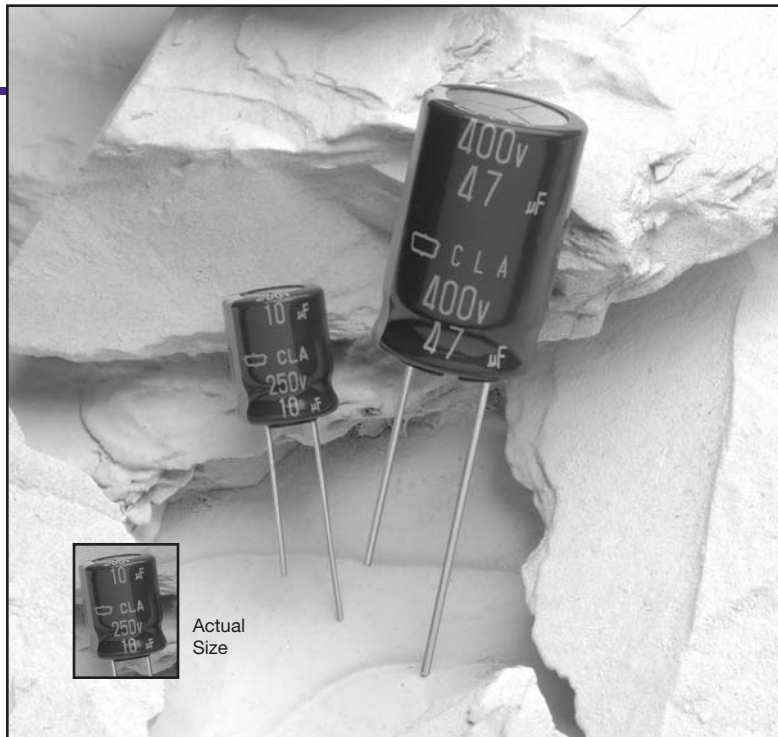


CLA Series



CLA
MINIATURE - 105°C

- **Miniature**
- **High Ripple**
- **Long Life**
4k-5k Hours
- **For Electronic**
Ballasts
- **+105°C**
Maximum
Temperature



The CLA series is a high voltage, long life series from United Chemi-Con that has a rated lifetime of 4,000 to 5,000 hours (depending on case size) at +105°C with the full rated ripple current applied. The CLA capacitors are designed for use in electronic ballasts or any other high voltage application where a very long life and high ripple current capability are required. The CLA capacitors are available in case sizes ranging from 8 × 11.5mm to 18 × 25mm (D × L) and are ideal for low profile board designs.

The CLA series capacitors are non-solvent proof. Refer to the Mini-Glossary for cleaning guidelines and recommended cleaning agents that are compatible with United Chemi-Con products.

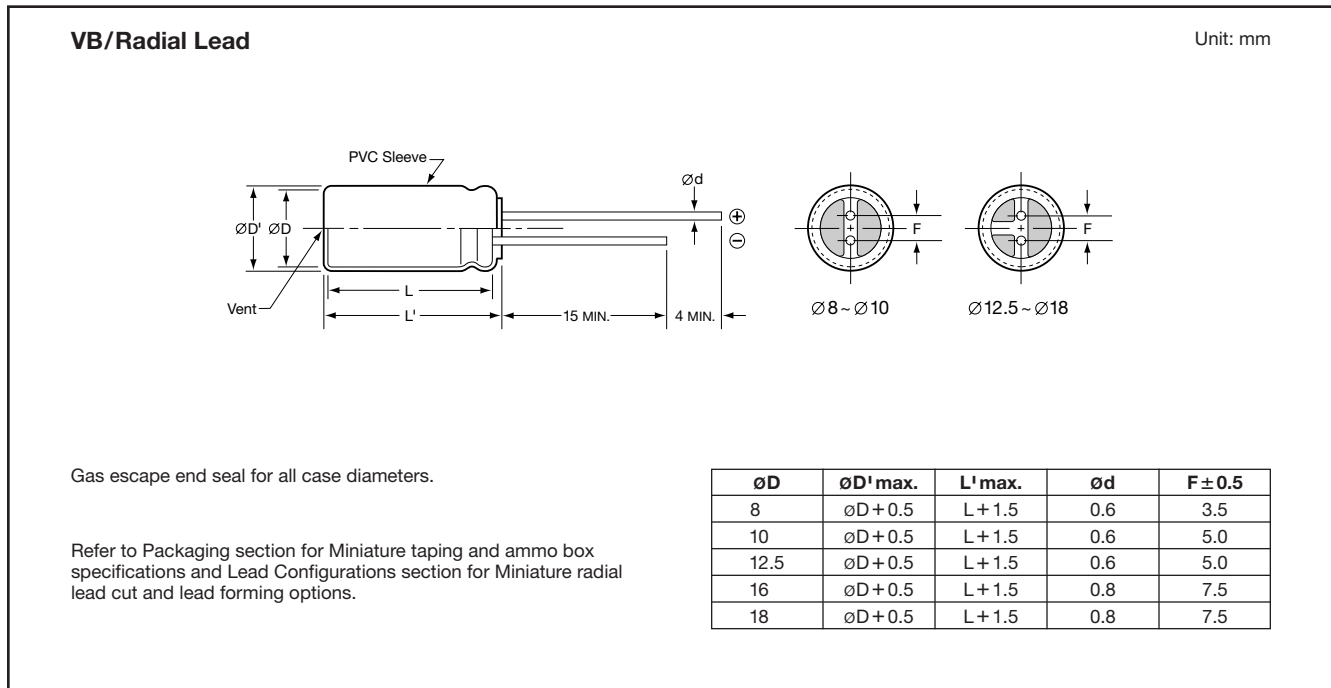
Summary of Specifications

- **Radial lead terminals.**
- **Capacitance range: 1.0 to 220μF.**
- **Voltage range: 200 to 450VDC.**
- **Category temperature range: -40°C to +105°C for 200 to 400V; -25°C to +105°C for 450V.**
- **Leakage current: 0.1CV+40μA after 1 minute or 0.03CV+15μA after 5 minutes for 1,000CV or less; 0.04CV+100μA after 1 minute or 0.02CV+25μA after 5 minutes for more than 1,000CV at +20°C.**
- **Standard capacitance tolerance: ±20%**
- **Nominal case size (D × L): 8 × 11.5mm to 18 × 25mm.**
- **Rated lifetime: 4,000 to 5,000 hours at +105°C with the rated ripple current applied, depending on case size.**

CLA Specifications

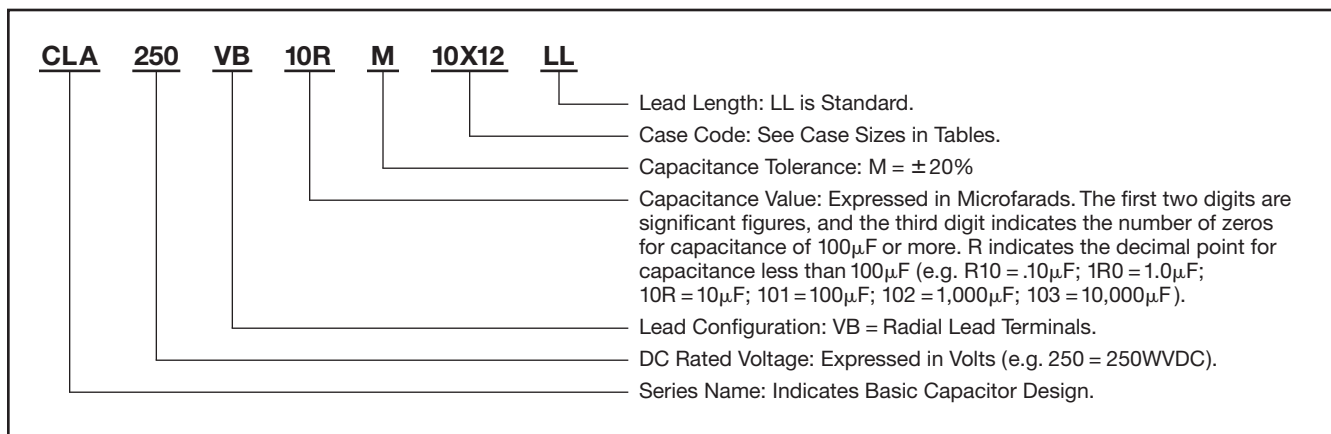
Item	Characteristics																		
Category Temperature Range	- 40 to +105°C for 200 to 400VDC; - 25 to +105°C for 450VDC																		
Rated Voltage Range	200 to 450VDC																		
Capacitance Range	1.0 to 220 μ F																		
Capacitance Tolerance	\pm 20% (M) at +20°C, 120Hz																		
Leakage Current	At +20°C <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>CV Product</th> <th>After 1 Minute</th> <th>After 5 Minutes</th> </tr> </thead> <tbody> <tr> <td>CV \leq 1,000</td> <td>I = 0.1CV + 40μA</td> <td>I = 0.03CV + 15μA</td> </tr> <tr> <td>CV > 1,000</td> <td>I = 0.04CV + 100μA</td> <td>I = 0.02CV + 25μA</td> </tr> </tbody> </table> Where I = Max. leakage current (μ A), C = Nominal capacitance (μ F) and V = Rated voltage (V)	CV Product	After 1 Minute	After 5 Minutes	CV \leq 1,000	I = 0.1CV + 40 μ A	I = 0.03CV + 15 μ A	CV > 1,000	I = 0.04CV + 100 μ A	I = 0.02CV + 25 μ A									
CV Product	After 1 Minute	After 5 Minutes																	
CV \leq 1,000	I = 0.1CV + 40 μ A	I = 0.03CV + 15 μ A																	
CV > 1,000	I = 0.04CV + 100 μ A	I = 0.02CV + 25 μ A																	
Dissipation Factor (Tan δ)	At +20°C, 120Hz <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Rated Voltage (V)</th> <th>200</th> <th>250</th> <th>350</th> <th>400</th> <th>450</th> </tr> </thead> <tbody> <tr> <td>Tan δ (DF)</td> <td>0.20</td> <td>0.20</td> <td>0.24</td> <td>0.24</td> <td>0.24</td> </tr> </tbody> </table>	Rated Voltage (V)	200	250	350	400	450	Tan δ (DF)	0.20	0.20	0.24	0.24	0.24						
Rated Voltage (V)	200	250	350	400	450														
Tan δ (DF)	0.20	0.20	0.24	0.24	0.24														
Low Temperature Characteristics	At 120Hz, impedance (Z) ratio between the -25°C or -40°C value and +20°C value shall not exceed the values given below. <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Rated Voltage (V)</th> <th>200</th> <th>250</th> <th>350</th> <th>400</th> <th>450</th> </tr> </thead> <tbody> <tr> <td>Z (-25°C) / Z (+20°C)</td> <td>3</td> <td>3</td> <td>5</td> <td>5</td> <td>6</td> </tr> <tr> <td>Z (-40°C) / Z (+20°C)</td> <td>6</td> <td>6</td> <td>6</td> <td>6</td> <td>-</td> </tr> </tbody> </table>	Rated Voltage (V)	200	250	350	400	450	Z (-25°C) / Z (+20°C)	3	3	5	5	6	Z (-40°C) / Z (+20°C)	6	6	6	6	-
Rated Voltage (V)	200	250	350	400	450														
Z (-25°C) / Z (+20°C)	3	3	5	5	6														
Z (-40°C) / Z (+20°C)	6	6	6	6	-														
Rated Ripple Current Multipliers <i>Refer to Section 4 of the Mini-Glossary for explanation of Rated Ripple Current Multipliers.</i>	Frequency (Hz) <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Capacitance (μF)</th> <th>120Hz</th> <th>1kHz</th> <th>10kHz</th> <th>100kHz</th> </tr> </thead> <tbody> <tr> <td>1.0 - 22μF</td> <td>1.00</td> <td>2.00</td> <td>2.80</td> <td>3.10</td> </tr> <tr> <td>33 - 220μF</td> <td>1.00</td> <td>1.80</td> <td>2.45</td> <td>2.60</td> </tr> </tbody> </table>	Capacitance (μ F)	120Hz	1kHz	10kHz	100kHz	1.0 - 22 μ F	1.00	2.00	2.80	3.10	33 - 220 μ F	1.00	1.80	2.45	2.60			
Capacitance (μ F)	120Hz	1kHz	10kHz	100kHz															
1.0 - 22 μ F	1.00	2.00	2.80	3.10															
33 - 220 μ F	1.00	1.80	2.45	2.60															
Endurance (Load Life)	The following specifications shall be satisfied when the capacitors are restored to +20°C after subjecting them to DC voltage for the specified test time at +105°C with the rated ripple current applied. The sum of the DC voltage and peak AC voltage must not exceed the full rated voltage of the capacitors. <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Case Size</th> <th>\varnothing8mm</th> <th>\varnothing10mm (12.5L)</th> <th>\varnothing10mm (\geq16L)</th> <th>\varnothing12.5mm</th> </tr> </thead> <tbody> <tr> <td>Test Time</td> <td>4,000 Hours</td> <td>4,000 Hours</td> <td>5,000 Hours</td> <td>5,000 Hours</td> </tr> </tbody> </table> Capacitance change: $\leq \pm$ 25% of initial measured value Tan δ (DF) : \leq 200% of initial specified value Leakage current : \leq initial specified value	Case Size	\varnothing 8mm	\varnothing 10mm (12.5L)	\varnothing 10mm (\geq 16L)	\varnothing 12.5mm	Test Time	4,000 Hours	4,000 Hours	5,000 Hours	5,000 Hours								
Case Size	\varnothing 8mm	\varnothing 10mm (12.5L)	\varnothing 10mm (\geq 16L)	\varnothing 12.5mm															
Test Time	4,000 Hours	4,000 Hours	5,000 Hours	5,000 Hours															
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. The rated voltage shall be applied to the capacitors for a minimum of 30 minutes, at least 24 hours and not more than 48 hours before the measurements. Capacitance change: $\leq \pm$ 20% of initial measured value Tan δ (DF) : \leq 200% of initial specified value Leakage current : \leq 500% of initial specified value																		

Diagram of Dimensions



Part Numbering System for CLA Series

When ordering, always specify complete catalog number for CLA Series.



Standard Voltage Ratings - VB/Radial Lead

Rated Voltage (WVDC)	Capacitance (µF)	Catalog Part Number	Nominal Case Size* D × L (mm)	Maximum ESR (Ω) at +20°C, 120Hz	Rated Ripple Current (mA rms) at +105°C	
					120Hz	100kHz
200 Volts 250 Volts Surge	6.8	CLA200VB6R8M10X12LL	10 × 12.5	48.75	80	250
	10	CLA200VB10RM10X12LL	10 × 12.5	33.15	95	300
	10	CLA200VB10RM10X16LL	10 × 16	33.15	105	330
	15	CLA200VB15RM10X16LL	10 × 16	22.10	130	405
	15	CLA200VB15RM10X20LL	10 × 20	22.10	140	435
	22	CLA200VB22RM10X16LL	10 × 16	15.068	155	480
	22	CLA200VB22RM10X20LL	10 × 20	15.068	170	530
	33	CLA200VB33RM10X20LL	10 × 20	10.045	210	545
	33	CLA200VB33RM12X20LL	12.5 × 20	10.045	230	600
	47	CLA200VB47RM10X25LL	10 × 25	7.053	260	680
47	CLA200VB47RM12X20LL	12.5 × 20	7.053	280	730	

*The case sizes in table are with no sleeve, refer to diagram for case sizes with sleeve.

Standard Voltage Ratings - VB/Radial Lead

Rated Voltage (WVDC)	Capacitance (µF)	Catalog Part Number	Nominal Case Size* D × L (mm)	Maximum ESR (Ω) at +20°C, 120Hz	Rated Ripple Current (mA rms) at +105°C	
					120Hz	100kHz

200 Volts 250 Volts Surge	68	CLA200VB68RM12X25LL	12.5 × 25	4.875	355	925
	68	CLA200VB68RM16X20LL	16 × 20	4.875	355	925
	100	CLA200VB101M12X25LL	12.5 × 25	3.315	430	1,120
	100	CLA200VB101M16X20LL	16 × 20	3.315	430	1,120
	150	CLA200VB151M16X25LL	16 × 25	2.21	565	1,470
	150	CLA200VB151M18X20LL	18 × 20	2.21	565	1,470
	220	CLA200VB221M18X25LL	18 × 25	1.507	730	1,900

250 Volts 300 Volts Surge	6.8	CLA250VB6R8M10X12LL	10 × 12.5	48.75	80	250
	10	CLA250VB10RM10X12LL	10 × 12.5	33.15	95	300
	10	CLA250VB10RM10X16LL	10 × 16	33.15	105	330
	15	CLA250VB15RM10X20LL	10 × 20	22.10	140	435
	22	CLA250VB22RM10X20LL	10 × 20	15.068	170	530
	22	CLA250VB22RM12X20LL	12.5 × 20	15.068	190	600
	33	CLA250VB33RM10X20LL	10 × 20	10.045	210	545
	33	CLA250VB33RM12X20LL	12.5 × 20	10.045	230	600
	47	CLA250VB47RM12X20LL	12.5 × 20	7.053	280	730
	47	CLA250VB47RM12X25LL	12.5 × 25	7.053	300	780
	68	CLA250VB68RM12X25LL	12.5 × 25	4.875	355	925
	68	CLA250VB68RM16X20LL	16 × 20	4.875	355	925
	100	CLA250VB101M16X25LL	16 × 25	3.315	465	1,210
	100	CLA250VB101M18X20LL	18 × 20	3.315	465	1,210
150	CLA250VB151M18X25LL	18 × 25	2.21	600	1,560	

350 Volts 400 Volts Surge	1.5	CLA350VB1R5M8X11LL	8 × 11.5	265.2	23	72
	1.8	CLA350VB1R8M8X11LL	8 × 11.5	221.0	24	75
	2.2	CLA350VB2R2M8X116LL	8 × 11.5	180.818	25	78
	2.2	CLA350VB2R2M10X12LL	10 × 12.5	180.818	45	140
	3.3	CLA350VB3R3M8X11LL	8 × 11.5	120.545	29	90
	3.3	CLA350VB3R3M10X12LL	10 × 12.5	120.545	55	170
	4.7	CLA350VB4R7M8X15LL	8 × 15	84.638	33	102
	4.7	CLA350VB4R7M10X12LL	10 × 12.5	84.638	65	205
	4.7	CLA350VB4R7M10X16LL	10 × 16	84.638	75	235
	6.8	CLA350VB6R8M10X12LL	10 × 12.5	58.50	80	250
	6.8	CLA350VB6R8M10X16LL	10 × 16	58.50	90	280
	10	CLA350VB10RM10X16LL	10 × 16	39.78	105	330
	10	CLA350VB10RM10X20LL	10 × 20	39.78	115	360
	15	CLA350VB15RM10X20LL	10 × 20	26.52	140	435
	22	CLA350VB22RM10X25LL	10 × 25	18.082	170	525
	22	CLA350VB22RM12X20LL	12.5 × 20	18.082	190	590
	33	CLA350VB33RM12X25LL	12.5 × 25	12.055	250	650
	33	CLA350VB33RM16X20LL	16 × 20	12.055	250	650
	47	CLA350VB47RM16X25LL	16 × 25	8.464	320	835
	47	CLA350VB47RM18X20LL	18 × 20	8.464	320	835
68	CLA350VB68RM18X25LL	18 × 25	5.85	405	1,060	

400 Volts 450 Volts Surge	1.0	CLA400VB1R0M8X11LL	8 × 11.5	397.8	22	68
	1.2	CLA400VB1R2M8X11LL	8 × 11.5	331.5	22	68
	1.5	CLA400VB1R5M8X11LL	8 × 11.5	265.2	23	72
	1.8	CLA400VB1R8M8X11LL	8 × 11.5	221.0	24	75
	2.2	CLA400VB2R2M8X11LL	8 × 11.5	180.818	25	78
	2.2	CLA400VB2R2M10X12LL	10 × 12.5	180.818	45	140
	3.3	CLA400VB3R3M8X11LL	8 × 11.5	120.545	29	90
	3.3	CLA400VB3R3M10X12LL	10 × 12.5	120.545	55	170
	4.7	CLA400VB4R7M10X12LL	10 × 12.5	84.638	65	205
	4.7	CLA400VB4R7M10X16LL	10 × 16	84.638	75	235
	6.8	CLA400VB6R8M10X16LL	10 × 16	58.50	90	280
	10	CLA400VB10RM10X16LL	10 × 16	39.78	105	330
	10	CLA400VB10RM10X20LL	10 × 20	39.78	115	360

*The case sizes in table are with no sleeve, refer to diagram for case sizes with sleeve.

Standard Voltage Ratings - VB/Radial Lead

Rated Voltage (WVDC)	Capacitance (μF)	Catalog Part Number	Nominal Case Size* D × L (mm)	Maximum ESR (Ω) at +20°C, 120Hz	Rated Ripple Current (mA rms) at +105°C	
					120Hz	100kHz
400 Volts 450 Volts Surge	15	CLA400VB15RM10X20LL	10 × 20	26.52	140	435
	22	CLA400VB22RM12X20LL	12.5 × 20	18.082	190	590
	22	CLA400VB22RM12X25LL	12.5 × 25	18.082	205	640
	33	CLA400VB33RM12X25LL	12.5 × 25	12.055	250	650
	33	CLA400VB33RM16X20LL	16 × 20	12.055	250	650
	47	CLA400VB47RM16X25LL	16 × 25	8.464	320	835
	47	CLA400VB47RM18X20LL	18 × 20	8.464	320	835
	68	CLA400VB68RM18X25LL	18 × 25	5.85	405	1,060
450 Volts 500 Volts Surge	2.2	CLA450VB2R2M10X12LL	10 × 12.5	180.818	45	140
	3.3	CLA450VB3R3M10X16LL	10 × 16	120.545	60	185
	4.7	CLA450VB4R7M10X16LL	10 × 16	84.638	75	235
	4.7	CLA450VB4R7M10X20LL	10 × 20	84.638	80	250
	6.8	CLA450VB6R8M10X20LL	10 × 20	58.50	95	295
	10	CLA450VB10RM10X20LL	10 × 20	39.78	115	360
	10	CLA450VB10RM12X20LL	12.5 × 20	39.78	130	405
	15	CLA450VB15RM10X25LL	10 × 25	26.52	135	420
	15	CLA450VB15RM12X20LL	12.5 × 20	26.52	155	485
	22	CLA450VB22RM12X25LL	12.5 × 25	18.082	205	640
	22	CLA450VB22RM16X20LL	16 × 20	18.082	205	640
	33	CLA450VB33RM16X25LL	16 × 25	12.055	265	690
	33	CLA450VB33RM18X20LL	18 × 20	12.055	265	690
	47	CLA450VB47RM18X25LL	18 × 25	8.464	340	890

*The case sizes in table are with no sleeve, refer to diagram for case sizes with sleeve.