

# General Purpose Aluminium Electrolytic Capacitors 85°C



## Features:

- Wide CV value range for general purpose
- Safely vent construction products, GPR series are guaranteed 2,000 hours at 85°C

## Specifications:

No.	Item	Performance																																																										
1	Operating Temperature Range	-40°C to +85°C	-25°C to +85°C																																																									
2	Rated Working Voltage Range	6.3 - 100V DC	160 - 450V DC																																																									
3	Nominal Capacitance Range	0.1 - 2,200µF	0.47- 820µF																																																									
4	Capacitance Tolerance	± 20% (at +20°C ,120Hz)																																																										
5	Leakage Current	I=0.01CV or 3(µA) max.	≤;0.03CV or 30(µ A) max																																																									
		Whichever is greater after 3 minutes	I: Leakage Current (µ A) C: Rated Capacitance (µ F) V: Working Voltage (V)																																																									
6	Dissipation Factor (tan δ) (120Hz\+20°C)	<table border="1"> <thead> <tr> <th>Working Voltage</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</th> <th>200</th> <th>250</th> <th>350</th> <th>400</th> <th>450</th> </tr> </thead> <tbody> <tr> <td>tan δ max.</td> <td>0.22</td> <td>0.2</td> <td>0.17</td> <td>0.15</td> <td>0.12</td> <td>0.1</td> <td>0.09</td> <td>0.08</td> <td>0.2</td> <td>0.2</td> <td>0.18</td> <td>0.20</td> <td>0.20</td> <td>0.20</td> </tr> </tbody> </table>														Working Voltage	6.3	10	16	25	35	50	63	100	160	200	250	350	400	450	tan δ max.	0.22	0.2	0.17	0.15	0.12	0.1	0.09	0.08	0.2	0.2	0.18	0.20	0.20	0.20															
		Working Voltage	6.3	10	16	25	35	50	63	100	160	200	250	350	400	450																																												
tan δ max.	0.22	0.2	0.17	0.15	0.12	0.1	0.09	0.08	0.2	0.2	0.18	0.20	0.20	0.20																																														
		Add 0.02 per 1,000 µF for more than 1,000µF																																																										
7	Ripple Current	Refer to standard products table (120Hz, +85°C) Correction factor for frequency																																																										
		<table border="1"> <thead> <tr> <th>Frequency (Hz)</th> <th>50/60</th> <th>120</th> <th>1K</th> <th>10K</th> </tr> </thead> <tbody> <tr> <td>Correction factor(Multiplier)</td> <td>0.7</td> <td>1</td> <td>1.3</td> <td>1.7</td> </tr> </tbody> </table>														Frequency (Hz)	50/60	120	1K	10K	Correction factor(Multiplier)	0.7	1	1.3	1.7																																			
Frequency (Hz)	50/60	120	1K	10K																																																								
Correction factor(Multiplier)	0.7	1	1.3	1.7																																																								
8	Characteristics at low temperature (stability at 120 Hz)	<table border="1"> <thead> <tr> <th>Working Voltage</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</th> <th>200</th> <th>250</th> <th>350</th> <th>400</th> <th>450</th> </tr> </thead> <tbody> <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> <td>2</td> <td>2</td> <td>3</td> <td>3</td> <td>5</td> <td>12</td> <td>15</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> <td>3</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> </tr> </tbody> </table>														Working Voltage	6.3	10	16	25	35	50	63	100	160	200	250	350	400	450	-25°C/+20°C	4	3	2	2	2	2	2	2	2	3	3	5	12	15	-40°C/+20°C	8	6	4	4	3	3	3	3	-	-	-	-	-	-
		Working Voltage	6.3	10	16	25	35	50	63	100	160	200	250	350	400	450																																												
		-25°C/+20°C	4	3	2	2	2	2	2	2	2	3	3	5	12	15																																												
-40°C/+20°C	8	6	4	4	3	3	3	3	-	-	-	-	-	-																																														
		For capacitance value >1,000 µF, Add 0.5 per another 1,000 µF for -25°C/+25°C. Add 1 per another 1,000µF for -40°C/+20°C																																																										
9	High Temperature Loading	After 2,000 hrs. application of DC rated working voltage at +85°C, The capacitor shall meet the following limits: Post test requirements at +20°C																																																										
		<table border="1"> <tbody> <tr> <td>Leakage current</td> <td colspan="14">≤ the initial specified value</td> </tr> <tr> <td>Capacitance change</td> <td colspan="14">≤ ±20% of initial measured value</td> </tr> <tr> <td>Dissipation Factor(tan δ)</td> <td colspan="14">≤ 150% of initial specified value</td> </tr> </tbody> </table>														Leakage current	≤ the initial specified value														Capacitance change	≤ ±20% of initial measured value														Dissipation Factor(tan δ)	≤ 150% of initial specified value													
		Leakage current	≤ the initial specified value																																																									
Capacitance change	≤ ±20% of initial measured value																																																											
Dissipation Factor(tan δ)	≤ 150% of initial specified value																																																											
10	Shelf Life	After storage for 500hrs. at +85°C with no voltage applied. Post test requirements at +20°C same limits as high temperature loading.																																																										



# General Purpose Aluminium Electrolytic Capacitors 85°C



Case Size Table

W.V.(SV)	6.3	10	16	25	35	50	63	100
μF	(8)	(13)	(20)	(32)	(44)	(63)	(79)	(125)
0.1	-	-	-	-	→	5 × 11	-	5 × 11
0.22	-	-	-	-	→	5 × 11	-	5 × 11
0.33	-	-	-	-	→	5 × 11	-	5 × 11
0.47	-	-	-	-	→	5 × 11	-	5 × 11
1	-	-	-	-	→	5 × 11	-	5 × 11
2.2	-	-	-	-	→	5 × 11	-	5 × 11
3.3	-	-	-	-	→	5 × 11	-	5 × 11
4.7	-	-	-	-	→	5 × 11	-	5 × 11
10	-	-	→	5 × 11	5 × 11	5 × 11	5 × 11	6.3 × 11
22	-	-	→	5 × 11	5 × 11	5 × 11	6.3 × 11	8 × 11
33	-	→	5 × 11	5 × 11	5 × 11	6.3 × 11	6.3 × 11	10 × 13
47	-	→	5 × 11	5 × 11	6.3 × 11	6.3 × 11	8 × 11	10 × 16
100	→	5 × 11	6.3 × 11	6.3 × 11	8 × 11	8 × 11	10 × 13	13 × 21
220	→	6.3 × 11	6.3 × 11	8 × 11	10 × 13	10 × 16	10 × 21	16 × 26
330	→	6.3 × 11	8 × 11	10 × 13	10 × 16	10 × 21	13 × 21	16 × 26
470	6.3 × 11	8 × 11	8 × 11	10 × 16	10 × 16	13 × 21	13 × 26	16 × 32
1,000	8 × 11	10 × 13	10 × 16	10 × 21	13 × 21	16 × 26	16 × 32	18 × 42
2,200	10 × 21	10 × 21	13 × 21	13 × 26	16 × 26	16 × 36	18 × 36	25 × 50
3,300	13 × 21	13 × 21	13 × 26	16 × 26	16 × 36	18 × 36	22 × 42	-
4,700	13 × 26	13 × 26	16 × 26	16 × 36	18 × 36	22 × 41	25 × 50	-
6,800	16 × 26	16 × 26	16 × 36	18 × 36	22 × 41	25 × 50	30 × 46	-
8,200	16 × 32	18 × 36	18 × 42	22 × 46	22 × 50	30 × 46	-	-
10,000	16 × 32	18 × 32	18 × 36	22 × 41	25 × 50	30 × 46	-	-
15,000	18 × 36	18 × 36	22 × 50	25 × 50	-	-	-	-
22,000	22 × 40	22 × 50	25 × 50	30 × 46	-	-	-	-

All blank voltage on sleeve marking is the same voltage as “→” point to.

Dimensions : Millimetres

# General Purpose Aluminium Electrolytic Capacitors 85°C



## GPR series General Purpose 85°C

Case Size Table

W.V. (SV)	160	200	250	350	400	450
μF	(200)	(250)	(300)	(400)	(450)	(500)
0.47	6.3 × 11	6.3 × 11	6.3 × 11	8 × 11	8 × 11	8 × 11
1	6.3 × 11	6.3 × 11	6.3 × 11	8 × 11	8 × 11	8 × 11
2.2	6.3 × 11	6.3 × 11	6.3 × 11	8 × 11	8 × 11	10 × 13
3.3	6.3 × 11	6.3 × 11	8 × 11	10 × 13	10 × 13	10 × 16
4.7	6.3 × 11	8 × 11	8 × 11	10 × 13	10 × 16	10 × 18
10	8 × 11	10 × 13	10 × 16	10 × 21	13 × 21	13 × 21
22	10 × 16	10 × 21	13 × 21	13 × 21	13 × 26	16 × 26
33	10 × 21	13 × 21	13 × 21	13 × 26	16 × 26	16 × 32
47	13 × 21	13 × 21	13 × 26	16 × 26	16 × 32	18 × 36
100	13 × 26	16 × 26	16 × 32	18 × 36	22 × 41	-
150	16 × 36	18 × 42	22 × 36	22 × 41	22 × 50	-
220	16 × 36	18 × 42	22 × 36	22 × 50	-	-
330	18 × 42	22 × 41	22 × 46	-	-	-
470	22 × 41	22 × 46	25 × 46	-	-	-
560	22 × 46	22 × 50	25 × 50	-	-	-
680	22 × 50	25 × 50	-	-	-	-
820	25 × 50	-	-	-	-	-

## Permissible Ripple Current

Max. ripple current: mA (rms) (at 85°C, 120HZ)

W.V. (SV)	6.3	10	16	25	35	50	63	100	160	200	250	350	400	450
μF	(8)	(13)	(20)	(32)	(44)	(63)	(79)	(125)	(200)	(250)	(300)	(400)	(450)	(500)
0.1-0.47	-	-	-	-	-	8	-	10	10	10	10	11	12	12
1	-	-	-	-	-	13	-	16	16	16	18	18	18	19
2.2	-	-	-	-	-	21	-	27	28	29	31	28	28	29
3.3	-	-	-	-	-	30	-	40	35	36	40	35	35	35
4.7	-	-	-	30	35	40	40	45	41	45	49	40	45	50
10	-	-	45	45	50	60	65	75	70	72	81	70	70	75
22	-	60	60	70	80	90	110	130	120	126	144	110	110	110
33	65	75	85	95	105	120	140	170	170	160	171	140	140	150
47	80	90	100	120	135	150	180	230	220	193	210	170	190	220
100	130	140	170	180	220	250	280	380	350	330	320	420	520	-
150	170	220	240	310	350	400	450	550	660	720	730	740	750	-
220	220	240	280	320	380	430	490	680	690	700	810	820	-	-



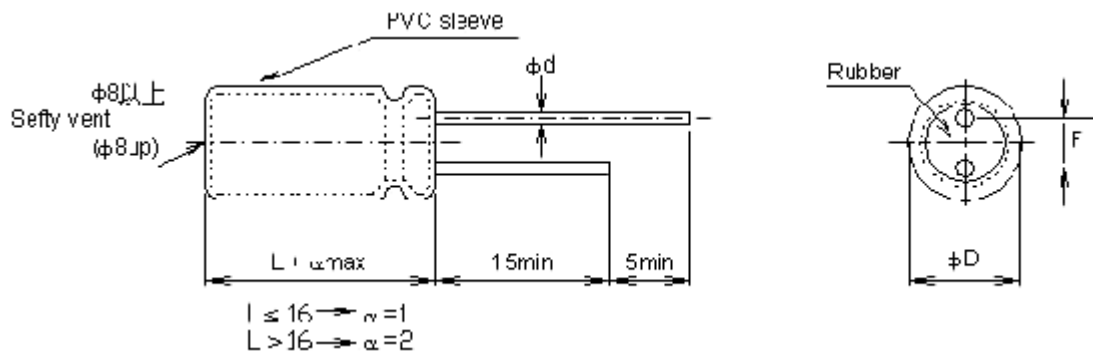
# General Purpose Aluminium Electrolytic Capacitors 85°C



## Permissible Ripple Current

W.V. (SV)	6.3	10	16	25	35	50	63	100	160	200	250	350	400	450
μF	(8)	(13)	(20)	(32)	(44)	(63)	(79)	(125)	(200)	(250)	(300)	(400)	(450)	(500)
330	260	320	360	420	480	540	680	800	800	970	1,110	-	-	-
470	380	400	460	540	620	750	880	1,000	1,080	1,220	1,430	-	-	-
560	440	500	580	670	770	880	1,050	1,170	1,240	1,400	1,630	-	-	-
680	500	570	660	760	870	1,000	1,160	1,330	1,430	1,650	-	-	-	-
820	560	640	740	850	970	1,130	1,300	1,500	1,690	-	-	-	-	-
1,000	580	660	760	900	1,040	1,260	1,400	1,970	-	-	-	-	-	-
2,200	1,000	1,050	1,250	1,460	1,700	1,900	2,460	3,390	-	-	-	-	-	-
3,300	1,200	1,340	1,620	1,800	2,060	2,180	3,270	-	-	-	-	-	-	-
4,700	1,650	1,720	1,960	2,150	2,280	3,380	3,800	-	-	-	-	-	-	-
6,800	1,750	2,060	2,250	2,400	3,490	4,110	4,500	-	-	-	-	-	-	-
8,200	2,150	2,520	2,870	3,420	3,780	4,150	-	-	-	-	-	-	-	-
10,000	2,260	2,640	2,980	3,710	4,170	4,300	-	-	-	-	-	-	-	-
15,000	2,760	3,120	3,890	4,270	-	-	-	-	-	-	-	-	-	-
22,000	3,000	4,010	4,410	4,500	-	-	-	-	-	-	-	-	-	-

## Diagram of Dimensions



DØ (+0.5Max.)	5	6.3	8	10	13	16	18	22	25
F (±0.5)	2	2.5	3.5	5	5	7.5	7.5	10	12
dØ (±0.02)	0.5	0.5	0.6	0.6	0.6	0.8	0.8	0.8	0.8

Dimensions : Millimetres

# General Purpose Aluminium Electrolytic Capacitors 85°C



## Part Number Table

Description	Part Number
Capacitor, 2,200µF, 25V	MCGPR25V228M13X26
Capacitor, 10µF, 16V, CAN	MCGPR16V106M5X11
Capacitor, 47µF, 16V	MCGPR16V476M5X11
Capacitor, 100µF, 16V, CAN	MCGPR16V107M6.3X11
Capacitor, 220µF, 16V, CAN	MCGPR16V227M6.3X11
Capacitor, 10µF, 25V, CAN	MCGPR25V106M5X11
Capacitor, 47µF, 25V, CAN	MCGPR25V476M5X11
Capacitor, 100µF, 25V, CAN	MCGPR25V107M6.3X11
Capacitor, 220µF, 25V, CAN	MCGPR25V227M8X11
Capacitor, 470µF, 25V, CAN	MCGPR25V477M10X16
Capacitor, 1,000µF, 25V, CAN	MCGPR25V108M10X21
Capacitor, 10µF, 35V	MCGPR35V106M5X11
Capacitor, 100µF, 35V, CAN	MCGPR35V107M8X11
Capacitor, 10µF, 50V, CAN	MCGPR50V106M5X11
Capacitor, 47µF, 50V	MCGPR50V476M6.3X11
Capacitor, 10µF, 63V, CAN	MCGPR63V106M5X11
Capacitor, 100µF, 10V	MCGPR10V107M5X11
Capacitor, 220µF, 10V	MCGPR10V227M6.3X11
Capacitor, 470µF, 10V	MCGPR10V477M8X11
Capacitor, 1,000µF, 10V	MCGPR10V108M8X14
Capacitor, 2,200µF, 10V	MCGPR10V228M10X21
Capacitor, 4,700µF, 10V	MCGPR10V478M13X26
Capacitor, 33µF, 16V	MCGPR16V336M5X11
Capacitor, 3,300µF, 16V	MCGPR16V338M13X26
Capacitor, 33µF, 25V	MCGPR25V336M5X11
Capacitor, 330µF, 25V	MCGPR25V337M8X14
Capacitor, 3,300µF, 25V	MCGPR25V338M16X26
Capacitor, 4,700µF, 25V	MCGPR25V478M16X32
Capacitor, 3,300µF, 35V	MCGPR35V338M16X32
Capacitor, 4700µF, 35V	MCGPR35V478M18X36
Capacitor, 3.3µF, 50V	MCGPR50V335M5X11
Capacitor, 33µF, 50V	MCGPR50V336M6.3X11
Capacitor, 330µF, 50V	MCGPR50V337M10X21
Capacitor, 2,200µF, 50V	MCGPR50V228M16X32

Description	Part Number
Capacitor, 3,300µF, 50V	MCGPR50V338M18X33
Capacitor, 4,700µF, 50V	MCGPR50V478M22X41
Capacitor, 2,200µF, 63V	MCGPR63V228M18X36
Capacitor, 2.2µF, 100V	MCGPR100V225M5X11
Capacitor, 4.7µF, 100V	MCGPR100V475M5X11
Capacitor, 22µF, 16V	MCGPR16V226M5X11
Capacitor, 330µF, 16V	MCGPR16V337M8X11
Capacitor, 470µF, 16V	MCGPR16V477M8X11
Capacitor, 1,000µF, 16V	MCGPR16V108M10X16
Capacitor, 2,200µF, 16V	MCGPR16V228M13X21
Capacitor, 4,700µF, 16V	MCGPR16V478M16X26
Capacitor, 22µF, 25V	MCGPR25V226M5X11
Capacitor, 4.7µF, 35V	MCGPR35V475M5X11
Capacitor, 22µF, 35V	MCGPR35V226M5X11
Capacitor, 33µF, 35V	MCGPR35V336M5X11
Capacitor, 47µF, 35V	MCGPR35V476M6.3X11
Capacitor, 220µF, 35V	MCGPR35V227M10X13
Capacitor, 330µF, 35V	MCGPR35V337M10X16
Capacitor, 470µF, 35V	MCGPR35V477M10X21
Capacitor, 1,000µF, 35V	MCGPR35V108M13X21
Capacitor, 2,200µF, 35V	MCGPR35V228M16X32
Capacitor, 0.47µF, 50V	MCGPR50V474M5X11
Capacitor, 1µF, 50V	MCGPR50V105M5X11
Capacitor, 2.2µF, 50V	MCGPR50V225M5X11
Capacitor, 4.7µF, 50V	MCGPR50V475M5X11
Capacitor, 22µF, 50V	MCGPR50V226M5X11
Capacitor, 100µF, 50V	MCGPR50V107M8X11
Capacitor, 220µF, 50V	MCGPR50V227M10X16
Capacitor, 470µF, 50V	MCGPR50V477M13X21
Capacitor, 1,000µF, 50V	MCGPR50V108M16X26
Capacitor, 1µF, 63V	MCGPR63V105M5X11
Capacitor, 2.2µF, 63V	MCGPR63V225M5X11
Capacitor, 4.7µF, 63V	MCGPR63V475M5X11
Capacitor, 22µF, 63V	MCGPR63V226M6.3X11

# General Purpose Aluminium Electrolytic Capacitors 85°C



## Part Number Table

Description	Part Number
Capacitor, 100 $\mu$ F, 63V	MCGPR63V107M10X13
Capacitor, 220 $\mu$ F, 63V	MCGPR63V227M10X21
Capacitor, 1,000 $\mu$ F, 63V	MCGPR63V108M16X32
Capacitor, 1 $\mu$ F, 100V	MCGPR100V105M5X11
Capacitor, 10 $\mu$ F, 100V	MCGPR100V106M6.3X11
Capacitor, 22 $\mu$ F, 100V	MCGPR100V226M8X11
Capacitor, 47 $\mu$ F, 100V	MCGPR100V476M10X16
Capacitor, 100 $\mu$ F, 100V	MCGPR100V107M13X21
Capacitor, 220 $\mu$ F, 100V	MCGPR100V227M16X26
Capacitor, 470 $\mu$ F, 100V	MCGPR100V477M16X32
Capacitor, 4,700 $\mu$ F, 63V	MCGPR63V478M25X42
Capacitor, 47 $\mu$ F, 63V	MCGPR63V476M8X11
Capacitor, 470 $\mu$ F, 63V	MCGPR63V477M13X26

**Important Notice** : This data sheet and its contents (the "Information") belong to the members of the Premier Farnell group of companies (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 2012.