

Surface Mount Type

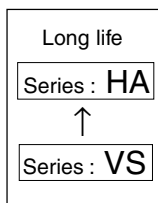
Series : HA

■ Features

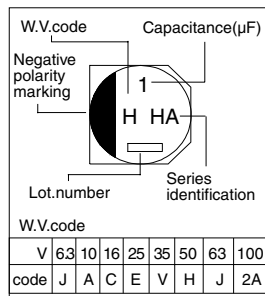
- Life time: 105°C 1000 h
- 5.5 mm height ($\leq \phi 6.3$)

■ Specifications

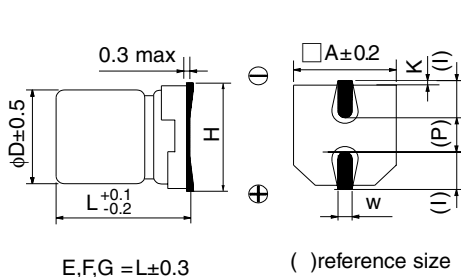
Operating Temp.Range	-40 to +105°C									
Rated W.V.Range	6.3 to 100 V .DC									
Nominal Cap.Range	0.1 to 1500μF									
Capacitance Tolerance	± 20 % (120Hz/+20°C)									
D.C. Leakage Current	I ≤ 0.01 CV or 3(μA) after 2 minutes (Whichever is greater)									
Dissipation Factor (tan δ)	Refer to standard products table.									
Characteristics at Low Temperature	W.V. (V)	6.3	10	16	25	35	50	63	100	(Impedance ratio max at 120 Hz)
	-25 / +20 °C	4	3	2	2	2	2	3	3	
	-40 / +20 °C	8	6	4	4	4	3	3	4	
Endurance	After applying rated working voltage for 1000 hours for B~D size, 2000 hours for E~G size at +105°C and then being stabilized at +20°C, capacitors shall meet the following limits .									
	Capacitance change	±20% of initial measured value (±30% for E~G size of 6.3V & UP suffix)								
	D.F.	≤ 200% of initial specified value (≤300% for E~G size of 6.3V & UP suffix)								
	D.C leakage current	≤ initial specified value								
Shelf Life	After storage for 1000 hours at +105°C ±2°C with no voltage applied and then being stabilized at +20°C, capacitor shall meet the limits specified in “Endurance.” (With voltage treatment)									
Resistance to Soldering Heat	After reflow soldering (refer to Application Guidelines) and then being stabilized at +20°C, capacitor shall meet the following limits.									
	Capacitance change	±10% of initial measured value								
	D.F.	≤ initial specified value								
	D.C leakage current	≤ initial specified value								



■ Marking

Example; 50V1 μ F(polarized)

■ Dimensions in mm (not to scale)



Size code	D	L	A	H	I	W	P	K
B	4.0	5.4	4.3	5.5MAX	1.8	0.65 $\pm$ 0.1	1.0	0.35 ^{+0.15} _{-0.20}
C	5.0	5.4	5.3	6.5MAX	2.2	0.65 $\pm$ 0.1	1.5	0.35 ^{+0.15} _{-0.20}
D	6.3	5.4	6.6	7.8MAX	2.6	0.65 $\pm$ 0.1	1.8	0.35 ^{+0.15} _{-0.20}
D ₈	6.3	7.9	6.6	7.8MAX	2.6	0.65 $\pm$ 0.1	1.8	0.35 ^{+0.15} _{-0.20}
E	8.0	6.2	8.3	9.5MAX	3.4	0.65 $\pm$ 0.1	2.2	0.35 $\pm$ 0.2
F	8.0	10.2	8.3	10.0MAX	3.4	0.90 $\pm$ 0.2	3.1	0.70 $\pm$ 0.2
G	10.0	10.2	10.3	12.0MAX	3.5	0.90 $\pm$ 0.2	4.6	0.70 $\pm$ 0.2

■ Case size

● Polarized

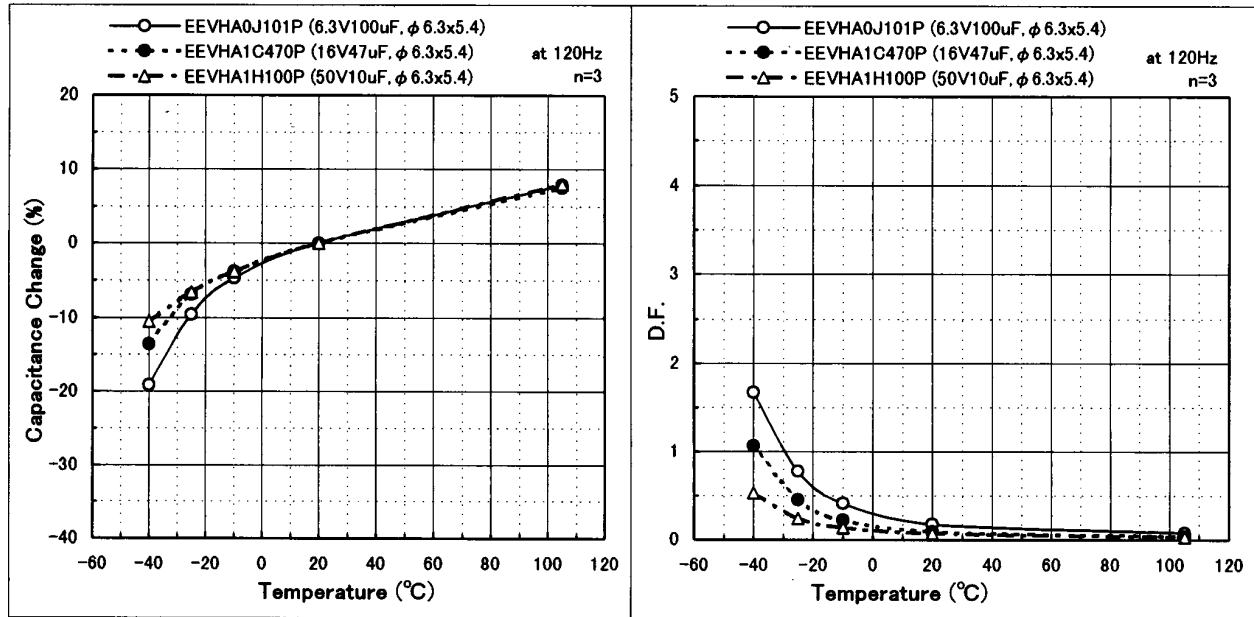
w.v.	6.3 (0J)	10 (1A)	16 (1C)	25 (1E)	35 (1V)	50 (1H)	63 (1J)	100 (2A)
Cap.(μ F)								
0.1						B		
0.22						B		
0.33						B		
0.47						B		
1.0						B		
2.2						B		
3.3						B		E
4.7				B	B	C		E,F
10			B	B,C	B,C	D	E	F
22	B	B	B,C	C,D	C,D	E	E,F	F,G
33	B	B,C	C	C,D	D,E	D ₈ ,E,F	G	G
47	B,C	C	C,D	D,E	E,F	D ₈ ,F,G	F,G	
100	C,D	D,E	D	E,F	D ₈ ,F,G	F,G		
220	D	D ₈ ,F	D ₈ ,F,G	F,G	F,G	G		
330	D ₈ ,F		F,G	F,G	G			
470	F	F,G	F,G	G				
1000	F,G	G						
1500	G							

■ Standard Products

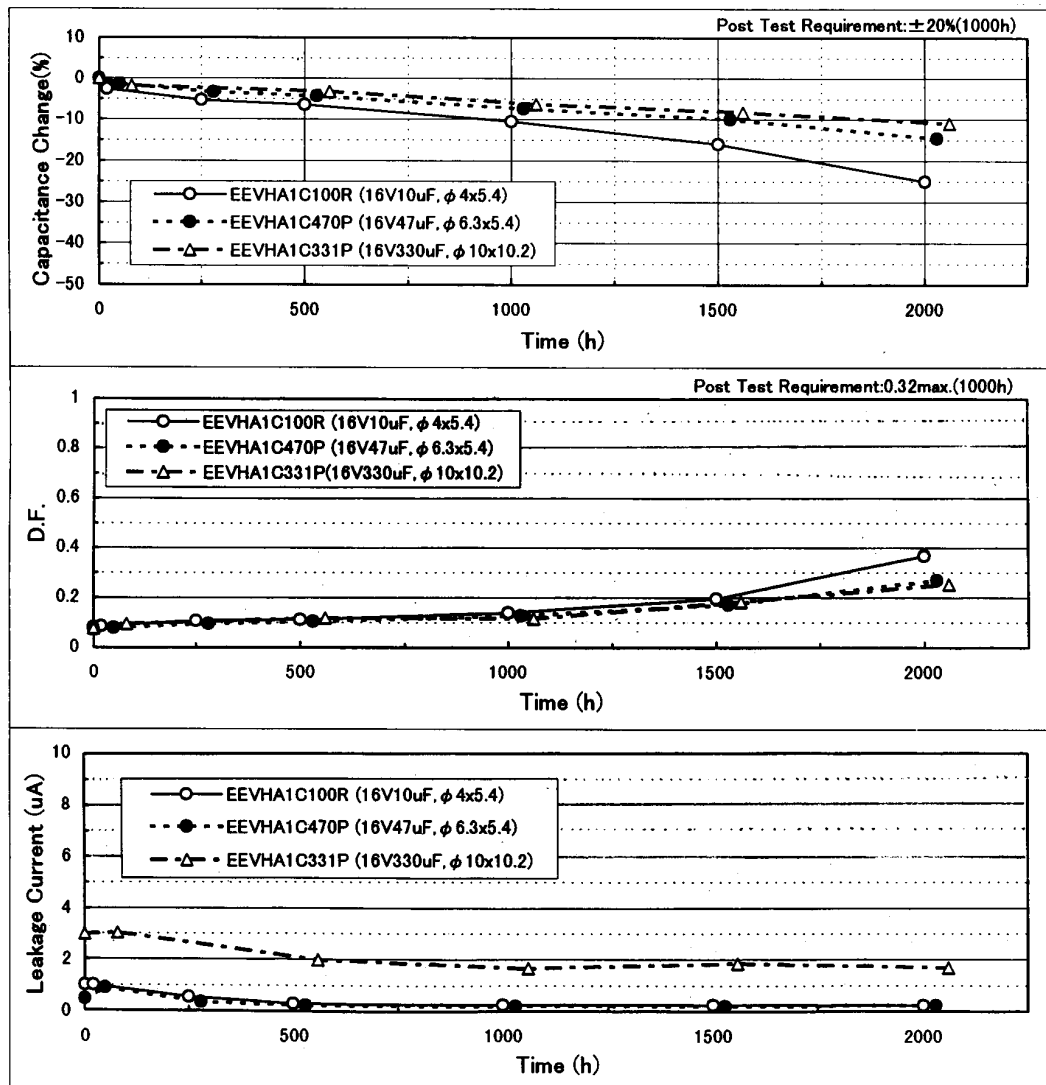
W.V. [V.DC]	Cap. [μF]	Part No.	tan δ	R.C. [mA rms]	Size [mm]		
					D	L	
6.3	22	EEVHA0J220R	0.30	29	4	5.4	
	33	EEVHA0J330WR	0.35	29	4	5.4	
	47	EEVHA0J470WR	0.35	36	4	5.4	
		EEVHA0J470R	0.30	46	5	5.4	
	100	EEVHA0J101WR	0.35	47	5	5.4	
		EEVHA0J101P	0.30	71	6.3	5.4	
	220	EEVHA0J221WP	0.35	74	6.3	5.4	
	330	EEVHA0J331XP	0.30	105	6.3	7.9	
		EEVHA0J331P	0.35	230	8	10.2	
	470	EEVHA0J471UP	0.35	300	8	10.2	
1000	EEVHA0J102UP	0.35	300	8	10.2		
	EEVHA0J102P	0.35	400	10	10.2		
	1500	EEVHA0J152P	0.35	480	10	10.2	
10	22	EEVHA1A220WR	0.30	28	4	5.4	
	33	EEVHA1A330WR	0.30	29	4	5.4	
		EEVHA1A330R	0.22	43	5	5.4	
	47	EEVHA1A470WR	0.30	43	5	5.4	
	100	EEVHA1A101WP	0.30	70	6.3	5.4	
		EEVHA1A101P	0.26	110	8	6.2	
	220	EEVHA1A221XP	0.22	105	6.3	7.9	
		EEVHA1A221P	0.26	160	8	10.2	
	470	EEVHA1A471UP	0.26	200	8	10.2	
		EEVHA1A471P	0.26	270	10	10.2	
1000	EEVHA1A102P	0.26	580	10	10.2		
16	10	EEVHA1C100R	0.16	28	4	5.4	
	22	EEVHA1C220WR	0.26	28	4	5.4	
		EEVHA1C220R	0.16	39	5	5.4	
	33	EEVHA1C330WR	0.26	35	5	5.4	
	47	EEVHA1C470WR	0.26	39	5	5.4	
		EEVHA1C470P	0.16	70	6.3	5.4	
	100	EEVHA1C101WP	0.26	70	6.3	5.4	
	220	EEVHA1C221XP	0.16	105	6.3	7.9	
		EEVHA1C221UP	0.20	150	8	10.2	
	EEVHA1C221P	0.20	210	10	10.2		
330	EEVHA1C331UP	0.20	170	8	10.2		
	EEVHA1C331P	0.20	230	10	10.2		
470	EEVHA1C471UP	0.20	190	8	10.2		
	EEVHA1C471P	0.20	340	10	10.2		
25	4.7	EEVHA1E4R7R	0.14	22	4	5.4	
	10	EEVHA1E100WR	0.20	22	4	5.4	
		EEVHA1E100R	0.14	28	5	5.4	
	22	EEVHA1E220WR	0.20	35	5	5.4	
		EEVHA1E220P	0.14	55	6.3	5.4	
	33	EEVHA1E330WR	0.20	42	5	5.4	
		EEVHA1E330P	0.14	65	6.3	5.4	
	47	EEVHA1E470WP	0.20	70	6.3	5.4	
		EEVHA1E470P	0.16	91	8	6.2	
	100	EEVHA1E101UP	0.16	91	8	6.2	
EEVHA1E101P		0.16	130	8	10.2		
220	EEVHA1E221UP	0.16	160	8	10.2		
	EEVHA1E221P	0.16	190	10	10.2		
25	330	EEVHA1E331UP	0.16	180	8	10.2	
	470	EEVHA1E331P	0.16	340	10	10.2	
		EEVHA1E471P	0.16	360	10	10.2	
	4.7	EEVHA1V4R7R	0.12	22	4	5.4	
	10	EEVHA1V100WR	0.16	22	4	5.4	
		EEVHA1V100R	0.12	30	5	5.4	
	22	EEVHA1V220WR	0.16	35	5	5.4	
		EEVHA1V220P	0.12	60	6.3	5.4	
	33	EEVHA1V330WP	0.16	42	6.3	5.4	
		EEVHA1V330P	0.14	84	8	6.2	
35	47	EEVHA1V470UP	0.14	84	8	6.2	
		EEVHA1V470P	0.14	98	8	10.2	
	100	EEVHA1V101XP	0.12	84	6.3	7.9	
		EEVHA1V101UP	0.14	120	8	10.2	
	220	EEVHA1V101P	0.14	160	10	10.2	
		EEVHA1V221UP	0.14	170	8	10.2	
		EEVHA1V221P	0.14	210	10	10.2	
	330	EEVHA1V331P	0.14	250	10	10.2	
	50	0.1	EEVHA1HR10R	0.12	1	4	5.4
		0.22	EEVHA1HR22R	0.12	2	4	5.4
0.33		EEVHA1HR33R	0.12	3	4	5.4	
0.47		EEVHA1HR47R	0.12	5	4	5.4	
1		EEVHA1H1R0R	0.12	10	4	5.4	
2.2		EEVHA1H2R2R	0.12	16	4	5.4	
3.3		EEVHA1H3R3R	0.12	16	4	5.4	
4.7		EEVHA1H4R7R	0.12	23	5	5.4	
10		EEVHA1H100P	0.12	35	6.3	5.4	
22		EEVHA1H220P	0.12	70	8	6.2	
63	33	EEVHA1H330XP	0.12	60	6.3	7.9	
		EEVHA1H330UP	0.12	70	8	6.2	
	47	EEVHA1H330P	0.12	91	8	10.2	
		EEVHA1H470XP	0.12	63	6.3	7.9	
	100	EEVHA1H470UP	0.12	95	8	10.2	
		EEVHA1H470P	0.12	100	10	10.2	
	220	EEVHA1H101UP	0.12	110	8	10.2	
		EEVHA1H101P	0.12	120	10	10.2	
	220	EEVHA1H221P	0.12	150	10	10.2	
	100	10	EEVHA1J100P	0.18	25	8	6.2
22		EEVHA1J220UP	0.18	30	8	6.2	
		EEVHA1J220P	0.18	30	8	10.2	
33		EEVHA1J330P	0.18	45	10	10.2	
47		EEVHA1J470UP	0.18	50	8	10.2	
		EEVHA1J470P	0.18	50	10	10.2	
3.3		EEVHA2A3R3P	0.18	30	8	6.2	
		EEVHA2A4R7UP	0.18	30	8	6.2	
4.7		EEVHA2A4R7P	0.18	50	8	10.2	
		10	EEVHA2A100P	0.18	55	8	10.2
22	EEVHA2A220UP	0.18	55	8	10.2		
	EEVHA2A220P	0.18	60	10	10.2		
33	EEVHA2A330P	0.18	65	10	10.2		

tan δ = at 120Hz/+20°C, Ripple current = at 120Hz/+105°C

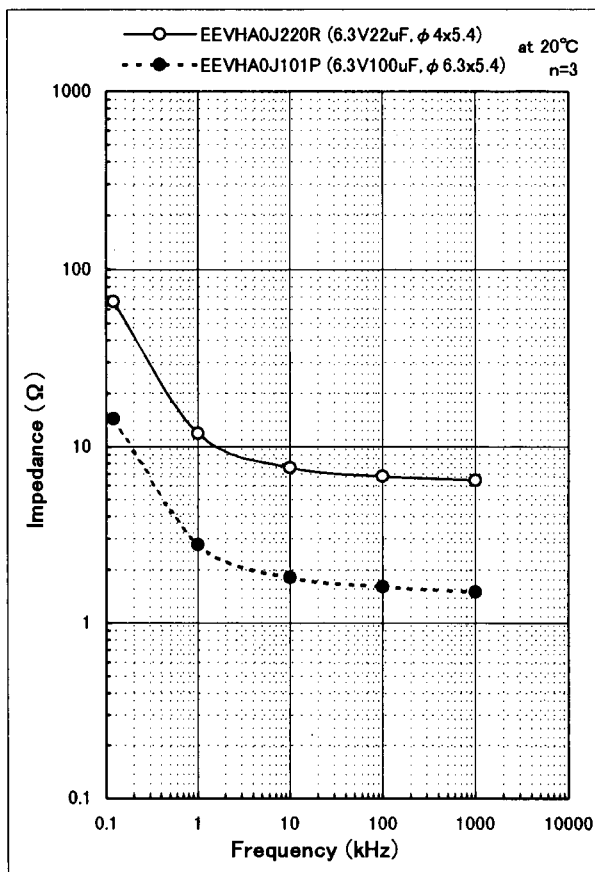
Temperature Characteristics Data



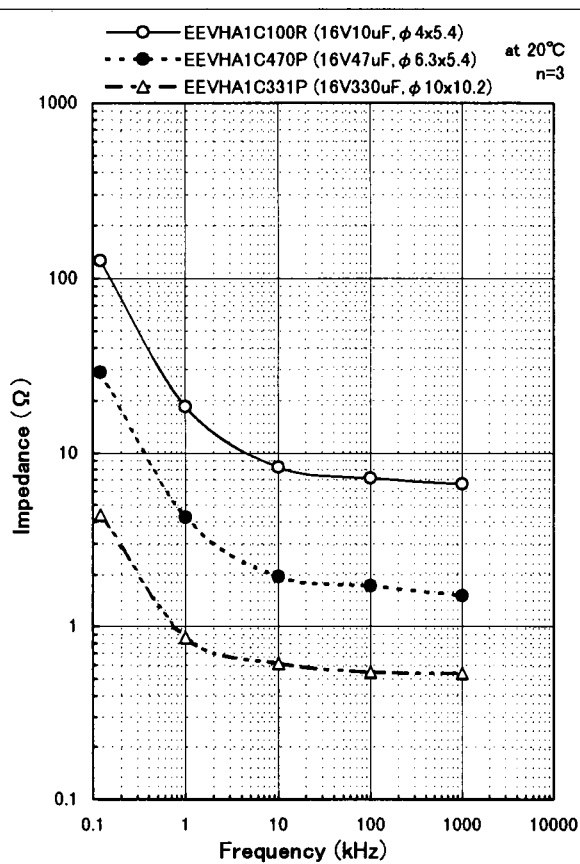
Load Life Data



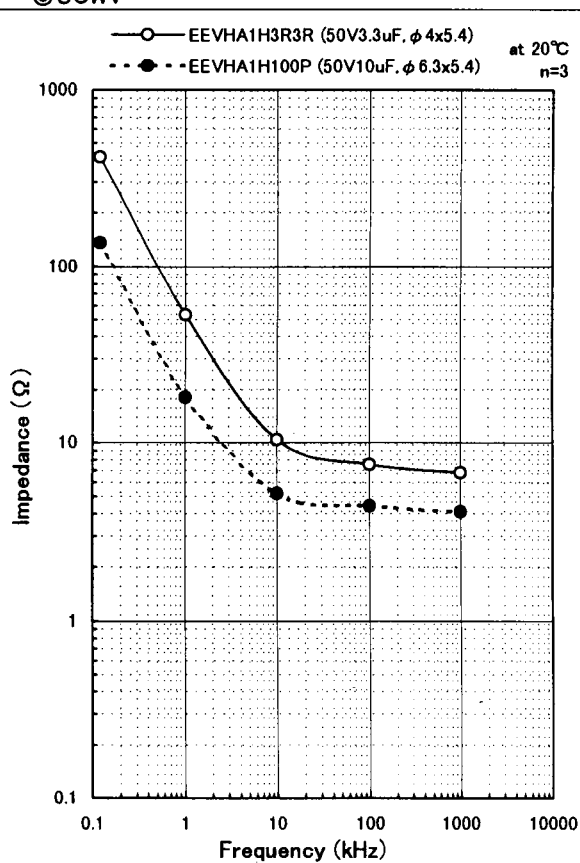
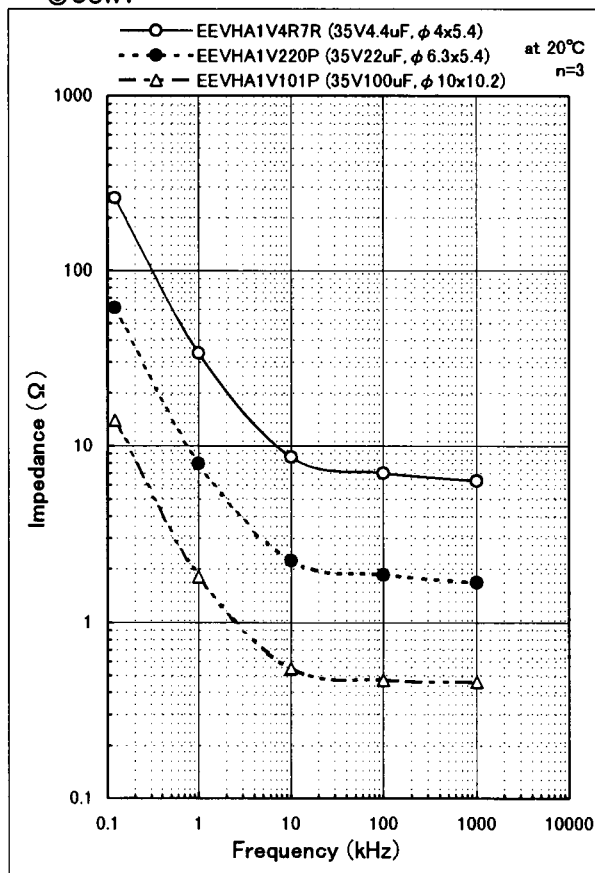
■ Frequency Characteristics Data



◎35WV



◎50WV



■ Temperature Characteristics Data

