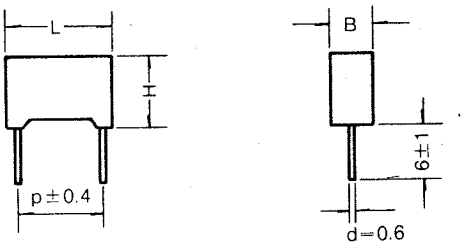
METALLIZED POLYESTER FILM CAPACITOR

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

p=7.5mm

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.



All dimensions are in mm.

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 30401-011.

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 4FIT.

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) :
63Vdc-100Vdc-250Vdc-400Vdc-630Vdc.

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 1μF.

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

Capacitance tolerances(at 1KHz):
±10% : ±20% : (upon request ±5%).

Total self inductance : ≈ 8nH

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

KHz	$tg\delta \times 10^{-4}$
1	<100
10	<150

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

For Vn > 100Vdc :
>30,000 MΩ (5.10^4MΩ) (*)
For Vn< 100 Vdc. :
<10,000 MΩ C<0.1μF(5.10^4MΩ) (*)
>1,000sec.for C<0.1 (5000sec.) (*)

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

(*) Typical value

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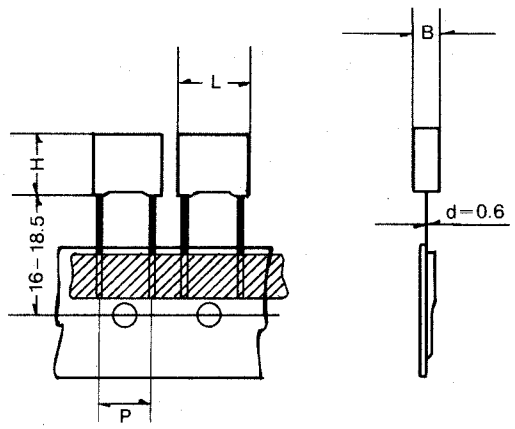

Maximum pulse rise time(dv/dt)

Vn	(V/μsec.)
63	5
100	6
250	15
400	30
630	40

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
Insulation resistance : > limit value.

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

Life test :
Test conditions
Temperature : + 85℃
Test duration :1000h
Voltage applied :1.25 × Vn
Perormance
Capacitance change △C/C: < ± 5%
DF change △tgδ: < $30 \cdot 10^{-4}$ at 10KHz
Insulation resistance: > 50% limit value.

Long term stability(after two years):
Storage-Standard environmental conditions.
Performance
Capacitance change △C/C: < ± 3% for C < 0.1μF
< ± 2% for C > 0.1μF

■ DIMENSIONS

Rated Capacitance(μF)	63V – / 40V~				100V – / 63V~				250V – / 160V~				400V – / 200V~				630V – / 220V~			
	B	H	L	p	B	H	L	p	B	H	L	p	B	H	L	p	B	H	L	p
0.001	3.5	6.5	10.5	7.5	3.5	6.5	10.5	7.5	3.5	6.5	10.5	7.5	3.5	6.5	10.5	7.5	3.5	6.5	10.5	7.5
0.0015	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃
0.0022	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃
0.0033	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃
0.0047	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	4	9	10.5	7.5
0.0068	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃
0.010	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	4	9	10.5	7.5	5	11	10.5	7.5
0.015	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	6	12	10.5	7.5
0.022	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	5	11	10.5	7.5	〃	〃	〃	〃
0.033	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	6	12	10.5	7.5				
0.047	〃	〃	〃	〃	〃	〃	〃	〃	4	9	10.5	7.5	〃	〃	〃	〃				
0.068	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃								
0.10	〃	〃	〃	〃	4	9	10.5	7.5	5	11	10.5	7.5								
0.15	〃	〃	〃	〃	〃	〃	〃	〃	6	12	10.5	7.5								
0.22	4	9	10.5	7.5	〃	〃	〃	〃	〃	〃	〃	〃								
0.33	〃	〃	〃	〃	5	11	10.5	7.5												
0.47	5	11	10.5	7.5	〃	〃	〃	〃												
0.68	〃	〃	〃	〃	〃	〃	〃	〃												
1.0	〃	〃	〃	〃	6	12	10.5	7.5												

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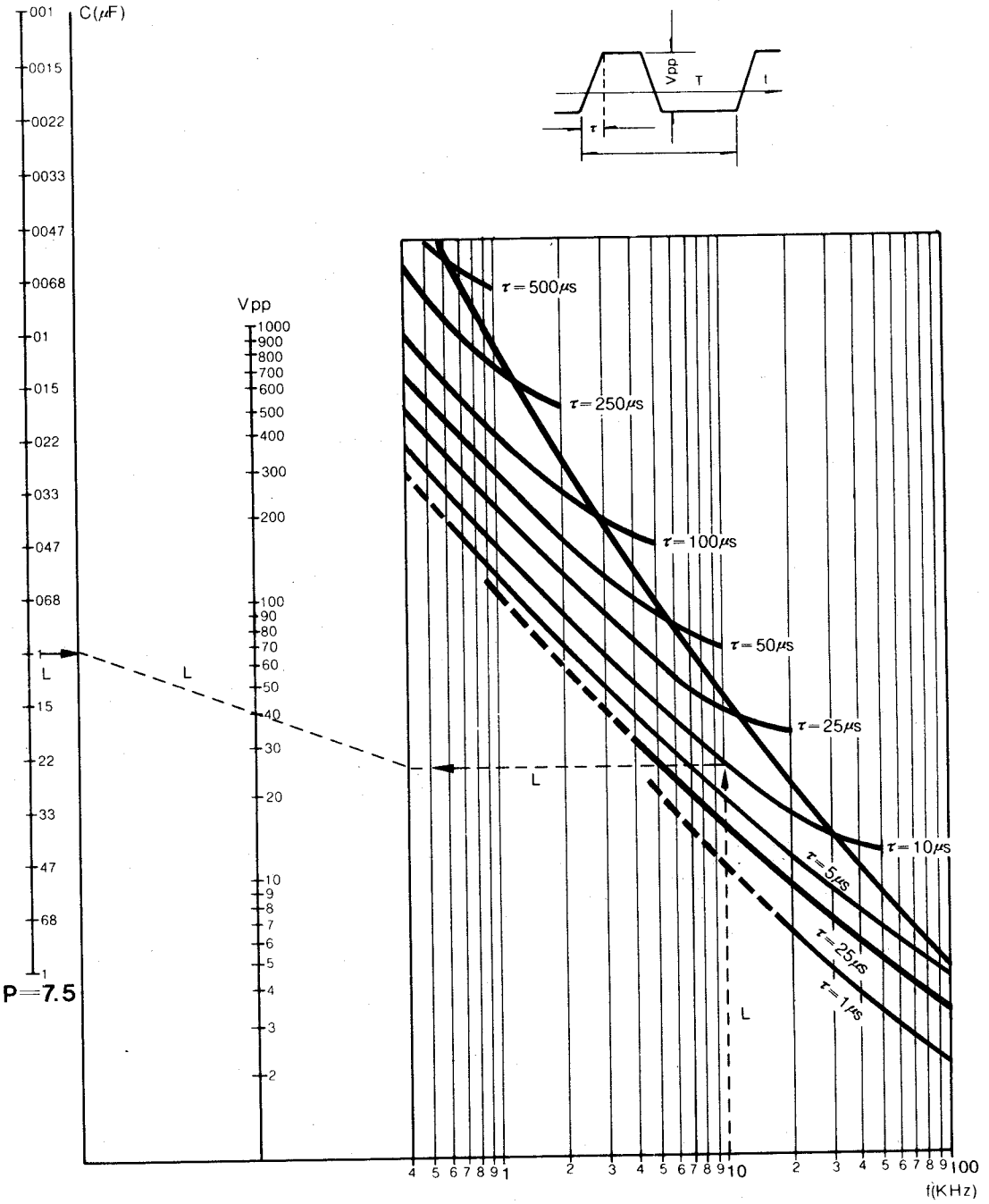
NOMOGRAPH OF THE ADMISSIBLE PEAK VOLTAGE Vpp AS A FUNCTION OF FREQUENCY AND τ



EXAMPLE Let us consider the following working data:
f = 10KHz (Repetition frequency)
τ = 10 μsec (Rise time)
a capacitor C = .1 μF
with p = 7.5mm (lead spacing)
The dashed line L identifies a max admissible peak voltage of 40 Vpp.
If the result is lower than the requested voltage load another capacitor with bigger dimension and/or lead spacing has to be chosen.