

# SCREW TERMINAL TYPE ALUMINUM ELECTROLYTIC CAPACITORS

## HCGHA Series

Useful of 4,000 hours at 105°C (Warranty of 2,000 hours at 105°C)

- Conform RoHS

### Features

- Warranty life of 2000 hours at 105°C through improvement of electrolyte liquid



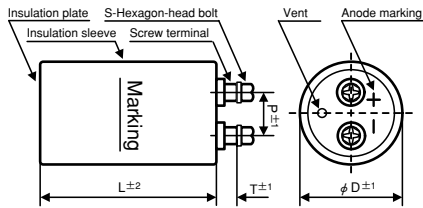
### Product Specifications

Items	Specifications
Temperature range	-40°C ~ +105°C
Rated voltage	25 ~ 400V.DC
Capacitance tolerance	±20% (20°C, 120Hz)
Leakage current	0.01CV ( $\mu$ A) or 5mA, whichever is smaller or less [C = nominal capacitance ( $\mu$ F), V = rated voltage (V)]
Dissipation factor	Less than the value specified in the standard products table. (20°C, 120Hz)
Permissible ripple current	As specified in the standard products table. (105°C, 120Hz)
High-temperature load	After the rated voltage with specified ripple current is applied at 105°C for 2000 hours: Capacitance tolerance: ±15% or less of the initial value Dissipation factor: 175% or less of the specified initial value Leakage current: Specified initial value or less
Others	JIS C 5101-4.

### Ripple current correction coefficient

Temperature (°C)	40	55	70	85	105
Correction coefficient 250WV under	4.9	3.9	3.0	1.8	1.0
Correction coefficient 400WV	3.8	3.3	2.5	2.0	1.0
Frequency (Hz)	50/60	120	300	1K	≥10K
Correction coefficient	0.8	1.0	1.1	1.3	1.4

Ripple current should be under 60 Arms at M5 terminal in accordance with from the permissible current.

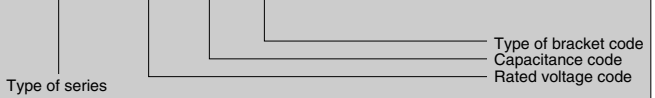


(unit : mm)

φ D	P	S	T	Cap material
36	12.7	M5×10	7.0	PPS
51	22.0	M5×10	4.5	PPS
64	28.6	M5×10	4.5	PPS
77	32.0	M5×10	4.5	PPS
90	32.0	M5×10	4.0	PPS

Product code : (Example) HCGHA type 400V 10,000 $\mu$ F±20%

**HCGHA 2G 103 Y**



### Bracket

- See page 51 for shapes and dimensions.
- Product names in the Standard Products Table correspond to the bracket for Type Y (Type I for  $\phi$ 36 only), but Type I bracket may be used (Type of bracket Code = I).
- If bracket are not necessary, enter "N" for the type of bracket code.
- Bracket will be delivered separately.

### Standard Products Table

Rated Voltage Code (Surge Voltage) (V.DC)	Capacitance ( $\mu$ F)	Case size $\phi$ DXL(mm)	$\tan\delta$ 20°C, 120Hz	Ripple current 105°C, 120Hz (Arms)	ESR(typ.) 20°C, 100Hz (m $\Omega$ )	Z max 20°C, 10kHz (m $\Omega$ )	ESL(typ.) (nH)	Product name
25 1E (32)	10000	36×53	0.35	2.9	32	30	18	HCGHA1E103I
	15000	36×83	0.35	4.2	27	27	18	HCGHA1E153I
	22000	36×83	0.35	5.1	22	23	18	HCGHA1E223I
	33000	36×100	0.40	6.3	15	16	18	HCGHA1E333I
	47000	51×75	0.40	8.0	10	11	21	HCGHA1E473Y
	68000	51×115	0.50	10.0	7	8	21	HCGHA1E683Y
	100000	64×96	0.60	11.3	6	7	22	HCGHA1E104Y
	150000	64×115	0.80	12.9	6	7	22	HCGHA1E154Y
	220000	77×115	1.00	14.8	4	5	24	HCGHA1E224Y
330000	90×131	1.00	19.9	4	5	24	HCGHA1E334Y	
35 1V (44)	6800	36×53	0.30	2.6	42	37	18	HCGHA1V682I
	10000	36×83	0.30	3.7	29	31	18	HCGHA1V103I
	15000	36×83	0.30	4.5	19	20	18	HCGHA1V153I
	22000	36×100	0.35	5.5	14	15	18	HCGHA1V223I
	33000	51×75	0.40	6.7	12	13	21	HCGHA1V333Y
	47000	51×96	0.45	8.1	8	9	21	HCGHA1V473Y
	68000	51×115	0.50	10.0	7	8	21	HCGHA1V683Y
	100000	64×115	0.60	12.1	6	7	22	HCGHA1V104Y
	150000	77×115	0.70	13.8	5	7	24	HCGHA1V154Y
220000	90×131	0.70	17.6	5	7	24	HCGHA1V224Y	

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Rated Voltage Code (Surge Voltage) (V. DC)	Capacitance (μF)	Case size øDXL(mm)	tanδ 20°C,120Hz	Ripple current 105°C,120Hz (Arms)	ESR(typ.) 20°C,100Hz (mΩ)	Z max 20°C,10kHz (mΩ)	ESL(typ.) (nH)	Product name
50 1H (63)	3300	36×53	0.20	2.2	90	80	18	HCGHA1H332I
	4700	36×53	0.25	3.3	64	58	18	HCGHA1H472I
	6800	36×83	0.25	3.4	44	39	18	HCGHA1H682I
	10000	36×83	0.25	4.1	30	28	18	HCGHA1H103I
	15000	36×100	0.30	4.9	20	20	18	HCGHA1H153I
	22000	51×75	0.35	5.9	14	15	21	HCGHA1H223Y
	33000	51×115	0.40	7.8	13	14	21	HCGHA1H333Y
	47000	64×96	0.40	9.5	11	12	22	HCGHA1H473Y
	68000	64×115	0.45	11.6	8	9	22	HCGHA1H683Y
100000	77×115	0.50	14.1	6	7	24	HCGHA1H104Y	
150000	90×131	0.50	18.9	5	7	24	HCGHA1H154Y	
63 1J (79)	2200	36×53	0.15	2.1	95	87	18	HCGHA1J222I
	3300	36×53	0.20	2.2	63	58	18	HCGHA1J332I
	4700	36×83	0.20	3.1	54	50	18	HCGHA1J472I
	6800	36×83	0.20	3.7	38	35	18	HCGHA1J682I
	10000	36×100	0.25	4.4	28	28	18	HCGHA1J103I
	15000	51×75	0.25	5.7	21	22	21	HCGHA1J153Y
	22000	51×96	0.30	6.8	13	14	21	HCGHA1J223Y
	33000	64×96	0.30	9.2	10	11	22	HCGHA1J333Y
	47000	64×115	0.35	10.9	8	9	22	HCGHA1J473Y
68000	77×115	0.40	13.0	7	8	24	HCGHA1J683Y	
100000	90×131	0.40	17.2	7	8	24	HCGHA1J104Y	
80 1K (100)	2200	36×53	0.15	2.1	68	63	18	HCGHA1K222I
	3300	36×83	0.15	3.0	45	42	18	HCGHA1K332I
	4700	36×83	0.15	3.6	32	30	18	HCGHA1K472I
	6800	36×100	0.20	4.0	22	23	18	HCGHA1K682I
	10000	51×75	0.20	5.2	15	16	21	HCGHA1K103Y
	15000	51×96	0.25	6.2	10	11	21	HCGHA1K153Y
	22000	64×96	0.25	8.2	9	10	22	HCGHA1K223Y
	33000	77×96	0.30	9.7	7	7	24	HCGHA1K333Y
	47000	77×115	0.30	12.5	6	7	24	HCGHA1K473Y
68000	90×131	0.30	16.4	4	7	24	HCGHA1K683Y	
100 2A (125)	1000	36×53	0.15	1.4	112	100	18	HCGHA2A102I
	1500	36×53	0.15	1.7	75	67	18	HCGHA2A152I
	2200	36×83	0.15	2.5	51	47	18	HCGHA2A222I
	3300	36×83	0.15	3.0	34	32	18	HCGHA2A332I
	4700	36×100	0.15	3.9	24	24	18	HCGHA2A472I
	6800	51×75	0.15	5.0	19	20	21	HCGHA2A682Y
	10000	51×96	0.15	6.5	13	14	21	HCGHA2A103Y
	15000	64×96	0.20	7.6	11	12	22	HCGHA2A153Y
	22000	77×96	0.20	9.7	8	9	24	HCGHA2A223Y
33000	77×130	0.25	11.8	6	7	24	HCGHA2A333Y	
47000	90×131	0.25	15.0	5	7	24	HCGHA2A473Y	
160 2C (200)	470	36×53	0.15	1.0	277	261	18	HCGHA2C471I
	680	36×53	0.15	1.1	191	180	18	HCGHA2C681I
	1000	36×83	0.15	1.7	130	120	18	HCGHA2C102I
	1500	36×83	0.15	2.0	87	80	18	HCGHA2C152I
	2200	36×100	0.15	2.7	59	53	18	HCGHA2C222I
	3300	51×75	0.15	3.5	40	35	21	HCGHA2C332Y
	4700	51×96	0.15	4.4	30	25	21	HCGHA2C472Y
	6800	64×96	0.15	5.9	22	23	22	HCGHA2C682Y
	10000	77×96	0.15	7.6	15	16	24	HCGHA2C103Y
15000	77×130	0.15	10.3	14	14	24	HCGHA2C153Y	
22000	90×131	0.15	13.2	10	10	24	HCGHA2C223Y	
200 2D (250)	330	36×53	0.15	0.8	395	372	18	HCGHA2D331I
	470	36×53	0.15	1.0	277	261	18	HCGHA2D471I
	680	36×53	0.15	1.1	191	180	18	HCGHA2D681I
	1000	36×83	0.15	1.7	120	100	18	HCGHA2D102I
	1500	36×100	0.15	2.2	100	85	18	HCGHA2D152I
	2200	51×75	0.15	2.8	68	60	21	HCGHA2D222Y
	3300	51×96	0.15	3.7	45	35	21	HCGHA2D332Y
	4700	64×96	0.15	4.9	31	27	22	HCGHA2D472Y
	6800	64×115	0.15	6.3	21	20	22	HCGHA2D682Y
10000	77×115	0.15	8.1	14	14	24	HCGHA2D103Y	
15000	90×131	0.15	10.9	10	10	24	HCGHA2D153Y	

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Rated Voltage Code (Surge Voltage) (V <sub>DC</sub> )	Capacitance (μF)	Case size øDXL(mm)	tanδ 20°C, 120Hz	Ripple current 105°C, 120Hz (Arms)	ESR(typ.) 20°C, 100Hz (mΩ)	Z max 20°C, 10kHz (mΩ)	ESL(typ.) (nH)	Product name
250 2E (300)	330	36×53	0.15	0.8	285	268	18	HCGHA2E331 I
	470	36×53	0.15	1.0	200	187	18	HCGHA2E471 I
	680	36×83	0.15	1.4	138	131	18	HCGHA2E681 I
	1000	36×100	0.15	1.9	84	70	18	HCGHA2E102 I
	1500	51×75	0.15	2.3	56	50	21	HCGHA2E152Y
	2200	51×96	0.15	3.1	50	45	21	HCGHA2E222Y
	3300	64×96	0.15	4.2	36	35	22	HCGHA2E332Y
	4700	64×115	0.15	5.4	25	23	22	HCGHA2E472Y
	6800	77×115	0.15	6.9	18	18	24	HCGHA2E682Y
400 2G (450)	1000	77×155	0.15	9.3	13	13	24	HCGHA2E103Y
	15000	90×157	0.15	12.2	9	9	24	HCGHA2E153Y
	1000	51×75	0.15	2.5	102	105	21	HCGHA2G102Y
	1200	51×96	0.15	3.0	85	88	21	HCGHA2G122Y
	1500	51×115	0.15	3.6	68	70	21	HCGHA2G152Y
	1800	51×130	0.15	4.1	57	58	21	HCGHA2G182Y
	2200	64×96	0.15	4.5	46	48	22	HCGHA2G222Y
	2700	64×115	0.15	5.3	38	40	22	HCGHA2G272Y
	3300	64×130	0.15	6.2	30	32	22	HCGHA2G332Y
	3900	64×155	0.15	7.2	26	28	22	HCGHA2G392YD
		77×115	0.15	6.8	26	28	24	HCGHA2G392YE
	4700	64×195	0.15	8.7	21	22	22	HCGHA2G472YD
		77×130	0.15	7.8	21	22	24	HCGHA2G472YE
	5600	64×195	0.15	9.6	18	19	22	HCGHA2G562YD
		77×155	0.15	9.2	18	19	24	HCGHA2G562YE
	6800	90×157	0.15	10.7	15	15	24	HCGHA2G682Y
	8200	90×157	0.15	11.8	12	15	24	HCGHA2G822Y
10000	90×196	0.15	14.1	10	15	24	HCGHA2G103Y	

## Life time graph

Useful life depending on ambient temperature  $T_a$  and ripple current operating conditions  $I_r$  versus rated ripple current at 105°C, 120Hz

