

## SOLEN COMPONENTS INC.

### ► FAST CAPACITORS™ CONCEPT

All of our metallized film capacitors use the maximum lowest possible resistivity metallized layer for a given film thickness which is vacuum deposited on a biaxially oriented polypropylene film.

The *FAST CAPACITOR*™ concept is mainly obtained by decreasing the film width from the standard round tubular winding type configuration to a shorter *FAST* tubular “square aspect ratio” round winding type which decrease the winding resistivity and also increase the contact area.

**S** - Standard type capacitors use a **tubular round type** winding configuration.

**F** - Fast type capacitors use a **tubular “square aspect ratio” round type** winding configuration.

Let us consider the following three similar metallized capacitors of 10 µF 400Vdc / 240Vac wound with their respective winding metallized film width according to S and F type standards:

Capacitor Type	Winding (mm) Dimensions	Contact Area Percentage	Contact Area Increase	Film Width Decrease	Performance Improvement
<b>S</b> – Standard	23 Ø x 36 L	14%	Reference	Reference	Reference
<b>F</b> – Fast	26 Ø x 30 L	22%	50%	20%	70%

The decrease of the film width will decrease by the same percentage the resistivity of the winding and the capacitor transit time, hence the name “*FAST*”. The increase of the contact area of the winding ends will increase by the same percentage the current carrying capacity.

These two main factors, lower winding resistivity and larger contact area will decrease, by a measurably large amount equal to the “Performance Improvement” percentage, the Equivalent Series Resistance and the Dissipation Factor of the capacitor.

This superior concept significantly improved the electrical and mechanical characteristics of the film capacitor. They deliver a high level of performance that has never before been achieved, which will directly enhance the efficiency of any electronic or electrical equipment. *SOLEN* polypropylene metallized *FAST CAPACITOR*™ outperform any other similar capacitors: multi sections, segmented, oval, stacked, ordinary or otherwise, due to our unique short length, large diameter, **FAST design**. It is as simple as that.

They have lower dielectric absorption factor, lower equivalent series resistance, lower inductance, higher resonant frequency, more linear impedance, lower dissipation factor, higher current capacity, faster rise time, unrivalled handling of fast high current pulse, high temperature stability, excellent long term electrical and mechanical reliability and a better damped mechanical self resonance under dynamic signal conditions.

Consequently, the *SOLEN FAST CAPACITOR*™, for instance, represents an astonishing leap forward in capacitor design and engineering standards.

*SOLEN*, the Film Capacitors against which ultimately all the others must be judged.

## SOLEN INC.

### FAST CAPACITORS METALLIZED POLYPROPYLENE

#### ● GENERAL INFORMATION

Type	: Metallized Film Capacitor.
Dielectric	: Polypropylene Film.
Electrodes	: Aluminum Metallized, Vacuum Deposited.
Construction	: Round Tubular "Square Aspect Ratio" Type, Axial Leads.
Winding	: Bifilar Extended Metallized Film.
Contact	: Non-Inductive, Zinc Thermally Sprayed Extended Film.
Coating	: Black Plastic Tape Wrapped, Grey Epoxy Resin Sealed.
Leads	: Tinned Plated Oxygen Free Pure Copper.

#### ● TECHNICAL DATA

Capacitance Range/Tolerance	: 0.1 ... 330 $\mu$ F, E 24 series, $\pm 5$ %, $\pm 2$ %. (see specifications for details)
Dielectric Constant	: 2.1 $\epsilon_r$ , non-polar dielectric.
Dielectric Absorption Factor	: $\leq .05$ % @ 20 °C.
Equivalent Series Resistance	: Extremely low. (see specifications for details)
Self Inductance	: $\leq 12$ nH with 6 mm leads.
Dissipation Factor	: Extremely low. (see specifications for details)
Insulation Resistance	: $\geq 100,000$ M $\Omega$ @ 20 °C.
Temperature Coefficient	: $-200 \times 10^{-6}$ / °C.
Temperature Range	: -55 °C to +85 °C.
Test Voltage	: $1.5 \times V_r$ for 5 sec.
Rated Voltage	: PA = 250Vdc/150Vac, PB = 400Vdc/250Vac, PPE = 630Vdc/330Vac
Dielectric Thickness	: PA = 4 $\mu$ m, PB = 5 $\mu$ m, PPE = 6 $\mu$ m
Metal Layers Thickness	: PA = .03 $\mu$ m, PB = 0.04 $\mu$ m, PPE = 0.02 $\mu$ m
Metal Layers Conductivity	: PA = 1.5 - 3 $\Omega$ / cm <sup>2</sup> PB = 1 - 2 $\Omega$ / cm <sup>2</sup> PPE = 2 - 4 $\Omega$ / cm <sup>2</sup>
Leads Diameter	: 0.8, 1.0, 1.2, 1.5 mm $\varnothing$ . (see specifications for details)

#### ● FEATURE

Special Tubular "Square Aspect Ratio" Type Construction.
High Conductivity Metallization.
Soldered Lead Termination.
High Current Capacity.
High Frequency and Temperature Stability.
Excellent Long Term Electrical and Mechanical Reliability.
No Short Term and / or Long Term Signal Aberration.
Unrivaled Handling of Fast High Current Pulse.

#### ● ELECTRICAL PERFORMANCE

Very Low Dielectric Absorption Factor.
Very Low Equivalent Series Resistance.
Very Low Inductance.
Very High Resonant Frequency.
Ultra Linear Impedance Characteristics.
Very Low Dissipation Factor.
Very High Insulation Resistance.

FAST CAPACITORS  
METALLIZED POLYPROPYLENE

Dissipation Factor (%) ±10%  
Dimensions (mm) ±10%

PA 250Vdc/150Vac

PB 400 Vdc/250Vac

P/N	Capacitance/DF	x L	x l
PA100	1.0 mfd .0001	11 x 22	0.8 x 30
PA110	1.1 mfd .0001	11 x 22	0.8 x 30
PA120	1.2 mfd .0001	11 x 22	0.8 x 30
PA130	1.3 mfd .0001	12 x 22	0.8 x 30
PA150	1.5 mfd .0001	13 x 22	0.8 x 30
PA160	1.6 mfd .0001	13 x 22	0.8 x 30
PA180	1.8 mfd .0001	14 x 22	0.8 x 30
PA200	2.0 mfd .0001	13 x 27	0.8 x 30
PA220	2.2 mfd .0001	13 x 27	0.8 x 30
PA240	2.4 mfd .0001	14 x 27	0.8 x 30
PA270	2.7 mfd .0001	15 x 27	0.8 x 30
PA300	3.0 mfd .0001	15 x 27	0.8 x 30
PA330	3.3 mfd .0002	16 x 28	0.8 x 30
PA360	3.6 mfd .0002	16 x 28	0.8 x 30
PA390	3.9 mfd .0002	17 x 28	0.8 x 30
PA430	4.3 mfd .0002	18 x 28	0.8 x 30
PA470	4.7 mfd .0002	19 x 28	0.8 x 30
PA510	5.1 mfd .0002	17 x 32	0.8 x 30
PA560	5.6 mfd .0002	18 x 32	0.8 x 35
PA620	6.2 mfd .0002	19 x 32	0.8 x 35
PA680	6.8 mfd .0003	20 x 32	0.8 x 35
PA750	7.5 mfd .0003	21 x 33	0.8 x 35
PA820	8.2 mfd .0003	21 x 33	1.0 x 35
PA910	9.1 mfd .0003	23 x 33	1.0 x 35
PA1000	10 mfd .0003	24 x 33	1.0 x 35
PA1100	11 mfd .0003	22 x 38	1.0 x 35
PA1200	12 mfd .0004	23 x 38	1.0 x 35
PA1300	13 mfd .0004	24 x 38	1.0 x 35
PA1500	15 mfd .0004	26 x 38	1.0 x 35
PA1600	16 mfd .0004	27 x 38	1.0 x 35
PA1800	18 mfd .0004	26 x 43	1.0 x 40
PA2000	20 mfd .0004	28 x 43	1.0 x 40
PA2200	22 mfd .0005	29 x 43	1.0 x 40
PA2400	24 mfd .0005	30 x 43	1.0 x 40
PA2700	27 mfd .0005	32 x 43	1.0 x 40
PA3000	30 mfd .0006	31 x 48	1.0 x 45
PA3300	33 mfd .0006	33 x 48	1.0 x 45
PA3600	36 mfd .0007	34 x 48	1.0 x 45
PA3900	39 mfd .0007	36 x 48	1.0 x 45
PA4300	43 mfd .0008	37 x 48	1.0 x 45
PA4700	47 mfd .0008	37 x 53	1.2 x 45
PA5100	51 mfd .0009	38 x 53	1.2 x 45
PA5600	56 mfd .0009	40 x 53	1.2 x 45
PA6200	62 mfd .001	41 x 60	1.2 x 45
PA6800	68 mfd .001	43 x 60	1.2 x 45
PA7500	75 mfd .001	44 x 60	1.2 x 45
PA8200	82 mfd .001	46 x 60	1.2 x 45
PA9100	91 mfd .001	49 x 60	1.2 x 45
PA10000	100 mfd .001	49 x 65	1.6 x 55

P/N	Capacitance/DF	x L	x l
PB100	1.0 mfd .0001	12 x 22	0.8 x 30
PB110	1.1 mfd .0001	14 x 22	0.8 x 30
PB120	1.2 mfd .0001	14 x 22	0.8 x 30
PB130	1.3 mfd .0001	15 x 22	0.8 x 30
PB150	1.5 mfd .0001	14 x 27	0.8 x 30
PB160	1.6 mfd .0001	14 x 27	0.8 x 30
PB180	1.8 mfd .0001	15 x 27	0.8 x 30
PB200	2.0 mfd .0001	16 x 27	0.8 x 30
PB220	2.2 mfd .0001	16 x 27	0.8 x 30
PB240	2.4 mfd .0001	16 x 28	0.8 x 30
PB270	2.7 mfd .0001	17 x 28	0.8 x 30
PB300	3.0 mfd .0001	18 x 28	0.8 x 30
PB330	3.3 mfd .0002	17 x 33	0.8 x 35
PB360	3.6 mfd .0002	18 x 33	0.8 x 35
PB390	3.9 mfd .0002	18 x 33	0.8 x 35
PB430	4.3 mfd .0002	19 x 33	0.8 x 35
PB470	4.7 mfd .0002	20 x 33	1.0 x 35
PB510	5.1 mfd .0002	21 x 33	1.0 x 35
PB560	5.6 mfd .0002	22 x 33	1.0 x 35
PB620	6.2 mfd .0002	23 x 33	1.0 x 35
PB680	6.8 mfd .0003	24 x 33	1.0 x 35
PB750	7.5 mfd .0003	25 x 33	1.0 x 35
PB820	8.2 mfd .0003	24 x 38	1.0 x 35
PB910	9.1 mfd .0003	25 x 38	1.0 x 35
PB1000	10 mfd .0003	26 x 38	1.0 x 35
PB1100	11 mfd .0003	28 x 38	1.0 x 35
PB1200	12 mfd .0004	29 x 38	1.0 x 35
PB1300	13 mfd .0004	27 x 45	1.0 x 40
PB1500	15 mfd .0004	29 x 45	1.0 x 45
PB1600	16 mfd .0004	29 x 45	1.0 x 40
PB1800	18 mfd .0004	31 x 45	1.0 x 40
PB2000	20 mfd .0004	33 x 45	1.0 x 40
PB2200	22 mfd .0005	34 x 45	1.0 x 40
PB2400	24 mfd .0005	36 x 45	1.0 x 40
PB2700	27 mfd .0005	34 x 53	1.2 x 45
PB3000	30 mfd .0006	36 x 53	1.2 x 45
PB3300	33 mfd .0006	38 x 53	1.2 x 45
PB3600	36 mfd .0007	40 x 53	1.2 x 45
PB3900	39 mfd .0007	40 x 60	1.2 x 45
PB4300	43 mfd .0008	42 x 60	1.2 x 45
PB4700	47 mfd .0008	44 x 60	1.2 x 45
PB5100	51 mfd .0009	45 x 60	1.2 x 45
PB5600	56 mfd .0009	45 x 60	1.6 x 55
PB6200	62 mfd .001	47 x 65	1.6 x 55
PB6800	68 mfd .001	49 x 65	1.6 x 55
PB7500	75 mfd .001	52 x 65	1.6 x 55
PB8200	82 mfd .001	54 x 65	1.6 x 55
PB9100	91 mfd .001	57 x 65	1.6 x 55
PB10000	100 mfd .001	56 x 72	1.6 x 55

PA11000	110	mfd	.001	51 x 65	1.6 x 55
PA12000	120	mfd	.001	52 x 65	1.6 x 55
PA13000	130	mfd	.001	55 x 65	1.6 x 55
PA15000	150	mfd	.001	56 x 72	1.6 x 55
PA16000	160	mfd	.001	58 x 72	1.6 x 55
PA18000	180	mfd	.001	61 x 72	1.6 x 55
PA20000	200	mfd	.001	58 x 85	1.6 x 55

PA22000	220	mfd	.001	61 x 85	1.6 x 55
PA24000	240	mfd	.001	64 x 85	1.6 x 55
PA27000	270	mfd	.001	58 x 110	1.6 x 55
PA30000	300	mfd	.001	61 x 110	1.6 x 55
PA33000	330	mfd	.001	63 x 115	1.6 x 55

PPE 630Vdc/330Vac

P/N	Capacitance/DF		x L	x l
PPE010	.10 mfd .0001		9 x 17	0.8 x 30
PPE012	.12 mfd .0001		10 x 17	0.8 x 30
PPE015	.15 mfd .0001		10 x 20	0.8 x 30
PPE018	.18 mfd .0001		11 x 20	0.8 x 30

PPE022	.22 mfd .0001		10 x 22	0.8 x 30
PPE027	.27 mfd .0001		11 x 22	0.8 x 30
PPE033	.33 mfd .0001		12 x 22	0.8 x 30
PPE039	.39 mfd .0001		13 x 22	0.8 x 30

PPE047	.47 mfd .0001		12 x 24	0.8 x 30
PPE056	.56 mfd .0001		13 x 24	0.8 x 30
PPE068	.68 mfd .0001		14 x 25	0.8 x 30
PPE082	.82 mfd .0001		15 x 25	0.8 x 30

PPE100	1.0 mfd .0001		16 x 25	0.8 x 30
PPE120	1.2 mfd .0001		16 x 28	0.8 x 30
PPE150	1.5 mfd .0001		17 x 28	0.8 x 30
PPE180	1.8 mfd .0001		19 x 28	0.8 x 30

PPE220	2.2 mfd .0001		18 x 33	1.0 x 35
PPE270	2.7 mfd .0001		20 x 33	1.0 x 35
PPE330	3.3 mfd .0002		22 x 33	1.0 x 35
PPE390	3.9 mfd .0002		22 x 38	1.0 x 35

PPE470	4.7 mfd .0002		24 x 38	1.0 x 35
PPE560	5.6 mfd .0002		26 x 38	1.0 x 35
PPE680	6.8 mfd .0003		26 x 43	1.0 x 40
PPE820	8.2 mfd .0003		29 x 43	1.0 x 40

PPE1000	10 mfd .0003		29 x 48	1.0 x 40
PPE1200	12 mfd .0004		32 x 48	1.0 x 40
PPE1500	15 mfd .0004		34 x 53	1.2 x 45
PPE1800	18 mfd .0004		37 x 53	1.2 x 45

PPE2200	22 mfd .0005		39 x 58	1.2 x 45
PPE2700	27 mfd .0005		43 x 58	1.2 x 45
PPE3300	33 mfd .0006		45 x 65	1.2 x 45
PPE3900	39 mfd .0007		49 x 65	1.2 x 45

PPE4700	47 mfd .0008		54 x 65	1.6 x 55
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Recommended for Tube Amplifier application.

PB11000	110	mfd	.001	58 x 72	1.6 x 55
PB12000	120	mfd	.001	61 x 72	1.6 x 55
PB13000	130	mfd	.001	58 x 85	1.6 x 55
PB15000	150	mfd	.001	62 x 85	1.6 x 55
PB16000	160	mfd	.001	63 x 85	1.6 x 55
PB18000	180	mfd	.001	59 x 110	1.6 x 55
PB20000	200	mfd	.001	62 x 110	1.6 x 55

PB22000	220	mfd	.001	63 x 115	1.6 x 55
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PPE 630Vdc/330Vac, Metal Can

P/N	Capacitance/DF		x L	Term.
PPE5100	51 mfd .001		50 x 115	2 x 6.35
PPE10000	100 mfd .001		65 x 115	4 x 6.35

PESG 1500Vdc, Metal Can

P/N	Capacitance/DF		x L	Term.
PESG5100	51 mfd .002		55 x 115	2 x 6.35

PPM 1000Vdc, Bypass Cap

P/N	Capacitance/DF		x L	x l
PPM0010	.010 mfd .00011		7 x 16	0.8 x 30
PPM0022	.022 mfd .00013		11 x 16	0.8 x 30
PPM0047	.047 mfd .00017		13 x 16	0.8 x 30