

Loose

Taped

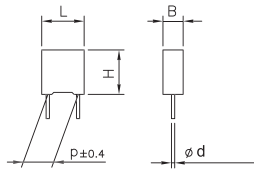
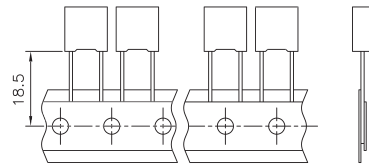


Fig.1

Fig. 2



B	<3.5	≥3.5
Ød ±0.05	0.5	0.6

All dimensions are in mm.

### PRODUCT CODE SYSTEM

The part number, comprising 14 digits, is formed as follows:

1	2	3	4	5	6	7	8	9	10	11	12	13	14
R	6	6		D								-	

Digit 1 to 3 Series code.

Digit 4 d.c. rated voltage:

D = 63V E = 100V I = 250V

M = 400V P = 630V

Digit 5 Pitch: D = 7.5 mm

Digit 6 to 9 Digits 7 - 8 - 9 indicate the first three digits of Capacitance value and the 6th digit indicates the number of zeros that must be added to obtain the Rated Capacitance in pF.

Digit 10 to 11 Mechanical version and/or packaging (table 1)

Digit 12 Identifies the dimensions and electrical characteristics.

Digit 13 Internal use

Digit 14 Capacitance tolerance:

J=5%; K=10%; M=20%.

Table 1 (for more detailed information, please refer to page 14).

Standard packaging style	Lead length (mm)	Taping style Figure No.	Ordering code (Digit 10 to 11)
AMMO-PACK		1	DQ
AMMO-PACK		2	28
Reel Ø 355 mm		1	CK
Loose, short leads	4 <sup>+2</sup>		AA
Loose, long leads	17 <sup>+1/-2</sup>		Z3

### METALLIZED POLYESTER FILM CAPACITOR D.C MULTIPURPOSE APPLICATIONS

**Typical applications:** this series combines small size, good performances in by-passing, blocking and interference suppression in low voltage applications (i.e.: AUTOMOTIVE).

PRODUCT CODE: **R66**

**p = 7.5mm**

**Note:** R66 series has replaced the R84 series (available only upon request).

For new design we suggest the use of the R66 series

Pitch (mm)	Box thickness (B) (mm)	Maximum dimensions (mm)		
		B max	H max	L max
7.5	All	B +0.1	H +0.1	L +0.2

### GENERAL TECHNICAL DATA

**Dielectric:** polyester film (polyethylene terephthalate).

**Plates:** aluminium layer deposited by evaporation under vacuum.

**Winding:** non-inductive type.

**Leads:** tinned wire.

**Protection:** plastic case, thermosetting resin filled. Box material is solvent resistant and flame retardant according to UL94 V0.

**Marking:** Manufacturer's logo, capacitance, tolerance, D.C. rated voltage.

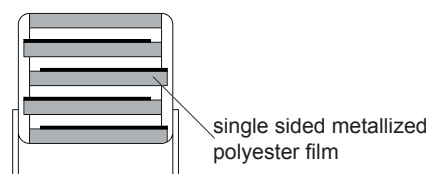
**Climatic category:** 55/105/56 IEC 60068-1

**Operating temperature range:** -55 to +105°C

For stacked technology an upper operating temperature of +125°C is allowed for a max operating time of 1000 h.

**Related documents:** IEC 60384-2

### Winding scheme



**METALLIZED POLYESTER FILM CAPACITOR  
D.C. MULTIPURPOSE APPLICATIONS**

p = 7.5 mm  
PRODUCT CODE: R66

**STACKED VERSION**

Rated Cap.	63Vdc/40Vac Std dimensions				Max dv/dt (V/μs)	Max K <sub>0</sub> (V <sup>2</sup> /μs)	Part Number
	B	H	L	p			
0.33 μF	2.5	7.0	10.0	7.5	120	15 E3	R66DD3330--6--
0.47 μF	3.0	8.0	10.0	7.5	120	15 E3	R66DD3470--6--
0.68 μF	3.5	8.5	10.5	7.5	120	15 E3	R66DD3680--6--
1.0 μF	4.0	9.0	10.5	7.5	120	15 E3	R66DD4100--6--
1.5 μF	5.0	11.0	10.5	7.5	120	15 E3	R66DD4150--6--
2.2 μF	6.0	12.0	10.5	7.5	120	15 E3	R66DD4220--6--
3.3 μF	6.0	12.0	10.5	7.5	120	15 E3	R66DD4330--6--

Rated Cap.	250Vdc/160Vac Std dimensions				Max dv/dt (V/μs)	Max K <sub>0</sub> (V <sup>2</sup> /μs)	Part Number
	B	H	L	p			
0.022μF	2.5	7.0	10.0	7.5	200	100 E3	R66ID 2220--6--
0.033μF	2.5	7.0	10.0	7.5	200	100 E3	R66ID 2330--6--
0.047μF	2.5	7.0	10.0	7.5	200	100 E3	R66ID 2470--6--
0.068μF	3.0	8.0	10.0	7.5	200	100 E3	R66ID 2680--6--
0.10 μF	3.5	8.5	10.5	7.5	200	100 E3	R66ID 3100--6--
0.15 μF	4.0	9.0	10.5	7.5	200	100 E3	R66ID 3150--6--
0.22 μF	5.0	11.0	10.5	7.5	200	100 E3	R66ID 3220--6--
0.33 μF	6.0	12.0	10.5	7.5	200	100 E3	R66ID 3330--6--

Rated Cap.	100Vdc/63Vac Std dimensions				Max dv/dt (V/μs)	Max K <sub>0</sub> (V <sup>2</sup> /μs)	Part Number
	B	H	L	p			
0.068μF	2.5	7.0	10.0	7.5	150	30 E3	R66ED 2680--6--
0.10 μF	2.5	7.0	10.0	7.5	150	30 E3	R66ED 3100--6--
0.15 μF	2.5	7.0	10.0	7.5	150	30 E3	R66ED 3150--6--
0.22 μF	2.5	7.0	10.0	7.5	150	30 E3	R66ED 3220--6--
0.33 μF	3.5	8.5	10.5	7.5	150	30 E3	R66ED 3330--6--
0.47 μF	3.5	8.5	10.5	7.5	150	30 E3	R66ED 3470--6--
0.68 μF	4.0	9.0	10.5	7.5	150	30 E3	R66ED 3680--6--
1.0 μF	5.0	11.0	10.5	7.5	150	30 E3	R66ED 4100--6--
1.5 μF	6.0	12.0	10.5	7.5	150	30 E3	R66ED 4150--6--

Rated Cap.	400Vdc/200Vac Std dimensions				Max dv/dt (V/μs)	Max K <sub>0</sub> (V <sup>2</sup> /μs)	Part Number
	B	H	L	p			
6800 pF	2.5	7.0	10.0	7.5	275	220 E3	R66MD1680--6--
0.010 μF	2.5	7.0	10.0	7.5	275	220 E3	R66MD2100--6--
0.015 μF	2.5	7.0	10.0	7.5	275	220 E3	R66MD2150--6--
0.022 μF	3.0	8.0	10.0	7.5	275	220 E3	R66MD2220--6--
0.033 μF	3.5	8.5	10.5	7.5	275	220 E3	R66MD2330--6--
0.047 μF	4.0	9.0	10.5	7.5	275	220 E3	R66MD2470--6--
0.068 μF	5.0	11.0	10.5	7.5	275	220 E3	R66MD2680--6--
0.10 μF	6.0	12.0	10.5	7.5	275	220 E3	R66MD3100--6--
0.15 μF	6.0	12.0	10.5	7.5	275	220 E3	R66MD3150--6--

Mechanical version and packaging (Table1) \_\_\_\_\_  
Internal use \_\_\_\_\_  
Tolerance: J (±5%); K (±10%); M (±20%) \_\_\_\_\_

Mechanical version and packaging (Table1) \_\_\_\_\_  
Internal use \_\_\_\_\_  
Tolerance: J (±5%); K (±10%); M (±20%) \_\_\_\_\_

- a) WOUND version
- b) STACKED version

Rated Cap.	630Vdc/220Vac* Std dimensions				Max dv/dt (V/μs)	Max K <sub>0</sub> (V <sup>2</sup> /μs)	Part Number
	B	H	L	p			
a) 1000 pF	2.5	7.0	10.0	7.5	40	50 E3	R66PD 1100--0--
a) 1500 pF	2.5	7.0	10.0	7.5	40	50 E3	R66PD1150--0--
a) 2200 pF	2.5	7.0	10.0	7.5	40	50 E3	R66PD 1220--0--
a) 3300 pF	3.5	8.5	10.5	7.5	40	50 E3	R66PD 1330--0--
a) 4700 pF	3.5	8.5	10.5	7.5	40	50 E3	R66PD 1470--0--
a) 6800 pF	3.5	8.5	10.5	7.5	40	50 E3	R66PD 1680--0--
b) 0.010μF	3.5	8.5	10.5	7.5	300	378 E3	R66PD 2100--6--
b) 0.015μF	4.0	9.0	10.5	7.5	300	378 E3	R66PD 2150--6--
b) 0.022μF	5.0	11.0	10.5	7.5	300	378 E3	R66PD 2220--6--
b) 0.033μF	6.0	12.0	10.5	7.5	300	378 E3	R66PD 2330--6--
b) 0.047μF	6.0	12.0	10.5	7.5	300	378 E3	R66PD 2470--6--

Mechanical version and packaging (Table1) \_\_\_\_\_  
Internal use \_\_\_\_\_  
Tolerance: J (±5%); K (±10%); M (±20%) \_\_\_\_\_

All dimensions are in mm.

Note: If the working voltage (V) is lower than the rated voltage (V<sub>R</sub>), the capacitor may work at higher dv/dt. In this case the maximum value allowed is obtained multiplying the above value (see table dv/dt) with the ratio V<sub>R</sub>/V.

The pulse characteristic K<sub>0</sub> depends on the voltage wave-form and in any case it cannot overcome the value given in the above table.

\*Not suitable for cross-the-line applications. Please refer to Interference Suppression Capacitors (page 167).

**METALLIZED POLYESTER FILM CAPACITOR  
D.C. MULTIPURPOSE APPLICATIONS**

p = 7.5 mm  
PRODUCT CODE: R66

**ELECTRICAL CHARACTERISTICS**

**Rated voltage (V<sub>R</sub>):**

63 Vdc 100 Vdc 250 Vdc  
400 Vdc 630 Vdc

**Rated temperature (T<sub>R</sub>):** +85 °C

**Temperature derated voltage:**

for temperatures between +85°C and the upper operating temperature ( +105°C for wound technology and +125°C for stacked technology) a decreasing factor of 1.25% per degree °C on the rated voltage V<sub>R</sub> (d.c. and a.c.) has to be applied.

**Capacitance range:** 1000 pF to 3.3 µF

**Capacitance values:**

E6 series (IEC 60063 Norm).

**Capacitance tolerances** (measured at 1 kHz):

± 5% (J); ±10% (K); ±20% (M).

**Total self-inductance (L):** ≈8nH

(lead length ~2mm)

**Dissipation factor (DF):**

tgδ 10<sup>-4</sup>. at +25°C "5°C

kHz	tgδ x 10 <sup>-4</sup>
1	≤ 100
10	≤ 150

**Insulation resistance:**

**Test conditions**

Temperature: +25°C±5°C  
Voltage charge time: 1 min  
Voltage charge: 50 Vdc for V<sub>R</sub> <100 Vdc  
100 Vdc for V<sub>R</sub> ≥100 Vdc

**Performance**

**For V<sub>R</sub> ≤100 Vdc**

≥3750 MΩ for C ≤0.33µF (5000 MΩ)\*

≥1250 s for C >0.33µF (5000 s)\*

**For V<sub>R</sub> >100 Vdc**

≥30000MΩ (50000 MΩ)\*

\*Typical value

**Test voltage between terminals:**

1.6xV<sub>R</sub> applied for 2 s at +25°C ± 5°C

**TEST METHOD AND PERFORMANCE**

**Damp heat, steady state:**

**Test conditions**

Temperature: +40°C ±2°C  
Relative humidity (RH): 93% ±2%  
Test duration: 56 days

**Performance**

Capacitance change |ΔC/C|: ≤5%  
DF change (Δtgδ): ≤50x10<sup>-4</sup> at 1kHz  
Insulation resistance: ≥50% of initial limit.

**Endurance:**

**Test conditions**

Temperature: +105°C ±2°C  
Test duration: 2000 h  
Voltage applied: 1.25xV<sub>C</sub>

**Performance**

Capacitance change |ΔC/C|: ≤5%  
DF change (Δtgδ): ≤50 10<sup>-4</sup> at 10kHz  
Insulation resistance: ≥50% of initial limit.

**Resistance to soldering heat:**

**Test conditions**

Solder bath temperature: +260°C±5°C  
Dipping time (with heat screen):10 s ±1 s

**Performance**

Capacitance change |ΔC/C|: ≤2%  
DF change (Δtgδ): ≤50x10<sup>-4</sup> at 10kHz  
Insulation resistance: ≥ initial limit.

**Long term stability** (after two years):

**Storage**

standard environmental conditions (see page 12).

**Performance**

Capacitance change |ΔC/C|: ≤3% for C≤0.1µF  
≤2% for C>0.1µF

**RELIABILITY**

Reference MIL HDB 217

**Application conditions:**

Temperature: +40°C±2°C  
Voltage: 0.5xV<sub>R</sub>  
Failure rate: ≤2 FIT

(1 FIT = 1 10<sup>-9</sup> failures/components h)

**Failure criteria:**

(according to DIN 44122)

Short or open circuit  
Capacitance change |ΔC/C|: >10%  
DF change (Δtgδ): >2 x initial limit.  
Insulation resistance: <0.005 x initial limit.