

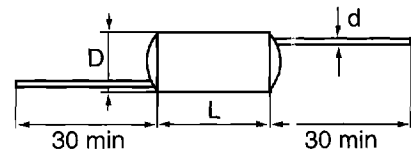
# SFA Polystyrene capacitor with axial leads

## Typical applications

Tuned circuits, filters and applications where a very low dissipation factor is required.

## Construction

Polystyrene film with metal foil electrodes and axial tinned wires. Wound to a compact cylindrical form.



## General data

### Capacitance and rated voltage

Capacitance measured at 23°C.  $f = 100 \text{ kHz}$  for  $C \leq 1000 \text{ pF}$  and  $f = 1 \text{ kHz}$  for  $C > 1000 \text{ pF}$ .

100 ... 8200 pF	25VDC/10VAC
100 ... 100000 pF	63VDC/25VAC
47 ... 3300 pF	160VDC/63VAC
3301 ... 22000 pF	160VDC/50VAC
47 ... 10000 pF	630VDC/125VAC

With DC bias, the sum of the DC voltage and the peak value of the AC voltage must not exceed the rated DC voltage.

### Capacitance tolerance

$\pm 20\%$ ,  $\pm 10\%$ ,  $\pm 5\%$ ,  $\pm 2.5\%$ ,  $\pm 2\%$ ,  $\pm 1\%$ , but not less than  $\pm 1 \text{ pF}$ .

### Temperature range

Operating:  $-10 \dots +70^\circ\text{C}$

### Climatic category

DIN 40040, 2.73, JSG  
 $-10 \dots +70^\circ\text{C}$

Average relative humidity  $\leq 65\%$   
RH = 85% for 60 days per year. RH = 75% for further days limited by average value per year.

### Capacitance drift

Max  $\pm(0.3\%, +0.4\text{pF})$  after a storage period of 2 years at a temperature of  $-10^\circ \dots +70^\circ\text{C}$ .

## Marking

Capacitance, tolerance code, rated voltage code, and the code SFA are marked on the capacitors.

### Tolerance code:

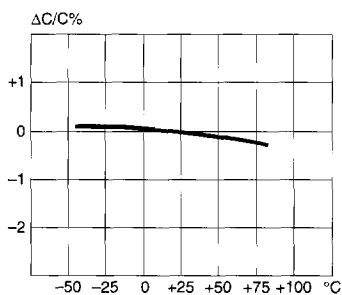
M =  $\pm 20\%$ , K =  $\pm 10\%$ , J =  $\pm 5\%$ , H =  $\pm 2.5\%$ , G =  $\pm 2\%$ , F =  $\pm 1\%$  or 1 pF

### Voltage code:

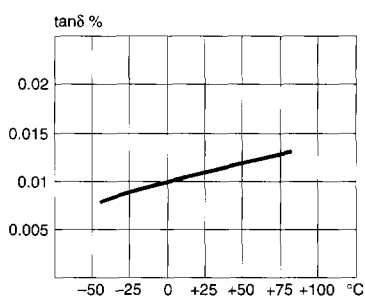
Blue = 25VDC, yellow = 63VDC, red = 160VDC, black = 630VDC

## Electrical characteristics

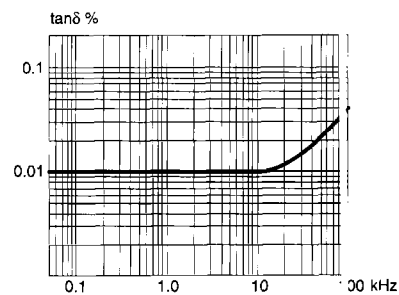
<b>Test voltage</b>	$2.5 \times U_R$ during 2 seconds
<b>Temperature coefficient</b>	$-150 \pm 50$ ppm/ $^{\circ}\text{C}$ (at 1 kHz)
<b>Humidity coefficient</b>	Measured at $20^{\circ}\text{C}$ for 50 ... 85 % relative humidity 60 ... 200 ppm/1 % change of RH
<b>High frequency load</b>	$I_{\text{max}} = 0.3$ A for $L \leq 10$ mm, 0.7 A for $L > 10$ mm
<b>Self inductance</b>	Approximately 10 nH/cm for the total length of capacitor winding and leads.
<b>Dissipation factor, <math>\tan\delta</math></b>	Maximum values at $+23^{\circ}\text{C}$ $C \leq 1000$ pF max. $0.1 \times 10^{-3}$ at 1 kHz $1000$ pF $< C \leq 4700$ pF max. $0.3 \times 10^{-3}$ at 10 kHz $4700$ pF $< C \leq 22000$ pF max. $0.5 \times 10^{-3}$ at 100 kHz $22000$ pF $< C \leq 100000$ pF max. $0.5 \times 10^{-3}$ at 10 kHz
<b>Insulation resistance</b>	Series 25 and 63 VDC $> 10^5$ M $\Omega$ . Series 160 and 630 VDC $> 10^6$ M $\Omega$



Capacitance vs. temperature (at 1 kHz)



Dissipation factor vs. temperature (at 1 kHz)

Dissipation factor vs. frequency (at  $+23^{\circ}\text{C}$ )

# SFA

## Article table SFA

C <sub>R</sub> pF	Max dimensions in mm		Quantity per package		Article code
	D	L	Bulk		
<b>25 VDC/10 VAC</b>					
100	3.1	7	1000		SFA 100J25
150	3.2	7	1000		SFA 150J25
220	3.3	7	1000		SFA 220J25
330	3.3	7	1000		SFA 330J25
470	3.3	7	1000		SFA 470J25
560	3.3	7	1000		SFA 560J25
680	3.3	7	1000		SFA 680J25
820	3.3	7	1000		SFA 820J25
1000	3.3	7	1000		SFA 1000J25
1500	4.0	7	1000		SFA 1500J25
2200	4.8	7	1000		SFA 2200J25
3300	5.0	10	1000		SFA 3300J25
4700	5.3	10	1000		SFA 4700J25
5600	5.8	10	1000		SFA 5600J25
6800	6.0	10	1000		SFA 6800J25
8200	6.9	10	1000		SFA 8200J25
<b>63 VDC/25 VAC</b>					
100	3.1	7	1000		SFA 100J63
150	3.2	7	1000		SFA 150J63
220	3.3	7	1000		SFA 220J63
330	3.4	7	1000		SFA 330J63
470	3.5	7	1000		SFA 470J63
560	3.5	7	1000		SFA 560J63
680	3.6	7	1000		SFA 680J63
820	3.9	7	1000		SFA 820J63
1000	4.2	10	1000		SFA 1000J63
1500	4.6	10	1000		SFA 1500J63
2200	5.0	10	1000		SFA 2200J63
3300	5.7	10	1000		SFA 3300J63
4700	6.5	10	1000		SFA 4700J63
5600	6.8	10	1000		SFA 5600J63
6800	7.4	10	1000		SFA 6800J63
8200	7.0	15	1000		SFA 8200J63
10000	7.6	7	500		SFA 10000J63
15000	8.3	15	500		SFA 15000J63
22000	9.8	15	500		SFA 22000J63
27000	9.9	20	500		SFA 27000J63
33000	10.5	20	500		SFA 33000J63
39000	11.7	20	500		SFA 39000J63
47000	13.3	20	250		SFA 47000J63
56000	14.0	20	250		SFA 56000J63
68100	14.5	20	250		SFA 68100J63
82000	15.0	20	250		SFA 82000J63
100000	16.5	20	250		SFA 100000J63
<b>160 VDC/63 VAC</b>					
47	3.7	10	1000		SFA 47J160
68	3.7	10	1000		SFA 68J160
82	3.7	10	1000		SFA 82J160
100	3.7	10	1000		SFA 100J160
150	3.7	10	1000		SFA 150J160
220	4.0	10	1000		SFA 220J160
330	4.3	10	1000		SFA 330J160
470	4.8	10	1000		SFA 470J160
560	5.0	10	1000		SFA 560J160
680	5.2	10	1000		SFA 680J160
820	5.5	10	1000		SFA 820J160
1000	6.4	10	500		SFA 1000J160

## Article table SFA

C <sub>R</sub> pF	Max dimensions in mm		Quantity per package		Article code
	D	L	Bulk		
<b>160 VDC/63 VAC</b>					
1500	7.0	10	500		SFA 1500J160
2200	7.8	10	500		SFA 2200J160
3300	9.2	10	500		SFA 3300J160
<b>160 VDC/50 VAC</b>					
4700	7.6	20	500		SFA 4700J160
5600	8.2	20	500		SFA 5600J160
6800	8.8	20	500		SFA 6800J160
8200	9.2	20	500		SFA 8200J160
10000	10.0	20	250		SFA 10000J160
15000	12.0	20	250		SFA 15000J160
22000	14.2	20	250		SFA 22000J160
<b>630 VDC/125 VAC</b>					
47	5.5	10	1000		SFA 47J630
68	5.5	10	1000		SFA 68J630
82	5.5	10	1000		SFA 82J630
100	6.0	10	1000		SFA 100J630
150	6.3	10	1000		SFA 150J630
220	6.8	10	1000		SFA 220J630
330	7.2	10	1000		SFA 330J630
470	7.4	10	1000		SFA 470J630
560	8.2	10	1000		SFA 560J630
680	8.9	10	1000		SFA 680J630
820	9.1	10	1000		SFA 820J630
1000	9.5	10	500		SFA 1000J630
1500	9.0	20	500		SFA 1500J630
2200	10.5	20	500		SFA 2200J630
3300	11.2	20	500		SFA 3300J630
4700	12.4	20	500		SFA 4700J630
5600	13.0	20	500		SFA 5600J630
6800	14.0	20	500		SFA 6800J630
8200	15.0	20	500		SFA 8200J630
10000	16.0	20	500		SFA 10000J630