

NMCU Series (Ultra Flat Low Profile Niobium Chip Capacitors)

Features

A niobium capacitor is a polar capacitor.
 Low profile niobium chip capacitors developed to meet growing needs for flat capacitors where height is critical.
 Small and low profile: Obtained by thinning the NMC type.

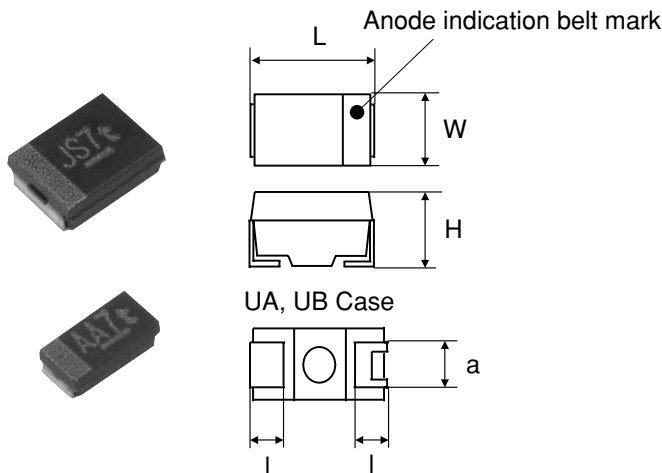
Product symbol : (Example) NMCU Series B case 4V 47 μ F \pm 20%

NMCU B 0G 476 M T R F

- Terminal code
- Packing polarity code
- Packing method code (T:carrier tape)
- Capacitance tolerance code (M : \pm 20%)
- Capacitance code
- Rated voltage code
- Case size code

Type of series

Outline of drawings and dimensions



Dimensions (Unit : mm)

| Case code | Case size | | | | |
|-----------|-------------------|-------------------|------------------|-------------------|-------------------|
| | L ^{+0.2} | W ^{+0.2} | H ^{max} | ℓ ^{+0.3} | a ^{+0.2} |
| UA | 3.2 | 1.6 | 1.2 | 0.7 | 1.2 |
| UB | 3.5 | 2.8 | 1.2 | 0.7 | 1.8 |

Standard value and case size

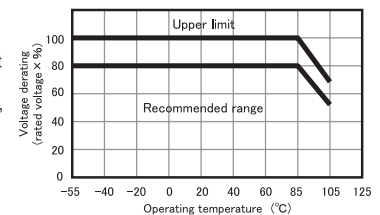
| Capacitance | Rated voltage (V.DC) | | | | |
|-------------|----------------------|----|-----|----|----|
| | 2.5 | 4 | 6.3 | 10 | |
| μ F | Code | 0E | 0G | 0J | 1A |
| 1.0 | 105 | | | | |
| 1.5 | 155 | | | | |
| 2.2 | 225 | | | | |
| 3.3 | 335 | | | | |
| 4.7 | 475 | | | | UA |
| 6.8 | 685 | | | | UB |
| 10 | 106 | | | UA | UB |
| 15 | 156 | UA | UA | UB | UB |
| 22 | 226 | UB | UB | UB | |
| 33 | 336 | UB | UB | UB | |
| 47 | 476 | UB | UB | | |

For ratings not covered in the table, consult Hitachi AIC.

| Product specifications | NMC | Test conditions JIS C5101-1:1998 | | | | | | | | | | | | | | | | |
|--|--|---|----------|----|-----|--------------|---|----------|----------|--|------|------|------|----|--------|--------|-------|----------------|
| Operating temperature range | -55°C ~ +105°C | | | | | | | | | | | | | | | | | |
| Rated voltage | DC2.5 ~ 10V | 85°C | | | | | | | | | | | | | | | | |
| Surge voltage | DC3.0 ~ 12V | 85°C | | | | | | | | | | | | | | | | |
| Derated voltage | DC1.7 ~ 6.7V | 105°C | | | | | | | | | | | | | | | | |
| Capacitance | 4.7 ~ 47 μ F | 120 Hz, 1.5V | | | | | | | | | | | | | | | | |
| Capacitance tolerance | \pm 20% | Paragraph 4.7, 120 Hz, 1.5V | | | | | | | | | | | | | | | | |
| Leakage current | Refer to Standard product table | Paragraph 4.8, in 5 minutes after the rated voltage is applied. | | | | | | | | | | | | | | | | |
| tan δ | Refer to Standard product table | Paragraph 4.8, 120Hz, 1.5V | | | | | | | | | | | | | | | | |
| Surge withstanding voltage | Δ C/C \pm 10% or less tan δ Specified initial value table or less LC Specified initial value table or less | Paragraph 4.26 | | | | | | | | | | | | | | | | |
| Temperature characteristics | <table border="1"> <tr> <td>Specified initial value</td> <td>-55</td> <td>85</td> <td>105</td> </tr> <tr> <td>ΔC/C</td> <td>-</td> <td>-20 - 0%</td> <td>0 - +20%</td> </tr> <tr> <td>tanδ Value shown table or less</td> <td>0.30</td> <td>0.39</td> <td>0.36</td> </tr> <tr> <td>LC</td> <td>0.02CV</td> <td>0.02CV</td> <td>0.2CV</td> </tr> </table> | Specified initial value | -55 | 85 | 105 | Δ C/C | - | -20 - 0% | 0 - +20% | tan δ Value shown table or less | 0.30 | 0.39 | 0.36 | LC | 0.02CV | 0.02CV | 0.2CV | Paragraph 4.24 |
| Specified initial value | -55 | 85 | 105 | | | | | | | | | | | | | | | |
| Δ C/C | - | -20 - 0% | 0 - +20% | | | | | | | | | | | | | | | |
| tan δ Value shown table or less | 0.30 | 0.39 | 0.36 | | | | | | | | | | | | | | | |
| LC | 0.02CV | 0.02CV | 0.2CV | | | | | | | | | | | | | | | |
| Solder heat resistance | Δ C/C \pm 30% or less tan δ Specified initial value table or less LC Specified initial value table or less | Reflow 260°C 10 \pm 1 sec. | | | | | | | | | | | | | | | | |
| Moisture resistance no load | Δ C/C \pm 30% or less tan δ Specified initial value table or less LC Specified initial value table or less | Paragraph 4.22 40°C, 90 ~ 95%RH, 500hrs | | | | | | | | | | | | | | | | |
| High-temperature load | Δ C/C \pm 30% or less tan δ Specified initial value table or less LC 200%Specified initial value table or less | Paragraph 4.23 85°C, The rated voltage is applied for 2000 hrs. | | | | | | | | | | | | | | | | |
| Thermal shock | Δ C/C \pm 20% or less tan δ Specified initial value table or less LC Specified initial value table or less | Leave at -55°C, normal temperature, 105°C, and normal temperature for 30 min., 3 min., 30 min., and 3 min. Repeat this operation 5 times running. | | | | | | | | | | | | | | | | |
| Moisture resistance load | Δ C/C \pm 30% or less tan δ Specified initial value table or less LC 200%Specified initial value table or less | 40°C, 90 ~ 95%RH, The rated voltage is applied for 500 hrs. | | | | | | | | | | | | | | | | |
| Failure rate | 1% / 1000hrs | 85°C. The rated voltage is applied (through a protective resistor of 1 Ω /V). | | | | | | | | | | | | | | | | |

Operating Voltage

※ The voltage derating factor should be as great as possible. Under normal conditions, the operating voltage should be reduced to 80% or less of the rated.



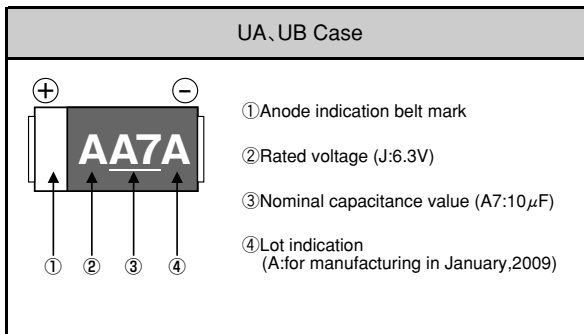
※ This catalog is designed for providing general information. Please inquire of our Sales Department to confirm specifications prior to us.

Standard product tables - NMCU series

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| Rated voltage V. DC | Capacitance μF | tanδ | Leakage current μA | Case code | Product name |
|------------------------|-------------------|------|-----------------------|--------------|--------------|
| 2.5 | 15 | 0.30 | 0.8 | UA | NMCUA0E156 |
| | 22 | 0.30 | 1.1 | UB | NMCUB0E226 |
| | 33 | 0.30 | 1.7 | UB | NMCUB0E336 |
| | 47 | 0.30 | 2.4 | UB | NMCUB0E476 |
| 4 | 15 | 0.30 | 1.2 | UA | NMCUA0G156 |
| | 22 | 0.30 | 1.8 | UB | NMCUB0G226 |
| | 33 | 0.30 | 2.6 | UB | NMCUB0G336 |
| | 47 | 0.30 | 3.8 | UB | NMCUB0G476 |
| 6.3 | 10 | 0.30 | 1.3 | UA | NMCUA0J106 |
| | 15 | 0.30 | 1.9 | UB | NMCUB0J156 |
| | 22 | 0.30 | 2.8 | UB | NMCUB0J226 |
| | 33 | 0.30 | 4.2 | UB | NMCUB0J336 |
| 10 | 4.7 | 0.30 | 0.9 | UA | NMCUA1A475 |
| | 6.8 | 0.30 | 1.4 | UB | NMCUB1A685 |
| | 10 | 0.30 | 2.0 | UB | NMCUB1A106 |
| | 15 | 0.30 | 3.0 | UB | NMCUB1A156 |

Marking indication



Lot indication

| Month Year | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---------------|---|---|---|---|---|---|---|---|---|----|----|----|
| 2009 | A | B | C | D | E | F | G | H | J | K | L | M |
| 2010 | N | P | Q | R | S | T | U | V | W | X | Y | Z |
| 2011 | a | b | c | d | e | f | g | h | j | k | l | m |
| 2012 | n | p | q | r | s | t | u | v | w | x | y | z |