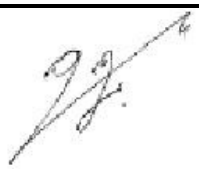
Product Approval Sheet

Customer : Ropla

Issued no : 2019. 09. 09.
Revision no :

- **Product description : Metallized Polypropylene film capacitors**
- **Product code : PCMP 389J52684**
- **Application :**

CUSTOMER			
PILKOR	**Checked**	**Confirmed**	**Approved**
			

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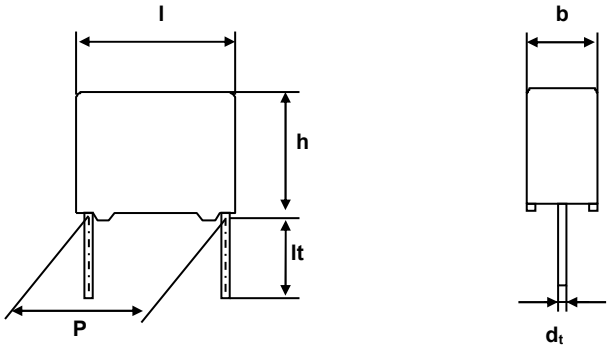
*** Please send it back to us before placing order.**

목 차 *(Contents)*

Capacitor as PCMP 389. . . . acc. to Type spec. QSN-075-27



Voltage Vdc	Cap. μF	Code PCMP 389	C-tol.	Dimensions b ×h ×l mm	P mm	Lt mm	d_t mm
400	0.68	J52684	± 5.0 %	10.0 x 19.5 x 26.0	22.5 ± 0.4	5.0 ± 1.0	0.8 + 0.08/-0.05

Same as PCMP 389 52624

But,
- Capacitance : 0.68uF

- Packing Method (Loose in box)

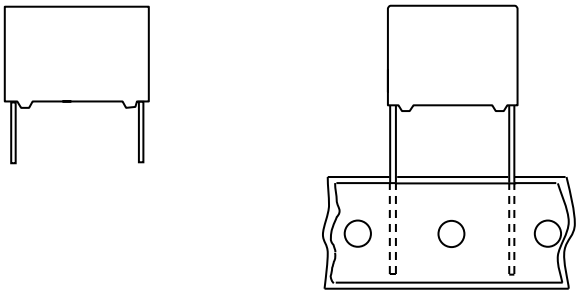
Packing method	SPQ (Inner box)	PQ (Outer box)
8242 450 40026	500 (8242 451 30211)	2000 (8242 451 30301)

Metallized Polypropylene film capacitors

PCMP 389

MKP RADIAL POTTED CAPACITORS

Pitch 10.0/15.0/22.5/27.5 mm
(reduced pitch 7.5mm)



QUICK REFERENCE DATA

Capacitance range (E24 series)	0.00082 to 3.9μF
Capacitance tolerance	±5%
Rated voltage (DC)	250V, 400V, 630V, 1000V, 1250V, 1600V, 2000V
Climatic category	55/105/56
Temperature range	-55℃ ~ +105℃
Reference specification	IEC 60384-17 / 16
Potting & Encapsulation material	Qualified in accordance with UL94V-0

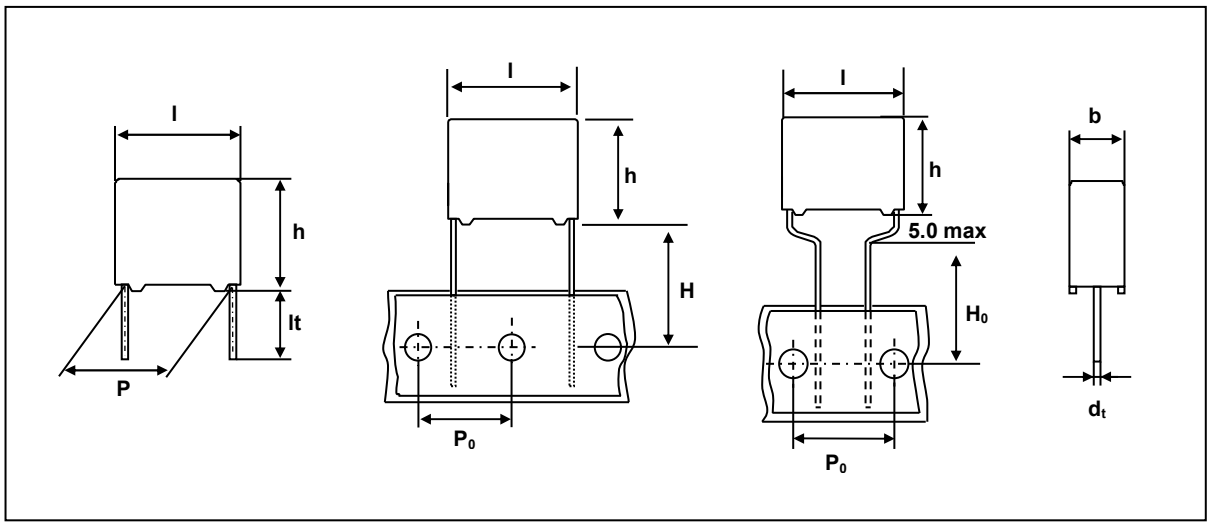
FEATURES	APPLICATIONS
. 15mm to 27.5mm lead pitch . Low contact resistance . Low loss dielectric . Small dimensions for high density packaging . Supplied loose in box and taped on reel . High pulse withstand capability (1600V, 2000V)	. Where steep pulses occur e.g. SMPS (switch mode power supplies) . S - correction . Motor control circuits . Electronic lighting circuits (1600V, 2000V) . Stable capacitance in damp environment 85℃85%RH, V_{Rdc} , 500hours

• Please refer to caution and warning at http://www.pilkor.co.kr/sub/download/Introductions.pdf before using these products.

Metallized Polypropylene film capacitors

PCMP 389

Ordering Information



PCMP 389 (X) X X XXX

Type series — Capacitance

Code	Voltage
4	250V
5	400V
6	630V
7	1000V
N	1250V
8	1600V
9	2000V

*Code	Original pitch
D	10.0mm
F	15.0mm
J	22.5mm
L	27.5mm

**** In case of overlapping the value, use the 13NC with pitch information.***

Available versions					Product (I_{max})			
Code	Packing method	C-tol.	Lead length & Height	Hole to hole (P_o)	12.5	18.0	26.0	31.0
					Pitch (P)			
2	Loose in box	± 5%	lt = 5.0± 1.0mm	-	10.0	15.0	22.5	27.5
3	Loose in box	± 5%	lt =25.0± 2.0mm	-	10.0	15.0	22.5	27.5
5	Ammo packing	± 5%	H=18.5mm	12.7mm	10.0	15.0	22.5	27.5
A	Ammo packing	± 5%	H_0=16.0mm	15.0mm	7.5(*)	7.5(*)	-	-

* Reduced pitch (Reduced lead spacings)

Packing Information

SMALLEST PACKING QUANTITIES (SPQ)	Loose in box	Ammo packing
	lt = 5.0± 1.0mm	H=18.5mm
DIMENSIONS	SPQ	SPQ
4.0 x 10.0 x 12.5	2000	800
5.0 x 11.0 x 12.5	1500	700
6.0 x 12.0 x 12.5	1000	600
5.0 x 11.0 x 18.0	1000	700
6.0 x 12.0 x 18.0	1000	600
7.0 x 13.5 x 18.0	1000	500
8.5 x 15.0 x 18.0	1000	400
10.0 x 16.5 x 18.0	1000	370
11.0 x 18.5 x 18.0	1000	330
6.0 x 15.5 x 26.0	1000	600
7.0 x 16.5 x 26.0	1000	500
8.5 x 18.0 x 26.0	500	400
10.0 x 19.5 x 26.0	500	370
11.5 x 21.0 x 26.0	500	300
12.0 x 22.0 x 26.0	500	300
11.0 x 21.0 x 31.0	500	300
13.0 x 23.0 x 31.0	250	250
15.0 x 25.0 x 31.0	250	220
18.0 x 28.0 x 31.0	200	200

Metallized Polypropylene film capacitors

PCMP 389

V_{Rdc} = 250 V V_{Rac} = 160 V~ V_{p-p} = 450 V

Cap (µF)	b x h x l (mm)	CATALOGUE NUMBER PCMP 389 ….. loose in box lt = 5 ± 1 mm C – tol. ± 5%	CATALOGUE NUMBER PCMP 389 ….. ammo packing H = 18.5 mm C – tol. ± 5%
Pitch = 10.0 ± 0.4 mm		dt = 0.6 mm (+ 0.06 / - 0.05)	
0.047	4.0 x 10.0 x 12.5	PCMP 389 42473	PCMP 389 45473
0.051		PCMP 389 42513	PCMP 389 45513
0.056		PCMP 389 42563	PCMP 389 45563
0.062		PCMP 389 42623	PCMP 389 45623
0.068		PCMP 389 42683	PCMP 389 45683
0.075	5.0 x 11.0 x 12.5	PCMP 389 42753	PCMP 389 45753
0.082		PCMP 389 42823	PCMP 389 45823
0.091		PCMP 389 42913	PCMP 389 45913
0.10	6.0 x 12.0 x 12.5	PCMP 389 42104	PCMP 389 45104
0.11		PCMP 389 42114	PCMP 389 45114
0.12		PCMP 389 42124	PCMP 389 45124
Pitch = 15.0 ± 0.4 mm		dt = 0.8 mm (+ 0.08 / - 0.05)	
0.10	5.0 x 11.0 x 18.0	PCMP 389F42104	PCMP 389F45104
0.11		PCMP 389F42114	PCMP 389F45114
0.12		PCMP 389F42124	PCMP 389F45124
0.13		PCMP 389 42134	PCMP 389 45134
0.15		PCMP 389 42154	PCMP 389 45154
0.16		PCMP 389 42164	PCMP 389 45164
0.18	6.0 x 12.0 x 18.0	PCMP 389 42184	PCMP 389 45184
0.20		PCMP 389 42204	PCMP 389 45204
0.22		PCMP 389 42224	PCMP 389 45224
0.24		PCMP 389 42244	PCMP 389 45244
0.33		PCMP 389F42334	PCMP 389F45334
0.36		PCMP 389F42364	PCMP 389F45364
0.39		PCMP 389F42394	PCMP 389F45394
0.27	7.0 x 13.5 x 18.0	PCMP 389 42274	PCMP 389 45274
0.30		PCMP 389 42304	PCMP 389 45304
0.33		PCMP 389 42334	PCMP 389 45334
0.43		PCMP 389F42434	PCMP 389F45434
0.47		PCMP 389F42474	PCMP 389F45474
0.36	8.5 x 15.0 x 18.0	PCMP 389 42364	PCMP 389 45364
0.39		PCMP 389 42394	PCMP 389 45394
0.43		PCMP 389 42434	PCMP 389 45434
0.47		PCMP 389 42474	PCMP 389 45474

; **Mini type**

Metallized Polypropylene film capacitors

PCMP 389

V_{Rdc} = 250 V V_{Rac} = 160 V~ V_{p-p} = 450 V

Cap (µF)	b x h x l (mm)	CATALOGUE NUMBER PCMP 389 ….. loose in box lt = 5 ± 1 mm C – tol. ± 5%	CATALOGUE NUMBER PCMP 389 ….. ammo packing H = 18.5 mm C – tol. ± 5%
Pitch = 22.5 ± 0.4 mm		dt = 0.8 mm (+ 0.08 / - 0.05)	
0.33	7.0 X 16.5 X 26.0	PCMP 389J42334	PCMP 389J45334
0.36		PCMP 389J42364	PCMP 389J45364
0.39		PCMP 389J42394	PCMP 389J45394
0.43		PCMP 389J42434	PCMP 389J45434
0.47		PCMP 389J42474	PCMP 389J45474
0.51		PCMP 389 42514	PCMP 389 45514
0.56		PCMP 389 42564	PCMP 389 45564
0.62		PCMP 389 42624	PCMP 389 45624
0.75		PCMP 389J42754	PCMP 389J45754
0.82		PCMP 389J42824	PCMP 389J45824
0.91		PCMP 389J42914	PCMP 389J45914
1.0		PCMP 389J42105	PCMP 389J45105
0.68	8.5 X 18.0 X 26.0	PCMP 389 42684	PCMP 389 45684
0.75		PCMP 389 42754	PCMP 389 45754
0.82		PCMP 389 42824	PCMP 389 45824
0.91		PCMP 389 42914	PCMP 389 45914
1.1		PCMP 389J42115	PCMP 389J45115
1.2		PCMP 389J42125	PCMP 389J45125
1.0	10.0 X 19.5 X 26.0	PCMP 389 42105	PCMP 389 45105
1.1		PCMP 389 42115	PCMP 389 45115
1.2		PCMP 389 42125	PCMP 389 45125
Pitch = 27.5 ± 0.4 mm		dt = 0.8 mm (+ 0.08 / - 0.05)	
0.91	11.0 X 21.0 X 31.0	PCMP 389L42914	-
1.0		PCMP 389L42105	-
1.1		PCMP 389L42115	-
1.2		PCMP 389L42125	-
1.3		PCMP 389 42135	-
1.5		PCMP 389 42155	-
1.6		PCMP 389 42165	-
1.8	13.0 X 23.0 X 31.0	PCMP 389 42185	-
2.0		PCMP 389 42205	-
2.2		PCMP 389 42225	-
2.4	15.0 X 25.0 X 31.0	PCMP 389 42245	-
2.7		PCMP 389 42275	-
3.0	18.0 X 28.0 X 31.0	PCMP 389 42305	-
3.3		PCMP 389 42335	-
3.6		PCMP 389 42365	-
3.9		PCMP 389 42395	-

; **Mini type**

Metallized Polypropylene film capacitors

PCMP 389

V_{Rdc} = 400 V V_{Rac} = 200 V~ V_{p-p} = 560 V

Cap (µF)	b x h x l (mm)	CATALOGUE NUMBER	
		PCMP 389	
		loose in box	ammo packing
		lt = 5 ± 1 mm	H = 18.5 mm
		C – tol. ± 5%	C – tol. ± 5%
Pitch = 10.0 ± 0.4 mm		dt = 0.6 mm (+ 0.06 / - 0.05)	
0.022	4.0 x 10.0 x 12.5	PCMP 389 52223	PCMP 389 55223
0.024		PCMP 389 52243	PCMP 389 55243
0.027		PCMP 389 52273	PCMP 389 55273
0.030		PCMP 389 52303	PCMP 389 55303
0.033		PCMP 389 52333	PCMP 389 55333
0.036	5.0 x 11.0 x 12.5	PCMP 389 52363	PCMP 389 55363
0.039		PCMP 389 52393	PCMP 389 55393
0.043		PCMP 389 52433	PCMP 389 55433
0.047		PCMP 389 52473	PCMP 389 55473
0.051	6.0 x 12.0 x 12.5	PCMP 389 52513	PCMP 389 55513
0.056		PCMP 389 52563	PCMP 389 55563
Pitch = 15.0 ± 0.4 mm		dt = 0.8 mm (+ 0.08 / - 0.05)	
0.047	5.0 x 11.0 x 18.0	PCMP 389F52473	PCMP 389F55473
0.051		PCMP 389F52513	PCMP 389F55513
0.056		PCMP 389F52563	PCMP 389F55563
0.062		PCMP 389 52623	PCMP 389 55623
0.068		PCMP 389 52683	PCMP 389 55683
0.075		PCMP 389 52753	PCMP 389 55753
0.082		PCMP 389 52823	PCMP 389 55823
0.091	6.0 x 12.0 x 18.0	PCMP 389 52913	PCMP 389 55913
0.10		PCMP 389 52104	PCMP 389 55104
0.11		PCMP 389 52114	PCMP 389 55114
0.12		PCMP 389 52124	PCMP 389 55124
0.13		PCMP 389F52134	PCMP 389F55134
0.15		PCMP 389F52154	PCMP 389F55154
0.16		PCMP 389F52164	PCMP 389F55164
0.13	7.0 x 13.5 x 18.0	PCMP 389 52134	PCMP 389 55134
0.15		PCMP 389 52154	PCMP 389 55154
0.16		PCMP 389 52164	PCMP 389 55164
0.18		PCMP 389F52184	PCMP 389F55184
0.20		PCMP 389F52204	PCMP 389F55204
0.22		PCMP 389F52224	PCMP 389F55224
0.18	8.5 x 15.0 x 18.0	PCMP 389 52184	PCMP 389 55184
0.20		PCMP 389 52204	PCMP 389 55204
0.22		PCMP 389 52224	PCMP 389 55224

; **Mini type**.

Metallized Polypropylene film capacitors

PCMP 389

V_{Rdc} = 400 V V_{Rac} = 200 V~ V_{p-p} = 560 V

Cap (µF)	b x h x l (mm)	CATALOGUE NUMBER	
		PCMP 389	
		loose in box	ammo packing
		lt = 5 ± 1 mm	H = 18.5 mm
		C – tol. ± 5%	C – tol. ± 5%
	Pitch = 22.5 ± 0.4 mm	dt = 0.8 mm (+ 0.08 / - 0.05)	
0.18	7.0 X 16.5 X 26.0	PCMP 389J52184	PCMP 389J55184
0.20		PCMP 389J52204	PCMP 389J55204
0.22		PCMP 389J52224	PCMP 389J55224
0.24		PCMP 389 52244	PCMP 389 55244
0.27		PCMP 389 52274	PCMP 389 55274
0.30		PCMP 389 52304	PCMP 389 55304
0.33		PCMP 389J52334	PCMP 389J55334
0.36		PCMP 389J52364	PCMP 389J55364
0.39		PCMP 389J52394	PCMP 389J55394
0.33	8.5 X 18.0 X 26.0	PCMP 389 52334	PCMP 389 55334
0.36		PCMP 389 52364	PCMP 389 55364
0.39		PCMP 389 52394	PCMP 389 55394
0.43		PCMP 389 52434	PCMP 389 55434
0.47		PCMP 389 52474	PCMP 389 55474
0.51		PCMP 389J52514	PCMP 389J55514
0.56		PCMP 389J52564	PCMP 389J55564
0.62		PCMP 389J52624	PCMP 389J55624
0.51	10.0 X 19.5 X 26.0	PCMP 389 52514	PCMP 389 55514
0.56		PCMP 389 52564	PCMP 389 55564
0.62		PCMP 389 52624	PCMP 389 55624
	Pitch = 27.5 ± 0.4 mm	dt = 0.8 mm (+ 0.08 / - 0.05)	
0.51	11.0 X 21.0 X 31.0	PCMP 389L52514	-
0.56		PCMP 389L52564	-
0.62		PCMP 389L52624	-
0.68		PCMP 389 52684	-
0.75		PCMP 389 52754	-
0.82		PCMP 389 52824	-
0.91	13.0 X 23.0 X 31.0	PCMP 389 52914	-
1.0		PCMP 389 52105	-
1.1		PCMP 389 52115	-
1.2	15.0 X 25.0 X 31.0	PCMP 389 52125	-
1.3		PCMP 389 52135	-
1.5		PCMP 389 52155	-
1.6	18.0 X 28.0 X 31.0	PCMP 389 52165	-
1.8		PCMP 389 52185	-
2.0		PCMP 389 52205	-

; **Mini type**

Metallized Polypropylene film capacitors

PCMP 389

V_{Rdc} = 630 V V_{Rac} = 250 V~ V_{p-p} = 700 V

Cap (µF)	b x h x l (mm)	CATALOGUE NUMBER	
		PCMP 389	
		loose in box	ammo packing
		lt = 5 ± 1 mm	H = 18.5 mm
		C – tol. ± 5%	C – tol. ± 5%
Pitch = 10.0 ± 0.4 mm		dt = 0.6 mm (+ 0.06 / - 0.05)	
0.010	4.0 x 10.0 x 12.5	PCMP 389 62103	PCMP 389 65103
0.011		PCMP 389 62113	PCMP 389 65113
0.012		PCMP 389 62123	PCMP 389 65123
0.013		PCMP 389 62133	PCMP 389 65133
0.015		PCMP 389 62153	PCMP 389 65153
0.016		PCMP 389 62163	PCMP 389 65163
0.018	5.0 x 11.0 x 12.5	PCMP 389 62183	PCMP 389 65183
0.020		PCMP 389 62203	PCMP 389 65203
0.022		PCMP 389 62223	PCMP 389 65223
0.024		PCMP 389 62243	PCMP 389 65243
0.027	6.0 x 12.0 x 12.5	PCMP 389 62273	PCMP 389 65273
0.030		PCMP 389 62303	PCMP 389 65303
0.033		PCMP 389 62333	PCMP 389 65333
Pitch = 15.0 ± 0.4 mm		dt = 0.8 mm (+ 0.08 / - 0.05)	
0.027	5.0 X 11.0 X 18.0	PCMP 389F62273	PCMP 389F65273
0.030		PCMP 389F62303	PCMP 389F65303
0.033		PCMP 389F62333	PCMP 389F65333
0.036		PCMP 389 62363	PCMP 389 65363
0.039		PCMP 389 62393	PCMP 389 65393
0.043	6.0 X 12.0 X 18.0	PCMP 389 62433	PCMP 389 65433
0.047		PCMP 389 62473	PCMP 389 65473
0.051		PCMP 389 62513	PCMP 389 65513
0.056		PCMP 389 62563	PCMP 389 65563
0.062		PCMP 389 62623	PCMP 389 65623
0.068		PCMP 389F62683	PCMP 389F65683
0.068	7.0 X 13.5 X 18.0	PCMP 389 62683	PCMP 389 65683
0.075		PCMP 389 62753	PCMP 389 65753
0.082		PCMP 389 62823	PCMP 389 65823
0.091		PCMP 389F62913	PCMP 389F65913
0.091	8.5 X 15.0 X 18.0	PCMP 389 62913	PCMP 389 65913
0.10		PCMP 389 62104	PCMP 389 65104
0.11		PCMP 389 62114	PCMP 389 65114

; Mini type

Metallized Polypropylene film capacitors

PCMP 389

V_{Rdc} = 630 V **V_{Rac} = 250 V~** **V_{p-p} = 700 V**

Cap (µF)	b x h x l (mm)	CATALOGUE NUMBER	
		PCMP 389	
		loose in box	ammo packing
		lt = 5 ± 1 mm	H = 18.5 mm
		C – tol. ± 5%	C – tol. ± 5%
	Pitch = 22.5 ± 0.4 mm	dt = 0.8 mm (+ 0.08 / - 0.05)	
0.10	7.0 X 16.5 X 26.0	PCMP 389J62104	PCMP 389J65104
0.11		PCMP 389J62114	PCMP 389J65114
0.12		PCMP 389 62124	PCMP 389 65124
0.13		PCMP 389 62134	PCMP 389 65134
0.15		PCMP 389 62154	PCMP 389 65154
0.16		PCMP 389 62164	PCMP 389 65164
0.18	8.5 X 18.0 X 26.0	PCMP 389 62184	PCMP 389 65184
0.20		PCMP 389 62204	PCMP 389 65204
0.22		PCMP 389 62224	PCMP 389 65224
0.24		PCMP 389J62244	PCMP 389J65244
0.27		PCMP 389J62274	PCMP 389J65274
0.24	10.0 X 19.5 X 26.0	PCMP 389 62244	PCMP 389 65244
0.27		PCMP 389 62274	PCMP 389 65274
0.30		PCMP 389 62304	PCMP 389 65304
	Pitch = 27.5 ± 0.4 mm	dt = 0.8 mm (+ 0.08 / - 0.05)	
0.22	11.0 X 21.0 X 31.0	PCMP 389L62224	-
0.24		PCMP 389L62244	-
0.27		PCMP 389L62274	-
0.30		PCMP 389L62304	-
0.33		PCMP 389 62334	-
0.36		PCMP 389 62364	-
0.39		PCMP 389 62394	-
0.43		PCMP 389 62434	-
0.47	13.0 X 23.0 X 31.0	PCMP 389 62474	-
0.51		PCMP 389 62514	-
0.56		PCMP 389 62564	-
0.62	15.0 X 25.0 X 31.0	PCMP 389 62624	-
0.68		PCMP 389 62684	-
0.75		PCMP 389 62754	-
0.82		PCMP 389 62824	-
0.91	18.0 X 28.0 X 31.0	PCMP 389 62914	-
1.0		PCMP 389 62105	-

; Mini type

Metallized Polypropylene film capacitors

PCMP 389

V_{Rdc} = 1000 V V_{Rac} = 400 V~

Cap (µF)	b x h x l (mm)	CATALOGUE NUMBER	
		PCMP 389	
		loose in box	ammo packing
		lt = 5 ± 1 mm	H = 18.5 mm
		C – tol. ± 5%	C – tol. ± 5%
Pitch = 10.0 ± 0.4 mm		dt = 0.6 mm (+ 0.06 / - 0.05)	
0.0020	5.0 x 11.0 x 12.5	PCMP 389 72202	PCMP 389 75202
0.0022		PCMP 389 72222	PCMP 389 75222
0.0024		PCMP 389 72242	PCMP 389 75242
0.0027		PCMP 389 72272	PCMP 389 75272
0.0030		PCMP 389 72302	PCMP 389 75302
0.0033		PCMP 389 72332	PCMP 389 75332
0.0036		PCMP 389 72362	PCMP 389 75362
0.0039		PCMP 389 72392	PCMP 389 75392
0.0043		PCMP 389 72432	PCMP 389 75432
0.0047		PCMP 389 72472	PCMP 389 75472
0.0051		PCMP 389 72512	PCMP 389 75512
0.0056		PCMP 389 72562	PCMP 389 75562
0.0062		PCMP 389 72622	PCMP 389 75622
0.0068		PCMP 389 72682	PCMP 389 75682
0.0075		PCMP 389 72752	PCMP 389 75752
0.0082		PCMP 389 72822	PCMP 389 75822
0.0091	6.0 x 12.0 x 12.5	PCMP 389 72912	PCMP 389 75912
0.010		PCMP 389 72103	PCMP 389 75103
0.011		PCMP 389 72113	PCMP 389 75113
0.012		PCMP 389 72123	PCMP 389 75123
Pitch = 15.0 ± 0.4 mm		dt = 0.8 mm (+ 0.08 / - 0.05)	
0.0056	6.0 X 12.0 X 18.0	PCMP 389F72562	PCMP 389F75562
0.0062		PCMP 389F72622	PCMP 389F75622
0.0068		PCMP 389F72682	PCMP 389F75682
0.0075		PCMP 389F72752	PCMP 389F75752
0.0082		PCMP 389F72822	PCMP 389F75822
0.0091		PCMP 389F72912	PCMP 389F75912
0.010		PCMP 389F72103	PCMP 389F75103
0.011		PCMP 389F72113	PCMP 389F75113
0.012		PCMP 389F72123	PCMP 389F75123
0.013		PCMP 389 72133	PCMP 389 75133
0.015		PCMP 389 72153	PCMP 389 75153
0.016		PCMP 389 72163	PCMP 389 75163
0.018		PCMP 389 72183	PCMP 389 75183
0.020		PCMP 389 72203	PCMP 389 75203
0.022		PCMP 389 72223	PCMP 389 75223
0.024		PCMP 389 72243	PCMP 389 75243
0.027		PCMP 389 72273	PCMP 389 75273
0.030	7.0 X 13.5 X 18.0	PCMP 389 72303	PCMP 389 75303
0.033		PCMP 389 72333	PCMP 389 75333
0.036		PCMP 389 72363	PCMP 389 75363
0.039	8.5 X 15.0 X 18.0	PCMP 389 72393	PCMP 389 75393
0.043		PCMP 389 72433	PCMP 389 75433
0.047		PCMP 389 72473	PCMP 389 75473
0.051		PCMP 389 72513	PCMP 389 75513
0.056	10.0 X 16.5 X 18.0	PCMP 389 72563	PCMP 389 75563
0.062		PCMP 389 72623	PCMP 389 75623
0.068		PCMP 389 72683	PCMP 389 75683
0.075	11.0 X 18.5 X 18.0	PCMP 389 72753	PCMP 389 75753
0.082		PCMP 389 72823	PCMP 389 75823
0.091		PCMP 389 72913	PCMP 389 75913

Metallized Polypropylene film capacitors

PCMP 389

V_{Rdc} = 1000 V V_{Rac} = 400 V~

Cap (µF)	b x h x l (mm)	CATALOGUE NUMBER	
		PCMP 389	
		loose in box	ammo packing
		lt = 5 ± 1 mm	H = 18.5 mm
		C – tol. ± 5%	C – tol. ± 5%
Pitch = 22.5 ± 0.4 mm		dt = 0.8 mm (+ 0.08 / - 0.05)	
0.039	7.0 X 16.5 X 26.0	PCMP 389J72393	PCMP 389J75393
0.043		PCMP 389J72433	PCMP 389J75433
0.047		PCMP 389J72473	PCMP 389J75473
0.051		PCMP 389J72513	PCMP 389J75513
0.056		PCMP 389J72563	PCMP 389J75563
0.062		PCMP 389J72623	PCMP 389J75623
0.068		PCMP 389J72683	PCMP 389J75683
0.075	8.5 X 18.0 X 26.0	PCMP 389J72753	PCMP 389J75753
0.082		PCMP 389J72823	PCMP 389J75823
0.091		PCMP 389J72913	PCMP 389J75913
0.10		PCMP 389 72104	PCMP 389 75104
0.11	10.0 X 19.5 X 26.0	PCMP 389 72114	PCMP 389 75114
0.12		PCMP 389 72124	PCMP 389 75124
0.13		PCMP 389 72134	PCMP 389 75134
0.15		PCMP 389 72154	PCMP 389 75154
0.16	11.5 X 21.0 X 26.0	PCMP 389 72164	PCMP 389 75164
0.18		PCMP 389 72184	PCMP 389 75184
0.20	12.0 X 22.0 X 26.0	PCMP 389 72204	PCMP 389 75204
0.22		PCMP 389 72224	PCMP 389 75224
Pitch = 27.5 ± 0.4 mm		dt = 0.8 mm (+ 0.08 / - 0.05)	
0.039	11.0 X 21.0 X 31.0	PCMP 389L72393	-
0.043		PCMP 389L72433	-
0.047		PCMP 389L72473	-
0.051		PCMP 389L72513	-
0.056		PCMP 389L72563	-
0.062		PCMP 389L72623	-
0.068		PCMP 389L72683	-
0.075		PCMP 389L72753	-
0.082		PCMP 389L72823	-
0.091		PCMP 389L72913	-
0.10		PCMP 389L72104	-
0.11		PCMP 389L72114	-
0.12		PCMP 389L72124	-
0.13		PCMP 389L72134	-
0.15		PCMP 389L72154	-
0.16		PCMP 389L72164	-
0.18		PCMP 389L72184	-
0.20		PCMP 389L72204	-
0.22	13.0 X 23.0 X 31.0	PCMP 389L72224	-
0.24		PCMP 389 72244	-
0.27		PCMP 389 72274	-
0.30		PCMP 389 72304	-
0.33	15.0 X 25.0 X 31.0	PCMP 389 72334	-
0.36		PCMP 389 72364	-
0.39		PCMP 389 72394	-
0.43	18.0 X 28.0 X 31.0	PCMP 389 72434	-
0.47		PCMP 389 72474	-
0.51		PCMP 389 72514	-
0.56		PCMP 389 72564	-

Metallized Polypropylene film capacitors

PCMP 389

V_{Rdc} = 1250 V V_{Rac} = 500 V~

Cap (µF)	b x h x l (mm)	CATALOGUE NUMBER	
		PCMP 389	
		loose in box	ammo packing
		lt = 5 ± 1 mm	H = 18.5 mm
		C – tol. ± 5%	C – tol. ± 5%
Pitch = 10.0 ± 0.4 mm		dt = 0.6 mm (+ 0.06 / - 0.05)	
0.0020	5.0 x 11.0 x 12.5	PCMP 389 N2202	PCMP 389 N5202
0.0022		PCMP 389 N2222	PCMP 389 N5222
0.0024		PCMP 389 N2242	PCMP 389 N5242
0.0027		PCMP 389 N2272	PCMP 389 N5272
0.0030		PCMP 389 N2302	PCMP 389 N5302
0.0033		PCMP 389 N2332	PCMP 389 N5332
0.0036		PCMP 389 N2362	PCMP 389 N5362
0.0039		PCMP 389 N2392	PCMP 389 N5392
0.0043		PCMP 389 N2432	PCMP 389 N5432
0.0047		PCMP 389 N2472	PCMP 389 N5472
0.0051		PCMP 389 N2512	PCMP 389 N5512
0.0056		PCMP 389 N2562	PCMP 389 N5562
0.0062		PCMP 389 N2622	PCMP 389 N5622
0.0068	6.0 x 12.0 x 12.5	PCMP 389 N2682	PCMP 389 N5682
0.0075		PCMP 389 N2752	PCMP 389 N5752
0.0082		PCMP 389 N2822	PCMP 389 N5822
0.0091		PCMP 389 N2912	PCMP 389 N5912
Pitch = 15.0 ± 0.4 mm		dt = 0.8 mm (+ 0.08 / - 0.05)	
0.0056	6.0 X 12.0 X 18.0	PCMP 389FN2562	PCMP 389FN5562
0.0062		PCMP 389FN2622	PCMP 389FN5622
0.0068		PCMP 389FN2682	PCMP 389FN5682
0.0075		PCMP 389FN2752	PCMP 389FN5752
0.0082		PCMP 389FN2822	PCMP 389FN5822
0.0091		PCMP 389FN2912	PCMP 389FN5912
0.010		PCMP 389 N2103	PCMP 389 N5103
0.011		PCMP 389 N2113	PCMP 389 N5113
0.012		PCMP 389 N2123	PCMP 389 N5123
0.013		PCMP 389 N2133	PCMP 389 N5133
0.015		PCMP 389 N2153	PCMP 389 N5153
0.016		PCMP 389 N2163	PCMP 389 N5163
0.018		PCMP 389 N2183	PCMP 389 N5183
0.020		PCMP 389 N2203	PCMP 389 N5203
0.022	7.0 X 13.5 X 18.0	PCMP 389 N2223	PCMP 389 N5223
0.024		PCMP 389 N2243	PCMP 389 N5243
0.027		PCMP 389 N2273	PCMP 389 N5273
0.030	8.5 X 15.0 X 18.0	PCMP 389 N2303	PCMP 389 N5303
0.033		PCMP 389 N2333	PCMP 389 N5333
0.036		PCMP 389 N2363	PCMP 389 N5363
0.039		PCMP 389 N2393	PCMP 389 N5393
0.043	10.0 X 16.5 X 18.0	PCMP 389 N2433	PCMP 389 N5433
0.047		PCMP 389 N2473	PCMP 389 N5473
0.051		PCMP 389 N2513	PCMP 389 N5513
0.056	11.0 X 18.5 X 18.0	PCMP 389 N2563	PCMP 389 N5563
0.062		PCMP 389 N2623	PCMP 389 N5623
0.068		PCMP 389 N2683	PCMP 389 N5683

Metallized Polypropylene film capacitors

PCMP 389

V_{Rdc} = 1250 V V_{Rac} = 500 V~

Cap (µF)	b x h x l (mm)	CATALOGUE NUMBER	
		PCMP 389	
		loose in box	ammo packing
		lt = 5 ± 1 mm	H = 18.5 mm
		C – tol. ± 5%	C – tol. ± 5%
Pitch = 22.5 ± 0.4 mm		dt = 0.8 mm (+ 0.08 / - 0.05)	
0.039 0.043 0.047 0.051	7.0 X 16.5 X 26.0	PCMP 389JN2393 PCMP 389JN2433 PCMP 389JN2473 PCMP 389JN2513	PCMP 389JN5393 PCMP 389JN5433 PCMP 389JN5473 PCMP 389JN5513
0.056 0.062 0.068 0.075	8.5 X 18.0 X 26.0	PCMP 389JN2563 PCMP 389JN2623 PCMP 389JN2683 PCMP 389 N2753	PCMP 389JN5563 PCMP 389JN5623 PCMP 389JN5683 PCMP 389 N5753
0.082 0.091 0.10 0.11	10.0 X 19.5 X 26.0	PCMP 389 N2823 PCMP 389 N2913 PCMP 389 N2104 PCMP 389 N2114	PCMP 389 N5823 PCMP 389 N5913 PCMP 389 N5104 PCMP 389 N5114
0.12 0.13	11.5 X 21.0 X 26.0	PCMP 389 N2124 PCMP 389 N2134	PCMP 389 N5124 PCMP 389 N5134
0.15 0.16	12.0 X 22.0 X 26.0	PCMP 389 N2154 PCMP 389 N2164	PCMP 389 N5154 PCMP 389 N5164
Pitch = 27.5 ± 0.4 mm		dt = 0.8 mm (+ 0.08 / - 0.05)	
0.039 0.043 0.047 0.051 0.056 0.062 0.068 0.075 0.082 0.091 0.10 0.11 0.12 0.13 0.15 0.16	11.0 X 21.0 X 31.0	PCMP 389LN2393 PCMP 389LN2433 PCMP 389LN2473 PCMP 389LN2513 PCMP 389LN2563 PCMP 389LN2623 PCMP 389LN2683 PCMP 389LN2753 PCMP 389LN2823 PCMP 389LN2913 PCMP 389LN2104 PCMP 389LN2114 PCMP 389LN2124 PCMP 389LN2134 PCMP 389LN2154 PCMP 389LN2164	- - - - - - - - - - - - - - - -
0.18 0.20 0.22	13.0 X 23.0 X 31.0	PCMP 389 N2184 PCMP 389 N2204 PCMP 389 N2224	- - -
0.24 0.27 0.30	15.0 X 25.0 X 31.0	PCMP 389 N2244 PCMP 389 N2274 PCMP 389 N2304	- - -
0.33 0.36 0.39	18.0 X 28.0 X 31.0	PCMP 389 N2334 PCMP 389 N2364 PCMP 389 N2394	- - -

Metallized Polypropylene film capacitors

PCMP 389

V_{Rdc} = 1600 V V_{Rac} = 600 V~ V_{p-p} = 1600 V

Cap (µF)	b x h x l (mm)	CATALOGUE NUMBER PCMP 389 ..... loose in box lt = 5 ± 1 mm C – tol. ± 5%	CATALOGUE NUMBER PCMP 389 ..... ammo packing H = 18.5 mm C – tol. ± 5%
Pitch = 15.0 ± 0.4 mm		dt = 0.6 mm (+ 0.06 / - 0.05)	
0.0047	5.0 X 11.0 X 18.0	PCMP 389F82472	PCMP 389F85472
0.0051		PCMP 389F82512	PCMP 389F85512
0.0056		PCMP 389F82562	PCMP 389F85562
0.0062		PCMP 389F82622	PCMP 389F85622
0.0068		PCMP 389F82682	PCMP 389F85682
0.0075	6.0 X 12.0 X 18.0	PCMP 389F82752	PCMP 389F85752
0.0082		PCMP 389F82822	PCMP 389F85822
0.0091		PCMP 389F82912	PCMP 389F85912
0.010		PCMP 389F82103	PCMP 389F85103
Pitch = 15.0 ± 0.4 mm		dt = 0.8 mm (+ 0.08 / - 0.05)	
0.011	7.0 X 13.5 X 18.0	PCMP 389F82113	PCMP 389F85113
0.012		PCMP 389F82123	PCMP 389F85123
0.013		PCMP 389F82133	PCMP 389F85133
0.015	8.5 X 15.0 X 18.0	PCMP 389F82153	PCMP 389F85153
0.016		PCMP 389F82163	PCMP 389F85163
0.018		PCMP 389F82183	PCMP 389F85183
0.020	10.0 X 16.5 X 18.0	PCMP 389F82203	PCMP 389F85203
0.022		PCMP 389F82223	PCMP 389F85223
0.024		PCMP 389F82243	PCMP 389F85243
0.027	11.0 X 18.5 X 18.0	PCMP 389F82273	PCMP 389F85273
0.030		PCMP 389F82303	PCMP 389F85303
0.033		PCMP 389F82333	PCMP 389F85333
0.036		PCMP 389F82363	PCMP 389F85363
0.039		PCMP 389F82393	PCMP 389F85393

Metallized Polypropylene film capacitors

PCMP 389

V_{Rdc} = 2000 V V_{Rac} = 700 V~ V_{p-p} = 2000 V

Cap (µF)	b x h x l (mm)	CATALOGUE NUMBER PCMP 389 ..... loose in box lt = 5 ± 1 mm C – tol. ± 5%	CATALOGUE NUMBER PCMP 389 ..... ammo packing H = 18.5 mm C – tol. ± 5%
Pitch = 15.0 ± 0.4 mm		dt = 0.6 mm (+ 0.06 / - 0.05)	
0.00082	5.0 X 11.0 X 18.0	PCMP 389F92821	PCMP 389F95821
0.00091		PCMP 389F92911	PCMP 389F95911
0.0010		PCMP 389F92102	PCMP 389F95102
0.0011		PCMP 389F92112	PCMP 389F95112
0.0012		PCMP 389F92122	PCMP 389F95122
0.0013		PCMP 389F92132	PCMP 389F95132
0.0015		PCMP 389F92152	PCMP 389F95152
0.0018		PCMP 389F92182	PCMP 389F95182
0.0020		PCMP 389F92202	PCMP 389F95202
0.0022		PCMP 389F92222	PCMP 389F95222
0.0024		PCMP 389F92242	PCMP 389F95242
0.0027		PCMP 389F92272	PCMP 389F95272
0.0030		PCMP 389F92302	PCMP 389F95303
0.0033		PCMP 389F92332	PCMP 389F95332
0.0036		PCMP 389F92362	PCMP 389F95362
0.0039		PCMP 389F92392	PCMP 389F95392
0.0043		PCMP 389F92432	PCMP 389F95432
0.0047	6.0 X 12.0 X 18.0	PCMP 389F92472	PCMP 389F95472
0.0051		PCMP 389F92512	PCMP 389F95512
0.0056		PCMP 389F92562	PCMP 389F95562
0.0062		PCMP 389F92622	PCMP 389F95622
0.0068		PCMP 389F92682	PCMP 389F95682
Pitch = 15.0 ± 0.4 mm		dt = 0.8 mm (+ 0.08 / - 0.05)	
0.0075	7.0 X 13.5 X 18.0	PCMP 389F92752	PCMP 389F95752
0.0082		PCMP 389F92822	PCMP 389F95822
0.0091		PCMP 389F92912	PCMP 389F95912
0.010		PCMP 389F92103	PCMP 389F95103
0.011	8.5 X 15.0 X 18.0	PCMP 389F92113	PCMP 389F95113
0.012		PCMP 389F92123	PCMP 389F95123
0.013		PCMP 389F92133	PCMP 389F95133
0.015	10.0 X 16.5 X 18.0	PCMP 389F92153	PCMP 389F95153
0.016		PCMP 389F92163	PCMP 389F95163
0.018	11.0 X 18.5 X 18.0	PCMP 389F92183	PCMP 389F95183
0.020		PCMP 389F92203	PCMP 389F95203
0.022		PCMP 389F92223	PCMP 389F95223
0.024		PCMP 389F92243	PCMP 389F95243

Metallized Polypropylene film capacitors

PCMP 389

MOUNTING

NORMAL USE

The capacitors are designed for mounting on printed-circuit boards. The capacitors packed in bandoilers are designed for mounting on printed-circuit boards by means of automatic insertion machines.

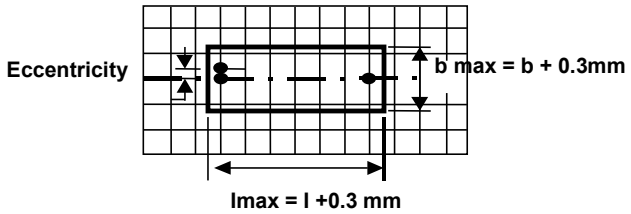
SPECIFIC METHOD OF MOUNTING TO WITHSTAND VIBRATIONAND SHOCK

. For pitches of 15 mm the capacitors shall be mechanically fixed by the leads.

. For larger pitches the capacitors shall be mounted in the same way and the body clamped.

SPACE REQUIREMENTS ON PRINTED-CIRCUIT BOARD

The maximum length and width of film capacitors are shown in the following drawing ;



- Eccentricity as in drawing.
  The maximum eccentricity is smaller than or equal to the lead diameter of the product concerned.

- Product height with seating plane as given by IEC 60717 as reference : $h_{max} \leq$ h+0.3mm

Metallized Polypropylene film capacitors

PCMP 389

STORAGE TEMPERATURE

.Storage temperature : T_{stg} = -25 to +40℃ with RH maximum 80% without condensation.

RATINGS AND CHARACTERISTICS

Unless otherwise specified all electrical values apply at an ambient temperature of 23± 1℃, an atmospheric pressure of 86 to 106 kPa and a relative humidity of 50± 2%.
For reference testing a conditioning period shall be applied of 96± 4 hours by heating the products in a circulating air oven at the rated temperature and a relative humidity not exceeding 20%.

CHARACTERISTICS

- **Test Voltage**

  . Test Voltage (between terminations) : 1.6 x V_{Rdc}, 1min

  . Test Voltage (between leads and case) : 2840 V_{dc}, 1min

- **Dissipation Factor**

Rated voltage	Capacitance	Tangent of loss angle (x 10^{-4})		
		1 kHz	10 kHz	100 kHz
250 V	0.047μF ≤ C ≤ 0.12μF	≤ 5	≤ 5	≤ 30
	0.12μF < C ≤ 0.33μF	≤ 5	≤ 8	≤ 40
	0.33μF < C ≤ 0.56μF	≤ 5	≤ 10	≤ 50
	0.56μF < C ≤ 0.91μF	≤ 5	≤ 10	≤ 60
	0.91μF < C ≤ 1.5μF	≤ 6	≤ 10	≤ 80
	1.5μF < C ≤ 2.2μF	≤ 6	≤ 10	≤ 100
	2.2μF < C ≤ 3.9μF	≤ 6	≤ 15	≤ 135
250V (Mini)	0.33μF < C ≤ 0.47μF	≤ 5	≤ 10	≤ 90
	0.75μF < C ≤ 1.0μF	≤ 6	≤ 13	≤ 130
	1.1μF < C ≤ 1.2μF	≤ 6	≤ 14	≤ 140
400 V	0.022μF ≤ C ≤ 0.075μF	≤ 5	≤ 5	≤ 20
	0.075μF < C ≤ 0.39μF	≤ 5	≤ 8	≤ 40
	0.39μF < C ≤ 0.91μF	≤ 5	≤ 10	≤ 60
	0.91μF < C ≤ 1.5μF	≤ 6	≤ 10	≤ 80
	1.5μF < C ≤ 2.0μF	≤ 6	≤ 10	≤ 95
630 V	0.010μF ≤ C ≤ 0.068μF	≤ 5	≤ 5	≤ 15
	0.068μF < C ≤ 0.39μF	≤ 5	≤ 8	≤ 40
	0.39μF < C ≤ 1.0μF	≤ 5	≤ 10	≤ 60
1000V	C ≤ 0.012μF	≤ 5	≤ 7	≤ 15
	0.013μF ≤ C ≤ 0.091μF	≤ 5	≤ 7	≤ 25
	0.10μF ≤ C ≤ 0.56μF	≤ 5	≤ 7	≤ 35
1250V	C ≤ 0.0091μF	≤ 5	≤ 7	≤ 15
	0.010μF ≤ C ≤ 0.091μF	≤ 5	≤ 7	≤ 25
	0.10μF ≤ C ≤ 0.39μF	≤ 5	≤ 7	≤ 35
1600V	0.0047μF ≤ C ≤ 0.039μF	≤ 5	≤ 7	≤ 25
2000V	0.00082μF ≤ C ≤ 0.024μF	≤ 5	≤ 7	≤ 20

Metallized Polypropylene film capacitors

PCMP 389

- **Insulation Resistance**

The insulation resistance is measured for 1min ±5s, at 100V for V_{Rdc} < 630V, at 500V for V_{Rdc} ≥ 630V

R_{ins} > 100,000MΩ when C ≤ 0.33μF
R_{ins} > 30,000ΩF when C > 0.33μF

- **Rated Voltage Pulse Lode Slope $(dV/dt)_R$**

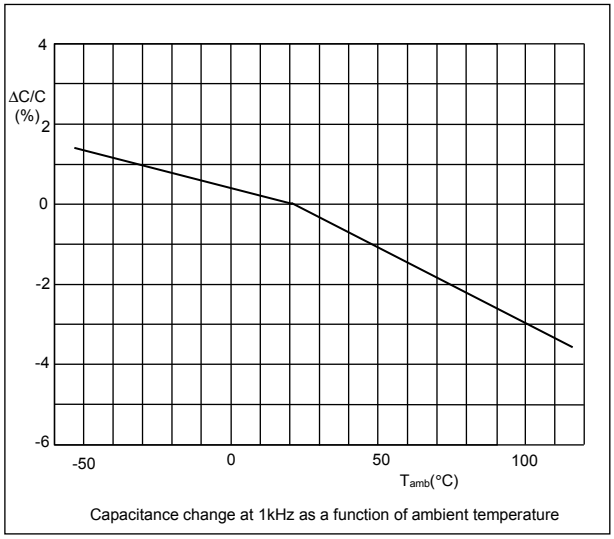
For values see specific reference data. If the pulse voltage is lower than the rated voltage, the values of the specific reference data mast be multiplied by V_{Rdc} and divided by the applied voltage

Rated voltage	MAXIMUM RATED VOLTAGE PULSE SLOPE (V/μs)			
	P = 10.0 mm	P = 15.0 mm	P = 22.5 mm	P = 27.5 mm
250 V	280	200	125	50
400 V	420	300	180	70
630 V	550	400	250	100
1000 V	2000	1300	800	380
1250 V	4000	1850	1150	600
1600 V	-	6000	-	-
2000 V	-	9500	-	-

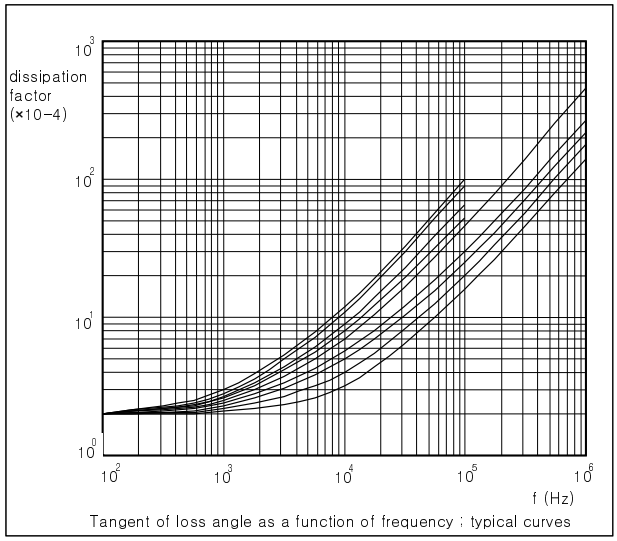
Metallized Polypropylene film capacitors

PCMP 389

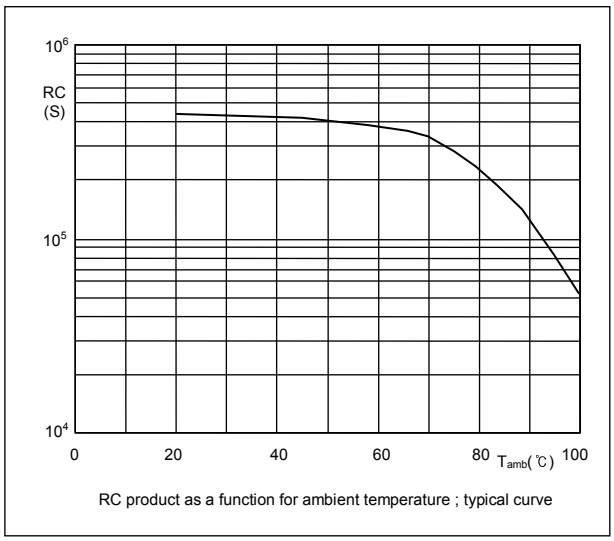
THE GRAPHS OF CHARACTERISTICS



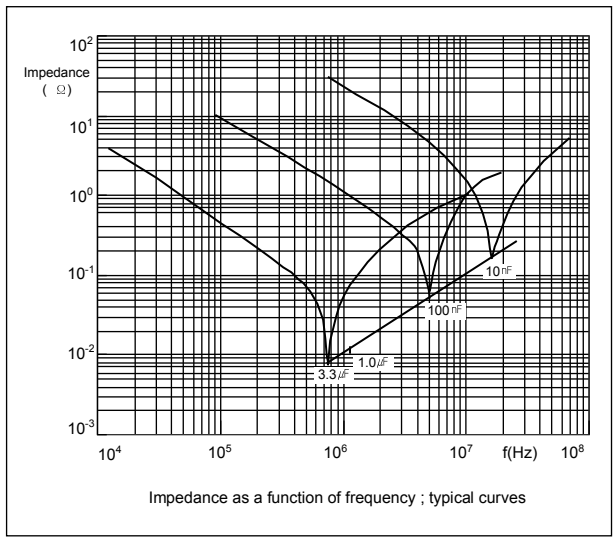
Capacitance change at 1kHz as a function of ambient temperature



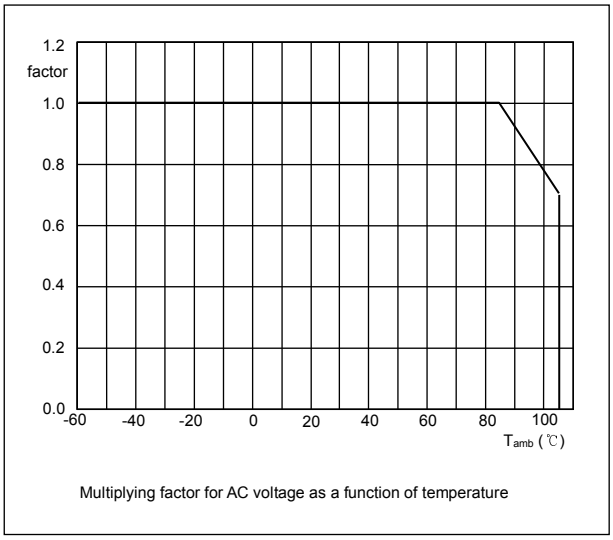
Tangent of loss angle as a function of frequency ; typical curves



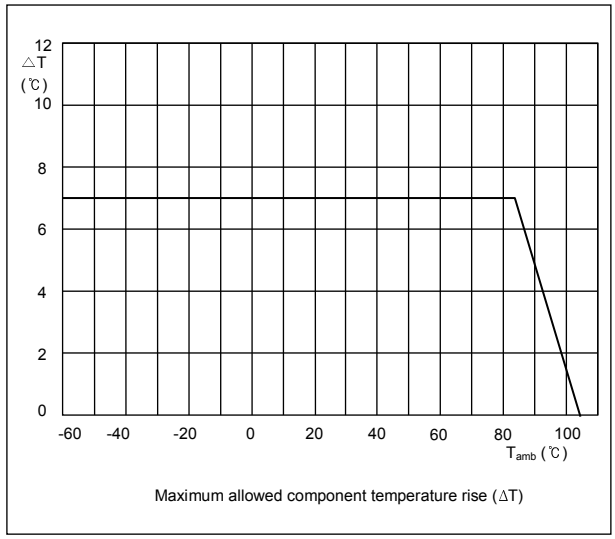
RC product as a function for ambient temperature ; typical curve



Impedance as a function of frequency ; typical curves



Multiplying factor for AC voltage as a function of temperature

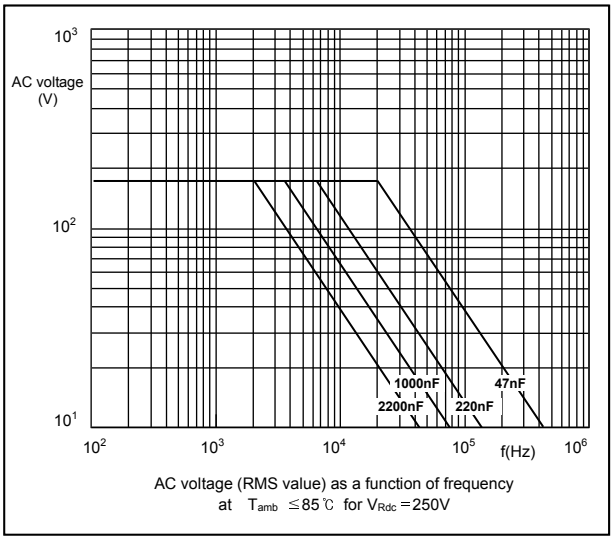


Maximum allowed component temperature rise (ΔT)

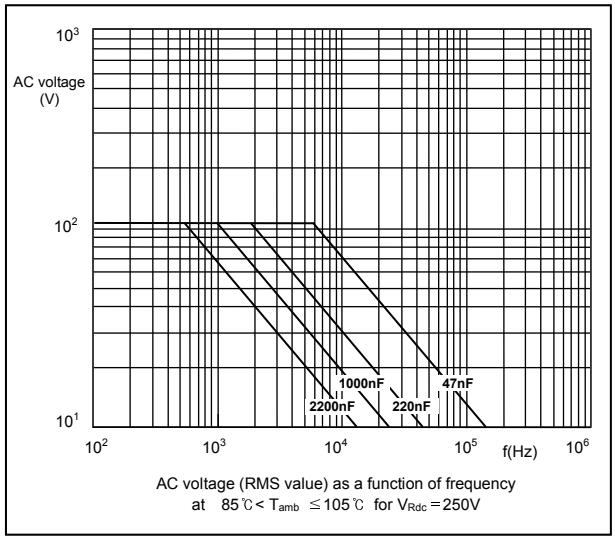
Metallized Polypropylene film capacitors

PCMP 389

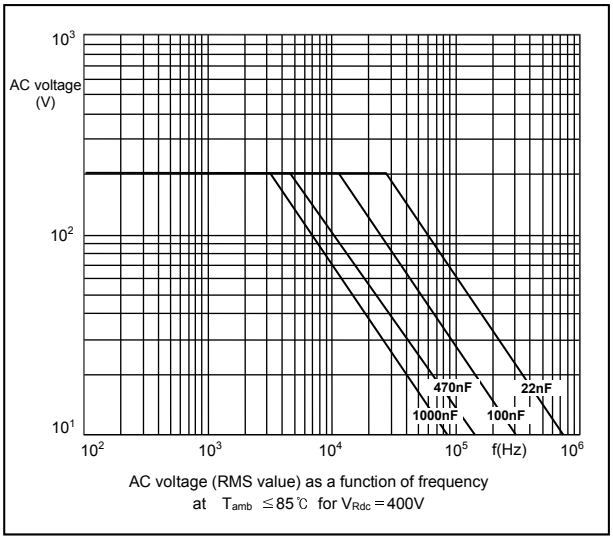
MAXIMUM RMS VOLTAGE (SINEWAVE) AS A FUNCTION OF FREQUENCY (250V~630V)



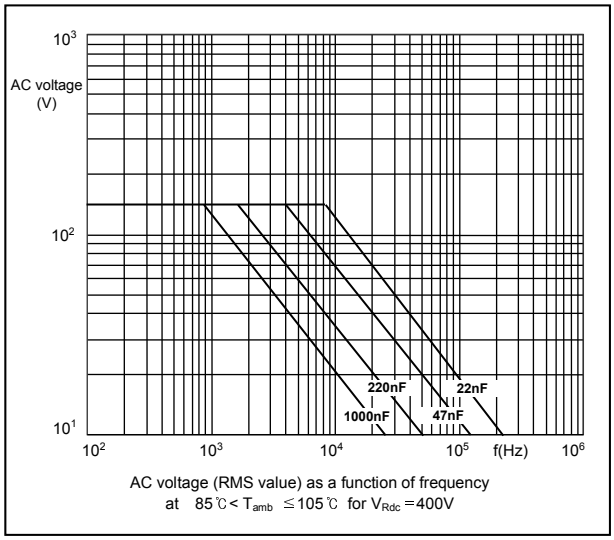
AC voltage (RMS value) as a function of frequency
at $T_{amb} \leq 85℃$ for $V_{Rdc} = 250V$



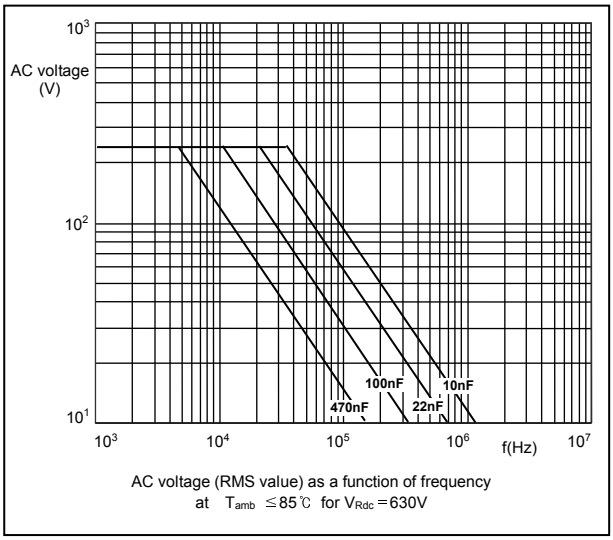
AC voltage (RMS value) as a function of frequency
at $85℃ < T_{amb} \leq 105℃$ for $V_{Rdc} = 250V$



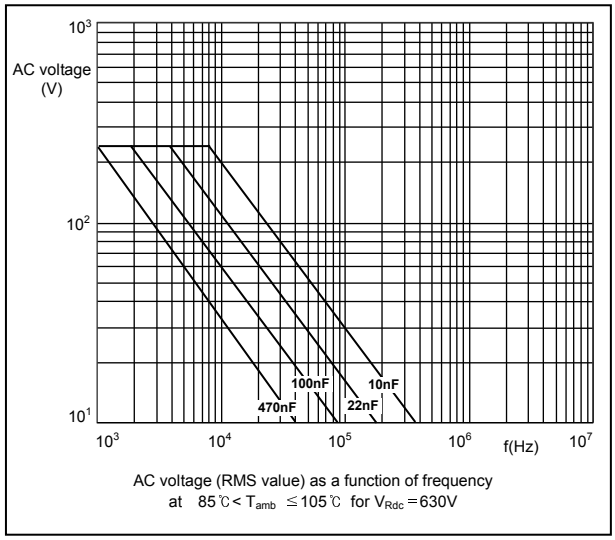
AC voltage (RMS value) as a function of frequency
at $T_{amb} \leq 85℃$ for $V_{Rdc} = 400V$



AC voltage (RMS value) as a function of frequency
at $85℃ < T_{amb} \leq 105℃$ for $V_{Rdc} = 400V$



AC voltage (RMS value) as a function of frequency
at $T_{amb} \leq 85℃$ for $V_{Rdc} = 630V$



AC voltage (RMS value) as a function of frequency
at $85℃ < T_{amb} \leq 105℃$ for $V_{Rdc} = 630V$

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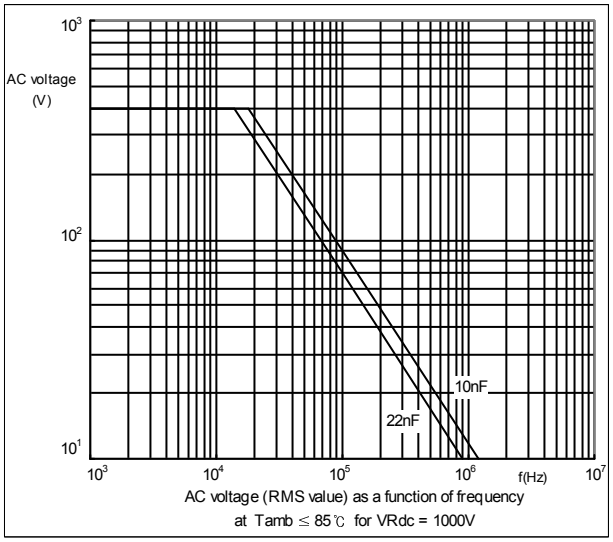
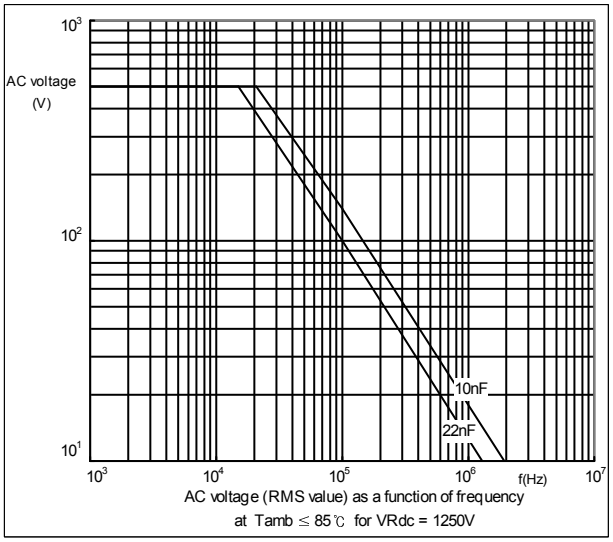
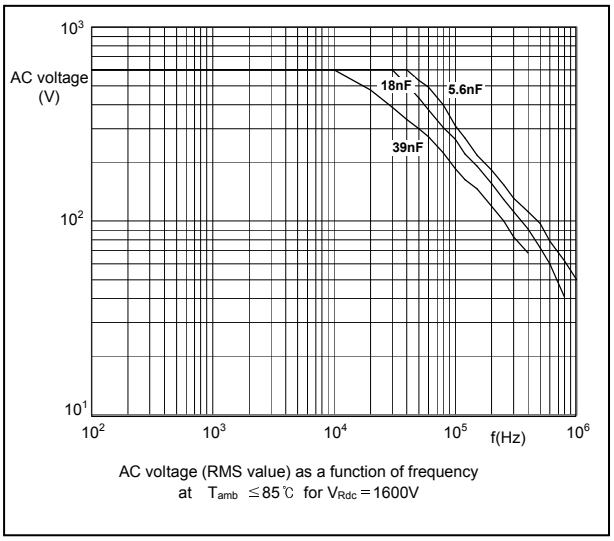
MAXIMUM RMS VOLTAGE (SINEWAVE) AS A FUNCTION OF FREQUENCY (1000V~2000V)



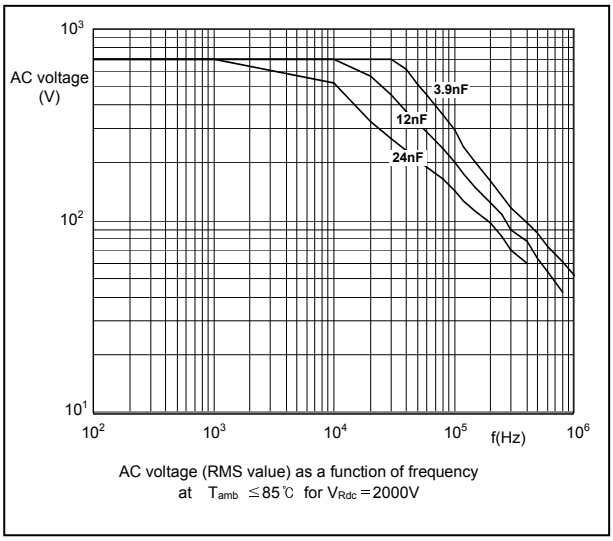
AC voltage (RMS value) as a function of frequency
at Tamb ≤ 85℃ for VRdc = 1000V



AC voltage (RMS value) as a function of frequency
at Tamb ≤ 85℃ for VRdc = 1250V



AC voltage (RMS value) as a function of frequency
at T_{amb} ≤85℃ for V_{Rdc} =1600V



AC voltage (RMS value) as a function of frequency
at T_{amb} ≤85℃ for V_{Rdc} =2000V

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APPLICATION NOTE AND LIMITING CONDITIONS

These capacitors are not suitable for mains application as across-the-line capacitors without additional protection.

To select the capacitor for a certain application, the following conditions must be checked :

1. The peak voltage (V_p) shall not be greater than the rated DC voltage (V_{Rdc}).

2. The peak-to-peak voltage (V_{p-p}) shall not be greater than the maximum V_{p-p} to avoid the ionisation inception level.

3. The voltage pulse slope (dV/dt) shall not exceed the rated voltage pulse slope in an RC-circuit at rated voltage and without ringing. If the pulse voltage is lower than the rated DC voltage, the rated voltage pulse slope may be multiplied by V_{Rdc} and divided by the applied voltage.
   For all other pulses following equation must be fulfilled :

$$2 \times \int_0^T \left(\frac{dU}{dt}\right)^2 \times dt < U_{Rdc} \times \left(\frac{dU}{dt}\right)_{rated}$$

   T is the pulse duration.
4. The maximum component surface temperature rise must be lower than the limits.

5. To ensure withstanding high humidity requirements in the application it is recommended not to damage the epoxy adhesion at the leads. Therefore the leads may not be damaged or bent before soldering.

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PRODUCT MARKING

Capacitors are marked with the following information :

. Rated capacitance code in accordance with IEC 60062
. Tolerance on rated capacitance : J : ± 5 %
. Rated (DC) Voltage (e.g. 630 V)
. Code for dielectric material (MKP)
. Manufacturer's type designation (389)
. Manufacturer's name (PILKOR)
. Year and week of manufacture (e.g. 0401)
. White or black color

Example of marking

10n J 630V
389 MKP 0401
PILKOR

Marking on the side

36n J 630V
389 MKP

Marking on the top

PILKOR
WK....

Marking on the side

120n J 630V
389 MKP

Marking on the top

PILKOR
WK....

Marking on the side

or

120n J 630V PILKOR
389 MKP WK....

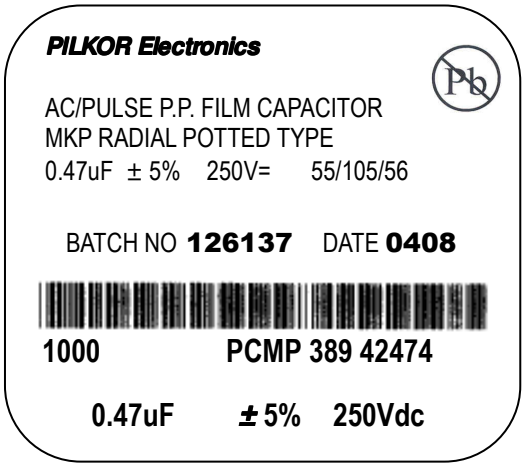
Marking on the top

470n J 630V
389 MKP 0401
PILKOR

Marking on the top

PACKAGE MARKING

The package containing the capacitors is marked as shown.



1. Manufacturer's name
2. Sub-family
3. Pb free marking(JEDEC-STD-97)
4. Type description
5. Capacitance value, tolerance, voltage and climatic category (IEC)
6. Batch number and Production period year and week code
7. Quantity and Product code (12NC)
8. Capacitance, tolerance and voltage.

INSPECTION REQUIREMENTS

Note 1 : Sub-clause numbers of tests and performance requirements refer to the Sectional Specification, IEC 384-17 and Section One this specification.
Note 2 : Inspection levels are selected from IEC-Publication 410 : Sampling Plans and Procedures for inspection by attributes.
Note 3 : In this table : p = periodicity in months
n = sample size
D = destructive
ND = non-destructive
IL = inspection level) IEC 410
AQL = acceptance quality level)

Note 4 : For this capacitors, considered as a solid construction, the periodicity of the vibration and shock test is reduced from 6 months to 36 months.

TEST	D or ND	CONDITIONS	IL	n	REQUIREMENTS
Group A inspection (lot by lot)					
Sub-group A1	ND				
4.1 Visual examination		Detail	S4	1)	No mechanical failures. Legible marking and as specified in GENERAL DATA of this specification
4.1 Dimensions 2)			S3	1)	AS specified in This specification
Sub-group A2 3)	ND				
4.2.2 capacitance		at 1 KHz			Within specified tolerance
4.2.3 Tangent of loss angle		at 10 KHz			As in this specification
4.2.1 Voltage proof (test A)		at 1.6 x V_{Rdc} for 1 s			No breakdown or flashover.
4.2.5 Insulation resistance (test A)		at 100V for V_{Rdc} < 630V at 500V for $V_{Rdc} \geq$ 630V			As in this specification

1) Number to be tested : Sample size as directly allocated to the code letter for IL in Table 2A of IEC 410 (Single sampling plan for normal inspection).
The acceptance number complies with AQL value : 0.65 %

2) This test may be replaced by in-production testing, if SPC on dimensional measurements or other mechanisms to avoid parts exceeding the limits is installed.

3) The 100% End-of-line testing is followed by re-inspection by sampling in order to monitor outgoing quality level by defectives per million (DPM). The sampling level and the calculation of DPM values is in accordance with CECC 00 014, counting any parametric failure as a defective. In case one or more defectives occur in a lot, this lot shall be rejected.

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TEST REQUIREMENTS

TEST	D or ND	CONDITIONS	n	REQUIREMENTS
Group C inspection (periodic)	D		9	
Sub-group C1A part of a sample of sub-group C1				
4.1 Dimensions (detail)				As specified in Table 1 of this specification
4.2.2 capacitance		at 1KHz		Within specified tolerance
4.2.3 Tangent of loss angle		at 10 kHz		As in this specification
4.2.1 Voltage proof (test A)		at 1.6 x V_{Rdc} for 1 min or 1.75 x V_{Rdc} for 5 s		No breakdown or flashover.
4.2.5 Insulation resistance (test A)		at 100V for V_{Rdc} < 630V at 500V for $V_{Rdc} \geq$ 630V		As in this specification
4.3 Robustness of terminals		Tensile ; load 10N ; 10s Bending ; 5N ; 4 x 90		No visible damage, Legible marking
4.4 Resistance to soldering heat		Solder bath : 260℃ ; 10 s		$\Delta C/C \leq 3\%$
4.14 Component solvent resistance		Isopropyl alcohol ; 23℃ ; 5 min		$\Delta \tan\delta < 0.0040$
Sub-group C1B Other part of sample of sub-group C1	D		18	
4.6 Rapid change of temperature		θA = lower category temperature θB = upper category temperature 5 cycles Duration t = 30 min		No visible damage
4.7 Vibration (see note 4)		10Hz to 55Hz Amplitude : 0.75mm or acceleration 98m/s^2 6hrs		No visible damage
4.9 Shock (see note 4)		Half sine wave ; 490m/s^2: 11 ms		No visible damage $\Delta C/C \leq 3\%$ $\Delta \tan\delta < 0.0040$ $R_{ins} \geq$ 50% specified value

TEST	D or ND	CONDITIONS	n	REQUIREMENTS
Sub-group C1 Combined of sample of specimens of sub-groups C1A and C1B	D		27	
4.10 Climatic sequence 4.10.2 Dry heat 4.10.3 Damp heat cyclic, test Db, first cycle 4.10.4 Cold 4.10.6 Damp heat cyclic, test Db, remaining cycle		 $T = T_{upp\text{-}cat}$, 16 hours $T = T_{low\text{-}cat}$, 2 hours		 No visible damage, Legible marking $\Delta C/C \leq 5\%$ $\Delta \tan\delta < 0.0050$ $R_{ins} \geq 50\%$ specified value
Sub-group C2	D		15	
4.11 Damp heat steady state		56days ; 40℃; 90 to 95%RH		No visible damage, Legible marking $\Delta C/C \leq 5\%$ $\Delta \tan\delta < 0.0020$ $R_{ins} \geq 50\%$ specified value
Sub-group C3	D		21	
4.12 Endurance (DC)		Duration : 1000 hours 1.25 x V_{Rdc} at 105℃		No visible damage, Legible marking $\Delta C/C \leq 5\%$ $\Delta \tan\delta < 0.0040$ $R_{ins} \geq 50\%$ specified value
Sub-group C4	D		9	
4.2.6 Temperature characteristics		Lower category temperature Upper category temperature		$-55^{o}C$ to $+20^{o}C$ $0\% \leq \Delta C/C \leq 3.75\%$ $+20^{o}C$ to $+105^{o}C$ $-3.25\% \leq \Delta C/C \leq 0\%$ $R_{ins} \geq 50\%$ specified value
4.13 Charge and discharge		Number of pulse; 10000, Pulse frequency ; (1Hz) Test pulse rise; 1.5 x $C(dV/dt)_R$		$\Delta C/C \leq 5\%$ $\Delta \tan\delta < 0.0050$ $R_{ins} \geq 50\%$ specified value

TEST	D or ND	CONDITIONS	n	REQUIREMENTS
Sub-group ADD1	D		35	
A.1 Solderability		Non-activated colophony flux 501 Solder bath : 245°C Dwell time : 3s		Good tinning as evidenced by free flowing of the solder with wetting of the terminations (>95%)
Solvent resistance of the marking		Isopropyl alcohol at 23℃ Rubbing material ; cotton wool immersion time : 5 min		Legible marking
Sub-group ADD2	D		12	
A.2 Heat storage		2000 hrs Upper category temperature		$\Delta C/C \leq 5\%$ $\Delta \tan\delta < 0.0050$ $R_{ins} \geq 50\%$ specified value
Sub-group ADD3			9	
A.3 Detergent resistance		Density 20g/L dishwasher detergent 70°C, 3min followed by rinsing in clear water for 1 minute. Recovery time 1 to 2 hours.		$\Delta C/C \leq 5\%$ $\Delta \tan\delta < 0.0050$ $R_{ins} \geq 50\%$ specified value
Sub-group ADD4	D		15	
A.4 Resistance to soldering heat with preheating		Capacitors mounted on a 1.6mm board with non-plated holes Body temp. : 85 ℃ Bath temp. : 260 ℃ Dwell time : 10 s.		$\Delta C/C \leq 3\%$ $\Delta \tan\delta < 0.0040$ $R_{ins} \geq 50\%$ specified value
Sub-group ADD6				
A.6 Endurance(AC)		Duration : 1000 hours 1.25 x V_{Rac} at 85°C 0.875 x V_{Rac} at 105°C		No visible damage $\Delta C/C \leq 10\%$ $\Delta \tan\delta < 0.0030$ $R_{ins} \geq 50\%$ specified value

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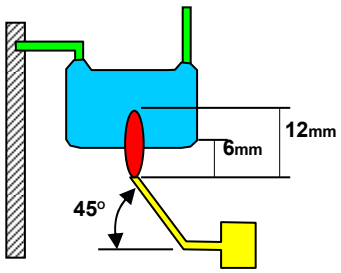
<table>
<tr><th>TEST</th><th>D or ND</th><th>CONDITIONS</th><th>n</th><th>REQUIREMENTS</th></tr>
<tr><td>Sub-group ADD7</td><td></td><td></td><td>18</td><td></td></tr>
<tr><td>A.7 Passive flammability</td><td></td><td>IEC 60384-1
Bore of gas jet : ϕ 0.5 mm
Fuel : Butane
Test duration for actual volume V in mm^3

class B
<table><tr><th>Volume(mm^3)</th><th>Gas jet</th></tr><tr><td>250 〈 V ≤ 500</td><td>20s</td></tr><tr><td>500 〈 V ≤ 1750</td><td>30s</td></tr><tr><td>V ＞1750</td><td>60s</td></tr></table>
One flame application
 
</td><td></td><td>1.class B
After removing test flame from capacitor, the capacitor must not continue burn for more than 10 s.

2.No burning particle must drop from the sample</td></tr>
<tr><td>Sub-group ADD8</td><td>D</td><td></td><td>10</td><td></td></tr>
<tr><td>A.8 Thermal Shock</td><td></td><td>θA = lower category temperature
θB = upper category temperature
100 cycles
Duration t = 30 min</td><td></td><td>ΔC/C ≤ 10%

Δtanδ(1KHz) < 0.0050

R_{ins} ≥ 50% specified value</td></tr>
<tr><td>Sub-group ADD9</td><td>D</td><td></td><td>9</td><td></td></tr>
<tr><td>A.9 8585 load test</td><td></td><td>500hours ; 85℃; 85% RH, V_{Rdc}</td><td></td><td>ΔC/C ≤ 10%

Δtanδ < 0.010

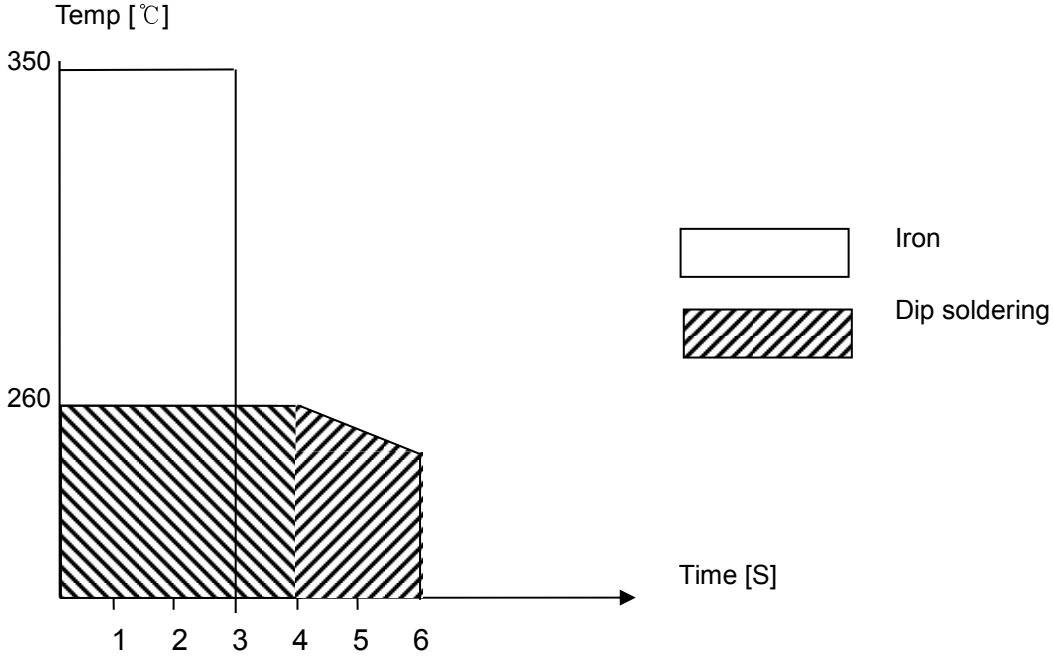
R_{ins} ≥ 50% specified value</td></tr>
</table>

Soldering conditions

- Heat resisting temperature
  MKT : 160℃ KP/MKP : 110℃

  When mounting, set the soldering temperature so that the capacitor inside peak temperature is to be lower than the given above heat resisting temperature.

- Preheating temp : Max 110℃, 1min

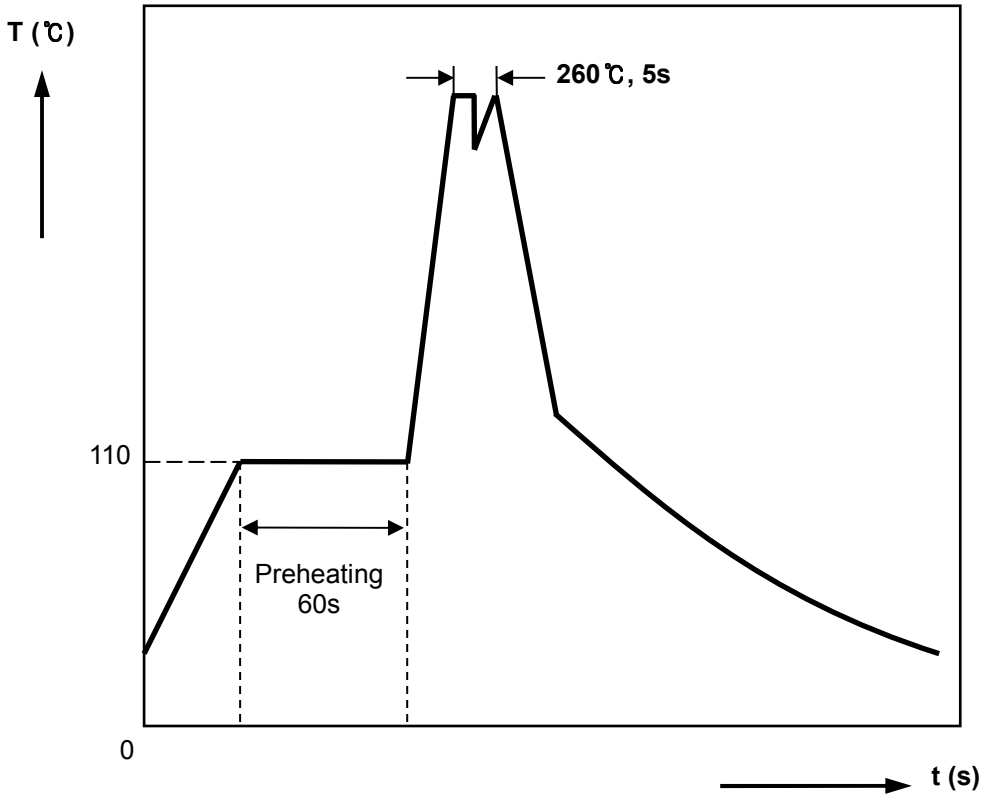


[If dipping a capacitor into solder twice, the second dipping shall be carried after the capacitor itself has returned to normal temperature]

Not passing through adhesive curing oven in order to fix the SMD parts in combination with leads parts.
- Not reflow soldering by combine the lead parts with SMD parts.

When cleaning right after soldering, make sure the capacitor surface temperature is lower than 50℃

Wave soldering profile (Recommendation)



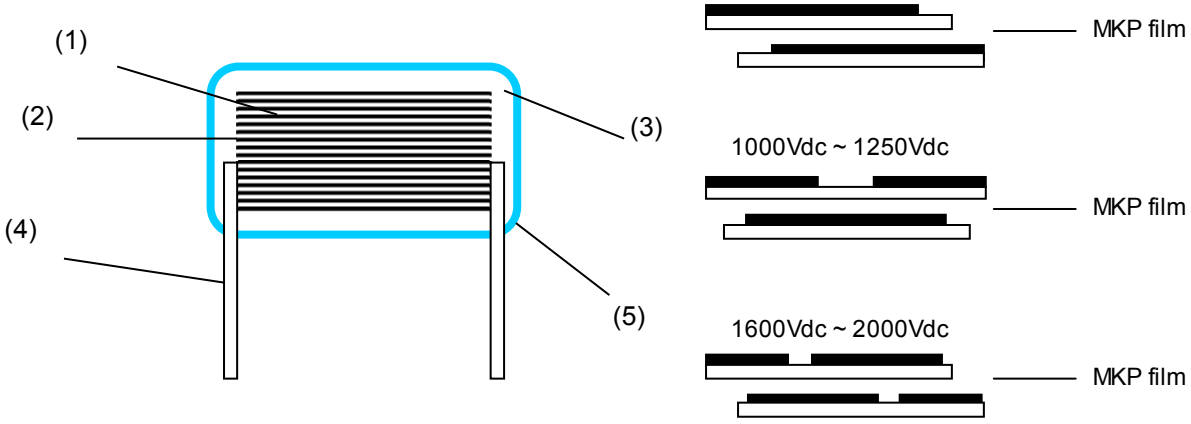
- Solder bath Temperature : 260 ℃ Max.

- Shield : Heat-absorbing board, (1.5±0.5)mm thick, between capacitor body and liquid solder

- Visual inspection : No visible damage

CONSTRUCTION

- Product type ; Metallized Polypropylene film capacitors
  - Model name ; PCMP 389 XXXXX



	Description	Material
1	MKP Film	Metallized polypropylene film
2	Metal Spray	Tin-Zinc
3	Epoxy	UL94V-0
4	Lead Wire	Tin plated Copper wire 0.6/0.8mm [Sn 100%:10㎛]
5	PP Case	POLYPROPYLENE UL94-V0