

# Return Group Chart



## LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Overvoltage resistant design, 105°C

### CHA Series

- Doesn't spark with DC over voltage
- Downsized from current KLG series
- Endurance with ripple current : 2,000 hours at 105°C
- Non solvent resistant type
- RoHS2 Compliant

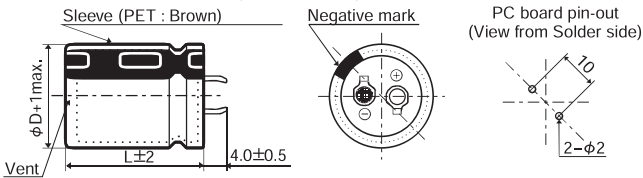


#### ◆ SPECIFICATIONS

Items	Characteristics	
Category	-25 to +105°C	
Temperature Range	-25 to +105°C	
Rated Voltage Range	200 to 450V <sub>dc</sub>	
Capacitance Tolerance	±20% (M) (at 20°C, 120Hz)	
Leakage Current	I ≤ 3√CV Where, I : Max. leakage current (µA), C : Nominal capacitance (µF), V : Rated voltage (V <sub>dc</sub> ) (at 20°C after 5 minutes)	
Dissipation Factor (tan δ)	200V <sub>dc</sub> : 0.15 max. (0.20 max. for φD=35mm) 400V <sub>dc</sub> : 0.15 max. (at 20°C, 120Hz)	
Low Temperature Characteristics (Max.Impedance Ratio)	Rated Voltage (V <sub>dc</sub> )	200 to 450V Z(-25°C) / Z(+20°C) : 4 (at 120Hz)
ESL	50nH max. (at 20°C, 1MHz)	
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 105°C.	
	Capacitance change	≤ ±20% of the initial value
	D.F. (tan δ)	≤ 200% of the initial specified value
	Leakage current	≤ The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.	
	Capacitance change	≤ ±15% of the initial value
	D.F. (tan δ)	≤ 150% of the initial specified value
	Leakage current	≤ The initial specified value

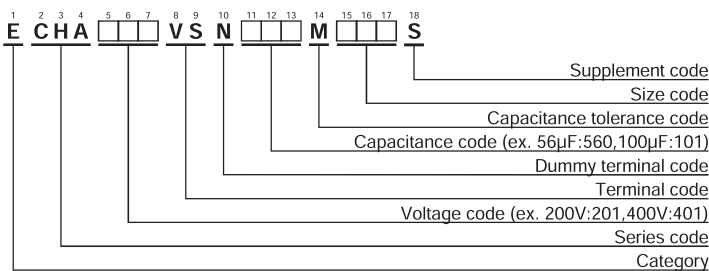
#### ◆ DIMENSIONS [mm]

- Terminal Code : VS (φ22 to φ35)



The standard design has no plastic disc.

#### ◆ PART NUMBERING SYSTEM



Please refer to "Product code guide (snap-in type)"

#### ◆ RATED RIPPLE CURRENT MULTIPLIERS

- Frequency Multipliers

Rated Voltage(V <sub>dc</sub> )	Frequency(Hz)					
	50	120	300	1k	10k	50k
200, 250	0.81	1.00	1.17	1.32	1.45	1.50
400, 450	0.77	1.00	1.16	1.30	1.41	1.43

The deterioration of aluminum electrolytic capacitors accelerates their life due to the internal heating produced by ripple current. For details, refer to Section "5-3 Ripple Current Effect on Lifetime" in the catalog, Technical Note.

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LARGE CAPACITANCE ALUMINUM ELECTROLYTIC CAPACITORS Overvoltage resistant design, 105°C

**CHA**Series

## ◆STANDARD RATINGS

WV (V <sub>dc</sub> )	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (Arms/105°C, 120Hz)	Part No.	WV (V <sub>dc</sub> )	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (Arms/105°C, 120Hz)	Part No.	
200	180	22 × 20	0.15	0.82	ECHA201VSN181MP20S	250	680	35 × 30	0.20	2.19	ECHA251VSN681MA30S	
	220	22 × 20	0.15	0.90	ECHA201VSN221MP20S		820	30 × 45	0.15	2.39	ECHA251VSN821MR45S	
	270	22 × 25	0.15	1.02	ECHA201VSN271MP25S		820	35 × 35	0.20	2.42	ECHA251VSN821MA35S	
	330	22 × 30	0.15	1.20	ECHA201VSN331MP30S		400	56	22 × 20	0.15	0.45	ECHA401VSN560MP20S
	330	25.4 × 25	0.15	1.20	ECHA201VSN331MQ25S			68	22 × 20	0.15	0.51	ECHA401VSN680MP20S
	390	22 × 30	0.15	1.35	ECHA201VSN391MP30S			82	22 × 25	0.15	0.58	ECHA401VSN820MP25S
	390	25.4 × 25	0.15	1.35	ECHA201VSN391MQ25S			100	22 × 25	0.15	0.66	ECHA401VSN101MP35S
	470	22 × 35	0.15	1.45	ECHA201VSN471MP35S			100	25.4 × 25	0.15	0.66	ECHA401VSN101MQ25S
	470	25.4 × 30	0.15	1.45	ECHA201VSN471MQ30S			120	22 × 30	0.15	0.76	ECHA401VSN121MP30S
	470	30 × 25	0.15	1.47	ECHA201VSN471MR25S			120	25.4 × 25	0.15	0.76	ECHA401VSN121MQ25S
	560	22 × 40	0.15	1.62	ECHA201VSN561MP40S			150	22 × 35	0.15	0.85	ECHA401VSN151MP35S
	560	25.4 × 30	0.15	1.60	ECHA201VSN561MQ30S			150	25.4 × 30	0.15	0.85	ECHA401VSN151MQ30S
	560	30 × 25	0.15	1.60	ECHA201VSN561MR25S			150	30 × 25	0.15	0.85	ECHA401VSN151MR25S
	680	25.4 × 35	0.15	1.82	ECHA201VSN681MQ35S			180	22 × 40	0.15	0.94	ECHA401VSN181MP40S
	680	30 × 30	0.15	1.81	ECHA201VSN681MR30S			180	25.4 × 35	0.15	0.95	ECHA401VSN181MQ35S
	680	35 × 25	0.20	1.86	ECHA201VSN681MA25S			180	30 × 25	0.15	0.95	ECHA401VSN181MR25S
	820	25.4 × 45	0.15	2.11	ECHA201VSN821MQ45S			220	25.4 × 35	0.15	1.24	ECHA401VSN221MQ35S
	820	30 × 35	0.15	2.11	ECHA201VSN821MR35S			220	30 × 30	0.15	1.24	ECHA401VSN221MR30S
	820	35 × 25	0.20	2.11	ECHA201VSN821MA25S			220	35 × 25	0.15	1.24	ECHA401VSN221MA25S
	1,000	30 × 35	0.15	2.40	ECHA201VSN102MR35S			270	25.4 × 45	0.15	1.30	ECHA401VSN271MQ45S
1,000	35 × 30	0.20	2.40	ECHA201VSN102MA30S	270	30 × 35		0.15	1.30	ECHA401VSN271MR35S		
1,200	30 × 45	0.15	2.69	ECHA201VSN122MR45S	270	35 × 25		0.15	1.30	ECHA401VSN271MA25S		
1,200	35 × 35	0.20	2.65	ECHA201VSN122MA35S	330	30 × 35		0.15	1.45	ECHA401VSN331MR35S		
1,500	35 × 45	0.20	2.96	ECHA201VSN152MA45S	330	30 × 40	0.15	1.47	ECHA401VSN331MR40S			
250	120	22 × 20	0.15	0.68	ECHA251VSN121MP20S	330	35 × 30	0.15	1.47	ECHA401VSN331MA30S		
	180	22 × 25	0.15	0.87	ECHA251VSN181MP25S	390	30 × 40	0.15	1.60	ECHA401VSN391MR40S		
	180	25.4 × 20	0.15	0.93	ECHA251VSN181MQ20S	390	35 × 35	0.15	1.61	ECHA401VSN391MA35S		
	220	22 × 30	0.15	1.00	ECHA251VSN221MP30S	470	35 × 40	0.15	1.84	ECHA401VSN471MA40S		
	270	22 × 35	0.15	1.14	ECHA251VSN271MP35S	450	82	25.4 × 25	0.20	0.61	ECHA451VSN820MQ25S	
	270	25.4 × 25	0.15	1.13	ECHA251VSN271MQ25S		120	25.4 × 30	0.20	0.76	ECHA451VSN121MQ30S	
	270	30 × 20	0.15	1.25	ECHA251VSN271MR20S		120	30 × 25	0.20	0.77	ECHA451VSN121MR25S	
	330	22 × 40	0.15	1.28	ECHA251VSN331MP40S		150	25.4 × 35	0.20	0.88	ECHA451VSN151MQ35S	
	330	25.4 × 30	0.15	1.29	ECHA251VSN331MQ30S		180	25.4 × 40	0.20	0.99	ECHA451VSN181MQ40S	
	390	22 × 45	0.15	1.42	ECHA251VSN391MP45S		180	30 × 30	0.20	0.97	ECHA451VSN181MR30S	
	390	25.4 × 35	0.15	1.46	ECHA251VSN391MQ35S		180	30 × 35	0.20	1.00	ECHA451VSN181MR35S	
	390	30 × 25	0.15	1.52	ECHA251VSN391MR25S		220	30 × 35	0.20	1.30	ECHA451VSN221MR35S	
	390	35 × 20	0.20	1.62	ECHA251VSN391MA20S		220	35 × 25	0.20	1.20	ECHA451VSN221MA25S	
	470	25.4 × 40	0.15	1.64	ECHA251VSN471MQ40S		270	30 × 35	0.20	1.22	ECHA451VSN271MR35S	
	470	30 × 30	0.15	1.67	ECHA251VSN471MR30S		270	30 × 40	0.20	1.28	ECHA451VSN271MR40S	
	560	25.4 × 45	0.15	1.82	ECHA251VSN561MQ45S		270	35 × 30	0.20	1.30	ECHA451VSN271MA30S	
	560	30 × 35	0.15	1.87	ECHA251VSN561MR35S		330	35 × 35	0.20	1.40	ECHA451VSN331MA35S	
	560	35 × 25	0.20	1.99	ECHA251VSN561MA25S		390	35 × 40	0.20	1.60	ECHA451VSN391MA40S	
	680	30 × 40	0.15	2.12	ECHA251VSN681MR40S		420	35 × 50	0.20	1.56	ECHA451VSN421MA50S	

## ◆DC OVERVOLTAGE TEST CONDITIONS

The vent will operate and the capacitor shall become an open circuit without burning materials when the following test DC voltage is applied.

### ● Test DC voltage

Rated Voltage	Nominal Capacitance	Current Limit	Test Voltage
200V <sub>dc</sub>	<330μF	4A	300/375V <sub>dc</sub>
	330μF ≤ C < 470μF	5A	
	≥ 470μF	7A	
250V <sub>dc</sub>	<330μF	4A	350/450V <sub>dc</sub>
	330μF ≤ C < 470μF	5A	
	≥ 470μF	7A	
400V <sub>dc</sub>	<100μF	2A	500/600V <sub>dc</sub>
	100μF ≤ C < 220μF	4A	
	≥ 220μF	7A	
450V <sub>dc</sub>	<100μF	2A	550/675V <sub>dc</sub>
	100μF ≤ C < 220μF	4A	
	≥ 220μF	7A	

### ● Test Circuit

