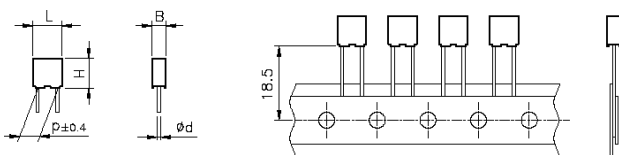


Loose

Taped



B max	2.5	≥ 3.5
∅ d ± 0.05	0.5	0.5 to 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	S	B										-	

Digit 1 to 3 Series code.

Digit 4 d.c. rated voltage:

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

M = 400V W = 500V P = 630V

Digit 5 Pitch: C = 5mm

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)	Ordering code (Digit 10 to 11)
AMMO-PACK		DQ
REEL ∅ 355mm		CK
Loose, short leads	4 +1.5	AA
Loose, long leads	17 ±1	Z3

Note: Ammo-pack is the preferred packaging for taped version.

## METALLIZED POLYESTER FILM CAPACITOR HIGH PERFORMANCES - PULSE APPLICATIONS STACKED VERSION

**Typical applications:** blocking, coupling, decoupling for a signal from DC to high frequency; pulse, logic and timing circuit, lamp capacitor for electronic compact lamps.

PRODUCT CODE: **RSB**

**p = 5 mm**

### 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, epoxy resin filled.

Box material is solvent resistant and flame retardant according to UL94 V0.

**Marking :** Manufacturer's logo, series (RSB), capacitance, tolerance, D.C. rated voltage.

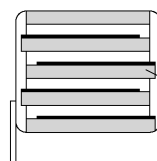
**Climatic category:** 55/125/56 IEC 60068-1

**Operating temperature range:** -55 to +125°C

**Related documents:** IEC 60384-2; CECC 30400

**Detail specifications:** DIN 44122

### Winding scheme



single sided metallized polyester film

**METALLIZED POLYESTER FILM CAPACITOR  
HIGH PERFORMANCES - PULSE APPLICATIONS  
STACKED VERSION**

p = 5 mm

PRODUCT CODE: RSB

Rated Cap.	63Vdc/40Vac				Max dv/dt (V/μs)	Max K <sub>0</sub> (V <sup>2</sup> /μs)	Part Number
	B	H	L	p			
0.10μF	2.5	6.5	7.2	5.0	250	31.5 E3	RSBDC3100--0--
0.15μF	2.5	6.5	7.2	5.0	250	31.5 E3	RSBDC3150--0--
0.22μF	2.5	6.5	7.2	5.0	250	31.5 E3	RSBDC3220--1--
0.33μF	3.5	7.5	7.2	5.0	250	31.5 E3	RSBDC3330--0--
0.47μF	3.5	7.5	7.2	5.0	250	31.5 E3	RSBDC3470--1--
0.68μF	4.5	9.5	7.2	5.0	250	31.5 E3	RSBDC3680--1--
1.0μF	5.0	10.0	7.2	5.0	250	31.5 E3	RSBDC4100--1--
1.5μF	6.0	11.0	7.2	5.0	250	31.5 E3	RSBDC4150--1--

Rated Cap.	100Vdc/63Vac				Max dv/dt (V/μs)	Max K <sub>0</sub> (V <sup>2</sup> /μs)	Part Number
	B	H	L	p			
4700pF	2.5	6.5	7.2	5.0	300	60 E3	RSBEC1470--0--
6800pF	2.5	6.5	7.2	5.0	300	60 E3	RSBEC1680--0--
0.010μF	2.5	6.5	7.2	5.0	300	60 E3	RSBEC2100--0--
0.015μF	2.5	6.5	7.2	5.0	300	60 E3	RSBEC2150--0--
0.022μF	2.5	6.5	7.2	5.0	300	60 E3	RSBEC2220--0--
0.033μF	2.5	6.5	7.2	5.0	300	60 E3	RSBEC2330--0--
0.047μF	2.5	6.5	7.2	5.0	300	60 E3	RSBEC2470--0--
0.068μF	2.5	6.5	7.2	5.0	300	60 E3	RSBEC2680--1--
0.10μF	3.5	7.5	7.2	5.0	300	60 E3	RSBEC3100--0--
0.15μF	4.5	9.5	7.2	5.0	300	60 E3	RSBEC3150--0--
0.22μF	5.0	10.0	7.2	5.0	300	60 E3	RSBEC3220--0--
0.33μF	6.0	11.0	7.2	5.0	300	60 E3	RSBEC3330--0--

Mechanical version and packaging (Table 1)

Internal use

Tolerance: J (± 5%); K (± 10%); M (± 20%)

Rated Cap.	250Vdc/160Vac				Max dv/dt (V/μs)	Max K <sub>0</sub> (V <sup>2</sup> /μs)	Part Number
	B	H	L	p			
1000pF	2.5	6.5	7.2	5.0	400	20 E4	RSBIC1100--0--
1500pF	2.5	6.5	7.2	5.0	400	20 E4	RSBIC1150--0--
2200pF	2.5	6.5	7.2	5.0	400	20 E4	RSBIC1220--0--
3300pF	2.5	6.5	7.2	5.0	400	20 E4	RSBIC1330--0--
4700pF	2.5	6.5	7.2	5.0	400	20 E4	RSBIC1470--0--
6800pF	2.5	6.5	7.2	5.0	400	20 E4	RSBIC1680--0--
0.010μF	2.5	6.5	7.2	5.0	400	20 E4	RSBIC2100--0--
0.015μF	2.5	6.5	7.2	5.0	400	20 E4	RSBIC2150--0--
0.022μF	3.5	7.5	7.2	5.0	400	20 E4	RSBIC2220--0--
0.033μF	3.5	7.5	7.2	5.0	400	20 E4	RSBIC2330--0--
0.047μF	4.5	9.5	7.2	5.0	400	20 E4	RSBIC2470--0--
0.068μF	4.5	9.5	7.2	5.0	400	20 E4	RSBIC2680--0--
0.10μF	5.0	10.0	7.2	5.0	400	20 E4	RSBIC3100--0--
0.15μF	6.0	11.0	7.2	5.0	400	20 E4	RSBIC3150--0--

Rated Cap.	400Vdc/200Vac				Max dv/dt (V/μs)	Max K <sub>0</sub> (V <sup>2</sup> /μs)	Part Number
	B	H	L	p			
1000pF	2.5	6.5	7.2	5.0	600	48 E4	RSBMC1100--0--
1500pF	2.5	6.5	7.2	5.0	600	48 E4	RSBMC1150--0--
2200pF	2.5	6.5	7.2	5.0	600	48 E4	RSBMC1220--0--
3300pF	2.5	6.5	7.2	5.0	600	48 E4	RSBMC1330--0--
4700pF	2.5	6.5	7.2	5.0	600	48 E4	RSBMC1470--0--
6800pF	3.5	7.5	7.2	5.0	600	48 E4	RSBMC1680--0--
0.010μF	3.5	7.5	7.2	5.0	600	48 E4	RSBMC2100--0--
0.015μF	3.5	7.5	7.2	5.0	600	48 E4	RSBMC2150--0--
0.022μF	4.5	9.5	7.2	5.0	600	48 E4	RSBMC2220--0--
0.033μF	5.0	10.0	7.2	5.0	600	48 E4	RSBMC2330--0--
0.047μF	6.0	11.0	7.2	5.0	600	48 E4	RSBMC2470--0--

Rated Cap.	500Vdc/220Vac*				Max dv/dt (V/μs)	Max K <sub>0</sub> (V <sup>2</sup> /μs)	Part Number
	B	H	L	p			
1000pF	2.5	6.5	7.2	5.0	700	70 E4	RSBWC1100--0--
1500pF	2.5	6.5	7.2	5.0	700	70 E4	RSBWC1150--0--
2200pF	3.5	7.5	7.2	5.0	700	70 E4	RSBWC1220--0--
3300pF	3.5	7.5	7.2	5.0	700	70 E4	RSBWC1330--0--
4700pF	3.5	7.5	7.2	5.0	700	70 E4	RSBWC1470--0--
6800pF	4.5	9.5	7.2	5.0	700	70 E4	RSBWC1680--0--
0.010μF	5.0	10.0	7.2	5.0	700	70 E4	RSBWC2100--0--
0.015μF	6.0	11.0	7.2	5.0	700	70 E4	RSBWC2150--0--

Rated Cap.	630Vdc/220Vac*				Max dv/dt (V/μs)	Max K <sub>0</sub> (V <sup>2</sup> /μs)	Part Number
	B	H	L	p			
1000pF	2.5	6.5	7.2	5.0	800	100 E4	RSBPC1100--0--
1500pF	3.5	7.5	7.2	5.0	800	100 E4	RSBPC1150--0--
2200pF	3.5	7.5	7.2	5.0	800	100 E4	RSBPC1220--0--
3300pF	4.5	9.5	7.2	5.0	800	100 E4	RSBPC1330--0--
4700pF	4.5	9.5	7.2	5.0	800	100 E4	RSBPC1470--0--
6800pF	5.0	10.0	7.2	5.0	800	100 E4	RSBPC1680--0--
0.010μF	6.0	11.0	7.2	5.0	800	100 E4	RSBPC2100--0--

Mechanical version and packaging (Table 1)

Internal use

Tolerance: K (± 10%); M (± 20%)

All dimensions are in mm.

Note1: 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.

Note 2: The rated voltages from 250Vdc to 630Vdc are for pulse applications (i.e.: lamp capacitors).

\*Not suitable for across-the-line applications. Please refer to Interference Suppression Capacitors (page 105).

## METALLIZED POLYESTER FILM CAPACITOR HIGH PERFORMANCES - PULSE APPLICATIONS STACKED VERSION

$p = 5 \text{ mm}$   
PRODUCT CODE: RSB

### ELECTRICAL CHARACTERISTICS

**Rated voltage ( $V_R$ ):** 63 Vdc - 100 Vdc - 250 Vdc  
400 Vdc - 500 Vdc - 630 Vdc

**Rated temperature ( $T_R$ ):** +85°C

**Temperature derated voltage:**

for temperatures between +85°C and +125°C a decreasing factor of 1.25% per degree °C on the rated voltage  $V_R$  has to be applied.

**Capacitance range:** 1000pF to 1.5µF

**Capacitance values:** E6 series (IEC 60063 Norm).

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

±5% (J) only for 63Vdc and 100Vdc; ±10% (K); ±20% (M).

**Total self-inductance (L):** ≈ 7nH

max 1 nH per 1 mm lead and capacitor length.

**Dissipation factor (DF):**

$\text{tg}\delta \times 10^{-4}$  at +25°C ±5°C

kHz	$C \leq 0,1\mu\text{F}$	$C > 0,1\mu\text{F}$
1	≤ 80	≤ 80
10	≤ 120	≤ 120
100	≤ 250	

**Insulation resistance:**

**Test conditions**

Temperature: +25°C ±5°C

Voltage charge time: 1 min

Voltage charge: 50 Vdc for  $V_R < 100 \text{ Vdc}$   
100 Vdc for  $V_R \geq 100 \text{ Vdc}$

**Performance**

For  $V_R \leq 100\text{Vdc}$

≥ 15000MΩ for  $C \leq 0.33\mu\text{F}$

≥ 5000 s for  $C > 0.33\mu\text{F}$  and  $\leq 1\mu\text{F}$

≥ 1000 s for  $C > 1\mu\text{F}$

For  $V_R > 100 \text{ Vdc}$

≥ 30000MΩ

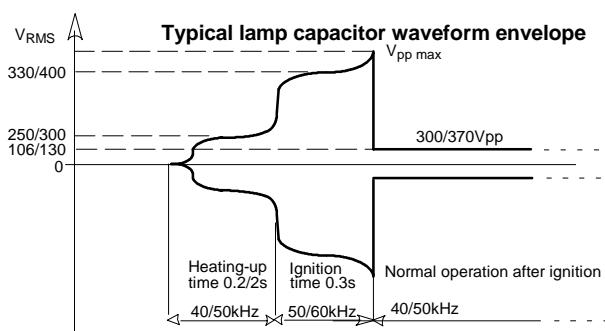
**Test voltage between terminations:**

$1.6 \times V_R$  applied for 2 s at +25°C ±5°C.

**Electrical characteristics for use as lamp capacitors in lighting applications (ignition voltage, time and frequency).**

$V_R$ (Vdc)	Ignition voltage (*) (Vpp)	Ignition time (*) (s)	Ignition voltage frequency (*) (kHz)
250	400	0.3	65
400	900	0.3	65
500	1100	0.3	65
630	1400	0.3	65

(\*) If the voltage, time or frequency exceed these values, please contact us for more information before using the capacitors.



### 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  $|\Delta C/C|$ : ≤ 5%

DF change ( $\Delta \text{tg}\delta$ ): ≤  $50 \times 10^{-4}$  at 1kHz

Insulation resistance: ≥ 50% of initial limit.

**Endurance:**

**Test conditions**

Temperature: +125°C ±2°C

Test duration: 2000 h

Voltage applied:  $1.25 \times V_c$

**Performance**

Capacitance change  $|\Delta C/C|$ : ≤ 5%

DF change ( $\Delta \text{tg}\delta$ ): ≤  $30 \times 10^{-4}$  at 10kHz for  $C \leq 1 \mu\text{F}$   
≤  $20 \times 10^{-4}$  at 1kHz for  $C > 1 \mu\text{F}$

Insulation resistance: ≥ 50% of initial limit.

**Resistance to soldering heat:**

**Test conditions**

Solder bath temperature: +260°C ±5°C

Dipping time (with heat screen):  $10 \text{ s} \pm 1 \text{ s}$

**Performance**

Capacitance change  $|\Delta C/C|$ : ≤ 2%

DF change ( $\Delta \text{tg}\delta$ ): ≤  $30 \times 10^{-4}$  at 10kHz for  $C \leq 1 \mu\text{F}$   
≤  $20 \times 10^{-4}$  at 1kHz for  $C > 1 \mu\text{F}$

Insulation resistance: ≥ initial limit.

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

**Storage**

standard environmental conditions (see page 10).

**Performance**

Capacitance change  $|\Delta C/C|$ : ≤ 3% for  $C \leq 0.1\mu\text{F}$

≤ 2% for  $C > 0.1\mu\text{F}$

### RELIABILITY

Reference MIL HDB 217

**Application conditions:**

Temperature: +40°C ±2°C

Voltage:  $0.5 \times V_R$

Failure rate: ≤ 1 FIT

(1 FIT =  $1 \times 10^{-9}$  failures/components × h)

**Failure criteria:**

(according to DIN 44122)

Short or open circuit

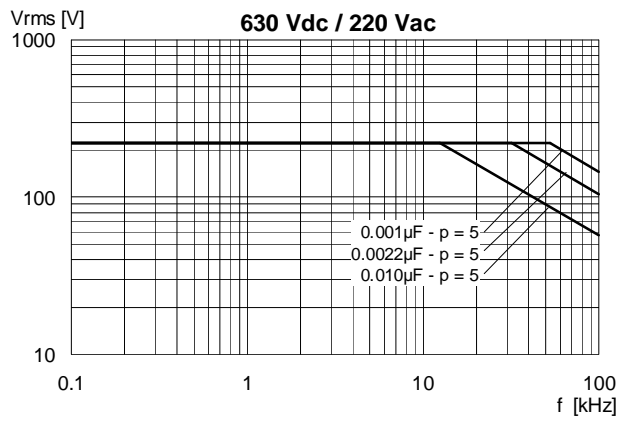
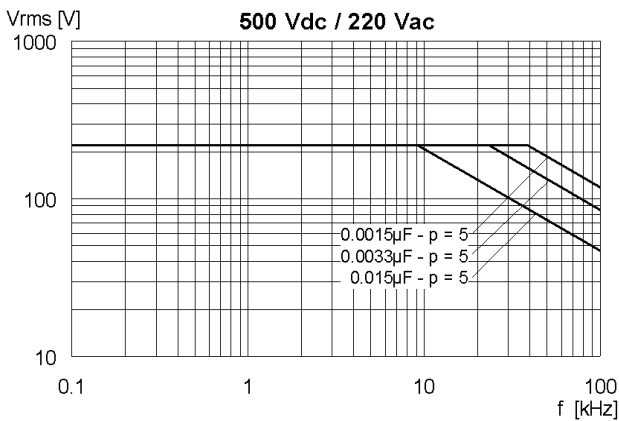
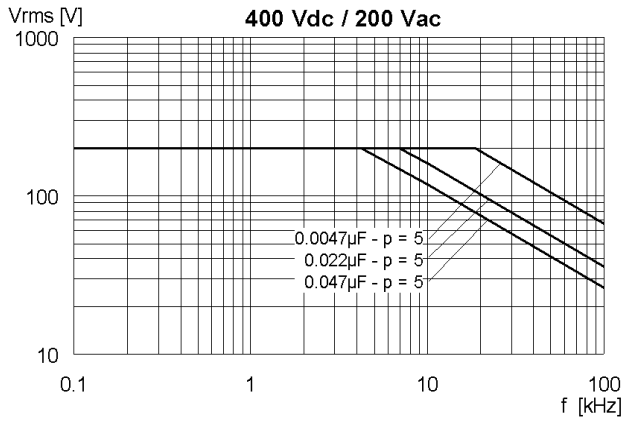
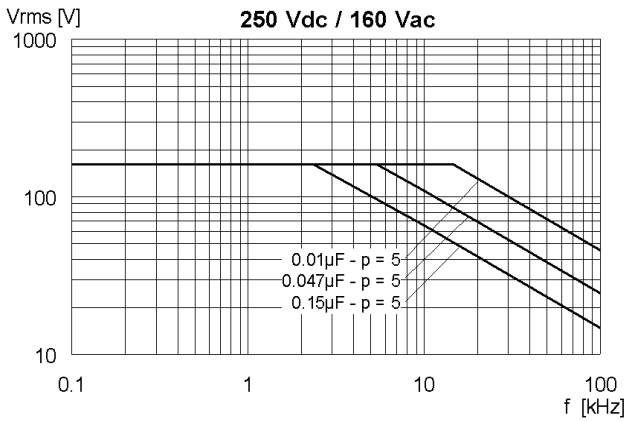
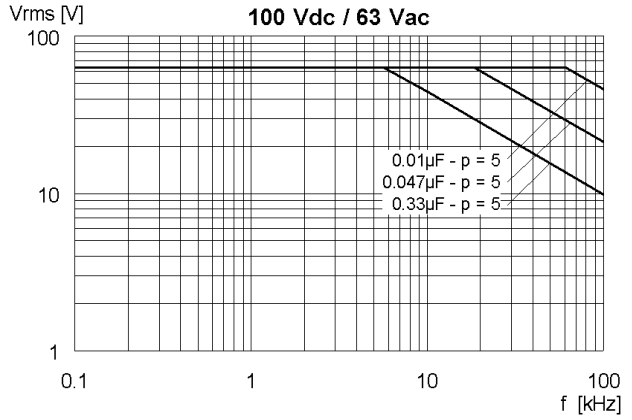
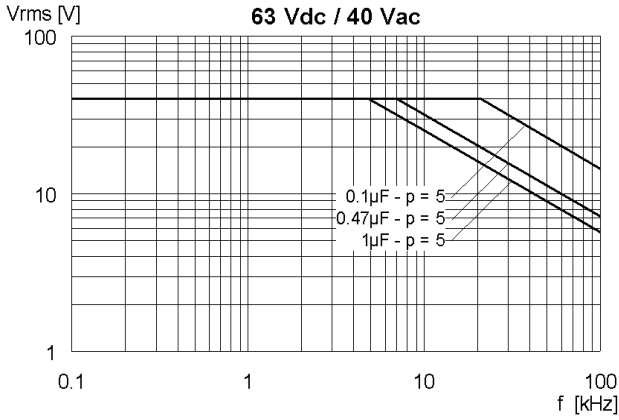
Capacitance change  $|\Delta C/C|$ : > 10%

DF change ( $\Delta \text{tg}\delta$ ): > 2 × initial limit.

Insulation resistance: <  $0.005 \times$  initial limit.

MKT Series  
 METALLIZED POLYESTER FILM CAPACITOR  
 HIGH PERFORMANCES - PULSE APPLICATIONS  
 STACKED VERSION

MAX. VOLTAGE (Vr.m.s.) VERSUS FREQUENCY (sinusoidal wave-form /  $T_h \leq 40^\circ\text{C}$ )



Note: p (pitch) in mm.