

- Surface Mount
- High CV
- Vertical Chip
- Solvent Proof (6.3-63V)
- +105°C Maximum Temperature



The MVE series is a general purpose +105°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 MVK 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 MVE 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: 0.47 to 6,800 μ F.
- Voltage range: 6.3 to 450VDC.
- Category temperature range: -40°C to +105°C.
- Leakage current: See specifications table for leakage current values at +20°C.
- Standard capacitance tolerance: $\pm 20\%$
- Nominal case size (D \times L): 4 \times 5.2mm to 18 \times 21.5mm.
- Rated lifetime: 1,000 to 2,000 hours at +105°C depending on case size.

MVE Specifications

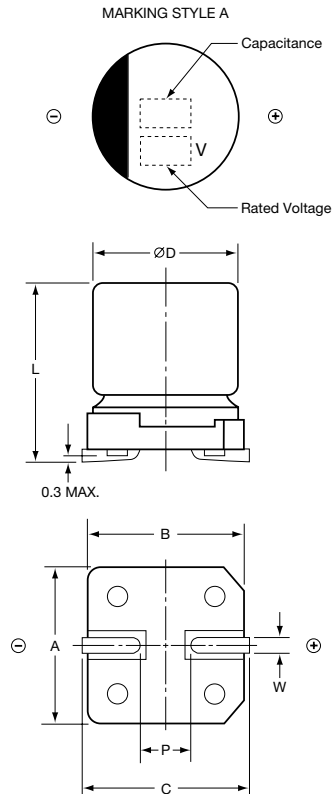
Item	Characteristics																																																										
Category Temperature Range	- 40 to +105°C																																																										
Rated Voltage Range	6.3 to 450VDC																																																										
Capacitance Range	0.47 to 6,800 μ F																																																										
Capacitance Tolerance	\pm 20% (M) at +20°C, 120Hz																																																										
Leakage Current	<table border="1"> <tr> <td>Case D55 - J10</td> <td>6.3 -100V</td> <td>I = 0.01CV or 3μA, 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 4μA, 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 +100μA after 1 minute at +20°C</td> </tr> </table> <p>Where I = Max. leakage current (μA), C = Nominal capacitance (μF) and V = Rated voltage (V)</p>	Case D55 - J10	6.3 -100V	I = 0.01CV or 3 μ A, whichever is greater, after 2 minutes at +20°C	Case K14 - M22	6.3 -100V	I = 0.03CV or 4 μ A, whichever is greater, after 1 minute at +20°C	Case K14 - M22	160 -450V	I = 0.04CV +100 μ A after 1 minute at +20°C																																																	
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Dissipation Factor (Tan δ)	Tan δ (DF) at +20°C, 120Hz shall not exceed the specified values given in the Ratings Tables.																																																										
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"> <thead> <tr> <th colspan="2">Rated Voltage (V)</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> </thead> <tbody> <tr> <td rowspan="2">Z(-25°C) / Z(+20°C)</td> <td>D55 - J10</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>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>12</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>10</td> <td>8</td> <td>6</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>6</td> <td>10</td> </tr> </tbody> </table>	Rated Voltage (V)		6.3	10	16	25	35	50	63	100	160-250	400-450	Z(-25°C) / Z(+20°C)	D55 - J10	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	12	8	6	4	3	3	3	4	-	-	K14 - M22	10	8	6	4	3	3	3	3	6	10
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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 the specified test time at +105°C.</p> <table border="1"> <tr> <td>Case Code</td> <td>D55 - F80</td> <td>H10 - M22</td> </tr> <tr> <td>Test Time</td> <td>1,000 Hours</td> <td>2,000 Hours</td> </tr> </table> <table border="0"> <tr> <td style="vertical-align: top;"> <p>Case Code D55 - F80</p> <hr/> Capacitance change: $\leq \pm 30\%$ of initial measured value Tan δ (DF): $\leq 300\%$ of initial specified value Leakage current: \leq initial specified value </td> <td style="vertical-align: top;"> <p>Case Code H10 - M22</p> <hr/> Capacitance change: $\leq \pm 20\%$ of initial measured value Tan δ (DF): $\leq 200\%$ of initial specified value Leakage current: \leq initial specified value </td> </tr> </table>	Case Code	D55 - F80	H10 - M22	Test Time	1,000 Hours	2,000 Hours	<p>Case Code D55 - F80</p> <hr/> Capacitance change: $\leq \pm 30\%$ of initial measured value Tan δ (DF): $\leq 300\%$ of initial specified value Leakage current: \leq initial specified value	<p>Case Code H10 - M22</p> <hr/> Capacitance change: $\leq \pm 20\%$ of initial measured value Tan δ (DF): $\leq 200\%$ of initial specified value Leakage current: \leq initial specified value																																																		
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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 the specified test time 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.</p> <table border="1"> <tr> <td>Case Code</td> <td>D55 - F80</td> <td>H10 - M22</td> </tr> <tr> <td>Test Time</td> <td>500 Hours</td> <td>1,000 Hours</td> </tr> </table> <table border="0"> <tr> <td style="vertical-align: top;"> <p>Case Code D55 - F80</p> <hr/> Capacitance change: $\leq \pm 25\%$ of initial measured value Tan δ (DF): $\leq 200\%$ of initial specified value Leakage current: \leq initial specified value </td> <td style="vertical-align: top;"> <p>Case Code H10 - M22</p> <hr/> Capacitance change: $\leq \pm 20\%$ of initial measured value Tan δ (DF): $\leq 200\%$ of initial specified value Leakage current: \leq initial specified value </td> </tr> </table>	Case Code	D55 - F80	H10 - M22	Test Time	500 Hours	1,000 Hours	<p>Case Code D55 - F80</p> <hr/> Capacitance change: $\leq \pm 25\%$ of initial measured value Tan δ (DF): $\leq 200\%$ of initial specified value Leakage current: \leq initial specified value	<p>Case Code H10 - M22</p> <hr/> Capacitance change: $\leq \pm 20\%$ of initial measured value Tan δ (DF): $\leq 200\%$ of initial specified value Leakage current: \leq initial specified value																																																		
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Diagram of Dimensions

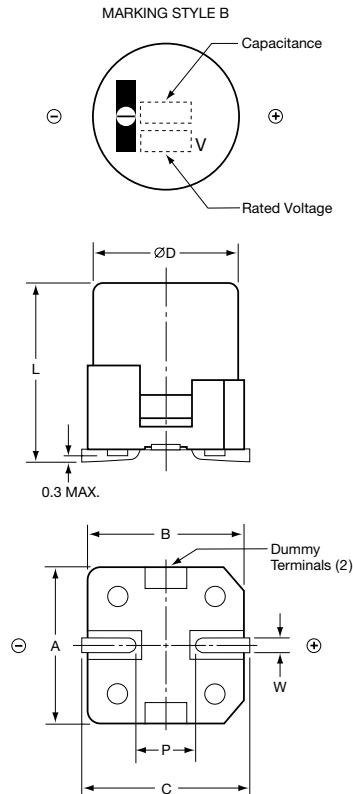
Vertical Chip SMD Lead Terminals

Unit: mm

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

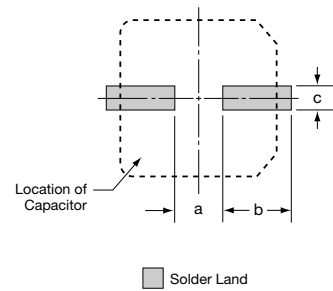


VD Type $\varnothing D = \varnothing 16 \& \varnothing 18$

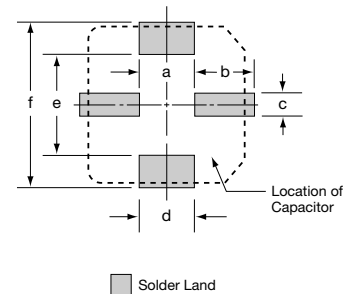


Recommended PCB Land Patterns

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



VD Type $\varnothing D = \varnothing 16 \& \varnothing 18$



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

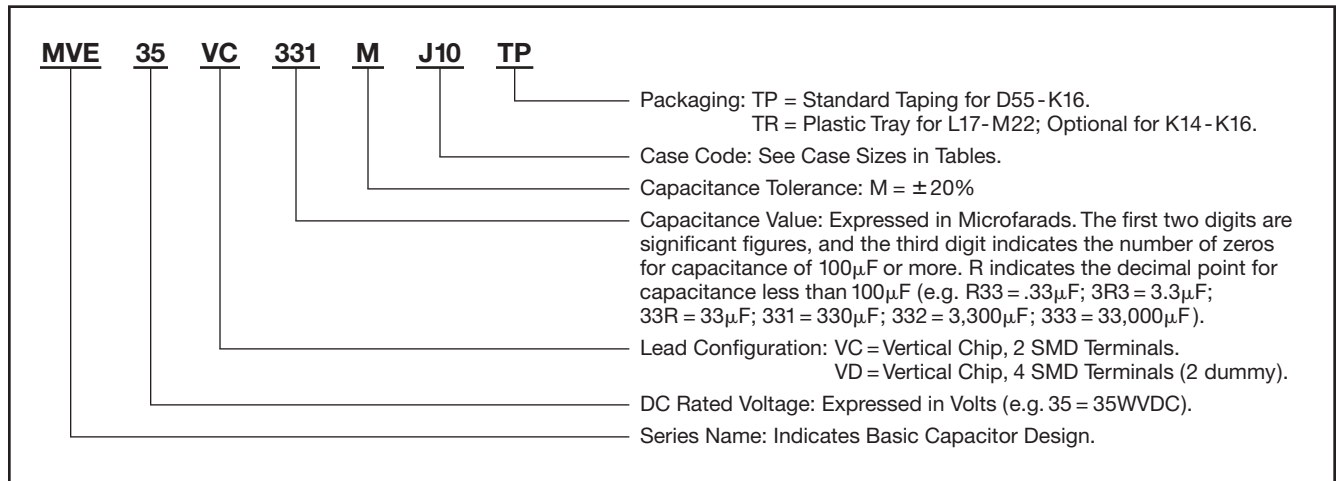
Refer to Packaging section for Surface Mount taping, reel and tray specifications and Surface Mount Soldering section for reflow soldering conditions.

Case and PCB Land Pattern Dimensions

Case Code	$\varnothing D \pm 0.5$	L	A ± 0.2	B ± 0.2	C ± 0.2	W	P	a	b	c	d	e	f
D55	$\varnothing 4$	5.2 ± 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 ± 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 ± 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 ± 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 ± 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 ± 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 ± 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 ± 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 ± 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 ± 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 ± 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 ± 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 ± 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 MVE Series

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



Standard Voltage Ratings - Surface Mount

Rated Voltage (WVDC)	Capacitance (μ F)	Catalog Part Number	Nominal Case Size* D x L (mm)	Case Code	Dissipation Factor (Tan δ) +20°C, 120Hz	Maximum ESR (Ω) at +20°C, 120Hz	Rated Ripple Current (mA rms) at +105°C, 120Hz
6.3 Volts 8 Volts Surge	22	MVE6.3VC22RMD55TP	4 x 5.2	D55	0.30	22.602	22
	33	MVE6.3VC33RME55TP	5 x 5.2	E55	0.30	15.068	34
	47	MVE6.3VC47RME55TP	5 x 5.2	E55	0.30	10.58	38
	100	MVE6.3VC101MF55TP	6.3 x 5.2	F55	0.30	4.973	69
	220	MVE6.3VC221MF80TP	6.3 x 7.7	F80	0.45	3.39	120
	330	MVE6.3VC331MH10TP	8 x 10	H10	0.40	2.009	290
	470	MVE6.3VC471MH10TP	8 x 10	H10	0.45	1.587	320
	680	MVE6.3VC681MH10TP	8 x 10	H10	0.45	1.097	340
	1,000	MVE6.3VC102MJ10TP	10 x 10	J10	0.40	0.663	410
	1,500	MVE6.3VC152MJ10TP	10 x 10	J10	0.45	0.497	550
	2,200	MVE6.3VC222MK14TP	12.5 x 13.5	K14	0.40	0.301	680
	2,200	MVE6.3VD222ML17TR	16 x 16.5	L17	0.40	0.301	840
	3,300	MVE6.3VC332MK16TP	12.5 x 16	K16	0.42	0.211	850
	3,300	MVE6.3VD332MM17TR	18 x 16.5	M17	0.42	0.211	1,000
	4,700	MVE6.3VD472ML22TR	16 x 21.5	L22	0.44	0.155	1,200
4,700	MVE6.3VD472MM17TR	18 x 16.5	M17	0.44	0.155	1,200	
6,800	MVE6.3VD682ML22TR	16 x 21.5	L22	0.48	0.117	1,200	
6,800	MVE6.3VD682MM22TR	18 x 21.5	M22	0.48	0.117	1,350	
10 Volts 13 Volts Surge	22	MVE10VC22RME55TP	5 x 5.2	E55	0.24	18.082	30
	33	MVE10VC33RME55TP	5 x 5.2	E55	0.24	12.055	34
	47	MVE10VC47RMF55TP	6.3 x 5.2	F55	0.24	8.464	48
	100	MVE10VC101MF55TP	6.3 x 5.2	F55	0.30	4.973	69
	150	MVE10VC151MF80TP	6.3 x 7.7	F80	0.35	3.868	100
	220	MVE10VC221MF80TP	6.3 x 7.7	F80	0.35	2.637	120
	330	MVE10VC331MH10TP	8 x 10	H10	0.35	1.758	290
	470	MVE10VC471MH10TP	8 x 10	H10	0.35	1.234	320
	1,000	MVE10VC102MJ10TP	10 x 10	J10	0.35	0.58	410
	2,200	MVE10VC222MK16TP	12.5 x 16	K16	0.36	0.271	750
	2,200	MVE10VD222ML17TR	16 x 16.5	L17	0.36	0.271	850
	3,300	MVE10VD332ML17TR	16 x 16.5	L17	0.38	0.191	1,000
	3,300	MVE10VD332MM17TR	18 x 16.5	M17	0.38	0.191	1,100
	4,700	MVE10VD472ML22TR	16 x 21.5	L22	0.40	0.141	1,300
	4,700	MVE10VD472MM22TR	18 x 21.5	M22	0.40	0.141	1,350
16 Volts 20 Volts Surge	10	MVE16VC10RMD55TP	4 x 5.2	D55	0.20	33.15	17
	22	MVE16VC22RME55TP	5 x 5.2	E55	0.20	15.068	30
	33	MVE16VC33RMF55TP	6.3 x 5.2	F55	0.20	10.045	45
	47	MVE16VC47RMF55TP	6.3 x 5.2	F55	0.20	7.053	48

* 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	Dissipation Factor (Tan δ) +20°C, 120Hz	Maximum ESR (Ω) at +20°C, 120Hz	Rated Ripple Current (mA rms) at +105°C, 120Hz
16 Volts 20 Volts Surge	100	MVE16VC101MF55TP	6.3 × 5.2	F55	0.26	4.31	69
	150	MVE16VC151MF80TP	6.3 × 7.7	F80	0.28	3.094	100
	220	MVE16VC221MF80TP	6.3 × 7.7	F80	0.28	2.11	120
	330	MVE16VC331MH10TP	8 × 10	H10	0.28	1.406	290
	470	MVE16VC471MH10TP	8 × 10	H10	0.28	0.987	320
	680	MVE16VC681MJ10TP	10 × 10	J10	0.28	0.683	470
	1,000	MVE16VC102MK14TP	12.5 × 13.5	K14	0.30	0.497	550
	1,000	MVE16VD102ML17TR	16 × 16.5	L17	0.30	0.497	650
	2,200	MVE16VD222ML17TR	16 × 16.5	L17	0.32	0.241	950
	2,200	MVE16VD222MM17TR	18 × 16.5	M17	0.32	0.241	1,000
	3,300	MVE16VD332ML22TR	16 × 21.5	L22	0.34	0.171	1,200
3,300	MVE16VD332MM17TR	18 × 16.5	M17	0.34	0.171	1,200	
25 Volts 32 Volts Surge	10	MVE25VC10RME55TP	5 × 5.2	E55	0.16	26.52	27
	22	MVE25VC22RMF55TP	6.3 × 5.2	F55	0.16	12.055	44
	33	MVE25VC33RMF55TP	6.3 × 5.2	F55	0.16	8.036	50
	47	MVE25VC47RMF55TP	6.3 × 5.2	F55	0.16	5.643	60
	100	MVE25VC101MF80TP	6.3 × 7.7	F80	0.18	2.984	100
	150	MVE25VC151MH10TP	8 × 10	H10	0.18	1.989	240
	220	MVE25VC221MH10TP	8 × 10	H10	0.18	1.356	320
	330	MVE25VC331MJ10TP	10 × 10	J10	0.16	0.804	450
	470	MVE25VC471MJ10TP	10 × 10	J10	0.18	0.635	490
	1,000	MVE25VD102ML17TR	16 × 16.5	L17	0.26	0.431	820
	1,000	MVE25VD102MM17TR	18 × 16.5	M17	0.26	0.431	880
	2,200	MVE25VD222ML22TR	16 × 21.5	L22	0.28	0.211	1,250
2,200	MVE25VD222MM22TR	18 × 21.5	M22	0.28	0.211	1,300	
35 Volts 44 Volts Surge	4.7	MVE35VC4R7MD55TP	4 × 5.2	D55	0.14	49.372	16
	10	MVE35VC10RME55TP	5 × 5.2	E55	0.14	23.205	27
	22	MVE35VC22RMF55TP	6.3 × 5.2	F55	0.14	10.548	44
	33	MVE35VC33RMF60TP	6.3 × 5.7	F60	0.14	7.032	54
	47	MVE35VC47RMF80TP	6.3 × 7.7	F80	0.16	5.643	80
	100	MVE35VC101MF80TP	6.3 × 7.7	F80	0.16	2.652	100
	150	MVE35VC151MH10TP	8 × 10	H10	0.16	1.768	260
	220	MVE35VC221MJ10TP	10 × 10	J10	0.16	1.205	375
	330	MVE35VC331MJ10TP	10 × 10	J10	0.16	0.804	450
	470	MVE35VC471MK14TP	12.5 × 13.5	K14	0.22	0.776	520
	470	MVE35VD471ML17TR	16 × 16.5	L17	0.22	0.776	650
	1,000	MVE35VD102ML17TR	16 × 16.5	L17	0.22	0.365	750
	1,000	MVE35VD102MM17TR	18 × 16.5	M17	0.22	0.365	1,000
	2,200	MVE35VD222MM22TR	18 × 21.5	M22	0.24	0.181	1,450
50 Volts 63 Volts Surge	0.47	MVE50VCR47MD55TP	4 × 5.2	D55	0.12	423.191	5
	1.0	MVE50VC1R0MD55TP	4 × 5.2	D55	0.12	198.9	8
	2.2	MVE50VC2R2MD55TP	4 × 5.2	D55	0.12	90.409	12
	3.3	MVE50VC3R3MD55TP	4 × 5.2	D55	0.12	60.273	15
	4.7	MVE50VC4R7ME55TP	5 × 5.2	E55	0.12	42.319	20
	10	MVE50VC10RMF55TP	6.3 × 5.2	F55	0.12	19.89	32
	22	MVE50VC22RMF60TP	6.3 × 5.7	F60	0.12	9.041	47
	33	MVE50VC33RMF80TP	6.3 × 7.7	F80	0.14	7.032	65
	47	MVE50VC47RMF80TP	6.3 × 7.7	F80	0.14	4.937	80
	100	MVE50VC101MH10TP	8 × 10	H10	0.14	2.321	230
	220	MVE50VC221MJ10TP	10 × 10	J10	0.14	1.055	375
	330	MVE50VC331MK14TP	12.5 × 13.5	K14	0.18	0.904	500
	330	MVE50VD331ML17TR	16 × 16.5	L17	0.18	0.904	600
	470	MVE50VD471ML17TR	16 × 16.5	L17	0.18	0.635	700
	470	MVE50VD471MM17TR	18 × 16.5	M17	0.18	0.635	750
	1,000	MVE50VD102MM22TR	18 × 21.5	M22	0.18	0.298	1,200

*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	Dissipation Factor (Tan δ) +20°C, 120Hz	Maximum ESR (Ω) at +20°C, 120Hz	Rated Ripple Current (mA rms) at +105°C, 120Hz
63 Volts 79 Volts Surge	0.47	MVE63VCR47MD55TP	4 × 5.2	D55	0.12	423.191	5
	1.0	MVE63VC1R0MD55TP	4 × 5.2	D55	0.12	198.9	8
	2.2	MVE63VC2R2MD55TP	4 × 5.2	D55	0.12	90.409	12
	3.3	MVE63VC3R3ME55TP	5 × 5.2	E55	0.12	60.273	17
	4.7	MVE63VC4R7MF55TP	6.3 × 5.2	F55	0.12	42.319	22
	10	MVE63VC10RMF55TP	6.3 × 5.2	F55	0.12	19.89	32
	22	MVE63VC22RMF80TP	6.3 × 7.7	F80	0.12	9.041	58
	33	MVE63VC33RMH10TP	8 × 10	H10	0.12	6.027	140
	47	MVE63VC47RMH10TP	8 × 10	H10	0.12	4.232	170
	100	MVE63VC101MJ10TP	10 × 10	J10	0.12	1.989	310
	220	MVE63VC221MK14TP	12.5 × 13.5	K14	0.14	1.055	470
	220	MVE63VD221ML17TR	16 × 16.5	L17	0.14	1.055	560
	330	MVE63VD331ML17TR	16 × 16.5	L17	0.14	0.703	700
	330	MVE63VD331MM17TR	18 × 16.5	M17	0.14	0.703	750
470	MVE63VD471ML22TR	16 × 21.5	L22	0.14	0.494	900	
470	MVE63VD471MM17TR	18 × 16.5	M17	0.14	0.494	900	
100 Volts 125 Volts Surge Not Solvent Proof	22	MVE100VC22RMH10TP	8 × 10	H10	0.12	9.041	100
	33	MVE100VC33RMJ10TP	10 × 10	J10	0.12	6.027	150
	47	MVE100VC47RMK14TP	12.5 × 13.5	K14	0.10	3.527	250
	68	MVE100VC68RMK14TP	12.5 × 13.5	K14	0.10	2.438	300
	100	MVE100VC101MK14TP	12.5 × 13.5	K14	0.10	1.658	380
	100	MVE100VD101ML17TR	16 × 16.5	L17	0.10	1.658	450
	220	MVE100VD221ML22TR	16 × 21.5	L22	0.10	0.753	750
	220	MVE100VD221MM17TR	18 × 16.5	M17	0.10	0.753	750
330	MVE100VD331MM22TR	18 × 21.5	M22	0.10	0.502	980	
160 Volts 200 Volts Surge Not Solvent Proof	33	MVE160VC33RMK14TP	12.5 × 13.5	K14	0.15	7.534	95
	47	MVE160VD47RML17TR	16 × 16.5	L17	0.15	5.29	260
	68	MVE160VD68RML22TR	16 × 21.5	L22	0.15	3.656	320
	68	MVE160VD68RMM17TR	18 × 16.5	M17	0.15	3.656	320
	100	MVE160VD101ML22TR	16 × 21.5	L22	0.15	2.486	380
200 Volts 250 Volts Surge Not Solvent Proof	10	MVE200VC10RMK14TP	12.5 × 13.5	K14	0.15	24.863	80
	22	MVE200VC22RMK16TP	12.5 × 16	K16	0.15	11.301	110
	33	MVE200VD33RML17TR	16 × 16.5	L17	0.15	7.534	220
	47	MVE200VD47RML22TR	16 × 21.5	L22	0.15	5.29	270
	47	MVE200VD47RMM17TR	18 × 16.5	M17	0.15	5.29	270
	68	MVE200VD68RMM22TR	18 × 21.5	M22	0.15	3.656	330
250 Volts 300 Volts Surge Not Solvent Proof	4.7	MVE250VC4R7MK14TP	12.5 × 13.5	K14	0.15	52.899	65
	10	MVE250VC10RMK16TP	12.5 × 16	K16	0.15	24.863	105
	22	MVE250VD22RML17TR	16 × 16.5	L17	0.15	11.301	180
	33	MVE250VD33RML22TR	16 × 21.5	L22	0.15	7.534	230
	33	MVE250VD33RMM17TR	18 × 16.5	M17	0.15	7.534	230
	47	MVE250VD47RMM22TR	18 × 21.5	M22	0.15	5.29	280
400 Volts 450 Volts Surge Not Solvent Proof	4.7	MVE400VC4R7MK16TP	12.5 × 16	K16	0.20	70.532	50
	10	MVE400VD10RML17TR	16 × 16.5	L17	0.20	33.15	85
	22	MVE400VD22RMM22TR	18 × 21.5	M22	0.20	15.068	130
450 Volts 500 Volts Surge Not Solvent Proof	3.3	MVE450VC3R3MK14TP	12.5 × 13.5	K14	0.20	100.455	40
	4.7	MVE450VC4R7MK16TP	12.5 × 16	K16	0.20	70.532	50
	10	MVE450VD10RML17TR	16 × 16.5	L17	0.20	33.15	85
	22	MVE450VD22RMM22TR	18 × 21.5	M22	0.20	15.068	130

*Refer to diagrams for detailed case size dimensions.