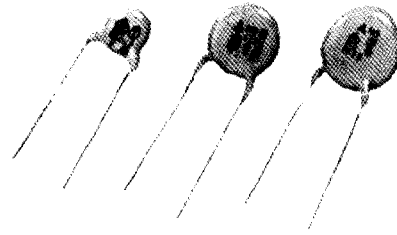


Features

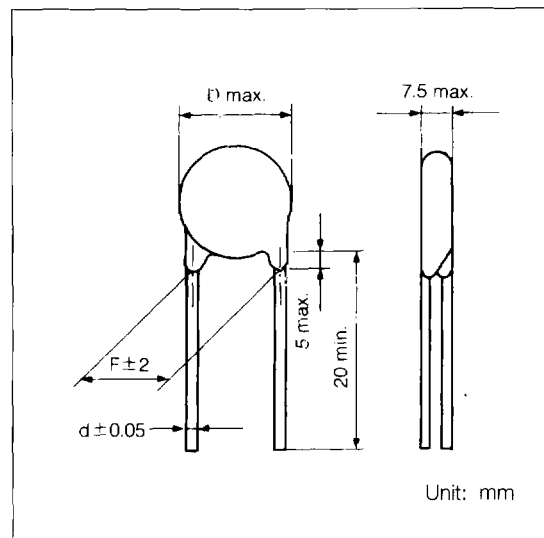
- Ceramic Disc Capacitors, Type NS, are recognized by UL, CSA, BSI, SEMKO, SEV and VDE
- The NS (Suffix: X) capacitors are applicable to "Class II" equipment in European safety regulations



Specifications (Type NS)

| Characteristics | Specifications | | |
|----------------------------------------------|-------------------------------------------------------------------------------------------------|------------------|--------------|
| Operating Temperature Range | -25 to 85 °C | | |
| Rated Voltage | Applicable Standards | | |
| | UL, CSA | 125 VAC | |
| | VDE (565-1) | 250 VAC | |
| | VDE (560-2), SEV, BS, SEMKO | 400 VAC | |
| Dielectric Withstanding Voltage | [For Class II equipment] | 4000 VAC, 1 min. | |
| | [For Class I equipment] | 2600 VAC, 1 min. | |
| | Notes: [T.C. E. 10000 pF] 2000 VAC, 1 min. [T.C. V] 2500 VAC, 1 min. | | |
| Capacitance | Within the specified tolerance, when measured at 1 kHz, 1 to 5 Vrms and 20 °C | | |
| Dissipation Factor | B/Y5P/2B4, E/Y5U/2E4: 2.5% max. V: 5.0% max. When measured at 1 kHz, 5Vrms max. and 20 °C | | |
| Insulation Resistance | 10000 MΩ min. at 500 VDC, 1 minute | | |
| Temperature Characteristics (see page 68) | T.C. | Cap. Change | Temp. Range |
| | B/Y5P/2B4 | ±10 % max. | -25 to 85 °C |
| | E/Y5U/2E4 | $\pm 20\%$ max. | -25 to 85 °C |
| | V | $\pm 30\%$ max. | 0 to 70 °C |
| ●The reference temperature: 20 °C | | | |

Dimensions



Explanation of Part Numbers

| E C K | | D | N S | 1 0 2 | K | B | P | (Example) |
|-------------|----------------------|----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|-----------------------------------|-------------------------------------------------------|-----------|
| Common Code | | Style | Rated Voltage | Rated Capacitance | Capacitance Tolerance | Temperature Characteristics | Suffix | |
| ECK | Class II (Hi-K Type) | D: Straight Lead Type Z: Straight Lead, Radial Taped Type R: Crimped Lead, Radial Taped Type | 125VAC 250VAC 400VAC NS Recognized by UL, CSA, BSI, SEMKO, SEV, VDE | The first two digits are significant figures of capacitance and the third denotes number of following zeros. Ex. 101: 100 pF 102: 1000pF 472: 4700pF | M ±20 % Z $\begin{matrix} +80\% \\ -20\% \end{matrix}$ | B B/Y5P/2B4 E E/Y5U/2E4 V V | Nif For Class I equipment X For Class II equipment | |

Related Standards and Certificate Numbers

| Related Standard | | | Certificate Number | T.C. | Cap. Range (Applicable) |
|------------------|---------------|-------------|--------------------|-------|-------------------------|
| UL | (USA) | UL1414 | E62674 | B/E/V | 100~22000 pF |
| CSA | (Canada) | CSA C22.2 | LR31605 | B/E/V | 100~22000 pF |
| VDE | (Germany) | VDE 560-2* | 32543 | B | 100~1000 pF |
| | | | 35912 | E | 1500~4700 pF |
| | | | 32543 | V | 4700~22000 pF |
| | | VDE 565-1* | 32544 | B | 100~1000 pF |
| | | | 35912 | E | 1500~4700 pF |
| SEV | (Switzerland) | SEV 1016** | 90,102655,11 | B/E | 100~4700 pF |
| | | SEV1055 X** | 90,102655,12 | E | 10000pF |
| BSI | (UK) | BS 415 | 415226319 | B/E/V | 100~22000pF |
| SEMKO | (Sweden) | SEMKO 101 | 8372418 | B/E/V | 100~22000 pF |

Notes: *VDE 560-2: For coupling use

**SEV 1016: For protection from electric shock

VDE 565-1: For radio interference suppressor

SEV 1055: For radio interference suppressor

Standard Products (Type NS)

| Part Number | Capacitance | | T.C. | Dimensions (mm) | | | Applicable standards | | | | | | |
|--------------|--------------------|-------------|------|-----------------|------|------|----------------------|-----|-------|-------|-----|----|-------|
| | Rated Cap. (pF) | Tol. (%) | | D max. | F | d | UL | CSA | VDE | | SEV | BS | SEMKO |
| | | | | | | | | | 560-2 | 565-1 | | | |
| ECKDNS101MBX | 100 | ±20 | B | 11.0 | 10.0 | 0.65 | ● | ● | ● | ● | ● | ● | ● |
| ECKDNS221MBX | 220 | ±20 | B | 11.0 | 10.0 | 0.65 | ○ | ○ | ● | ● | ● | ● | ● |
| ECKDNS471MBX | 470 | ±20 | B | 11.0 | 10.0 | 0.65 | ○ | ○ | ● | ● | ● | ● | ● |
| ECKDNS102MBX | 1000 | ±20 | B | 11.0 | 10.0 | 0.65 | ○ | ○ | ● | ● | ● | ● | ● |
| ECKDNS152MEX | 1500 | ±20 | E | 11.0 | 10.0 | 0.65 | ○ | ○ | ● | ● | ● | ● | ● |
| ECKDNS222MEX | 2200 | ±20 | E | 11.0 | 10.0 | 0.65 | ○ | ○ | ● | ● | ● | ● | ● |
| ECKDNS332MEX | 3300 | ±20 | E | 13.0 | 10.0 | 0.65 | ○ | ○ | ● | ● | ● | ● | ● |
| ECKDNS472MEX | 4700 | ±20 | E | 16.0 | 10.0 | 0.65 | ○ | ○ | ● | ● | ● | ● | ● |
| ECKDNS101MB | 100 | ±20 | B | 10.5 | 7.5 | 0.65 | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| ECKDNS221MB | 221 | ±20 | B | 10.5 | 7.5 | 0.65 | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| ECKDNS471MB | 470 | ±20 | B | 10.5 | 7.5 | 0.65 | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| ECKDNS102MB | 1000 | ±20 | B | 10.5 | 7.5 | 0.65 | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| ECKDNS152ME | 1500 | ±20 | E | 10.5 | 7.5 | 0.65 | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| ECKDNS222ME | 2200 | ±20 | E | 10.5 | 7.5 | 0.65 | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| ECKDNS332ME | 3300 | ±20 | E | 13.0 | 10.0 | 0.65 | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| ECKDNS472ME | 4700 | ±20 | E | 16.0 | 10.0 | 0.65 | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| ECKDNS103ME | 10000 | ±20 | E | 22.0 | 10.0 | 0.80 | ○ | ○ | — | — | — | ○ | ○ |
| ECKDNS472ZV | 4700 | +80, -20 | V | 12.0 | 7.5 | 0.65 | ○ | ○ | ○ | — | — | ○ | ○ |
| ECKDNS103ZV | 10000 | +80, -20 | V | 17.5 | 10.0 | 0.65 | ○ | ○ | ○ | — | — | ○ | ○ |
| ECKDNS223ZV | 22000 | +80, -20 | V | 24.0 | 10.0 | 0.80 | ○ | ○ | ○ | — | — | ○ | ○ |

Notes: ○ for Class I equipment

● for Class II equipment