

A1 series

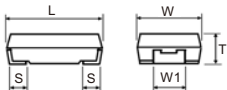
- Endurance: 2,000 hours at 105°C
- Low ESR
- Recommended Applications: System Board, Display Card, Small Charger and intelligent TV
- **RoHS Compliant and lead-free**



SPECIFICATIONS

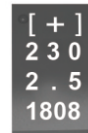
Items	Characteristics										
Category Temperature Range	-55~+105°C										
Rated Working Voltage Range	2~25 Vdc										
Nominal Capacitance Range	2.2~470µF										
Capacitance Tolerance	±20%(M) -35%~+10%(L) (at 20°C, 120Hz)										
DC Leakage Current	I≤0.1CV Where, I: Leakage current (µA), 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
	Dissipation Factor (max.)	0.06						0.10			(at 20°C, 120Hz)
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]

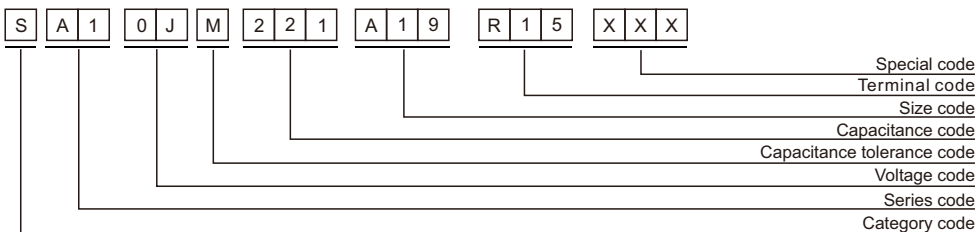


Case Size	L±0.3(mm)	W±0.2(mm)	T±0.1(mm)	W1±0.2(mm)	S±0.2(mm)
7.3x4.3x1.9	7.3	4.3	1.9	2.4	1.3

MARKING



PART NUMBERING SYSTEM



A1 series

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size (LxWxT mm)	ESR (mΩ,20°C,100kHz) (max.)	Rated ripple current (mArms)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	SA10JM4R7A19RA2XXX
	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	

Conductive Polymer Multilayer Type

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	7.3×4.3×1.9	15	3000	94.5	SA10JM151A19R15XXX
	180	7.3×4.3×1.9	15	3000	113.4	SA10JM181A19R15XXX
	220	7.3×4.3×1.9	10	3000	138.6	SA10JM221A19R10XXX
	220	7.3×4.3×1.9	15	3000	138.6	SA10JM221A19R1530X
	220	7.3×4.3×1.9	15	3000	138.6	SA10JL221A19R15XXX
	220	7.3×4.3×1.9	15	3000	138.6	SA10JL221A19R1530X
	220	7.3×4.3×1.9	15	3000	138.6	SA10JM221A19R15XXX
10	10	7.3×4.3×1.9	55	1000	10	SA11AM100A19R55XXX
	22	7.3×4.3×1.9	120	1600	22	SA11AM220A19RA2XXX
	27	7.3×4.3×1.9	80	1000	27	SA11AM270A19R80XXX
	33	7.3×4.3×1.9	25	1800	33	SA11AM330A19R25XXX
	39	7.3×4.3×1.9	25	1800	39	SA11AM390A19R25XXX
	47	7.3×4.3×1.9	40	1800	47	SA11AM470A19R40XXX
	68	7.3×4.3×1.9	40	1800	68	SA11AM680A19R40XXX
	100	7.3×4.3×1.9	15	2500	100	SA11AM101A19R15XXX
	100	7.3×4.3×1.9	40	2500	100	SA11AM101A19R40XXX
16	4.7	7.3×4.3×1.9	120	1000	7.52	SA11CM47A19RA2XXX
	6.8	7.3×4.3×1.9	70	1000	10.88	SA11CM68A19R70XXX
	10	7.3×4.3×1.9	60	1000	16	SA11CM100A19R60XXX
	15	7.3×4.3×1.9	40	1000	24	SA11CM150A19R40XXX
	22	7.3×4.3×1.9	30	1600	35.2	SA11CM220A19R30XXX
	22	7.3×4.3×1.9	60	1400	35.2	SA11CM220A19R60XXX
	33	7.3×4.3×1.9	80	1400	52.8	SA11CM330A19R80XXX
	47	7.3×4.3×1.9	55	1400	75.2	SA11CM470A19R55XXX
25	2.2	7.3×4.3×1.9	350	800	5.5	SA11EM2R2A19RC0XXX
	4.7	7.3×4.3×1.9	120	1000	11.75	SA11EM47A19RA2XXX
	6.8	7.3×4.3×1.9	80	1000	17	SA11EM68A19R80XXX
	10	7.3×4.3×1.9	35	1000	25	SA11EM100A19R35XXX
	10	7.3×4.3×1.9	60	1400	25	SA11EM100A19R60XXX
	10	7.3×4.3×1.9	80	1400	25	SA11EM100A19R80XXX
	15	7.3×4.3×1.9	60	1400	37.5	SA11EM150A19R60XXX
	22	7.3×4.3×1.9	60	1400	55	SA11EM220A19R60XXX
	33	7.3×4.3×1.9	40	1400	82.5	SA11EM330A19R40XXX
	33	7.3×4.3×1.9	60	1400	82.5	SA11EM330A19R60XXX
	33	7.3×4.3×1.9	80	1400	82.5	SA11EM330A19R8014X
	33	7.3×4.3×1.9	80	1400	82.5	SA11EM330A19R80XXX

※ Specifications may be subject to change without notice.

A2 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

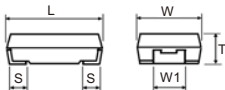


Conductive Polymer Multilayer Type

SPECIFICATIONS

Items	Characteristics	
Category Temperature Range	-55~+105°C	
Rated Working Voltage Range	2~16V _{dc}	
Nominal Capacitance Range	6.8~470μF	
Capacitance Tolerance	±20%(M) -35%~+10%(L) (at 20°C, 120Hz)	
DC Leakage Current	I≤0.1CV (at 20°C 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°C, 120Hz)
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(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

DIMENSIONS[mm]

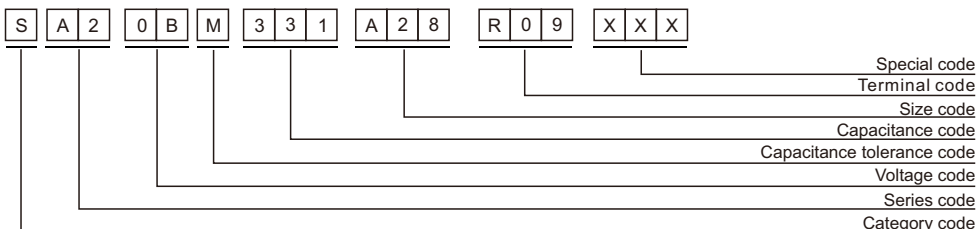


Case Size	L±0.3(mm)	W±0.2(mm)	T±0.1(mm)	W1±0.2(mm)	S±0.2(mm)
7.3x4.3x2.8	7.3	4.3	2.8	2.4	1.3

MARKING



PART NUMBERING SYSTEM



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	7.3×4.3×2.8	16	2000	20	SA20BM101A28R16XXX
	150	7.3×4.3×2.8	9	3000	30	SA20BM151A28R09XXX
	220	7.3×4.3×2.8	9	3000	44	SA20BM221A28R09XXX
	270	7.3×4.3×2.8	9	3500	54	SA20BM271A28R09XXX
	330	7.3×4.3×2.8	9	3500	66	SA20BM331A28R09XXX
	470	7.3×4.3×2.8	9	3500	94	SA20BM471A28R09XXX
2.5	100	7.3×4.3×2.8	16	2000	25	SA20EM101A28R16XXX
	150	7.3×4.3×2.8	9	3000	37.5	SA20EM151A28R09XXX
	180	7.3×4.3×2.8	12	2500	45	SA20EM181A28R12XXX
	220	7.3×4.3×2.8	10	3000	55	SA20EM221A28R10XXX
	270	7.3×4.3×2.8	9	3500	67.5	SA20EM271A28R09XXX
	330	7.3×4.3×2.8	7	3500	82.5	SA20EM331A28R07XXX
	330	7.3×4.3×2.8	9	3500	82.5	SA20EM331A28R09XXX
	470	7.3×4.3×2.8	4.5	3500	117.5	SA20EM471A28R04XXX
	470	7.3×4.3×2.8	6	3500	117.5	SA20EM471A28R06XXX
470	7.3×4.3×2.8	9	3500	117.5	SA20EM471A28R09XXX	
4	68	7.3×4.3×2.8	20	1900	27.2	SA20GM680A28R20XXX
	82	7.3×4.3×2.8	16	2100	32.8	SA20GM820A28R16XXX
	150	7.3×4.3×2.8	18	2100	60	SA20GM151A28R18XXX
6.3	10	7.3×4.3×2.8	55	1000	6.3	SA20JM100A28R55XXX
	22	7.3×4.3×2.8	45	1000	13.86	SA20JM220A28R45XXX
	33	7.3×4.3×2.8	25	1800	20.79	SA20JM330A28R25XXX
	47	7.3×4.3×2.8	25	1800	29.61	SA20JM470A28R25XXX
	68	7.3×4.3×2.8	15	2000	42.84	SA20JM680A28R15XXX
	100	7.3×4.3×2.8	15	2000	63	SA20JM101A28R15XXX
	150	7.3×4.3×2.8	10	3000	94.5	SA20JM151A28R10XXX
	150	7.3×4.3×2.8	15	3000	94.5	SA20JM151A28R15XXX
	220	7.3×4.3×2.8	10	3000	138.6	SA20JM221A28R10XXX
	220	7.3×4.3×2.8	15	3000	138.6	SA20JM221A28R15XXX
10	10	7.3×4.3×2.8	55	1000	10	SA21AM100A28R55XXX
	22	7.3×4.3×2.8	28	1600	22	SA21AM220A28R28XXX
	33	7.3×4.3×2.8	25	1800	33	SA21AM330A28R25XXX
	68	7.3×4.3×2.8	15	2000	68	SA21AM680A28R15XXX
	100	7.3×4.3×2.8	15	2500	100	SA21AM101A28R15XXX
	100	7.3×4.3×2.8	40	2500	100	SA21AM101A28R40XXX
16	6.8	7.3×4.3×2.8	70	1000	10.88	SA21CM6R8A28R70XXX
	10	7.3×4.3×2.8	60	1000	16	SA21CM100A28R60XXX
	15	7.3×4.3×2.8	40	1000	24	SA21CM150A28R40XXX
	22	7.3×4.3×2.8	30	1600	35.2	SA21CM220A28R30XXX
	22	7.3×4.3×2.8	60	1400	35.2	SA21CM220A28R60XXX
	33	7.3×4.3×2.8	30	1600	52.8	SA21CM330A28R30XXX
	47	7.3×4.3×2.8	30	1600	75.2	SA21CM470A28R30XXX

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