

MKP1840

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Vishay Roederstein

AC and Pulse Metallized Polypropylene Film Capacitors MKP Radial Potted Type



FEATURES

 Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

APPLICATIONS

- Pulse operations
- SMPS and thyristor circuits
- Storage, filter, timing, sample and hold circuits



RoHS

COMPLIANT HALOGEN

FREE

GREEN (5-2008)

QUICK REFERENCE DATA			
	4700 pE to 10 uE		
Capacitance tolerances	± 20 % (M), ± 10 % (K), ± 5 % (J)		
Climatic testing class according to IEC 60068	55/100/56		
Operating temperature range	-55 °C to +100 °C		
Dielectric	Polypropylene film		
Electrodes	Metallized		
Construction	Extended metallized film (refer to general information following the link in note below table)		
Coating	Flame retardant plastic case, epoxy resin sealed UL-class 94 V-0		
Leads	Tinned wire		
Rated voltages (U _R)	100 V _{DC} , 160 V _{DC} , 250 V _{DC} , 400 V _{DC} , 630 V _{DC}		
Insulation resistance	Measured at 100 V _{DC} after one minute For C ≤ 0.33 μF: 25 000 MΩ (U _R 100 V _{DC})		
Permissible AC voltages (RMS) up to 60 Hz	63 V _{AC} , 100 V _{AC} , 160 V _{AC} , 220 V _{AC} , 250 V _{AC}		
Test voltage (electrode/electrode)	1.6 x U _R for 2 s		
Time constant	Measured at 100 V _{DC} after one minute For C > 0.33 µF: 30 000 s minimum value		
Temperature coefficient	-250 x 10 ⁻⁶ /°C (typical value)		
Capacitance drift	Up to +40 °C, < 0.5 % for a period of two years		
Dielectric absorption	0.05 % (typical value) according to IEC 60068-2-21		
Derating for DC and AC category voltage U_{C}	At +85 °C: U_{C} = 1.0 U_{R} At +100 °C: U_{C} = 0.7 U_{R}		
Self inductance	~ 6 nH measured with 2 mm long leads		
Pull test on leads	\geq 30 N in direction of leads according to IEC 60068-2-21		

Note

• For further details, please refer to the general information available at www.vishay.com/doc?26033

For technical questions, contact: dc-film@vishay.com

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, Marking



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LEAD DIAMETER d _t	w	РІТСН
0.5 ± 0.05	-	5 to 7.5
0.6 ± 0.06	-	10
0.6 ± 0.06	≤ 6	15
0.8 ± 0.08	> 6	15
0.8 ± 0.08	< 16	22.5 to 37.5
1.0 ± 0.1	≥ 16	22.5 to 37.5

MAXIMUM PULSE RISE TIME							
РСМ	MAXIMUM PULSE RISE TIME dV/dt [V/µs]						
(mm)	100 V _{DC}	160 V _{DC}	250 V _{DC}	400 V _{DC}	630 V _{DC}		
5	390	-	-	-	-		
7.5	-	240	300	-	-		
10	-	175	220	380	510		
15	-	100	125	200	280		
22.5	-	60	75	120	160		
27.5	-	45	60	95	120		
37.5	-	30	40	65	85		

Note

• If the maximum pulse voltage is less than the rated voltage higher dV/dt values can be permitted.

DISSIPATION FACTOR tan δ						
MEASURED AT	C ≤ 0.1 μF	0.1 μF < C ≤ 1.0 μF	C > 1.0 μF			
1 kHz	≤ 10 x 10 ⁻⁴	≤ 10 x 10 ⁻⁴	\leq 40 x 10 ⁻⁴			
10 kHz	≤ 10 x 10 ⁻⁴	≤ 10 x 10 ⁻⁴	-			
100 kHz	≤ 10 x 10 ⁻⁴	-	-			
	Maximum values					

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ELECTRICAL DATA							
U _{RDC} (V)	CAP. (μF)	CAPACITANCE CODE	VOLTAGE CODE	V _{AC}	DIMENSIONS w x h x l (mm)	PCM (mm)	
	0.0047	-247			3.5 x 8.0 x 7.2	5.0	
	0.0068	-268			3.5 x 8.0 x 7.2	5.0	
	0.010	-310			3.5 x 8.0 x 7.2	5.0	
	0.015	-315			3.5 x 8.0 x 7.2	5.0	
100	0.022	-322	01	63	3.5 x 8.0 x 7.2	5.0	
	0.033	-333			3.5 x 8.0 x 7.2	5.0	
	0.047	-347	$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	5.0			
	0.068	-368		5.0			
	0.100	-410			6.0 x 11.0 x 7.2	5.0	
	0.033	-333	_		3.0 x 8.0 x 10.0	7.5	
	0.047	-347	_		3.0 x 8.0 x 10.0	7.5	
URDC (M)	0.068	-368	_		4.0 x 10.0 x 12.5	10.0	
	0.10	-410	_		4.0 x 10.0 x 12.5	10.0	
	0.15	-415	_		5.0 x 11.0 x 12.5	10.0	
	0.22	-422			5.0 x 11.0 x 17.5	15.0	
	0.33	-433	_		6.0 x 12.0 x 17.5	15.0	
160	0.47	-447	- 16	100	7.0 x 13.5 x 17.5	15.0	
	0.68	-468	-		8.5 X 15.0 X 17.5	15.0	
	1.0	-510	-		7.0 X 16.5 X 26.0	22.5	
	1.5	-515	_		0.5 X 10.0 X 20.0	22.5	
	2.2	-522	_		9.0 X 19.0 X 31.5	27.5	
	3.3	-555	_		12.5 x 22.5 x 41.5	27.5	
	6.8	-568			14.5 x 24.5 x 41.5	37.5	
	10.0	-610	-		16.0 x 28.5 x 41.5	37.5	
	0.010	-310			30x80x100	7.5	
	0.015	-315	-		3.0 x 8.0 x 10.0	7.5	
	0.022	-322	_		3.0 x 8.0 x 10.0	7.5	
(V)	0.033	-333	_		4.0 x 10.0 x 12.5	10.0	
	0.047	-347	_		4.0 x 10.0 x 12.5	10.0	
	0.068	-368			4.0 x 10.0 x 12.5	10.0	
	0.10	-410	-		4.0 x 10.0 x 12.5	10.0	
	0.15	-415	-		5.0 x 11.0 x 17.5	15.0	
	0.22	-422	-		5.0 x 11.0 x 17.5	15.0	
250	0.33	-433	25	160	6.0 x 12.0 x 17.5	15.0	
	0.47	-447			7.0 x 13.5 x 17.5	15.0	
	0.68	-468			6.0 x 15.5 x 26.0	22.5	
	1.0	-510			7.0 x 16.5 x 26.0	22.5	
	1.5	-515			9.0 x 19.0 x 31.5	27.5	
	2.2	-522			11.0 x 21.0 x 31.0	27.5	
	3.3	-533			13.0 x 23.0 x 31.0	27.5	
	4.7	-547			12.5 x 22.5 x 41.5	37.5	
	6.8	-568			14.5 x 24.5 x 41.5	37.5	
	10.0	-610			16.0 x 28.5 x 41.5	37.5	

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ELEC	ELECTRICAL DATA							
U _{RDC} (V)	CAP. (μF)	CAPACITANCE CODE	VOLTAGE CODE	V _{AC}	DIMENSIONS w x h x l (mm)	PCM (mm)		
	0.010	-310			4.0 x 10.0 x 12.5	10.0		
	0.015	-315			4.0 x 10.0 x 12.5	10.0		
	0.022	-322			4.0 x 10.0 x 12.5	10.0		
	0.033	-333			4.0 x 10.0 x 12.5	10.0		
	0.047	-347			5.0 x 11.0 x 17.5	15.0		
	0.068	-368			5.0 x 11.0 x 17.5	15.0		
	0.10	-410			5.0 x 11.0 x 17.5	15.0		
	0.15	-415		VOLTAGE CODE VAC 40 220 63 250 ⁽¹⁾	6.0 x 12.0 x 17.5	15.0		
400	0.22	-422	40	220	7.0 x 13.5 x 17.5	15.0		
	0.33	-433			6.0 x 15.5 x 26.0	22.5		
	0.47	-447			7.0 x 16.5 x 26.0	22.5		
	0.68	-468			9.0 x 19.0 x 31.5	27.5		
	1.0	-510			11.0 x 21.0 x 31.0	27.5		
	1.5	-515			13.0 x 23.0 x 31.0	27.5		
	2.2	-522			12.5 x 22.5 x 41.5	37.5		
	3.3	-533			14.5 x 24.5 x 41.5	37.5		
	4.7	-547			18.0 x 32.5 x 41.5	37.5		
	0.010	-310			4.0 x 10.0 x 12.5	10.0		
	0.015	-315			4.0 x 10.0 x 12.5	10.0		
	0.022	-322			4.0 x 10.0 x 12.5	10.0		
	0.033	-333		V_{AC} DIMENSIONS w x h x l (mm) $4.0 \times 10.0 \times 12.5$ $5.0 \times 11.0 \times 17.5$ $6.0 \times 12.0 \times 17.5$ $6.0 \times 15.5 \times 26.0$ $7.0 \times 16.5 \times 26.0$ $9.0 \times 19.0 \times 31.5$ $11.0 \times 21.0 \times 31.0$ $13.0 \times 23.0 \times 31.0$ $12.5 \times 22.5 \times 41.5$ $14.5 \times 24.5 \times 41.5$ $18.0 \times 32.5 \times 41.5$ $4.0 \times 10.0 \times 12.5$ $5.0 \times 11.0 \times 17.5$ $1.0 \times 12.0 \times 31.0$ $13.0 \times 23.0 \times 31.0$ $14.5 \times 24.5 \times 41.5$ $16.0 \times 28.5 \times 43.0$	15.0			
	0.047	-347			5.0 x 11.0 x 17.5	15.0		
	0.068	-368			5.0 x 11.0 x 17.5	15.0		
	0.10	-410			6.0 x 12.0 x 17.5	15.0		
630	0.15	-415	63	250 ⁽¹⁾	6.0 x 15.5 x 26.0	22.5		
	0.22	-422			7.0 x 16.5 x 26.0	22.5		
	0.33	-433			8.5 x 18.0 x 26.0	22.5		
	0.47	-447			9.0 x 19.0 x 31.5	27.5		
	0.68	-468			11.0 x 21.0 x 31.0	27.5		
	1.0	-510			13.0 x 23.0 x 31.0	27.5		
	1.5	-515			14.5 x 24.5 x 41.5	37.5		
	2.2	-522			16.0 x 28.5 x 43.0	37.5		

Notes

• Further C-values upon request.

⁽¹⁾ Not suitable for mains applications.

Please refer to X-capacitors in our catalog "RFI Suppression Components".

RECOMMENDED PACKAGING								
LETTER CODE	TYPE OF PACKAGING	HEIGHT (H) (mm)	REEL DIAMETER (mm)	ORDERING CODE EXAMPLES	PCM 7.5 TO 10	PCM 15	PCM 22.5 TO 27.5	PCM 37.5
D	Ammo	16.5	S ⁽¹⁾	MKP1840310405D	х	Х	-	-
G	Ammo	18.5	S ⁽¹⁾	MKP1840310405G	x	x	-	-
F	Reel	16.5	350	MKP1840310405F	x	x	-	-
W	Reel	18.5	350	MKP1840310405W	x	x	-	-
V	Reel	18.5	500	MKP1840522255V	-	х	х	-
G	Ammo	18.5	L ⁽²⁾	MKP1840522255G	-	-	x	-
-	Bulk	-	_	MKP1840547255	х	х	x	х

Notes

⁽¹⁾ S = box size 55 mm x 210 mm x 340 mm (w x h x l)

⁽²⁾ L = box size 60 mm x 360 mm x 510 mm (w x h x l)

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5 3

100 7

5

3

2

10

7

5

3

2 250

1

10³

2 3

V_{RMS}

MKP1840

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PERMISSIBLE AC VOLTAGE VS. FREQUENCY



🕂 Capacitance in µF







10

2 3

5 7 10⁵

2

3 5 7

f [Hz]

10⁶

5 7 10⁴

IMPEDANCE VS. FREQUENCY



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