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 µF
- Custom values available
- Mechanically stabilized capacitors
- Stability: <100 ppm/year
- Excellent TC: as low as 10 ppm/°C
- Low loss: D as low as 20 ppm

SCA Capacitance Standard

Specifications

Nominal value	Model	Adjustment to nominal	Temperature coefficient (ppm/°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		Silvered mica mechanically stabilized hermetically sealed
190 pF	SCA-190pF	±0.1 pF	20		0.0005	±0.1 pF	500	10 kHz		
1.0 nF	SCA-1nF	±0.02%	20		0.0003	±100 ppm	500	10 kHz		
1.9 nF	SCA-1.9nF	±0.02%	20		0.0003	±100 ppm	500	10 kHz		
10 nF	SCA-10nF	±0.02%	20		0.0003	±100 ppm	500	10 kHz	2 binding posts + gnd	
19 nF	SCA-19nF	±0.02%	20		0.0003	±100 ppm	500	10 kHz		
100 nF	SCA-100nF	±0.02%	20		0.0003	±100 ppm	500	10 kHz		
190 nF	SCA-190nF	±0.02%	20		0.0003	±100 ppm	500	10 kHz		
1 µF	SCA-1µF	±0.02%	20		0.0002	±100 ppm	500	10 kHz		
1.9 µF	SCA-1.9µF	±0.02%	20	1 Vac Series Model 1 kHz	0.0002	±100 ppm	100	10 kHz	4 binding posts + gnd	Metallized polypropylene sulfide hermetically sealed
5 µF	SCA-5µF	±0.02%	±50		0.0005	±200 ppm	100	10 kHz		
10 µF	SCA-10µF	±0.04%	±50	1 Vac Series Model 100 Hz (1 kHz data included)	0.0005	±200 ppm	22 Vrms†	1 kHz		
19 µF	SCA-19µF	±0.04%	±50		0.0005	±200 ppm	44 Vrms†	1 kHz		
100 µF	SCA-100µF	±0.05%	±50		0.001	±500 ppm	22 Vrms†	1 kHz		
190 µF	SCA-190µF	±0.05%	±50		0.001	±500 ppm	22 Vrms†	1 kHz		
1,000 µF	SCA-1000µF	±0.4%	-150		0.001	±500 ppm	22 Vrms†	1 kHz		
5,000 µF	SCA-5000µF	±2%	-150		0.001	--	22 Vrms†	1 kHz		Polypropylene
10,000 µF	SCA-10000µF	±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 µF; (26000/f) for C = 19 µF; (13000/f) for C ≤100µF, where f = frequency (in Hz).

Environment:

Operating: +10 to +40°C, <80% RH
Storage: -20 to +65°C

Calibration Conditions:

Calibrated at 23°C, <50% RH, Traceable to SI

Mechanical:

Nominal Values	Dimensions	Weight
≤190 µF	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 µF	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 µF	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 µF		36.3 kg (80 lb)

Transit Case:

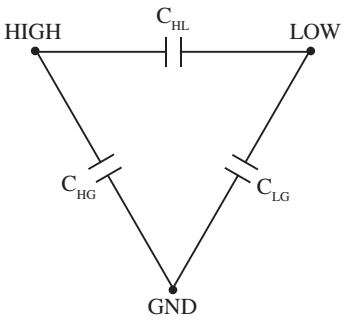
Optional **Model SRC-100** lightweight transit case with handle, suitable for transporting and storing two units. The case provides mechanical protection and insulation from temperature changes during transportation or shipping.

***SRC-100** Transit Case*

SCA Series

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.



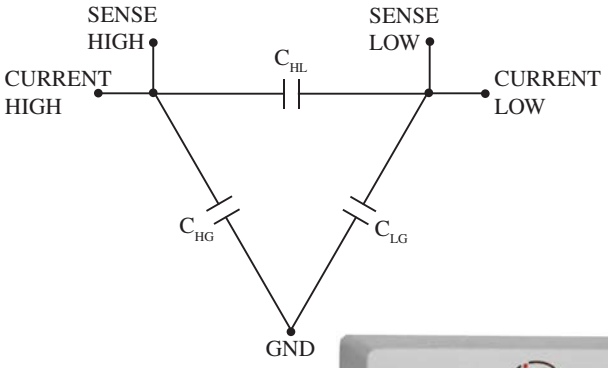
SCA-1nF
(values ≤1.9μF)

SCA-100nF
(1.9μF< values ≤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 2 units	**SRC-100**

For deleted case version, add " - **DC**" at the end of the part number