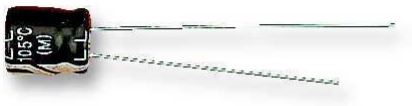
MR Series

Radial Electrolytic Capacitors



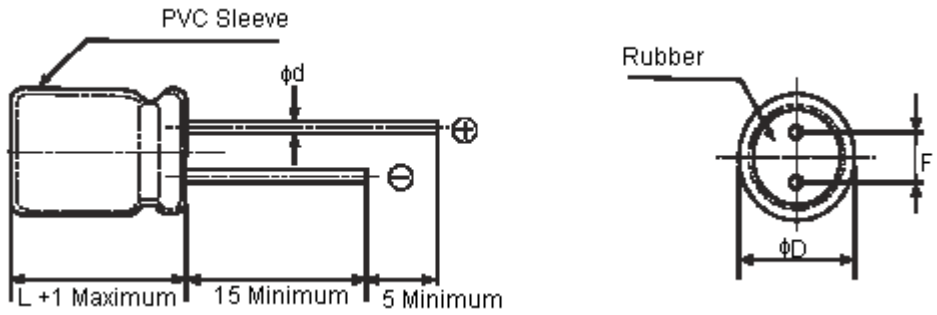
Features:

- Ultra miniature radial electrolytic capacitors.
- Developed short body length to 7mm, for the demand of smaller and thinner electronic equipment.
- Most suitable for high-density electronic equipment, such as: automatic office machines, pocket calculators, car stereos and mini-audio sets, VCR, camera, CD-ROM, notebook , etc.

Specifications

<table>
<tr><th>Item</th><th>Performance</th></tr>
<tr><td>Operating temperature range</td><td>-40°C to +85°C</td></tr>
<tr><td>Rated working voltage range</td><td>6.3 - 63V dc</td></tr>
<tr><td>Nominal capacitance range</td><td>0.1 - 470µF</td></tr>
<tr><td>Capacitance tolerance</td><td>±20% (at +20°C, 120Hz)</td></tr>
<tr><td>Leakage current</td><td>I = 0.01CV or 3µA after two minutes</td></tr>
<tr><td>Dissipation factor (tan δ)
(120Hz\+20°C)</td><td>
<table>
<tr><td>Working Voltage (V)</td><td>6.3</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td><td>63</td></tr>
<tr><td>Tan δ Maximum</td><td>0.24</td><td>0.20</td><td>0.16</td><td>0.14</td><td>0.12</td><td>0.10</td><td>0.08</td></tr>
</table>
</td></tr>
<tr><td>Characteristics at low temperature
(stability at 120Hz)</td><td>
<table>
<tr><td>Working Voltage (V)</td><td>6.3</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td><td>63</td></tr>
<tr><td>-25°C/+20°C</td><td>4</td><td>3</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td></tr>
<tr><td>-40°C/+20°C</td><td>8</td><td>6</td><td>4</td><td>4</td><td>3</td><td>3</td><td>3</td></tr>
</table>
</td></tr>
<tr><td>High temperature loading</td><td>After 1000 hours application of DC rated working voltage at +85°C, The capacitor shall meet the following limits:
Post test requirements at +20°C.
<table>
<tr><td>Leakage Current</td><td>≤ the initial specified value</td></tr>
<tr><td>Capacitance Change</td><td>≤ ±20% of initial measured value</td></tr>
<tr><td>Dissipation Factor (tan δ)</td><td>≤ 200% of initial specified value</td></tr>
</table>
</td></tr>
<tr><td>Shelf life</td><td>After storage for 500 hours at +85°C with no voltage applied.
Post test requirements at +20°C. Same limits as high temperature loading.</td></tr>
<tr><td>Solvent proof</td><td>This capacitor can withstand circuit-board cleaning within 5 minutes dipped in Freon TE, TES, at 40°C (ultrasonic also permitted) or in the steam of these cleaners.</td></tr>
</table>

Diagram of Dimensions



Dϕ (+0.5 maximum)	3	4	5	6.3	8
F (±0.5)	1.0	1.5	2	2.5	3.5
dϕ (±0.02)	0.4	0.45	0.45	0.45	0.5

Dimensions : Millimetres

Case Size Table: MR series

ϕD x L

W.V (S.V) / μF	6.3 (8)	10 (13)	16 (20)	25 (32)	35 (44)	50 (63)	63 (79)
0.1	-	-	-	-	-	-	-
0.22	-	-	-	-	-	-	-
0.33	-	-	-	-	-	-	-
0.47	-	-	-	-	-	-	-
1.0	-	-	-	-	-	-	4 x 7
2.2	-	-	-	-	-	-	4 x 7
3.3	-	-	-	-	-	-	-
4.7	-	-	-	-	-	-	-
10	-	-	-	4 x 7	4 x 7	-	-
22	-	-	4 x 7	-	-	-	-
33	-	-	-	-	-	-	-
47	4 x 7	4 x 7	5 x 7	6.3 x 7	6.3 x 7	-	5 x7
100	6.3 x 7	5 x 7	6.3 x 7	-	-	-	-
220	8 x 7	6.3 x 7	-	-	-	-	-
330	-	-	-	-	-	-	-
470	-	-	-	-	-	-	-

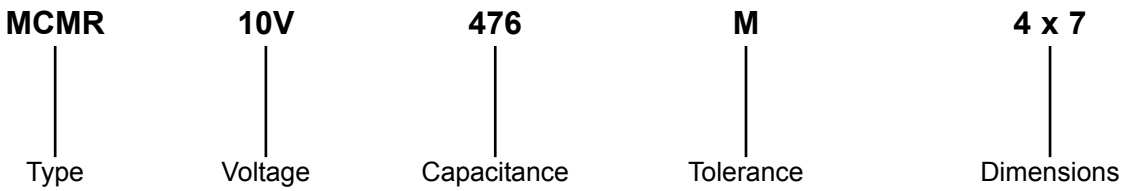
Dimensions : Millimetres

Specification Table

Working Voltage (V)	Capacitance (µF)	Ripple Current (A)	Lead Diameter	Lead Pitch	Part Number
6.3	47	50	0.45	2	MCMR6V3476M5X7
	100	77		2.5	MCMR6V3107M6.3X7
	220	130	0.5	3.5	MCMR6V3227M8X7
10	33	43	0.45	1.5	MCMR10V476M4X7
	100	87		2	MCMR10V107M5X7
	220	145		2.5	MCMR10V227M6.3X7
16	22	180		1.5	MCMR16V226M4X7
	47	65		2	MCMR16V476M5X7
	100	98		2.5	MCMR16V107M6.3X7
25	10	28		1.5	MCMR25V106M4X7
	47	71		2.5	MCMR25V476M6.3X7
35	10	31		1.5	MCMR35V106M4X7
	47	73		2.5	MCMR35V476M6.3X7
63	1	13	1.45	1.5	MCMR63V105M4X7
	4.7	32.4	0.45	2	MCMR63V475M5X7

Dimensions : Millimetres

Part Number Explanation



Voltage : 6.3, 10, 16, 25, 35 and 63V.

Capacitance : 1, 4.7, 10, 22, 33, 47, 100, and 220µF.
Capacitance code (µF): First two digits are the base value and last digit represents the conversion factor. Last digit 5 represents decimal in base value. Ex: in code 335, Capacitance is 3.3, similarly for 475 capacitance is 4.7 Last digit 6 represents no change in base value, Ex: in code 336, Capacitance value is 33. Similarly for code 476, capacitance value is 47.Last digit 7 represents one zero is added to the base value, ex in code 107, Capacitance value is 100, similarly for 337 capacitance value is 330.

Tolerance : M = ±20%.

Dimensions : Diameter x Length = 4 x 7, 5 x 7, 6.3 x 7 and 8 x 7.

Notes:

International Sales Offices:



AUSTRALIA – Farnell InOne
Tel No: ++ 61 2 9645 8888
Fax No: ++ 61 2 9644 7898



FINLAND – Farnell InOne
Tel No: ++ 358 9 560 7780
Fax No: ++ 358 9 345 5411



NETHERLANDS – Farnell InOne
Tel No: ++ 31 30 241 7373
Fax No: ++ 31 30 241 7333



SWITZERLAND – Farnell InOne
Tel No: ++ 41 1 204 64 64
Fax No: ++ 41 1 204 64 54



AUSTRIA – Farnell InOne
Tel No: ++ 43 662 2180 680
Fax No: ++ 43 662 2180 670



FRANCE – Farnell InOne
Tel No: ++ 33 474 68 99 99
Fax No: ++ 33 474 68 99 90



NEW ZEALAND – Farnell InOne
Tel No: ++ 64 9 357 0646
Fax No: ++ 64 9 357 0656



UK – Farnell InOne
Tel No: ++ 44 8701 200 200
Fax No: ++ 44 8701 200 201



BELGIUM – Farnell InOne
Tel No: ++ 32 3 475 2810
Fax No: ++ 32 3 227 3648



GERMANY – Farnell InOne
Tel No: ++ 49 89 61 39 39 39
Fax No: ++ 49 89 613 59 01



NORWAY – Farnell InOne
Tel No: ++ 45 44 53 66 66
Fax No: ++ 45 44 53 66 02



UK – BuckHickman InOne
++ 44 8450 510 150
++ 44 8450 510 130



BRAZIL – Farnell-Newark InOne
Tel No: ++ 55 11 4066 9400
Fax No: ++ 55 11 4066 9410



HONG KONG – Farnell-Newark InOne
Tel No: ++ 852 2268 9888
Fax No: ++ 852 2268 9899



PORTUGAL – Farnell InOne
Tel No: ++ 34 93 475 8804
Fax No: ++ 34 93 474 5288



UK – CPC
++ 44 8701 202 530
++ 44 8701 202 531



CHINA – Farnell-Newark InOne
Tel No: ++86 10 6238 5152
Fax No: ++86 10 6238 5022



IRELAND – Farnell InOne
Tel No: ++ 353 1 830 9277
Fax No: ++ 353 1 830 9016



SINGAPORE – Farnell-Newark InOne
Tel No: ++ 65 6788 0200
Fax No: ++ 65 6788 0300



EXPORT – Farnell InOne
Tel No: ++ 44 8701 200 208
Fax No: ++ 44 8701 200 209
For enquiries from all other markets



DENMARK – Farnell InOne
Tel No: ++ 45 44 53 66 44
Fax No: ++ 45 44 53 66 06



ITALY – Farnell InOne
Tel No: ++ 39 02 93 995 200
Fax No: ++ 39 02 93 995 300



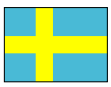
SPAIN – Farnell InOne
Tel No: ++ 34 93 475 8805
Fax No: ++ 34 93 474 5107



ESTONIA – Farnell InOne
Tel No: ++ 358 9 560 7780
Fax No: ++ 358 9 345 5411



MALAYSIA – Farnell-Newark InOne
Tel No: ++ 60 3 7873 8000
Fax No: ++ 60 3 7873 7000



SWEDEN – Farnell InOne
Tel No: ++ 46 8 730 50 00
Fax No: ++ 46 8 83 52 62

http://www.farnellinone.com
http://www.buckhickmaninone.com
http://www.cpc.co.uk

Disclaimer This data sheet and its contents (the "Information") belong to the Premier Farnell Group (the "Group") or are licensed to it. No licence is granted for the use of it other than for information purposes in connection with the products to which it relates. No licence of any intellectual property rights is granted. The Information is subject to change without notice and replaces all data sheets previously supplied. The Information supplied is believed to be accurate but the Group assumes no responsibility for its accuracy or completeness, any error in or omission from it or for any use made of it. Users of this data sheet should check for themselves the Information and the suitability of the products for their purpose and not make any assumptions based on information included or omitted. Liability for loss or damage resulting from any reliance on the Information or use of it (including liability resulting from negligence or where the Group was aware of the possibility of such loss or damage arising) is excluded. This will not operate to limit or restrict the Group's liability for death or personal injury resulting from its negligence. Multicomp is the registered trademark of the Group. © Premier Farnell plc 2004.