

Electrolytic Capacitors

MCLPR Series



Features:

- Material : Aluminium.
- Large size snap-In.
- MCLPR series large size capacitors with the specially designed terminals have “self-standing” and can be directly soldered to printed circuit boards without holders.
- They are easily to fixing to printed circuit boards due to the specially designed terminals.

Specifications:

Item	Performance						
Operating Temperature Range	-40°C to +85°C	-25°C to +85°C					
Rated Working Voltage Range	10 - 100V DC	160 - 450V DC					
Nominal Capacitance Range	470 - 68,000µF	47 - 2,700µF					
Capacitance Tolerance	±20% (at +20°C, 120Hz)						
Leakage Current	$I = 0.02CV$ or 3,000(µA) max. Whichever is greater after 3 minutes I : Leakage Current (µA) C : Rated Capacitance (µF) V : Working Voltage(v)						
Dissipation Factor (tan δ) (120Hz \ +20°C)	W.V. µF	10-16	25-35	50-63	80-100	160-250	315 - 400
	47 - 330					0.15	0.2
	470 - 3300	0.25	0.2	0.2	0.2	0.15	0.2
	4700 - 6800	0.35	0.3	0.3	0.25		
	10000 - 22000	0.4	0.35	0.3			
	27000 - 47000	0.45	0.4	0.35			
	56000 - 68000	0.5	0.45				
Less than the value under table							
Characteristics at low temperature (Stability at 120 Hz)	Impedance ratio at 100Hz $Z_{-25°C}/Z_{20°C}$: 3 max. $Z_{-40°C}/Z_{20°C}$: 12 max.						
Ripple Current	Refer to standard products table (120Hz, +85°C). Correction factor for frequency.						
	Ambient Temp.			Multiplying Factor			
	45°C & under			1.55			
	60°C			1.3			
	70°C			1.2			
85°C			1				



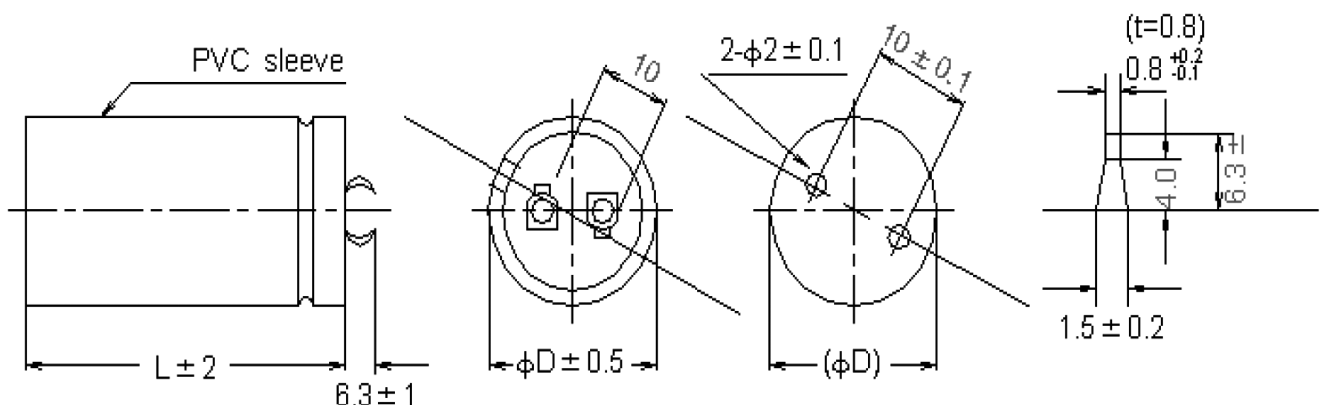
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Item	Performance																																		
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	<table border="1"> <thead> <tr> <th rowspan="2">Frequency</th> <th colspan="4">Multiplying Factor</th> </tr> <tr> <th>10 - 35V</th> <th>50 - 100V</th> <th>160 - 250V</th> <th>315 - 450V</th> </tr> </thead> <tbody> <tr> <td>60Hz</td> <td>0.9</td> <td>0.9</td> <td>0.8</td> <td>0.9</td> </tr> <tr> <td>120Hz</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>1kHz</td> <td>1.05</td> <td>1.15</td> <td>1.35</td> <td>1.3</td> </tr> <tr> <td>10kHz</td> <td>1.1</td> <td>1.2</td> <td>1.45</td> <td>1.4</td> </tr> <tr> <td>100kHz</td> <td>1.1</td> <td>1.2</td> <td>1.5</td> <td>1.45</td> </tr> </tbody> </table>	Frequency	Multiplying Factor				10 - 35V	50 - 100V	160 - 250V	315 - 450V	60Hz	0.9	0.9	0.8	0.9	120Hz	1	1	1	1	1kHz	1.05	1.15	1.35	1.3	10kHz	1.1	1.2	1.45	1.4	100kHz	1.1	1.2	1.5	1.45
	Frequency		Multiplying Factor																																
		10 - 35V	50 - 100V	160 - 250V	315 - 450V																														
	60Hz	0.9	0.9	0.8	0.9																														
	120Hz	1	1	1	1																														
	1kHz	1.05	1.15	1.35	1.3																														
10kHz	1.1	1.2	1.45	1.4																															
100kHz	1.1	1.2	1.5	1.45																															
High Temperature Loading	After 2,000hrs. 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>≤ the Initial specified value</td> </tr> <tr> <td>Capacitance change</td> <td>≤±20% of initial measured value</td> </tr> <tr> <td>Dissipation Factor (tanδ)</td> <td>≤200% of initial specified value</td> </tr> </tbody> </table>	Leakage current	≤ the Initial specified value	Capacitance change	≤±20% of initial measured value	Dissipation Factor (tanδ)	≤200% of initial specified value																												
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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.																																		

Diagram of Dimensions:



Dimensions : Millimetres

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Case Size Table and Permissible Ripple Current (Case Size : ØD × L (mm))

Maximum Ripple Current : A (rms)

W.V.	Cap.(µF)	Case Size	R.C.
10 (13)	8,200	20 × 30	2.4
	8,200	22 × 25	2.45
	10,000	20 × 30	2.7
	10,000	25 × 25	2.6
	12,000	20 × 30	2.8
	12,000	22 × 25	2.7
	15,000	22 × 30	3.15
	15,000	30 × 25	3
	22,000	22 × 40	3.8
	22,000	30 × 30	3.45
	33,000	25 × 40	5
	33,000	35 × 30	4.9
	47,000	25 × 50	6
	47,000	30 × 45	6.5
	68,000	30 × 50	6.65
	16 (20)	4,700	20 × 30
4,700		22 × 25	1.8
6,800		20 × 30	2.45
6,800		22 × 25	2.4
8,200		22 × 30	3
8,200		22 × 25	2.7
10,000		22 × 25	2.8
10,000		25 × 25	2.85
12,000		22 × 40	3.3
12,000		25 × 26	3.15
15,000		22 × 35	3.5
15,000		25 × 31	3.55
18,000		22 × 40	4.34
18,000		25 × 36	4.2
22,000		22 × 41	4
22,000		25 × 36	4
27,000		25 × 40	6.5
27,000		30 × 32	6
33,000		25 × 50	6.5
33,000		30 × 45	5.4
39,000	30 × 50	8.3	

W.V.	Cap.(µF)	Case Size	R.C.
16 (20)	39,000	35 × 36	7.5
	47,000	30 × 50	7.5
	47,000	35 × 45	7
	56,000	35 × 50	10.5
	56,000	35 × 46	9.5
	68,000	35 × 62	10.05
	25 (32)	3,300	20 × 30
3,300		22 × 25	2.1
4,700		20 × 30	2.5
4,700		22 × 25	2.2
5,600		22 × 31	2.6
6,800		22 × 30	2.85
6,800		25 × 26	2.7
8,200		22 × 35	3
8,200		25 × 26	3
10,000		30 × 25	3.1
10,000		25 × 31	3.15
12,000		22 × 50	3.8
12,000		25 × 40	3.75
15,000		22 × 50	3.8
15,000		30 × 35	3.5
18,000		25 × 41	4.5
18,000		30 × 41	4.5
22,000		30 × 45	4.8
22,000		35 × 30	5.2
27,000		30 × 41	5.8
27,000	35 × 36	6.5	
33,000	30 × 51	8.95	
39,000	35 × 51	9	
47,000	35 × 56	9.2	
35 (44)	2,200	22 × 25	2.18
	3,300	20 × 30	2.1
	3,300	22 × 25	2.05
	3,900	22 × 30	2.5
	4,700	22 × 30	2.45
	4,700	25 × 26	2.4



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Case Size Table and Permissible Ripple Current (Case Size : ØD × L (mm))

Maximum Ripple Current : A (rms)

W.V.	Cap.(µF)	Case Size	R.C.
35 (44)	6,800	22 × 40	3
	6,800	26 × 30	2.9
	8,200	22 × 41	3.45
	8,200	25 × 30	3.25
	10,000	22 × 46	3.5
	10,000	30 × 30	3.5
	12,000	25 × 41	3.85
	12,000	35 × 35	3.7
	15,000	25 × 50	4.5
	15,000	30 × 40	4.1
	18,000	30 × 46	4.8
	18,000	35 × 37	4.6
	22,000	30 × 50	5.7
	22,000	35 × 45	5
	27,000	35 × 50	5.8
50 (63)	33,000	35 × 51	6
	1,500	22 × 26	1.4
	2,200	22 × 25	1.9
	2,200	25 × 25	2
	2,700	22 × 31	2.3
	3,300	22 × 31	2.5
	3,300	25 × 26	2.4
	4,700	22 × 36	3
	4,700	30 × 25	3
	5,600	22 × 40	3
	5,600	25 × 40	3
	6,800	22 × 50	3
	6,800	25 × 41	2.85
	8,200	25 × 46	3.6
	8,200	30 × 46	4
	10,000	25 × 50	3.9
	10,000	35 × 35	3.8
12,000	30 × 45	4.4	
12,000	35 × 40	4.35	
15,000	30 × 51	5.3	
15,000	35 × 42	4.7	

W.V.	Cap.(µF)	Case Size	R.C.
50 (63)	18,000	35 × 55	5.6
	22,000	35 × 52	5.8
63 (79)	1,000	22 × 30	1.5
	1,000	22 × 25	1.45
	1,500	22 × 30	1.8
	1,500	22 × 25	1.75
	2,200	22 × 30	2.1
	2,200	26 × 25	2
	2,700	22 × 36	2.8
	2,700	25 × 31	2.7
	3,300	22 × 40	2.81
	3,300	25 × 35	2.9
	3,900	22 × 40	3.2
	3,900	25 × 40	3.2
	4,700	22 × 50	3.2
	4,700	26 × 40	3.11
	5,600	25 × 46	3.8
	5,600	30 × 40	3.7
	6,800	25 × 50	3.68
6,800	30 × 40	3.54	
8,200	30 × 46	3.99	
8,200	35 × 37	3.81	
10,000	30 × 50	4.6	
12,000	35 × 52	5.12	
80 (100)	680	22 × 25	1.3
	1,000	22 × 26	1.6
	1,000	22 × 30	1.35
	1,500	22 × 31	1.8
	1,500	25 × 26	1.75
	1,800	22 × 36	1.8
	1,800	25 × 31	1.6
	2,200	22 × 41	2.5
	2,200	25 × 31	2.3
	2,700	22 × 46	2.8
	2,700	25 × 36	2.65
3,300	22 × 50	3.3	



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Case Size Table and Permissible Ripple Current (Case Size : ØD × L (mm))

Maximum Ripple Current : A (rms)

W.V.	Cap.(µF)	Case Size	R.C.
80 (100)	3,300	25 × 41	3.12
	3,900	25 × 46	3.4
	3,900	30 × 36	3.1
	4,700	25 × 50	3.6
	4,700	30 × 41	3.45
	5,600	30 × 46	3.8
	5,600	35 × 37	3.65
	6,800	30 × 51	4.5
	6,800	35 × 42	3.84
	8,200	35 × 52	4.9
100 (125)	470	20 × 30	1.3
	470	22 × 25	1.15
	680	22 × 30	1.65
	820	22 × 30	1.55
	820	25 × 30	1.7
	1,000	22 × 30	2.2
	1,000	25 × 25	1.71
	1,200	22 × 36	2.3
	1,200	25 × 35	2.3
	1,500	22 × 40	2.54
	1,500	25 × 40	2.5
	1,800	22 × 46	2.2
	1,800	25 × 41	2.05
	2,200	22 × 50	3.07
	2,200	26 × 40	2.77
	2,700	25 × 46	3.15
	2,700	35 × 35	3.3
	3,300	25 × 50	3.39
	3,300	30 × 41	3.27
	3,900	30 × 46	3.5
	3,900	35 × 45	3.5
	4,700	30 × 50	3.7
	4,700	35 × 42	3.5
	5,600	35 × 50	4.1
6,800	35 × 58	5	
8,200	35 × 60	5.3	

W.V.	Cap.(µF)	Case Size	R.C.
100 (125)	10,000	35 × 70	5.49
	10,000	40 × 64	5.6
160 (200)	180	20 × 30	1.2
	180	22 × 25	1.05
	270	22 × 26	1.3
	330	22 × 30	1.14
	330	25 × 25	1.11
	390	22 × 31	1.71
	390	25 × 26	1.58
	470	22 × 31	1.53
	470	25 × 26	1.45
	560	22 × 35	1.67
	560	25 × 31	1.58
	680	22 × 40	1.95
	680	25 × 36	1.87
	820	22 × 50	2.36
	820	25 × 36	2.05
	1,000	25 × 45	2.62
	1,000	30 × 36	2.55
	1,200	25 × 50	3.4
	1,200	30 × 36	3.2
	1,500	30 × 45	3.35
1,500	35 × 37	3.28	
1,800	30 × 51	4.4	
1,800	35 × 42	3.59	
2,200	35 × 51	4.7	
2,700	35 × 60	4.8	
200 (250)	150	20 × 30	2
	150	22 × 25	1.85
	220	20 × 30	1
	220	22 × 25	0.97
	270	22 × 26	1.5
	330	22 × 30	1.29
	330	25 × 25	1.23
	470	22 × 40	1.74
	470	25 × 31	1.55



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Case Size Table and Permissible Ripple Current (Case Size : ØD × L (mm))

Maximum Ripple Current : A (rms)

W.V.	Cap.(µF)	Case Size	R.C.
200 (250)	560	22 × 40	2
	560	25 × 36	1.82
	680	22 × 46	2.14
	680	25 × 36	2.08
	820	25 × 50	2.59
	820	30 × 36	2.55
	1,000	25 × 52	2.99
	1,000	30 × 42	2.87
	1,200	30 × 46	4.25
	1,200	35 × 37	4.08
	1,500	30 × 51	5.3
	1,500	35 × 42	5.15
	1,800	35 × 47	5.8
	2,200	35 × 51	6.5
250 (300)	120	20 × 30	0.9
	120	22 × 25	0.75
	150	20 × 30	1
	150	22 × 25	0.97
	180	25 × 26	1.3
	220	22 × 32	1.45
	220	25 × 25	1.09
	270	22 × 32	1.11
	270	25 × 25	1.05
	330	22 × 40	1.58
	330	25 × 31	1.42
	390	22 × 41	2
	390	25 × 36	1.85
	470	22 × 46	2.08
	470	25 × 41	1.93
	560	25 × 45	2.29
	560	30 × 40	2.4
	680	25 × 50	2.68
	680	30 × 40	2.46
	820	30 × 45	3.11
820	35 × 45	3.1	
1,000	30 × 50	3.6	

W.V.	Cap.(µF)	Case Size	R.C.
250 (300)	1,000	35 × 45	3.4
	1,200	35 × 46	4
	1,500	35 × 62	5
315 (365)	100	22 × 30	0.63
	100	25 × 25	0.58
	220	22 × 50	1.38
	220	30 × 30	1.25
	330	25 × 50	2.08
	330	35 × 30	1.85
	470	30 × 50	2.96
350 (400)	68	22 × 25	0.53
	82	22 × 25	0.59
	100	22 × 30	0.66
	100	25 × 25	0.63
	120	22 × 31	0.7
	120	25 × 26	0.68
	150	22 × 35	0.86
	150	25 × 31	0.82
	180	22 × 41	0.9
	180	25 × 36	0.85
	220	22 × 45	1.17
	220	25 × 41	1.06
	270	25 × 46	1.6
	270	30 × 36	1.4
	330	25 × 50	1.6
	330	30 × 41	1.53
	390	25 × 50	2
390	30 × 46	1.85	
470	30 × 50	2.01	
470	35 × 40	1.92	
560	35 × 45	2.31	
680	35 × 52	2.9	
400 (450)	47	22 × 25	0.38
	47	35 × 30	0.28
	68	22 × 25	0.51
	82	22 × 25	0.6

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Case Size Table and Permissible Ripple Current (Case Size : ØD × L (mm))

Maximum Ripple Current : A (rms)

W.V.	Cap.(µF)	Case Size	R.C.
400 (450)	100	22 × 30	0.68
	100	25 × 25	0.65
	120	22 × 31	0.9
	120	25 × 30	0.9
	150	22 × 41	0.95
	150	25 × 31	0.85
	220	22 × 50	1.27
	220	26 × 40	1.17
	270	25 × 46	1.65
	270	30 × 36	1.59
	330	30 × 41	1.9
	330	35 × 37	1.75

W.V.	Cap.(µF)	Case Size	R.C.
400 (450)	390	30 × 45	2.3
	470	35 × 40	2.4
	560	35 × 52	2.79
450 (500)	47	22 × 26	0.36
	100	22 × 36	0.61
	100	25 × 31	0.35
	150	22 × 50	0.88
	150	25 × 40	0.59
	220	25 × 50	1.06
	220	35 × 37	0.97
	330	35 × 47	1.13

Part Number Table

Description	Part Number
Capacitor, 4,700µF, 16V	MCLPR16V478M22X25
Capacitor, 6,800µF, 16V	MCLPR16V688M22X25
Capacitor, 8,200µF, 16V	MCLPR16V828M22X30
Capacitor, 10,000µF, 16V	MCLPR16V109M22X25
Capacitor, 12,000µF, 16V	MCLPR16V129M22X40
Capacitor, 15,000µF, 16V	MCLPR16V159M22X35
Capacitor, 18,000µF, 16V	MCLPR16V189M25X36
Capacitor, 22,000µF, 16V	MCLPR16V229M22X41
Capacitor, 27,000µF, 16V	MCLPR16V279M30X32
Capacitor, 33,000µF, 16V	MCLPR16V339M30X45
Capacitor, 39,000µF, 16V	MCLPR16V399M30X50
Capacitor, 47,000µF, 16V	MCLPR16V479M35X45
Capacitor, 56,000µF, 16V	MCLPR16V569M35X50
Capacitor, 68,000µF, 16V	MCLPR16V689M35X62
Capacitor, 3,300µF, 25V	MCLPR25V338M22X25
Capacitor, 4,700µF, 25V	MCLPR25V478M22X25
Capacitor, 5,600µF, 25V	MCLPR25V568M22X31
Capacitor, 6,800µF, 25V	MCLPR25V688M22X30
Capacitor, 8,200µF, 25V	MCLPR25V828M22X35
Capacitor, 10,000µF, 25V	MCLPR25V109M30X25

Description	Part Number
Capacitor, 12,000µF, 25V	MCLPR25V129M22X50
Capacitor, 15,000µF, 25V	MCLPR25V159M30X35
Capacitor, 18,000µF, 25V	MCLPR25V189M25X41
Capacitor, 22,000µF, 25V	MCLPR25V229M30X45
Capacitor, 27,000µF, 25V	MCLPR25V279M30X41
Capacitor, 33,000µF, 25V	MCLPR25V339M30X51
Capacitor, 39,000µF, 25V	MCLPR25V399M35X51
Capacitor, 47,000µF, 25V	MCLPR25V479M35X56
Capacitor, 2,200µF, 35V	MCLPR35V228M22X25
Capacitor, 3,900µF, 35V	MCLPR35V398M22X30
Capacitor, 4,700µF, 35V	MCLPR35V478M22X30
Capacitor, 6,800µF, 35V	MCLPR35V688M26X30
Capacitor, 8,200µF, 35V	MCLPR35V828M22X41
Capacitor, 10,000µF, 35V	MCLPR35V109M30X30
Capacitor, 12,000µF, 35V	MCLPR35V129M25X41
Capacitor, 15,000µF, 35V	MCLPR35V159M30X40
Capacitor, 18,000µF, 35V	MCLPR35V189M30X46
Capacitor, 22,000µF, 35V	MCLPR35V229M35X45
Capacitor, 27,000µF, 35V	MCLPR35V279M35X50
Capacitor, 33,000µF, 35V	MCLPR35V339M35X51



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Description	Part Number
Capacitor, 1,500µF, 50V	MCLPR50V158M22X26
Capacitor, 2,200µF, 50V	MCLPR50V228M22X25
Capacitor, 2,700µF, 50V	MCLPR50V278M22X31
Capacitor, 3,300µF, 50V	MCLPR50V338M22X31
Capacitor, 4,700µF, 50V	MCLPR50V478M30X25
Capacitor, 5,600µF, 50V	MCLPR50V568M25X40
Capacitor, 6,800µF, 50V	MCLPR50V688M25X41
Capacitor, 8,200µF, 50V	MCLPR50V828M30X46
Capacitor, 10,000µF, 50V	MCLPR50V109M35X35
Capacitor, 12,000µF, 50V	MCLPR50V129M30X45
Capacitor, 15,000µF, 50V	MCLPR50V159M30X51
Capacitor, 18,000µF, 50V	MCLPR50V189M35X55
Capacitor, 22,000µF, 50V	MCLPR50V229M35X52
Capacitor, 1,000µF, 63V	MCLPR63V108M22X25
Capacitor, 1,500µF, 63V	MCLPR63V158M22X30
Capacitor, 2,200µF, 63V	MCLPR63V228M26X25
Capacitor, 2,700µF, 63V	MCLPR63V278M25X31
Capacitor, 3,300µF, 63V	MCLPR63V338M25X35
Capacitor, 3,900µF, 63V	MCLPR63V398M25X40
Capacitor, 4,700µF, 63V	MCLPR63V478M26X40
Capacitor, 5,600µF, 63V	MCLPR63V568M30X40
Capacitor, 6,800µF, 63V	MCLPR63V688M30X40
Capacitor, 8,200µF, 63V	MCLPR63V828M30X46
Capacitor, 10,000µF, 63V	MCLPR63V109M30X50
Capacitor, 470µF, 100V	MCLPR100V477M22X25
Capacitor, 680µF, 100V	MCLPR100V687M22X30
Capacitor, 820µF, 100V	MCLPR100V827M25X30
Capacitor, 1,000µF, 100V	MCLPR100V108M22X30
Capacitor, 1,200µF, 100V	MCLPR100V128M25X35
Capacitor, 1,500µF, 100V	MCLPR100V158M25X40
Capacitor, 1,800µF, 100V	MCLPR100V188M25X41
Capacitor, 2,200µF, 100V	MCLPR100V228M26X40
Capacitor, 2,700µF, 100V	MCLPR100V278M35X35

Description	Part Number
Capacitor, 3,300µF, 100V	MCLPR100V338M30X41
Capacitor, 3,900µF, 100V	MCLPR100V398M35X45
Capacitor, 4,700µF, 100V	MCLPR100V478M30X50
Capacitor, 5,600µF, 100V	MCLPR100V568M35X50
Capacitor, 6,800µF, 100V	MCLPR100V688M35X58
Capacitor, 8,200µF, 100V	MCLPR100V828M35X60
Capacitor, 10,000µF, 100V	MCLPR100V109M40X64
Capacitor, 120µF, 250V	MCLPR250V127M22X25
Capacitor, 150µF, 250V	MCLPR250V157M22X25
Capacitor, 220µF, 250V	MCLPR250V227M22X32
Capacitor, 270µF, 250V	MCLPR250V277M22X32
Capacitor, 330µF, 250V	MCLPR250V337M22X40
Capacitor, 390µF, 250V	MCLPR250V397M22X41
Capacitor, 470µF, 250V	MCLPR250V477M25X41
Capacitor, 560µF, 250V	MCLPR250V567M30X40
Capacitor, 680µF, 250V	MCLPR250V687M30X40
Capacitor, 820µF, 250V	MCLPR250V827M35X45
Capacitor, 1,000µF, 250V	MCLPR250V108M35X45
Capacitor, 1,200µF, 250V	MCLPR250V128M35X46
Capacitor, 1,500µF, 250V	MCLPR250V158M35X62
Capacitor, 47µF, 400V	MCLPR400V476M22X25
Capacitor, 68µF, 400V	MCLPR400V686M22X25
Capacitor, 82µF, 400V	MCLPR400V826M22X25
Capacitor, 100µF, 400V	MCLPR400V107M22X30
Capacitor, 120µF, 400V	MCLPR400V127M25X30
Capacitor, 150µF, 400V	MCLPR400V157M25X31
Capacitor, 220µF, 400V	MCLPR400V227M26X40
Capacitor, 270µF, 400V	MCLPR400V277M25X46
Capacitor, 330µF, 400V	MCLPR400V337M30X41
Capacitor, 390µF, 400V	MCLPR400V397M30X45
Capacitor, 470µF, 400V	MCLPR400V477M35X40
Capacitor, 560µF, 400V	MCLPR400V567M35X52

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