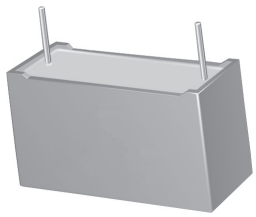
PPR (In progress)

Metallized polypropylene film capacitor
MKP - High pulse - Small size



Main applications: Snubber, SCR commutating circuits, electronic ballasts, protection circuits in SMPSs, deflectors circuits in TV sets, high voltage, high current and high pulse operation.

Dielectric	Polypropylene
Electrodes	Vacuum deposited metal layers
Coating	Solvent resistant plastic case with resin sealing. Flame retardant execution (UL 94 V-0)
Construction	Extended double side metallized carrier film, internal series connection and metallized film (refer to general technical information).
Leads	Tinned copper wire
Reference standard	IEC 60384/17, IEC 60068, CECC 30000
Climatic category	55/100/56 (IEC 60068/1), FMD (DIN40040)
Operating temperature range	-55°...+105°C
Rated capacitance (Cr)	0,0022µF to 3,9µF, in compliance with IEC60063, E6 series. Refer to article table
Capacitance tolerance (at 1kHz)	±10% (code=K), ±5% (code=J) and ±20% (code=M). Other tolerances upon request
Capacitance temperature coefficient	Refer to graphs in general technical information
Long term stability (at 1kHz)	Capacitance variation≤ ±0,5% after a period of 2 years at standard environmental conditions
Rated voltage (Ur)	630, 1000, 1600, 2000 Vdc at +85°C (Permissible AC voltage at 60Hz: 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	Cr> 1µF
1kHz	3	3	4
10kHz	5	6	-
100kHz	15	-	-

Insulation resistance (IR)

(Measured between terminals, at 25±°C, after 1 minute of electrification at 100Vdc for Ur≥ 100Vdc and 50Vdc for Ur< 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≤ ±2%
DF change≤ 0,0010 at 1kHz
IR≥ 50% of initial limit value

Endurance test

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

Performance:
Capacitance change≤ ±2%
DF change≤ 0,0010 at 10kHz for Cr≤ 1µF
DF change≤ 0,0010 at 1kHz for Cr> 1µF
IR≥ 50% of initial limit value

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Resistance to soldering heat test

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

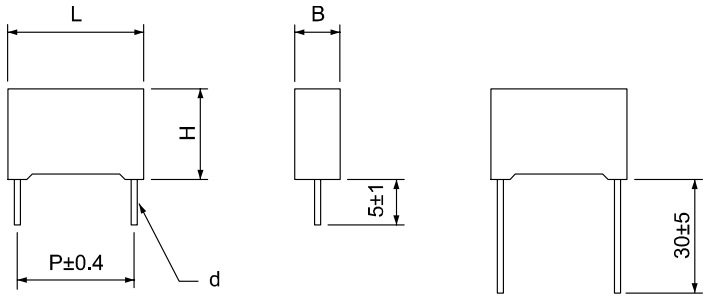
Performance:
Capacitance change≤ ±1%
DF change≤ 0,0010 at10kHz for Cr≤ 1µF
DF change≤ 0,0010 at 1kHz for Cr> 1µF
IR≥ 50% initial limit value

Reliability (MIL HDB 217)

Application conditions:
Applied voltage= 0,5xUr(DC)
Temperature= +40±2°C

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

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



PPR article table (different values available upon request)

Rated voltage Vdc	Rated voltage Vac	Cap. value (µF)	Dimension in mm B	H	L	P	d	du/dt V/µs	Ko V²/µs	ICEL ordering code(1)
630	400(2)	0,022	5	11	18	15	0,8	2500	315E04	PPR1632220*E#
630	400(2)	0,033	6	12	18	15	0,8	2500	315E04	PPR1632330*E#
630	400(2)	0,047	7,5	13,5	18	15	0,8	2500	315E04	PPR1632470*E#
630	400(2)	0,068	8,5	14,5	18	15	0,8	2500	315E04	PPR1632680*E#
630	400(2)	0,068	6	15	26,5	22,5	0,8	1500	189E04	PPR1632680*G#
630	400(2)	0,1	10	16	18	15	0,8	2500	315E04	PPR1633100*E#
630	400(2)	0,1	6	15	26,5	22,5	0,8	1500	189E04	PPR1633100*G#
630	400(2)	0,15	8,5	17	26,5	22,5	0,8	1500	189E04	PPR1633150*G#
630	400(2)	0,15	9	17	32	27,5	0,8	900	113E04	PPR1633150*H#
630	400(2)	0,22	10	18,5	26,5	22,5	0,8	1500	189E04	PPR1633220*G#
630	400(2)	0,22	9	17	32	27,5	0,8	900	113E04	PPR1633220*H#
630	400(2)	0,33	13	22	26,5	22,5	0,8	1500	189E04	PPR1633330*G#
630	400(2)	0,33	11	20	32	27,5	0,8	900	113E04	PPR1633330*H#
630	400(2)	0,47	13	22	32	27,5	0,8	900	113E04	PPR1633470*H#
630	400(2)	0,68	15	24,5	32	27,5	0,8	900	113E04	PPR1633680*H#
630	400(2)	1	18	33	32	27,5	0,8	900	113E04	PPR1634100*H#
630	400(2)	1	17	28	42,5	37,5	1	450	567E03	PPR1634100*J#
630	400(2)	1,5	22	37	32	27,5	0,8	900	113E04	PPR1634150*H#
630	400(2)	1,5	22	30	42,5	37,5	1	450	567E03	PPR1634150*J#
630	400(2)	2,2	28	37	42,5	37,5	1	450	567E03	PPR1634220*J#
630	400(2)	3,3	30	45	42,5	37,5	1	450	567E03	PPR1634330*J#
630	400(2)	3,9	30	45	42,5	37,5	1	450	567E03	PPR1634390*J#
1000	600(2)	0,01	5	11	18	15	0,8	3300	660E04	PPR2102100*E#
1000	600(2)	0,015	6	12	18	15	0,8	3300	660E04	PPR2102150*E#
1000	600(2)	0,022	7,5	13,5	18	15	0,8	3300	660E04	PPR2102220*E#
1000	600(2)	0,033	8,5	14,5	18	15	0,8	3300	660E04	PPR2102330*E#
1000	600(2)	0,033	6	15	26,5	22,5	0,8	2100	420E04	PPR2102330*G#
1000	600(2)	0,047	7	16	26,5	22,5	0,8	2100	420E04	PPR2102470*G#
1000	600(2)	0,068	8,5	17	26,5	22,5	0,8	2100	420E04	PPR2102680*G#
1000	600(2)	0,1	10	18,5	26,5	22,5	0,8	2100	420E04	PPR2103100*G#
1000	600(2)	0,1	9	17	32	27,5	0,8	1000	200E04	PPR2103100*H#
1000	600(2)	0,15	13	22	26,5	22,5	0,8	2100	420E04	PPR2103150*G#
1000	600(2)	0,15	11	20	32	27,5	0,8	1000	200E04	PPR2103150*H#
1000	600(2)	0,22	13	22	32	27,5	0,8	1000	200E04	PPR2103220*H#
1000	600(2)	0,33	14	28	32	27,5	0,8	1000	200E04	PPR2103330*H#

(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.

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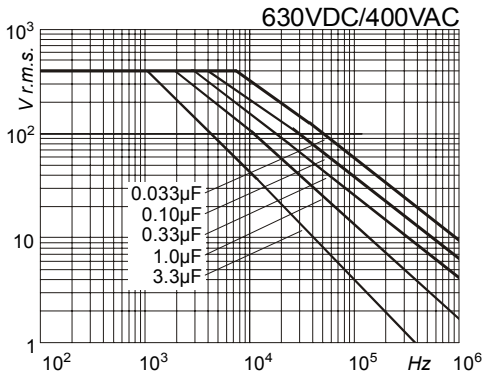
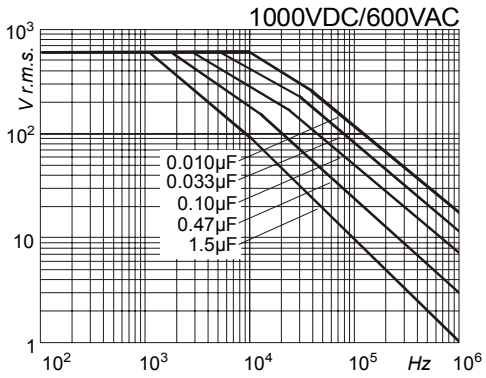
Rated voltage Vdc	Rated voltage Vac	Cap. value (µF)	Dimension in mm B	H	L	P	d	du/dt V/µs	Ko V²/µs	ICEL ordering code(1)
1000	600(2)	0,47	18	33	32	27,5	0,8	1000	200E04	PPR2103470*H#
1000	600(2)	0,68	22	37	32	27,5	0,8	1000	200E04	PPR2103680*H#
1000	600(2)	0,68	22	30	42,5	37,5	1	500	100E04	PPR2103680*J#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

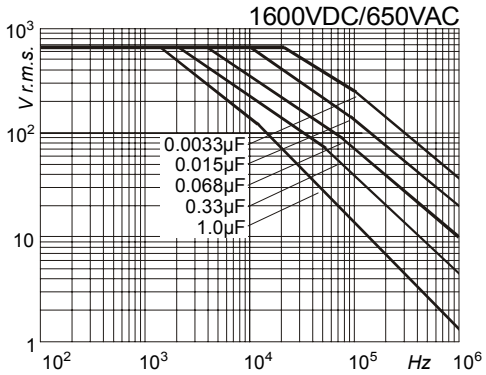
(1)Change the * symbol with the needed capacitance tolerance code: J=±5%, K=±10%, M=±20% and the # symbol with S for 5mm lead length and with L for 30 mm lead length. (2)Not suitable for across the line application.

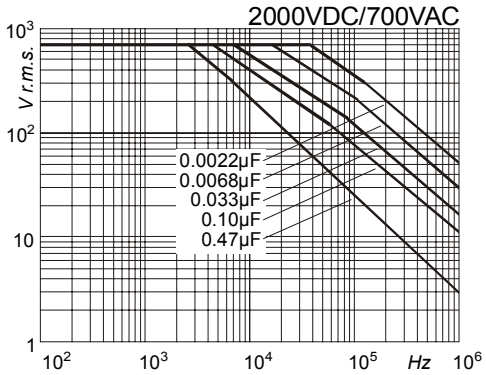
Permissible AC voltage versus frequency (sinusoidal waveform) for ΔT= +10°C

Referred to the largest pitch execution among available ones









Warning

This specification must be completed with the data given in the "General technical information" chapter