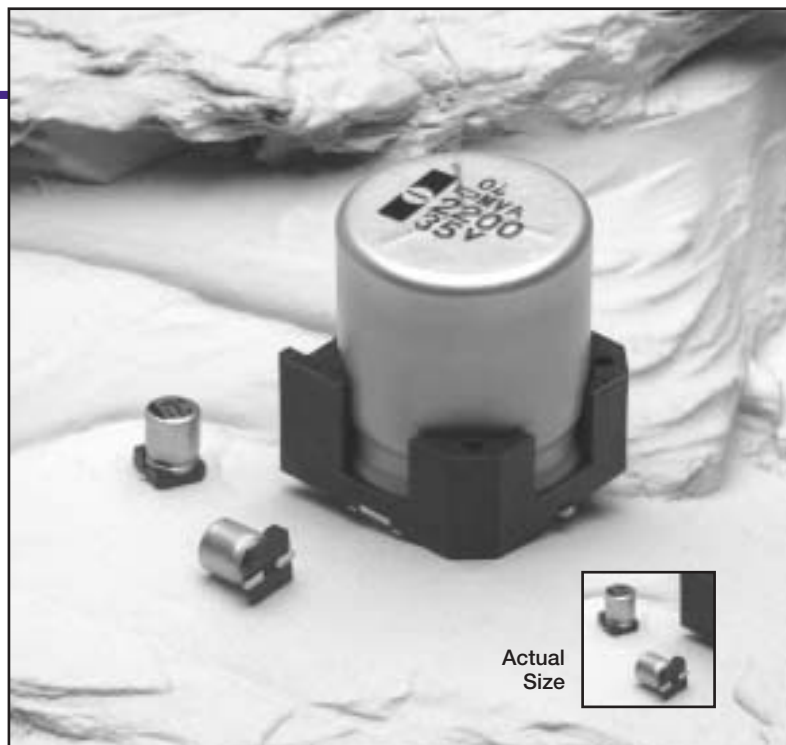


- **Surface Mount**
- **High CV**
- **Vertical Chip**
- **Solvent Proof  
(4-63V)**
- **+85°C  
Maximum  
Temperature**



The MVA series is a general purpose +85°C surface mount capacitor series from United Chemi-Con. This series has higher CV values, higher voltage ratings and larger case size options, when compared to the current MV series. The larger sizes and higher voltages will allow a surface mount component to be used in a wider variety of applications where a radial capacitor would normally be required.

The MVA series capacitors *except for those rated at 100-450 volts* are 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

- **Surface mount lead terminals.**
- **Capacitance range: 0.1 to 10,000µF.**
- **Voltage range: 4 to 450VDC.**
- **Category temperature range: -40°C to +85°C.**
- **Leakage current: See specifications table for leakage current values at +20°C.**
- **Standard capacitance tolerance: ±20%**
- **Nominal case size (D×L): 4×5.2mm to 18×21.5mm.**
- **Rated lifetime: 2,000 hours at +85°C.**

## MVA Specifications

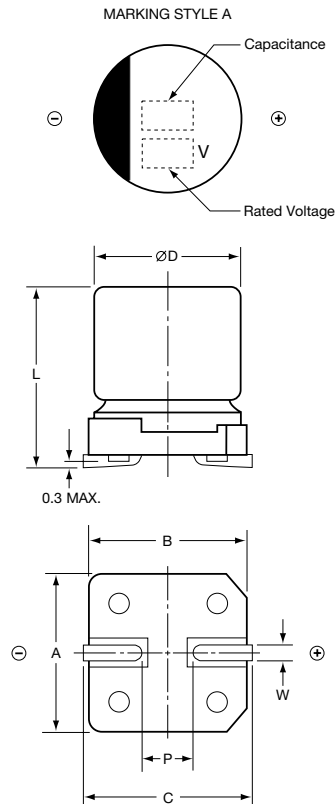
Item	Characteristics																																																															
Category Temperature Range	- 40 to +85°C																																																															
Rated Voltage Range	4 to 450VDC																																																															
Capacitance Range	0.1 to 10,000 $\mu$ F																																																															
Capacitance Tolerance	$\pm$ 20% (M) at +20°C, 120Hz																																																															
Leakage Current	<table border="1"> <tr> <td>Case D55-J10</td> <td>4-100V</td> <td>I = 0.01CV or 3<math>\mu</math>A, whichever is greater, after 2 minutes at +20°C</td> </tr> <tr> <td>Case K14-M22</td> <td>6.3-100V</td> <td>I = 0.03CV or 4<math>\mu</math>A, whichever is greater, after 1 minute at +20°C</td> </tr> <tr> <td>Case K14-M22</td> <td>160-450V</td> <td>I = 0.04CV + 100<math>\mu</math>A after 1 minute at +20°C</td> </tr> </table> <p>Where I = Max. leakage current (<math>\mu</math>A), C = Nominal capacitance (<math>\mu</math>F) and V = Rated voltage (V)</p>	Case D55-J10	4-100V	I = 0.01CV or 3 $\mu$ A, whichever is greater, after 2 minutes at +20°C	Case K14-M22	6.3-100V	I = 0.03CV or 4 $\mu$ A, whichever is greater, after 1 minute at +20°C	Case K14-M22	160-450V	I = 0.04CV + 100 $\mu$ A after 1 minute at +20°C																																																						
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Dissipation Factor (Tan $\delta$ )	<p>At +20°C, 120Hz</p> <table border="1"> <tr> <th>Rated Voltage (V)</th> <th>4</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> <th>160-250</th> <th>400-450</th> </tr> <tr> <td>Case D55-J10</td> <td>0.42</td> <td>0.35</td> <td>0.30</td> <td>0.26</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.12</td> <td>0.12</td> <td>-</td> <td>-</td> </tr> <tr> <td>Case K14-M22</td> <td>-</td> <td>0.38</td> <td>0.34</td> <td>0.30</td> <td>0.26</td> <td>0.22</td> <td>0.18</td> <td>0.14</td> <td>0.10</td> <td>0.20</td> <td>0.25</td> </tr> </table> <p>When nominal capacitance exceeds 1,000<math>\mu</math>F, add 0.02 to the values above for each 1,000<math>\mu</math>F increase.</p>	Rated Voltage (V)	4	6.3	10	16	25	35	50	63	100	160-250	400-450	Case D55-J10	0.42	0.35	0.30	0.26	0.16	0.14	0.12	0.12	0.12	-	-	Case K14-M22	-	0.38	0.34	0.30	0.26	0.22	0.18	0.14	0.10	0.20	0.25																											
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Low Temperature Characteristics	<p>At 120Hz, impedance (Z) ratio between the -25°C or -40°C value and +20°C value shall not exceed the values given below.</p> <table border="1"> <tr> <th colspan="2">Rated Voltage (V)</th> <th>4</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> <th>160-250</th> <th>400-450</th> </tr> <tr> <td rowspan="2">Z(-25°C) / Z(+20°C)</td> <td>D55-J10</td> <td>7</td> <td>4</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>3</td> <td>-</td> <td>-</td> </tr> <tr> <td>K14-M22</td> <td>-</td> <td>5</td> <td>4</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>3</td> <td>6</td> </tr> <tr> <td rowspan="2">Z(-40°C) / Z(+20°C)</td> <td>D55-J10</td> <td>17</td> <td>10</td> <td>8</td> <td>6</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> <td>4</td> <td>-</td> <td>-</td> </tr> <tr> <td>K14-M22</td> <td>-</td> <td>12</td> <td>10</td> <td>8</td> <td>5</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> <td>6</td> <td>10</td> </tr> </table>	Rated Voltage (V)		4	6.3	10	16	25	35	50	63	100	160-250	400-450	Z(-25°C) / Z(+20°C)	D55-J10	7	4	3	2	2	2	2	2	3	-	-	K14-M22	-	5	4	3	2	2	2	2	2	3	6	Z(-40°C) / Z(+20°C)	D55-J10	17	10	8	6	4	3	3	3	4	-	-	K14-M22	-	12	10	8	5	4	3	3	3	6	10
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Z(-40°C) / Z(+20°C)	D55-J10	17	10	8	6	4	3	3	3	4	-	-																																																				
	K14-M22	-	12	10	8	5	4	3	3	3	6	10																																																				
Endurance (Load Life)	<p>The following specifications shall be satisfied when the capacitors are restored to +20°C after subjecting them to the DC rated voltage for 2,000 hours at +85°C.</p> <table border="0"> <tr> <td style="vertical-align: top;"> <p>Case Code D55-J10 (4V &amp; 6.3V)</p> <hr/> <p>Capacitance change: <math>\leq \pm</math>30% of initial measured value</p> <p>Tan <math>\delta</math> (DF): <math>\leq</math> 200% of initial specified value</p> <p>Leakage current: <math>\leq</math> initial specified value</p> </td> <td style="vertical-align: top; padding-left: 20px;"> <p>Case Code D55-J10 (10-100V) and K14-M22 (6.3-450V)</p> <hr/> <p>Capacitance change: <math>\leq \pm</math>20% of initial measured value</p> <p>Tan <math>\delta</math> (DF): <math>\leq</math> 200% of initial specified value</p> <p>Leakage current: <math>\leq</math> initial specified value</p> </td> </tr> </table>	<p>Case Code D55-J10 (4V &amp; 6.3V)</p> <hr/> <p>Capacitance change: <math>\leq \pm</math>30% of initial measured value</p> <p>Tan <math>\delta</math> (DF): <math>\leq</math> 200% of initial specified value</p> <p>Leakage current: <math>\leq</math> initial specified value</p>	<p>Case Code D55-J10 (10-100V) and K14-M22 (6.3-450V)</p> <hr/> <p>Capacitance change: <math>\leq \pm</math>20% of initial measured value</p> <p>Tan <math>\delta</math> (DF): <math>\leq</math> 200% of initial specified value</p> <p>Leakage current: <math>\leq</math> initial specified value</p>																																																													
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Shelf Life	<p>The following specifications shall be satisfied when the capacitors are restored to +20°C after exposing them for 1,000 hours at +85°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.</p> <table border="0"> <tr> <td style="vertical-align: top;"> <p>Case Code D55-J10 (4V &amp; 6.3V)</p> <hr/> <p>Capacitance change: <math>\leq \pm</math>30% of initial measured value</p> <p>Tan <math>\delta</math> (DF): <math>\leq</math> 200% of initial specified value</p> <p>Leakage current: <math>\leq</math> initial specified value</p> </td> <td style="vertical-align: top; padding-left: 20px;"> <p>Case Code D55-J10 (10-100V) and K14-M22 (6.3-450V)</p> <hr/> <p>Capacitance change: <math>\leq \pm</math>20% of initial measured value</p> <p>Tan <math>\delta</math> (DF): <math>\leq</math> 200% of initial specified value</p> <p>Leakage current: <math>\leq</math> initial specified value</p> </td> </tr> </table>	<p>Case Code D55-J10 (4V &amp; 6.3V)</p> <hr/> <p>Capacitance change: <math>\leq \pm</math>30% of initial measured value</p> <p>Tan <math>\delta</math> (DF): <math>\leq</math> 200% of initial specified value</p> <p>Leakage current: <math>\leq</math> initial specified value</p>	<p>Case Code D55-J10 (10-100V) and K14-M22 (6.3-450V)</p> <hr/> <p>Capacitance change: <math>\leq \pm</math>20% of initial measured value</p> <p>Tan <math>\delta</math> (DF): <math>\leq</math> 200% of initial specified value</p> <p>Leakage current: <math>\leq</math> initial specified value</p>																																																													
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## Diagram of Dimensions

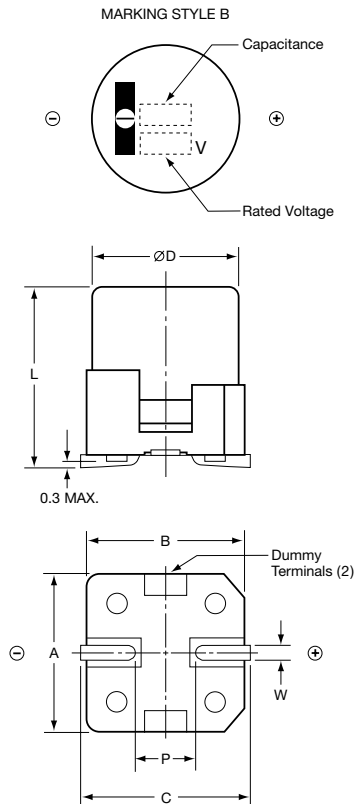
### Vertical Chip SMD Lead Terminals

Unit: mm

#### VC Type $\varnothing D = \varnothing 4 - \varnothing 12.5^*$

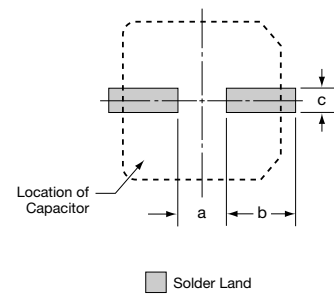


#### VD Type $\varnothing D = \varnothing 16 \text{ \& } \varnothing 18$

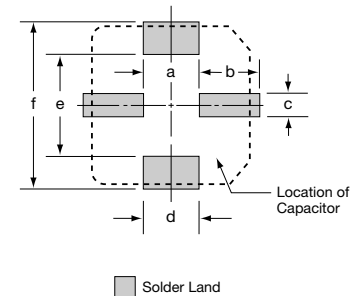


#### Recommended PCB Land Patterns

##### VC Type $\varnothing D = \varnothing 4 - \varnothing 12.5$



##### VD Type $\varnothing D = \varnothing 16 \text{ \& } \varnothing 18$



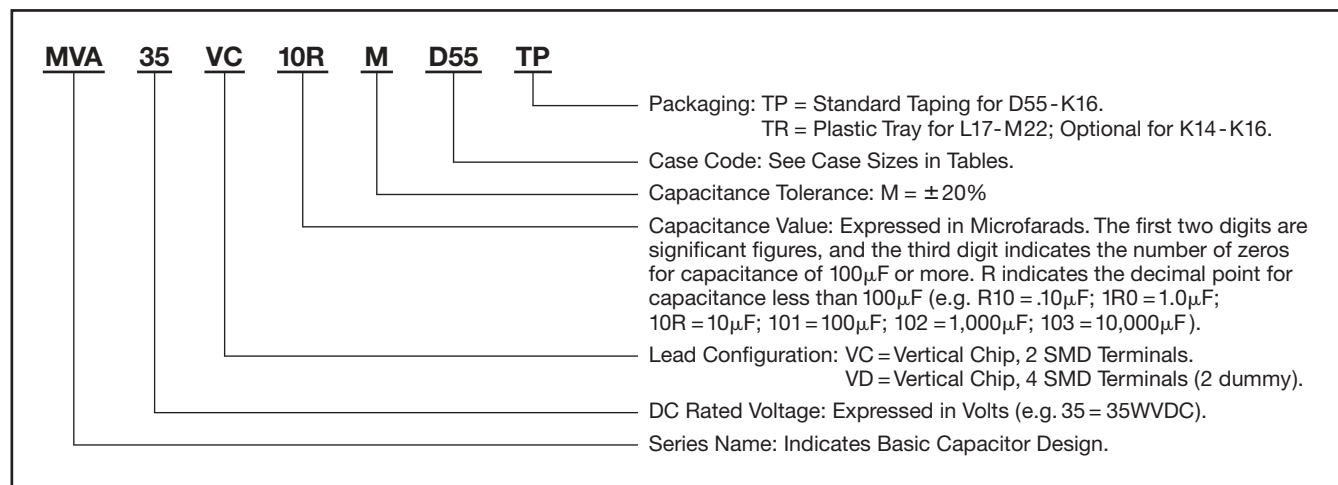
\*Marking Style B is used for all  $\varnothing 12.5$  VC Type products.

Refer to Packaging section for Surface Mount taping, reel and tray specifications and Surface Mount Soldering section for reflow soldering conditions.

### Case and PCB Land Pattern Dimensions

Case Code	$\varnothing D \pm 0.5$	L	A $\pm 0.2$	B $\pm 0.2$	C $\pm 0.2$	W	P	a	b	c	d	e	f
D55	$\varnothing 4$	$5.2 \pm 0.3$	4.3	4.3	5.1	0.5-0.8	1.0	1.0	2.6	1.6	-	-	-
E55	$\varnothing 5$	$5.2 \pm 0.3$	5.3	5.3	5.9	0.5-0.8	1.4	1.4	3.0	1.6	-	-	-
F55	$\varnothing 6.3$	$5.2 \pm 0.3$	6.6	6.6	7.2	0.5-0.8	1.9	1.9	3.5	1.6	-	-	-
F60	$\varnothing 6.3$	$5.7 \pm 0.3$	6.6	6.6	7.2	0.5-0.8	1.9	1.9	3.5	1.6	-	-	-
F80	$\varnothing 6.3$	$7.7 \pm 0.3$	6.6	6.6	7.2	0.5-0.8	1.9	1.9	3.5	1.6	-	-	-
H10	$\varnothing 8$	$10.0 \pm 0.5$	8.3	8.3	9.0	0.7-1.1	3.1	3.1	4.2	2.2	-	-	-
J10	$\varnothing 10$	$10.0 \pm 0.5$	10.3	10.3	11.0	0.7-1.1	4.5	4.5	4.4	2.2	-	-	-
K14	$\varnothing 12.5$	$13.5 \pm 0.5$	13.0	13.0	13.7	1.0-1.3	4.2	4.0	5.7	2.5	-	-	-
K16	$\varnothing 12.5$	$16.0 \pm 0.5$	13.0	13.0	13.7	1.0-1.3	4.2	4.0	5.7	2.5	-	-	-
L17	$\varnothing 16$	$16.5 \pm 0.5$	17.0	17.0	18.0	1.0-1.3	6.5	6.0	6.9	2.5	6.5	11.0	19.2
L22	$\varnothing 16$	$21.5 \pm 0.5$	17.0	17.0	18.0	1.0-1.3	6.5	6.0	6.9	2.5	6.5	11.0	19.2
M17	$\varnothing 18$	$16.5 \pm 0.5$	19.0	19.0	20.0	1.0-1.3	6.5	6.0	7.9	2.5	6.5	13.0	21.2
M22	$\varnothing 18$	$21.5 \pm 0.5$	19.0	19.0	20.0	1.0-1.3	6.5	6.0	7.9	2.5	6.5	13.0	21.2

**Part Numbering System for MVA Series** When ordering, always specify complete catalog number for MVA Series.



## Standard Voltage Ratings - Surface Mount

Rated Voltage (WVDC)	Capacitance ( $\mu$ F)	Catalog Part Number	Nominal Case Size* D x L (mm)	Case Code	Maximum ESR ( $\Omega$ ) at +20°C, 120Hz	Rated Ripple Current (mA rms) at +85°C, 120Hz
<b>4 Volts 5 Volts Surge</b>	33	MVA4VC33RMD55TP	4 x 5.2	D55	21.095	25
	47	MVA4VC47RMD55TP	4 x 5.2	D55	14.812	30
	100	MVA4VC101ME55TP	5 x 5.2	E55	6.962	50
	220	MVA4VC221MF55TP	6.3 x 5.2	F55	3.164	80
	330	MVA4VC331MF80TP	6.3 x 7.7	F80	2.11	135
	470	MVA4VC471MF80TP	6.3 x 7.7	F80	1.481	150
	1,000	MVA4VC102MH10TP	8 x 10	H10	0.696	320
<b>6.3 Volts 8 Volts Surge</b>	33	MVA6.3VC33RMD55TP	4 x 5.2	D55	17.58	30
	47	MVA6.3VC47RMD55TP	4 x 5.2	D55	12.343	33
	100	MVA6.3VC101ME55TP	5 x 5.2	E55	5.801	55
	220	MVA6.3VC221MF55TP	6.3 x 5.2	F55	2.637	88
	330	MVA6.3VC331MF80TP	6.3 x 7.7	F80	1.758	135
	470	MVA6.3VC471MH10TP	8 x 10	H10	1.234	280
	680	MVA6.3VC681MH10TP	8 x 10	H10	0.853	290
	820	MVA6.3VC821MH10TP	8 x 10	H10	0.707	320
	1,000	MVA6.3VC102MJ10TP	10 x 10	J10	0.58	430
	1,500	MVA6.3VC152MJ10TP	10 x 10	J10	0.387	480
	2,200	MVA6.3VC222MK14TP	12.5 x 13.5	K14	0.301	890
	3,300	MVA6.3VC332MK16TP	12.5 x 16	K16	0.211	1,000
	3,300	MVA6.3VD332ML17TR	16 x 16.5	L17	0.211	1,200
	4,700	MVA6.3VD472ML17TR	16 x 16.5	L17	0.155	1,400
	6,800	MVA6.3VD682ML22TR	16 x 21.5	L22	0.117	1,750
6,800	MVA6.3VD682MM17TR	18 x 16.5	M17	0.117	1,700	
10,000	MVA6.3VD103MM22TR	18 x 21.5	M22	0.093	2,000	
<b>10 Volts 13 Volts Surge</b>	22	MVA10VC22RMD55TP	4 x 5.2	D55	22.602	26
	33	MVA10VC33RMD55TP	4 x 5.2	D55	15.068	30
	47	MVA10VC47RME55TP	5 x 5.2	E55	10.58	44
	100	MVA10VC101MF55TP	6.3 x 5.2	F55	4.973	70
	150	MVA10VC151MF55TP	6.3 x 5.2	F55	3.315	79
	220	MVA10VC221MF80TP	6.3 x 7.7	F80	2.26	130
	330	MVA10VC331MH10TP	8 x 10	H10	1.507	270
	470	MVA10VC471MH10TP	8 x 10	H10	1.058	280
	1,000	MVA10VC102MJ10TP	10 x 10	J10	0.497	430
	2,200	MVA10VC222MK14TP	12.5 x 13.5	K14	0.271	960
	3,300	MVA10VD332ML17TR	16 x 16.5	L17	0.191	1,300

\*Refer to diagrams for detailed case size dimensions.

## Standard Voltage Ratings - Surface Mount

Rated Voltage (WVDC)	Capacitance (µF)	Catalog Part Number	Nominal Case Size* D × L (mm)	Case Code	Maximum ESR (Ω) at +20°C, 120Hz	Rated Ripple Current (mA rms) at +85°C, 120Hz
<b>10 Volts</b> 13 Volts Surge	4,700	MVA10VD472ML22TR	16 × 21.5	L22	0.141	1,550
	4,700	MVA10VD472MM17TR	18 × 16.5	M17	0.141	1,600
	6,800	MVA10VD682MM22TR	18 × 21.5	M22	0.107	1,850
<b>16 Volts</b> 20 Volts Surge	22	MVA16VC22RMD55TP	4 × 5.2	D55	19.589	26
	33	MVA16VC33RME55TP	5 × 5.2	E55	13.059	37
	47	MVA16VC47RME55TP	5 × 5.2	E55	9.169	44
	100	MVA16VC101MF55TP	6.3 × 5.2	F55	4.31	70
	150	MVA16VC151MF80TP	6.3 × 7.7	F80	2.873	110
	220	MVA16VC221MF80TP	6.3 × 7.7	F80	1.959	130
	330	MVA16VC331MH10TP	8 × 10	H10	1.306	270
	470	MVA16VC471MH10TP	8 × 10	H10	0.917	280
	680	MVA16VC681MJ10TP	10 × 10	J10	0.634	380
	1,000	MVA16VC102MK14TP	12.5 × 13.5	K14	0.497	710
	2,200	MVA16VD222ML17TR	16 × 16.5	L17	0.241	1,150
	3,300	MVA16VD332ML22TR	16 × 21.5	L22	0.171	1,450
3,300	MVA16VD332MM17TR	18 × 16.5	M17	0.171	1,450	
4,700	MVA16VD472MM22TR	18 × 21.5	M22	0.127	1,750	
<b>25 Volts</b> 32 Volts Surge	10	MVA25VC10RMD55TP	4 × 5.2	D55	26.52	24
	22	MVA25VC22RME55TP	5 × 5.2	E55	12.055	41
	33	MVA25VC33RME55TP	5 × 5.2	E55	8.036	47
	47	MVA25VC47RMF55TP	6.3 × 5.2	F55	5.643	60
	56	MVA25VC56RMF55TP	6.3 × 5.2	F55	4.736	66
	100	MVA25VC101MF80TP	6.3 × 7.7	F80	2.652	120
	150	MVA25VC151MH10TP	8 × 10	H10	1.768	210
	220	MVA25VC221MH10TP	8 × 10	H10	1.205	260
	330	MVA25VC331MH10TP	8 × 10	H10	0.804	300
	470	MVA25VC471MJ10TP	10 × 10	J10	0.564	400
	1,000	MVA25VC102MK14TP	12.5 × 13.5	K14	0.431	820
	2,200	MVA25VD222ML22TR	16 × 21.5	L22	0.211	1,450
2,200	MVA25VD222MM17TR	18 × 16.5	M17	0.211	1,400	
3,300	MVA25VD332MM22TR	18 × 21.5	M22	0.151	1,800	
<b>35 Volts</b> 44 Volts Surge	4.7	MVA35VC4R7MD55TP	4 × 5.2	D55	49.372	18
	10	MVA35VC10RMD55TP	4 × 5.2	D55	23.205	24
	22	MVA35VC22RME55TP	5 × 5.2	E55	10.548	41
	33	MVA35VC33RMF55TP	6.3 × 5.2	F55	7.032	54
	47	MVA35VC47RMF60TP	6.3 × 5.7	F60	4.937	64
	100	MVA35VC101MF80TP	6.3 × 7.7	F80	2.321	120
	150	MVA35VC151MH10TP	8 × 10	H10	1.547	210
	220	MVA35VC221MH10TP	8 × 10	H10	1.055	260
	330	MVA35VC331MJ10TP	10 × 10	J10	0.703	360
	470	MVA35VC471MK14TP	12.5 × 13.5	K14	0.776	600
	1,000	MVA35VD102ML17TR	16 × 16.5	L17	0.365	1,100
2,200	MVA35VD222MM22TR	18 × 21.5	M22	0.181	1,700	
<b>50 Volts</b> 63 Volts Surge	3.3	MVA50VC3R3MD55TP	4 × 5.2	D55	60.273	15
	4.7	MVA50VC4R7MD55TP	4 × 5.2	D55	42.319	18
	10	MVA50VC10RME55TP	5 × 5.2	E55	19.89	30
	22	MVA50VC22RMF55TP	6.3 × 5.2	F55	9.041	47
	33	MVA50VC33RMF80TP	6.3 × 7.7	F80	6.027	70
	47	MVA50VC47RMF80TP	6.3 × 7.7	F80	4.232	85
	100	MVA50VC101MH10TP	8 × 10	H10	1.989	190
	220	MVA50VC221MJ10TP	10 × 10	J10	0.904	320
	330	MVA50VC331MK14TP	12.5 × 13.5	K14	0.904	600
	470	MVA50VC471MK16TP	12.5 × 16	K16	0.635	740
	470	MVA50VD471ML17TR	16 × 16.5	L17	0.635	850
	1,000	MVA50VD102ML22TR	16 × 21.5	L22	0.298	1,300
1,000	MVA50VD102MM22TR	18 × 21.5	M22	0.298	1,400	

\*Refer to diagrams for detailed case size dimensions.

## Standard Voltage Ratings - Surface Mount

Rated Voltage (WVDC)	Capacitance (µF)	Catalog Part Number	Nominal Case Size* D × L (mm)	Case Code	Maximum ESR (Ω) at +20°C, 120Hz	Rated Ripple Current (mA rms) at +85°C, 120Hz
<b>63 Volts</b> 79 Volts Surge	0.10	MVA63VCR10MD55TP	4 × 5.2	D55	1,989.0	1.3
	0.22	MVA63VCR22MD55TP	4 × 5.2	D55	904.091	3
	0.33	MVA63VCR33MD55TP	4 × 5.2	D55	602.727	4
	0.47	MVA63VCR47MD55TP	4 × 5.2	D55	423.191	5
	1.0	MVA63VC1R0MD55TP	4 × 5.2	D55	198.9	8
	2.2	MVA63VC2R2MD55TP	4 × 5.2	D55	90.409	12
	3.3	MVA63VC3R3ME55TP	5 × 5.2	E55	60.273	17
	4.7	MVA63VC4R7ME55TP	5 × 5.2	E55	42.319	20
	10	MVA63VC10RMF55TP	6.3 × 5.2	F55	19.89	32
	22	MVA63VC22RMF80TP	6.3 × 7.7	F80	9.041	60
	33	MVA63VC33RMH10TP	8 × 10	H10	6.027	110
	47	MVA63VC47RMH10TP	8 × 10	H10	4.232	130
	56	MVA63VC56RMJ10TP	10 × 10	J10	3.552	160
	68	MVA63VC68RMJ10TP	10 × 10	J10	2.925	170
	100	MVA63VC101MK14TP	12.5 × 13.5	K14	2.321	380
	220	MVA63VC221MK14TP	12.5 × 13.5	K14	1.055	580
	330	MVA63VC331MK16TP	12.5 × 16	K16	0.703	720
330	MVA63VD331ML17TR	16 × 16.5	L17	0.703	820	
470	MVA63VD471ML17TR	16 × 16.5	L17	0.494	950	
470	MVA63VD471MM17TR	18 × 16.5	M17	0.494	1,000	
<b>100 Volts</b> 125 Volts Surge Not Solvent Proof	22	MVA100VC22RMH10TP	8 × 10	H10	9.041	90
	33	MVA100VC33RMJ10TP	10 × 10	J10	6.027	120
	68	MVA100VC68RMK14TP	12.5 × 13.5	K14	2.438	380
	100	MVA100VC101MK14TP	12.5 × 13.5	K14	1.658	440
	220	MVA100VD221ML22TR	16 × 21.5	L22	0.753	850
	220	MVA100VD221MM17TR	18 × 16.5	M17	0.753	800
	330	MVA100VD331MM22TR	18 × 21.5	M22	0.502	1,000
<b>160 Volts</b> 200 Volts Surge Not Solvent Proof	47	MVA160VC47RMK16TP	12.5 × 16	K16	7.053	370
	68	MVA160VD68RML17TR	16 × 16.5	L17	4.875	500
	100	MVA160VD101ML22TR	16 × 21.5	L22	3.315	590
	100	MVA160VD101MM17TR	18 × 16.5	M17	3.315	590
<b>200 Volts</b> 250 Volts Surge Not Solvent Proof	22	MVA200VC22RMK14TP	12.5 × 13.5	K14	15.068	240
	33	MVA200VC33RMK16TP	12.5 × 16	K16	10.045	310
	47	MVA200VD47RML17TR	16 × 16.5	L17	7.053	420
	68	MVA200VD68RML22TR	16 × 21.5	L22	4.875	510
	68	MVA200VD68RMM17TR	18 × 16.5	M17	4.875	510
	100	MVA200VD101MM22TR	18 × 21.5	M22	3.315	590
<b>250 Volts</b> 300 Volts Surge Not Solvent Proof	10	MVA250VC10RMK14TP	12.5 × 13.5	K14	33.15	150
	22	MVA250VC22RMK16TP	12.5 × 16	K16	15.068	240
	33	MVA250VD33RML17TR	16 × 16.5	L17	10.045	340
	47	MVA250VD47RML22TR	16 × 21.5	L22	7.053	420
	47	MVA250VD47RMM17TR	18 × 16.5	M17	7.053	420
	68	MVA250VD68RMM22TR	18 × 21.5	M22	4.875	490
<b>400 Volts</b> 450 Volts Surge Not Solvent Proof	4.7	MVA400VC4R7MK14TP	12.5 × 13.5	K14	88.165	120
	10	MVA400VD10RML17TR	16 × 16.5	L17	41.438	140
	22	MVA400VD22RML22TR	16 × 21.5	L22	18.835	280
	22	MVA400VD22RMM17TR	18 × 16.5	M17	18.835	280
	33	MVA400VD33RMM22TR	18 × 21.5	M22	12.557	350
<b>450 Volts</b> 500 Volts Surge Not Solvent Proof	4.7	MVA450VC4R7MK14TP	12.5 × 13.5	K14	88.165	120
	10	MVA450VD10RML17TR	16 × 16.5	L17	41.438	140
	22	MVA450VD22RML22TR	16 × 21.5	L22	18.835	280
	33	MVA450VD33RMM22TR	18 × 21.5	M22	12.557	350

\*Refer to diagrams for detailed case size dimensions.