

Surface Mount Chip Capacitors

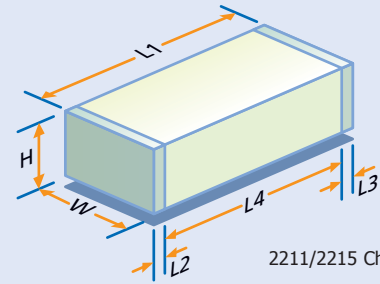
Safety Certified Surge Protection Chip

COG/X7R

Syfer Technology's Surge Protection (SP) range of ceramic chip capacitors are Class Y2/X1 compliant and designed for use in equipment certified to IEC 60950 (2000 Edition) where overvoltage surges can occur - i.e. a lightning strike.

This range of multilayer chip capacitors is approved and certified by TÜV. They meet the electrical requirements of IEC 60384-14: 1993 and EN 132400: 1994.

Also approved by UL for use in equipment certified to UL 60950 (previously UL 1950).



2211/2215 Chip Sizes

| Case size | Nominal Cap value | Class | Dielectric | Tolerance | Approvals |
|-----------|-------------------|--------|------------|---------------------|-----------|
| 2211 | 4.7pF | Y2, X1 | COG/NP0 | ±0.25pF, ±0.5pF | UL/TÜV |
| 2211 | 5.6pF | Y2, X1 | COG/NP0 | ±0.25pF, ±0.5pF | UL/TÜV |
| 2211 | 6.8pF | Y2, X1 | COG/NP0 | ±0.25pF, ±0.5pF | UL/TÜV |
| 2211 | 8.2pF | Y2, X1 | COG/NP0 | ±0.25pF, ±0.5pF | UL/TÜV |
| 2211 | 10pF | Y2, X1 | COG/NP0 | ±1%, ±2%, ±5%, ±10% | UL/TÜV |
| 2211 | 12pF | Y2, X1 | COG/NP0 | ±1%, ±2%, ±5%, ±10% | UL/TÜV |
| 2211 | 15pF | Y2, X1 | COG/NP0 | ±1%, ±2%, ±5%, ±10% | UL/TÜV |
| 2211 | 18pF | Y2, X1 | COG/NP0 | ±1%, ±2%, ±5%, ±10% | UL/TÜV |
| 2211 | 22pF | Y2, X1 | COG/NP0 | ±1%, ±2%, ±5%, ±10% | UL/TÜV |
| 2211 | 27pF | Y2, X1 | COG/NP0 | ±1%, ±2%, ±5%, ±10% | UL/TÜV |
| 2211 | 33pF | Y2, X1 | COG/NP0 | ±1%, ±2%, ±5%, ±10% | UL/TÜV |
| 2211 | 39pF | Y2, X1 | COG/NP0 | ±1%, ±2%, ±5%, ±10% | UL/TÜV |
| 2211 | 47pF | Y2, X1 | COG/NP0 | ±1%, ±2%, ±5%, ±10% | UL/TÜV |
| 2211 | 56pF | Y2, X1 | COG/NP0 | ±1%, ±2%, ±5%, ±10% | UL/TÜV |
| 2211 | 68pF | Y2, X1 | COG/NP0 | ±1%, ±2%, ±5%, ±10% | UL/TÜV |
| 2211 | 82pF | Y2, X1 | COG/NP0 | ±1%, ±2%, ±5%, ±10% | UL/TÜV |
| 2211 | 100pF | Y2, X1 | COG/NP0 | ±1%, ±2%, ±5%, ±10% | UL/TÜV |
| 2211 | 120pF | Y2, X1 | COG/NP0 | ±1%, ±2%, ±5%, ±10% | UL/TÜV |
| 2211 | 150pF | Y2, X1 | COG/NP0 | ±1%, ±2%, ±5%, ±10% | UL/TÜV |
| 2211 | 180pF | Y2, X1 | COG/NP0 | ±1%, ±2%, ±5%, ±10% | UL/TÜV |
| 2211 | 220pF | Y2, X1 | COG/NP0 | ±1%, ±2%, ±5%, ±10% | UL/TÜV |
| 2211 | 270pF | Y2, X1 | COG/NP0 | ±1%, ±2%, ±5%, ±10% | UL/TÜV |
| 2211 | 330pF | Y2, X1 | COG/NP0 | ±1%, ±2%, ±5%, ±10% | UL/TÜV |
| 2211 | 390pF | Y2, X1 | COG/NP0 | ±1%, ±2%, ±5%, ±10% | UL/TÜV |
| 2211 | 470pF | Y2, X1 | COG/NP0 | ±1%, ±2%, ±5%, ±10% | UL/TÜV |
| 2211 | 560pF | Y2, X1 | COG/NP0 | ±1%, ±2%, ±5%, ±10% | UL/TÜV |
| 2211 | 680pF | Y2, X1 | COG/NP0 | ±1%, ±2%, ±5%, ±10% | UL/TÜV |
| 2215 | 820pF | Y2, X1 | COG/NP0 | ±1%, ±2%, ±5%, ±10% | UL/TÜV |
| 2215 | 1nF | Y2, X1 | COG/NP0 | ±1%, ±2%, ±5%, ±10% | UL/TÜV |
| 2211 | 100pF | Y2, X1 | X7R | ±5%, ±10%, ±20% | UL/TÜV |
| 2211 | 120pF | Y2, X1 | X7R | ±5%, ±10%, ±20% | UL/TÜV |
| 2211 | 150pF | Y2, X1 | X7R | ±5%, ±10%, ±20% | UL/TÜV |
| 2211 | 180pF | Y2, X1 | X7R | ±5%, ±10%, ±20% | UL/TÜV |
| 2211 | 220pF | Y2, X1 | X7R | ±5%, ±10%, ±20% | UL/TÜV |
| 2211 | 270pF | Y2, X1 | X7R | ±5%, ±10%, ±20% | UL/TÜV |
| 2211 | 330pF | Y2, X1 | X7R | ±5%, ±10%, ±20% | UL/TÜV |
| 2211 | 390pF | Y2, X1 | X7R | ±5%, ±10%, ±20% | UL/TÜV |
| 2211 | 470pF | Y2, X1 | X7R | ±5%, ±10%, ±20% | UL/TÜV |
| 2211 | 560pF | Y2, X1 | X7R | ±5%, ±10%, ±20% | UL/TÜV |
| 2211 | 680pF | Y2, X1 | X7R | ±5%, ±10%, ±20% | UL/TÜV |
| 2211 | 820pF | Y2, X1 | X7R | ±5%, ±10%, ±20% | UL/TÜV |
| 2211 | 1nF | Y2, X1 | X7R | ±5%, ±10%, ±20% | UL/TÜV |

Electrical Specification

Operating Temperature Temperature Coefficient

-55°C to +125°C
COG/NP0 = 0 ± 30 ppm/°C, Ultra
Stable Class I Ceramic (EIA Class I)
X7R = ±15%, Stable Class II Ceramic
(EIA Class II)

Insulation resistance at +25°C

>100GΩ

Insulation resistance at +125°C

>10GΩ

Dielectric Strength (DWV)

1500VAC/3000VDC

Rated voltage

250VAC

Climatic Category (IEC)

55/125/56

Ageing rate

COG/NP0 = zero

X7R = 1% per decade of time

Test parameters for capacitance

COG/NP0 = 1Vrms @ 1MHz @ 20°C

X7R = 1Vrms @ 1KHz @ 20°C

Test parameters for DF

COG/NP0 = 1Vrms @ 1MHz @ 20°C

X7R = 1Vrms @ 1KHz @ 20°C

Mechanical Specification

Length (L1)

5.7mm ± 0.4mm (0.225" ± 0.016")

Width (W)

2211 size

2.79mm ± 0.3mm (0.110" ± 0.012")

2215 size

3.81mm ± 0.35mm (0.150" ± 0.014")

Thickness (H)

2.54 (0.1) Max.

Termination Bands (L2, L3)

0.25 - 0.80mm (0.01" - 0.03")

Creepage Distance (L4)

4.0mm (0.16") Min.

Termination Material

Nickel Barrier (Tin over Nickel)

Solderability

IEC 68-2-20

www.syfer.com

SS2211Y2.ver2

Surface Mount Chip Capacitors

Safety Certified Surge Protection Chip

COG/X7R

Specification

Details

EN 132400: 1994
+ A2: 1998
+ A3: 1998
+ A4: 1999

Meets the electrical requirements of these specifications for class Y2, X1 devices.

IEC 60384-14 second edition 1993
+ A1: 1995

UL 60950: third edition
IEC 60950: 2000

Certified for use in equipment intending to be certified to these specifications.

IEEE 802.3

Meets the 1500Vrms isolation requirements of section 12.10.1 of this specification.

Approvals

Marked parts can be released as certified by TÜV (COG/NP0 and X7R). Unmarked parts can be supplied tested in accordance with, but not certified by TÜV.



TÜV Certificate Nos.
R60001955 and R60003753



UL 60950
6th Edition
UL Certificate
No E235189

| Reeled Quantities | 178mm (7") | 1000 |
|-------------------|-------------|------|
| | 330mm (13") | 4000 |

Ordering Information

| 2211 | J | A25 | 0102 | J | X | T | SPU |
|--------------|-------------------------------------|------------|--|---|--------------------|---|---------------------------|
| Chip Size | Termination | Voltage | Capacitance | Tolerance | Dielectric | Packaging | SPU=Unmarked SP=Marked |
| 2211 2215 | J= Nickel Barrier Y= FlexiCap | A25=250VAC | Expressed in picofarads (pF). First digit is 0. Second and third digits are significant figures of capacitance code. The fourth digit is number of zeros following. Example: 0102=1000pF. For values below 10pF insert a P for the decimal point. eg: 8P20=8.2pF | <10pF C = ±0.25pF D = ±0.5pF ≥ 10pF F = ±1% G = ±2% J = ±5% K = ±10% M = ±20% | C=C0G/NP0 X=X7R | T = 178mm (7") reel R = 330mm (13") reel B = Bulk | |

