the initial specified value										
	ESR	≤150% of the initial specified value										
	Leakage Current	≤The initial specified value										

DIMENSIONS[mm]



Case Size	L±0.3(mm)	W±0.2(mm)	T±0.1(mm)	W1±0.2(mm)	S±0.2(mm)
7.3x4.3x1.9	7.3	4.3	1.9	2.4	1.3

MARKING

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PART NUMBERING SYSTEM

S	A	1	0	J	M	2	2	1	A	1	9	R	1	5	X	X	X

A1 series

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size (LxWxT mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mA rms) 100kHz	Leakage Current (μA max.) 20°C	Part Number
2	68	7.3×4.3×1.9	40	1800	13.6	SA10BM680A19R40XXX
	100	7.3×4.3×1.9	16	2000	20	SA10BM101A19R16XXX
	150	7.3×4.3×1.9	9	3000	30	SA10BM151A19R09XXX
	220	7.3×4.3×1.9	9	3000	44	SA10BM221A19R09XXX
	220	7.3×4.3×1.9	9	3000	44	SA10BL221A19R09XXX
	270	7.3×4.3×1.9	9	3500	54	SA10BM271A19R09XXX
	300	7.3×4.3×1.9	9	3500	60	SA10BM301A19R09XXX
	330	7.3×4.3×1.9	6	3500	66	SA10BM331A19R06XXX
	330	7.3×4.3×1.9	7	3500	66	SA10BM331A19R07XXX
	330	7.3×4.3×1.9	9	3500	66	SA10BM331A19R09XXX
	330	7.3×4.3×1.9	7	3500	66	SA10BL331A19R07XXX
	330	7.3×4.3×1.9	9	3500	198	SA10BL331A19R0935X
	330	7.3×4.3×1.9	9	5400	66	SA10BL331A19R0954X
	330	7.3×4.3×1.9	9	3500	66	SA10BL331A19R09XXX
	470	7.3×4.3×1.9	4.5	3500	94	SA10BM471A19R04XXX
	470	7.3×4.3×1.9	6	3500	94	SA10BM471A19R06XXX
	470	7.3×4.3×1.9	9	3500	94	SA10BM471A19R09XXX
2.5	47	7.3×4.3×1.9	40	1800	11.75	SA10EM470A19R40XXX
	100	7.3×4.3×1.9	16	2000	25	SA10EM101A19R16XXX
	150	7.3×4.3×1.9	9	3000	37.5	SA10EM151A19R09XXX
	180	7.3×4.3×1.9	9	3000	45	SA10EM181A19R09XXX
	220	7.3×4.3×1.9	9	3000	55	SA10EM221A19R09XXX
	220	7.3×4.3×1.9	9	3000	55	SA10EL221A19R0930X
	220	7.3×4.3×1.9	9	3000	55	SA10EL221A19R09XXX
	270	7.3×4.3×1.9	9	3500	67.5	SA10EM271A19R09XXX
	330	7.3×4.3×1.9	4.5	3500	82.5	SA10EM331A19R04XXX
	330	7.3×4.3×1.9	7	3500	82.5	SA10EM331A19R07XXX
	330	7.3×4.3×1.9	9	3500	82.5	SA10EM331A19R09XXX
	470	7.3×4.3×1.9	4.5	3500	117.5	SA10EM471A19R04XXX
	470	7.3×4.3×1.9	6	3500	117.5	SA10EM471A19R06XXX
4	68	7.3×4.3×1.9	20	1900	27.2	SA10GM680A19R20XXX
	82	7.3×4.3×1.9	16	2100	32.8	SA10GM820A19R16XXX
	120	7.3×4.3×1.9	16	2100	48	SA10GM121A19R16XXX
	150	7.3×4.3×1.9	16	2100	60	SA10GM151A19R16XXX
6.3	4.7	7.3×4.3×1.9	120	1000	2.96	SA10JM47A19RA2XXX
	10	7.3×4.3×1.9	55	1000	6.3	SA10JM100A19R55XXX
	22	7.3×4.3×1.9	45	1000	13.9	SA10JM220A19R45XXX
	22	7.3×4.3×1.9	80	1000	13.86	SA10JM220A19R80XXX
	33	7.3×4.3×1.9	80	1800	20.79	SA10JM330A19R80XXX
	47	7.3×4.3×1.9	25	1800	29.61	SA10JM470A19R25XXX
	47	7.3×4.3×1.9	35	1800	29.61	SA10JM470A19R35XXX
	47	7.3×4.3×1.9	40	1800	29.61	SA10JM470A19R40XXX
	68	7.3×4.3×1.9	15	2000	42.84	SA10JM680A19R15XXX
	100	7.3×4.3×1.9	15	2000	63	SA10JM101A19R15XXX
	100	7.3×4.3×1.9	20	1900	63	SA10JM101A19R20XXX
	120	7.3×4.3×1.9	10	3000	75.6	SA10JM121A19R10XXX
	150	7.3×4.3×1.9	10	3000	94.5	SA10JM151A19R10XXX

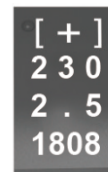
A1 series

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size (LxWxT mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mA rms) 100kHz	Leakage Current (μA max.) 20°C	Part Number
6.3	150	7.3x4.3x1.9	15	3000	94.5	SA10JM151A19R15XXX
	180	7.3x4.3x1.9	15	3000	113.4	SA10JM181A19R15XXX
	220	7.3x4.3x1.9	10	3000	138.6	SA10JM221A19R10XXX
	220	7.3x4.3x1.9	15	3000	138.6	SA10JM221A19R1530X
	220	7.3x4.3x1.9	15	3000	138.6	SA10JL221A19R15XXX
	220	7.3x4.3x1.9	15	3000	138.6	SA10JL221A19R1530X
	220	7.3x4.3x1.9	15	3000	138.6	SA10JM221A19R15XXX
10	10	7.3x4.3x1.9	55	1000	10	SA11AM100A19R55XXX
	22	7.3x4.3x1.9	120	1600	22	SA11AM220A19RA2XXX
	27	7.3x4.3x1.9	80	1000	27	SA11AM270A19R80XXX
	33	7.3x4.3x1.9	25	1800	33	SA11AM330A19R25XXX
	39	7.3x4.3x1.9	25	1800	39	SA11AM390A19R25XXX
	47	7.3x4.3x1.9	40	1800	47	SA11AM470A19R40XXX
	68	7.3x4.3x1.9	40	1800	68	SA11AM680A19R40XXX
	100	7.3x4.3x1.9	15	2500	100	SA11AM101A19R15XXX
	100	7.3x4.3x1.9	40	2500	100	SA11AM101A19R40XXX
16	4.7	7.3x4.3x1.9	120	1000	7.52	SA11CM4R7A19RA2XXX
	6.8	7.3x4.3x1.9	70	1000	10.88	SA11CM6R8A19R70XXX
	10	7.3x4.3x1.9	60	1000	16	SA11CM100A19R60XXX
	15	7.3x4.3x1.9	40	1000	24	SA11CM150A19R40XXX
	22	7.3x4.3x1.9	30	1600	35.2	SA11CM220A19R30XXX
	22	7.3x4.3x1.9	60	1400	35.2	SA11CM220A19R60XXX
	33	7.3x4.3x1.9	80	1400	52.8	SA11CM330A19R80XXX
	47	7.3x4.3x1.9	55	1400	75.2	SA11CM470A19R55XXX
25	2.2	7.3x4.3x1.9	350	800	5.5	SA11EM2R2A19RC0XXX
	4.7	7.3x4.3x1.9	120	1000	11.75	SA11EM4R7A19RA2XXX
	6.8	7.3x4.3x1.9	80	1000	17	SA11EM6R8A19R80XXX
	10	7.3x4.3x1.9	35	1000	25	SA11EM100A19R35XXX
	10	7.3x4.3x1.9	60	1400	25	SA11EM100A19R60XXX
	10	7.3x4.3x1.9	80	1400	25	SA11EM100A19R80XXX
	15	7.3x4.3x1.9	60	1400	37.5	SA11EM150A19R60XXX
	22	7.3x4.3x1.9	60	1400	55	SA11EM220A19R60XXX
	33	7.3x4.3x1.9	40	1400	82.5	SA11EM330A19R40XXX
	33	7.3x4.3x1.9	60	1400	82.5	SA11EM330A19R60XXX
	33	7.3x4.3x1.9	80	1400	82.5	SA11EM330A19R8014X
	33	7.3x4.3x1.9	80	1400	82.5	SA11EM330A19R80XXX

※ Specifications may be subject to change without notice.

- Endurance: 2,000 hours at 105°C
- Low ESR
- Recommended Applications: System Board, Display Card, Small Charger and intelligent TV
- **RoHS Compliant and lead-free**



Items	Characteristics										
Category Temperature Range	-55~+105℃										
Rated Working Voltage Range	2~16V _{dc}										
Nominal Capacitance Range	6.8~470μF										
Capacitance Tolerance	±20%(M) -35%~+10%(L) (at 20℃,120Hz)										
DC Leakage Current	I≤0.1CV (at 20℃ after 2 minutes) Where, I: Leakage current (μA), C:Nominal capacitance (μF), V: Rated voltage (V)										
Dissipation Factor (tanδ)	Rated Voltage(V _{dc})	2	2.5	4	6.3	7.5	10	12.5	16	20	25
	Dissipation Factor (max.)	0.06					0.10				(at 20℃,120Hz)
ESR(100kHz, 20℃)	Value in characteristics table										
Temperature Characteristics (Impedance Ratio at 100kHz)	Z(+105℃)/Z(+20℃)≤1.25 Z(-55℃)/Z(+20℃)≤1.25										
Endurance	After applying rated voltage for 2,000 hours at 105℃,the capacitors shall meet the following requirements.										
	Appearance	No significant damage									
	Capacitance Change	≤±20% of the initial value									
	Dissipation Factor	≤150% of the initial specified value									
	ESR	≤150% of the initial specified value									
	Leakage Current	≤The initial specified value									
Humidity Test	After subjecting to 90%~95% RH for 500 hours at 60℃(no voltage), the capacitors shall meet the requirement as Endurance.										
	Rated Voltage(V _{dc})	2~2.5		4		6.3~7.5		8~16		25	
	Capacitance Change	+70,-20%		+60,-20%		+50,-20%		+40,-20%			
	D. F. (tanδ)	≤200% of the initial specified value									
	Leakage Current	≤The initial specified value									
Surge Test	After subjecting to 1,000 cycles each consisting of charge with the surge voltage specified at normal temperature for 30 seconds through a protective resistor and discharge for 5 minutes 30 seconds, the capacitors shall meet the following requirements.										
	Appearance	No significant damage									
	Capacitance Change	≤±20% of the initial value									
	Dissipation Factor	≤150% of the initial specified value									
	ESR	≤150% of the initial specified value									
	Leakage Current	≤The initial specified value									

Technical drawings of the test specimen showing dimensions L, W, S, and W1.

Case Size	L±0.3(mm)	W±0.2(mm)	T±0.1(mm)	W1±0.2(mm)	S±0.2(mm)
7.3x4.3x2.8	7.3	4.3	2.8	2.4	1.3

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The diagram shows a 10-digit resistor code with the following labels:

- Special code
- Terminal code
- Size code
- Capacitance code
- Capacitance tolerance code
- Voltage code
- Series code
- Category code

A2 series

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size (LxWxT mm)	ESR (mΩ, 20°C, 100kHz) (max.)	Rated ripple current (mA rms) 100kHz	Leakage Current (uA max) 20°C	Part Number
2	100	7.3x4.3x2.8	16	2000	20	SA20BM101A28R16XXX
	150	7.3x4.3x2.8	9	3000	30	SA20BM151A28R09XXX
	220	7.3x4.3x2.8	9	3000	44	SA20BM221A28R09XXX
	270	7.3x4.3x2.8	9	3500	54	SA20BM271A28R09XXX
	330	7.3x4.3x2.8	9	3500	66	SA20BM331A28R09XXX
	470	7.3x4.3x2.8	9	3500	94	SA20BM471A28R09XXX
2.5	100	7.3x4.3x2.8	16	2000	25	SA20EM101A28R16XXX
	150	7.3x4.3x2.8	9	3000	37.5	SA20EM151A28R09XXX
	180	7.3x4.3x2.8	12	2500	45	SA20EM181A28R12XXX
	220	7.3x4.3x2.8	10	3000	55	SA20EM221A28R10XXX
	270	7.3x4.3x2.8	9	3500	67.5	SA20EM271A28R09XXX
	330	7.3x4.3x2.8	7	3500	82.5	SA20EM331A28R07XXX
	330	7.3x4.3x2.8	9	3500	82.5	SA20EM331A28R09XXX
	470	7.3x4.3x2.8	4.5	3500	117.5	SA20EM471A28R04XXX
	470	7.3x4.3x2.8	6	3500	117.5	SA20EM471A28R06XXX
4	68	7.3x4.3x2.8	20	1900	27.2	SA20GM680A28R20XXX
	82	7.3x4.3x2.8	16	2100	32.8	SA20GM820A28R16XXX
	150	7.3x4.3x2.8	18	2100	60	SA20GM151A28R18XXX
6.3	10	7.3x4.3x2.8	55	1000	6.3	SA20JM100A28R55XXX
	22	7.3x4.3x2.8	45	1000	13.86	SA20JM220A28R45XXX
	33	7.3x4.3x2.8	25	1800	20.79	SA20JM330A28R25XXX
	47	7.3x4.3x2.8	25	1800	29.61	SA20JM470A28R25XXX
	68	7.3x4.3x2.8	15	2000	42.84	SA20JM680A28R15XXX
	100	7.3x4.3x2.8	15	2000	63	SA20JM101A28R15XXX
	150	7.3x4.3x2.8	10	3000	94.5	SA20JM151A28R10XXX
	150	7.3x4.3x2.8	15	3000	94.5	SA20JM151A28R15XXX
	220	7.3x4.3x2.8	10	3000	138.6	SA20JM221A28R10XXX
	220	7.3x4.3x2.8	15	3000	138.6	SA20JM221A28R15XXX
10	10	7.3x4.3x2.8	55	1000	10	SA21AM100A28R55XXX
	22	7.3x4.3x2.8	28	1600	22	SA21AM220A28R28XXX
	33	7.3x4.3x2.8	25	1800	33	SA21AM330A28R25XXX
	68	7.3x4.3x2.8	15	2000	68	SA21AM680A28R15XXX
	100	7.3x4.3x2.8	15	2500	100	SA21AM101A28R15XXX
	100	7.3x4.3x2.8	40	2500	100	SA21AM101A28R40XXX
16	6.8	7.3x4.3x2.8	70	1000	10.88	SA21CM680A28R70XXX
	10	7.3x4.3x2.8	60	1000	16	SA21CM100A28R60XXX
	15	7.3x4.3x2.8	40	1000	24	SA21CM150A28R40XXX
	22	7.3x4.3x2.8	30	1600	35.2	SA21CM220A28R30XXX
	22	7.3x4.3x2.8	60	1400	35.2	SA21CM220A28R60XXX
	33	7.3x4.3x2.8	30	1600	52.8	SA21CM330A28R30XXX
	47	7.3x4.3x2.8	30	1600	75.2	SA21CM470A28R30XXX

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