

Surface Mount Type Aluminum Electrolytic Capacitors

Japan

Series: **HB**

Type: **V**

Surface mount type	Long life	High Reliability
--------------------	-----------	------------------

HB 105 °C 2000Hr

↑

HA 105 °C 1000Hr



■ Features

● Lifetime: 105 °C 2000 h

● 6.1 mm height (≤ φ 6.3)

■ Recommended Applications

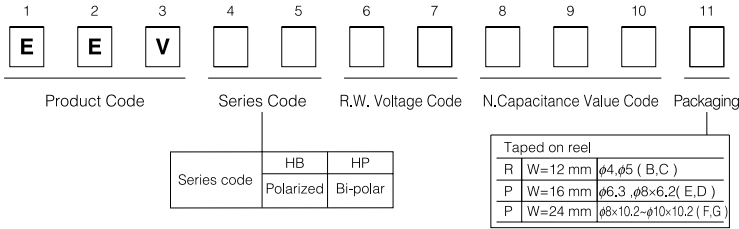
● AV (TV, Video, Audio), Office, Home appliance, CCTV

EE036

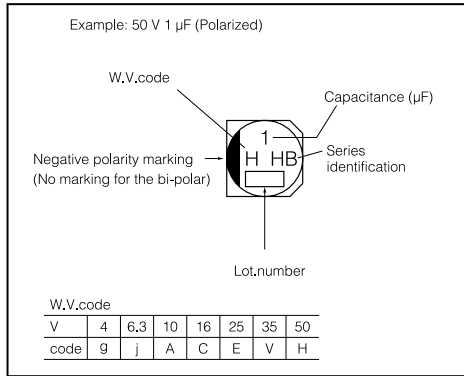
■ Specifications

Operating Temp. Range	-40 to +105 °C																															
Rated W.V. Range	4 to 50 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 (Bi-polar I = 0.02 CV or 6 (μA) after 2 minutes) (Whichever, greater)																															
Dissipation Factor	<table border="1"> <thead> <tr> <th>W.V. (V)</th> <th>4</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> </tr> </thead> <tbody> <tr> <td>φ4~6.3</td> <td>0.50</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> </tr> <tr> <td>φ8~10</td> <td></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> </tr> </tbody> </table>								W.V. (V)	4	6.3	10	16	25	35	50	φ4~6.3	0.50	0.30	0.22	0.16	0.14	0.12	0.12	φ8~10		0.35	0.26	0.20	0.16	0.14	0.12
	W.V. (V)	4	6.3	10	16	25	35	50																								
	φ4~6.3	0.50	0.30	0.22	0.16	0.14	0.12	0.12																								
φ8~10		0.35	0.26	0.20	0.16	0.14	0.12																									
Bi-polar	<table border="1"> <thead> <tr> <th>W.V. (V)</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> </tr> </thead> <tbody> <tr> <td>D.F.</td> <td>0.60</td> <td>0.44</td> <td>0.32</td> <td>0.28</td> <td>0.24</td> <td>0.24</td> </tr> </tbody> </table>								W.V. (V)	6.3	10	16	25	35	50	D.F.	0.60	0.44	0.32	0.28	0.24	0.24										
	W.V. (V)	6.3	10	16	25	35	50																									
D.F.	0.60	0.44	0.32	0.28	0.24	0.24																										
								(120 Hz/+20 °C) (max.)																								
Characteristics at Low Temperature	<table border="1"> <thead> <tr> <th>W.V. (V)</th> <th>4</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> </tr> </thead> <tbody> <tr> <td>-25/+20 °C</td> <td>7</td> <td>4</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>-40/+20 °C</td> <td>15</td> <td>8</td> <td>6</td> <td>4</td> <td>4</td> <td>3</td> <td>3</td> </tr> </tbody> </table>								W.V. (V)	4	6.3	10	16	25	35	50	-25/+20 °C	7	4	3	2	2	2	2	-40/+20 °C	15	8	6	4	4	3	3
	W.V. (V)	4	6.3	10	16	25	35	50																								
	-25/+20 °C	7	4	3	2	2	2	2																								
-40/+20 °C	15	8	6	4	4	3	3																									
								(Impedance ratio at 120 Hz)																								
Endurance	After applying rated working voltage for 2000 hours at +105 °C and then being stabilized at +20 °C, capacitors shall meet the following limits																															
	<table border="1"> <tr> <td>Capacitance change</td> <td colspan="7">±20 % of initial measured value (4 W.V.: ±35 %, 6.3 W.V.: ±25 % φ4~6.3)</td> </tr> <tr> <td>D.F.</td> <td colspan="7">≤ 200 % of initial specified value</td> </tr> <tr> <td>DC leakage current</td> <td colspan="7">≤ Initial specified value</td> </tr> </table>								Capacitance change	±20 % of initial measured value (4 W.V.: ±35 %, 6.3 W.V.: ±25 % φ4~6.3)							D.F.	≤ 200 % of initial specified value							DC leakage current	≤ Initial specified value						
	Capacitance change	±20 % of initial measured value (4 W.V.: ±35 %, 6.3 W.V.: ±25 % φ4~6.3)																														
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.																															
	<table border="1"> <tr> <td>Capacitance change</td> <td colspan="7">±10 % of initial measured value</td> </tr> <tr> <td>D.F.</td> <td colspan="7">≤ Initial specified value</td> </tr> <tr> <td>DC leakage current</td> <td colspan="7">≤ Initial specified value</td> </tr> </table>								Capacitance change	±10 % of initial measured value							D.F.	≤ Initial specified value							DC leakage current	≤ Initial specified value						
	Capacitance change	±10 % of initial measured value																														
D.F.	≤ Initial specified value																															
DC leakage current	≤ Initial specified value																															

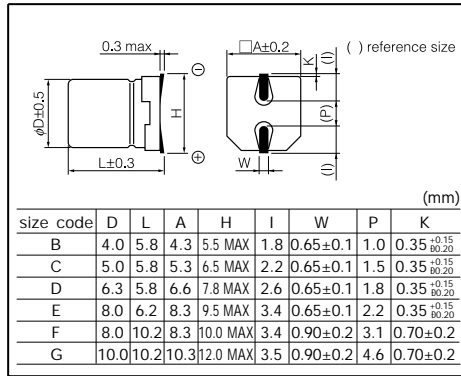
■ Explanation of Part Numbers



■ Marking



■ Dimensions in mm (not to scale)



■ Case size/Ripple current

● Polarized

(mA) r.m.s. (120 Hz/+105 μ C)

Cap. (μ F)	W.V. (V)	4 (0G)	6.3 (0J)	10 (1A)	16 (1C)	25 (1E)	35 (1V)	50 (1H)	
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
4.7 (4R7)						B 22			C 23
6.8 (6R8)						B 25			C 23
10 (100)					B 28				D 35
22 (220)			B 26		C 39				F 70
33 (330)			B 29	C 43					F 91
47 (470)	B 34	C 46			D 70	E 91	F 98	G 100	
100 (101)	C 61	D 71	E 110		F 120	F 130	G 160		
150 (151)	D 82								
220 (221)	D 82	F 150	F 160		G 210	G 190			
330 (331)		F 230			G 230				
470 (471)			G 270						
									Size code Ripple current

● Bi-polar

Cap. (μ F)	W.V. (V)	6.3 (0J)	10 (1A)	16 (1C)	25 (1E)	35 (1V)	50 (1H)	
0.22 (R22)								B 2
0.33 (R33)								B 3
0.47 (R47)								B 5
1.0 (1R0)								B 10
2.2 (2R2)						B 10		
3.3 (3R3)					B 12			D 16
4.7 (4R7)					B 12			D 23
10 (100)		B 20	C 25		D 28			
22 (220)					D 55			
33 (330)			D 26					
47 (470)	D 35							
								Size code Ripple current

() shows W.V. and capacitance code.

■ Standard Products

W.V. (V)	Cap. . (±20%) (μF)	Case size			Specification		Part No.	Min. Packaging Q'ty
		Dia. (mm)	Length (mm)	Size Code	Ripple current (120Hz) (+105°C) (mA)	D.F.		Taping (pcs)
4	47	4	5.8	B	34	0.50	EEVHB0G470R	2000
	100	5	5.8	C	61	0.50	EEVHB0G101R	1000
	150	6	5.8	D	82	0.50	EEVHB0G151P	1000
	220	6	5.8	D	82	0.50	EEVHB0G221P	1000
6.3	22	4	5.8	B	26	0.30	EEVHB0J220R	2000
	33	4	5.8	B	29	0.30	EEVHB0J330R	2000
	47	5	5.8	C	46	0.30	EEVHB0J470R	1000
	100	6.3	5.8	D	71	0.30	EEVHB0J101P	1000
	220	8	10.2	F	150	0.35	EEVHB0J221P	500
	330	8	10.2	F	230	0.35	EEVHB0J331P	500
10	33	5	5.8	C	43	0.22	EEVHB1A330P	1000
	100	8	6.2	E	110	0.26	EEVHB1A101P	1000
	220	8	10.2	F	160	0.26	EEVHB1A221P	500
	470	10	10.2	G	270	0.26	EEVHB1A471P	500
16	10	4	5.8	B	28	0.16	EEVHB1C100R	2000
	22	5	5.8	C	39	0.16	EEVHB1C220R	1000
	47	6.3	5.8	D	70	0.16	EEVHB1C470P	1000
	100	8.0	10.2	F	120	0.20	EEVHB1C101P	500
	220	10	10.2	G	210	0.20	EEVHB1C221P	500
	330	10	10.2	G	230	0.20	EEVHB1C331P	500
25	4.7	4	5.8	B	22	0.14	EEVHB1E4R7R	2000
	6.8	4	5.8	B	25	0.14	EEVHB1E6R8R	2000
	33	6.3	5.8	D	65	0.14	EEVHB1E330P	1000
	47	8	6.2	E	91	0.16	EEVHB1E470P	1000
	100	8	10.2	F	130	0.16	EEVHB1E101P	500
	220	10	10.2	G	190	0.16	EEVHB1E221P	500
35	10	5	5.8	C	28	0.12	EEVHB1V100R	1000
	22	6.3	5.8	D	55	0.12	EEVHB1V220P	1000
	33	8	6.2	E	84	0.14	EEVHB1V330P	1000
	47	8	10.2	F	98	0.14	EEVHB1V470P	500
	100	10	10.2	G	160	0.14	EEVHB1V101P	500
50	0.1	4	5.8	B	1	0.12	EEVHB1HR10R	2000
	0.22	4	5.8	B	2	0.12	EEVHB1HR22R	2000
	0.33	4	5.8	B	3	0.12	EEVHB1HR33R	2000
	0.47	4	5.8	B	5	0.12	EEVHB1HR47R	2000
	1	4	5.8	B	10	0.12	EEVHB1H1R0R	2000
	2.2	4	5.8	B	16	0.12	EEVHB1H2R2R	2000
	3.3	4	5.8	B	16	0.12	EEVHB1H3R3R	2000
	4.7	5	5.8	C	23	0.12	EEVHB1H4R7R	1000
	6.8	5	5.8	C	23	0.12	EEVHB1H6R8R	1000
	10	6.3	5.8	D	35	0.12	EEVHB1H100P	1000
22	8	10.2	F	70	0.12	EEVHB1H220P	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 2000h

■ Standard Products

W.V. (V)	Cap. (±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)
50	33	8	10.2	F	91	0.12	EEVHB1H330P	500
	47	10	10.2	G	100	0.12	EEVHB1H470P	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 2000h

■ Standard Products(Bi-polar)

W.V. (V)	Cap. (±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	47	6.3	5.8	D	35	0.60	EEVHP0J470P	1000
10	10	4	5.8	B	20	0.44	EEVHP1A100R	2000
	33	6.3	5.8	D	26	0.44	EEVHP1A330P	1000
16	10	5	5.8	C	25	0.32	EEVHP1C100R	1000
25	3.3	4	5.8	B	12	0.28	EEVHP1E3R3R	2000
	4.7	4	5.8	B	12	0.28	EEVHP1E4R7R	2000
	10	6.3	5.8	D	28	0.28	EEVHP1E100P	1000
	22	6.3	5.8	D	55	0.28	EEVHP1E220P	1000
35	2.2	4	5.8	B	10	0.24	EEVHP1V2R2R	2000
50	0.22	4	5.8	B	2	0.24	EEVHP1HR22R	2000
	0.33	4	5.8	B	3	0.24	EEVHP1HR33R	2000
	0.47	4	5.8	B	5	0.24	EEVHP1HR47R	2000
	1	4	5.8	B	10	0.24	EEVHP1H1R0R	2000
	3.3	6.3	5.8	D	16	0.24	EEVHP1H3R3P	1000
	4.7	6.3	5.8	D	23	0.24	EEVHP1H4R7P	1000

The taping dimension are explained on p of our Catalog. Please use it as a reference guide.

High temperature Load Life test : 105°C 2000h