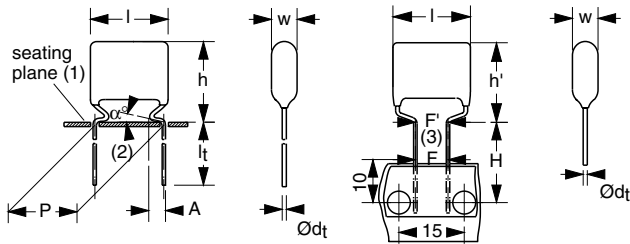
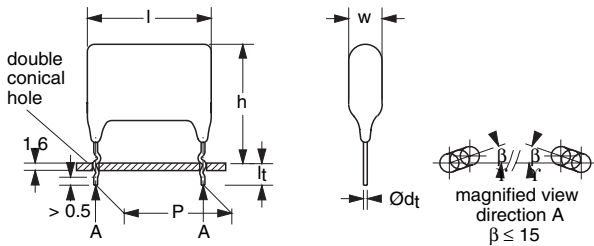


AC and Pulse Polypropylene Film Capacitors MKP Radial Epoxy Lacquered Type



Dimensions in mm

- (1) Hole \varnothing 1.0 for $d_t = 0.6$ mm
Hole \varnothing 1.3 for $d_t = 0.8$ mm
- (2) $0 \leq \alpha < 50^\circ$
- (3) $|F - F'| < 0.3$ mm
 $F = 7.5 + 0.6/-0.1$ mm
- (4) $A = 2.0 + 1.0/-0.5$ mm (pitch = 10.0 mm)
 $A = 2.5 + 1.4/-0.5$ mm (pitch = 15.0 mm; 22.5 mm and 27.5 mm)



Dimensions in mm

APPLICATIONS

Low losses due to low contact resistance and low loss dielectric result in applications where high currents at high frequency occur or high stability is preferred. Typical for S-correction in TV-sets and monitor. Their small dimensions make them suitable for circuits with high packaging density.

MARKING

Manufacturer's emblem; C-value; tolerance; rated voltage; manufacturer's type designation; code for dielectric material; code for monitor type

DIELECTRIC

Polypropylene film

ELECTRODES

Vacuum deposited aluminum

COATING

Flame retardant epoxy material (UL-class 94 V-0)

LEADS

Tinned wire

FEATURES

7.5 mm bent back pitch. 10 to 27.5 mm lead pitch. 10 to 27.5 mm lead pitch. Low contact resistance. Low loss dielectric. Supplied loose in box (including lock lead versions) and taped on reel

- Lead (Pb)-free product
- RoHS-compliant product



**RoHS
COMPLIANT**

CONSTRUCTION

Wound mono construction

CAPACITANCE RANGE (E24 SERIES)

0.01 to 3.9 μ F

CAPACITANCE TOLERANCE

$\pm 5 \%$

RATED (DC) VOLTAGE

160 V; 250 V; 400 V; 630 V

RATED (AC) VOLTAGE

100 V; 160 V; 200 V; 200 V

RATED PEAK-TO-PEAK VOLTAGE

280 V; 450 V; 560 V; 560 V

CLIMATIC CATEGORY

55/105/56

RATED TEMPERATURE

85 $^\circ$ C

MAXIMUM APPLICATION TEMPERATURE

105 $^\circ$ C

REFERENCE SPECIFICATIONS

IEC 60384-17

PERFORMANCE GRADE

Grade 1 (long life)

STABILITY GRADE

Grade 2

DETAIL SPECIFICATION

For more detailed data and test requirements contact:
filmcaps.roeselare@vishay.com



AC and Pulse Polypropylene
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COMPOSITION OF CATALOG NUMBER

TYPE AND PITCHES	
479	15.0/7.5 mm
	10.0 mm
	15.0 mm
	22.5 mm
	27.5 mm

CAPACITANCE
(numerically; but not
for lock lead)

MULTIPLIER (nF)	
0.1	2
1	3
10	4
100	5

Example:
104 = 10 x 10 = 100 nF

2222	479	XX	XX	X
BFC2*	479	XX	XX	X

* Use this partnumber for those with access to the Vishay's SAP system and Partners website within the Americas

TYPE	PACKAGING	LEAD CONFIGURATION	PREFERRED TYPES						
			C-TOL	160 V	250 V	400 V	630 V	250 V	400 V
								monitor type	monitor type
479	loose in box	lead length 5.0 ± 1.0 mm	± 5 %	32	42	52	62	41	51
		lock lead 4.0 + 1.0/- 0.5 mm		90	90	90	90	90	90
	Taped on reel (bent back)	H = 16.0 mm; P ₀ = 15.0 mm; reel diameter 500 mm		36	46	56	66	49	59
dimensions relating to this code should remain in Parenthesis									
			ON REQUEST						
479	loose in box	lead length 3.5 + 1.0/- 0.5 mm	± 5 %	34	44	54	64	43	53
	taped on reel	H = 16.0 mm; P ₀ = 12.7 mm; reel diameter 500 mm		35	45	55	65	47	57

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SPECIFIC REFERENCE DATA (160 VDC)

DESCRIPTION	VALUE	
	at 10 kHz	at 100 kHz
Tangent of loss angle:		
C = 0.075 µF	≤ 5 × 10 ⁻⁴	≤ 20 × 10 ⁻⁴
0.075 µF < C ≤ 0.11 µF	≤ 5 × 10 ⁻⁴	≤ 25 × 10 ⁻⁴
0.11 µF < C ≤ 0.18 µF	≤ 10 × 10 ⁻⁴	≤ 30 × 10 ⁻⁴
0.18 µF < C ≤ 0.3 µF	≤ 10 × 10 ⁻⁴	≤ 35 × 10 ⁻⁴
0.3 µF < C ≤ 0.39 µF	≤ 10 × 10 ⁻⁴	≤ 40 × 10 ⁻⁴
0.39 µF < C ≤ 0.56 µF	≤ 10 × 10 ⁻⁴	≤ 45 × 10 ⁻⁴
0.56 µF < C ≤ 0.68 µF	≤ 10 × 10 ⁻⁴	≤ 50 × 10 ⁻⁴
0.68 µF < C ≤ 0.75 µF	≤ 10 × 10 ⁻⁴	≤ 55 × 10 ⁻⁴
C = 0.82 µF	≤ 10 × 10 ⁻⁴	≤ 55 × 10 ⁻⁴
0.82 µF < C ≤ 0.91 µF	≤ 10 × 10 ⁻⁴	≤ 60 × 10 ⁻⁴
0.91 µF < C ≤ 1.0 µF	≤ 10 × 10 ⁻⁴	≤ 65 × 10 ⁻⁴
1.0 µF < C ≤ 1.2 µF	≤ 10 × 10 ⁻⁴	≤ 70 × 10 ⁻⁴
1.2 µF < C ≤ 1.3 µF	≤ 10 × 10 ⁻⁴	≤ 75 × 10 ⁻⁴
1.3 µF < C ≤ 1.5 µF	≤ 10 × 10 ⁻⁴	≤ 80 × 10 ⁻⁴
1.5 µF < C ≤ 1.6 µF	≤ 10 × 10 ⁻⁴	≤ 85 × 10 ⁻⁴
1.6 µF < C ≤ 1.8 µF	≤ 10 × 10 ⁻⁴	≤ 90 × 10 ⁻⁴
1.8 µF < C ≤ 2.0 µF	≤ 10 × 10 ⁻⁴	≤ 95 × 10 ⁻⁴
2.0 µF < C ≤ 2.2 µF	≤ 10 × 10 ⁻⁴	≤ 100 × 10 ⁻⁴
2.2 µF < C ≤ 2.4 µF	≤ 15 × 10 ⁻⁴	≤ 105 × 10 ⁻⁴
2.4 µF < C ≤ 2.7 µF	≤ 15 × 10 ⁻⁴	≤ 110 × 10 ⁻⁴
2.7 µF < C ≤ 3.0 µF	≤ 15 × 10 ⁻⁴	≤ 115 × 10 ⁻⁴
3.0 µF < C ≤ 3.3 µF	≤ 15 × 10 ⁻⁴	≤ 120 × 10 ⁻⁴
3.3 µF < C ≤ 3.6 µF	≤ 15 × 10 ⁻⁴	≤ 130 × 10 ⁻⁴
3.6 µF < C ≤ 3.9 µF	≤ 15 × 10 ⁻⁴	≤ 135 × 10 ⁻⁴
Rated voltage pulse slope (dU/dt) _R at 160 V (DC):		
P = 10 mm		60 V/µs
P = 15 mm		50 V/µs
P = 22.5 mm		25 V/µs
P = 27.5 mm		15 V/µs
R between leads, for C ≤ 1.0 µF at 100 V; 1 minute		> 100000 MΩ
RC between leads, for C > 1 µF at 100 V; 1 minute		> 100000 s
R between leads and case; 100 V; 1 minute		> 100000 MΩ
Ionization (AC) voltage (typical value) at 50 pC peak discharge		> 220 V
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s		256 V; 1 minute
Withstanding (DC) voltage between leads and case		2840 V; 1 minute

U_{Rdc} = 160 V; U_{Rac} = 100 V; U_{p-p} = 280 V (standard)

C (µF)	DIMENSIONS wmax × h (h')max × lma x (mm)	MASS (g)	CATALOG NUMBER 2222 479 AND PACKAGING				
			LOOSE IN BOX		REEL		
			lt = 5.0 ± 1.0 mm	all leads	pitch 7.5 mm (bent back)		original pitch
			C-tol = ± 5 %	SPQ	C-tol = ± 5 %	SPQ	SPQ
last 5 digits of catalog number	last 5 digits of catalog number						
Pitch = 10.0 ± 0.4 mm; d_t = 0.60 ± 0.06 mm			pitch = 7.5 mm (bent back)		pitch = 10.0 mm		
0.075	6.0 × 15.0 × 12.5	0.9	32753	1000		1000	
0.082			32823				
0.091			32913				
0.1			32104				
0.11			32114				
0.12			32124				
0.13			32134				



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C (μ F)	DIMENSIONS wmax × h (h')max × lmax x (mm)	MASS (g)	CATALOG NUMBER 2222 479 AND PACKAGING				
			LOOSE IN BOX		REEL		
			lt = 5.0 ± 1.0 mm	all leads	pitch 7.5 mm (bent back)		original pitch
			C-tol = ± 5 %	SPQ	C-tol = ± 5 %	SPQ	SPQ
last 5 digits of catalog number	last 5 digits of catalog number						
0.15 0.16	6.5 × 15.5 × 12.5	1.0	32154 32164	1000			900
Pitch = 15.0 ± 0.4 mm; d_t = 0.80 ± 0.08 mm					pitch = 7.5 mm (bent back)		pitch = 15.0 mm
0.18	6.0 × 15.0 (16.5) × 18.5	1.2	32184	2000	36184	800	1000
0.20 0.22	6.5 × 15.5 (17.0) × 18.5	1.3	32204 32224	1500	36204 36224	750	900
0.24 0.27 0.30 0.33 0.36 0.39	7.0 × 16.0 (17.5) × 18.5	1.4	32244 32274 32304 32334 32364 32394	1250	36244 36274 36304 36334 36364 36394	700	800
0.43 0.47	7.5 × 16.5 (18.0) × 18.5	1.5	32434 32474	1250	36434 36474	650	800
0.51 0.56	8.0 × 17.0 (18.5) × 18.5	1.6	32514 32564	1250	36514 36564	600	700
0.62	8.5 × 17.5 (19.0) × 18.5	1.7	32624	1000	36624	550	700
0.68	9.0 × 18.0 (19.5) × 18.5	1.8	32684	1000	36684	550	600
0.75	9.5 × 18.5 (20.0) × 18.5	1.9	32754	900	36754	500	600
Pitch = 22.5 ± 0.4 mm; d_t = 0.80 ± 0.08 mm					pitch = 7.5 mm (bent back)		pitch = 22.5 mm
0.82	7.0 × 20.0 × 26.0	1.8	32824	650			550
0.91 1	7.5 × 20.5 × 26.0	1.9	32914 32105	600			500
1.1	8.0 × 21.0 × 26.0	2.0	32115	550			500
1.2 1.3	8.5 × 21.5 × 26.0	2.1	32125 32135	500			450
1.5 1.6	9.5 × 22.5 × 26.0	2.4	32155 32165	450			400
1.8	10.0 × 23.0 × 26.0	2.5	32185	400			400
Pitch = 27.5 ± 0.4 mm; d_t = 0.80 ± 0.08 mm					pitch = 7.5 mm (bent back)		pitch = 27.5 mm
2	10.0 × 23.0 × 30.0	5.0	32205	450			
2.2	10.5 × 23.5 × 30.0	5.0	32225	450			
2.4	11.0 × 24.0 × 30.0	5.5	32245	400			
2.7	11.5 × 24.5 × 30.0	5.5	32275	400			
3	12.0 × 25.0 × 30.0	6.0	32305	350			
3.3	13.0 × 26.0 × 30.0	6.5	32335	300			
3.6	13.5 × 26.5 × 30.0	7.0	32365	300			
3.9	14.0 × 27.0 × 30.0	7.0	32395	300			

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$U_{Rdc} = 160\text{ V}$; $U_{Rac} = 100\text{ V}$; $U_{p-p} = 280\text{ V}$ (lock lead)

C (μF)	DIMENSIONS $w_{max} \times h_{max} \times l_{max}$ (mm)	MASS (g)	CATALOG NUMBER 2222 479 AND PACKAGING	
			LOOSE IN BOX	
			$l_t = 4.0 + 1.0/- 0.5\text{ mm}$	
			C-tol = $\pm 5\%$ last 5 digits of catalog number	SPQ
Pitch = $10.0 \pm 1.0\text{ mm}$; $d_t = 0.60 \pm 0.06\text{ mm}$				
0.075	6.0 × 18.0 × 12.5	0.9	90089	1400
0.082			90091	
0.091			90092	
0.1			90093	
0.11			90094	
0.12			90095	
0.13			90096	
0.15	6.5 × 18.5 × 12.5	1.0	90097	1250
0.16			90098	
Pitch = $15.0 \pm 1.0\text{ mm}$; $d_t = 0.80 \pm 0.08\text{ mm}$				
0.18	6.0 × 18.0 × 18.5	1.2	90099	1500
0.20	6.5 × 18.5 × 18.5	1.3	90101	1250
0.22			90102	
0.24	7.0 × 19.0 × 18.5	1.4	90103	1250
0.27			90104	
0.30			90105	
0.33			90106	
0.36			90107	
0.39			90108	
0.43	7.5 × 19.5 × 18.5	1.5	90109	1000
0.47			90111	
0.51	8.0 × 20.0 × 18.5	1.6	90112	1000
0.56			90113	
0.62	8.5 × 20.5 × 18.5	1.7	90114	900
0.68	9.0 × 21.0 × 18.5	1.8	90115	800
0.75	9.5 × 21.5 × 18.5	1.9	90116	800
Pitch = $22.5 \pm 1.0\text{ mm}$; $d_t = 0.80 \pm 0.08\text{ mm}$				
0.82	7.0 × 23.0 × 26.0	1.8	90117	850
0.91	7.5 × 23.5 × 26.0	1.9	90118	750
1			90119	
1.1	8.0 × 24.0 × 26.0	2.0	90121	700
1.2	8.5 × 24.5 × 26.0	2.1	90122	650
1.3			90036	
1.5	9.5 × 25.5 × 26.0	2.4	90037	550
1.6			90038	
1.8	10.0 × 26.0 × 26.0	2.5	90039	500
Pitch = $27.5 \pm 1.0\text{ mm}$; $d_t = 0.80 \pm 0.08\text{ mm}$				
2	10.0 × 26.0 × 30.0	5.0	90041	400
2.2	10.5 × 26.5 × 30.0	5.0	90042	400
2.4	11.0 × 27.0 × 30.0	5.5	90123	350
2.7	11.5 × 27.5 × 30.0	5.5	90124	350
3	12.0 × 28.0 × 30.0	6.0	90125	350
3.3	13.0 × 29.0 × 30.0	6.5	90126	300
3.6	13.5 × 29.5 × 30.0	7.0	90127	250
3.9	14.0 × 30.0 × 30.0	7.0	90128	250



AC and Pulse Polypropylene
Film Capacitors MKP Radial Epoxy
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SPECIFIC REFERENCE DATA (250 VDC)

DESCRIPTION	VALUE	
	at 10 kHz	at 100 kHz
Tangent of loss angle:		
0.047 $\mu\text{F} < C \leq 0.075 \mu\text{F}$	$\leq 5 \times 10^{-4}$	$\leq 20 \times 10^{-4}$
0.075 $\mu\text{F} < C \leq 0.11 \mu\text{F}$	$\leq 5 \times 10^{-4}$	$\leq 25 \times 10^{-4}$
0.11 $\mu\text{F} < C \leq 0.18 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 30 \times 10^{-4}$
0.18 $\mu\text{F} < C \leq 0.3 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 35 \times 10^{-4}$
0.3 $\mu\text{F} < C \leq 0.39 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 40 \times 10^{-4}$
0.39 $\mu\text{F} < C \leq 0.47 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 45 \times 10^{-4}$
0.51 $\mu\text{F} < C \leq 0.56 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 45 \times 10^{-4}$
0.56 $\mu\text{F} < C \leq 0.68 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 50 \times 10^{-4}$
0.68 $\mu\text{F} < C \leq 0.82 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 55 \times 10^{-4}$
0.82 $\mu\text{F} < C \leq 0.91 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 60 \times 10^{-4}$
0.91 $\mu\text{F} < C \leq 1.0 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 65 \times 10^{-4}$
1.0 $\mu\text{F} < C \leq 1.2 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 70 \times 10^{-4}$
1.2 $\mu\text{F} < C \leq 1.3 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 75 \times 10^{-4}$
1.3 $\mu\text{F} < C \leq 1.5 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 80 \times 10^{-4}$
1.5 $\mu\text{F} < C \leq 1.6 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 85 \times 10^{-4}$
1.6 $\mu\text{F} < C \leq 1.8 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 90 \times 10^{-4}$
1.8 $\mu\text{F} < C \leq 2.0 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 95 \times 10^{-4}$
2.0 $\mu\text{F} < C \leq 2.2 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 100 \times 10^{-4}$
2.2 $\mu\text{F} < C \leq 2.4 \mu\text{F}$	$\leq 15 \times 10^{-4}$	$\leq 105 \times 10^{-4}$
2.4 $\mu\text{F} < C \leq 2.7 \mu\text{F}$	$\leq 15 \times 10^{-4}$	$\leq 110 \times 10^{-4}$
2.7 $\mu\text{F} < C \leq 3 \mu\text{F}$	$\leq 15 \times 10^{-4}$	$\leq 115 \times 10^{-4}$
Rated voltage pulse slope (dU/dt) _R :		
P = 10.0 mm		70 V/ μs
P = 15.0 mm		60 V/ μs
P = 22.5 mm		30 V/ μs
P = 27.5 mm		20 V/ μs
R between leads, for C \leq 1.0 μF at 100 V; 1 minute		> 100000 M Ω
RC between leads, for C > 1 μF at 100 V; 1 minute		> 100000 s
R between leads and case; 100 V; 1 minute		> 100000 M Ω
Ionization (AC) voltage (typical value) at 50 pC peak discharge		> 220 V
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s		400 V; 1 minute
Withstanding (DC) voltage between leads and case		2840 V; 1 minute

U_{Rdc} = 250 V; U_{Rac} = 160 V; U_{p-p} = 450 V (standard)

C (μF)	DIMENSIONS wmax \times h (h')max \times lmax ax (mm)	MASS (g)	CATALOG NUMBER 2222 479 AND PACKAGING			
			LOOSE IN BOX		REEL	
			It = 5.0 \pm 1.0 mm	all leads	pitch 7.5 mm (bent back)	original pitch
			C-tol = \pm 5 %	SPQ	C-tol = \pm 5 %	SPQ
last 5 digits of catalog number	last 5 digits of catalog number	SPQ				
Pitch = 10.0 \pm 0.4 mm; d _t = 0.60 \pm 0.06 mm			pitch = 7.5 mm (bent back)		pitch = 10.0 mm	
0.047	6.0 \times 15.0 \times 12.5	0.9	42473	1000	1000	
0.051			42513			
0.056			42563			
0.062			42623			
0.068			42683			
0.075			42753			
0.082			42823			
0.091			42913			
0.1	6.5 \times 15.5 \times 12.5	1.0	42104	1000	900	

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C (μ F)	DIMENSIONS $w_{max} \times h (h')_{max} \times l_{max}$ (mm)	MASS (g)	CATALOG NUMBER 2222 479 AND PACKAGING				
			LOOSE IN BOX		REEL		
			$l_t = 5.0 \pm 1.0$ mm	all leads	pitch 7.5 mm (bent back)		original pitch
			C-tol = ± 5 %	SPQ	C-tol = ± 5 %	SPQ	SPQ
last 5 digits of catalog number	last 5 digits of catalog number						
Pitch = 15.0 ± 0.4 mm; $d_t = 0.80 \pm 0.08$ mm			pitch = 7.5 mm (bent back)			pitch = 15.0 mm	
0.11	6.5 × 15.5 (17.0) × 18.5	1.3	42114	1500	46114	750	900
0.12			42124		46124		
0.13			42134		46134		
0.15			42154		46154		
0.16			42164		46164		
0.18			42184		46184		
0.20			42204		46204		
0.22			42224		46224		
0.24	7.0 × 16.0 (17.5) × 18.5	1.4	42244	1250	46244	700	800
0.27	7.5 × 16.5 (18.0) × 18.5	1.5	42274	1250	46274	650	800
0.30			42304		46304		
0.33	8.0 × 17.0 (18.5) × 18.5	1.6	42334	150	46334	600	700
0.36	8.5 × 17.5 (19.0) × 18.5	1.7	42364	1000	46364	550	700
0.39			42394		46394		
0.43	9.0 × 18.0 (19.5) × 18.5	1.8	42434	1000	46434	550	600
0.47	9.5 × 18.5 (20.0) × 18.5	1.9	42474	900	46474	500	600
Pitch = 22.5 ± 0.4 mm; $d_t = 0.80 \pm 0.08$ mm			pitch = 7.5 mm (bent back)			pitch = 22.5 mm	
0.51	7.0 × 20.0 × 26.0	1.8	42514	650			550
0.56			42564				500
0.62	7.5 × 20.5 × 26.0	1.9	42624	600			500
0.68			42684				500
0.75	8.0 × 21.0 × 26.0	2.0	42754	550			450
0.82	8.5 × 21.5 × 26.0	2.1	42824	500			450
0.91	9.0 × 22.0 × 26.0	2.4	42914	450			400
1.0	9.5 × 22.5 × 26.0	2.5	42105	450			400
1.1	10.0 × 23.0 × 26.0	2.6	42115	400			350
1.2	10.5 × 23.5 × 26.0	2.7	42125	350			
Pitch = 27.5 ± 0.4 mm; $d_t = 0.80 \pm 0.08$ mm			pitch = 7.5 mm (bent back)			pitch = 27.5 mm	
1.3	10.0 × 23.0 × 30.0	5.0	42135	450			
1.5	10.5 × 23.5 × 30.0	5.0	42155	450			
1.6	11.0 × 24.0 × 30.0	5.5	42165	400			
1.8	11.5 × 24.5 × 30.0	5.5	42185	400			
2.0	12.5 × 25.5 × 30.0	6.5	42205	350			
2.2	13.0 × 26.0 × 30.0	6.5	42225	300			
2.4	13.5 × 26.5 × 30.0	7.0	42245	300			
2.7	14.0 × 27.0 × 30.0	7.0	42275	300			
3.0	15.0 × 28.0 × 30.0	7.5	42305	250			



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AC and Pulse Polypropylene Film Capacitors MKP Radial Epoxy Lacquered Type

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$U_{Rdc} = 250\text{ V}$; $U_{Rac} = 160\text{ V}$; $U_{p-p} = 450\text{ V}$ (lock lead)

C (μF)	DIMENSIONS $w_{max} \times H_{max} \times l_{max}$ (mm)	MASS (g)	CATALOG NUMBER 2222 479 AND PACKAGING	
			LOOSE IN BOX	
			$l_t = 4.0 + 1.0/-0.5\text{ mm}$	
			C-tol = $\pm 5\%$ last 5 digits of catalog number	SPQ
Pitch = $10.0 \pm 1.0\text{ mm}$; $d_t = 0.60 \pm 0.06\text{ mm}$				
0.047	6.0 × 18.0 × 12.5	0.9	90052	1400
0.051			90129	
0.056			90131	
0.062			90132	
0.068			90133	
0.075			90134	
0.082			90135	
0.091			90136	
0.1	6.5 × 18.5 × 12.5	1.0	90137	1250
Pitch = $15.0 \pm 1.0\text{ mm}$; $d_t = 0.80 \pm 0.08\text{ mm}$				
0.11	6.5 × 18.5 × 18.5	1.3	90138	1250
0.12			90051	
0.13			90139	
0.15			90141	
0.16			90142	
0.18			90012	
0.20			90013	
0.22			90014	
0.24	7.0 × 19.0 × 18.5	1.4	90015	1250
0.27	7.5 × 19.5 × 18.5	1.5	90016	1000
0.30			90017	
0.33	8.0 × 20.0 × 18.5	1.6	90018	1000
0.36	8.5 × 20.5 × 18.5	1.7	90019	900
0.39			90021	
0.43	9.0 × 21.0 × 18.5	1.8	90022	800
0.47	9.5 × 21.5 × 18.5	1.9	90023	800
Pitch = $22.5 \pm 1.0\text{ mm}$; $d_t = 0.80 \pm 0.08\text{ mm}$				
0.51	7.0 × 23.0 × 26.0	1.8	90024	850
0.56			90025	
0.62	7.5 × 23.5 × 26.0	1.9	90026	750
0.68			90027	
0.75	8.0 × 24.0 × 26.0	2.0	90028	700
0.82	8.5 × 24.5 × 26.0	2.1	90029	650
0.91	9.0 × 25.0 × 26.0	2.4	90031	600
1.0	9.5 × 25.5 × 26.0	2.5	90032	550
1.1	10.0 × 26.0 × 26.0	2.6	90033	500
1.2	10.5 × 26.5 × 26.0	2.7	90034	500
Pitch = $27.5 \pm 1.0\text{ mm}$; $d_t = 0.80 \pm 0.08\text{ mm}$				
1.3	10.0 × 26.0 × 30.0	5.0	90143	400
1.5	10.5 × 26.5 × 30.0	5.0	90144	400
1.6	11.0 × 27.0 × 30.0	5.5	90145	350
1.8	11.5 × 27.5 × 30.0	5.5	90146	350
2.0	12.5 × 28.5 × 30.0	6.5	90147	300
2.2	13.0 × 29.0 × 30.0	6.5	90148	300
2.4	13.5 × 29.5 × 30.0	7.0	90149	250
2.7	14.0 × 30.0 × 30.0	7.0	90151	250
3.0	15.0 × 31.0 × 30.0	7.5	90152	200

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AC and Pulse Polypropylene
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SPECIFIC REFERENCE DATA (400 VDC)

DESCRIPTION	VALUE	
	at 10 kHz	at 100 kHz
Tangent of loss angle:		
0.022 $\mu\text{F} < C \leq 0.027 \mu\text{F}$	$\leq 5 \times 10^{-4}$	$\leq 15 \times 10^{-4}$
0.027 $\mu\text{F} < C \leq 0.075 \mu\text{F}$	$\leq 5 \times 10^{-4}$	$\leq 20 \times 10^{-4}$
0.075 $\mu\text{F} < C \leq 0.11 \mu\text{F}$	$\leq 5 \times 10^{-4}$	$\leq 25 \times 10^{-4}$
0.11 $\mu\text{F} < C \leq 0.18 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 30 \times 10^{-4}$
0.18 $\mu\text{F} < C \leq 0.22 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 35 \times 10^{-4}$
0.24 $\mu\text{F} < C \leq 0.3 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 35 \times 10^{-4}$
0.3 $\mu\text{F} < C \leq 0.39 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 40 \times 10^{-4}$
0.39 $\mu\text{F} < C \leq 0.56 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 45 \times 10^{-4}$
0.56 $\mu\text{F} < C \leq 0.68 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 50 \times 10^{-4}$
0.68 $\mu\text{F} < C \leq 0.82 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 55 \times 10^{-4}$
0.82 $\mu\text{F} < C \leq 0.91 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 60 \times 10^{-4}$
0.91 $\mu\text{F} < C \leq 1.0 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 65 \times 10^{-4}$
1.0 $\mu\text{F} < C \leq 1.2 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 70 \times 10^{-4}$
Rated voltage pulse slope $(dU/dt)_R$ at 400 V (DC):		
P = 10.0 mm		80 V/ μs
P = 15.0 mm		70 V/ μs
P = 22.5 mm		35 V/ μs
P = 27.5 mm		25 V/ μs
R between leads, for $C \leq 1.0 \mu\text{F}$ at 100 V; 1 minute		$> 100000 \text{ M}\Omega$
RC between leads, for $C > 1.0 \mu\text{F}$ at 100 V; 1 minute		$> 100000 \text{ s}$
R between leads and case; 100 V; 1 minute		$> 100000 \text{ M}\Omega$
Ionization (AC) voltage (typical value) at 50 pC peak discharge		$> 220 \text{ V}$
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s		640 V; 1 minute
Withstanding (DC) voltage between leads and case		2840 V; 1 minute

$U_{Rdc} = 400 \text{ V}$; $U_{Rac} = 200 \text{ V}$; $U_{p-p} = 560 \text{ V}$ (standard)

C (μF)	DIMENSIONS $w_{\text{max}} \times h \text{ (h')max} \times l_{\text{max}}$ x (mm)	MASS (g)	CATALOG NUMBER 2222 479 AND PACKAGING				
			LOOSE IN BOX		REEL		
			$l_t = 5.0 \pm 1.0 \text{ mm}$	all leads	pitch 7.5 mm (bent back)		original pitch
			C-tol = $\pm 5 \%$	SPQ	C-tol = $\pm 5 \%$	SPQ	SPQ
last 5 digits of catalog number	last 5 digits of catalog number						
Pitch = $10.0 \pm 0.4 \text{ mm}$; $d_t = 0.60 \pm 0.06 \text{ mm}$					pitch = 7.5 mm (bent back)		pitch = 10.0 mm
0.022	6.0 x 15.0 x 12.5	0.9	52223	1000			1000
0.024			52243				
0.027			52273				
0.03			52303				
0.033			52333				
0.036			52363				
0.039			52393				
0.043			52433				
0.047	52473						
Pitch = $15.0 \pm 0.4 \text{ mm}$; $d_t = 0.80 \pm 0.08 \text{ mm}$					pitch = 7.5 mm (bent back)		pitch = 15.0 mm
0.051	6.5 x 15.5 (17.0) x 18.5	1.3	52513	1500	56513	750	900
0.056			52563		56563		
0.062			52623		56623		
0.068			52683		56683		
0.075			52753		56753		
0.082			52823		56823		



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AC and Pulse Polypropylene Film Capacitors MKP Radial Epoxy Lacquered Type

Vishay BCcomponents

C (μ F)	DIMENSIONS $w_{max} \times h (h')_{max} \times l_{max}$ (mm)	MASS (g)	CATALOG NUMBER 2222 479 AND PACKAGING				
			LOOSE IN BOX		REEL		
			$l_t = 5.0 \pm 1.0$ mm	all leads	pitch 7.5 mm (bent back)		original pitch
			C-tol = ± 5 %	SPQ	C-tol = ± 5 %	SPQ	SPQ
last 5 digits of catalog number	last 5 digits of catalog number						
0.091 0.1 0.11 0.12	7.0 × 16.0 (17.5) × 18.5	1.4	52913 52104 52114 52124	1250	56913 56104 56114 56124	700	800
0.13 0.15	7.5 × 16.5 (18.0) × 18.5	1.5	52134 52154	1250	56134 56154	650	800
0.16	8.0 × 17.0 (18.5) × 18.5	1.6	52164	1250	56164	600	700
0.18 0.2	8.5 × 17.5 (19.0) × 18.5	1.7	52184 52204	1000	56184 56204	550	700
0.22	9.0 × 18.0 (19.5) × 18.5	1.8	52224	1000	56224	550	600
Pitch = 22.5 ± 0.4 mm; $d_t = 0.80 \pm 0.08$ mm					pitch = 7.5 mm (bent back)		pitch = 22.5 mm
0.24	6.5 × 19.5 × 26.0	1.7	52244	750			600
0.27	7.0 × 20.0 × 26.0	1.8	52274	650			550
0.3 0.33	7.5 × 20.5 × 26.0	1.9	52304 52334	600			500
0.36	8.0 × 21.0 × 26.0	2.0	52364	550			500
0.39 0.43	8.5 × 21.5 × 26.0	2.1	52394 52434	500			450
0.47	9.0 × 22.0 × 26.0	2.4	52474	450			450
0.51	9.5 × 22.5 × 26.0	2.5	52514	450			400
0.56	10.0 × 23.0 × 26.0	2.6	52564	400			400
0.62	10.5 × 23.5 × 26.0	2.7	52624	350			350
Pitch = 27.5 ± 0.4 mm; $d_t = 0.80 \pm 0.08$ mm					pitch = 7.5 mm (bent back)		pitch = 27.5 mm
0.68	10.0 × 23.0 × 30.0	5.0	52684	450			
0.75	10.5 × 23.5 × 30.0	5.0	52754	450			
0.82	11.0 × 24.0 × 30.0	5.5	52824	400			
0.91	11.5 × 24.5 × 30.0	5.5	52914	400			
1.0	12.0 × 25.0 × 30.0	6.0	52105	350			
1.1	12.5 × 25.5 × 30.0	6.5	52115	350			
1.2	13.0 × 26.0 × 30.0	6.5	52125	300			

$U_{Rdc} = 400$ V; $U_{Rac} = 200$ V; $U_{p-p} = 560$ V (lock lead)

C (μ F)	DIMENSIONS $w_{max} \times h_{max} \times l_{max}$ (mm)	MASS (g)	CATALOG NUMBER 2222 479 AND PACKAGING	
			LOOSE IN BOX	
			$l_t = 4.0 + 1.0/-0.5$ mm	
			C-tol = ± 5 %	
		last 5 digits of catalog number	SPQ	
Pitch = 10.0 ± 1.0 mm; $d_t = 0.60 \pm 0.06$ mm				
0.022 0.024 0.027 0.03 0.033	6.0 × 18.0 × 12.5	0.9	90153 90154 90155 90156 90157	1400

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C (μ F)	DIMENSIONS $w_{max} \times h_{max} \times l_{max}$ (mm)	MASS (g)	CATALOG NUMBER 2222 479 AND PACKAGING	
			LOOSE IN BOX	
			$l_t = 4.0 + 1.0/- 0.5$ mm	
			C-tol = ± 5 %	
			last 5 digits of catalog number	SPQ
0.036 0.039 0.043 0.047	6.0 \times 18.0 \times 12.5	0.9	90158 90159 90161 90162	1400
Pitch = 15.0 \pm 1.0 mm; $d_t = 0.80 \pm 0.08$ mm				
0.051 0.056 0.062 0.068 0.075 0.082	6.5 \times 18.5 \times 18.5	1.3	90163 90164 90165 90166 90167 90168	1250
0.091 0.1 0.11 0.12	7.0 \times 19.0 \times 18.5	1.4	90169 90171 90172 90173	1250
0.13 0.15	7.5 \times 19.5 \times 18.5	1.5	90174 90175	1000
0.16	8.0 \times 20.0 \times 18.5	1.6	90176	1000
0.18 0.2	8.5 \times 20.5 \times 18.5	1.7	90177 90178	900
0.22	9.0 \times 21.0 \times 18.5	1.8	90179	800
Pitch = 22.5 \pm 1.0 mm; $d_t = 0.80 \pm 0.08$ mm				
0.24	6.5 \times 22.5 \times 26.0	1.7	90181	900
0.27	7.0 \times 23.0 \times 26.0	1.8	90182	850
0.3 0.33	7.5 \times 23.5 \times 26.0	1.9	90183 90184	750
0.36	8.0 \times 24.0 \times 26.0	2.0	90185	700
0.39 0.43	8.5 \times 24.5 \times 26.0	2.1	90186 90187	650
0.47	9.0 \times 25.0 \times 26.0	2.4	90188	600
0.51	9.5 \times 25.5 \times 26.0	2.5	90189	550
0.56	10.0 \times 26.0 \times 26.0	2.6	90191	500
0.62	10.5 \times 26.5 \times 26.0	2.7	90192	500
Pitch = 27.5 \pm 1.0 mm; $d_t = 0.80 \pm 0.08$ mm				
0.68	10.0 \times 26.0 \times 30.0	5.0	90193	400
0.75	10.5 \times 26.5 \times 30.0	5.0	90194	400
0.82	11.0 \times 27.0 \times 30.0	5.5	90195	350
0.91	11.5 \times 27.5 \times 30.0	5.5	90196	350
1.0	12.0 \times 28.0 \times 30.0	6.0	90086	350
1.1	12.5 \times 28.5 \times 30.0	6.5	90197	300
1.2	13.0 \times 29.0 \times 30.0	6.5	90198	300



AC and Pulse Polypropylene
Film Capacitors MKP Radial Epoxy
Lacquered Type

Vishay BCcomponents

SPECIFIC REFERENCE DATA (630 VDC)

DESCRIPTION	VALUE	
	at 10 kHz	at 100 kHz
Tangent of loss angle:		
0.01 $\mu\text{F} < C \leq 0.027 \mu\text{F}$	$\leq 5 \times 10^{-4}$	$\leq 15 \times 10^{-4}$
0.027 $\mu\text{F} < C \leq 0.075 \mu\text{F}$	$\leq 5 \times 10^{-4}$	$\leq 20 \times 10^{-4}$
0.075 $\mu\text{F} < C \leq 0.11 \mu\text{F}$	$\leq 5 \times 10^{-4}$	$\leq 25 \times 10^{-4}$
0.12 $\mu\text{F} < C \leq 0.18 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 30 \times 10^{-4}$
0.18 $\mu\text{F} < C \leq 0.3 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 35 \times 10^{-4}$
0.3 $\mu\text{F} < C \leq 0.39 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 40 \times 10^{-4}$
0.39 $\mu\text{F} < C \leq 0.56 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 45 \times 10^{-4}$
0.56 $\mu\text{F} < C \leq 0.68 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 50 \times 10^{-4}$
Rated voltage pulse slope (dU/dt) _R at 630 V (DC):		
P = 10.0 mm		100 V/ μs
P = 15.0 mm		90 V/ μs
P = 22.5 mm		45 V/ μs
P = 27.5 mm		30 V/ μs
R between leads, for C $\leq 1.0 \mu\text{F}$ at 500 V; 1 minute		> 100000 M Ω
R between leads and case; 500 V; 1 minute		> 100000 M Ω
Ionization (AC) voltage (typical value) at 50 pC peak discharge		> 220 V
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s		1008 V; 1 minute
Withstanding (DC) voltage between leads and case		2840 V; 1 minute

U_{Rdc} = 630 V; U_{Rac} = 200 V; U_{p-p} = 560 V (standard)

C (μF)	DIMENSIONS W _{max} × H (H') _{max} × L _{max} (mm)	MASS (g)	CATALOG NUMBER 2222 479 AND PACKAGING				
			LOOSE IN BOX		REEL		
			It = 5.0 ± 1.0 mm	ALL LEADS	PITCH 7.5 mm (BENT BACK)		ORIGINAL PITCH
			C-tol = ± 5 %	SPQ	C-tol = ± 5 %	SPQ	SPQ
LAST 5 DIGITS OF CATALOG NUMBER	LAST 5 DIGITS OF CATALOG NUMBER						
Pitch = 10.0 ± 0.4 mm; d_t = 0.60 ± 0.06 mm					pitch = 7.5 mm (bent back)	pitch = 10.0 mm	
0.01	6.0 x 15.0 x 12.5	0.9	62103	1000		1000	
0.011							
0.012							
0.013							
0.015							
0.016							
0.018							
0.02							
0.022							
0.024							
0.027	6.5 x 15.5 x 12.5	1.0	62273	1000		900	
Pitch = 15.0 ± 0.4 mm; d_t = 0.80 ± 0.08 mm					pitch = 7.5 mm (bent back)	pitch = 15.0 mm	
0.03	6.5 x 15.5 (17.0) x 18.5	1.3	62303	1500		900	
0.033							
0.036							
0.039							
0.043							
0.047							
0.051							
0.056							
0.062							
0.068							
0.075	7.0 x 16.0 (17.5) x 18.5	1.4	62623	1250	66623	700	
0.082	7.5 x 16.5 (18.0) x 18.5	1.5	62683	1250	66683	650	
0.075	8.0 x 17.0 (18.5) x 18.5	1.6	62753	1250		700	
0.082			62823				66753

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C (μ F)	DIMENSIONS $W_{max} \times H (H')_{max} \times L_{max}$ (mm)	MASS (g)	CATALOG NUMBER 2222 479 AND PACKAGING				
			LOOSE IN BOX		REEL		
			$l_t = 5.0 \pm 1.0$ mm	ALL LEADS	PITCH 7.5 mm (BENT BACK)		ORIGINAL PITCH
			C-tol = ± 5 %	SPQ	C-tol = ± 5 %	SPQ	SPQ
LAST 5 DIGITS OF CATALOG NUMBER	LAST 5 DIGITS OF CATALOG NUMBER						
0.091	8.5 x 17.5 (19.0) x 18.5	1.7	62913	1000	66913	550	700
0.1	9.0 x 18.0 (19.5) x 18.5	1.8	62104	1000	66104	550	600
0.11	9.5 x 18.5 (20.0) x 18.5	1.9	62114	900	66114	500	600
Pitch = 22.5 \pm 0.4 mm; $d_t = 0.80 \pm 0.08$ mm					pitch = 7.5 mm (bent back)		pitch = 22.5 mm
0.12	6.5 x 19.5 x 26.0	1.7	62124	750			600
0.13	7.0 x 20.0 x 26.0	1.8	62134	650			550
0.15	7.5 x 20.5 x 26.0	1.9	62154	600			500
0.16			62164				
0.18	8.0 x 21.0 x 26.0	2.0	62184	550			500
0.20	8.5 x 21.5 x 26.0	2.1	62204	500			450
0.22	9.0 x 22.0 x 26.0	2.4	62224	450			450
0.24			62244				
0.27	9.5 x 22.5 x 26.0	2.5	62274	450			400
0.30	10.0 x 23.0 x 26.0	2.7	62304	400			400
Pitch = 27.5 \pm 0.4 mm; $d_t = 0.80 \pm 0.08$ mm					pitch = 7.5 mm (bent back)		pitch = 27.5 mm
0.33	9.5 x 22.5 x 30.0	5.0	62334	550			
0.36	10.0 x 22.5 x 30.0	5.0	62364	500			
0.39	10.5 x 23.0 x 30.0	5.0	62394	450			
0.43	11.0 x 23.0 x 30.0	5.5	62434	450			
0.47	11.5 x 24.5 x 30.0	5.5	62474	400			
0.51	12.0 x 25.0 x 30.0	6.0	62514	350			
0.56	13.0 x 26.0 x 30.0	6.5	62564	300			
0.62	13.5 x 26.5 x 30.0	6.5	62624	300			
0.68	14.0 x 27.0 x 30.0	7.0	62684	300			

$U_{Rdc} = 630$ V; $U_{Rac} = 200$ V; $U_{p-p} = 560$ V (lock lead)

C (μ F)	DIMENSIONS $w_{max} \times h_{max} \times l_{max}$ (mm)	MASS (g)	CATALOG NUMBER 2222 479 AND PACKAGING	
			LOOSE IN BOX	
			$l_t = 4.0 + 1.0/- 0.5$ mm	
			C-tol = ± 5 %	SPQ
last 5 digits of catalog number				
Pitch = 10.0 \pm 1.0 mm; $d_t = 0.60 \pm 0.06$ mm				
0.01	6.0 x 18.0 x 12.5	0.9	90199	
0.011			90201	
0.012			90202	
0.013			90203	
0.015			90204	
0.016			90205	
0.018			90206	
0.02			90207	
0.022			90208	
0.024			90209	
0.027	6.5 x 18.5 x 12.5	1.0	90211	



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C (μ F)	DIMENSIONS $w_{max} \times h_{max} \times l_{max}$ (mm)	MASS (g)	CATALOG NUMBER 2222 479 AND PACKAGING	
			LOOSE IN BOX	
			$l_t = 4.0 + 1.0/-0.5$ mm	
			C-tol = $\pm 5\%$ last 5 digits of catalog number	SPQ
Pitch = 15.0 \pm 1.0 mm; $d_t = 0.80 \pm 0.08$ mm				
0.03	6.5 x 18.5 x 18.5	1.3	90212	1250
0.033			90213	
0.036			90214	
0.039			90215	
0.043			90216	
0.047			90217	
0.051			90218	
0.056			90219	
0.062			7.0 x 19.0 x 18.5	
0.068	7.5 x 19.5 x 18.5	1.5	90222	1000
0.075	8.0 x 20.0 x 18.5	1.6	90223	1000
0.082			90224	
0.091	8.5 x 20.5 x 18.5	1.7	90225	900
0.1	9.0 x 21.0 x 18.5	1.8	90226	800
0.11	9.5 x 21.5 x 18.5	1.9	90227	800
Pitch = 22.5 \pm 1.0 mm; $d_t = 0.80 \pm 0.08$ mm				
0.12	6.5 x 22.5 x 26.0	1.7	90228	900
0.13	7.0 x 23.0 x 26.0	1.8	90229	850
0.15	7.5 x 23.5 x 26.0	1.9	90231	750
0.16			90232	
0.18	8.0 x 24.0 x 26.0	2.0	90233	700
0.20	8.5 x 24.5 x 26.0	2.1	90234	650
0.22	9.0 x 25.0 x 26.0	2.4	90235	600
0.24			90236	
0.27	9.5 x 25.5 x 26.0	2.5	90237	550
0.30	10.0 x 26.0 x 26.0	2.7	90238	500
Pitch = 27.5 \pm 1.0 mm; $d_t = 0.80 \pm 0.08$ mm				
0.33	9.5 x 25.5 x 30.0	5.0	90239	450
0.36	10.0 x 25.5 x 30.0	5.0	90241	450
0.39	10.5 x 26.0 x 30.0	5.0	90242	400
0.43	11.0 x 26.0 x 30.0	5.5	90243	400
0.47	11.5 x 27.5 x 30.0	5.5	90244	350
0.51	12.0 x 28.0 x 30.0	6.0	90245	350
0.56	13.0 x 29.0 x 30.0	6.5	90246	300
0.62	13.5 x 29.5 x 30.0	6.5	90247	250
0.68	14.0 x 30.0 x 30.0	7.0	90248	250

MKP 479 Monitor

Vishay BCcomponents

AC and Pulse Polypropylene
Film Capacitors MKP Radial Epoxy
Lacquered Type



SPECIFIC REFERENCE DATA (250 VDC MONITOR)

DESCRIPTION	VALUE	
	at 10 kHz	at 100 kHz
Tangent of loss angle:		
0.022 $\mu\text{F} < C \leq 0.027 \mu\text{F}$	$\leq 5 \times 10^{-4}$	$\leq 15 \times 10^{-4}$
0.027 $\mu\text{F} < C \leq 0.075 \mu\text{F}$	$\leq 5 \times 10^{-4}$	$\leq 20 \times 10^{-4}$
0.075 $\mu\text{F} < C \leq 0.11 \mu\text{F}$	$\leq 5 \times 10^{-4}$	$\leq 25 \times 10^{-4}$
0.11 $\mu\text{F} < C \leq 0.18 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 30 \times 10^{-4}$
0.18 $\mu\text{F} < C \leq 0.22 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 35 \times 10^{-4}$
0.24 $\mu\text{F} < C \leq 0.3 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 35 \times 10^{-4}$
0.3 $\mu\text{F} < C \leq 0.39 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 40 \times 10^{-4}$
0.39 $\mu\text{F} < C \leq 0.56 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 45 \times 10^{-4}$
0.56 $\mu\text{F} < C \leq 0.68 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 50 \times 10^{-4}$
0.68 $\mu\text{F} < C \leq 0.82 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 55 \times 10^{-4}$
0.82 $\mu\text{F} < C \leq 0.91 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 60 \times 10^{-4}$
0.91 $\mu\text{F} < C \leq 1.0 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 65 \times 10^{-4}$
1.0 $\mu\text{F} < C \leq 1.2 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 70 \times 10^{-4}$
Rated voltage pulse slope (dU/dt) _R :		
P = 10.0 mm		160 V/ μs
P = 15.0 mm		140 V/ μs
P = 22.5 mm		70 V/ μs
P = 27.5 mm		50 V/ μs
R between leads, for C $\leq 1.0 \mu\text{F}$ at 100 V; 1 minute		>100000 M Ω
RC between leads, for C >1 μF at 100 V; 1 minute		> 100000 s
R between leads and case; 100 V; 1 minute		> 100000 M Ω
Ionization (AC) voltage (typical value) at 50 pC peak discharge		> 220 V
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s		400 V; 1 minute
Withstanding (DC) voltage between leads and case		2840 V; 1 minute

U_{Rdc} = 250 V; U_{Rac} = 160 V; U_{p-p} = 450 V (monitor standard)

C (μF)	DIMENSIONS w _{max} x h (h') _{max} x l _{max} (mm)	MASS (g)	CATALOG NUMBER 2222 479 AND PACKAGING				
			LOOSE IN BOX		REEL		
			l _t = 5.0 \pm 1.0 mm	all leads	pitch 7.5 mm (bent back)		original pitch
			C-tol = \pm 5 %	SPQ	C-tol = \pm 5 %	SPQ	SPQ
last 5 digits of catalog number	last 5 digits of catalog number						
Pitch = 10.0 \pm 0.4 mm; d_t = 0.60 \pm 0.06 mm					pitch = 7.5 mm (bent back)		pitch = 10.0 mm
0.022	6.0 x 15.0 x 12.5	0.9	41223	1000			1000
0.024			41243				
0.027			41273				
0.03			41303				
0.033			41333				
0.036			41363				
0.039			41393				
0.043			41433				
0.047			41473				
Pitch = 15.0 \pm 0.4 mm; d_t = 0.80 \pm 0.08 mm					pitch = 7.5 mm (bent back)		pitch = 15.0 mm
0.051	6.5 x 15.5 (17.0) x 18.5	1.3	41513	1500	49513	750	900
0.056			41563		49563		
0.062			41623		49623		
0.068			41683		49683		
0.075			41753		49753		
0.082			41823		49823		



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C (μ F)	DIMENSIONS $w_{max} \times h (h')_{max} \times l_{max}$ (mm)	MASS (g)	CATALOG NUMBER 2222 479 AND PACKAGING				
			LOOSE IN BOX		REEL		
			$l_t = 5.0 \pm 1.0$ mm	all leads	pitch 7.5 mm (bent back)		original pitch
			C-tol = ± 5 %	SPQ	C-tol = ± 5 %	SPQ	SPQ
last 5 digits of catalog number	last 5 digits of catalog number						
0.091 0.1 0.11 0.12	7.0 x 16.0 (17.5) x 18.5	1.4	41913 41104 41114 41124	1250	49913 49104 49114 49124	700 800	
0.13 0.15	7.5 x 16.5 (18.0) x 18.5	1.5	41134 41154	1250	49134 49154	650 800	
0.16	8.0 x 17.0 (18.5) x 18.5	1.6	41164	1250	49164	600 700	
0.18 0.2	8.5 x 17.5 (19.0) x 18.5	1.7	41184 41204	1000	49184 49204	550 700	
0.22	9.0 x 18.0 (19.5) x 18.5	1.8	41224	1000	49224	550 600	
Pitch = 22.5 ± 0.4 mm; $d_t = 0.80 \pm 0.08$ mm					pitch = 7.5 mm (bent back)		pitch = 22.5 mm
0.24	6.5 x 19.5 x 26.0	1.7	41244	750		600	
0.27	7.0 x 20.0 x 26.0	1.8	41274	650		550	
0.3 0.33	7.5 x 20.5 x 26.0	1.9	41304 41334	600		500	
0.36	8.0 x 21.0 x 26.0	2.0	41364	550		500	
0.39 0.43	8.5 x 21.5 x 26.0	2.1	41394 41434	500		450	
0.47	9.0 x 22.0 x 26.0	2.4	41474	450		450	
0.51	9.5 x 22.5 x 26.0	2.5	41514	450		400	
0.56	10.0 x 23.0 x 26.0	2.6	41564	400		400	
0.62	10.5 x 23.5 x 26.0	2.7	41624	350		350	
Pitch = 27.5 ± 0.4 mm; $d_t = 0.80 \pm 0.08$ mm						pitch = 7.5 mm (bent back)	
0.68	10.0 x 23.0 x 30.0	5.0	41684	450			
0.75	10.5 x 23.5 x 30.0	5.0	41754	450			
0.82	11.0 x 24.0 x 30.0	5.5	41824	400			
0.91	11.5 x 24.5 x 30.0	5.5	41914	400			
1.0	12.0 x 25.0 x 30.0	6.0	41105	350			
1.1	12.5 x 25.5 x 30.0	6.5	41115	350			
1.2	13.0 x 26.0 x 30.0	6.5	41125	300			

$U_{Rdc} = 250$ V; $U_{Rac} = 160$ V; $U_{p-p} = 450$ V (monitor lock lead)

C (μ F)	DIMENSIONS $w_{max} \times h_{max} \times l_{max}$ (mm)	MASS (g)	CATALOG NUMBER 2222 479 AND PACKAGING	
			LOOSE IN BOX	
			$l_t = 4.0 + 1.0/-0.5$ mm	
			C-tol = ± 5 %	SPQ
last 5 digits of catalog number				
Pitch = 10.0 ± 1.0 mm; $d_t = 0.60 \pm 0.06$ mm				
0.022 0.024 0.027 0.03 0.033 0.036 0.039 0.043 0.047	6.0 x 18.0 x 12.5	0.9	90379 90381 90382 90383 90384 90385 90386 90387 90388	1400

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C (μ F)	DIMENSIONS $w_{max} \times h_{max} \times l_{max}$ (mm)	MASS (g)	CATALOG NUMBER 2222 479 AND PACKAGING	
			LOOSE IN BOX	
			$l_t = 4.0 + 1.0/- 0.5$ mm	
			C-tol = ± 5 % last 5 digits of catalog number	SPQ
Pitch = 15.0 ± 1.0 mm; $d_t = 0.80 \pm 0.08$ mm				
0.051	6.5 x 18.5 x 18.5	1.3	90389	1250
0.056			90391	
0.062			90392	
0.068			90393	
0.075			90394	
0.082			90395	
0.091	7.0 x 19.0 x 18.5	1.4	90396	1250
0.1			90397	
0.11			90398	
0.12			90399	
0.13	7.5 x 19.5 x 18.5	1.5	90401	1000
0.15			90402	
0.16	8.0 x 20.0 x 18.5	1.6	90403	1000
0.18	8.5 x 20.5 x 18.5	1.7	90404	900
0.2			90405	
0.22			90406	
Pitch = 22.5 ± 1.0 mm; $d_t = 0.80 \pm 0.08$ mm				
0.24	6.5 x 22.5 x 26.0	1.7	90407	900
0.27	7.0 x 23.0 x 26.0	1.8	90408	850
0.3	7.5 x 23.5 x 26.0	1.9	90409	750
0.33			90411	
0.36	8.0 x 24.0 x 26.0	2.0	90412	700
0.39	8.5 x 24.5 x 26.0	2.1	90413	650
0.43			90414	
0.47	9.0 x 25.0 x 26.0	2.4	90415	600
0.51	9.5 x 25.5 x 26.0	2.5	90416	550
0.56	10.0 x 26.0 x 26.0	2.6	90417	500
0.62	10.5 x 26.5 x 26.0	2.7	90418	500
Pitch = 27.5 ± 1.0 mm; $d_t = 0.80 \pm 0.08$ mm				
0.68	10.0 x 26.0 x 30.0	5.0	90419	400
0.75	10.5 x 26.5 x 30.0	5.0	90421	400
0.82	11.0 x 27.0 x 30.0	5.5	90422	350
0.91	11.5 x 27.5 x 30.0	5.5	90423	350
1.0	12.0 x 28.0 x 30.0	6.0	90424	350
1.1	12.5 x 28.5 x 30.0	6.5	90425	300
1.2	13.0 x 29.0 x 30.0	6.5	90426	300



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SPECIFIC REFERENCE DATA (400 VDC MONITOR)

DESCRIPTION	VALUE	
	at 10 kHz	at 100 kHz
Tangent of loss angle:		
0.01 $\mu\text{F} < C \leq 0.027 \mu\text{F}$	$\leq 5 \times 10^{-4}$	$\leq 15 \times 10^{-4}$
0.027 $\mu\text{F} < C \leq 0.075 \mu\text{F}$	$\leq 5 \times 10^{-4}$	$\leq 20 \times 10^{-4}$
0.075 $\mu\text{F} < C \leq 0.11 \mu\text{F}$	$\leq 5 \times 10^{-4}$	$\leq 25 \times 10^{-4}$
0.12 $\mu\text{F} < C \leq 0.18 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 30 \times 10^{-4}$
0.18 $\mu\text{F} < C \leq 0.3 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 35 \times 10^{-4}$
0.3 $\mu\text{F} < C \leq 0.39 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 40 \times 10^{-4}$
0.39 $\mu\text{F} < C \leq 0.56 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 45 \times 10^{-4}$
0.56 $\mu\text{F} < C \leq 0.68 \mu\text{F}$	$\leq 10 \times 10^{-4}$	$\leq 50 \times 10^{-4}$
Rated voltage pulse slope (dU/dt) _R :		
P = 10.0 mm	200 V/ μs	
P = 15.0 mm	180 V/ μs	
P = 22.5 mm	90 V/ μs	
P = 27.5 mm	60 V/ μs	
R between leads, for C $\leq 1.0 \mu\text{F}$ at 100 V; 1 minute	> 100000 M Ω	
R between leads and case; 100 V; 1 minute	> 100000 M Ω	
Ionization (AC) voltage (typical value) at 50 pC peak discharge	> 220 V	
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	640 V; 1 minute	
Withstanding (DC) voltage between leads and case	2840 V; 1 minute	

U_{Rdc} = 400 V; U_{Rac} = 200 V; U_{p-p} = 560 V (monitor standard)

C (μF)	DIMENSIONS w _{max} x h (h') _{max} x l _{max} (mm)	MASS (g)	CATALOG NUMBER 2222 479 AND PACKAGING				
			LOOSE IN BOX		REEL		
			l _t = 5.0 \pm 1.0 mm	all leads	pitch 7.5 mm (bent back)		original pitch
			C-tol = \pm 5 %	SPQ	C-tol = \pm 5 %	SPQ	SPQ
last 5 digits of catalog number	last 5 digits of catalog number						
Pitch = 10.0 \pm 0.4 mm; d_t = 0.60 \pm 0.06 mm					pitch = 7.5 mm (bent back)	pitch = 10.0 mm	
0.01	6.0 x 15.0 x 12.5	0.9	51103	1000		1000	
0.011			51113				
0.012			51123				
0.013			51133				
0.015			51153				
0.016			51163				
0.018			51183				
0.02			51203				
0.022	6.0 x 15.0 x 12.5	0.9	51223	1000		1000	
0.024			51243				
0.027	6.5 x 15.5 x 12.5	1.0	51273	1000		900	
Pitch = 15.0 \pm 0.4 mm; d_t = 0.80 \pm 0.08 mm					pitch = 7.5 mm (bent back)	pitch = 15.0 mm	
0.03	6.5 x 15.5 (17.0) x 18.5	1.3	51303	1500	59303	750	900
0.033			51333				
0.036			51363				
0.039			51393				
0.043			51433				
0.047			51473				
0.051			51513				
0.056			51563				
0.062	7.0 x 16.0 (17.5) x 18.5	1.4	51623	1250	59623	700	800
0.068	7.5 x 16.5 (18.0) x 18.5	1.5	51683	1250	59683	650	800

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C (μ F)	DIMENSIONS $w_{max} \times h (h')_{max} \times l_{max}$ (mm)	MASS (g)	CATALOG NUMBER 2222 479 AND PACKAGING				
			LOOSE IN BOX		REEL		
			$l_t = 5.0 \pm 1.0$ mm	all leads	pitch 7.5 mm (bent back)		original pitch
			C-tol = ± 5 %	SPQ	C-tol = ± 5 %	SPQ	SPQ
last 5 digits of catalog number	last 5 digits of catalog number						
0.075	8.0 x 17.0 (18.5) x 18.5	1.6	51753	1250	59753	600	700
0.082			51823		59823		
0.091	8.5 x 17.5 (19.0) x 18.5	1.7	51913	1000	59913	550	700
0.1	9.0 x 18.0 (19.5) x 18.5	1.8	51104	1000	59104	550	600
0.11	9.5 x 18.5 (20.0) x 18.5	1.9	51114	900	59114	500	600
Pitch = 22.5 \pm 0.4 mm; $d_t = 0.80 \pm 0.08$ mm					pitch = 7.5 mm (bent back)		pitch = 22.5 mm
0.12	6.5 x 19.5 x 26.0	1.7	51124	750			600
0.13	7.0 x 20.0 x 26.0	1.8	51134	650			550
0.15	7.5 x 20.5 x 26.0	1.9	51154	600			500
0.16			51164				
0.18	8.0 x 21.0 x 26.0	2.0	51184	550			500
0.20	8.5 x 21.5 x 26.0	2.1	51204	500			450
0.22	9.0 x 22.0 x 26.0	2.4	51224	450			450
0.24			51244				
0.27	9.5 x 22.5 x 26.0	2.5	51274	450			400
0.30	10.0 x 23.0 x 26.0	2.7	51304	400			400
Pitch = 27.5 \pm 0.4 mm; $d_t = 0.80 \pm 0.08$ mm					pitch = 7.5 mm (bent back)		pitch = 27.5 mm
0.33	9.5 x 22.5 x 30.0	5.0	51334	550			
0.36	10.0 x 22.5 x 30.0	5.0	51364	500			
0.39	10.5 x 23.0 x 30.0	5.0	51394	450			
0.43	11.0 x 23.0 x 30.0	5.5	51434	450			
0.47	11.5 x 24.5 x 30.0	5.5	51474	400			
0.51	12.0 x 25.0 x 30.0	6.0	51514	350			
0.56	13.0 x 26.0 x 30.0	6.5	51564	300			
0.62	13.5 x 26.5 x 30.0	6.5	51624	300			
0.68	14.0 x 27.0 x 30.0	7.0	51684	300			

$U_{Rdc} = 400$ V; $U_{Rac} = 200$ V; $U_{p-p} = 560$ V (monitor lock lead)

C (μ F)	DIMENSIONS $W_{max} \times H_{max} \times L_{max}$ (mm)	MASS (g)	CATALOG NUMBER 2222 479 AND PACKAGING	
			LOOSE IN BOX	
			$l_t = 4.0 + 1.0/-0.5$ mm	
			C-tol = ± 5 %	SPQ
last 5 digits of catalog number				
Pitch = 10.0 \pm 1.0 mm; $d_t = 0.60 \pm 0.06$ mm				
0.01	6.0 x 18.0 x 12.5	0.9	90427	1400
0.011			90428	
0.012			90429	
0.013			90431	
0.015			90432	
0.016			90433	
0.018			90434	
0.02			90435	
0.022			90436	
0.024			90437	
0.027	6.5 x 18.5 x 12.5	1.0	90438	1250



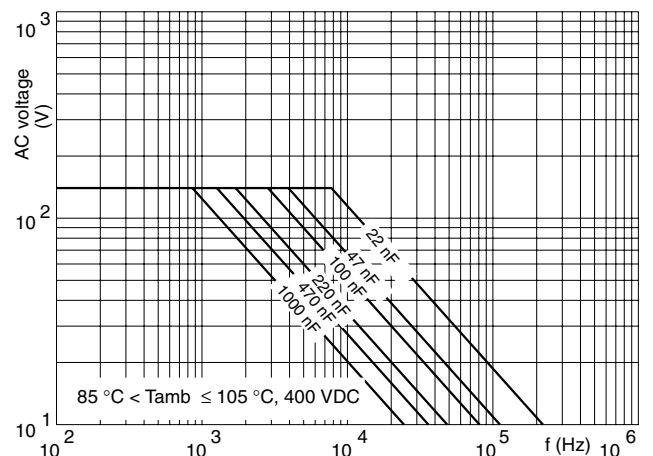
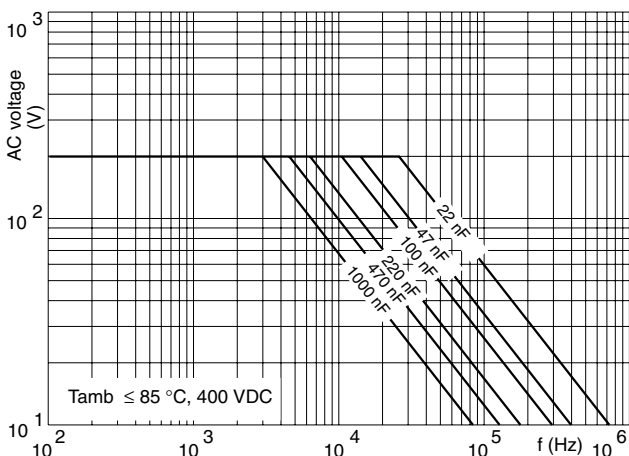
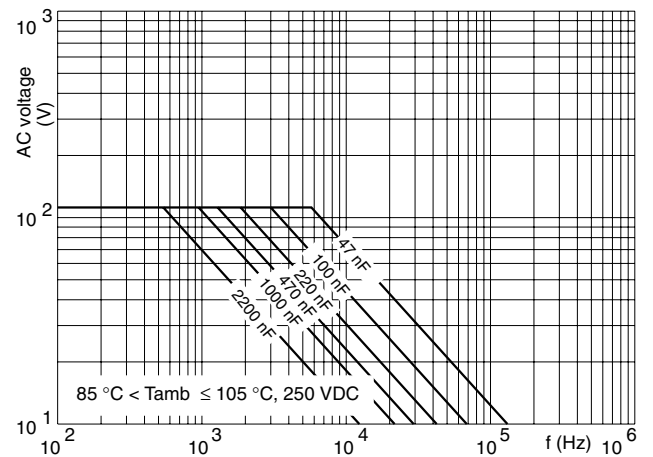
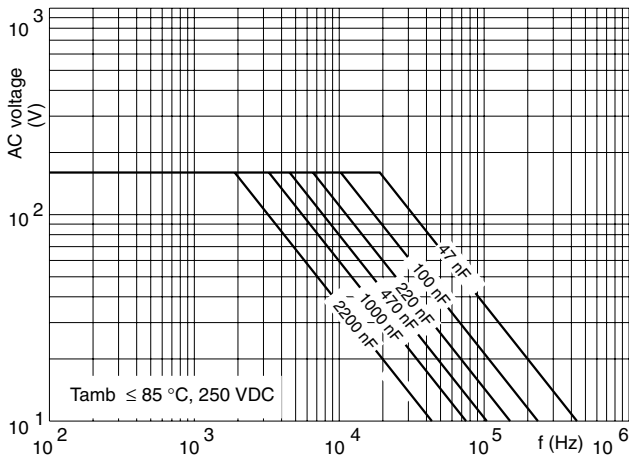
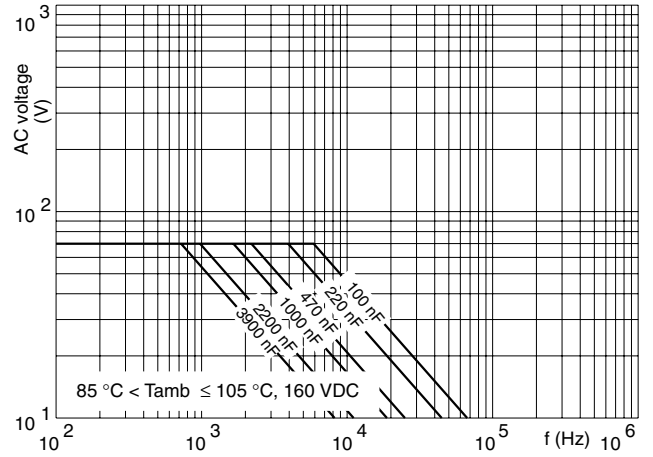
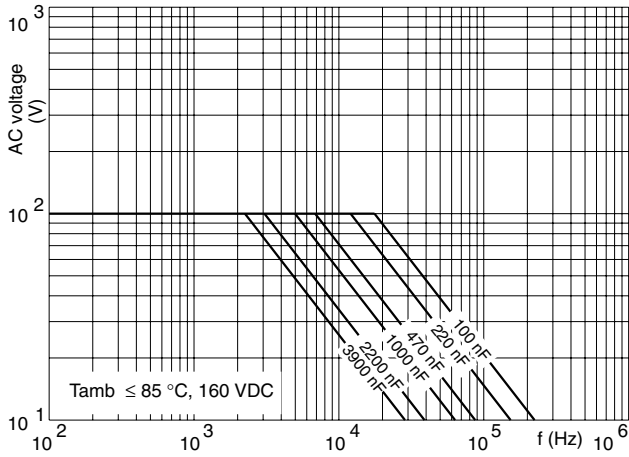
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C (μ F)	DIMENSIONS $W_{max} \times H_{max} \times L_{max}$ (mm)	MASS (g)	CATALOG NUMBER 2222 479 AND PACKAGING	
			LOOSE IN BOX	
			It = 4.0 + 1.0/- 0.5 mm	
			C-tol = \pm 5 % last 5 digits of catalog number	SPQ
Pitch = 15.0 \pm 1.0 mm; d_t = 0.80 \pm 0.08 mm				
0.03	6.5 x 18.5 x 18.5	1.3	90439	1250
0.033			90441	
0.036			90442	
0.039			90443	
0.043			90444	
0.047			90445	
0.051			90446	
0.056			90447	
0.062	7.0 x 19.0 x 18.5	1.4	90448	1250
0.068	7.5 x 19.5 x 18.5	1.5	90449	1000
0.075	8.0 x 20.0 x 18.5	1.6	90451	1000
0.082			90452	
0.091	8.5 x 20.5 x 18.5	1.7	90453	900
0.1	9.0 x 21.0 x 18.5	1.8	90454	800
0.11	9.5 x 21.5 x 18.5	1.9	90455	800
Pitch = 22.5 \pm 1.0 mm; d_t = 0.80 \pm 0.08 mm				
0.12	6.5 x 22.5 x 26.0	1.7	90456	800
0.13	7.0 x 23.0 x 26.0	1.8	90457	800
0.15	7.5 x 23.5 x 26.0	1.9	90458	800
0.16			90459	
0.18	8.0 x 24.0 x 26.0	2.0	90461	800
0.20	8.5 x 24.5 x 26.0	2.1	90462	800
0.22	9.0 x 25.0 x 26.0	2.4	90463	800
0.24			90464	
0.27	9.5 x 25.5 x 26.0	2.5	90465	800
0.30	10.0 x 26.0 x 26.0	2.7	90466	800
Pitch = 27.5 \pm 1.0 mm; d_t = 0.80 \pm 0.08 mm				
0.33	9.5 x 25.5 x 30.0	5.0	90467	800
0.36	10.0 x 25.5 x 30.0	5.0	90468	800
0.39	10.5 x 26.0 x 30.0	5.0	90469	800
0.43	11.0 x 26.0 x 30.0	5.5	90471	800
0.47	11.5 x 27.5 x 30.0	5.5	90472	800
0.51	12.0 x 28.0 x 30.0	6.0	90473	800
0.56	13.0 x 29.0 x 30.0	6.5	90474	800
0.62	13.5 x 29.5 x 30.0	6.5	90475	800
0.68	14.0 x 30.0 x 30.0	7.0	90476	800

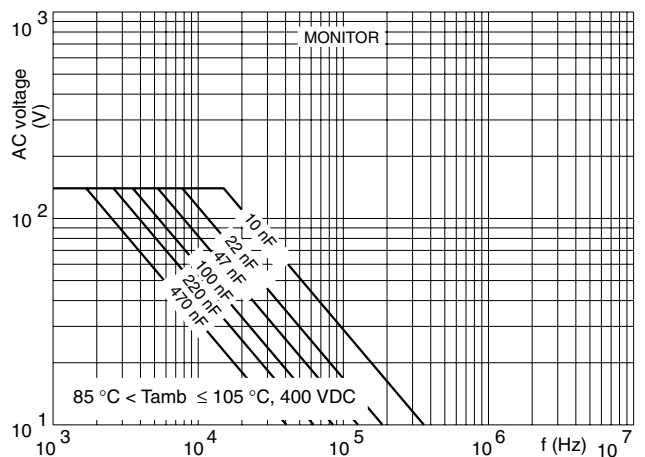
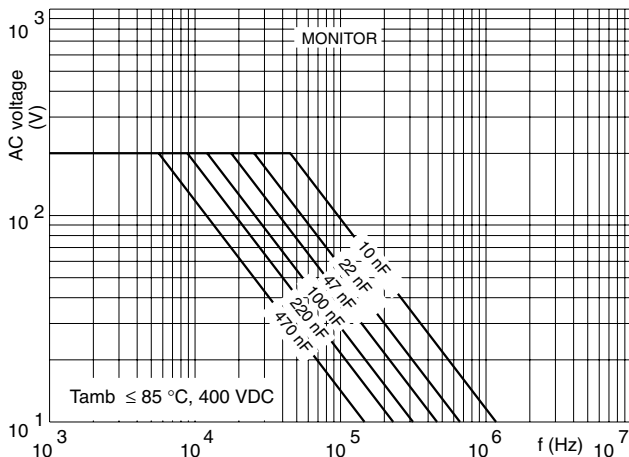
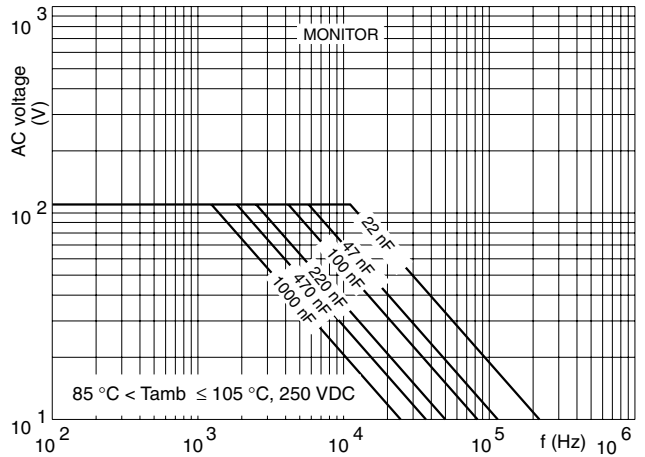
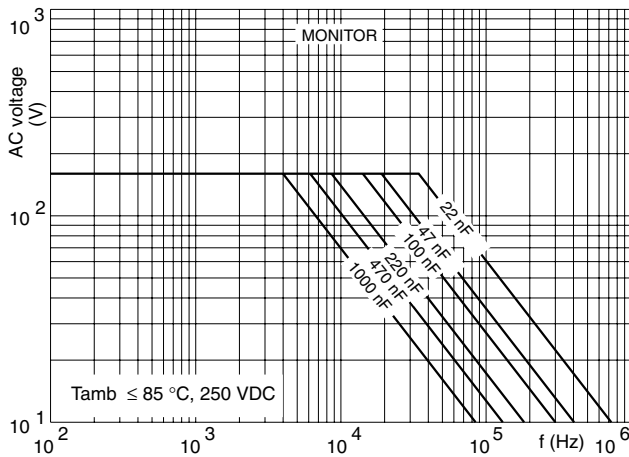
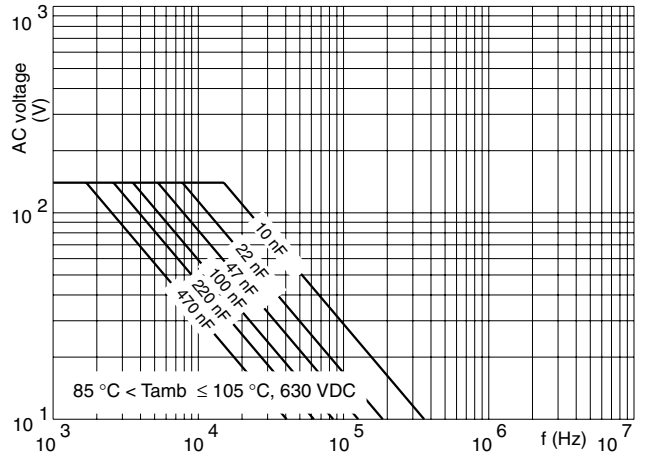
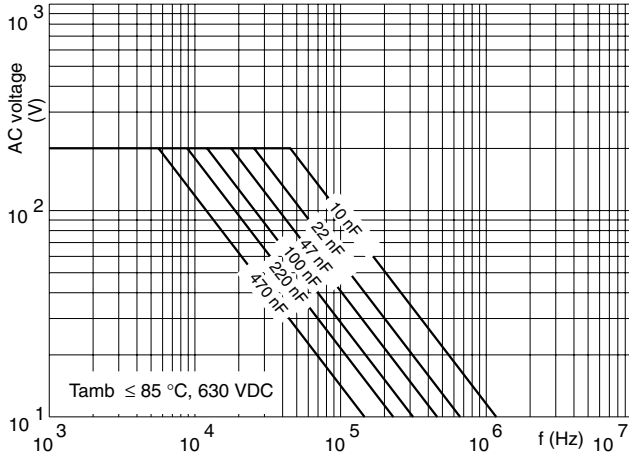
MAXIMUM RMS VOLTAGE (SINEWAVE) AS A FUNCTION OF FREQUENCY





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Film Capacitors MKP Radial Epoxy
Lacquered Type

Vishay BCcomponents



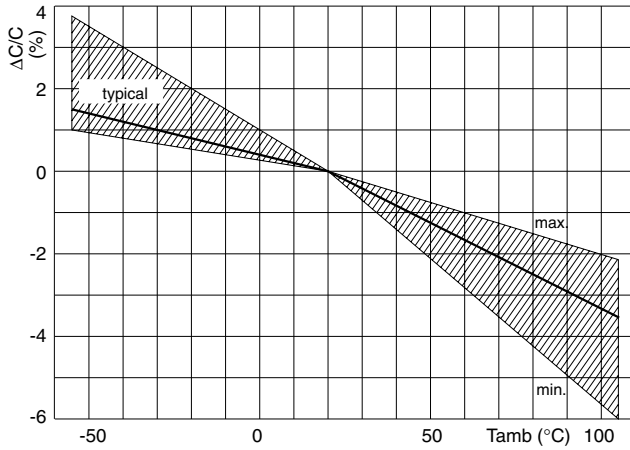
MKP 479

Vishay BCcomponents

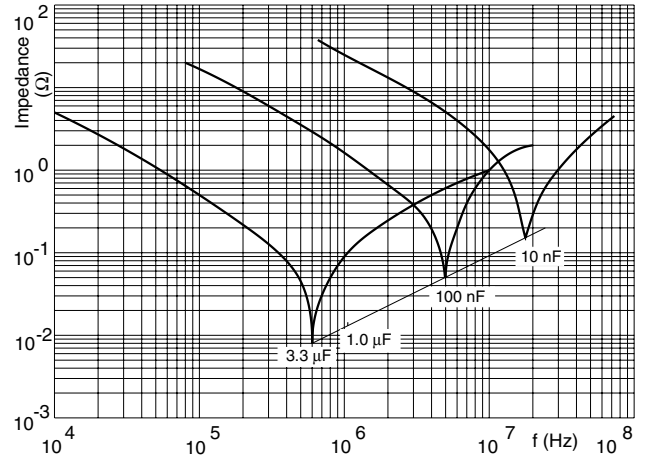
AC and Pulse Polypropylene
Film Capacitors MKP Radial Epoxy
Lacquered Type



CAPACITANCE



IMPEDANCE





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