AC and Pulse Double Metallized Polypropylene Film Capacitors MMKP Radial Epoxy Lacquered Type

APPLICATIONS

Where steep pulses occur e.g. SMPS (switch mode power supplies). Motor control circuits. S - correction. Electronic lighting e.g. Ballast. The 1400 V, 1600 V and 2000 V series may be used in flyback circuits in television receivers.

MARKING

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

DIELECTRIC

Polypropylene film

ELECTRODES

Metallized film

COATING

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

CONSTRUCTION

Internal serial construction

LEADS

Tinned wire

CAPACITANCE RANGE (E24 SERIES):

0.001 to 2.7 μF

CAPACITANCE TOLERANCE:

±5%; ±3%

RATED (DC) VOLTAGE

250 V; 400 V; 630 V; 1000 V; 1400 V;1600 V; 2000 V

RATED (AC) VOLTAGE

125 V; 200 V; 220 V; 350 V; 425 V; 460 V; 530 V

RATED PEAK-TO-PEAK VOLTAGE

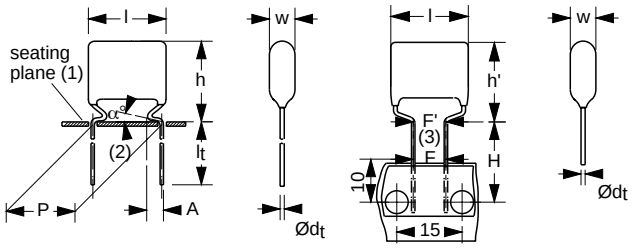
350 V; 560 V; 630 V; 1000 V;
1200 V; 1300 V; 1500 V

CLIMATIC CATEGORY

55/105/56

RATED TEMPERATURE

85 °C



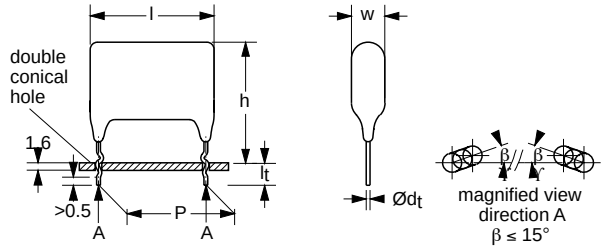
Dimensions in mm.

(1) Hole ∅1.3 for d_t = 0.8 mm.

(2) $0 \le \alpha < 50°$.

(3) $|F - F'| < 0.3$ mm.
F = 7.5 +0.6/–0.1 mm.

(4) A = 2.5 +1.5/–0.5 mm.



Dimensions in mm.

MAXIMUM APPLICATION TEMPERATURE

105 °C

REFERENCE SPECIFICATIONS

IEC 60384-17

PERFORMANCE GRADE

Grade 1 (long life)

STABILITY GRADE

Grade 2

FEATURES

7.5 mm bent back pitch. 15 to 27.5 mm lead pitch. Low contact resistance. Low loss dielectric. Supplied loose in box (including lock lead versions) and taped on reel

DETAIL SPECIFICATION

For more detailed data and test requirements see *"Type detail specification HQN-384-17/108"*.

COMPOSITION OF CATALOG NUMBER

TYPE AND PITCHES	
483	15.0/7.5 mm
	15.0 mm
	22.5 mm
	27.5 mm

CAPACITANCE (numerically)

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

Example:
104 = 10 x 10 = 100 nF

2222	483	XX	XX	X

TYPE	PACKAGING	LEAD CONFIGURATION	PREFERRED TYPES							
			C-TOL	250 V	400 V	630 V	1000 V	1400 V	1600 V	2000 V
483	loose in box	lead length 5.0 ±1.0 mm	±5%	01	11	21	31	41	51	61
		lock lead 4.0 +1.0/–0.5 mm	±5%	04	14	24	34	44	54	64
	Taped on reel (bent back)	H = 16.0 mm; P_0 = 15.0 mm; reel diameter 500 mm	±5%	03	13	23	33	43	53	63
				dimensions of this code numbers stays between brackets						
			ON REQUEST							
483	loose in box	lead length 5.0 ±1.0 mm	±3%	-	-	-	36	46	56	66
		lead length 3.5 ±0.5 mm	±5%	00	10	20	30	40	50	60
			±3%	–	–	–	35	45	55	65
		lock lead 4.0 +1.0/–0.5 mm	±3%	–	–	–	39	49	59	69
	Taped on reel	H = 16.0 mm; P_0 = 12.7 mm; reel diameter 500 mm	±5%	02	12	22	32	42	52	62
	Taped on reel (bent back)	H = 16.0 mm; P_0 = 15.0 mm; reel diameter 500 mm	±3%	–	–	–	37	47	57	67
				dimensions of this code numbers stays between brackets						
	Taped on reel	H = 16.0 mm; P_0 = 12.7 mm; reel diameter 500 mm	±3%	–	–	–	38	48	58	68

SPECIFIC REFERENCE DATA (250 VDC)

DESCRIPTION	VALUE	
Tangent of loss angle:	at 10 kHz	at 100 kHz
C ≤ 0.15 μF	≤5 × 10^{-4}	≤20 × 10^{-4}
0.15 μF < C ≤ 0.39 μF	≤5 × 10^{-4}	≤25 × 10^{-4}
0.39 μF < C ≤ 0.56 μF	≤10 × 10^{-4}	≤45 × 10^{-4}
0.56 μF < C ≤ 0.82 μF	≤10 × 10^{-4}	≤50 × 10^{-4}
0.82 μF < C ≤ 1.2 μF	≤10 × 10^{-4}	≤65 × 10^{-4}
1.2 μF < C ≤ 1.8 μF	≤15 × 10^{-4}	≤75 × 10^{-4}
1.8 μF < C ≤ 2.2 μF	≤15 × 10^{-4}	≤85 × 10^{-4}
Rated voltage pulse slope $(dU/dt)_R$:		
Pitch = 15 mm and 7.5 mm (bent back) for C ≤ 0.16 μF	450 V/μs	
Pitch = 15 mm and 7.5 mm (bent back) for 0.16 μF < C ≤ 0.39 μF	900 V/μs	
P = 22.5 mm	290 V/μs	
P = 27.5 mm	190 V/μs	
R between leads, for C ≤ 1 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	>30000 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	400 V; 1 minute	
Withstanding (DC) voltage between leads and case	2840 V; 1 minute	

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U_{Rdc} = 250 V; U_{Rac} = 125 V; U_{p-p} = 350 V (standard)

C (MF)	DIMENSIONS $w_{max} \times h\ (h')_{max} \times l_{max}$ (mm)	MASS (g)	CATALOG NUMBER 2222 483 ..... AND PACKAGING				
			LOOSE IN BOX		REEL		
			l_t = 5.0 ±1.0 mm	all leads	pitch = 7.5 mm (bent back)		pitch = 15 mm
			C-tol = ±5%		C-tol = ±5%		
			last 5 digits of catalog number	SPQ	last 5 digits of catalog number	SPQ	SPQ
Pitch = 15.0 ±0.4 mm; d_t = 0.80 ±0.08 mm					**pitch = 7.5 mm (bent back)**		**pitch = 15.0 mm**
0.082	6.0 × 15.0 (16.5) × 18.0	1.3	01823	2000	03823	800	1000
0.091			01913		03913		
0.1			01104		03104		
0.11	6.5 × 15.5 (17.0) × 18.0	1.4	01114	1500	03114	750	900
0.12			01124		03124		
0.13			01134		03134		
0.15	7.0 × 16.0 (17.5) × 18.0	1.5	01154	1500	03154	700	800
0.16			01164		03164		
0.18	7.5 × 16.5 (18.0) × 18.0	1.6	01184	1250	03184	650	800
0.2	8.0 × 17.0 (18.5) × 18.0	1.7	01204	1250	03204	600	750
0.22			01224		03224		
0.24	8.5 × 17.5 (19.0) × 18.0	1.8	01244	1000	03244	600	700
0.27	9.0 × 18.0 (19.5) × 18.0	1.9	01274	900	03274	550	600
0.3	9.5 × 18.5 (20.0) × 18.0	2.0	01304	900	03304	500	600
0.33	10.0 × 19.0 (20.5) × 18.0	2.1	01334	800	03334	500	600
0.36			01364		03364		
0.39	10.5 × 19.5 (21.0) × 18.0	2.2	01394	800	03394	450	500
Pitch = 22.5 ±0.4 mm; d_t = 0.80 ±0.08 mm					**pitch = 7.5 mm (bent back)**		**pitch = 22.5 mm**
0.43	8.0 × 21.0 × 26.0	2.4	01434	550			
0.47	8.5 × 21.5 × 26.0	2.5	01474	500			
0.51			01514				
0.56	9.0 × 22.0 × 26.0	2.6	01564	450			
0.62	9.5 × 22.5 × 26.0	2.8	01624	450			
0.68	10.0 × 23.0 × 26.0	3.0	01684	400			
0.75	10.5 × 23.5 × 26.0	3.2	01754	350			
0.82	11.0 × 24.0 × 26.0	3.5	01824	350			
Pitch = 27.5 ±0.4 mm; d_t = 0.80 ±0.08 mm					**pitch = 7.5 mm (bent back)**		**pitch = 27.5 mm**
0.91	10.0 × 23.0 × 31.0	5.0	01914	500			
1.0	10.5 × 23.5 × 31.0	5.0	01105	450			
1.1	11.0 × 24.0 × 31.0	5.5	01115	400			
1.2	11.5 × 24.5 × 31.0	5.5	01125	400			
1.3	12.0 × 25.0 × 31.0	6.0	01135	350			
1.5	13.0 × 26.0 × 31.0	6.5	01155	300			
1.6	13.5 × 26.5 × 31.0	7.0	01165	300			
1.8	14.0 × 27.0 × 31.0	7.0	01185	300			
2.0	15.0 × 28.0 × 31.0	8.0	01205	250			
2.2	15.5 × 28.5 × 31.0	8.5	01225	250			

AC and Pulse Double Metallized Polypropylene Film Capacitors
MMKP Radial Epoxy Lacquered Type

U_{Rdc} = 250 V; U_{Rac} = 125 V; U_{p-p} = 350 V (lock lead)

C (MF)	DIMENSIONS $w_{max} \times h\ (h')_{max} \times l_{max}$ (mm)	MASS (g)	CATALOG NUMBER 2222 483 ..... 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 ±0.4 mm; d_t = 0.80 ±0.08 mm				
0.082	6.0 × 18.0 × 18.0	1.3	04823	2000
0.091			04913	
0.1			04104	
0.11	6.5 × 18.5 × 18.0	1.4	04114	1500
0.12			04124	
0.13			04134	
0.15	7.0 × 19.0 × 18.0	1.5	04154	1500
0.16			04164	
0.18	7.5 × 19.5 × 18.0	1.6	04184	1250
0.2	8.0 × 20.0 × 18.0	1.7	04204	1250
0.22			04224	
0.24	8.5 × 20.5 × 18.0	1.8	04244	1000
0.27	9.0 × 21.0 × 18.0	1.9	04274	900
0.3	9.5 × 21.5 × 18.0	2.0	04304	900
0.33	10.0 × 22.0 × 18.0	2.1	04334	800
0.36			04364	
0.39	10.5 × 22.5 × 18.0	2.2	04394	800
Pitch = 22.5 ±0.4 mm; d_t = 0.80 ±0.08 mm				
0.43	8.0 × 24.0 × 26.0	2.4	04434	550
0.47	8.5 × 24.5 × 26.0	2.5	04474	500
0.51			04514	
0.56	9.0 × 25.0 × 26.0	2.6	04564	450
0.62	9.5 × 25.5 × 26.0	2.8	04624	450
0.68	10.0 × 26.0 × 26.0	3.0	04684	400
0.75	10.5 × 26.5 × 26.0	3.2	04754	350
0.82	11.0 × 27.0 × 26.0	3.5	04824	350
Pitch = 27.5 ±0.4 mm; d_t = 0.80 ±0.08 mm				
0.91	10.0 × 26.0 × 31.0	5.0	04914	500
1.0	10.5 × 26.5 × 31.0	5.0	04105	450
1.1	11.0 × 27.0 × 31.0	5.5	04115	400
1.2	11.5 × 27.5 × 31.0	5.5	04125	400
1.3	12.0 × 28.0 × 31.0	6.0	04135	350
1.5	13.0 × 29.0 × 31.0	6.5	04155	300
1.6	13.5 × 29.5 × 31.0	7.0	04165	300
1.8	14.0 × 30.0 × 31.0	7.0	04185	300
2.0	15.0 × 31.0 × 31.0	8.0	04205	250
2.2	15.5 × 31.5 × 31.0	8.5	04225	250

SPECIFIC REFERENCE DATA (400 VDC)

DESCRIPTION	VALUE	
Tangent of loss angle:	at 10 kHz	at 100 kHz
C ≤ 0.22 μF	≤5 × 10^{-4}	≤20 × 10^{-4}
0.22 μF < C ≤ 0.33 μF	≤10 × 10^{-4}	≤35 × 10^{-4}
0.33 μF < C ≤ 0.43 μF	≤10 × 10^{-4}	≤40 × 10^{-4}
0.43 μF < C ≤ 0.68 μF	≤10 × 10^{-4}	≤50 × 10^{-4}
0.68 μF < C ≤ 0.82 μF	≤10 × 10^{-4}	≤55 × 10^{-4}
0.82 μF < C ≤ 1.2 μF	≤10 × 10^{-4}	≤60 × 10^{-4}
Rated voltage pulse slope $(dU/dt)_R$:		
Pitch = 15 mm and 7.5 mm (bent back) for C ≤ 0.082 μF	600 V/μs	
Pitch = 15 mm and 7.5 mm (bent back) for 0.082 μF < C ≤ 0.22 μF	1200 V/μs	
P = 22.5 mm	410 V/μs	
P = 27.5 mm	260 V/μs	
R between leads, for C ≤ 1 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	>30000 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	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 (standard)

C (MF)	DIMENSIONS $w_{max} \times h\ (h')_{max} \times l_{max}$ (mm)	MASS (g)	CATALOG NUMBER 2222 483 ..... AND PACKAGING				
			LOOSE IN BOX		REEL		
			l_t = 5.0 ±1.0 mm	all leads	pitch = 7.5 mm (bent back)		pitch = 15 mm
			C-tol = ±5%		C-tol = ±5%		
			last 5 digits of catalog number	SPQ	last 5 digits of catalog number	SPQ	SPQ
Pitch = 15.0 ±0.4 mm; d_t = 0.80 ±0.08 mm					**pitch = 7.5 mm (bent back)**		**pitch = 15.0 mm**
0.047	6.0 × 15.0 (16.5) × 18.0	1.3	11473	2000	13473	800	1000
0.051			11513		13513		
0.056			11563		13563		
0.062	6.5 × 15.5 (17.0) × 18.0	1.4	11623	1500	13623	750	900
0.068			11683		13683		
0.075	7.0 × 16.0 (17.5) × 18.0	1.5	11753	1500	13753	700	800
0.082			11823		13823		
0.091	7.5 × 16.5 (18.0) × 18.0	1.6	11913	1250	13913	650	800
0.1			11104		13104		
0.11	8.0 × 17.0 (18.5) × 18.0	1.7	11114	1250	13114	600	750
0.12	8.5 × 17.5 (19.0) × 18.0	1.8	11124	1000	13124	600	700
0.13			11134		13134		
0.15	9.0 × 18.0 (19.5) × 18.0	1.9	11154	900	13154	550	600
0.16	9.5 × 18.5 (20.0) × 18.0	2.0	11164	900	13164	500	600
0.18	10.0 × 19.0 (20.5) × 18.0	2.1	11184	800	13184	500	600
0.2	10.5 × 19.5 (21.0) × 18.0	2.2	11204	800	13204	450	500
0.22			11224		13224		
Pitch = 22.5 ±0.4 mm; d_t = 0.80 ±0.08 mm					**pitch = 7.5 mm (bent back)**		**pitch = 22.5 mm**
0.24	8.5 × 21.5 × 26.0	2.5	11244	500			
0.27			11274				
0.3	9.0 × 22.0 × 26.0	2.6	11304	450			
0.33	9.5 × 22.5 × 26.0	2.8	11334	450			
0.36	10.0 × 23.0 × 26.0	3.0	11364	400			
0.39			11394				
0.43	10.5 × 23.5 × 26.0	3.2	11434	350			

C (MF)	DIMENSIONS $w_{max} \times h\ (h')_{max} \times l_{max}$ (mm)	MASS (g)	CATALOG NUMBER 2222 483 ..... AND PACKAGING			
			LOOSE IN BOX		REEL	
			l_t = 5.0 ±1.0 mm	all leads	pitch = 7.5 mm (bent back)	pitch = 15 mm
			C-tol = ±5%	SPQ	C-tol = ±5%	SPQ
			last 5 digits of catalog number		last 5 digits of catalog number / SPQ	
Pitch = 27.5 ±0.4 mm; d_t = 0.80 ±0.08 mm					pitch = 7.5 mm (bent back)	pitch = 27,5 mm
0.47	10.0 × 23.0 × 31.0	5.0	11474	500		
0.51	10.5 × 23.5 × 31.0	5.0	11514	450		
0.56	11.0 × 24.0 × 31.0	5.5	11564	400		
0.62	11.5 × 24.5 × 31.0	5.5	11624	400		
0.68	12.0 × 25.0 × 31.0	6.0	11684	350		
0.75	12.5 × 25.5 × 31.0	6.5	11754	350		
0.82	13.0 × 26.0 × 31.0	6.5	11824	300		
0.91	13.5 × 26.5 × 31.0	7.0	11914	300		
1	14.0 × 27.0 × 31.0	7.0	11105	300		
1.1	15.0 × 28.0 × 31.0	8.0	11115	250		
1.2	15.5 × 28.5 × 31.0	8.5	11125	250		

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

C (MF)	DIMENSIONS $w_{max} \times h\ (h')_{max} \times l_{max}$ (mm)	MASS (g)	CATALOG NUMBER 2222 483 ..... 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 = 15.0 ±0.4 mm; d_t = 0.80 ±0.08 mm				
0.047	6.0 × 18.0 × 18.0	1.3	14473	2000
0.051			14513	
0.056			14563	
0.062	6.5 × 18.5 × 18.0	1.4	14623	1500
0.068			14683	
0.075	7.0 × 19.0 × 18.0	1.5	14753	1500
0.082			14823	
0.091	7.5 × 19.5 × 18.0	1.6	14913	1250
0.1			14104	
0.11	8.0 × 20.0 × 18.0	1.7	14114	1250
0.12	8.5 × 20.5 × 18.0	1.8	14124	1000
0.13			14134	
0.15	9.0 × 21.0 × 18.0	1.9	14154	900
0.16	9.5 × 21.5 × 18.0	2.0	14164	900
0.18	10.0 × 22.0 × 18.0	2.1	14184	800
0.2	10.5 × 22.5 × 18.0	2.2	14204	800
0.22			14224	
Pitch = 22.5 ±0.4 mm; d_t = 0.80 ±0.08 mm				
0.24	8.5 × 24.5 × 26.0	2.5	14244	500
0.27			14274	
0.3	9.0 × 25.0 × 26.0	2.6	14304	450
0.33	9.5 × 25.5 × 26.0	2.8	14334	450
0.36	10.0 × 26.0 × 26.0	3.0	14364	400
0.39			14394	
0.43	10.5 × 26.5 × 26.0	3.2	14434	350

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C (MF)	DIMENSIONS $w_{max} \times h\ (h')_{max} \times l_{max}$ (mm)	MASS (g)	CATALOG NUMBER 2222 483 ..... 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 = 27.5 ±0.4 mm; d_t = 0.80 ±0.08 mm				
0.47	10.0 × 26.0 × 31.0	5.0	14474	500
0.51	10.5 × 26.5 × 31.0	5.0	14514	450
0.56	11.0 × 27.0 × 31.0	5.5	14564	400
0.62	11.5 × 27.5 × 31.0	5.5	14624	400
0.68	12.0 × 28.0 × 31.0	6.0	14684	350
0.75	12.5 × 28.5 × 31.0	6.5	14754	350
0.82	13.0 × 29.0 × 31.0	6.5	14824	300
0.91	13.5 × 29.5 × 31.0	7.0	14914	300
1	14.0 × 30.0 × 31.0	7.0	14105	300
1.1	15.0 × 31.0 × 31.0	8.0	14115	250
1.2	15.5 × 31.5 × 31.0	8.5	14125	250

SPECIFIC REFERENCE DATA (630 VDC)

DESCRIPTION	VALUE	
Tangent of loss angle:	at 10 kHz	at 100 kHz
C ≤ 0.15 μF	$\leq 5 \times 10^{-4}$	$\leq 15 \times 10^{-4}$
0.15 μF < C ≤ 0.22 μF	$\leq 8 \times 10^{-4}$	$\leq 25 \times 10^{-4}$
0.22 μF < C ≤ 0.3 μF	$\leq 8 \times 10^{-4}$	$\leq 30 \times 10^{-4}$
0.3 μF < C ≤ 0.47 μF	$\leq 10 \times 10^{-4}$	$\leq 40 \times 10^{-4}$
0.47 μF < C ≤ 0.68 μF	$\leq 10 \times 10^{-4}$	$\leq 45 \times 10^{-4}$
Rated voltage pulse slope $(dU/dt)_R$:		
Pitch = 15 mm and 7.5 mm (bent back) for C ≤ 0.051 μF	700 V/μs	
Pitch = 15 mm and 7.5 mm (bent back) for 0.051 μF < C ≤ 0.15 μF	1400 V/μs	
P = 22.5 mm	470 V/μs	
P = 27.5 mm	300 V/μs	
R between leads, for C ≤ 1 μF at 500 V; 1 minute	>100000 MΩ	
R between leads and case; 500 V; 1 minute	>30000 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	1000 V; 1 minute	
Withstanding (DC) voltage between leads and case	2840 V; 1 minute	

U_{Rdc} = 630 V; U_{Rac} = 220 V; U_{p-p} = 630 V (standard)

C (MF)	DIMENSIONS $w_{max} \times h\ (h')_{max} \times l_{max}$ (mm)	MASS (g)	CATALOG NUMBER 2222 483 ..... AND PACKAGING				
			LOOSE IN BOX		REEL		
			l_t = 5.0 ±1.0 mm	all leads	pitch = 7.5 mm (bent back)		pitch = 15 mm
			C-tol = ±5%	SPQ	C-tol = ±5%		SPQ
			last 5 digits of catalog number		last 5 digits of catalog number	SPQ	
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	6.0 × 15.0 (16.5) × 18.0	1.3	21303	2000	23303	800	1000
0.033			21333		23333		
0.036	6.5 × 15.5 (17.0) × 18.0	1.4	21363	1500	23363	750	900
0.039			21393		23393		
0.043			21433		23433		
0.047	7.0 × 16.0 (17.5) × 18.0	1.5	21473	1500	23473	700	800
0.051			21513		23513		

C (MF)	DIMENSIONS $w_{max} \times h\ (h')_{max} \times l_{max}$ (mm)	MASS (g)	CATALOG NUMBER 2222 483 ..... AND PACKAGING				
			LOOSE IN BOX		REEL		
			l_t = 5.0 ±1.0 mm	all leads	pitch = 7.5 mm (bent back)		pitch = 15 mm
			C-tol = ±5%		C-tol = ±5%		
			last 5 digits of catalog number	SPQ	last 5 digits of catalog number	SPQ	SPQ
0.056	7.5 × 16.5 (18.0) × 18.0	1.6	21563	1250	23563	650	800
0.062			21623		23623		
0.068	8.0 × 17.0 (18.5) × 18.0	1.7	21683	1250	23683	600	750
0.075			21753		23753		
0.082	8.5 × 17.5 (19.0) × 18.0	1.8	21823	1000	23823	600	700
0.091	9.0 × 18.0 (19.5) × 18.0	1.9	21913	900	23913	550	600
0.1	9.5 × 18.5 (20.0) × 18.0	2.0	21104	900	23104	500	600
0.11			21114		23114		
0.12	10.0 × 19.0 (20.5) × 18.0	2.1	21124	800	23124	500	600
0.13	10.5 × 19.5 (21.0) × 18.0	2.2	21134	800	23134	450	500
0.15	11.0 × 20.0 (21.5) × 18.0	2.3	21154	800	23154	450	500
Pitch = 22.5 ±0.4 mm; d_t = 0.80 ±0.08 mm					**pitch = 7.5 mm (bent back)**		**pitch = 22.5 mm**
0.16	8.5 × 21.5 × 26.0	2.5	21164	500			
0.18	9.0 × 22.0 × 26.0	2.6	21184	450			
0.2	9.5 × 22.5 × 26.0	2.8	21204	450			
0.22			21224				
0.24	10.0 × 23.0 × 26.0	3.0	21244	400			
0.27	10.5 × 23.5 × 26.0	3.2	21274	350			
0.3	11.0 × 24.0 × 26.0	3.5	21304	350			
Pitch = 27.5 ±0.4 mm; d_t = 0.80 ±0.08 mm					**pitch = 7.5 mm (bent back)**		**pitch = 27.5 mm**
0.33	10.5 × 23.5 × 31.0	5.0	21334	450			
0.36	11.0 × 24.0 × 31.0	5.5	21364	400			
0.39			21394				
0.43	11.5 × 24.5 × 31.0	5.5	21434	400			
0.47	12.0 × 25.0 × 31.0	6.0	21474	350			
0.51	12.5 × 25.5 × 31.0	6.5	21514	350			
0.56	13.5 × 26.5 × 31.0	6.5	21564	300			
0.62	14.0 × 27.0 × 31.0	7.0	21624	300			
0.68	14.5 × 27.5 × 31.0	7.5	21684	250			

U_{Rdc} = 630 V; U_{Rac} = 220 V; U_{p-p} = 630 V (lock lead)

C (MF)	DIMENSIONS $w_{max} \times h\ (h')_{max} \times l_{max}$ (mm)	MASS (g)	CATALOG NUMBER 2222 483 ..... 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 ±0.4 mm; d_t = 0.80 ±0.08 mm				
0.03	6.0 × 18.0 × 18.0	1.3	24303	2000
0.033			24333	
0.036	6.5 × 18.5 × 18.0	1.4	24363	1500
0.039			24393	
0.043			24433	
0.047	7.0 × 19.0 × 18.0	1.5	24473	1500
0.051			24513	
0.056	7.5 × 19.5 × 18.0	1.6	24563	1250
0.062			24623	
0.068	8.0 × 20.0 × 18.0	1.7	24683	1250
0.075			24753	

C (MF)	DIMENSIONS $w_{max} \times h\ (h')_{max} \times l_{max}$ (mm)	MASS (g)	CATALOG NUMBER 2222 483 ..... AND PACKAGING	
			LOOSE IN BOX	
			l_t = 4.0 +1.0/–0.5 mm	
			C-tol = ±5%	
			last 5 digits of catalog number	SPQ
0.082	8.5 × 20.5 × 18.0	1.8	24823	1000
0.091	9.0 × 21.0 × 18.0	1.9	24913	900
0.1	9.5 × 21.5 × 18.0	2.0	24104	900
0.11			24114	
0.12	10.0 × 22.0 × 18.0	2.1	24124	800
0.13	10.5 × 22.5 × 18.0	2.2	24134	800
0.15	11.0 × 23.0 × 18.0	2.3	24154	800

SPECIFIC REFERENCE DATA (1000 VDC)

DESCRIPTION	VALUE	
Tangent of loss angle:	at 10 kHz	at 100 kHz
C ≤ 0.062 μF	≤5 × 10^{-4}	≤15 × 10^{-4}
0.062 μF < C ≤ 0.13 μF	≤6 × 10^{-4}	≤20 × 10^{-4}
0.13 μF < C ≤ 0.22 μF	≤8 × 10^{-4}	≤25 × 10^{-4}
0.22 μF < C ≤ 0.33 μF	≤8 × 10^{-4}	≤30 × 10^{-4}
Rated voltage pulse slope $(dU/dt)_R$:		
Pitch = 15 mm and 7.5 mm (bent back) for C ≤ 0.024 μF	1700 V/μs	
Pitch = 15 mm and 7.5 mm (bent back) for 0.024 μF < C ≤ 0.062 μF	3300 V/μs	
P = 22.5 mm	1200 V/μs	
P = 27.5 mm	700 V/μs	
R between leads, for C ≤ 1 μF at 500 V; 1 minute	>100000 MΩ	
R between leads and case; 500 V; 1 minute	>30000 MΩ	
Ionization (AC) voltage (typical value) at 50 pC peak discharge	>440 V	
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	1600 V; 1 minute	
Withstanding (DC) voltage between leads and case	2840 V; 1 minute	

U_{Rdc} = 1000 V; U_{Rac} = 350 V; U_{p-p} = 1000 V (standard)

C (MF)	DIMENSIONS $w_{max} \times h\ (h')_{max} \times l_{max}$ (mm)	MASS (g)	CATALOG NUMBER 2222 483 ..... AND PACKAGING				
			LOOSE IN BOX		REEL		
			l_t = 5.0 ±1.0 mm	all leads	pitch = 7.5 mm (bent back)		pitch = 15 mm
			C-tol = ±5%		C-tol = ±5%		
			last 5 digits of catalog number	SPQ	last 5 digits of catalog number	SPQ	SPQ
Pitch = 15.0 ±0.4 mm; d_t = 0.80 ±0.08 mm					**pitch = 7.5 mm (bent back)**		**pitch = 15.0 mm**
0.0043	6.0 × 15.0 (16.5) × 18.0	1.3	31432	2000	33432	800	1000
0.0047			31472		33472		
0.0051			31512		33512		
0.0056			31562		33562		
0.0062			31622		33622		
0.0068			31682		33682		
0.0075			31752		33752		
0.0082			31822		33822		
0.0091			31912		33912		
0.010			31103		33103		

AC and Pulse Double Metallized Polypropylene Film Capacitors
MMKP Radial Epoxy Lacquered Type

C (MF)	DIMENSIONS $w_{max} \times h\ (h')_{max} \times l_{max}$ (mm)	MASS (g)	CATALOG NUMBER 2222 483 ..... AND PACKAGING				
			LOOSE IN BOX		REEL		
			l_t = 5.0 ±1.0 mm	all leads	pitch = 7.5 mm (bent back)		pitch = 15 mm
			C-tol = ±5%		C-tol = ±5%		
			last 5 digits of catalog number	SPQ	last 5 digits of catalog number	SPQ	SPQ
0.011	6.0 × 15.0 (16.5) × 18.0	1.3	31113	2000	33113	800	1000
0.012			31123		33123		
0.013			31133		33133		
0.015			31153		33153		
0.016			31163		33163		
0.018	6.5 × 15.5 (17.0) × 18.0	1.4	31183	1500	33183	750	900
0.02			31203		33203		
0.022	7.0 × 16.0 (17.5) × 18.0	1.5	31223	1500	33223	700	800
0.024			31243		33243		
0.027	7.5 × 16.5 (18.0) × 18.0	1.6	31273	1250	33273	650	800
0.03			31303		33303		
0.033	8.0 × 17.0 (18.5) × 18.0	1.7	31333	1250	33333	600	750
0.036	8.5 × 17.5 (19.0) × 18.0	1.8	31363	1000	33363	600	700
0.039			31393		33393		
0.043	9.0 × 18.0 (19.5) × 18.0	1.9	31433	900	33433	550	600
0.047	9.5 × 18.5 (20.0) × 18.0	2.0	31473	900	33473	500	600
0.051			31513		33513		
0.056	10.0 × 19.0 (20.5) × 18.0	2.1	31563	800	33563	500	600
0.062	10.5 × 19.5 (21.0) × 18.0	2.2	31623	800	33623	450	500
Pitch = 22.5 ±0.4 mm; d_t = 0.80 ±0.08 mm					**pitch = 7.5 mm (bent back)**		**pitch = 22.5 mm**
0.068	8.0 × 21.0 × 26.0	2.4	31683	550			
0.075	8.5 × 21.5 × 26.0	2.5	31753	500			
0.082	9.0 × 22.0 × 26.0	2.6	31823	450			
0.091			31913				
0.1	9.5 × 22.5 × 26.0	2.8	31104	450			
0.11	10.0 × 23.0 × 26.0	3.0	31114	400			
0.12	10.5 × 23.5 × 26.0	3.2	31124	350			
0.13	11.0 × 24.0 × 26.0	3.5	31134	350			
Pitch = 27.5 ±0.4 mm; d_t = 0.80 ±0.08 mm					**pitch = 7.5 mm (bent back)**		**pitch = 27.5 mm**
0.15	10.0 × 23.0 × 31.0	5.0	31154	500			
0.16	10.5 × 23.5 × 31.0	5.0	31164	450			
0.18	11.0 × 24.0 × 31.0	5.5	31184	400			
0.2	11.5 × 24.5 × 31.0	5.5	31204	400			
0.22	12.0 × 25.0 × 31.0	6.0	31224	350			
0.24	12.5 × 25.5 × 31.0	6.5	31244	350			
0.27	13.5 × 26.5 × 31.0	7.0	31274	300			
0.3	14.0 × 27.0 × 31.0	7.0	31304	300			
0.33	15.0 × 28.0 × 31.0	8.0	31334	250			

AC and Pulse Double Metallized Polypropylene Film Capacitors
MMKP Radial Epoxy Lacquered Type

U_{Rdc} = 1000 V; U_{Rac} = 350 V; U_{p-p} = 1000 V (lock lead)

C (MF)	DIMENSIONS $w_{max} \times h\ (h')_{max} \times l_{max}$ (mm)	MASS (g)	CATALOG NUMBER 2222 483 ..... 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 ±0.4 mm; d_t = 0.80 ±0.08 mm				
0.0043	6.0 × 18.0 × 18.0	1.3	34432	2000
0.0047			34472	
0.0051			34512	
0.0056			34562	
0.0062			34622	
0.0068			34682	
0.0075			34752	
0.0082			34822	
0.0091			34912	
0.010			34103	
0.011			34113	
0.012			34123	
0.013			34133	
0.015			34153	
0.016			34163	
0.018	6.5 × 18.5 × 18.0	1.4	34183	1500
0.02			34203	
0.022	7.0 × 19.0 × 18.0	1.5	34223	1500
0.024			34243	
0.027	7.5 × 19.5 × 18.0	1.6	34273	1250
0.03			34303	
0.033	8.0 × 20.0 × 18.0	1.7	34333	1250
0.036	8.5 × 20.5 × 18.0	1.8	34363	1000
0.039			34393	
0.043	9.0 × 21.0 × 18.0	1.9	34433	900
0.047	9.5 × 21.5 × 18.0	2.0	34473	900
0.051			34513	
0.056	10.0 × 22.0 × 18.0	2.1	34563	800
0.062	10.5 × 22.5 × 18.0	2.2	34623	800
Pitch = 22.5 ±0.4 mm; d_t = 0.80 ±0.08 mm				
0.068	8.0 × 24.0 × 26.0	2.4	34683	550
0.075	8.5 × 24.5 × 26.0	2.5	34753	500
0.082	9.0 × 25.0 × 26.0	2.6	34823	450
0.091			34913	
0.1	9.5 × 25.5 × 26.0	2.8	34104	450
0.11	10.0 × 26.0 × 26.0	3.0	34114	400
0.12	10.5 × 26.5 × 26.0	3.2	34124	350
0.13	11.0 × 27.0 × 26.0	3.5	34134	350
Pitch = 27.5 ±0.4 mm; d_t = 0.80 ±0.08 mm				
0.15	10.0 × 26.0 × 31.0	5.0	34154	500
0.16	10.5 × 26.5 × 31.0	5.0	34164	450
0.18	11.0 × 27.0 × 31.0	5.5	34184	400
0.2	11.5 × 27.5 × 31.0	5.5	34204	400
0.22	12.0 × 28.0 × 31.0	6.0	34224	350
0.24	12.5 × 28.5 × 31.0	6.5	34244	350
0.27	13.5 × 29.5 × 31.0	7.0	34274	300
0.3	14.0 × 30.0 × 31.0	7.0	34304	300
0.33	15.0 × 31.0 × 31.0	8.0	34334	250

SPECIFIC REFERENCE DATA (1400 VDC)

DESCRIPTION	VALUE	
Tangent of loss angle:	at 10 kHz	at 100 kHz
C ≤ 0.016 μF	≤5 × 10^{-4}	≤10 × 10^{-4}
0.016 μF < C ≤ 0.039 μF	≤5 × 10^{-4}	≤12 × 10^{-4}
0.039 μF < C ≤ 0.1 μF	≤5 × 10^{-4}	≤15 × 10^{-4}
Rated voltage pulse slope $(dU/dt)_R$ at 1400 V (DC)		
Pitch = 15 mm and 7.5 mm (bent back) for C ≤ 0.0056 μF	8000 V/μs	
Pitch = 15 mm and 7.5 mm (bent back) for 0.0056 μF < C ≤ 0.016 μF	15000 V/μs	
P = 22.5 mm	4000 V/μs	
P = 27.5 mm	2100 V/μs	
R between leads, for C ≤ 1 μF at 500 V; 1 minute	>100000 MΩ	
R between leads and case; 500 V; 1 minute	>30000 MΩ	
Ionization (AC) voltage (typical value) at 20 pC peak discharge	>440 V	
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	2250 V; 1 minute	
Withstanding (DC) voltage between leads and case	2840 V; 1 minute	

U_{Rdc} = 1400 V; U_{Rac} = 425 V; U_{p-p} = 1200 V (standard)

C (MF)	DIMENSIONS $w_{max} \times h\ (h')_{max} \times l_{max}$ (mm)	MASS (g)	CATALOG NUMBER 2222 483 ..... AND PACKAGING			
			LOOSE IN BOX		REEL	
			l_t = 5.0 ±1.0 mm	all leads	pitch = 7.5 mm (bent back)	pitch = 15 mm
			C-tol = ±5%	SPQ	C-tol = ±5%	SPQ
			last 5 digits of catalog number		last 5 digits of catalog number / SPQ	
Pitch = 15.0 ±0.4 mm; d_t = 0.80 ±0.08 mm					**pitch = 7.5 mm (bent back)**	**pitch = 15.0 mm**
0.0022	6.0 × 15.0 (16.5) × 18.0	1.3	41222	2000	43222 / 800	1000
0.0024			41242		43242	
0.0027			41272		43272	
0.003			41302		43302	
0.0033			41332		43332	
0.0036			41362		43362	
0.0039	6.5 × 15.5 (17.0) × 18.0	1.4	41392	1500	43392 / 750	900
0.0043			41432		43432	
0.0047	7.0 × 16.0 (17.5) × 18.0	1.5	41472	1500	43472 / 700	800
0.0051			41512		43512	
0.0056			41562		43562	
0.0062	7.5 × 16.5 (18.0) × 18.0	1.6	41622	1250	43622 / 650	800
0.0068			41682		43682	
0.0075	8.0 × 17.0 (18.5) × 18.0	1.7	41752	1250	43752 / 600	750
0.0082	8.5 × 17.5 (19.0) × 18.0	1.8	41822	1000	43822 / 600	700
0.0091			41912		43912	
0.01	9.0 × 18.0 (19.5) × 18.0	1.9	41103	900	43103 / 550	600
0.011	9.5 × 18.5 (20.0) × 18.0	2.0	41113	900	43113 / 500	600
0.012	10.0 × 19.0 (20.5) × 18.0	2.1	41123	800	43123 / 500	600
0.013			41133		43133	
0.015	11.0 × 20.0 (21.5) × 18.0	2.3	41153	800	43153 / 450	500
0.016			41163		43163	
Pitch = 22.5 ±0.4 mm; d_t = 0.80 ±0.08 mm					**pitch = 7.5 mm (bent back)**	**pitch = 22.5 mm**
0.018	8.0 × 21.0 × 26.0	2.4	41183	550		
0.02	8.5 × 21.5 × 26.0	2.5	41203	500		
0.022	9.0 × 22.0 × 26.0	2.6	41223	450		
0.024			41243			
0.027	9.5 × 22.5 × 26.0	2.8	41273	450		
0.03	10.0 × 23.0 × 26.0	3.0	41303	400		
0.033	10.5 × 23.5 × 26.0	3.2	41333	350		

AC and Pulse Double Metallized
Polypropylene Film Capacitors
MMKP Radial Epoxy Lacquered Type

C (MF)	DIMENSIONS $w_{max} \times h\ (h')_{max} \times l_{max}$ (mm)	MASS (g)	CATALOG NUMBER 2222 483 ..... AND PACKAGING				
			LOOSE IN BOX		REEL		
			l_t = 5.0 ±1.0 mm	all leads	pitch = 7.5 mm (bent back)		pitch = 15 mm
			C-tol = ±5%		C-tol = ±5%		
			last 5 digits of catalog number	SPQ	last 5 digits of catalog number	SPQ	SPQ
0.036	11.0 × 24.0 × 26.0	3.5	41363	350			
0.039	11.5 × 24.5 × 26.0	3.8	41393	350			
Pitch = 27.5 ±0.4 mm; d_t = 0.80 ±0.08 mm					**pitch = 7.5 mm (bent back)**		**pitch = 27.5 mm**
0.043	10.5 × 23.5 × 31.0	5.0	41433	450			
0.047			41473				
0.051	11.0 × 24.0 × 31.0	5.5	41513	400			
0.056	11.5 × 24.5 × 31.0	5.5	41563	400			
0.062	12.0 × 25.0 × 31.0	6.0	41623	350			
0.068	12.5 × 25.5 × 31.0	6.5	41683	350			
0.075	13.5 × 26.5 × 31.0	7.0	41753	300			
0.082	14.0 × 27.0 × 31.0	7.0	41823	300			
0.091	14.5 × 27.5 × 31.0	7.5	41913	250			
0.1	15.5 × 28.5 × 31.0	8.5	41104	250			

U_{Rdc} = 1400 V; U_{Rac} = 425 V; U_{p-p} = 1200 V (lock lead)

C (MF)	DIMENSIONS $w_{max} \times h\ (h')_{max} \times l_{max}$ (mm)	MASS (g)	CATALOG NUMBER 2222 483 ..... 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 ±0.4 mm; d_t = 0.80 ±0.08 mm				
0.0022	6.0 × 18.0 × 18.0	1.3	44222	2000
0.0024			44242	
0.0027			44272	
0.003			44302	
0.0033			44332	
0.0036			44362	
0.0039	6.5 × 18.5 × 18.0	1.4	44392	1500
0.0043			44432	
0.0047	7.0 × 19.0 × 18.0	1.5	44472	1500
0.0051			44512	
0.0056			44562	
0.0062	7.5 × 19.5 × 18.0	1.6	44622	1250
0.0068			44682	
0.0075	8.0 × 20.0 × 18.0	1.7	44752	1250
0.0082	8.5 × 20.5 × 18.0	1.8	44822	1000
0.0091			44912	
0.01	9.0 × 21.0 × 18.0	1.9	44103	900
0.011	9.5 × 21.5 × 18.0	2.0	44113	900
0.012	10.0 × 22.0 × 18.0	2.1	44123	800
0.013			44133	
0.015	11.0 × 23.0 × 18.0	2.3	44153	800
0.016			44163	
Pitch = 22.5 ±0.4 mm; d_t = 0.80 ±0.08 mm				
0.018	8.0 × 24.0 × 26.0	2.4	44183	550
0.02	8.5 × 24.5 × 26.0	2.5	44203	500
0.022	9.0 × 25.0 × 26.0	2.6	44223	450
0.024			44243	

C (MF)	DIMENSIONS w_{max} × h $(h')_{max}$ × l_{max} (mm)	MASS (g)	CATALOG NUMBER 2222 483 ..... AND PACKAGING	
			LOOSE IN BOX	
			l_t = 4.0 +1.0/–0.5 mm	
			C-tol = ±5%	
			last 5 digits of catalog number	SPQ
0.027	9.5 × 25.5 × 26.0	2.8	44273	450
0.03	10.0 × 26.0 × 26.0	3.0	44303	400
0.033	10.5 × 26.5 × 26.0	3.2	44333	350
0.036	11.0 × 27.0 × 26.0	3.5	44363	350
0.039	11.5 × 27.5 × 26.0	3.8	44393	350
Pitch = 27.5 ±0.4 mm; d_t = 0.80 ±0.08 mm				
0.043	10.5 × 26.5 × 31.0	5.0	44433	450
0.047			44473	
0.051	11.0 × 27.0 × 31.0	5.5	44513	400
0.056	11.5 × 27.5 × 31.0	5.5	44563	400
0.062	12.0 × 28.0 × 31.0	6.0	44623	350
0.068	12.5 × 28.5 × 31.0	6.5	44683	350
0.075	13.5 × 29.5 × 31.0	7.0	44753	300
0.082	14.0 × 30.0 × 31.0	7.0	44823	300
0.091	14.5 × 30.5 × 31.0	7.5	44913	250
0.1	15.5 × 31.5 × 31.0	8.5	44104	250

SPECIFIC REFERENCE DATA (1600 VDC)

DESCRIPTION	VALUE	
Tangent of loss angle:	at 10 kHz	at 100 kHz
C ≤ 0.01 μF	≤5 × 10^{-4}	≤10 × 10^{-4}
Rated voltage pulse slope $(dU/dt)_R$ at 1600 V (DC)		
Pitch = 15 mm and 7.5 mm (bent back) for C ≤ 0.0036 μF	11000 V/μs	
Pitch = 15 mm and 7.5 mm (bent back) for 0.0036 μF < C ≤ 0.01 μF	20000 V/μs	
R between leads, for C ≤ 1 μF at 500 V; 1 minute	>100000 MΩ	
R between leads and case; 500 V; 1 minute	>30000 MΩ	
Ionization (AC) voltage (typical value) at 20 pC peak discharge	>440 V	
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	2400 V; 1 minute	
Withstanding (DC) voltage between leads and case	2840 V; 1 minute	

U_{Rdc} = 1600 V; U_{Rac} = 460 V; U_{p-p} = 1300 V (standard)

C (MF)	DIMENSIONS w_{max} × h $(h')_{max}$ × l_{max} (mm)	MASS (g)	CATALOG NUMBER 2222 483 ..... AND PACKAGING				
			LOOSE IN BOX		REEL		
			l_t = 5.0 ±1.0 mm	all leads	pitch = 7.5 mm (bent back)		pitch = 15 mm
			C-tol = ±5%		C-tol = ±5%		
			last 5 digits of catalog number	SPQ	last 5 digits of catalog number	SPQ	SPQ
Pitch = 15.0 ±0.4 mm; d_t = 0.80 ±0.08 mm					**pitch = 7.5 mm (bent back)**		**pitch = 15.0 mm**
0.0016	6.0 × 15.0 (16.5) × 18.0	1.3	51162	2000	53162	800	1000
0.0018			51182		53182		
0.002			51202		53202		
0.0022			51222		53222		
0.0024	6.5 × 15.5 (17.0) × 18.0	1.4	51242	1500	53242	750	900
0.0027			51272		53272		
0.003	7.0 × 16.0 (17.5) × 18.0	1.5	51302	1500	53302	700	800
0.0033			51332		53332		
0.0036			51362		53362		
0.0039	7.5 × 16.5 (18.0) × 18.0	1.6	51392	1250	53392	650	800
0.0043			51432		53432		

C (MF)	DIMENSIONS $w_{max} \times h\ (h')_{max} \times l_{max}$ (mm)	MASS (g)	CATALOG NUMBER 2222 483 ..... AND PACKAGING				
			LOOSE IN BOX		REEL		
			l_t = 5.0 ±1.0 mm	all leads	pitch = 7.5 mm (bent back)		pitch = 15 mm
			C-tol = ±5%		C-tol = ±5%		
			last 5 digits of catalog number	SPQ	last 5 digits of catalog number	SPQ	SPQ
0.0047	8.0 × 17.0 (18.5) × 18.0	1.7	51472	1250	53472	600	750
0.0051 0.0056	8.5 × 17.5 (19.0) × 18.0	1.8	51512 51562	1000	53512 53562	600	700
0.0062	9.0 × 18.0 (19.5) × 18.0	1.9	51622	900	53622	550	600
0.0068 0.0075	9.5 × 18.5 (20.0) × 18.0	2.0	51682 51752	900	53682 53752	500	600
0.0082	10.0 × 19.0 (20.5) × 18.0	2.1	51822	800	53822	500	600
0.0091	10.5 × 19.5 (21.0) × 18.0	2.2	51912	800	53912	450	500
0.01	11.0 × 20.0 (21.5) × 18.0	2.3	51103	800	53103	450	500
Pitch = 22.5 ±0.4 mm; d_t = 0.80 ±0.08 mm					**pitch = 7.5 mm (bent back)**		**pitch = 22.5 mm**
0.011	8.0 × 21.0 × 26.0	2.4	51113	550			
0.012 0.013	8.5 × 21.5 × 26.0	2.5	51123 51133	500			
0.015	9.0 × 22.0 × 26.0	2.6	51153	450			
0.016	9.5 × 22.5 × 26.0	2.8	51163	450			
0.018 0.02	10.0 × 23.0 × 26.0	3.0	51183 51203	400			
0.022	10.5 × 23.5 × 26.0	3.2	51223	350			
0.024	11.0 × 24.0 × 26.0	3.5	51243	350			
0.027	11.5 × 24.5 × 26.0	3.8	51273	350			
0.03	12.5 × 25.5 × 26.0	4.6	51303	300			
0.033	13.0 × 26.0 × 26.0	5.0	51333	300			
Pitch = 27.5 ±0.4 mm; d_t = 0.80 ±0.08 mm					**pitch = 7.5 mm (bent back)**		**pitch = 27.5 mm**
0.036	11.5 × 24.5 × 31.0	5.5	51363	400			
0.039	12.0 × 25.0 × 31.0	6.0	51393	350			
0.043	12.5 × 25.5 × 31.0	6.5	51433	350			
0.047	13.0 × 26.0 × 31.0	6.5	51473	300			
0.051	13.5 × 26.5 × 31.0	7.0	51513	300			
0.056	14.5 × 27.5 × 31.0	7.5	51563	250			

U_{Rdc} = 1600 V; U_{Rac} = 460 V; U_{p-p} = 1300 V (lock lead)

C (MF)	DIMENSIONS $w_{max} \times h\ (h')_{max} \times l_{max}$ (mm)	MASS (g)	CATALOG NUMBER 2222 483 ..... 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 ±0.4 mm; d_t = 0.80 ±0.08 mm				
0.0016 0.0018 0.002 0.0022	6.0 × 18.0 × 18.0	1.3	54162 54182 54202 54222	2000
0.0024 0.0027	6.5 × 18.5 × 18.0	1.4	54242 54272	1500
0.003 0.0033 0.0036	7.0 × 19.0 × 18.0	1.5	54302 54332 54362	1500
0.0039 0.0043	7.5 × 19.5 × 18.0	1.6	54392 54432	1250

C (MF)	DIMENSIONS $w_{max} \times h\ (h')_{max} \times l_{max}$ (mm)	MASS (g)	CATALOG NUMBER 2222 483 ..... AND PACKAGING	
			LOOSE IN BOX	
			l_t = 4.0 +1.0/–0.5 mm	
			C-tol = ±5%	
			last 5 digits of catalog number	SPQ
0.0047	8.0 × 20.0 × 18.0	1.7	54472	1250
0.0051	8.5 × 20.5 × 18.0	1.8	54512	1000
0.0056			54562	
0.0062	9.0 × 21.0 × 18.0	1.9	54622	900
0.0068	9.5 × 21.5 × 18.0	2.0	54682	900
0.0075			54752	
0.0082	10.0 × 22.0 × 18.0	2.1	54822	800
0.0091	10.5 × 22.5 × 18.0	2.2	54912	800
0.01	11.0 × 23.0 × 18.0	2.3	54103	800
Pitch = 22.5 ±0.4 mm; d_t = 0.80 ±0.08 mm				
0.011	8.0 × 24.0 × 26.0	2.4	54113	550
0.012	8.5 × 24.5 × 26.0	2.5	54123	500
0.013			54133	
0.015	9.0 × 25.0 × 26.0	2.6	54153	450
0.016	9.5 × 25.5 × 26.0	2.8	54163	450
0.018	10.0 × 26.0 × 26.0	3.0	54183	400
0.02			54203	
0.022	10.5 × 26.5 × 26.0	3.2	54223	350
0.024	11.0 × 27.0 × 26.0	3.5	54243	350
0.027	11.5 × 27.5 × 26.0	3.8	54273	350
0.03	12.5 × 28.5 × 26.0	4.6	54303	300
0.033	13.0 × 29.0 × 26.0	5.0	54333	300
Pitch = 27.5 ±0.4 mm; d_t = 0.80 ±0.08 mm				
0.036	11.5 × 27.5 × 31.0	5.5	54363	400
0.039	12.0 × 28.0 × 31.0	6.0	54393	350
0.043	12.5 × 28.5 × 31.0	6.5	54433	350
0.047	13.0 × 29.0 × 31.0	6.5	54473	300
0.051	13.5 × 29.5 × 31.0	7.0	54513	300
0.056	14.5 × 30.5 × 31.0	7.5	54563	250

SPECIFIC REFERENCE DATA (2000 VDC)

DESCRIPTION	VALUE	
Tangent of loss angle:	at 10 kHz	at 100 kHz
C ≤ 0.0051 μF	$\leq 5 \times 10^{-4}$	$\leq 10 \times 10^{-4}$
0.0051 μF < C ≤ 0.033 μF	$\leq 5 \times 10^{-4}$	$\leq 10 \times 10^{-4}$
Rated voltage pulse slope $(dU/dt)_R$:		
Pitch = 15 mm and 7.5 mm (bent back)	20000 V/μs	
P = 22.5 mm	10000 V/μs	
P = 27.5 mm	5500 V/μs	
R between leads, for C ≤ 1 μF at 500 V; 1 minute	>100000 MΩ	
R between leads and case; 500 V; 1 minute	>30000 MΩ	
Ionization (AC) voltage (typical value) at 20 pC peak discharge	>440 V	
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s	3000 V; 1 minute	
Withstanding (DC) voltage between leads and case	2840 V; 1 minute	

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U_{Rdc} = 2000 V; U_{Rac} = 530 V; U_{p-p} = 1500 V (standard)

C (MF)	DIMENSIONS $w_{max} \times h\ (h')_{max} \times l_{max}$ (mm)	MASS (g)	CATALOG NUMBER 2222 483 ..... AND PACKAGING				
			LOOSE IN BOX		REEL		
			l_t = 5.0 ±1.0 mm	all leads	pitch = 7.5 mm (bent back)		pitch = 15 mm
			C-tol = ±5%		C-tol = ±5%		
			last 5 digits of catalog number	SPQ	last 5 digits of catalog number	SPQ	SPQ
Pitch = 15.0 ±0.4 mm; d_t = 0.80 ±0.08 mm					**pitch = 7.5 mm (bent back)**		**pitch = 15.0 mm**
0.001	6.0 × 15.0 (16.5) × 18.0	1.3	61102	2000	63102	800	1000
0.0011	6.5 × 15.5 (17.0) × 18.0	1.4	61112	1500	63112	750	900
0.0012			61122		63122		
0.0013			61132		63132		
0.0015	7.0 × 16.0 (17.5) × 18.0	1.5	61152	1500	63152	700	800
0.0016			61162		63162		
0.0018	7.5 × 16.5 (18.0) × 18.0	1.6	61182	1250	63182	650	800
0.002			61202		63202		
0.0022	8.0 × 17.0 (18.5) × 18.0	1.7	61222	1250	63222	600	750
0.0024			61242		63242		
0.0027	8.5 × 17.5 (19.0) × 18.0	1.8	61272	1000	63272	600	700
0.003	9.0 × 18.0 (19.5) × 18.0	1.9	61302	900	63302	550	600
0.0033	9.5 × 18.5 (20.0) × 18.0	2.0	61332	900	63332	500	600
0.0036			61362		63362		
0.0039	10.0 × 19.0 (20.5) × 18.0	2.1	61392	800	63392	500	600
0.0043	10.5 × 19.5 (21.0) × 18.0	2.2	61432	800	63432	450	500
0.0047			61472		63472		
0.0051	11.0 × 20.0 (21.5) × 18.0	2.3	61512	800	63512	450	500
Pitch = 22.5 ±0.4 mm; d_t = 0.80 ±0.08 mm					**pitch = 7.5 mm (bent back)**		**pitch = 22.5 mm**
0.0056	8.5 × 21.5 × 26.0	2.5	61562	500			
0.0062			61622				
0.0068	9.0 × 22.0 × 26.0	2.6	61682	450			
0.0075			61752				
0.0082	9.5 × 22.5 × 26.0	2.8	61822	450			
0.0091	10.0 × 23.0 × 26.0	3.0	61912	400			
0.01	10.5 × 23.5 × 26.0	3.2	61103	350			
0.011	11.0 × 24.0 × 26.0	3.5	61113	350			
0.012	11.5 × 24.5 × 26.0	3.8	61123	350			
0.013			61133				
0.015	12.5 × 25.5 × 26.0	4.6	61153	300			
0.016	13.0 × 26.0 × 26.0	5.0	61163	300			
Pitch = 27.5 ±0.4 mm; d_t = 0.80 ±0.08 mm					**pitch = 7.5 mm (bent back)**		**pitch = 27.5 mm**
0.018	11.5 × 24.5 × 31.0	5.5	61183	400			
0.02	12.5 × 25.5 × 31.0	6.5	61203	350			
0.022	13.0 × 26.0 × 31.0	6.5	61223	300			
0.024	13.5 × 26.5 × 31.0	7.0	61243	300			
0.027	14.0 × 27.0 × 31.0	7.0	61273	300			
0.03	15.0 × 28.0 × 31.0	8.0	61303	250			
0.033	15.5 × 28.5 × 31.0	8.5	61333	250			

U_{Rdc} = 2000 V; U_{Rac} = 530 V; U_{p-p} = 1500 V (lock lead)

C (MF)	DIMENSIONS $w_{max} \times h\ (h')_{max} \times l_{max}$ (mm)	MASS (g)	CATALOG NUMBER 2222 483 ..... 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 ±0.4 mm; d_t = 0.80 ±0.08 mm				
0.001	6.0 × 18.0 × 18.0	1.3	64102	2000
0.0011	6.5 × 18.5 × 18.0	1.4	64112	1500
0.0012			64122	
0.0013			64132	
0.0015	7.0 × 19.0 × 18.0	1.5	64152	1500
0.0016			64162	
0.0018	7.5 × 19.5 × 18.0	1.6	64182	1250
0.002			64202	
0.0022	8.0 × 20.0 × 18.0	1.7	64222	1250
0.0024			64242	
0.0027	8.5 × 20.5 × 18.0	1.8	64272	1000
0.003	9.0 × 21.0 × 18.0	1.9	64302	900
0.0033	9.5 × 21.5 × 18.0	2.0	64332	900
0.0036			64362	
0.0039	10.0 × 22.0 × 18.0	2.1	64392	800
0.0043	10.5 × 22.5 × 18.0	2.2	64432	800
0.0047			64472	
0.0051	11.0 × 23.0 × 18.0	2.3	64512	800
Pitch = 22.5 ±0.4 mm; d_t = 0.80 ±0.08 mm				
0.0056	8.5 × 24.5 × 26.0	2.5	64562	500
0.0062			64622	
0.0068	9.0 × 25.0 × 26.0	2.6	64682	450
0.0075			64752	
0.0082	9.5 × 25.5 × 26.0	2.8	64822	450
0.0091	10.0 × 26.0 × 26.0	3.0	64912	400
0.01	10.5 × 26.5 × 26.0	3.2	64103	350
0.011	11.0 × 27.0 × 26.0	3.5	64113	350
0.012	11.5 × 27.5 × 26.0	3.8	64123	350
0.013			64133	
0.015	12.5 × 28.5 × 26.0	4.6	64153	300
0.016	13.0 × 29.0 × 26.0	5.0	64163	300
Pitch = 27.5 ±0.4 mm; d_t = 0.80 ±0.08 mm				
0.018	11.5 × 27.5 × 31.0	5.5	64183	400
0.02	12.5 × 28.5 × 31.0	6.5	64203	350
0.022	13.0 × 29.0 × 31.0	6.5	64223	300
0.024	13.5 × 29.5 × 31.0	7.0	64243	300
0.027	14.0 × 30.0 × 31.0	7.0	64273	300
0.03	15.0 × 31.0 × 31.0	8.0	64303	250
0.033	15.5 × 31.5 × 31.0	8.5	64333	250

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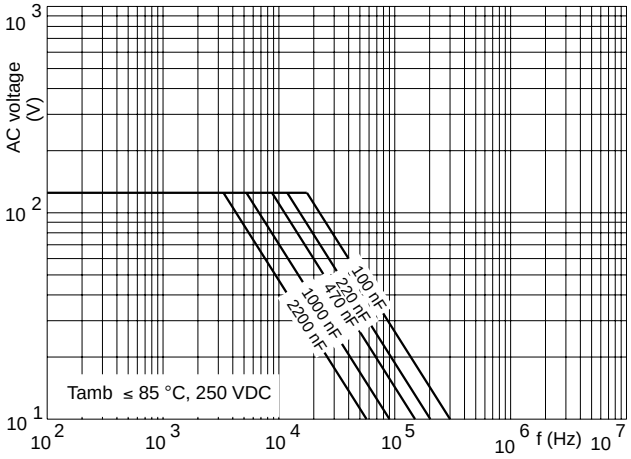
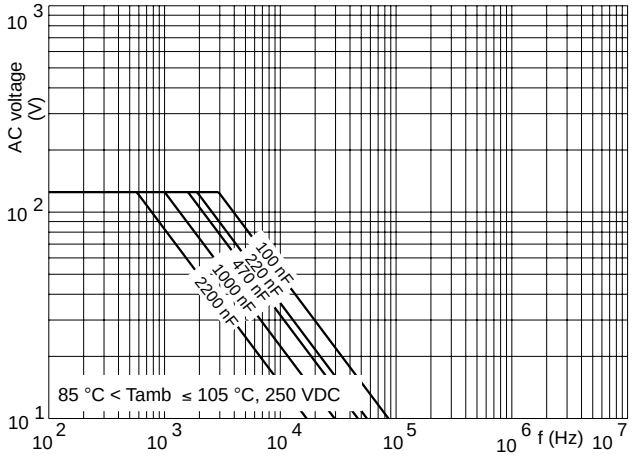
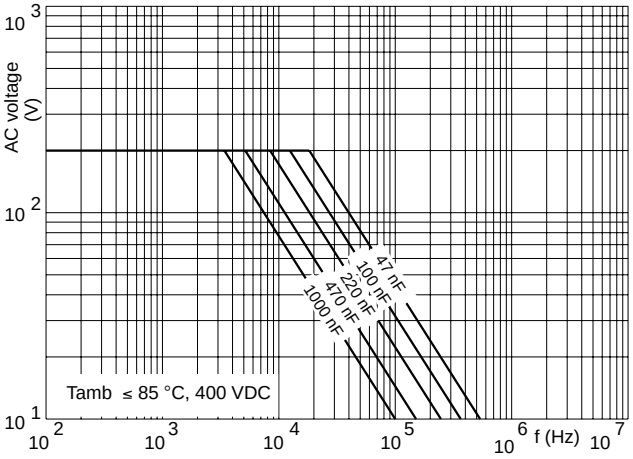
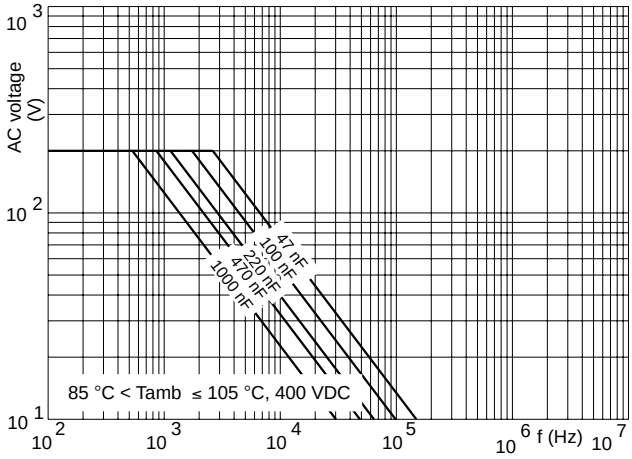
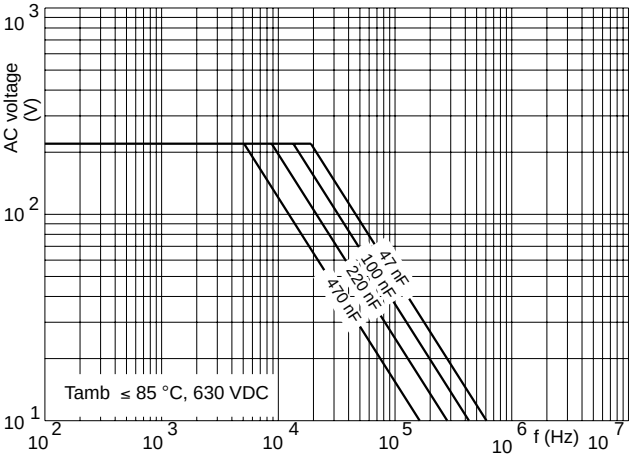
MAXIMUM RMS VOLTAGE (SINEWAVE) AS A FUNCTION OF FREQUENCY

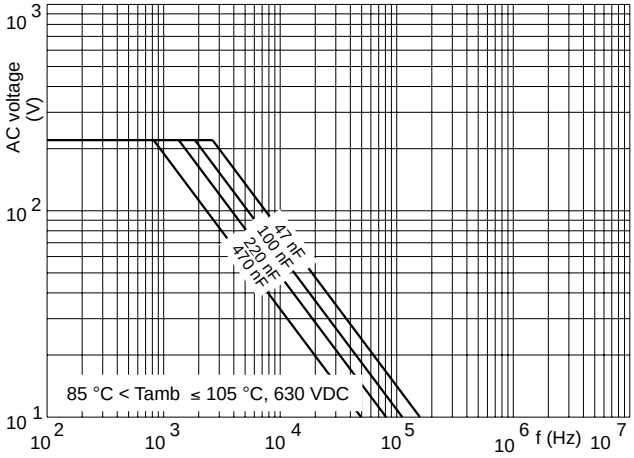












AC and Pulse Double Metallized
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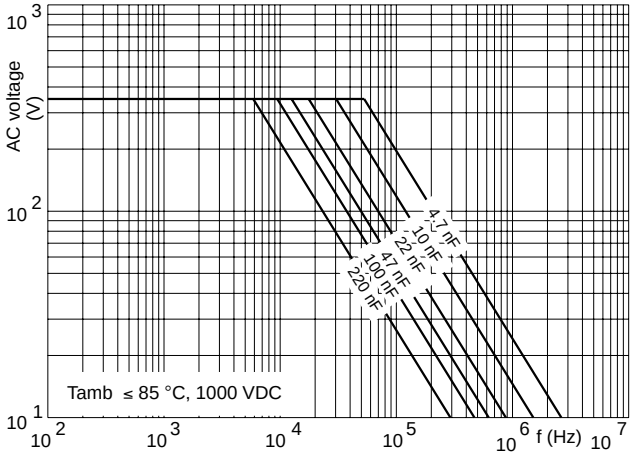

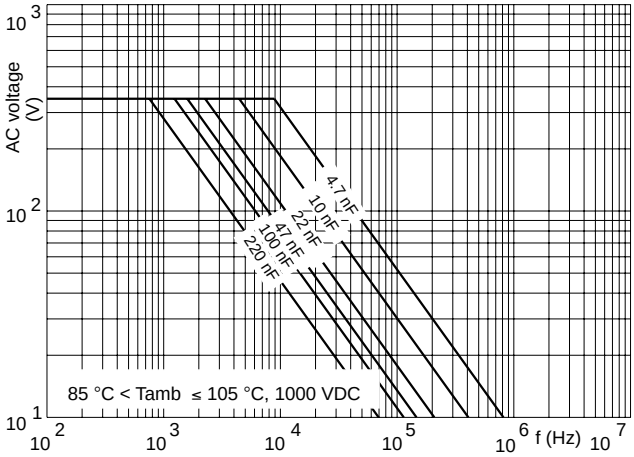

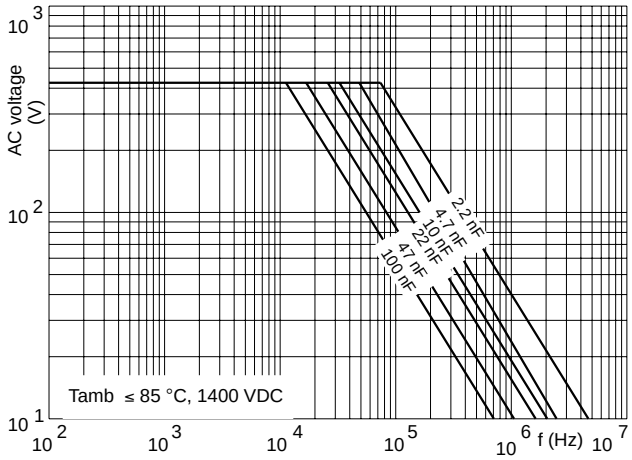

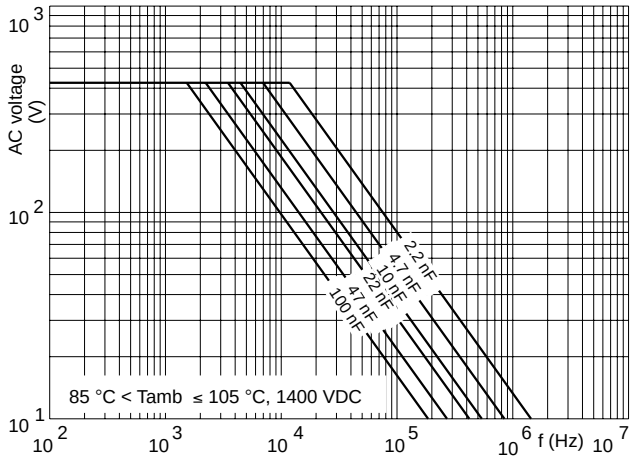

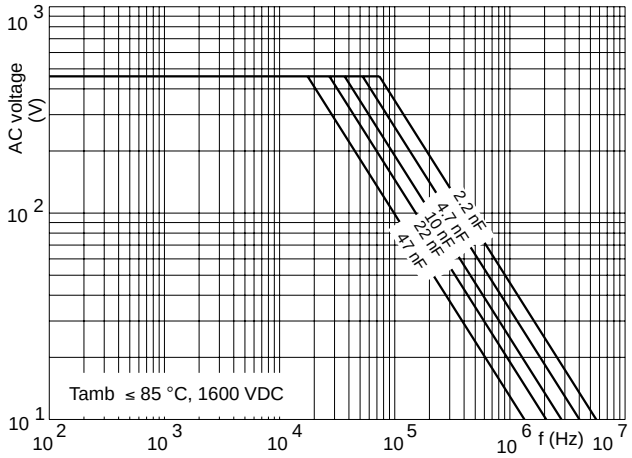

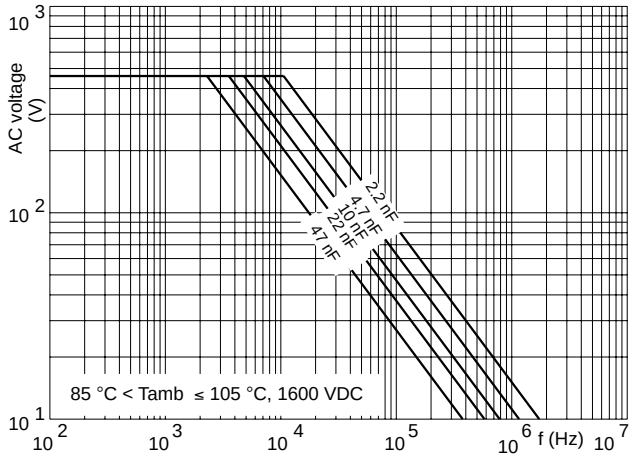

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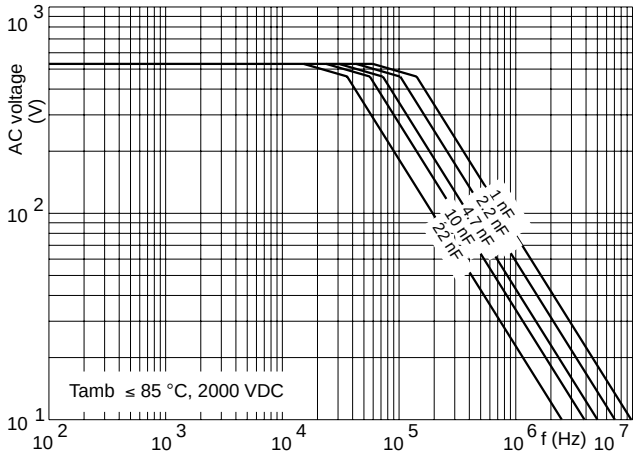
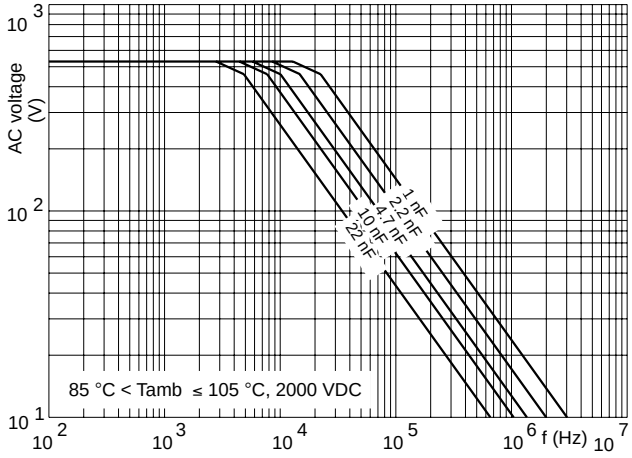
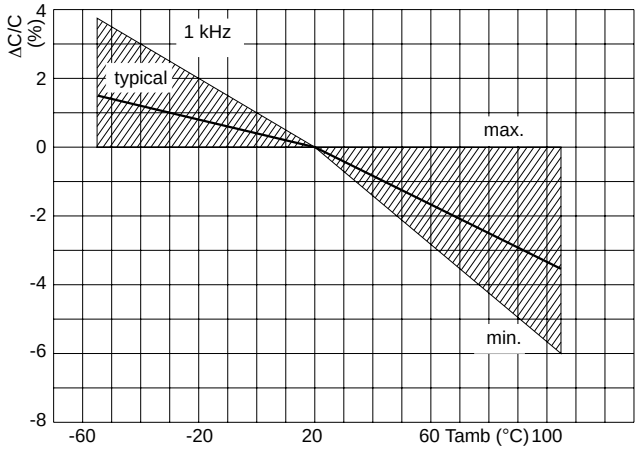




CAPACITANCE



IMPEDANCE