

# Aluminum Electrolytic Capacitors

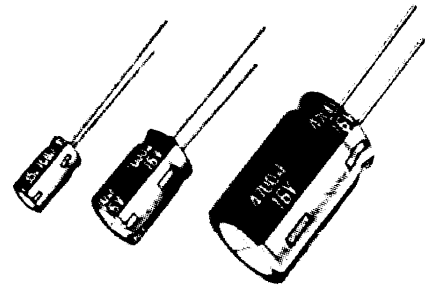
## Radial Lead Type

Series NHG

## Series NHG

### Features

- Compact size (same case size with series M)
- Life: 1000 ~ 2000 hours at +105 °C



### Specifications

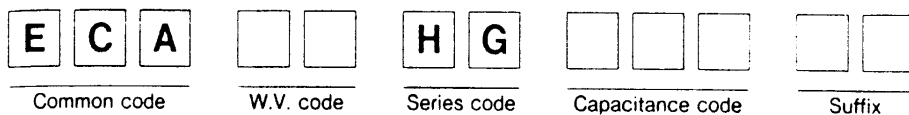
Item	Performance Characteristics																																							
Rated Working Voltage Range	6.3 to 100 V.DC	160 to 450 V.DC																																						
Operating Temperature Range	-55 to +105 °C	-25 to +105 °C																																						
Nominal Capacitance Range	0.1 to 22000 μF	1.0 to 330 μF																																						
Capacitance Tolerance	±20% (120 Hz, +20 °C)																																							
Leakage Current	$I \leq 0.01 CV (\mu A)$ or $3 (\mu A)$ Whichever is greater after 2 minutes application of rated working voltage at +20 °C.	$I \leq 0.06 CV + 10 (\mu A)$ after 2 minutes application of rated working voltage at +20 °C.																																						
Dissipation Factor  (120 Hz, +20 °C)	<table border="1"> <thead> <tr> <th>Working voltage [V]</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th>100</th> </tr> </thead> <tbody> <tr> <td>D.F. max.</td> <td>0.28</td> <td>0.24</td> <td>0.20</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> <td>0.08</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th></th> <th>160</th> <th>200</th> <th>250</th> <th>350</th> <th>400</th> <th>450</th> </tr> </thead> <tbody> <tr> <td></td> <td>0.15</td> <td>0.15</td> <td>0.15</td> <td>0.20</td> <td>0.24</td> <td>0.24</td> </tr> </tbody> </table> <p>For capacitance value &gt; 1000 μF, add 0.02 per every 1000 μF.</p>		Working voltage [V]	6.3	10	16	25	35	50	63	100	D.F. max.	0.28	0.24	0.20	0.16	0.14	0.12	0.10	0.08		160	200	250	350	400	450		0.15	0.15	0.15	0.20	0.24	0.24						
Working voltage [V]	6.3	10	16	25	35	50	63	100																																
D.F. max.	0.28	0.24	0.20	0.16	0.14	0.12	0.10	0.08																																
	160	200	250	350	400	450																																		
	0.15	0.15	0.15	0.20	0.24	0.24																																		
Ripple Current	<p>Refer to standard products table (120 Hz, +105 °C) Correction factor for frequency</p> <table border="1"> <thead> <tr> <th rowspan="2">W.V.(V.DC)</th> <th rowspan="2">Cap(μF)</th> <th colspan="5">Frequency(Hz)</th> </tr> <tr> <th>60</th> <th>120</th> <th>1k</th> <th>10k</th> <th>100k</th> </tr> </thead> <tbody> <tr> <td rowspan="3">6.3~100</td> <td>~33</td> <td>0.75</td> <td>1</td> <td>1.55</td> <td>1.80</td> <td>2.00</td> </tr> <tr> <td>47~470</td> <td>0.80</td> <td>1</td> <td>1.35</td> <td>1.50</td> <td>1.50</td> </tr> <tr> <td>1000~</td> <td>0.85</td> <td>1</td> <td>1.10</td> <td>1.15</td> <td>1.15</td> </tr> <tr> <td>160~450</td> <td>1.0~330</td> <td>0.80</td> <td>1</td> <td>1.35</td> <td>1.50</td> <td>1.50</td> </tr> </tbody> </table>		W.V.(V.DC)	Cap(μF)	Frequency(Hz)					60	120	1k	10k	100k	6.3~100	~33	0.75	1	1.55	1.80	2.00	47~470	0.80	1	1.35	1.50	1.50	1000~	0.85	1	1.10	1.15	1.15	160~450	1.0~330	0.80	1	1.35	1.50	1.50
W.V.(V.DC)	Cap(μF)	Frequency(Hz)																																						
		60	120	1k	10k	100k																																		
6.3~100	~33	0.75	1	1.55	1.80	2.00																																		
	47~470	0.80	1	1.35	1.50	1.50																																		
	1000~	0.85	1	1.10	1.15	1.15																																		
160~450	1.0~330	0.80	1	1.35	1.50	1.50																																		
Endurance	<p>Test conditions</p> <p>Duration : 2000 hours (1000 hours for ≤ φ8mm products). Ambient temperature : +105 °C Applied voltage : DC voltage with maximum permissible ripple current specified at +105 °C (Sum of the DC voltage and super-imposed peak AC voltage for maximum permissible ripple current should be equal to rated DC working voltage.)</p> <p>Post test requirements at +20 °C</p> <p>Leakage current : ≤ Initial specified value Capacitance change : ±20% of initial measured value D.F. : ≤ 200% of initial specified value</p>																																							
Shelf Life	<p>Test conditions</p> <p>Duration : 1000 hours Ambient temperature : +105 °C Applied voltage : (None)</p> <p>Post test requirements at +20 °C Same limits for "Endurance"</p>																																							

# Aluminum Electrolytic Capacitors

## Radial Lead Type

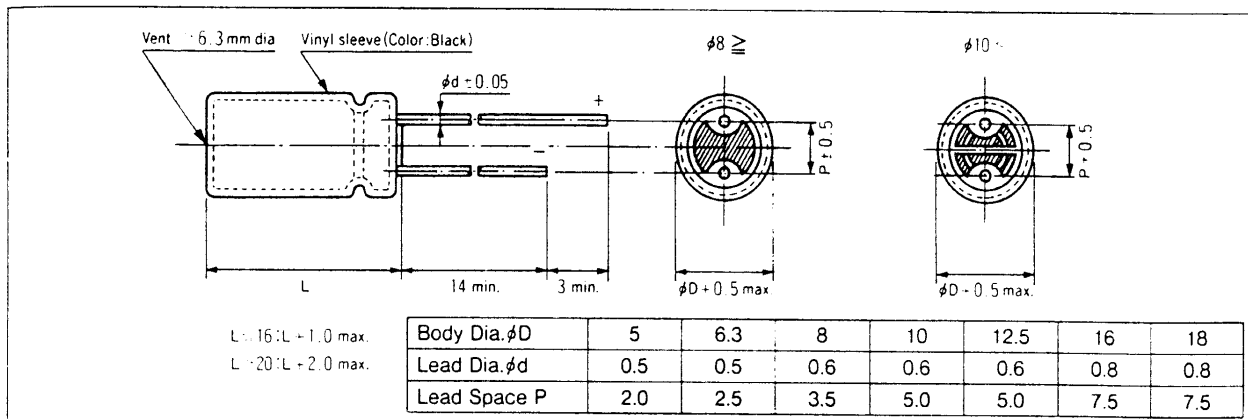
Series NHG

### Explanation of Part Numbers



(See page: 21~25)

### Dimensions in mm (not to scale)



Radial lead Series NH

### Case Size

φD × L [mm]

W.V. [V.DC] Cap. (μF)	6.3 (0J)	10 (1A)	16 (1C)	25 (1E)	35 (1V)	50 (1H)	63 (1J)	100 (2A)
0.1 (0R1)						5 × 11		
0.22 (R22)						5 × 11		
0.33 (R33)						5 × 11		
0.47 (R47)						5 × 11		5 × 11
1 (010)						5 × 11		5 × 11
2.2 (2R2)						5 × 11		5 × 11
3.3 (3R3)						5 × 11		5 × 11
4.7 (4R7)						5 × 11		5 × 11
10 (100)						5 × 11	5 × 11	6.3 × 11.2
22 (220)						5 × 11	5 × 11	6.3 × 11.2
33 (330)						5 × 11	6.3 × 11.2	8 × 11.5
47 (470)				5 × 11	5 × 11	6.3 × 11.2	6.3 × 11.2	10 × 12.5
100 (101)			5 × 11	6.3 × 11.2	6.3 × 11.2	8 × 11.5	10 × 12.5	10 × 20
220 (221)	5 × 11		6.3 × 11.2	8 × 11.5	8 × 11.5	10 × 12.5	10 × 16	12.5 × 25
330 (331)		6.3 × 11.2	8 × 11.5	8 × 11.5	10 × 12.5	10 × 16	10 × 20	16 × 25
470 (471)	6.3 × 11.2	8 × 11.5	8 × 11.5	10 × 12.5	10 × 16	10 × 20	12.5 × 20	16 × 25
1000 (102)	8 × 11.5	10 × 12.5	10 × 16	10 × 20	12.5 × 20	12.5 × 25	16 × 25	18 × 35.5
2200 (222)	10 × 16	10 × 20	12.5 × 20	12.5 × 25	16 × 25	16 × 31.5	18 × 35.5	
3300 (332)	10 × 20	12.5 × 20	12.5 × 25	16 × 25	16 × 31.5	18 × 35.5		
4700 (472)	12.5 × 20	12.5 × 25	16 × 25	16 × 31.5	18 × 35.5			
6800 (682)	12.5 × 25	16 × 25	16 × 31.5	18 × 35.5				
10000 (103)	16 × 25	16 × 31.5	18 × 35.5					
15000 (153)	16 × 31.5	18 × 35.5						
22000 (223)	18 × 35.5							

W.V. [V.DC] Cap. (μF)	160 (2C)	200 (2D)	250 (2E)	350 (2V)	400 (2G)	450 (2W)
1 (010)	6.3 × 11.2	6.3 × 11.2	6.3 × 11.2	6.3 × 11.2	6.3 × 11.2	8 × 11.5
2.2 (2R2)	6.3 × 11.2	6.3 × 11.2	6.3 × 11.2	8 × 11.5	8 × 11.5	10 × 12.5
3.3 (3R3)	6.3 × 11.2	6.3 × 11.2	8 × 11.5	10 × 12.5	10 × 12.5	10 × 16
4.7 (4R7)	6.3 × 11.2	8 × 11.5	8 × 11.5	10 × 16	10 × 16	10 × 20
10 (100)	10 × 12.5	10 × 16	10 × 16	10 × 20	10 × 20	12.5 × 20
22 (220)	10 × 20	10 × 20	12.5 × 20	12.5 × 20	12.5 × 25	16 × 25
33 (330)	10 × 20	12.5 × 20	12.5 × 20	16 × 25	16 × 25	16 × 31.5
47 (470)	12.5 × 20	12.5 × 20	12.5 × 25	16 × 25	16 × 31.5	
100 (101)	16 × 25	16 × 25	16 × 31.5	18 × 31.5		
220 (221)	16 × 31.5	18 × 31.5				
330 (331)	18 × 31.5					

( ) indicates W.V. and capacitance code.

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# Aluminum Electrolytic Capacitors

## Radial Lead Type

Series NHG

### Standard Products

W.V. [V.DC]	Cap. [ $\mu$ F]	Part No.	Cap.tol. [%] (120 Hz / +20 °C)	D.C.L. (+20 °C) (2 min) [ $\mu$ A] max.	D.F. (120 Hz) (+20 °C) max.	Ripple Current (120 Hz) (+105 °C) [mA]rms max.	Dimensions [mm]	
							$\phi$ D	L
6.3	220	ECA0JHG221	$\pm 20$	13.8	0.28	140	5	11
	470	ECA0JHG471		29.6	0.28	230	6.3	11.2
	1000	ECA0JHG102		63.0	0.28	380	8	11.5
	2200	ECA0JHG222		138.6	0.30	710	10	16
	3300	ECA0JHG332		207.9	0.32	840	10	20
	4700	ECA0JHG472		296.1	0.34	1090	12.5	20
	6800	ECA0JHG682		428.4	0.38	1350	12.5	25
	10000	ECA0JHG103		630.0	0.46	1650	16	25
	15000	ECA0JHG153		945.0	0.56	2010	16	31.5
	22000	ECA0JHG223	1386.0	0.70	2350	18	35.5	
10	330	ECA1AHG331	$\pm 20$	33.0	0.24	200	6.3	11.2
	470	ECA1AHG471		47.0	0.24	250	8	11.5
	1000	ECA1AHG102		100.0	0.24	460	10	12.5
	2200	ECA1AHG222		220.0	0.26	760	10	20
	3300	ECA1AHG332		330.0	0.28	1000	12.5	20
	4700	ECA1AHG472		470.0	0.30	1260	12.5	25
	6800	ECA1AHG682		680.0	0.34	1570	16	25
	10000	ECA1AHG103		1000.0	0.42	1890	16	31.5
		15000		ECA1AHG153	1500.0	0.52	2180	18
16	100	ECA1CHG101	$\pm 20$	16.0	0.20	110	5	11
	220	ECA1CHG221		35.2	0.20	180	6.3	11.2
	330	ECA1CHG331		52.8	0.20	260	8	11.5
	470	ECA1CHG471		75.2	0.20	310	8	11.5
	1000	ECA1CHG102		160.0	0.20	560	10	16
	2200	ECA1CHG222		352.0	0.22	920	12.5	20
	3300	ECA1CHG332		528.0	0.24	1170	12.5	25
	4700	ECA1CHG472		752.0	0.26	1480	16	25
	6800	ECA1CHG682		1088.0	0.30	1780	16	31.5
		10000		ECA1CHG103	1600.0	0.38	2060	18
25	47	ECA1EHG470	$\pm 20$	11.7	0.16	91	5	11
	100	ECA1EHG101		25.0	0.16	130	6.3	11.2
	220	ECA1EHG221		55.0	0.16	230	8	11.5
	330	ECA1EHG331		82.5	0.16	310	8	11.5
	470	ECA1EHG471		117.5	0.16	380	10	12.5
	1000	ECA1EHG102		250.0	0.16	680	10	20
	2200	ECA1EHG222		550.0	0.18	1090	12.5	25
	3300	ECA1EHG332		825.0	0.20	1400	16	25
	4700	ECA1EHG472		1175.0	0.22	1750	16	31.5
		6800		ECA1EHG682	1700.0	0.26	2040	18

# Aluminum Electrolytic Capacitors

## Radial Lead Type

## Series NHG

### Standard Products

W.V. [V.DC]	Cap. [μF]	Part No.	Cap.tol. [%] (120 Hz/+20 °C)	D.C.L. (+20 °C) (2 min) [μA] max.	D.F. (120 Hz) (+20 °C) max.	Ripple Current (120 Hz) (+105 °C) [mA]rms max.	Dimensions [mm]	
							φD	L
35	47	ECA1VHG470	±20	16.4	0.14	90	5	11
	100	ECA1VHG101		35.0	0.14	150	6.3	11.2
	220	ECA1VHG221		77.0	0.14	270	8	11.5
	330	ECA1VHG331		115.5	0.14	350	10	12.5
	470	ECA1VHG471		164.5	0.14	460	10	16
	1000	ECA1VHG102		350.0	0.14	810	12.5	20
	2200	ECA1VHG222		770.0	0.16	1260	16	25
	3300	ECA1VHG332		1155.0	0.18	1610	16	31.5
	4700	ECA1VHG472		1645.0	0.20	1910	18	35.5
50	0.1	ECA1HHG0R1	±20	3.0	0.12	1.1	5	11
	0.22	ECA1HHGR22		3.0	0.12	2.3	5	11
	0.33	ECA1HHGR33		3.0	0.12	3.5	5	11
	0.47	ECA1HHGR47		3.0	0.12	5	5	11
	1	ECA1HHG010		3.0	0.12	10	5	11
	2.2	ECA1HHG2R2		3.0	0.12	18	5	11
	3.3	ECA1HHG3R3		3.0	0.12	22	5	11
	4.7	ECA1HHG4R7		3.0	0.12	26	5	11
	10	ECA1HHG100		3.0	0.12	39	5	11
	22	ECA1HHG220		11.0	0.12	65	5	11
	33	ECA1HHG330		16.5	0.12	90	5	11
	47	ECA1HHG470		23.5	0.12	110	6.3	11.2
	100	ECA1HHG101		50.0	0.12	180	8	11.5
	220	ECA1HHG221		110.0	0.12	330	10	12.5
	330	ECA1HHG331		165.0	0.12	410	10	16
	470	ECA1HHG471		235.0	0.12	530	10	20
	1000	ECA1HHG102		500.0	0.12	950	12.5	25
2200	ECA1HHG222	1100.0	0.14	1470	16	31.5		
3300	ECA1HHG332	1650.0	0.16	1770	18	35.5		
63	10	ECA1JHG100	±20	6.3	0.10	46	5	11
	22	ECA1JHG220		13.8	0.10	71	5	11
	33	ECA1JHG330		20.7	0.10	100	6.3	11.2
	47	ECA1JHG470		29.6	0.10	120	6.3	11.2
	100	ECA1JHG101		63.0	0.10	215	10	12.5
	220	ECA1JHG221		138.6	0.10	335	10	16
	330	ECA1JHG331		207.9	0.10	510	10	20
	470	ECA1JHG471		296.1	0.10	640	12.5	20
	1000	ECA1JHG102		630.0	0.10	930	16	25
	2200	ECA1JHG222		1386.0	0.12	1610	18	35.5
100	0.47	ECA2AHGR47	±20	3.0	0.08	9	5	11
	1	ECA2AHG010		3.0	0.08	14	5	11
	2.2	ECA2AHG2R2		3.0	0.08	21	5	11
	3.3	ECA2AHG3R3		3.3	0.08	31	5	11
	4.7	ECA2AHG4R7		4.7	0.08	38	5	11
	10	ECA2AHG100		10.0	0.08	54	6.3	11.2
	22	ECA2AHG220		22.0	0.08	93	6.3	11.2
	33	ECA2AHG330		33.0	0.08	130	8	11.5

**Radial lead  
Series NHG**

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**Panasonic**

Standard Products

W.V. [V.DC]	Cap. [ $\mu$ F]	Part No.	Cap.tol. [%] (120 Hz, +20 °C)	D.C.L. (+20 °C) (2 min) [ $\mu$ A] max.	D.F. (120 Hz) (+20 °C) max.	Ripple Current (120 Hz) (+105 °C) [mA]rms max.	Dimensions [mm]	
							$\phi$ D	L
100	47	ECA2AHG470	$\pm 20$	47.0	0.08	165	10	12.5
	100	ECA2AHG101		100.0	0.08	265	10	20
	220	ECA2AHG221		220.0	0.08	440	12.5	25
	330	ECA2AHG331		330.0	0.08	540	16	25
	470	ECA2AHG471		470.0	0.08	715	16	25
	1000	ECA2AHG102		1000.0	0.08	985	18	35.5
160	1	ECA2CHG010	$\pm 20$	19.6	0.15	17	6.3	11.2
	2.2	ECA2CHG2R2		31.1	0.15	25	6.3	11.2
	3.3	ECA2CHG3R3		41.6	0.15	36	6.3	11.2
	4.7	ECA2CHG4R7		55.1	0.15	43	6.3	11.2
	10	ECA2CHG100		106.0	0.15	70	10	12.5
	22	ECA2CHG220		221.0	0.15	130	10	20
	33	ECA2CHG330		326.0	0.15	180	10	20
	47	ECA2CHG470		461.0	0.15	220	12.5	20
	100	ECA2CHG101		970.0	0.15	335	16	25
	220	ECA2CHG221		2122.0	0.15	540	16	31.5
	330	ECA2CHG331		3178.0	0.15	705	18	31.5
200	1	ECA2DHG010	$\pm 20$	22.0	0.15	17	6.3	11.2
	2.2	ECA2DHG2R2		36.4	0.15	25	6.3	11.2
	3.3	ECA2DHG3R3		49.6	0.15	36	6.3	11.2
	4.7	ECA2DHG4R7		66.4	0.15	50	8	11.5
	10	ECA2DHG100		130.0	0.15	80	10	16
	22	ECA2DHG220		274.0	0.15	140	10	20
	33	ECA2DHG330		406.0	0.15	190	12.5	20
	47	ECA2DHG470		574.0	0.15	220	12.5	20
	100	ECA2DHG101		1210.0	0.15	335	16	25
	220	ECA2DHG221		2650.0	0.15	575	18	31.5
250	1	ECA2EHG010	$\pm 20$	25.0	0.15	17	6.3	11.2
	2.2	ECA2EHG2R2		43.0	0.15	29	6.3	11.2
	3.3	ECA2EHG3R3		59.5	0.15	42	8	11.5
	4.7	ECA2EHG4R7		80.5	0.15	50	8	11.5
	10	ECA2EHG100		160.0	0.15	88	10	16
	22	ECA2EHG220		340.0	0.15	155	12.5	20
	33	ECA2EHG330		505.0	0.15	190	12.5	20
	47	ECA2EHG470		715.0	0.15	230	12.5	25
	100	ECA2EHG101		1510.0	0.15	365	16	31.5
350	1	ECA2VHG010	$\pm 20$	31.0	0.20	18	6.3	11.2
	2.2	ECA2VHG2R2		56.2	0.20	31	8	11.5
	3.3	ECA2VHG3R3		79.3	0.20	38	10	12.5
	4.7	ECA2VHG4R7		108.0	0.20	50	10	16
	10	ECA2VHG100		220.0	0.20	82	10	20
	22	ECA2VHG220		472.0	0.20	130	12.5	20
	33	ECA2VHG330		703.0	0.20	195	16	25
	47	ECA2VHG470		997.0	0.20	230	16	25
	100	ECA2VHG101		2110.0	0.20	375	18	31.5

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## Radial Lead Type

Series NHG

### Standard Products

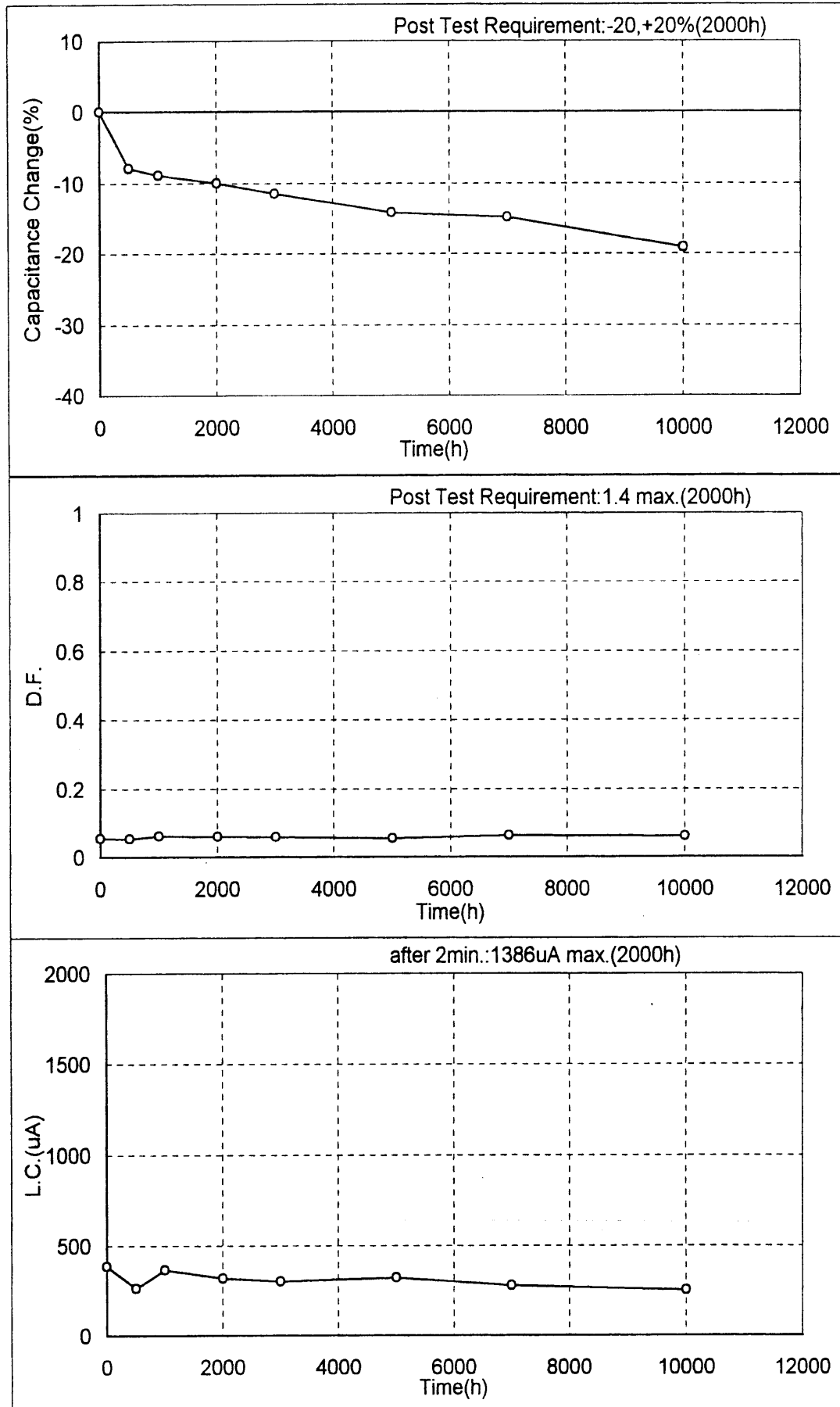
W.V. [V.DC]	Cap. [ $\mu$ F]	Part No.	Cap.tol. [%] (120 Hz/+20 $^{\circ}$ C)	D.C.L. (+20 $^{\circ}$ C) (2 min) [ $\mu$ A] max.	D.F. (120 Hz) (+20 $^{\circ}$ C) max.	Ripple Current (120Hz) (+105 $^{\circ}$ C) [mA]rms max.	Dimensions [mm]	
							$\phi$ D	L
400	1	ECA2GHG010	$\pm 20$	34.0	0.24	18	6.3	11.2
	2.2	ECA2GHG2R2		62.8	0.24	30	8	11.5
	3.3	ECA2GHG3R3		89.2	0.24	40	10	12.5
	4.7	ECA2GHG4R7		122.0	0.24	50	10	16
	10	ECA2GHG100		250.0	0.24	80	10	20
	22	ECA2GHG220		538.0	0.24	145	12.5	25
	33	ECA2GHG330		802.0	0.24	195	16	25
	47	ECA2GHG470		1138.0	0.24	250	16	31.5
450	1	ECA2WHG010	$\pm 20$	37.0	0.20	18	8	11.5
	2.2	ECA2WHG2R2		69.4	0.20	29	10	12.5
	3.3	ECA2WHG3R3		99.1	0.20	41	10	16
	4.7	ECA2WHG4R7		136.0	0.20	49	10	20
	10	ECA2WHG100		280.0	0.20	75	12.5	20
	22	ECA2WHG220		604.0	0.20	115	16	25
	33	ECA2WHG330		901.0	0.20	155	16	31.5

Radial lead  
Series NHG

LOAD LIFE TEST

at 105 °C

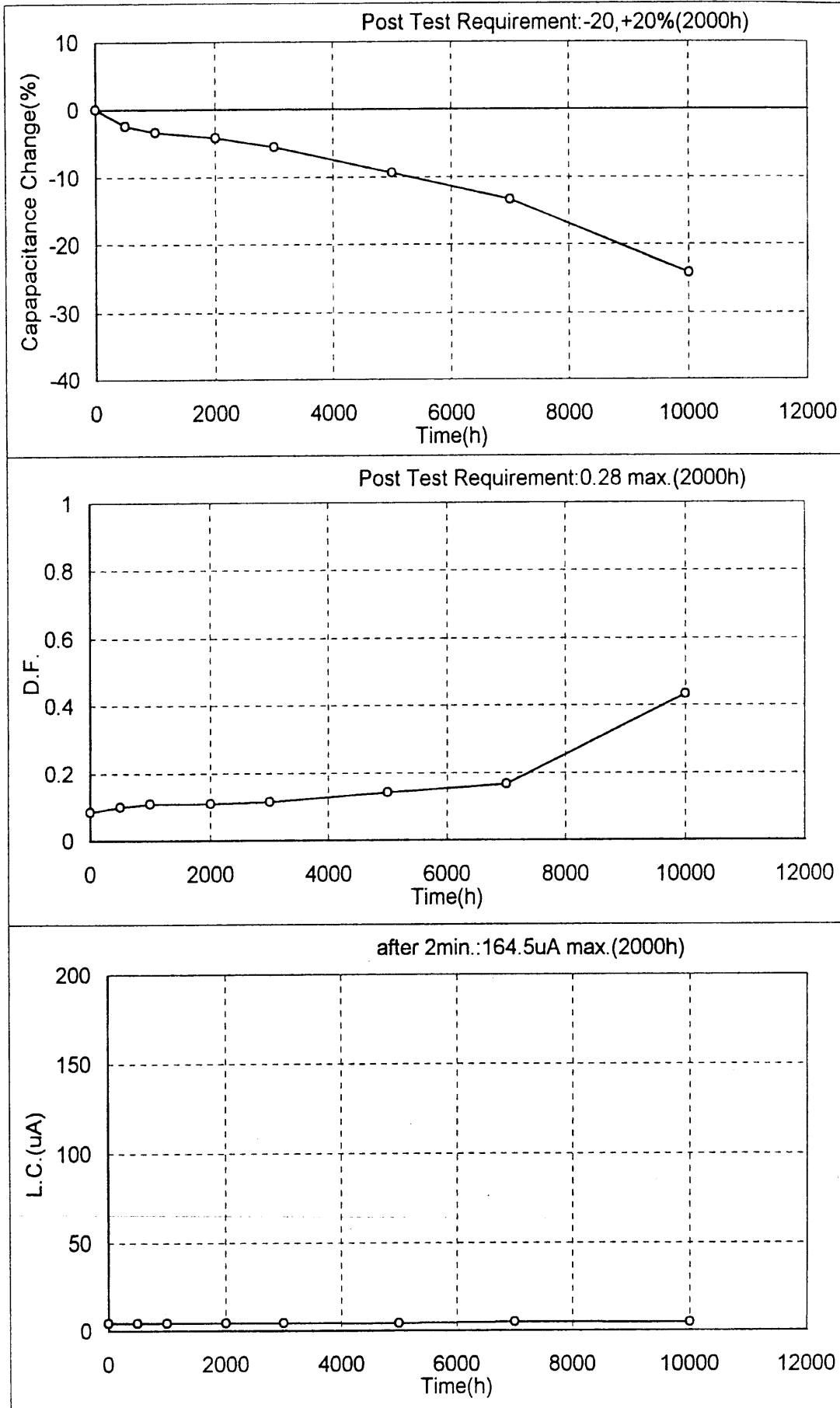
Part No.: ECA0JHG223(6.3V22000uF, 18x35.5mm)  
n=10 Typical



**LOAD LIFE TEST**

at 105 °C

Part No.: ECA1VHG471 (35V470uF, 10x16mm)  
 n=10 Typical



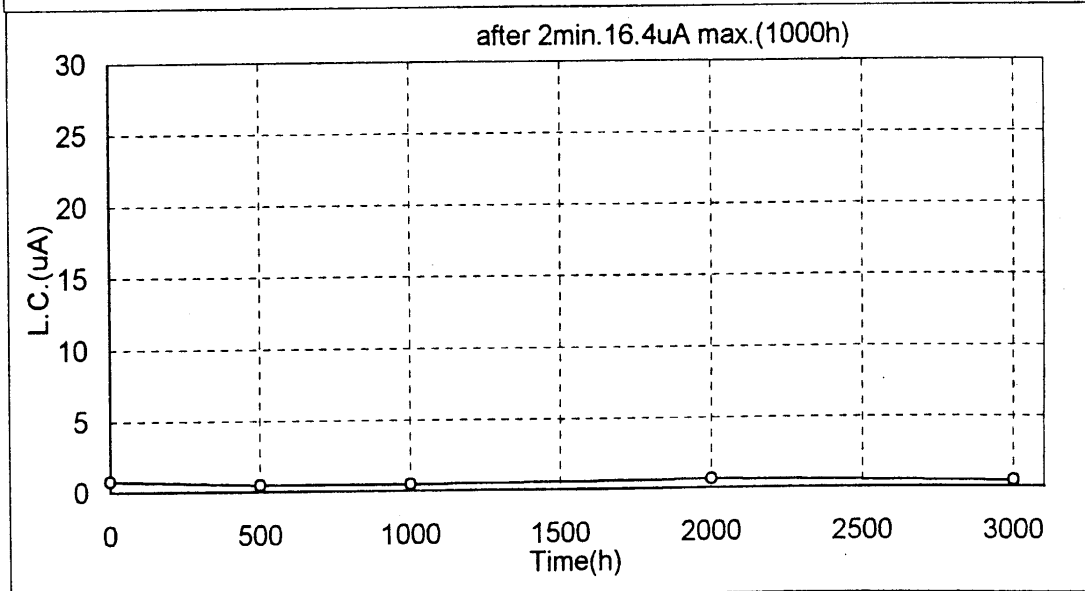
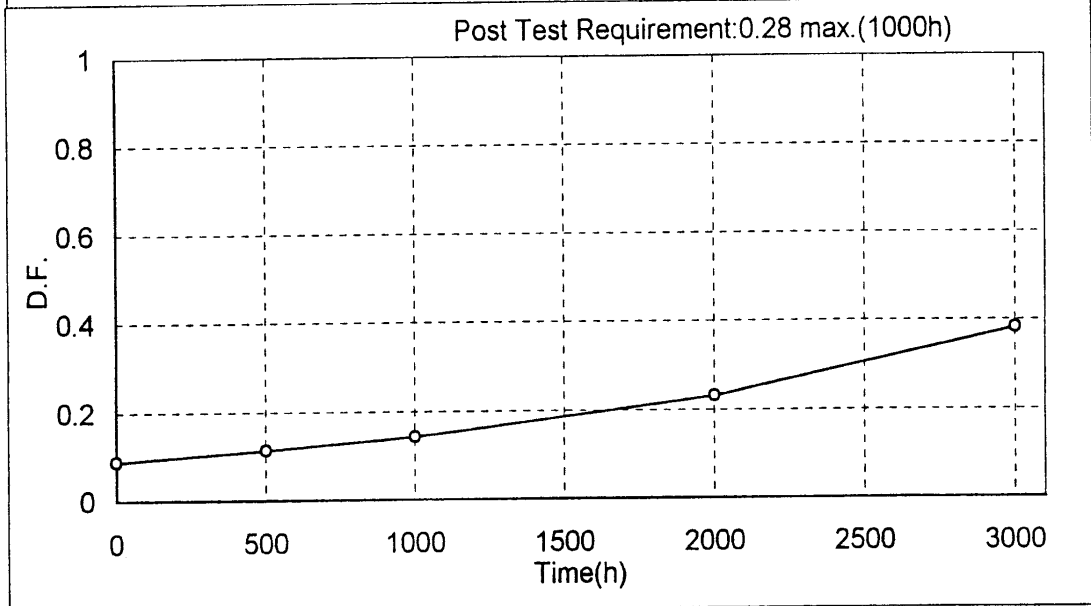
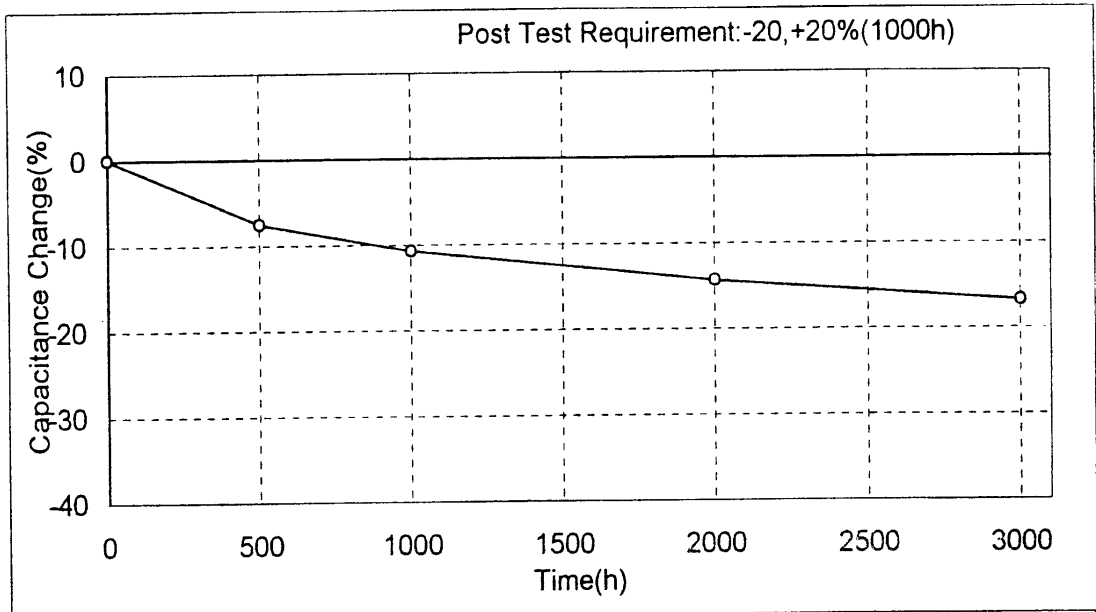
**Radial lead**  
**Series NHG**



LOAD LIFE TEST

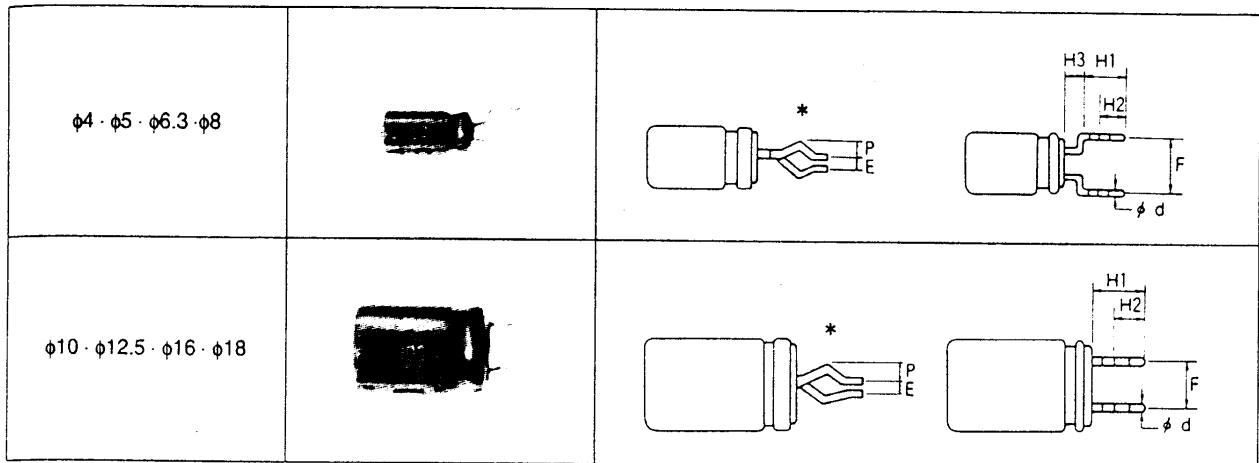
at 105 °C

Part No.: ECA1VHG470 (35V47uF,5x11mm)  
n=10 Typical



### Lead forming

### Self mounting type



\*Direction of bending shape is random.

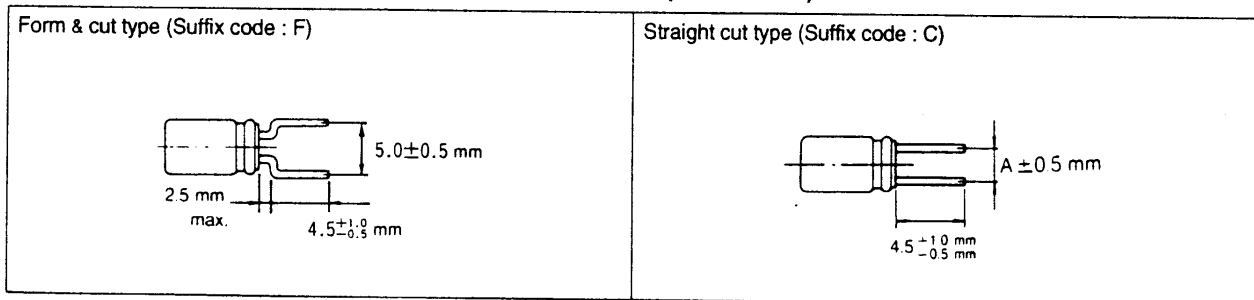
### Dimensions

[mm]

Case dia.	H1 ±0.5	H2	H3	F ±0.5	P	E max.	φd	for P.C.B	
								dia. φ	thickness
5	4.5	2.7	2.5	5.0	0.85	1.0	0.5	0.8	1.6
6.3	4.5	2.7	2.5	5.0	1.00	1.0	0.5/0.6	1.0	1.6
8	4.5	2.7	2.5	5.0	1.00	1.0	0.6	1.0	1.6
10/12.5	4.5	2.7	—	5.0	1.30	1.3	0.6	1.0	1.6
16/18	4.5	2.7	—	7.5	1.30	1.3	0.8	1.0	1.6
*4/5/6.3	4.5	2.7	1.5	5.0	0.95	1.3	0.45	0.9	1.6

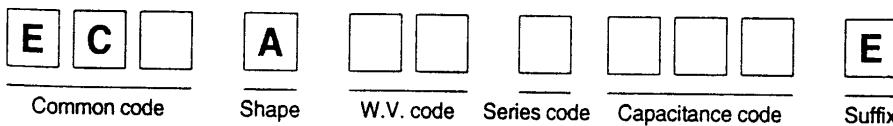
\* 5mm & 7mm height products (ex. KAKS series)

### Straight & formed lead cut (Non-standard products)

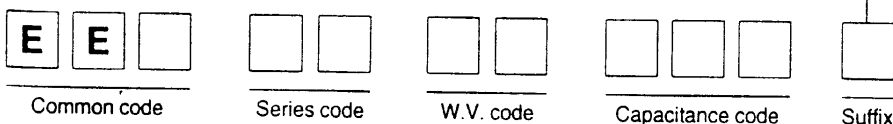


(Self mounting type is recommended as standard products)

### Explanation of Part Numbers



Suffix code	Configurations	
E	Self mounting type	5 mm space for φ4 ~ φ12.5 7.5 mm space for φ16 ~ φ18



**Packaging Quantities**

Radial lead type bulk

(unit: pcs)

Case size [mm]	Long lead		Lead formed	
	Inner packaging	Outer packaging	Inner package	Outer packaging
φ3, φ4, φ5, φ6.3 × 5 ~ 7	200	10000	200	10000
φ6.3 × 11.2 ~ φ6.3 × 16	200	5000	200	5000
φ8 × 5 ~ φ8 × 12.5	200	4000	200	4000
φ8 × 15	200	3000	200	3000
φ8 × 20	200	3000	200	3000
φ10 × 12.5 ~ φ10 × 30	200	2000	200	2000
φ12.5 × 15	200	2000	200	2000
φ12.5 × 20 ~ φ12.5 × 25	200	2000	200	1000
φ12.5 × 30 ~ φ12.5 × 40	100	1000	100	500
φ16 × 16 ~ φ16 × 20	100	1000	100	1000
φ16 × 25 ~ φ16 × 31.5	100	1000	100	500
φ16 × 35.5	100	500	50	200
φ16 × 40	100	500	50	200
φ18 × 15 ~ φ18 × 20	100	1000	100	500
φ18 × 25	100	500	50	200
φ18 × 31.5 ~ φ18 × 40	50	500	50	200

Radial lead type taping

Case dia. [mm]	Box		Reel	
	Inner packaging	Outer packaging	Inner packaging	Outer packaging
φ3	2000	10000	—	—
φ4	2000	10000	2000	8000
φ5	2000	10000	1500	6000
φ6.3	2000	10000	1000	4000
φ8	1000	5000	750	3000
φ10	500	2000	—	—
φ12.5	500	2000	—	—
φ16, φ18	250	1000	—	—

Type V (Chip type) taping

Case code	Inner packaging	Outer packaging
A, B	2000	20000
C, D, E	1000	10000
F	500	3000
G	500	3000

Type TS (Snap-in type)

Case dia. [mm]	Box
φ20	300
φ22 ~ φ25	200
φ30 ~ φ35	100

Type T (Snap-in type)

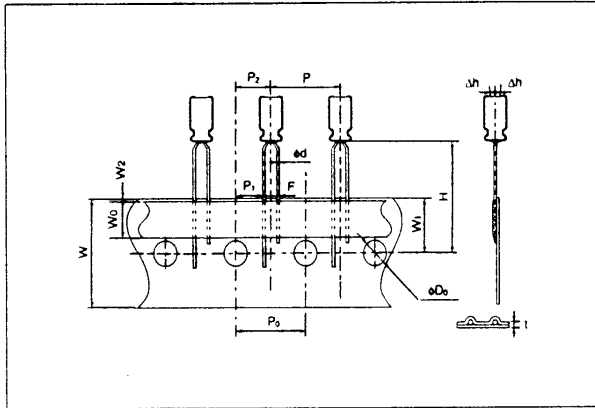
Case dia. [mm]	Box
φ35	100
φ40	50

The above tables are as of 1996 and are subject to change without notice.

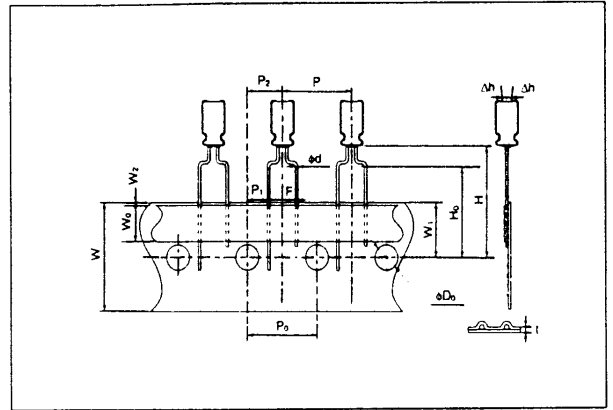
## Taping specifications (Radial lead type)

[mm]

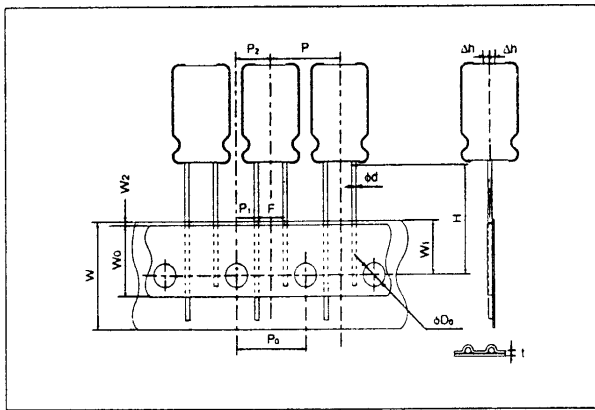
■ F = 2.5  $\phi 3$ ,  $\phi 4$ ,  $\phi 5$



■ F = 5.0  $\phi 3 \sim \phi 8$



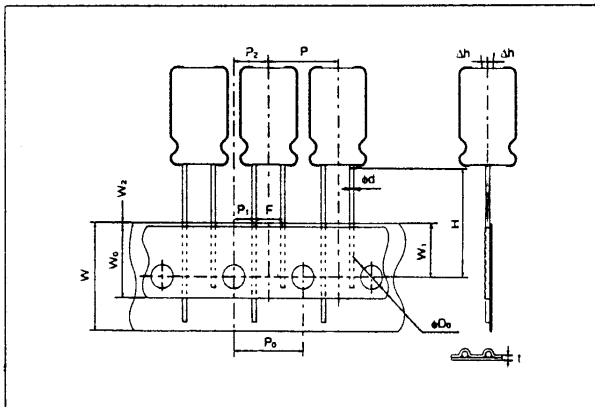
■ F = 2.5  $\phi 6.3$  &  $\phi 8 \times 5$  &  $\phi 8 \times 7$



Code	F = 5.0	F = 2.5	Tolerance
$\phi d$	0.40 - 0.60		$\pm 0.05$
$P_0$	12.7		$\pm 0.2$
F	$5.0^{+0.4}_{-0.2}$	$2.5 \pm 0.5$	
W	18.0		$\pm 0.5$
$H_0$	16.0		$\pm 0.5$
H	18.5		$+0.75$ $-0.50$
	17.5		$+0.75$ $-0.20$
	18.5		$+0.75$ $-0.50$
	20.0		$+0.75$ $-0.50$
$\phi D_0$	4.0		$\pm 0.2$
P	12.7		$\pm 1.0$
$P_1$	3.85	5.10	$\pm 0.50$
$P_2$	6.35		$\pm 1.00$
$\Delta h$	$\leq 1.0$		—
t	0.6		$\pm 0.3$

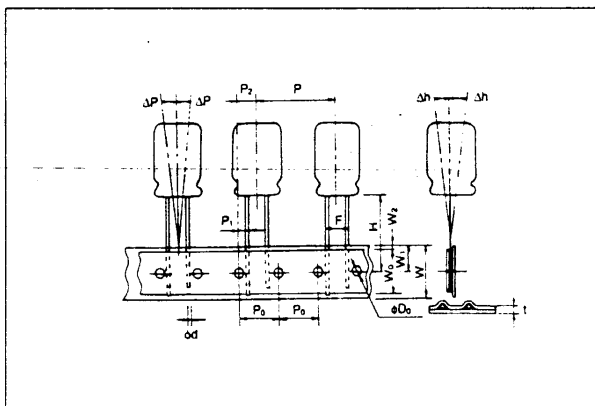
- \*1 for dia  $\phi 3 \sim \phi 6.3$  &  $\phi 8 \times 5$  products (suffix "I")
- \*2 for  $4 \times 5$ ,  $5 \times 5$ ,  $6.3 \times 5$ ,  $4 \times 7$ ,  $5 \times 7$ ,  $6.3 \times 7$  products (suffix "B")
- \*3 for  $5 \times 11$ ,  $5 \times 15$ ,  $6.3 \times 11.2$ ,  $6.3 \times 15$ ,  $3 \times 5$  products (suffix "B")  
also  $\phi 8$  products available (suffix "BQ")
- \*4 for  $\phi 8 \times 9$ ,  $8 \times 11.5$ ,  $8 \times 12.5$ ,  $8 \times 16$ ,  $8 \times 20$  products (suffix "B")

■ F = 5.0  $\phi 10$  &  $\phi 12.5$  (height < 25 mm only)



Code	$\phi 10$	$\phi 12.5$	Tolerance
$\phi d$	0.60		$\pm 0.05$
$P_0$	12.7	15.0	$\pm 0.2$
F	5.0		$+0.8, -0.2$
W	18.0		$\pm 0.5$
$W_0$	$\geq 12.0$	$\geq 15.0$	—
$W_1$	9.0		$\pm 0.5$
$W_2$	0 - 1.5		—
H	18.50		$+0.75, -0.50$
$\phi D_0$	4.0		$\pm 0.2$
P	12.7	15.0	$\pm 1.0$
$P_1$	3.85	5.00	$\pm 0.50$
$P_2$	6.35	7.50	$\pm 1.00$
$\Delta h$	$\leq 1.0$		—
t	0.6		$\pm 0.3$

■ F = 7.5  $\phi 16$  &  $\phi 18$  (height  $\leq 25$  mm only)



Code	Dimensions	Tolerance
$\phi d$	0.80	$\pm 0.05$
P	30.0	$\pm 1.0$
$P_0$	15.0	$\pm 0.2$
$P_1$	3.75	$\pm 0.50$
$P_2$	7.5	$\pm 1.0$
F	7.5	$\pm 0.5$
W	18.0	$\pm 0.5$
$W_0$	$\geq 15.0$	—
$W_1$	9.0	$\pm 0.5$
$W_2$	0 - 1.5	—
H	18.50	$+0.75, -0.50$
$\phi D_0$	4.0	$\pm 0.2$
$\Delta P$	$\leq 1.3$	—
$\Delta h$	$\leq 2.0$	—
t	0.6	$\pm 0.3$

## Packaging for radial lead taped products

Packaging	Ammunition pack	
Dimensions (Unit: mm)	WP	66 max.
	HP	330 max.
	LP	340 max.
Packing quantity per box/reel	$\phi 3, \phi 4$ ..... 2000 pcs $\phi 5, \phi 6.3$ ..... 2000 pcs $\phi 8$ ..... 1000 pcs	$\phi 10$ ..... 500 pcs $\phi 12.5$ ..... 500 pcs $\phi 16, \phi 18$ ..... 250 pcs

### Container

No more than 3 consecutive missing components are permitted. Packaging quantity shall be the actual number indicated.

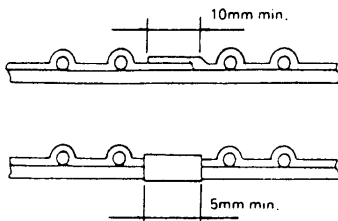
Components shall be capable of sustaining a 500 gram steady pull for 10 seconds in the direction of lead egress.

Order quantity shall be multiples of the quantity in one box.

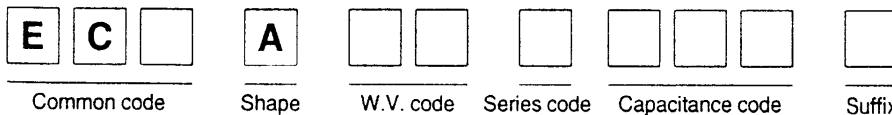
Ammunition packing is recommended.

We can supply polarized components with (+) plus first or (-) minus first. All polarized components shall be oriented in one direction.

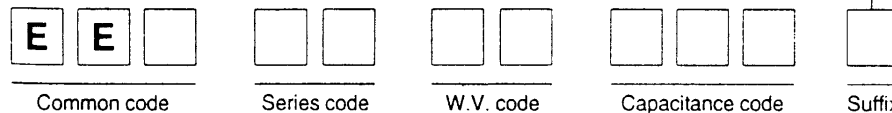
### Tape splicing



## Explanation of Part Numbers



Suffix code	Configurations	
B	Ammo-pack	
*i	Ammo-pack	2.5 mm pitch for $\phi 3 - \phi 6.3$ & $\phi 8 \times 5-7$



\*Our suffix code will be changed from I to H during April 1996 to March 1998. We will inform the revision date before our change.