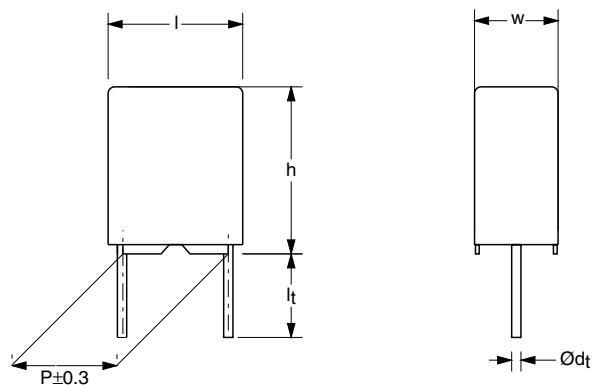


# AC and Pulse Metallized Polypropylene Film Capacitors MKP Radial Potted Type



Dimensions in mm

## APPLICATIONS

Low losses due to low contact resistance and low loss dielectric make these products suitable for applications where high currents at high frequency occur or high stability is preferred. Their small dimensions make them ideal for circuits with high packaging density.

## MARKING

C-value; tolerance; rated voltage; manufacturer's type designation; code for dielectric material; manufacturer's emblem; code for factory of origin; year and week of manufacture

## DIELECTRIC

Polypropylene film

## ELECTRODES

Metallized film

## ENCAPSULATION

Flame retardant plastic case and epoxy resin (UL-class 94 V-0)

## CONSTRUCTION

Wound mono construction

## LEADS

Tinned wire

## CAPACITANCE RANGE (E24 SERIES)

0.0015 to 0.1  $\mu$ F

## FEATURES

5 mm pitch. Supplied loose in box and ammpack

Lead (Pb)-free product

RoHS-compliant product



**RoHS**  
COMPLIANT

## CAPACITANCE TOLERANCE

$\pm 10 \%$ ;  $\pm 5 \%$

## RATED (DC) VOLTAGE

100 V; 160 V; 250 V; 400 V; 630 V

## RATED (AC) VOLTAGE

63 V; 100 V; 160 V; 200 V; 200 V

## RATED PEAK-TO-PEAK VOLTAGE

180 V; 280 V; 450 V; 560 V; 560 V

## CLIMATIC CATEGORY

55/085/56

## RATED TEMPERATURE

85 °C

## MAXIMUM APPLICATION TEMPERATURE

85 °C

## REFERENCE SPECIFICATIONS

IEC 60384-17

## PERFORMANCE GRADE

Grade 1 (long life)

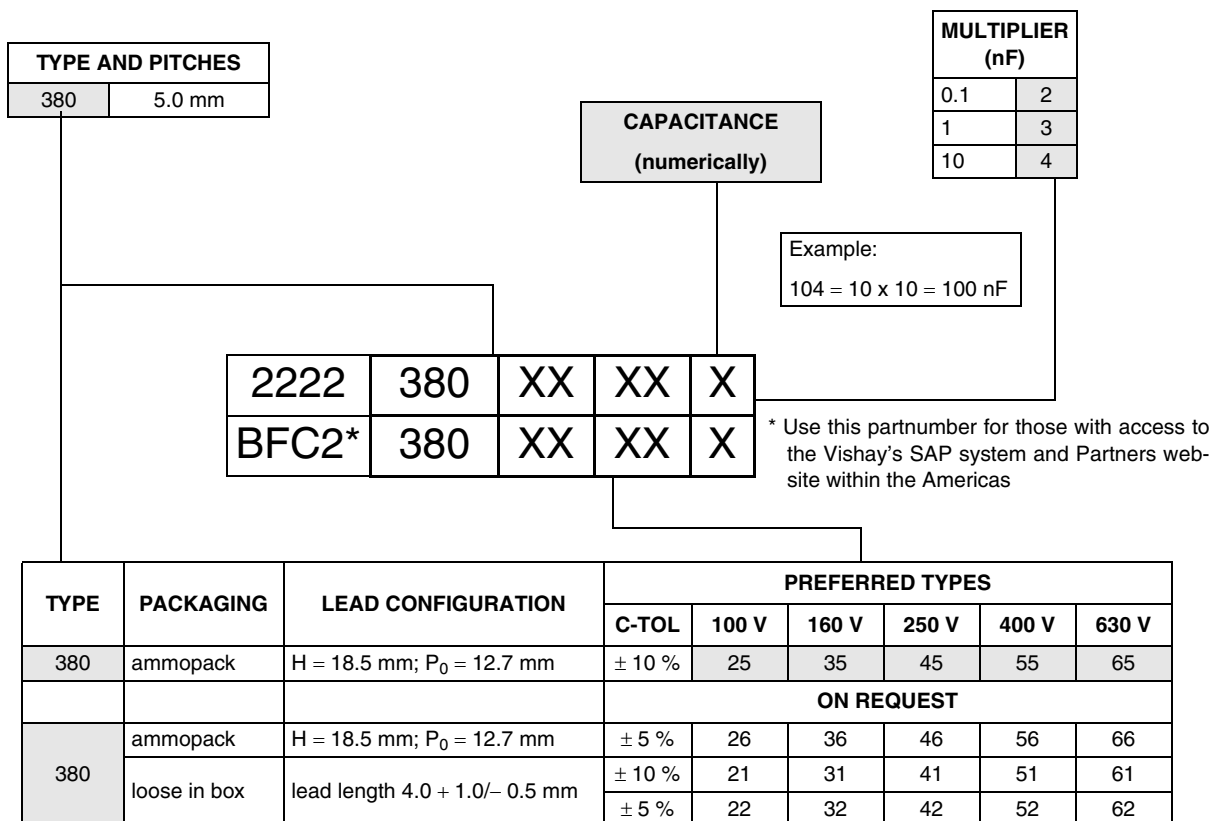
## STABILITY GRADE

Grade 2

## DETAIL SPECIFICATION

For more detailed data and test requirements see "Type detail specification HQN-384-17/103"

## COMPOSITION OF CATALOG NUMBER



**SPECIFIC REFERENCE DATA (100 VDC)**

DESCRIPTION	VALUE	
Tangent of loss angle: 0.018 $\mu\text{F}$ $\leq$ C $\leq$ 0.027 $\mu\text{F}$ 0.027 $\mu\text{F}$ < C $\leq$ 0.075 $\mu\text{F}$ 0.075 $\mu\text{F}$ < C $\leq$ 0.1 $\mu\text{F}$	at 10 kHz	at 100 kHz
	$\leq 5 \times 10^{-4}$	$\leq 15 \times 10^{-4}$
	$\leq 5 \times 10^{-4}$	$\leq 20 \times 10^{-4}$
	$\leq 5 \times 10^{-4}$	$\leq 25 \times 10^{-4}$
Rated voltage pulse slope (dU/dt) <sub>R</sub> at 100 V (DC)	80 V/ $\mu\text{s}$	
R between leads for C $\leq$ 1.0 $\mu\text{F}$ at 100 V; 1 minute	> 100000 M $\Omega$	
R between interconnected leads and case; 100 V; 1 minute	> 100000 M $\Omega$	
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	160 V; 1 minute	
Withstanding (DC)voltage between leads and case	2840 V; 1 minute	

**U<sub>Rdc</sub> = 100 V; U<sub>Rac</sub> = 63 V; U<sub>p-p</sub> = 180 V**

C (μF)	DIMENSIONS W × H × L (mm)	MASS (g)	CATALOG NUMBER 2222 380 ..... AND PACKAGING		
			AMMOPACK		LOOSE IN BOX
			H = 18.5 mm		l <sub>t</sub> = 4.0 + 1.0/– 0.5 mm
			C-tol = ± 10 %	SPQ	SPQ
			LAST 5 DIGITS OF CATALOG NUMBER		
Pitch = 5.0 ± 0.3 mm; d <sub>t</sub> = 0.50 ± 0.05 mm					
0.018 0.02 0.022 0.024 0.027 0.03 0.033	3.5 × 8.0 × 7.2	0.35	25183 25203 25223 25243 25273 25303 25333	1500	2000
0.036 0.039 0.043 0.047	4.5 × 9.0 × 7.2	0.45	25363 25393 25433 25473	1000	2000
0.051 0.056 0.062 0.068 0.075 0.082 0.091 0.1	6.0 × 11.0 × 7.2	0.60	25513 25563 25623 25683 25753 25823 25913 25104	750	2000

## SPECIFIC REFERENCE DATA (160 VDC)

DESCRIPTION	VALUE	
Tangent of loss angle: $0.013 \mu\text{F} \leq C \leq 0.027 \mu\text{F}$ $0.027 \mu\text{F} < C \leq 0.068 \mu\text{F}$	at 10 kHz	at 100 kHz
	$\leq 5 \times 10^{-4}$	$\leq 15 \times 10^{-4}$
	$\leq 5 \times 10^{-4}$	$\leq 20 \times 10^{-4}$
Rated voltage pulse slope $(dU/dt)_R$ at 160 V (DC)	80 V/ $\mu\text{s}$	
R between leads for $C \leq 1.0 \mu\text{F}$ at 100 V; 1 minute	$> 100000 \text{ M}\Omega$	
R between interconnected leads and case; 100 V; 1 minute	$> 100000 \text{ M}\Omega$	
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	

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

C (μF)	DIMENSIONS W × H × L (mm)	MASS (g)	CATALOG NUMBER 2222 380 ..... AND PACKAGING		
			AMMOPACK		LOOSE IN BOX
			H = 18.5 mm		l <sub>t</sub> = 4.0 + 1.0/– 0.5 mm
			C-tol = ± 10 %	SPQ	SPQ
			LAST 5 DIGITS OF CATALOG NUMBER		
Pitch = 5.0 ± 0.3 mm; d <sub>t</sub> = 0.50 ± 0.05 mm					
0.013	3.5 × 8.0 × 7.2	0.35	35133	1500	2000
0.015			35153		
0.016			35163		
0.018			35183		
0.02			35203		
0.022			35223		
0.024	4.5 × 9.0 × 7.2	0.45	35243	1000	2000
0.027			35273		
0.03			35303		
0.033			35333		
0.036	6.0 × 11.0 × 7.2	0.60	35363	750	2000
0.039			35393		
0.043			35433		
0.047			35473		
0.051			35513		
0.056			35563		
0.062			35623		
0.068			35683		

**SPECIFIC REFERENCE DATA (250 VDC)**

DESCRIPTION	VALUE	
Tangent of loss angle: $0.0091 \mu\text{F} \leq C \leq 0.027 \mu\text{F}$ $0.027 \mu\text{F} < C \leq 0.043 \mu\text{F}$	at 10 kHz	at 100 kHz
	$\leq 5 \times 10^{-4}$	$\leq 15 \times 10^{-4}$
	$\leq 5 \times 10^{-4}$	$\leq 20 \times 10^{-4}$
Rated voltage pulse slope $(dU/dt)_R$ at 250 V (DC)	90 V/ $\mu\text{s}$	
R between leads for $C \leq 1.0 \mu\text{F}$ at 100 V; 1 minute	$> 100000 \text{ M}\Omega$	
R between interconnected leads and case; 100 V; 1 minute	$> 100000 \text{ M}\Omega$	
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	

 **$U_{Rdc} = 250 \text{ V}$ ;  $U_{Rac} = 160 \text{ V}$ ;  $U_{p-p} = 450 \text{ V}$** 

C (μF)	DIMENSIONS W × H × L (mm)	MASS (g)	CATALOG NUMBER 2222 380 ..... AND PACKAGING		
			AMMOPACK		LOOSE IN BOX
			H = 18.5 mm		l <sub>t</sub> = 4.0 + 1.0/– 0.5 mm
			C-tol = ± 10 %	SPQ	SPQ
			LAST 5 DIGITS OF CATALOG NUMBER		
Pitch = 5.0 ± 0.3 mm; d <sub>t</sub> = 0.50 ± 0.05 mm					
0.0091 0.01 0.011 0.012 0.013 0.015	3.5 × 8.0 × 7.2	0.35	45912	1500	2000
			45103		
			45113		
			45123		
			45133		
			45153		
0.016 0.018 0.02 0.022 0.024	4.5 × 9.0 × 7.2	0.45	45163	1000	2000
			45183		
			45203		
			45223		
			45243		
0.027 0.03 0.033 0.036 0.039 0.043	6.0 × 11.0 × 7.2	0.60	45273	750	2000
			45303		
			45333		
			45363		
			45393		
			45433		

## SPECIFIC REFERENCE DATA (400 VDC)

DESCRIPTION	VALUE	
Tangent of loss angle: 0.0043 $\mu\text{F} \leq C \leq 0.0091 \mu\text{F}$ 0.0091 $\mu\text{F} < C \leq 0.02 \mu\text{F}$	at 10 kHz	at 100 kHz
	$\leq 5 \times 10^{-4}$	$\leq 10 \times 10^{-4}$
	$\leq 5 \times 10^{-4}$	$\leq 15 \times 10^{-4}$
Rated voltage pulse slope (dU/dt) <sub>R</sub> at 400 V (DC)	100 V/ $\mu\text{s}$	
R between leads for $C \leq 1.0 \mu\text{F}$ at 100 V; 1 minute	$> 100000 \text{ M}\Omega$	
R between interconnected leads and case; 100 V; 1 minute	$> 100000 \text{ M}\Omega$	
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	

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

C (μF)	DIMENSIONS W × H × L (mm)	MASS (g)	CATALOG NUMBER 2222 380 ..... AND PACKAGING		
			AMMOPACK		LOOSE IN BOX
			H = 18.5 mm		l <sub>t</sub> = 4.0 + 1.0/- 0.5 mm
			C-tol = ± 10 %	SPQ	SPQ
			LAST 5 DIGITS OF CATALOG NUMBER		
Pitch = 5.0 ± 0.3 mm; d <sub>t</sub> = 0.50 ± 0.05 mm					
0.0043 0.0047 0.0051 0.0056 0.0062 0.0068 0.0075 0.0082	3.5 × 8.0 × 7.2	0.35	55432 55472 55512 55562 55622 55682 55752 55822	1500	2000
0.0091 0.01 0.011 0.012	4.5 × 9.0 × 7.2	0.45	55912 55103 55113 55123	1000	2000
0.013 0.015 0.016 0.018 0.02	6.0 × 11.0 × 7.2	0.60	55133 55153 55163 55183 55203	750	2000



## SPECIFIC REFERENCE DATA (630 VDC)

DESCRIPTION	VALUE	
Tangent of loss angle: $0.0015 \mu\text{F} \leq C \leq 0.0091 \mu\text{F}$ $0.0091 \mu\text{F} < C \leq 0.01 \mu\text{F}$	at 10 kHz	at 100 kHz
	$\leq 5 \times 10^{-4}$	$\leq 10 \times 10^{-4}$
	$\leq 5 \times 10^{-4}$	$\leq 15 \times 10^{-4}$
Rated voltage pulse slope $(dU/dt)_R$ at 630 V (DC)	120 V/ $\mu\text{s}$	
R between leads for $C \leq 1.0 \mu\text{F}$ at 500 V; 1 minute	$> 100000 \text{ M}\Omega$	
R between interconnected leads and case; 500 V; 1 minute	$> 100000 \text{ M}\Omega$	
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	880 V; 1 minute	
Withstanding (DC)voltage between leads and case	2840 V; 1 minute	

 $U_{Rdc} = 630 \text{ V}$ ;  $U_{Rac} = 200 \text{ V}$ ;  $U_{p-p} = 560 \text{ V}$ 

C (μF)	DIMENSIONS W × H × L (mm)	MASS (g)	CATALOG NUMBER 2222 380 ..... AND PACKAGING		
			AMMOPACK		LOOSE IN BOX
			H = 18.5 mm		l <sub>t</sub> = 4.0 + 1.0/– 0.5 mm
			C-tol = ± 10 %	SPQ	SPQ
			LAST 5 DIGITS OF CATALOG NUMBER		
Pitch = 5.0 ± 0.3 mm; d <sub>t</sub> = 0.50 ± 0.05 mm					
0.0015 0.0016 0.0018 0.002 0.0022 0.0024 0.0027 0.003 0.0033 0.0036 0.0039	3.5 × 8.0 × 7.2	0.35	65152 65162 65182 65202 65222 65242 65272 65302 65332 65362 65392	1500	2000
0.0043 0.0047 0.0051 0.0056	4.5 × 9.0 × 7.2	0.45	65432 65472 65512 65562	1000	2000
0.0062 0.0068 0.0075 0.0082 0.0091 0.01	6.0 × 11.0 × 7.2	0.60	65622 65682 65752 65822 65912 65103	750	2000



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