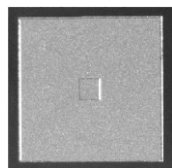


## Thin Film Single Value Chip and Wire Capacitors



Product may not  
be to scale

The NC series of thin film capacitors has the advantage of increased performance and smaller size when compared with its thick film counterparts. These chips are available in sizes down to 20 mil square and in capacitances up to 1000 pF.

Parts require epoxy or eutectic die attach to substrate and one wire bond.

These chips are manufactured using Vishay Electro-Films (EFI) sophisticated Thin Film equipment and manufacturing technology. The NC's are 100 % electrically tested and visually inspected to MIL-STD-883.

### FEATURES

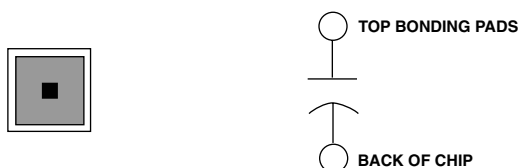
- Wire bondable
- Small size: 0.020 inches square to 0.060 inches square
- Substrate: Silicon with gold backing
- Dielectric: Silicon dioxide/silicon nitride
- Capacitance range: 0.5 pF to 1000 pF

CHIP  
CAPACITORS

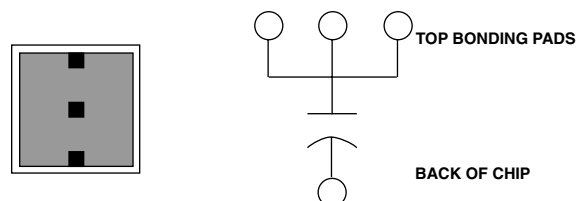
### APPLICATIONS

The NC series of capacitor chips are designed for assembly in hybrid circuits using conventional wire-bonding techniques. They provide excellent stability and performance, and their small size gives the hybrid designer greater layout flexibility. They are available as MNOS or MOS capacitors. The MOS version is to be preferred when low dielectric absorption is required.

### ELECTRICAL SCHEMATIC NCAA/NCBB/NCCC



### ELECTRICAL SCHEMATIC NCDD/NCEE



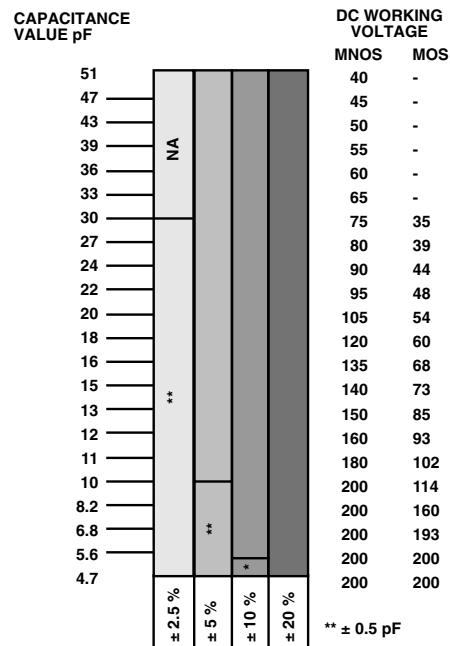
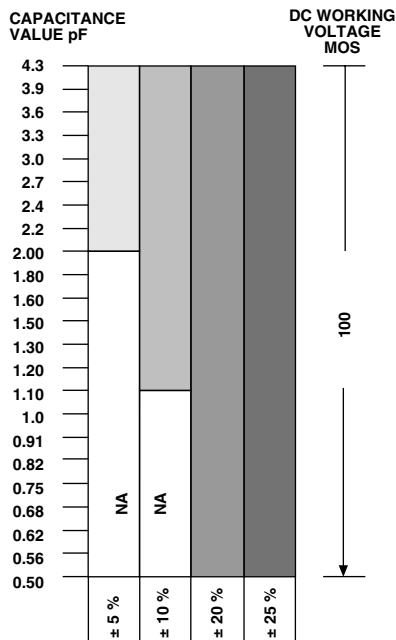
### STANDARD ELECTRICAL SPECIFICATIONS

PARAMETER	
Peak Voltage at + 25 °C	1.5 x working voltage
Dissipation Factor, 1 kHz, 1 V <sub>RMS</sub> , + 25 °C	0.05 % MNOS 0.1 % MOS
Q at 1 mHz, 50 mV <sub>RMS</sub> , + 25 °C	1000 min.
TCC, - 55 °C to + 150 °C	+ 45 ± 25 ppm/°C MNOS + 15 ± 25 ppm/°C MOS
Insulation Resistance at Working Voltage, + 25 °C	10 <sup>9</sup> min.
Operating Temperature Range	- 55 °C to + 125 °C
Thermal Shock	± 0.25 % + 0.25 pF max. ΔC/C
Moisture Resistance, MIL-STD-202, Method 106	± 1.0 % + 0.25 pF max. ΔC/C
Short Time Overload, + 25 °C, 5 s, 1.5 x Working Voltage	± 0.25 % + 0.25 pF max.
High Temperature Exposure, 100 h at 150 °C Ambient	± 0.25 % + 0.25 pF max. ΔC/C
Life, MIL-STD-202, Method 108 Condition D, + 125 °C Ambient, 100 h at Working Voltage	± 0.25 % + 0.25 pF max. ΔC/C

## DC WORKING VOLTAGES VALUES AND TOLERANCES

NCAA 0.020 inches square

CHIP  
CAPACITORS

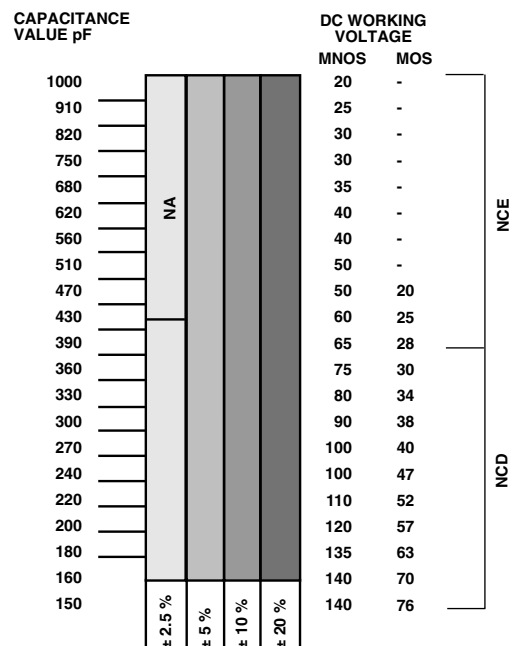
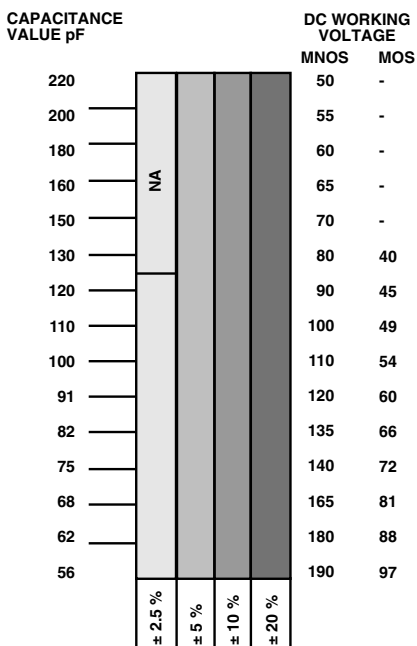
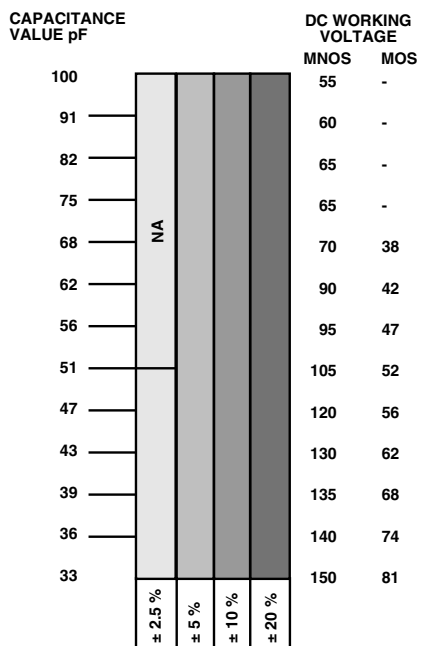


NA = NOT AVAILABLE

NCBB 0.030 inches square

NCCC 0.040 inches square

NCDD 0.055 inches square  
NCEE 0.060 inches square





## DIMENSIONS

0.5 pF to 1.3 pF



1.4 pF to 3.9 pF



4 pF to 9.1 pF



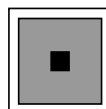
10 pF to 51 pF

NCAA  
0.020 ± 0.003 inches square

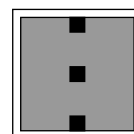
33 pF to 100 pF



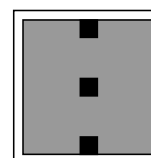
56 pF to 220 pF



150 pF to 510 pF



360 pF to 1000 pF



NCBB

NCCC

NCDD

NCEE

0.030 ± 0.003 inches square 0.040 ± 0.003 inches square 0.055 ± 0.003 inches square 0.060 ± 0.003 inches square

## MECHANICAL SPECIFICATIONS

Chip Size	Per diagrams
Chip Thickness	0.010" ± 0.002" (0.25 mm ± 0.05 mm)
Chip Substrate Material	Semiconductor silicon
Dielectric	Silicon dioxide/silicon nitride
Bond Pad	0.005" x 0.005" min., 10 kÅ aluminum
Backing	3 kÅ min. gold

Options: Gold bond pads 15 kÅ  
Lower profile version is available, consult applications engineer

## GLOBAL PART NUMBER INFORMATION

SAP Part Number: NCAA4700CKMAHWS

NCEE1000KNGKWS

SAP Description: NCAA 4.7 pF 10 % MOS Al H WS

NCEE 1000 pF 10 % MNOS Au K WS

N	C	A	A	4	7	0	0	C	K	M	A	H	W	S
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MODEL	CAPACITANCE (pF)	CAPACITANCE MULTIPLIER CODE	TOLERANCE CODE	DIELECTRIC	TERMINATION	VISUAL CLASS	PACKAGING CODE
NCAA NCBB NCCC NCDD NCEE	First 4 digits are significant figures of capacitance	D = 0.0001 C = 0.001 B = 0.01 A = 0.1 0 = 1	D = ± 0.5 pF H = 2.5 % J = 5.0 % K = 10 % M = 20 %	M = MOS N = MNOS	G = Au A = Al	H = Class H K = Class K	WS = Waffle pack 100 min., 1 mult



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