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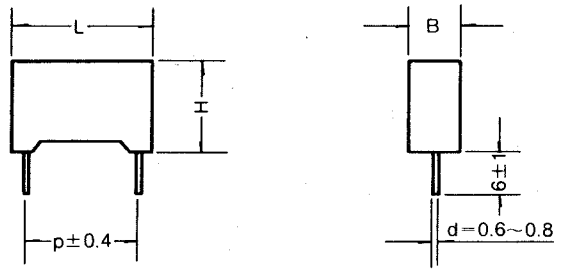
METALLIZED POLYESTER FILM CAPACITOR

MOLDED BOX, NON-INDUCTIVE, METALLIZED FILM CAPACITORS, RADIAL LEAD

FEATURES

- □ SEALED IN SPECIAL EXTERIOR RESIN CASES FOR SUPERIOR HEAT RESISTANCE, HUMIDITY RESISTANCE AND FLAME RETARDANT.
- □ SINGLE-ENDED CONSTRUCTION, UNIFORM DIMENSIONS, AND FIXED LEAD SPACING SIMPLIFY HAND INSERTION PROCEDURES.
- □ LOW SELF-INDUCTANCE, HIGH VOLTAGE STRESS CAPABILITY. IDEAL FOR IC DECOUPLING APPLICATIONS.

p=10 ~ 27.5 mm



All dimensions are in mm.

B	≤4	>4
φd	0.6	0.8

GENERAL TECHNICAL DATA

Dielectric :
polyester film

Plates :
aluminium layer deposited by evaporation under vacuum.

Winding :
non-inductive type.

Leads :
tinned wire(minimum lead content 5%).

Protection :
Plastic case, epoxy resin filled. Box made of solvent resistant material.

Marking :
capacitance. tolerance, DC nominal voltage.

Climatic category :
FME DIN 40040. 55/100/56 IEC 68-1

Technical terms and tests :
IEC 384-2 CECC 30400 DIN 44110 T1 DIN 45910 T11.

Detail specification :
CECC 30401-009/011/023 DIN 44112.

Reliability :

LR DIN 40040
L=300 FIT
R=10^5 hours

1 FIT = 1×10^{-9} failures/components × h.
Considering a practical application at +40℃ and 0.5 × Vn we can assume a failure quote of 10 FIT.

Failure criteria(according to DIN 44122)
Short or open circuit
Capacitance change △C/C : > ±10%
Dissipation factor : > 2 × limit value
insulation resistance : < 0.005 × limit value.

ELECTRICAL DATA

Nominal voltage(Vn) : 63 Vdc-100Vdc-
160 Vdc-250 Vdc-
400 Vdc-630 Vdc-
1000 Vdc.

Category voltage(Vc) : up to 85℃ Vc = Vn
For temperature between +85℃ and +100℃ a decreasing factor of 1.25% per degree ℃ on the nominal voltage Vn has to be applied.

Capacitance range : 1000pF to 10μF.

Capacitance values :
values in compliance with IEC 63 Norm. E6 series.

Capacitance tolerances
±10% : ±20% : (upon request ± 5%).

Total self inductance(L) :

pitch(mm)	10	15	22.5	27.5
L(nH) ≈	9	10	18	18

Dissipation Factor(DF) : $tg\delta \times 10^{-4}$ at +25℃ ±5℃

KHz	C≤1μF	C>1μF
1	<100	<100
10	<150	

Insulation resistance:
Test conditions
Temperature : +25℃ ± 5℃
Voltage charge time : 1minute
Voltage charge : 50Vdc for Vn<100Vdc
100Vdc for Vn<1000Vdc

For Vn > 100Vdc :
>30,000MΩ for CC<0.33μF(5.10^4MΩ) (*)
>10,000sec. for C >0.33μF(17000sec.) (*)

For Vn < 100Vdc :
>10,000MΩ for C<0.1μF(5.10^4MΩ) (*)
>1,000sec. for C>0.1μF(5000sec.)

Test voltage between terminals :
1.6 × Vn applied for 2sec. at +25℃ ±5℃

Maximum pulse rise time dv/dt (V/μsec) :

Vn	Pitch(mm)			
	10	15	22.5	27.5
63	3	1.5	1	1
100	6	3	2	1
160	8	5	3	2
250	11	7	4	3
400	20	10	5.5	5
630	30	15	8	7
1000	60	25	15	10

If the working voltage(V) is lower than the nominal voltage(Vn), the capacitor can work at higher dv/dt. in this case the maximum value allowed is obtained by multiplying the above value(see table) with the ratio $\frac{Vn}{V}$

Soldering :
Test conditions
Soldering temperature: +260℃ ± 5℃
Soldering duration :10sec. ± 1sec.
Performance
Capacitance change △C/C: < ± 2%
DF change △tgδ: < 30.10^{-4} at 10KHz for C<1μF
< 20.10^{-4} at 1KHz for C>1μF
Insulation resistance : < limit value.

Damp heat test :
Test conditions
Temperature : + 40℃
Relative humidity :93% ± 2%
Test duration :56days
Performance
Capacitance change △C/C: < ± 5%
DF change: △tgδ : < 50·10^{-4} at 1KHz
Insulation resistance: > 50% of limit value.

Life test :
Test conditions
Temperature : + 85℃
Test duration :1000h
Voltage applied :1.25×Vn
Performance
Capaciance change △C/C: < ± 5%
DF change △tgδ: < 30·10^{-4} at 10KHz for C<1μF
< 20·10^{-4} at 1KHz for C<1μF
Insulation resistance < 50% of the limit value.

Long term stability(after two years)
Storage-Standard environmental conditions.
Performance
Capacitance change △C/C: < ± 3% for C<0.1μF
< ± 3% for C>0.1μF

■ DIMENSIONS

Rated Capacitance(μF)	63V⎓ / 40V~				100V⎓ / 63V~				160V⎓ / 90V~				250V⎓ / 160V~				400V⎓ / 200V~				630V⎓ / 220V~				1000⎓ / 250V~			
	B	H	L	p	B	H	L	p	B	H	L	p	B	H	L	p	B	H	L	p	B	H	L	p	B	H	L	p
0.001	4	9	13	10	4	9	13	10	4	9	13	10	4	9	13	10	4	9	13	10	4	9	13	10	4	9	13	10
0.0015	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃
0.0022	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃
0.0033	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃
0.0047	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	5	11	13	10
0.0068	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	6	12	13	10
0.010	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	5	11	18	15
0.015	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	5	11	13	10	〃	〃	〃	〃
0.022	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	6	12	13	10	7.5	13.5	18	15
0.033	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	5	11	18	15	6	15	26.5	22.5
0.047	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	5	11	18	15	6	12	18	15	〃	〃	〃	〃
0.068	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	7.5	13.5	18	15	7	16	26.5	22.5
0.10	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	5	11	18	15	6	12	18	15	6	15	26.5	22.5	10	18.5	26.5	22.5
0.15	〃	〃	〃	〃	〃	〃	〃	〃	5	11	13	10	〃	〃	〃	〃	7.5	13.5	18	15	7	16	26.5	22.5	11	20	32	27.5
0.22	〃	〃	〃	〃	5	11	13	10	〃	〃	〃	〃	〃	〃	〃	〃	6	15	26.5	22.5	8.5	17	26.5	22.5	13	22	32	27.5
0.33	〃	〃	〃	〃	5	11	18	15	5	11	18	15	6	12	18	15	7	16	26.5	22.5	11	20	32	27.5				
0.47	5	11	13	10	〃	〃	〃	〃	6	12	18	15	6	15	26.5	22.5	8.5	17	26.5	22.5	13	22	32	27.5				
0.68	5	11	18	15	6	12	18	15	7.5	13.5	18	15	7	16	26.5	22.5	10	18.5	26.5	22.5								
1.0	〃	〃	〃	〃	〃	〃	〃	〃	8.5	14.5	18	15	〃	〃	〃	〃	11	20	32	27.5								
1.5	6	12	18	15	7	16	26.5	22.5	8.5	17	26.5	22.5	10	18.5	26.5	22.5												
2.2	7.5	13.5	18	15	8.5	17	26.5	22.5	10	18.5	26.5	22.5	11	20	32	27.5												
3.3	7	16	26.5	22.5	10	18.5	26.5	22.5	11	20	32	27.5	13	22	32	27.5												
4.7	8.5	17	26.5	22.5	11	20	32	27.5	13	22	32	27.5	15	30	32	27.5												
6.8	10	18.5	26.5	22.5	13	22	32	27.5	15	30	32	27.5	18	33	32	27.5												
10	11	20	32	27.5	15	30	32	27.5	18	33	32	27.5	22	37	32	27.5												

■ SMMY (OPTIONAL SIZES)

0.1													5	11	13	10	5	11	18	15	6	12	18	15				
0.15									4	9	13	10	〃	〃	〃	〃	6	12	18	15	8.5	14.5	18	15				
0.22					4	9	13	10	〃	〃	〃	〃	〃	〃	〃	〃	8.5	14.5	18	15								
0.33					5	11	13	10	5	11	13	10	5	11	18	15	〃	〃	〃	〃								
0.47	4	9	13	10	〃	〃	〃	〃	6	12	13	10	7.5	13.5	18	15												
0.68	5	11	13	10	6	12	13	10	5	11	18	15	8.5	14.5	18	15												
1.0	6	12	13	10	〃	〃	〃	〃	6	12	18	15	〃	〃	〃	〃												
1.5	5	11	18	15	6	12	18	15	7.5	13.5	18	15																
2.2	6	12	18	15	8.5	14.5	18	15																				

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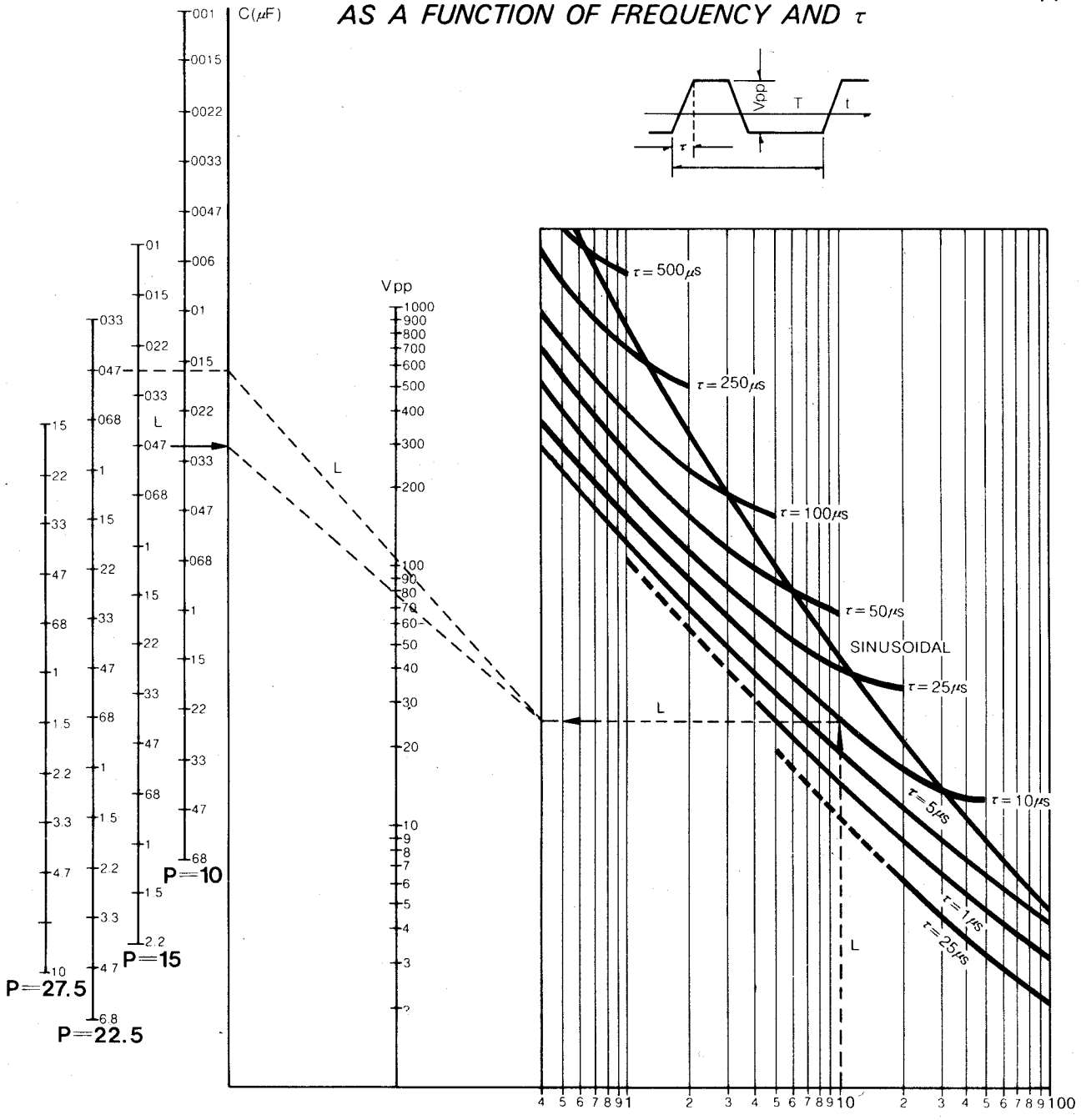
NOMOGRAPH OF THE ADMISSIBLE PEAK VOLTAGE Vpp AS A FUNCTION OF FREQUENCY AND τ



EXAMPLE

Let us consider the following Working data:
f = 10KHz (Repetition frequency)
τ = 10μsec (Rise time)
Vpp = 90V (Voltage load)
a capacitor C = .047μF
with p = 15mm (lead spacing)
The dashed line L identifies a max admissible peak voltage of 80 Vpp.

This result is lower than the voltage load (90 Vpp). therefore it is necessary to select another capacitor with higher working voltage and/or bigger dimension and lead spacing. In fact for a capacitor with p = 22.5mm the admissible peak voltage is 110 Vpp > 90 Vpp (Voltage load request)