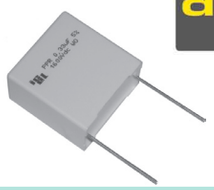
PPR - *(New 250Vdc - 400Vdc rating)*

Metallized polypropylene film capacitor
MKP - High pulse - Small size



Main applications
Snubber, SCR commutating circuits, electronic ballasts, protection circuits in SMPSs, high voltage, high current and high pulse operation up to very high operating frequencies

Dielectric
Polypropylene

Electrodes
Vacuum deposited metal layers

Coating
Solvent resistant plastic case with resin sealing (UL 94 V-0). Flame retardant execution

Construction
Extended double side metallized carrier film, internal series connection and metallized film for Ur≥ 630VDC (refer to general technical information)

Terminals
Tinned copper wire (lead free)

Reference standard
IEC 60384/16, IEC 60068, RoHS compliant

Climatic category
55/100/56 (IEC 60068/1), FMD (DIN40040)

Operating temperature range
-55°...+105°C

Rated capacitance (Cr)
0,0022µF to 15µF, in compliance with IEC 60063, E6 series. Refer to article table

Capacitance tolerance (at 1kHz)
±10% (code=K), ±5% (code=J), ±20% (code=M). Other tolerances upon request

Capacitance temperature coefficient
Refer to graphs in general technical information

Long term stability (at 1 kHz)
Capacitance variation ≤ ±0,5% after a period of 2 years at standard environmental conditions

Rated voltage (Ur)
250, 400, 630, 1000, 1600, 2000 Vdc at +85°C
(Permissible AC voltage at 60Hz: 175, 230, 400, 600, 650, 700 Vac at +75°C)

Category voltage (Uc)
Uc=Ur DC at +85°C, Uc=Ur AC at +75°C

Temperature derated voltage
DC: for T> +85°C, Ur DC must be decreased 1,25% for every °C exceeding +85°C
AC: for T> +75°C, Ur AC must be decreased 1,35% for every °C exceeding +75°C

Self inductance
≤ 1nH/mm of capacitor pitch

Maximum pulse rise time
Refer to article table. The pulse characteristic Ko depends on the voltage waveform. In any case the value given in the article table must not be exceeded

Dissipation factor (DF), max.
tgδ x10^{-4}, measured at 25±5°C

Freq.	Cr≤0,1µF	0,1µF<Cr≤1µF	1µF<Cr≤3,9µF	Cr>3,9µF
1kHz	5	4	5	8
10kHz	5	6	10	-
100kHz	16	-	-	-

Insulation resistance (IR)
Measured between terminals, at 25±°C, after 1 minute of electrification at 100Vdc

Cr	IR
≤ 0,33µF	≥ 100GΩ
> 0,33µF	≥ 30000s

Test voltage between terminals (Ut)
1,6xUr (DC) applied for 2s at 25±5°C (1 minute for type test)

Damp heat test (steady state)
Test conditions:
Temperature= +40±2°C
Relative humidity=93±2%
Test duration= 56 days

Performance:
Capacitance change ≤ ±1%
DF change ≤ 0.0010 at 10kHz for Cr ≤ 1µF
DF change ≤ 0.0010 at 1kHz for Cr > 1µF
IR≥ 50% of initial limit value

Endurance test
Test conditions:
Temperature= +85±2°C
Test duration= 2000h
Voltage applied=1,25xUr(DC)

Performance:
Capacitance change ≤ ±1%
DF change ≤ 0.0010 at 10kHz for Cr ≤ 1µF
DF change ≤ 0.0010 at 1kHz for Cr > 1µF
IR≥ 50% of initial limit value

Resistance to soldering heat test
Test conditions:
Solder bath temperature= +260±5°C
Dipping time (with heat screen)= 10±1s

Performance:
Capacitance change ≤ ±1%
DF change ≤ 0.0010 at 10kHz for Cr ≤ 1µF
DF change ≤ 0.0010 at 1kHz for Cr > 1µF
IR≥ 50% of initial limit value

Reliability (MIL HDB 217)
Application conditions:
Applied voltage= 0,5 x Ur(DC)
Temperature= +40±2°C

Failure rate:
(1FIT=1x10^{-9} failures/components x hours)
≤ 1FIT

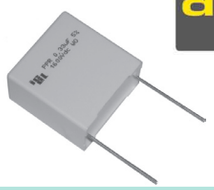
Failure criteria (DIN44122):
Capacitance change > ±10%
DF change > 2 x initial value
IR< 0,005 x initial limit value
Short or open circuit

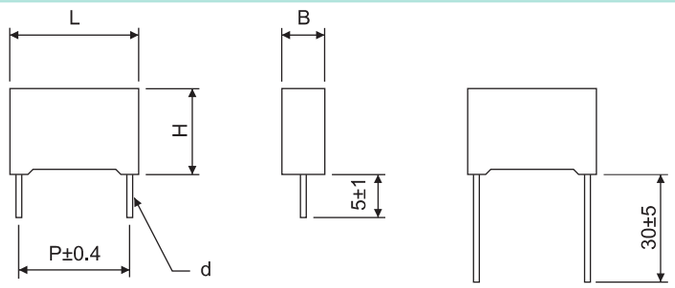
Warning: this specification must be completed with the data given in the "General technical information" chapter

PPR - *(New 250Vdc - 400Vdc rating)*

Metallized polypropylene film capacitor

MKP - High pulse - Small size





PPR article table (different values available upon request)

Rated voltage Vdc	Rated voltage Vac(2)	Cap. value (µF)	Dimension in mm B	H	L	P	d	du/dt V/µs	Ko V²/µs	ICEL ordering code(1)
250	175	0,1	5	11	18	15	0,8	315	158E03	PPR1253100*E#
250	175	0,15	6	12	18	15	0,8	315	158E03	PPR1253150*E#
250	175	0,22	7,5	13,5	18	15	0,8	315	158E03	PPR1253220*E#
250	175	0,27	8,5	14,5	18	15	0,8	315	158E03	PPR1253270*E#
250	175	0,33	10	16	18	15	0,8	315	158E03	PPR1253330*E#
250	175	0,39	10	16	18	15	0,8	315	190E03	PPR1253390*E#
250	175	0,47	7	16	26,5	22,5	0,8	200	100E03	PPR1253470*G#
250	175	0,68	10	18,5	26,5	22,5	0,8	200	100E03	PPR1253680*G#
250	175	0,82	10	18,5	26,5	22,5	0,8	200	100E03	PPR1253820*G#
250	175	0,82	9	17	32	27,5	0,8	155	77500	PPR1253820*H#
250	175	1	11	20	26,5	22,5	0,8	200	100E03	PPR1254100*G#
250	175	1	11	20	32	27,5	0,8	155	77500	PPR1254100*H#
250	175	1,5	13	22	26,5	22,5	0,8	200	100E03	PPR1254150*G#
250	175	1,5	13	22	32	27,5	0,8	155	77500	PPR1254150*H#
250	175	2,2	15	24,5	32	27,5	0,8	155	77500	PPR1254220*H#
250	175	3,3	18	33	32	27,5	0,8	155	77500	PPR1254330*H#
250	175	3,3	17	28	42,5	37,5	1	105	52500	PPR1254330*J#
250	175	3,9	18	33	32	27,5	0,8	155	77500	PPR1254390*H#
250	175	3,9	17	28	42,5	37,5	1	105	52500	PPR1254390*J#
250	175	4,7	22	37	32	27,5	0,8	155	77500	PPR1254470*H#
250	175	4,7	17	32	42	37,5	1	105	52500	PPR1254470*J#
250	175	5,6	22	37	32	27,5	0,8	155	77500	PPR1254560*H#
250	175	5,6	22	30	42,5	37,5	1	105	52500	PPR1254560*J#
250	175	6,8	22	33,3	42,5	37,5	1	105	52500	PPR1254680*J#
250	175	10	28	37	42,5	37,5	1	105	52500	PPR1255100*J#
250	175	15	30	45	42,5	37,5	1	105	52500	PPR1255150*J#
400	230	0,047	5	11	18	15	0,8	480	384E03	PPR1402470*E#
400	230	0,068	6	12	18	15	0,8	480	384E03	PPR1402680*E#
400	230	0,1	7,5	13,5	18	15	0,8	480	384E03	PPR1403100*E#
400	230	0,15	8,5	14,5	18	15	0,8	480	384E03	PPR1403150*E#
400	230	0,22	10	16	18	15	0,8	480	384E03	PPR1403220*E#
400	230	0,22	7	16	26,5	22,5	0,8	305	244E03	PPR1403220*G#
400	230	0,33	8,5	17	26,5	22,5	0,8	305	244E03	PPR1403330*G#
400	230	0,47	10	18,5	26,5	22,5	0,8	305	244E03	PPR1403470*G#
400	230	0,47	9	17	32	27,5	0,8	235	188E03	PPR1403470*H#
400	230	0,68	13	22	26,5	22,5	0,8	305	244E03	PPR1403680*G#
400	230	0,68	11	20	32	27,5	0,8	235	188E03	PPR1403680*H#
400	230	1	13	22	32	27,5	0,8	235	188E03	PPR1404100*H#
400	230	1,2	15	24,5	32	27,5	0,8	235	188E03	PPR1404120*H#
400	230	1,5	18	33	32	27,5	0,8	235	188E03	PPR1404150*H#
400	230	2,2	22	37	32	27,5	0,8	235	188E03	PPR1404220*H#
400	230	2,2	17	28	42,5	37,5	1	160	128E03	PPR1404220*J#
400	230	3,3	22	37	32	27,5	0,8	235	188E03	PPR1404330*H#
400	230	3,3	22	30	42,5	37,5	1	160	128E03	PPR1404330*J#
400	230	4,7	22	33,5	42,5	37,5	1	160	128E03	PPR1404470*J#
400	230	5,6	28	37	42,5	37,5	1	160	128E03	PPR1404560*J#
400	230	6,8	30	45	42,5	37,5	1	160	128E03	PPR1404680*J#
630	400	0,022	5	11	18	15	0,8	2500	315E04	PPR1632220*E#
630	400	0,033	6	12	18	15	0,8	2500	315E04	PPR1632330*E#
630	400	0,047	7,5	13,5	18	15	0,8	2500	315E04	PPR1632470*E#
630	400	0,068	8,5	14,5	18	15	0,8	2500	315E04	PPR1632680*E#
630	400	0,068	6	15	26,5	22,5	0,8	1500	189E04	PPR1632680*G#
630	400	0,1	10	16	18	15	0,8	2500	315E04	PPR1633100*E#
630	400	0,1	6	15	26,5	22,5	0,8	1500	189E04	PPR1633100*G#
630	400	0,15	8,5	17	26,5	22,5	0,8	1500	189E04	PPR1633150*G#
630	400	0,15	9	17	32	27,5	0,8	900	113E04	PPR1633150*H#
630	400	0,22	10	18,5	26,5	22,5	0,8	1500	189E04	PPR1633220*G#
630	400	0,22	9	17	32	27,5	0,8	900	113E04	PPR1633220*H#
630	400	0,33	13	22	26,5	22,5	0,8	1500	189E04	PPR1633330*G#

(1)Change the * symbol with the needed capacitance tolerance code: J=±5%, K=±10%, M=±20% and the # symbol with S for 5mm lead length and with L for 30 mm lead length - (2)Not suitable for across the line application.

PPR - *(New 250Vdc - 400Vdc rating)*

Metallized polypropylene film capacitor

MKP - High pulse - Small size

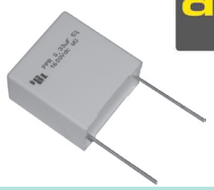
Rated voltage		Cap.	Dimension in mm					du/dt	Ko	ICEL ordering code[1]
Vdc	Vac[2]	value (µF)	B	H	L	P	d	V/µs	V²/µs	
630	400	0,33	11	20	32	27,5	0,8	900	113E04	PPR1633330*H#
630	400	0,47	13	22	32	27,5	0,8	900	113E04	PPR1633470*H#
630	400	0,68	15	24,5	32	27,5	0,8	900	113E04	PPR1633680*H#
630	400	1	18	33	32	27,5	0,8	900	113E04	PPR1634100*H#
630	400	1	17	28	42,5	37,5	1	450	567E03	PPR1634100*J#
630	400	1,5	22	37	32	27,5	0,8	900	113E04	PPR1634150*H#
630	400	1,5	22	30	42,5	37,5	1	450	567E03	PPR1634150*J#
630	400	2,2	28	37	42,5	37,5	1	450	567E03	PPR1634220*J#
630	400	3,3	30	45	42,5	37,5	1	450	567E03	PPR1634330*J#
630	400	3,9	30	45	42,5	37,5	1	450	567E03	PPR1634390*J#
1000	600	0,01	5	11	18	15	0,8	3300	660E04	PPR2102100*E#
1000	600	0,015	6	12	18	15	0,8	3300	660E04	PPR2102150*E#
1000	600	0,022	7,5	13,5	18	15	0,8	3300	660E04	PPR2102220*E#
1000	600	0,033	8,5	14,5	18	15	0,8	3300	660E04	PPR2102330*E#
1000	600	0,033	6	15	26,5	22,5	0,8	2100	420E04	PPR2102330*G#
1000	600	0,047	7	16	26,5	22,5	0,8	2100	420E04	PPR2102470*G#
1000	600	0,068	8,5	17	26,5	22,5	0,8	2100	420E04	PPR2102680*G#
1000	600	0,1	10	18,5	26,5	22,5	0,8	2100	420E04	PPR2103100*G#
1000	600	0,1	9	17	32	27,5	0,8	1000	200E04	PPR2103100*H#
1000	600	0,15	13	22	26,5	22,5	0,8	2100	420E04	PPR2103150*G#
1000	600	0,15	11	20	32	27,5	0,8	1000	200E04	PPR2103150*H#
1000	600	0,22	13	22	32	27,5	0,8	1000	200E04	PPR2103220*H#
1000	600	0,33	14	28	32	27,5	0,8	1000	200E04	PPR2103330*H#
1000	600	0,47	18	33	32	27,5	0,8	1000	200E04	PPR2103470*H#
1000	600	0,68	22	37	32	27,5	0,8	1000	200E04	PPR2103680*H#
1000	600	0,68	22	30	42,5	37,5	1	500	100E04	PPR2103680*J#
1000	600	1	28	37	42,5	37,5	1	500	100E04	PPR2104100*J#
1000	600	1,5	28	37	42,5	37,5	1	500	100E04	PPR2104150*J#
1000	600	1,8	30	45	42,5	37,5	1	500	100E04	PPR2104180*J#
1600	650	0,0033	5	11	18	15	0,8	6000	192E05	PPR2161330*E#
1600	650	0,0047	5	11	18	15	0,8	6000	192E05	PPR2161470*E#
1600	650	0,0068	5	11	18	15	0,8	6000	192E05	PPR2161680*E#
1600	650	0,01	6	12	18	15	0,8	6000	192E05	PPR2162100*E#
1600	650	0,015	7,5	13,5	18	15	0,8	6000	192E05	PPR2162150*E#
1600	650	0,022	8,5	14,5	18	15	0,8	6000	192E05	PPR2162220*E#
1600	650	0,022	6	15	26,5	22,5	0,8	3000	960E04	PPR2162220*G#
1600	650	0,033	7	16	26,5	22,5	0,8	3000	960E04	PPR2162330*G#
1600	650	0,047	10	18,5	26,5	22,5	0,8	3000	960E04	PPR2162470*G#
1600	650	0,047	9	17	32	27,5	0,8	2000	640E04	PPR2162470*H#
1600	650	0,068	11	20	26,5	22,5	0,8	3000	960E04	PPR2162680*G#
1600	650	0,068	9	17	32	27,5	0,8	2000	640E04	PPR2162680*H#
1600	650	0,1	13	22	26,5	22,5	0,8	3000	960E04	PPR2163100*G#
1600	650	0,1	11	20	32	27,5	0,8	2000	640E04	PPR2163100*H#
1600	650	0,15	15	24,5	32	27,5	0,8	2000	640E04	PPR2163150*H#
1600	650	0,22	18	33	32	27,5	0,8	2000	640E04	PPR2163220*H#
1600	650	0,33	18	33	32	27,5	0,8	2000	640E04	PPR2163330*H#
1600	650	0,33	17	28	42,5	37,5	1	1200	384E04	PPR2163330*J#
1600	650	0,47	22	37	32	27,5	0,8	2000	640E04	PPR2163470*H#
1600	650	0,47	22	30	42,5	37,5	1	1200	384E04	PPR2163470*J#
1600	650	0,68	28	37	42,5	37,5	1	1200	384E04	PPR2163680*J#
1600	650	1	30	45	42,5	37,5	1	1200	384E04	PPR2164100*J#
2000	700	0,0022	5	11	18	15	0,8	7000	280E05	PPR2201220*E#
2000	700	0,0033	6	12	18	15	0,8	7000	280E05	PPR2201330*E#
2000	700	0,0047	7,5	13,5	18	15	0,8	7000	280E05	PPR2201470*E#
2000	700	0,0068	7,5	13,5	18	15	0,8	7000	280E05	PPR2201680*E#
2000	700	0,01	10	16	18	15	0,8	7000	280E05	PPR2202100*E#
2000	700	0,01	6	15	26,5	22,5	0,8	3500	140E05	PPR2202100*G#
2000	700	0,015	7	16	26,5	22,5	0,8	3500	140E05	PPR2202150*G#
2000	700	0,022	8,5	17	26,5	22,5	0,8	3500	140E05	PPR2202220*G#
2000	700	0,022	9	17	32	27,5	0,8	2300	920E04	PPR2202220*H#
2000	700	0,033	10	18,5	26,5	22,5	0,8	3500	140E05	PPR2202330*G#
2000	700	0,033	9	17	32	27,5	0,8	2300	920E04	PPR2202330*H#
2000	700	0,047	13	22	26,5	22,5	0,8	3500	140E05	PPR2202470*G#
2000	700	0,047	11	20	32	27,5	0,8	2300	920E04	PPR2202470*H#
2000	700	0,068	13	22	32	27,5	0,8	2300	920E04	PPR2202680*H#
2000	700	0,1	14	28	32	27,5	0,8	2300	920E04	PPR2203100*H#
2000	700	0,15	18	33	32	27,5	0,8	2300	920E04	PPR2203150*H#
2000	700	0,15	17	28	42,5	37,5	1	1500	600E04	PPR2203150*J#
2000	700	0,22	22	37	32	27,5	0,8	2300	920E04	PPR2203220*H#
2000	700	0,22	22	30	42,5	37,5	1	1500	600E04	PPR2203220*J#
2000	700	0,33	28	37	42,5	37,5	1	1500	600E04	PPR2203330*J#
2000	700	0,47	28	37	42,5	37,5	1	1500	600E04	PPR2203470*J#
2000	700	0,56	30	45	42,5	37,5	1	1500	600E04	PPR2203560*J#

[1]Change the * symbol with the needed capacitance tolerance code: J=±5%, K=±10%, M=±20% and the # symbol with S for 5mm lead length and with L for 30 mm lead length - [2]Not suitable for across the line application.

PPR - *(New 250Vdc - 400Vdc rating)*

Metallized polypropylene film capacitor

MKP - High pulse - Small size



Permissible AC voltage versus frequency (sinusoidal waveform) for ΔT=+10°C
Referred to the largest pitch execution among available ones