

SCA Series

High-stability, cost-effective capacitance standards with low temperature coefficients, low losses, and a wide range of values.

- High-accuracy and stability
- Capacitance values from 1 pF to 10,000 μ F
- Custom values available
- Mechanically stabilized capacitors
- Stability: <100 ppm/year
- Excellent TC: as low as 10 ppm/ $^{\circ}$ C
- Low loss: D as low as 20 ppm



SCA Capacitance Standard

Specifications

Nominal value	Model	Adjustment to nominal	Temperature coefficient (ppm/ $^{\circ}$ C)	Calibration Conditions	Dissipation (typical)	Stability (per year)	Max voltage		Terminals	Capacitor type		
							Peak (V)	Max Frequency				
1 pF	SCA-1pF	± 0.1 pF	+20 to +40	30 Vac Series Model 1 kHz	0.002	± 0.1 pF	500	10 kHz	2 bnc connectors + gnd	Air capacitors		
1.9 pF	SCA-1.9pF	± 0.1 pF	+20 to +40		0.002	± 0.1 pF	500	10 kHz				
10 pF	SCA-10pF	± 0.1 pF	+20 to +40		0.002	± 0.1 pF	500	10 kHz				
19 pF	SCA-19pF	± 0.1 pF	+20 to +40		0.001	± 0.1 pF	500	10 kHz				
100 pF	SCA-100pF	± 0.1 pF	20		0.0005	± 0.1 pF	500	10 kHz				
190 pF	SCA-190pF	± 0.1 pF	20		0.0005	± 0.1 pF	500	10 kHz				
1.0 nF	SCA-1nF	$\pm 0.02\%$	20		0.0003	± 100 ppm	500	10 kHz	2 binding posts + gnd	Silvered mica mechanically stabilized hermetically sealed		
1.9 nF	SCA-1.9nF	$\pm 0.02\%$	20		0.0003	± 100 ppm	500	10 kHz				
10 nF	SCA-10nF	$\pm 0.02\%$	20		0.0003	± 100 ppm	500	10 kHz				
19 nF	SCA-19nF	$\pm 0.02\%$	20		0.0003	± 100 ppm	500	10 kHz				
100 nF	SCA-100nF	$\pm 0.02\%$	20		0.0003	± 100 ppm	500	10 kHz				
190 nF	SCA-190nF	$\pm 0.02\%$	20		0.0003	± 100 ppm	500	10 kHz				
1 μ F	SCA-1 μ F	$\pm 0.02\%$	20	0.0002	± 100 ppm	500	10 kHz					
1.9 μ F	SCA-1.9 μ F	$\pm 0.02\%$	20	0.0002	± 100 ppm	100	10 kHz					
5 μ F	SCA-5 μ F	$\pm 0.02\%$	± 50	0.0005	± 200 ppm	50	10 kHz	4 binding posts + gnd			Metallized polypropylene sulfide hermetically sealed	
10 μ F	SCA-10 μ F	$\pm 0.04\%$	± 50	0.0005	± 200 ppm	22 Vrms†	1 kHz					
19 μ F	SCA-19 μ F	$\pm 0.04\%$	± 50	0.0005	± 200 ppm	44 Vrms†	1 kHz					
100 μ F	SCA-100 μ F	$\pm 0.05\%$	± 50	0.001	± 500 ppm	22 Vrms†	1 kHz					
190 μ F	SCA-190 μ F	$\pm 0.05\%$	± 50	0.001	± 500 ppm	22 Vrms†	1 kHz					
1,000 μ F	SCA-1000 μ F	$\pm 0.4\%$	-150	0.001	± 500 ppm	22 Vrms†	1 kHz					
5,000 μ F	SCA-5000 μ F	$\pm 2\%$	-150	0.001	--	22 Vrms†	1 kHz					
10,000 μ F	SCA-10000 μ F	$\pm 2\%$	-150	0.001	--	22 Vrms†	1 kHz					
XXX F	SCA-XXX	customer-selected value and power specifications										

† Maximum allowable Vrms; subject to maximum Vdc = 50 V and max Vrms = (39000/f) for C = 10 μ F; (26000/f) for C = 19 μ F; (13000/f) for C \leq 100 μ F, where f = frequency (in Hz).

Environment:

Operating: +10 to +40 $^{\circ}$ C, <80% RH
Storage: -20 to +65 $^{\circ}$ C

Calibration Conditions:

Calibrated at 23 $^{\circ}$ C, <50% RH, Traceable to SI

Transit Case:

(see page 3)

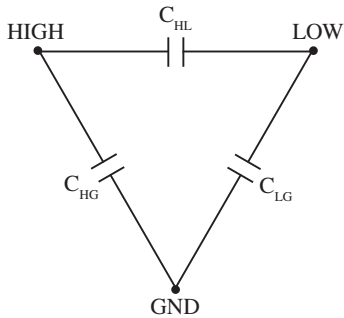
Mechanical:

Nominal Values	Dimensions	Weight
1 μ F	14.3 cm H x 8.3 cm W x 6.9 cm D (5.6" x 3.2" x 2.7")	1.1 kg (2.25 lb)
\leq 190 μ F	8.6 cm H x 10.5 cm W x 12.7 cm D (3.4" x 4.15" x 5")	0.73 kg (1.6 lb)
1,000 μ F	31 cm W x 8.9 cm H x 10.2 cm D (12.2" x 3.5" x 4")	1.7 kg (3.8 lb)
5,000 μ F	53.3 cm W x 27.3 cm H x 44.5 cm D (21" x 10.75" x 17.5")	27.2 kg (60 lb)
10,000 μ F		36.3 kg (80 lb)



Connection Schematics for Low Values

Low-value SCA's have 3 terminals -- **HI** and **LO**, and **GND**. The capacitance of the unit is shown as **CHL**. There is additional capacitance to the case shown by **CHG** and **CLG**. These capacitances will add to **CHL** unless the 3rd terminal, **GND**, is connected to the **GUARD** of the measuring instrument.



SCA-1nF
(values ≤ 1.9 nF)



SCA-100nF
(1.9 nF < values < 1μF)

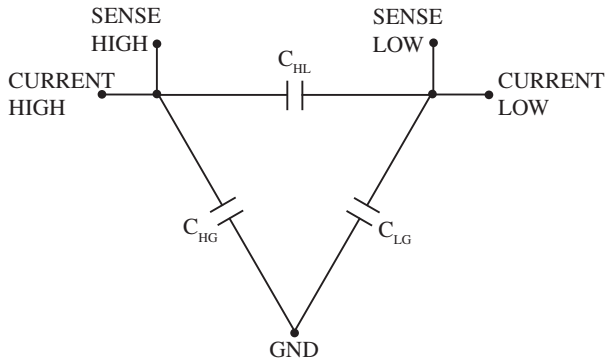


SCA-1μF

Low Value SCA Units

Connection Schematics for High Values

High-value SCA's have 5 binding posts -- **HI CURRENT**, **HI SENSE**, **LO CURRENT**, **LO SENSE**, and **GND**. This 4-terminal connection circuit has special wiring and low-resistance conductors to minimize dissipation and parasitic inductance, and improve frequency characteristics.



SCA-10000μF



SCA-1000μF



SCA-100μF
(values > 1μF)



Ordering Information

Capacitance Standard	Select from table above
Custom value	SCA-XXX
Transit case for SCA units	SRC-100, for 2 units; SRC-10-n, for n units
For deleted case version, add " - DC" at the end of the part number	

Transit cases

Optional **Model SRC-100 or SRC-10-n** lightweight transit cases provides mechanical protection and insulation from temperature

changes during transportation or shipping. It is suitable for transporting and storing two or more units.



SRC-100 Transit Case
for 2 units



SRC-10-n Transit Case
for n units (5 units shown)

