

## **Metallized Film Capacitor**

## **Power Electronic Capacitors**

**Series/Type:** MMKP Snubber

**Ordering code:** 300A\*

**Date:** April 2024

**Version:** 01

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■ Features

- Widely used in high voltage,high frequency circuit
- Low loss and small inherent temperature rise
- Excellent active and passive flame resistant abilities
- Especially designed as snubber capacitor for IGBT  
Plastics case, filled with resin

■ Reference Standards

- IEC61071
- IEC60068
- RoHS
- UL 810

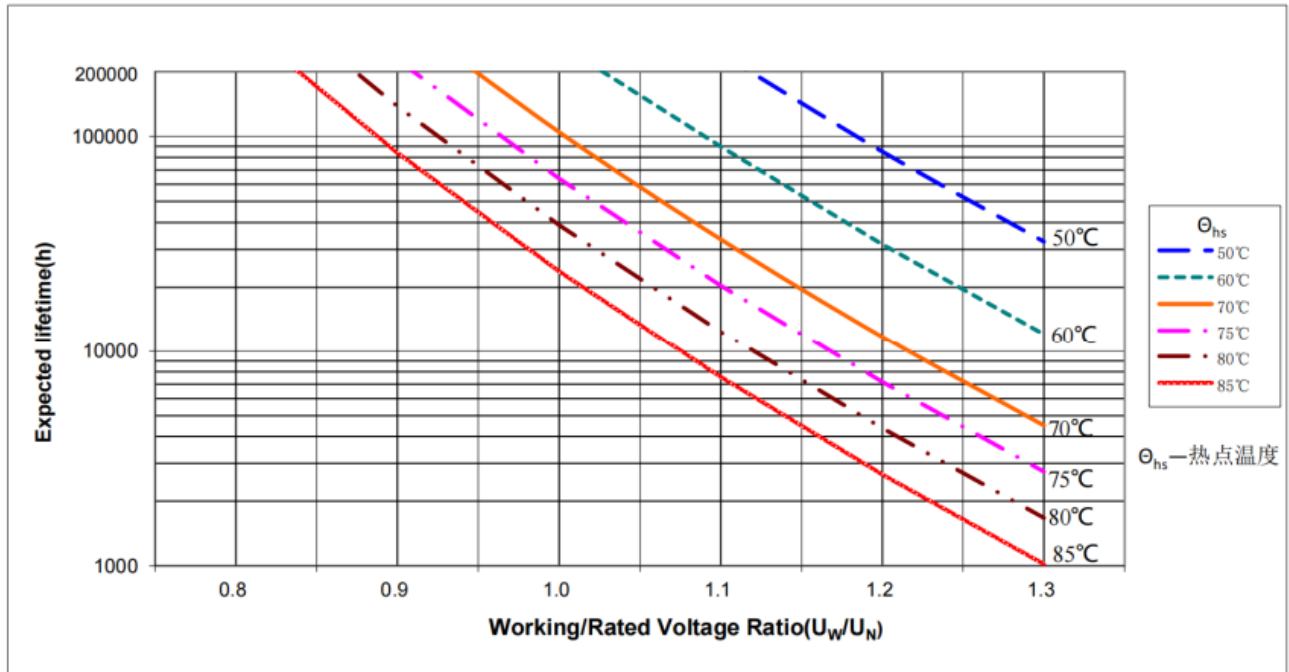
■ Specifications

- Capacitance range 0.047μF~10μF
- Capacitance tolerance ±5%(J), ±10%(K)
- Voltange range DC630V~DC3000V
- Dielectric dissipation factor( $\tan \delta_o$ )  $2 \times 10^{-4}$
- Loss factor( $\tan \delta$ )at 1KHz  $\leq 2.0 \times 10^{-3}$
- Operating temperature range -40°C...85°C
- Storage temperature Range -40°C...105°C
- Maximum altitude  $\leq 2000\text{m}$
- Frequency range  $2 \times 10^3\text{Hz} \sim 20 \times 10^3\text{Hz}$
- Service life expectancy 100,000h @ $\leq 1.0U_N$ , @ $\theta_{HS} \leq 70^\circ\text{C}$
- Failure rate 50Fit

■ Test data

- Capacitance measurement  $C_N \pm 5\%(J)$ ;  $C_N \pm 10\%(K)$ ;
- Test voltage between terminals  $1.5U_{NDC} @10S$
- Test voltage between terminals to case  $(2 \cdot U_{NDC} + 1000)V.ac$ , but no less 3000 V.ac @10S
- Loss factor( $\tan \delta$ )at 100Hz  $\leq 2.0 \times 10^{-3}$

■ Expected lifetime curve

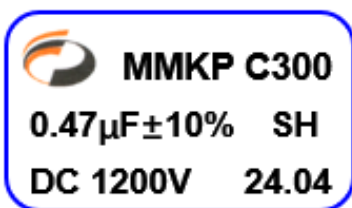



■ Structure of ordering code

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<b>C</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>A</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>4</b>	<b>7</b>	<b>4</b>	<b>K</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>
Capacitor series					Rated voltage			Rated Capacitance		Capacitance tolerance		Internal use			

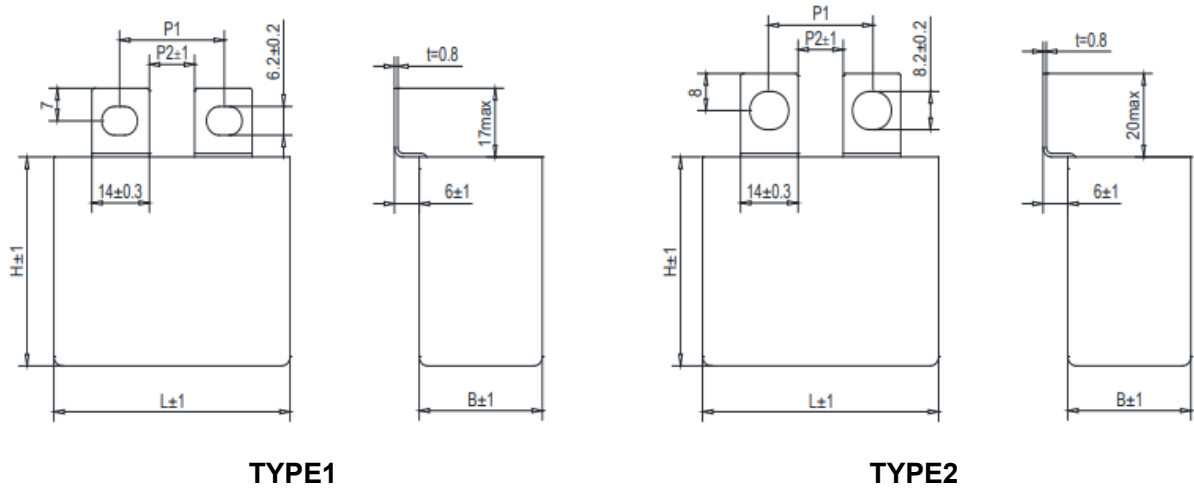
C300A—Capacitor series  
 122—Rated voltage 1200V  
 474J0—Rated capacitance 0.47 $\mu$ F  
 K—Capacitance tolerance  $\pm$ 10%  
 011—Internal use

■ Capacitor marking injected on aluminum case(position refer to drawing)

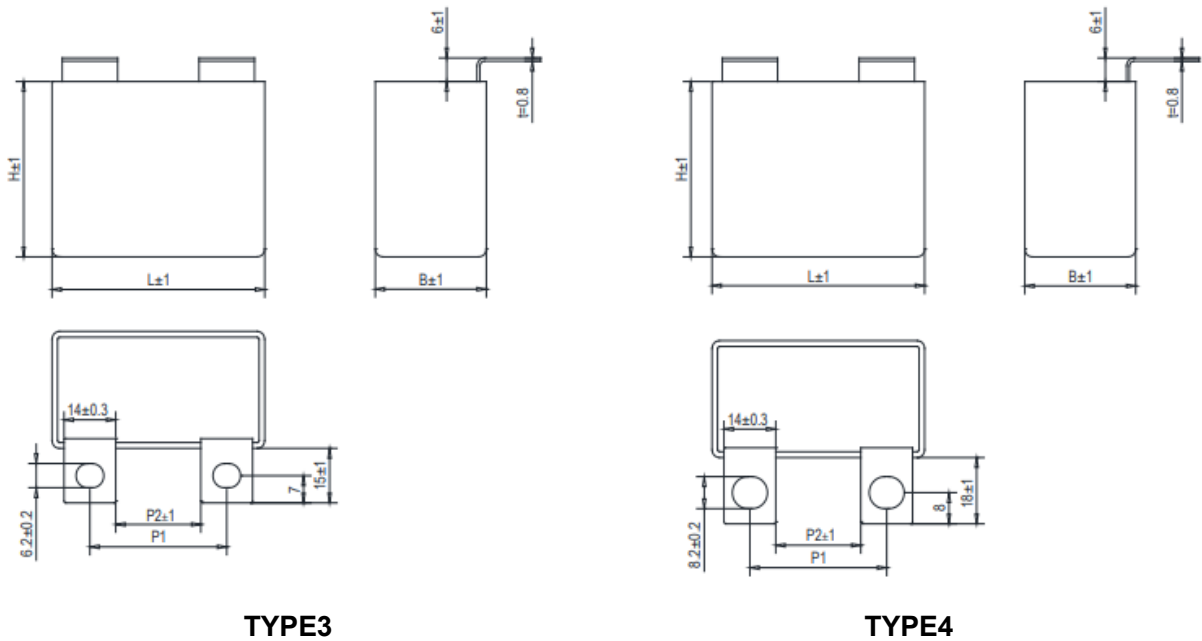


	Manufacture's logo
MMKP	Metallized polypropylene film
C300	Capacitor series
0.47 $\mu$ F	Capacitance
$\pm$ 10%	Capacitance tolerance
DC 1200V	DC rated voltage: DC 1200V
SH	Self-healing
24.04	Date of production

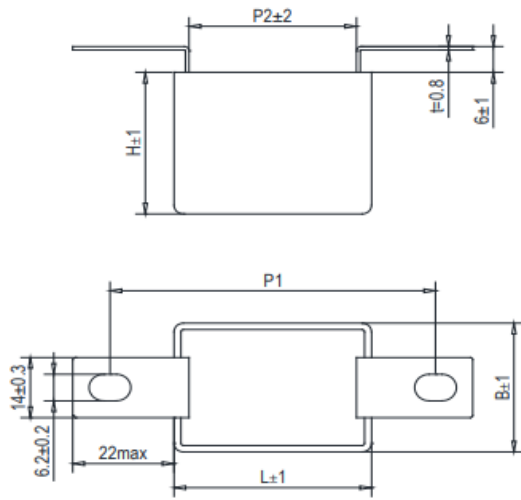
■ Outline Drawing(Specific according to customer requirements)



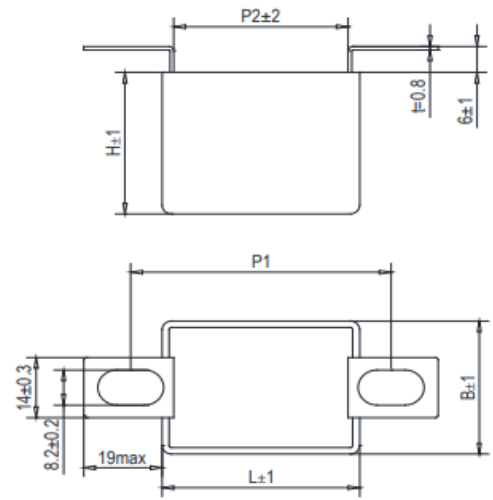
Case Long	TYPE1 Mounting Hole: M6				TYPE1 Mounting Hole: M8			
	P2	P1	P2	P1	P2	P1	P2	P1
42.5	8	20~25	11	23~28	8	21~23	11	24~26
57.5	11	23~28	24	36~41	11	24~26	24	37~39



Case Long	TYPE1 Mounting Hole: M6				TYPE1 Mounting Hole: M8			
	P2	P1	P2	P1	P2	P1	P2	P1
42.5	8	20~25	11	23~28	8	21~23	11	24~26
57.5	11	23~28	24	36~41	11	24~26	24	37~39



**TYPE5**



**TYPE6**

Case Long	TYPE5 Mounting Hole: M6				TYPE6 Mounting Hole: M8			
	P2	P1			P2	P1		
42.5	37	67~73			37	50~64		
57.5	52	82~88			52	65~79		

<b>Metallized Film Capacitor</b>	<b>C300A*</b>
<b>Power Electronic Capacitors</b>	<b>MMKP Snubber</b>

**Technical data**

C <sub>N</sub> (μF)	Dimension(mm)			du/dt (v/μs)	İ(A)	ESL (nH)	I <sub>MAX</sub> @60°C @100KHz(A)	ESR@100KHz (mΩ)	Part number
	L	B	H						
<b>U<sub>NDC</sub> DC700V, U<sub>rms</sub> AC380V, U<sub>S</sub> 1050V</b>									
1.0	42.5	17	28	325	325	≤25	12.9	4.3	C300A701105****
1.2	42.5	24.5	27.5	325	390	≤25	15.2	3.1	C300A701125****
1.5	42.5	22	30	325	487	≤25	16.3	3.5	C300A701155****
2.0	42.5	28	37	325	650	≤25	20.1	3.2	C300A701205****
2.5	42.5	30	45	325	812	≤25	22.6	2.5	C300A701255****
3.0	42.5	33	45	325	975	≤25	24.9	2.4	C300A701305****
3.5	42.5	33	45	325	1134	≤25	26.0	2.0	C300A701355****
4.0	57	30	45	230	920	≤35	24.3	2.3	C300A701405****
4.7	57	30	45	230	1081	≤35	28.2	2.1	C300A701475****
5.0	57	30	45	230	1150	≤35	26.0	2.5	C300A701505****
5.6	57	35	50	230	1288	≤35	28.7	2.0	C300A701565****
6.8	57	35	50	230	1564	≤35	30.2	2.0	C300A701685****
10	57	42.5	56	230	2300	≤35	35.9	1.8	C300A701106****
<b>U<sub>NDC</sub> DC1200V, U<sub>rms</sub> AC500V, U<sub>S</sub> 1800V</b>									
0.22	42.5	15	26	650	143	≤25	8.1	12.8	C300A122224****
0.33	42.5	15	26	650	215	≤25	9.2	8.9	C300A122334****
0.39	42.5	17	28	650	254	≤25	10.3	7.3	C300A122394****
0.47	42.5	22	30	650	306	≤25	12.1	7.0	C300A122474****
0.56	42.5	22	30	650	364	≤25	12.9	5.3	C300A122564****
0.68	42.5	22	30	650	442	≤25	13.9	4.6	C300A122684****
0.82	42.5	28	37	650	533	≤25	16.5	3.9	C300A122824****
1.0	42.5	28	37	650	650	≤25	18.0	3.4	C300A122105****
1.2	42.5	30	45	650	780	≤25	20.5	3.1	C300A122125****
1.5	42.5	33	45	650	975	≤25	22.2	4.2	C300A122155****
2.0	57	30	45	455	910	≤35	22.0	4.1	C300A122205****
2.2	57	35	50	455	1001	≤35	24.3	3.6	C300A122225****
2.5	57	35	50	455	1138	≤35	25.4	3.5	C300A122255****
3.0	57	35	50	455	1365	≤35	27.0	3.2	C300A122305****
4.5	57	42.5	56	455	2047	≤35	32.8	3.0	C300A122455****
<b>U<sub>NDC</sub> DC1500V, U<sub>rms</sub> AC570V, U<sub>S</sub> 2250V</b>									
0.39	42.5	22	30	800	312	≤25	13.5	7.2	C300A152394****
0.47	42.5	22	30	800	376	≤25	17.5	5.3	C300A152474****
0.68	42.5	28	37	800	544	≤25	19.0	4.6	C300A152684****
1.0	42.5	30	45	800	800	≤25	22.5	4.5	C300A152105****
1.2	57	30	45	560	672	≤35	25.0	4.2	C300A152125****
1.8	57	35	50	560	1008	≤35	29.5	4.0	C300A152185****
<b>U<sub>NDC</sub> DC2000V, U<sub>rms</sub> AC630V, U<sub>S</sub> 3000V</b>									
0.10	42.5	15	26	1000	100	≤25	6.5	25.7	C300A202104****
0.15	42.5	17	28	1000	150	≤25	8.1	14.7	C300A202154****
0.22	42.5	22	30	1000	220	≤25	10.5	10.5	C300A202224****
0.33	42.5	28	37	1000	330	≤25	13.8	9.5	C300A202334****
0.47	42.5	28	37	1000	470	≤25	16.0	5.2	C300A202474****
0.56	42.5	30	45	1000	560	≤25	18.6	4.3	C300A202564****
0.68	42.5	30	45	1000	680	≤25	17.5	5.7	C300A202684****
0.82	57	30	45	700	574	≤35	19.0	4.5	C300A202824****
1.0	57	35	50	700	700	≤35	21.9	4.5	C300A202105****
1.2	57	35	50	700	840	≤35	23.2	4.2	C300A202125****
1.8	57	42.5	56	700	1260	≤35	28.3	4.0	C300A202185****

**Metallized Film Capacitor**
**C300A\***
**Power Electronic Capacitors**
**MMKP Snubber**
**Technical data**

C <sub>N</sub> (μF)	Dimension(mm)			du/dt (v/μs)	î(A)	ESL (nH)	I <sub>MAX</sub> @60°C @100KHz(A)	ESR@100KHz (mΩ)	Part number
	L	B	H						
<b>U<sub>NDC</sub> DC3000V, U<sub>rms</sub> AC750V, U<sub>s</sub> 4500V</b>									
0.047	42.5	24.5	27.5	1600	75	≤25	6.1	31.6	C300A302473****
0.068	42.5	24.5	27.5	1600	108	≤25	7.2	22.7	C300A302683****
0.10	42.5	22	30	1600	160	≤25	8.5	15.0	C300A302104****
0.15	42.5	28	37	1600	240	≤25	11.3	10.8	C300A302154****
0.22	42.5	33	45	1600	352	≤25	16.6	6.6	C300A302224****
0.33	57	30	45	870	287	≤35	17.4	7.5	C300A302334****
0.47	57	35	50	870	408	≤35	21.4	7.5	C300A302474****
0.56	57	35	50	870	487	≤35	22.4	7.4	C300A302564****
0.82	57	42.5	56	870	713	≤35	27.8	7.0	C300A302824****
<b>U<sub>NDC</sub> DC4000V, U<sub>rms</sub> AC870V, U<sub>s</sub> 6000V</b>									
0.047	42.5	22	30	3500	165	≤20	7.2	16.7	C300A402473****
0.10	42.5	28	37	3500	350	≤20	11.3	8.3	C300A402104****
0.15	42.5	33	45	3500	525	≤20	14.8	5.9	C300A402154****
0.22	57	30	45	2000	440	≤35	15.6	6.2	C300A402224****
0.33	57	35	50	2000	660	≤35	19.8	4.4	C300A402334****
0.47	57	42.5	56	2000	940	≤35	24.5	3.4	C300A402474****
<b>U<sub>NDC</sub> DC4500V, U<sub>rms</sub> AC1000V, U<sub>s</sub> 6750V</b>									
0.033	42.5	22	30	4000	132	≤20	6.3	21.8	C300A452333****
0.068	42.5	28	37	4000	272	≤20	10.3	11.0	C300A452683****
0.10	42.5	33	45	4000	400	≤20	12.8	7.8	C300A452104****
0.15	57	30	45	2400	360	≤35	13.9	7.8	C300A452154****
0.22	57	35	50	2400	528	≤35	17.5	5.6	C300A452224****
0.35	57	42.5	56	2400	840	≤35	22.9	3.9	C300A452354****
1.0	150	82	45	950	950	≤50	38.6	2.0	C300A452105****
1.5	150	82	45	950	1425	≤50	40.9	1.7	C300A452155****

**■ Term and characteristics**

<b>Term</b>	<b>Characteristics</b>
$C_N$	Rated capacitance
$U_N$	Rated AC voltage
$U_{NDC}$	Rated DC voltage
$U_r$	Ripple voltage
$U_s$	Non-recurrent surge voltage
$U_{T-T}$	Test voltage between terminals
$U_{T-C}$	Test voltage between terminals to case
$\hat{I}$	Maximum peak current
$I_{max}$	Maximum current
$\hat{I}_s$	Maximum surge current
$\tan\delta_0$	Dielectric dissipation factor
$\tan\delta$	Loss factor
$ESL$	Self inductance
$ESR$	Equivalent series inductance of a capacitor
$R_{ins}$	Insulation resistance
$f_r$	Resonance frequency
$W_R$	Rated power
$\theta_{min}$	Lowest operating temperature
$\theta_{max}$	Maximum operating temperature
$\theta_{amb}$	Cooling-air temperature
$\theta_{HS}$	Hotspot temperature
$\theta_{ST}$	Storage temperature
$F_T$	Derating factor
$t_{LD}$	Inverter and charge hybrid operating load duration
$\lambda$	Failure rate (FIT)