

- Conductive Polymer Hybrid Aluminum Electrolytic Capacitors
- Low ESR, high ripple current capability, Large Capacitance 105°C, 5000 hours.
- AEC-Q200 Compliant
- RoHS Compliant



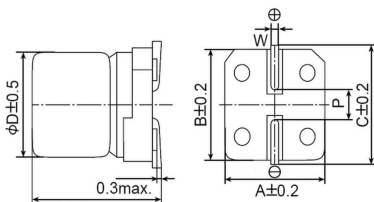
## Specifications

Items	Characteristics		
Category Temperature Range	-55 to +105°C		
Rated Voltage Range	25 to 80Vdc		
Capacitance Range	33 to 680μF		
Capacitance Tolerance	±20% (M) (at 20°C, 120Hz)		
Surge Voltage	Rated Voltage(V) × 1.15		
Dissipation Factor (tanδ)	Please see the attached ratings list (at 20°C, 120Hz)		
Leakage Current <sup>**1</sup>	Please see the attached ratings list Rated voltage applied, after 2 minutes.		
Equivalent Series Resistance (ESR)	Please see the attached ratings list (at 20°C, 100kHz)		
Temperature Characteristics (Max. Impedance Ratio)	Z(-55°C)/Z(+20°C) ≤ 2.0 Z(-25°C)/Z(+20°C) ≤ 1.5 (at 100kHz)		
Endurance	105°C, 5,000h AC+DC ≤ Rated voltage applied	Δ C/C	≤ ±30% of the initial value
		DF (tanδ)	≤ 200% of the initial specified value
		ESR	≤ 200% of the initial specified value
		LC	≤ The initial specified value
Damp heat(Steady state)	85°C, 85 to 90%RH 2,000h Rated voltage applied	Δ C/C	≤ ±30% of the initial value
		DF (tanδ)	≤ 200% of the initial specified value
		ESR	≤ 200% of the initial specified value
		LC	≤ The initial specified value(after voltage processing)
Resistance to soldering heat	Reflow method (260 ± 5°C × 5s)	Δ C/C	≤ ±10% of the initial value
		DF (tanδ)	≤ The initial specified value
		ESR	≤ The initial specified value
		LC	≤ The initial specified value(after voltage processing)

※1 In case of some problems for measured values, measure after applying rated voltage for 120 minutes at 105°C.

## Dimensions

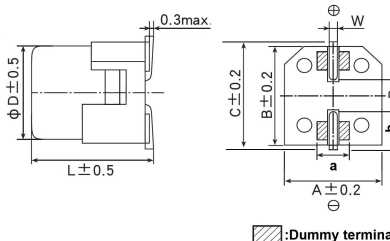
Normal



Size Code	ΦD±0.5	L	A±0.2	B±0.2	C±0.2	W	P±0.2
C10	10	10	10.3	10.3	11.0	0.7 to 1.1	4.6
C12	10	12.2	10.3	10.3	11.0	0.7 to 1.1	4.6

(unit: mm)

Anti-vibration



Size Code	ΦD±0.5	L±0.5	A±0.2	B±0.2	C±0.2	W	P±0.2	a	b
G10	10	10.2	10.3	10.8	11	0.7 to 1.1	4.6	4.4	3.2
G12	10	12.4	10.3	10.8	11	0.7 to 1.1	4.6	4.4	3.2

(unit: mm)

▨:Dummy termin

## Size list

R.V[S. V](V) Cap.(μF)	25 [29]	35 [40]	50 [58]	63 [72]	80 [92]
33					C(G)10
47				C(G)10	C(G)12
56				C(G)10	
82			C(G)10	C(G)12	
100			C(G)10, C(G)12	C(G)12	
120			C(G)12		
150			C(G)12		
220		C(G)10			
270		C(G)10			
330	C(G)10	C(G)12			
390	C(G)10				
470	C(G)12				
560	C(G)12				
680	C(G)12				

## Ratings for PHVA Series

U <sub>R</sub> Code	Rated Capacitance 20°C, 120Hz	ESR (max) 20°C, 100kHz	Rated Ripple Current 105°C, 100kHz	Dissipation Factor (Tanδ) (max) 20°C, 120Hz	Leakage Current (max) 20°C, 2min	Size ΦD×L	Part Number
(V)	(μF)	(mΩ)	(mA <sub>rms</sub> )	(%)	(μA)	(mm)	
25 1E	330	20	2,500	14	82.5	Φ10×10 (10.2)	PHV1EVA331MC(G)10□□
	390	20	2,500	14	97.5	Φ10×10 (10.2)	PHV1EVA391MC(G)10□□
	470	20	2,600	14	117.5	Φ10×12.2 (12.4)	PHV1EVA471MC(G)12□□
	560	20	2,600	14	140	Φ10×12.2 (12.4)	PHV1EVA561MC(G)12□□
	680	20	2,600	14	170	Φ10×12.2 (12.4)	PHV1EVA561MC(G)12□□
35 1V	220	24	2,000	12	77	Φ10×10 (10.2)	PHV1VVA181MC(G)10□□
	270	20	2,500	12	94.5	Φ10×10 (10.2)	PHV1VVA271MC(G)10□□
	330	20	2,500	12	115.5	Φ10×12.2 (12.4)	PHV1VVA331MC(G)12□□
50 1H	82	30	1,800	10	41	Φ10×10 (10.2)	PHV1HVA820MC(G)10□□
	100	28	1,900	10	50	Φ10×10 (10.2)	PHV1HVA101MC(G)10□□
	100	25	2,100	10	50	Φ10×12.2 (12.4)	PHV1HVA101MC(G)12□□
	120	25	2,100	10	60	Φ10×12.2 (12.4)	PHV1HVA121MC(G)12□□
	150	25	2,100	10	75	Φ10×12.2 (12.4)	PHV1HVA151MC(G)12□□
63 1J	47	40	1,500	8	29.6	Φ10×10 (10.2)	PHV1JVA470MC(G)10□□
	56	30	1,700	8	35.2	Φ10×10 (10.2)	PHV1JVA560MC(G)10□□
	82	28	1,900	8	51.6	Φ10×12.2 (12.4)	PHV1JVA820MC(G)12□□
	100	28	1,900	8	63	Φ10×12.2 (12.4)	PHV1JVA101MC(G)12□□
80 1K	33	36	1,600	8	26.4	Φ10×10 (10.2)	PHV1KVA330MC(G)10□□
	47	35	1,700	8	37.6	Φ10×12.2 (12.4)	PHV1KVA470MC(G)12□□

Customer products are available on request.

## Frequency coefficient for ripple current

Frequency	120Hz ≤ f < 1kHz	1kHz ≤ f < 10kHz	10kHz ≤ f < 100kHz	100kHz ≤ f ≤ 500kHz
Coefficient	0.10	0.4	0.75	1