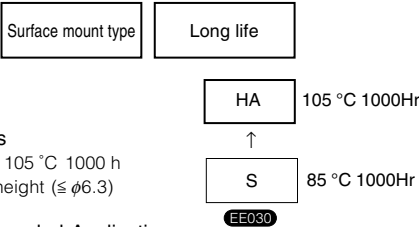


Surface Mount Type Aluminum Electrolytic Capacitors

Japan

Series: **HA**
Type: **V**



■ Features

- Lifetime: 105 °C 1000 h
- 5.5 mm height (≦ ϕ6.3)

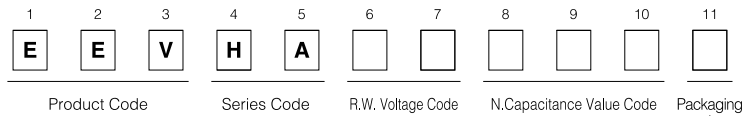
■ Recommended Applications

- AV (TV, Video, Audio), Personal Computer, Home appliance

■ Specifications

Operating Temp. Range	-40 to +105 °C																																				
Rated W.V. Range	6.3 to 100 V.DC																																				
Nominal Cap. Range	0.1 to 470 μF																																				
Capacitance Tolerance	±20 % (120 Hz/+20 °C)																																				
DC Leakage Current	I ≤ 0.01 CV or 3 (μA) after 2 minutes (Whichever, greater)																																				
Dissipation Factor	<table><tr><td>W.V. (V)</td><td>6.3</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td><td>63</td><td>100</td></tr><tr><td>D.F. $\phi 4 \sim \phi 6.3$</td><td>0.30</td><td>0.22</td><td>0.16</td><td>0.14</td><td>0.12</td><td>0.12</td><td>—</td><td>—</td></tr><tr><td>$\phi 8 \sim \phi 10$</td><td>0.35</td><td>0.26</td><td>0.20</td><td>0.16</td><td>0.14</td><td>0.12</td><td>0.18</td><td>0.18</td></tr></table>									W.V. (V)	6.3	10	16	25	35	50	63	100	D.F. $\phi 4 \sim \phi 6.3$	0.30	0.22	0.16	0.14	0.12	0.12	—	—	$\phi 8 \sim \phi 10$	0.35	0.26	0.20	0.16	0.14	0.12	0.18	0.18	(120 Hz/+20 °C) (max.)
W.V. (V)	6.3	10	16	25	35	50	63	100																													
D.F. $\phi 4 \sim \phi 6.3$	0.30	0.22	0.16	0.14	0.12	0.12	—	—																													
$\phi 8 \sim \phi 10$	0.35	0.26	0.20	0.16	0.14	0.12	0.18	0.18																													
Characteristics at Low Temperature	<table><tr><td>W.V. (V)</td><td>6.3</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td><td>63</td><td>100</td></tr><tr><td>-25/+20 °C</td><td>4</td><td>3</td><td>2</td><td>2</td><td>2</td><td>2</td><td>3</td><td>3</td></tr><tr><td>-40/+20 °C</td><td>8</td><td>6</td><td>4</td><td>4</td><td>3</td><td>3</td><td>4</td><td>4</td></tr></table>									W.V. (V)	6.3	10	16	25	35	50	63	100	-25/+20 °C	4	3	2	2	2	2	3	3	-40/+20 °C	8	6	4	4	3	3	4	4	(Impedance ratio) at 120 Hz
W.V. (V)	6.3	10	16	25	35	50	63	100																													
-25/+20 °C	4	3	2	2	2	2	3	3																													
-40/+20 °C	8	6	4	4	3	3	4	4																													
Endurance	After applying rated working voltage for 1000 hours at +105 °C and then being stabilized at +20 °C, capacitors shall meet the following limits																																				
	Capacitance change		±20 % of initial measured value																																		
	D.F.		≤ 200 % of initial specified value																																		
	DC leakage current		≤ Initial specified value																																		
Shelf Life	After storage for 1000 hours at +105 °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 page 20 for recommendable temperature profile.) 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																																		
	DC leakage current		≤ Initial specified value																																		

■ Explanation of Part Numbers

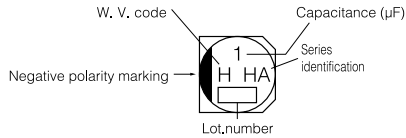


Taped on reel			
R	W=12 mm	φ4, φ5 (B,C)	
S	W=12 mm	φ5 : P1 = 8 mm	
P	W=16 mm	φ6.3, φ8×6.2 (D,E)	
P	W=24 mm	φ8×10.2, φ10×10.2 (F,G)	

P1 : Pitch dimension between capacitors on taping

■ Marking

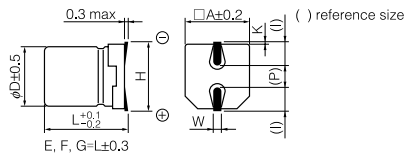
Example:
50 V 1 μF (Polarized)



W.V. code

V	4	6.3	10	16	25	35	50	63	100
code	g	j	A	C	E	V	H	J	2A

■ Dimensions in mm (not to scale)



(mm)

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

■ Case size/Ripple current

● Polarized

(mA) r.m.s. (120 Hz/+105 °C)

Cap. (μF)	W.V. (V)	6.3 (0J)	10 (1A)	16 (1C)	25 (1E)	35 (1V)	50 (1H)	63 (1J)	100 (2A)
0.1 (R10)							B 1		
0.22 (R22)							B 2		
0.33 (R33)							B 3		
0.47 (R47)							B 5		
1.0 (1R0)							B 10		
2.2 (2R2)							B 16		
3.3 (3R3)							B 16		E 30
4.7 (4R7)					B 22	B 22	C 23		F 50
10 (100)			B 28	C 28	C 30	D 35	E 25	F 55	
22 (220)	B 29		C 39	D 55	D 60	E 70	F 30	G 60	
33 (330)		C 43		D 65	E 84	F 91	G 45	G 65	
47 (470)	C 46		D 70	E 91	F 98	G 100	G 50		
100 (101)	D 71	E 110		F 130	G 160				
220 (221)		F 160	G 210	G 190					
330 (331)	F 230		G 230						
470 (471)		G 270							
								Size code	Ripple current

() shows W.V. and capacitance code.

■ Standard Products

W.V. (V)	Cap. ($\pm 20\%$) (μF)	Case size			Specification		Part No.	Min. Packaging Qty
		Dia. (mm)	Length (mm)	Size Code	Ripple current (120Hz) (+105°C) (mA)	D.F.		Taping (pcs)
6.3	22	4	5.4	B	29	0.30	EEVHA0J220R	2000
	47	5	5.4	C	46	0.30	EEVHA0J470R	1000
	100	6.3	5.4	D	71	0.30	EEVHA0J101P	1000
	330	8	10.2	F	230	0.35	EEVHA0J331P	500
10	33	5	5.4	C	43	0.22	EEVHA1A330R	1000
	100	8	6.2	E	110	0.26	EEVHA1A101P	1000
	220	8	10.2	F	160	0.26	EEVHA1A221P	500
	470	10	10.2	G	270	0.26	EEVHA1A471P	500
16	10	4	5.4	B	28	0.16	EEVHA1C100R	2000
	22	5	5.4	C	39	0.16	EEVHA1C220R	1000
	47	6.3	5.4	D	70	0.16	EEVHA1C470P	1000
	220	10	10.2	D	210	0.20	EEVHA1C221P	500
25	330	10	10.2	G	230	0.20	EEVHA1C331P	500
	4.7	4	5.4	B	22	0.14	EEVHA1E4R7R	2000
	10	5	5.4	C	28	0.14	EEVHA1E100R	1000
	22	6.3	5.4	D	55	0.14	EEVHA1E220P	1000
35	33	6.3	5.4	D	65	0.14	EEVHA1E330P	1000
	47	8	6.2	E	91	0.16	EEVHA1E470P	1000
	100	8	10.2	F	130	0.16	EEVHA1E101P	500
	220	10	10.2	G	190	0.16	EEVHA1E221P	500
50	4.7	4	5.4	B	22	0.12	EEVHA1V4R7R	2000
	10	5	5.4	C	30	0.12	EEVHA1V100R	1000
	22	6.3	5.4	D	60	0.12	EEVHA1V220P	1000
	33	8	6.2	E	84	0.14	EEVHA1V330P	1000
63	47	8	10.2	F	98	0.14	EEVHA1V470P	500
	100	10	10.2	G	160	0.14	EEVHA1V101P	500
	0.1	4	5.4	B	1	0.12	EEVHA1HR10R	2000
	0.22	4	5.4	B	2	0.12	EEVHA1HR22R	2000
100	0.33	4	5.4	B	3	0.12	EEVHA1HR33R	2000
	0.47	4	5.4	B	5	0.12	EEVHA1HR47R	2000
	1	4	5.4	B	10	0.12	EEVHA1H1R0R	2000
	2.2	4	5.4	B	16	0.12	EEVHA1H2R2R	2000
150	3.3	4	5.4	B	16	0.12	EEVHA1H3R3R	2000
	4.7	5	5.4	C	23	0.12	EEVHA1H4R7R	1000
	10	6.3	5.4	D	35	0.12	EEVHA1H100P	1000
	22	8	6.2	E	70	0.12	EEVHA1H220P	1000
200	33	8	10.2	F	91	0.12	EEVHA1H330P	500
	47	10	10.2	G	100	0.12	EEVHA1H470P	500
	10	8	6.2	E	25	0.18	EEVHA1J100P	1000
	22	8	10.2	F	30	0.18	EEVHA1J220P	500
250	33	10	10.2	G	45	0.18	EEVHA1J330P	500
	47	10	10.2	G	50	0.18	EEVHA1J470P	500
	3.3	8	6.2	E	30	0.18	EEVHA2A3R3P	1000
	4.7	8	10.2	F	50	0.18	EEVHA2A4R7P	500
315	10	8	10.2	F	55	0.18	EEVHA2A100P	500
	22	10	10.2	G	60	0.18	EEVHA2A220P	500
	33	10	10.2	G	65	0.18	EEVHA2A330P	500

The taping dimension are explained on p. of our Catalog.

Please use it as a reference guide.

High temperature Load Life test : 105°C 1000h