

# OxiCap® NOS Low ESR Series

## Niobium Oxide Capacitor



### FEATURES

- Low ESR NbO Capacitors
- Non-Burn Safe Technology
- Reliability Level: 0.2%/1000 hrs.
- 100% Surge Current Tested
- CV Range: 10-1000µF / 1.8-8V
- 9 Case Sizes Available
- IBM Global Approval Received in 2004
- Elektra Award Received in 2005
- Meets Requirements of AEC-Q200
- -55 to +125°C Operation Temperature

### APPLICATIONS

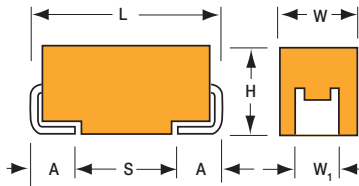
- Medium Power DC/DC for Transportation and Automotive Industry



LEAD-FREE  
LEAD-FREE COMPATIBLE  
COMPONENT

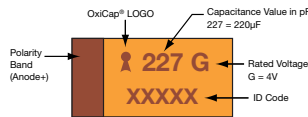


Elektra Award  
2005



### MARKING

#### A, B, C, D, E, V, W, X, Y CASE



### CASE DIMENSIONS:

millimeters (inches)

| Code | EIA Code | EIA Metric | L±0.20 (0.008) | W±0.20 (0.008) -0.10 (0.004) | H±0.20 (0.008) -0.10 (0.004) | W1 ±0.20 (0.008) | A±0.30 (0.012) -0.20 (0.008) | S Min.       |
|------|----------|------------|----------------|------------------------------|------------------------------|------------------|------------------------------|--------------|
| A    | 1206     | 3216-18    | 3.20 (0.126)   | 1.60 (0.063)                 | 1.60 (0.063)                 | 1.20 (0.047)     | 0.80 (0.031)                 | 1.10 (0.043) |
| B    | 1210     | 3528-21    | 3.50 (0.138)   | 2.80 (0.110)                 | 1.90 (0.075)                 | 2.20 (0.087)     | 0.80 (0.031)                 | 1.40 (0.055) |
| C    | 2312     | 6032-28    | 6.00 (0.236)   | 3.20 (0.126)                 | 2.60 (0.102)                 | 2.20 (0.087)     | 1.30 (0.051)                 | 2.90 (0.114) |
| D    | 2917     | 7343-31    | 7.30 (0.287)   | 4.30 (0.169)                 | 2.90 (0.114)                 | 2.40 (0.094)     | 1.30 (0.051)                 | 4.40 (0.173) |
| E    | 2917     | 7343-43    | 7.30 (0.287)   | 4.30 (0.169)                 | 4.10 (0.162)                 | 2.40 (0.094)     | 1.30 (0.051)                 | 4.40 (0.173) |
| V    | 2924     | 7361-38    | 7.30 (0.287)   | 6.10 (0.240)                 | 3.55 (0.140)                 | 3.10 (0.122)     | 1.30 (0.051)                 | 4.40 (0.173) |
| W    | 2312     | 6032-15    | 6.00 (0.236)   | 3.20 (0.126)                 | 1.50 (0.059) max.            | 2.20 (0.087)     | 1.30 (0.051)                 | 2.90 (0.114) |
| X    | 2917     | 7343-15    | 7.30 (0.287)   | 4.30 (0.169)                 | 1.50 (0.059) max.            | 2.40 (0.094)     | 1.30 (0.051)                 | 4.40 (0.173) |
| Y    | 2917     | 7343-20    | 7.30 (0.287)   | 4.30 (0.169)                 | 2.00 (0.079) max.            | 2.40 (0.094)     | 1.30 (0.051)                 | 4.40 (0.173) |

W<sub>1</sub> dimension applies to the termination width for A dimensional area only.

### HOW TO ORDER

**NOS**



**Type**

**D**



**Case Size**  
See table above

**107**



**Capacitance Code**  
1st two digits represent significant figures, 3rd digit represents multiplier in pF

**M**



**Tolerance**  
M = ±20%

**006**



**Rated DC Voltage**  
001 = 1.8Vdc  
002 = 2.5Vdc  
004 = 4Vdc  
006 = 6.3Vdc  
008 = 8Vdc

**R**



**Packaging**  
R = Pure Tin 7" Reel  
S = Pure Tin 13" Reel

**0100**



**ESR in mΩ**

**-**



**Additional characters may be added for special requirements**  
V = Dry pack Option (selected codes only) with exception of D, E, X, Y, V cases

### TECHNICAL SPECIFICATIONS

|                                    |                                                                                           |     |     |     |     |     |
|------------------------------------|-------------------------------------------------------------------------------------------|-----|-----|-----|-----|-----|
| Technical Data:                    | All technical data relate to an ambient temperature of +25°C is not stated                |     |     |     |     |     |
| Capacitance Range:                 | 10 µF to 1000 µF                                                                          |     |     |     |     |     |
| Capacitance Tolerance:             | ±20%                                                                                      |     |     |     |     |     |
| Leakage Current DCL:               | 0.02CV                                                                                    |     |     |     |     |     |
| Rated Voltage DC (V <sub>R</sub> ) | ≤ +85°C:                                                                                  | 1.8 | 2.5 | 4   | 6.3 | 8   |
| Category Voltage (V <sub>C</sub> ) | ≤ +105°C:                                                                                 | 1.2 | 1.7 | 2.7 | 4   | 7   |
| Category Voltage (V <sub>C</sub> ) | ≤ +125°C:                                                                                 | 0.9 | 1.3 | 2   | 3   | 4   |
| Surge Voltage (V <sub>S</sub> )    | ≤ +85°C:                                                                                  | 2.3 | 3.3 | 5.2 | 8   | 10  |
| Surge Voltage (V <sub>S</sub> )    | ≤ +105°C:                                                                                 | 1.6 | 2.2 | 3.4 | 5   | 8   |
| Surge Voltage (V <sub>S</sub> )    | ≤ +125°C:                                                                                 | 1.2 | 1.7 | 2.6 | 4   | 5.3 |
| Temperature Range:                 | -55°C to +125°C                                                                           |     |     |     |     |     |
| Reliability:                       | 0.2% per 1000 hours at 85°C, V <sub>R</sub> 0.1Q/V series impedance, 60% confidence level |     |     |     |     |     |
|                                    | Meets requirements of AEC-Q200                                                            |     |     |     |     |     |

# OxiCap® NOS Low ESR Series

## Niobium Oxide Capacitor



### CAPACITANCE AND RATED VOLTAGE RANGE (LETTER DENOTES CASE SIZE)

| Capacitance |      | Rated Voltage DC (V <sub>R</sub> ) to 85°C |                                |                                          |                                           |                       |
|-------------|------|--------------------------------------------|--------------------------------|------------------------------------------|-------------------------------------------|-----------------------|
| μF          | Code | 1.8V (x)                                   | 2.5V (e)                       | 4.0V (G)                                 | 6.3V (J)                                  | 8V (P)                |
| 10          | 106  |                                            |                                |                                          | A(800,1000,2000,2200)                     | A(2200)<br>B(1000)    |
| 15          | 156  |                                            |                                | A(1500,2000)                             | B(600,2000)                               | B(1000)               |
| 22          | 226  |                                            | A(900,1900)                    | B(600,1900)                              | B(600,1900)                               | B(700,1800)<br>C(500) |
| 33          | 336  |                                            | B(1700)                        | B(600,1700)                              | B(600,1700)<br>C(500)<br>W(250,500)       | C(500)                |
| 47          | 476  |                                            | B(500,1600)                    | B(500,1600)<br>C(300,500)<br>W(150,500)  | B(500,800)<br>C(300,500)                  | C(400)                |
| 68          | 686  |                                            | C(200,500)<br>W(150,400)       | C(200,500)                               | C(75,200,500)<br>X(100,500)<br>Y(100,500) | C(500)                |
| 100         | 107  | B(350,1400)<br>W(150,400)                  | C(150,400)                     | C(70,150,400)<br>X(100,400)              | C(150,400)<br>D(80,100,400)<br>Y(100,400) | D(400)                |
| 150         | 157  | C(400)                                     | C(65,150,400)<br>X(100,400)    | C(90,150,400)<br>Y(100,400)              | D(50,70,100,400)<br>Y(100,400)            |                       |
| 220         | 227  | C(125,400)<br>X(100,400)                   | C(80,125,400)<br>Y(100,400)    | D(40,60,100,400)<br>Y(100,400)           | D(45,60,100,400)<br>E(80,100,400)         |                       |
| 330         | 337  | Y(100,300)                                 | D(35,50,100,300)<br>Y(100,300) | D(35,55,100,300)<br>E(100)<br>Y(150,300) | E(80,100,300)                             |                       |
| 470         | 477  | Y(100,300)                                 | D(35,55,100,300)<br>E(100,300) | D(100,300)<br>E(75,100,300)              | V(75,300)                                 |                       |
| 680         | 687  |                                            | E(60,300)                      | V(75,300)                                |                                           |                       |
| 1000        | 108  |                                            | V(50,300)                      |                                          |                                           |                       |

Released ratings (ESR ratings in mOhms in parentheses)

Note: Voltage ratings are minimum values. KYOCERA AVX reserves the right to supply higher voltage ratings in the same case size, to the same reliability standards.

# OxiCap® NOS Low ESR Series

## Niobium Oxide Capacitor



### RATINGS & PART NUMBER REFERENCE

| Part Number      | Case Size | Capacitance (µF) | Rated Voltage (V) | Rated Temperature (°C) | Category Voltage (V) | Category Temperature (°C) | DCL Max. (µA) | DF Max. (%) | ESR Max. @ 100kHz (mΩ) | 100kHz RMS Current (A) |       |       | MSL |
|------------------|-----------|------------------|-------------------|------------------------|----------------------|---------------------------|---------------|-------------|------------------------|------------------------|-------|-------|-----|
|                  |           |                  |                   |                        |                      |                           |               |             |                        | 25°C                   | 85°C  | 125°C |     |
| 1.8 Volt @ 85°C  |           |                  |                   |                        |                      |                           |               |             |                        |                        |       |       |     |
| NOSB107M001#0350 | B         | 100              | 1.8               | 85                     | 0.9                  | 125                       | 3.6           | 6           | 350                    | 0.540                  | 0.486 | 0.216 | 1   |
| NOSB107M001#1400 | B         | 100              | 1.8               | 85                     | 0.9                  | 125                       | 3.6           | 6           | 1400                   | 0.270                  | 0.243 | 0.108 | 1   |
| NOSW107M001#0150 | W         | 100              | 1.8               | 85                     | 0.9                  | 125                       | 3.6           | 6           | 150                    | 0.849                  | 0.764 | 0.339 | 1   |
| NOSW107M001#0400 | W         | 100              | 1.8               | 85                     | 0.9                  | 125                       | 3.6           | 6           | 400                    | 0.520                  | 0.468 | 0.208 | 1   |
| NOSC157M001#0400 | C         | 150              | 1.8               | 85                     | 0.9                  | 125                       | 5.4           | 8           | 400                    | 0.574                  | 0.517 | 0.230 | 1   |
| NOSC227M001#0125 | C         | 220              | 1.8               | 85                     | 0.9                  | 125                       | 8.0           | 8           | 125                    | 1.028                  | 0.925 | 0.411 | 1   |
| NOSC227M001#0400 | C         | 220              | 1.8               | 85                     | 0.9                  | 125                       | 8.0           | 8           | 400                    | 0.574                  | 0.517 | 0.230 | 1   |
| NOSX227M001#0100 | X         | 220              | 1.8               | 85                     | 0.9                  | 125                       | 8.0           | 8           | 100                    | 1.095                  | 0.986 | 0.438 | 3   |
| NOSX227M001#0400 | X         | 220              | 1.8               | 85                     | 0.9                  | 125                       | 8.0           | 8           | 400                    | 0.548                  | 0.493 | 0.219 | 3   |
| NOSY337M001#0100 | Y         | 330              | 1.8               | 85                     | 0.9                  | 125                       | 11.9          | 8           | 100                    | 1.225                  | 1.102 | 0.490 | 3   |
| NOSY337M001#0300 | Y         | 330              | 1.8               | 85                     | 0.9                  | 125                       | 11.9          | 8           | 300                    | 0.707                  | 0.636 | 0.283 | 3   |
| NOSY477M001#0100 | Y         | 470              | 1.8               | 85                     | 0.9                  | 125                       | 17.0          | 8           | 100                    | 1.225                  | 1.102 | 0.490 | 3   |
| NOSY477M001#0300 | Y         | 470              | 1.8               | 85                     | 0.9                  | 125                       | 17.0          | 8           | 300                    | 0.707                  | 0.636 | 0.283 | 3   |
| 2.5 Volt @ 85°C  |           |                  |                   |                        |                      |                           |               |             |                        |                        |       |       |     |
| NOSA226M002#0900 | A         | 22               | 2.5               | 85                     | 1.3                  | 125                       | 1.1           | 6           | 900                    | 0.316                  | 0.285 | 0.126 | 1   |
| NOSA226M002#1900 | A         | 22               | 2.5               | 85                     | 1.3                  | 125                       | 1.1           | 6           | 1900                   | 0.218                  | 0.196 | 0.087 | 1   |
| NOSB336M002#1700 | B         | 33               | 2.5               | 85                     | 1.3                  | 125                       | 1.7           | 6           | 1700                   | 0.245                  | 0.220 | 0.098 | 1   |
| NOSB476M002#0500 | B         | 47               | 2.5               | 85                     | 1.3                  | 125                       | 2.4           | 6           | 500                    | 0.452                  | 0.406 | 0.181 | 1   |
| NOSB476M002#1600 | B         | 47               | 2.5               | 85                     | 1.3                  | 125                       | 2.4           | 6           | 1600                   | 0.252                  | 0.227 | 0.101 | 1   |
| NOSC686M002#0200 | C         | 68               | 2.5               | 85                     | 1.3                  | 125                       | 3.4           | 6           | 200                    | 0.812                  | 0.731 | 0.325 | 1   |
| NOSC686M002#0500 | C         | 68               | 2.5               | 85                     | 1.3                  | 125                       | 3.4           | 6           | 500                    | 0.514                  | 0.462 | 0.206 | 1   |
| NOSW686M002#0150 | W         | 68               | 2.5               | 85                     | 1.3                  | 125                       | 3.4           | 6           | 150                    | 0.849                  | 0.764 | 0.339 | 1   |
| NOSW686M002#0400 | W         | 68               | 2.5               | 85                     | 1.3                  | 125                       | 3.4           | 6           | 400                    | 0.520                  | 0.468 | 0.208 | 1   |
| NOSC107M002#0150 | C         | 100              | 2.5               | 85                     | 1.3                  | 125                       | 5.0           | 6           | 150                    | 0.938                  | 0.844 | 0.375 | 1   |
| NOSC107M002#0400 | C         | 100              | 2.5               | 85                     | 1.3                  | 125                       | 5.0           | 6           | 400                    | 0.574                  | 0.517 | 0.230 | 1   |
| NOSC157M002#0065 | C         | 150              | 2.5               | 85                     | 1.3                  | 125                       | 7.5           | 6           | 65                     | 1.425                  | 1.283 | 0.570 | 1   |
| NOSC157M002#0150 | C         | 150              | 2.5               | 85                     | 1.3                  | 125                       | 7.5           | 6           | 150                    | 0.938                  | 0.844 | 0.375 | 1   |
| NOSC157M002#0400 | C         | 150              | 2.5               | 85                     | 1.3                  | 125                       | 7.5           | 6           | 400                    | 0.574                  | 0.517 | 0.230 | 1   |
| NOSX157M002#0100 | X         | 150              | 2.5               | 85                     | 1.3                  | 125                       | 7.5           | 6           | 100                    | 1.095                  | 0.986 | 0.438 | 3   |
| NOSX157M002#0400 | X         | 150              | 2.5               | 85                     | 1.3                  | 125                       | 7.5           | 6           | 400                    | 0.548                  | 0.493 | 0.219 | 3   |
| NOSC227M002#0080 | C         | 220              | 2.5               | 85                     | 1.3                  | 125                       | 11.0          | 8           | 80                     | 1.285                  | 1.156 | 0.514 | 1   |
| NOSC227M002#0125 | C         | 220              | 2.5               | 85                     | 1.3                  | 125                       | 11.0          | 8           | 125                    | 1.028                  | 0.925 | 0.411 | 1   |
| NOSC227M002#0400 | C         | 220              | 2.5               | 85                     | 1.3                  | 125                       | 11.0          | 8           | 400                    | 0.574                  | 0.517 | 0.230 | 1   |
| NOSY227M002#0100 | Y         | 220              | 2.5               | 85                     | 1.3                  | 125                       | 11.0          | 8           | 100                    | 1.225                  | 1.102 | 0.490 | 3   |
| NOSY227M002#0400 | Y         | 220              | 2.5               | 85                     | 1.3                  | 125                       | 11.0          | 8           | 400                    | 0.612                  | 0.551 | 0.245 | 3   |
| NOSD337M002#0035 | D         | 330              | 2.5               | 85                     | 1.3                  | 125                       | 16.5          | 10          | 35                     | 2.268                  | 2.041 | 0.907 | 3   |
| NOSD337M002#0050 | D         | 330              | 2.5               | 85                     | 1.3                  | 125                       | 16.5          | 10          | 50                     | 1.897                  | 1.708 | 0.759 | 3   |
| NOSD337M002#0100 | D         | 330              | 2.5               | 85                     | 1.3                  | 125                       | 16.5          | 10          | 100                    | 1.342                  | 1.207 | 0.537 | 3   |
| NOSD337M002#0300 | D         | 330              | 2.5               | 85                     | 1.3                  | 125                       | 16.5          | 10          | 300                    | 0.775                  | 0.697 | 0.310 | 3   |
| NOSY337M002#0100 | Y         | 330              | 2.5               | 85                     | 1.3                  | 125                       | 16.5          | 10          | 100                    | 1.225                  | 1.102 | 0.490 | 3   |
| NOSY337M002#0300 | Y         | 330              | 2.5               | 85                     | 1.3                  | 125                       | 16.5          | 10          | 300                    | 0.707                  | 0.636 | 0.283 | 3   |
| NOSD477M002#0035 | D         | 470              | 2.5               | 85                     | 1.3                  | 125                       | 23.5          | 12          | 35                     | 2.268                  | 2.041 | 0.907 | 3   |
| NOSD477M002#0055 | D         | 470              | 2.5               | 85                     | 1.3                  | 125                       | 23.5          | 12          | 55                     | 1.809                  | 1.628 | 0.724 | 3   |
| NOSD477M002#0100 | D         | 470              | 2.5               | 85                     | 1.3                  | 125                       | 23.5          | 12          | 100                    | 1.342                  | 1.207 | 0.537 | 3   |
| NOSD477M002#0300 | D         | 470              | 2.5               | 85                     | 1.3                  | 125                       | 23.5          | 12          | 300                    | 0.775                  | 0.697 | 0.310 | 3   |
| NOSE477M002#0100 | E         | 470              | 2.5               | 85                     | 1.3                  | 125                       | 23.5          | 10          | 100                    | 1.407                  | 1.266 | 0.563 | 3   |
| NOSE477M002#0300 | E         | 470              | 2.5               | 85                     | 1.3                  | 125                       | 23.5          | 10          | 300                    | 0.812                  | 0.731 | 0.325 | 3   |
| NOSE687M002#0060 | E         | 680              | 2.5               | 85                     | 1.3                  | 125                       | 34.0          | 14          | 60                     | 1.817                  | 1.635 | 0.727 | 3   |
| NOSE687M002#0300 | E         | 680              | 2.5               | 85                     | 1.3                  | 125                       | 34.0          | 14          | 300                    | 0.812                  | 0.731 | 0.325 | 3   |
| NOSV108M002#0050 | V         | 1000             | 2.5               | 85                     | 1.3                  | 125                       | 50.0          | 16          | 50                     | 2.449                  | 2.205 | 0.980 | 3   |
| NOSV108M002#0300 | V         | 1000             | 2.5               | 85                     | 1.3                  | 125                       | 50.0          | 16          | 300                    | 1.000                  | 0.900 | 0.400 | 3   |
| 4 Volt @ 85°C    |           |                  |                   |                        |                      |                           |               |             |                        |                        |       |       |     |
| NOSA156M004#1500 | A         | 15               | 4                 | 85                     | 2                    | 125                       | 1.2           | 6           | 1500                   | 0.245                  | 0.220 | 0.098 | 1   |
| NOSA156M004#2000 | A         | 15               | 4                 | 85                     | 2                    | 125                       | 1.2           | 6           | 2000                   | 0.212                  | 0.191 | 0.085 | 1   |
| NOSB226M004#0600 | B         | 22               | 4                 | 85                     | 2                    | 125                       | 1.8           | 6           | 600                    | 0.412                  | 0.371 | 0.165 | 1   |
| NOSB226M004#1900 | B         | 22               | 4                 | 85                     | 2                    | 125                       | 1.8           | 6           | 1900                   | 0.232                  | 0.209 | 0.093 | 1   |
| NOSB336M004#0600 | B         | 33               | 4                 | 85                     | 2                    | 125                       | 2.6           | 6           | 600                    | 0.412                  | 0.371 | 0.165 | 1   |
| NOSB336M004#1700 | B         | 33               | 4                 | 85                     | 2                    | 125                       | 2.6           | 6           | 1700                   | 0.245                  | 0.220 | 0.098 | 1   |
| NOSB476M004#0500 | B         | 47               | 4                 | 85                     | 2                    | 125                       | 3.8           | 6           | 500                    | 0.452                  | 0.406 | 0.181 | 1   |
| NOSB476M004#1600 | B         | 47               | 4                 | 85                     | 2                    | 125                       | 3.8           | 6           | 1600                   | 0.252                  | 0.227 | 0.101 | 1   |
| NOSC476M004#0300 | C         | 47               | 4                 | 85                     | 2                    | 125                       | 3.8           | 6           | 300                    | 0.663                  | 0.597 | 0.265 | 1   |
| NOSC476M004#0500 | C         | 47               | 4                 | 85                     | 2                    | 125                       | 3.8           | 6           | 500                    | 0.514                  | 0.462 | 0.206 | 1   |
| NOSW476M004#0150 | W         | 47               | 4                 | 85                     | 2                    | 125                       | 3.8           | 6           | 150                    | 0.849                  | 0.764 | 0.339 | 1   |
| NOSW476M004#0500 | W         | 47               | 4                 | 85                     | 2                    | 125                       | 3.8           | 6           | 500                    | 0.465                  | 0.418 | 0.186 | 1   |
| NOSC686M004#0200 | C         | 68               | 4                 | 85                     | 2                    | 125                       | 5.4           | 6           | 200                    | 0.812                  | 0.731 | 0.325 | 1   |
| NOSC686M004#0500 | C         | 68               | 4                 | 85                     | 2                    | 125                       | 5.4           | 6           | 500                    | 0.514                  | 0.462 | 0.206 | 1   |
| NOSC107M004#0070 | C         | 100              | 4                 | 85                     | 2                    | 125                       | 8.0           | 6           | 70                     | 1.373                  | 1.236 | 0.549 | 1   |
| NOSC107M004#0150 | C         | 100              | 4                 | 85                     | 2                    | 125                       | 8.0           | 6           | 150                    | 0.938                  | 0.844 | 0.375 | 1   |
| NOSC107M004#0400 | C         | 100              | 4                 | 85                     | 2                    | 125                       | 8.0           | 6           | 400                    | 0.574                  | 0.517 | 0.230 | 1   |
| NOSX107M004#0100 | X         | 100              | 4                 | 85                     | 2                    | 125                       | 8.0           | 6           | 100                    | 1.095                  | 0.986 | 0.438 | 3   |

# OxiCap® NOS Low ESR Series

## Niobium Oxide Capacitor



### RATINGS & PART NUMBER REFERENCE

| Part Number      | Case Size | Capacitance (µF) | Rated Voltage (V) | Rated Temperature (°C) | Category Voltage (V) | Category Temperature (°C) | DCL Max. (µA) | DF Max. (%) | ESR Max. @ 100kHz (mΩ) | 100kHz RMS Current (A) |       |       | MSL |
|------------------|-----------|------------------|-------------------|------------------------|----------------------|---------------------------|---------------|-------------|------------------------|------------------------|-------|-------|-----|
|                  |           |                  |                   |                        |                      |                           |               |             |                        | 25°C                   | 85°C  | 125°C |     |
| NOSX107M004#0400 | X         | 100              | 4                 | 85                     | 2                    | 125                       | 8.0           | 6           | 400                    | 0.548                  | 0.493 | 0.219 | 3   |
| NOSC157M004#0090 | C         | 150              | 4                 | 85                     | 2                    | 125                       | 12.0          | 6           | 90                     | 1.211                  | 1.090 | 0.484 | 1   |
| NOSC157M004#0150 | C         | 150              | 4                 | 85                     | 2                    | 125                       | 12.0          | 6           | 150                    | 0.938                  | 0.844 | 0.375 | 1   |
| NOSC157M004#0400 | C         | 150              | 4                 | 85                     | 2                    | 125                       | 12.0          | 6           | 400                    | 0.574                  | 0.517 | 0.230 | 1   |
| NOSY157M004#0100 | Y         | 150              | 4                 | 85                     | 2                    | 125                       | 12.0          | 6           | 100                    | 1.225                  | 1.102 | 0.490 | 3   |
| NOSY157M004#0400 | Y         | 150              | 4                 | 85                     | 2                    | 125                       | 12.0          | 6           | 400                    | 0.612                  | 0.551 | 0.245 | 3   |
| NOSD227M004#0040 | D         | 220              | 4                 | 85                     | 2                    | 125                       | 17.6          | 8           | 40                     | 2.121                  | 1.909 | 0.849 | 3   |
| NOSD227M004#0060 | D         | 220              | 4                 | 85                     | 2                    | 125                       | 17.6          | 8           | 60                     | 1.732                  | 1.559 | 0.693 | 3   |
| NOSD227M004#0100 | D         | 220              | 4                 | 85                     | 2                    | 125                       | 17.6          | 8           | 100                    | 1.342                  | 1.207 | 0.537 | 3   |
| NOSD227M004#0400 | D         | 220              | 4                 | 85                     | 2                    | 125                       | 17.6          | 8           | 400                    | 0.671                  | 0.604 | 0.268 | 3   |
| NOSY227M004#0100 | Y         | 220              | 4                 | 85                     | 2                    | 125                       | 17.6          | 10          | 100                    | 1.225                  | 1.102 | 0.490 | 3   |
| NOSY227M004#0400 | Y         | 220              | 4                 | 85                     | 2                    | 125                       | 17.6          | 10          | 400                    | 0.612                  | 0.551 | 0.245 | 3   |
| NOSD337M004#0035 | D         | 330              | 4                 | 85                     | 2                    | 125                       | 26.4          | 8           | 35                     | 2.268                  | 2.041 | 0.907 | 3   |
| NOSD337M004#0055 | D         | 330              | 4                 | 85                     | 2                    | 125                       | 26.4          | 8           | 55                     | 1.809                  | 1.628 | 0.724 | 3   |
| NOSD337M004#0100 | D         | 330              | 4                 | 85                     | 2                    | 125                       | 26.4          | 8           | 100                    | 1.342                  | 1.207 | 0.537 | 3   |
| NOSD337M004#0300 | D         | 330              | 4                 | 85                     | 2                    | 125                       | 26.4          | 8           | 300                    | 0.775                  | 0.697 | 0.310 | 3   |
| NOSE337M004#0100 | E         | 330              | 4                 | 85                     | 2                    | 125                       | 26.4          | 8           | 100                    | 1.407                  | 1.266 | 0.563 | 3   |
| NOSY337M004#0150 | Y         | 330              | 4                 | 85                     | 2                    | 125                       | 26.4          | 12          | 150                    | 1.000                  | 0.900 | 0.400 | 3   |
| NOSY337M004#0300 | Y         | 330              | 4                 | 85                     | 2                    | 125                       | 26.4          | 12          | 300                    | 0.707                  | 0.636 | 0.283 | 3   |
| NOSD477M004#0100 | D         | 470              | 4                 | 85                     | 2                    | 125                       | 37.6          | 12          | 100                    | 1.342                  | 1.207 | 0.537 | 3   |
| NOSD477M004#0300 | D         | 470              | 4                 | 85                     | 2                    | 125                       | 37.6          | 12          | 300                    | 0.775                  | 0.697 | 0.310 | 3   |
| NOSE477M004#0075 | E         | 470              | 4                 | 85                     | 2                    | 125                       | 37.6          | 12          | 75                     | 1.625                  | 1.462 | 0.650 | 3   |
| NOSE477M004#0100 | E         | 470              | 4                 | 85                     | 2                    | 125                       | 37.6          | 12          | 100                    | 1.407                  | 1.266 | 0.563 | 3   |
| NOSE477M004#0300 | E         | 470              | 4                 | 85                     | 2                    | 125                       | 37.6          | 12          | 300                    | 0.812                  | 0.731 | 0.325 | 3   |
| NOSV687M004#0075 | V         | 680              | 4                 | 85                     | 2                    | 125                       | 54.4          | 14          | 75                     | 2.000                  | 1.800 | 0.800 | 3   |
| NOSV687M004#0300 | V         | 680              | 4                 | 85                     | 2                    | 125                       | 54.4          | 14          | 300                    | 1.000                  | 0.900 | 0.400 | 3   |
| 6.3 Volt @ 85°C  |           |                  |                   |                        |                      |                           |               |             |                        |                        |       |       |     |
| NOSA106M006#0800 | A         | 10               | 6.3               | 85                     | 3                    | 125                       | 1.2           | 6           | 800                    | 0.335                  | 0.302 | 0.134 | 1   |
| NOSA106M006#1000 | A         | 10               | 6.3               | 85                     | 3                    | 125                       | 1.2           | 6           | 1000                   | 0.300                  | 0.270 | 0.120 | 1   |
| NOSA106M006#2000 | A         | 10               | 6.3               | 85                     | 3                    | 125                       | 1.2           | 6           | 2000                   | 0.212                  | 0.191 | 0.085 | 1   |
| NOSA106M006#2200 | A         | 10               | 6.3               | 85                     | 3                    | 125                       | 1.2           | 6           | 2200                   | 0.202                  | 0.182 | 0.081 | 1   |
| NOSB156M006#0600 | B         | 15               | 6.3               | 85                     | 3                    | 125                       | 1.8           | 6           | 600                    | 0.412                  | 0.371 | 0.165 | 1   |
| NOSB156M006#2000 | B         | 15               | 6.3               | 85                     | 3                    | 125                       | 1.8           | 6           | 2000                   | 0.226                  | 0.203 | 0.090 | 1   |
| NOSB226M006#0600 | B         | 22               | 6.3               | 85                     | 3                    | 125                       | 2.6           | 6           | 600                    | 0.412                  | 0.371 | 0.165 | 1   |
| NOSB226M006#1900 | B         | 22               | 6.3               | 85                     | 3                    | 125                       | 2.6           | 6           | 1900                   | 0.232                  | 0.209 | 0.093 | 1   |
| NOSB336M006#0600 | B         | 33               | 6.3               | 85                     | 3                    | 125                       | 4.0           | 6           | 600                    | 0.412                  | 0.371 | 0.165 | 1   |
| NOSB336M006#1700 | B         | 33               | 6.3               | 85                     | 3                    | 125                       | 4.0           | 6           | 1700                   | 0.245                  | 0.220 | 0.098 | 1   |
| NOSC336M006#0500 | C         | 33               | 6.3               | 85                     | 3                    | 125                       | 4.0           | 6           | 500                    | 0.514                  | 0.462 | 0.206 | 1   |
| NOSW336M006#0250 | W         | 33               | 6.3               | 85                     | 3                    | 125                       | 4.0           | 6           | 250                    | 0.657                  | 0.592 | 0.263 | 1   |
| NOSW336M006#0500 | W         | 33               | 6.3               | 85                     | 3                    | 125                       | 4.0           | 6           | 500                    | 0.465                  | 0.418 | 0.186 | 1   |
| NOSB476M006#0500 | B         | 47               | 6.3               | 85                     | 3                    | 125                       | 5.6           | 6           | 500                    | 0.452                  | 0.406 | 0.181 | 1   |
| NOSB476M006#0800 | B         | 47               | 6.3               | 85                     | 3                    | 125                       | 5.6           | 6           | 800                    | 0.357                  | 0.321 | 0.143 | 1   |
| NOSC476M006#0300 | C         | 47               | 6.3               | 85                     | 3                    | 125                       | 5.7           | 6           | 300                    | 0.663                  | 0.597 | 0.265 | 1   |
| NOSC476M006#0500 | C         | 47               | 6.3               | 85                     | 3                    | 125                       | 5.7           | 6           | 500                    | 0.514                  | 0.462 | 0.206 | 1   |
| NOSC686M006#0075 | C         | 68               | 6.3               | 85                     | 3                    | 125                       | 8.2           | 6           | 75                     | 1.327                  | 1.194 | 0.531 | 1   |
| NOSC686M006#0200 | C         | 68               | 6.3               | 85                     | 3                    | 125                       | 8.2           | 6           | 200                    | 0.812                  | 0.731 | 0.325 | 1   |
| NOSC686M006#0500 | C         | 68               | 6.3               | 85                     | 3                    | 125                       | 8.2           | 6           | 500                    | 0.514                  | 0.462 | 0.206 | 1   |
| NOSX686M006#0100 | X         | 68               | 6.3               | 85                     | 3                    | 125                       | 8.2           | 6           | 100                    | 1.095                  | 0.986 | 0.438 | 3   |
| NOSX686M006#0500 | X         | 68               | 6.3               | 85                     | 3                    | 125                       | 8.2           | 6           | 500                    | 0.490                  | 0.441 | 0.196 | 3   |
| NOSY686M006#0100 | Y         | 68               | 6.3               | 85                     | 3                    | 125                       | 8.2           | 6           | 100                    | 1.225                  | 1.102 | 0.490 | 3   |
| NOSY686M006#0500 | Y         | 68               | 6.3               | 85                     | 3                    | 125                       | 8.2           | 6           | 500                    | 0.548                  | 0.493 | 0.219 | 3   |
| NOSC107M006#0150 | C         | 100              | 6.3               | 85                     | 3                    | 125                       | 12.0          | 8           | 150                    | 0.938                  | 0.844 | 0.375 | 1   |
| NOSC107M006#0400 | C         | 100              | 6.3               | 85                     | 3                    | 125                       | 12.0          | 8           | 400                    | 0.574                  | 0.517 | 0.230 | 1   |
| NOSD107M006#0080 | D         | 100              | 6.3               | 85                     | 3                    | 125                       | 12.0          | 6           | 80                     | 1.500                  | 1.350 | 0.600 | 3   |
| NOSD107M006#0100 | D         | 100              | 6.3               | 85                     | 3                    | 125                       | 12.0          | 6           | 100                    | 1.342                  | 1.207 | 0.537 | 3   |
| NOSD107M006#0400 | D         | 100              | 6.3               | 85                     | 3                    | 125                       | 12.0          | 6           | 400                    | 0.671                  | 0.604 | 0.268 | 3   |
| NOSY107M006#0100 | Y         | 100              | 6.3               | 85                     | 3                    | 125                       | 12.0          | 6           | 100                    | 1.225                  | 1.102 | 0.490 | 3   |
| NOSY107M006#0400 | Y         | 100              | 6.3               | 85                     | 3                    | 125                       | 12.0          | 6           | 400                    | 0.612                  | 0.551 | 0.245 | 3   |
| NOSD157M006#0050 | D         | 150              | 6.3               | 85                     | 3                    | 125                       | 18.0          | 6           | 50                     | 1.897                  | 1.708 | 0.759 | 3   |
| NOSD157M006#0070 | D         | 150              | 6.3               | 85                     | 3                    | 125                       | 18.0          | 6           | 70                     | 1.604                  | 1.443 | 0.641 | 3   |
| NOSD157M006#0100 | D         | 150              | 6.3               | 85                     | 3                    | 125                       | 18.0          | 6           | 100                    | 1.342                  | 1.207 | 0.537 | 3   |
| NOSD157M006#0400 | D         | 150              | 6.3               | 85                     | 3                    | 125                       | 18.0          | 6           | 400                    | 0.671                  | 0.604 | 0.268 | 3   |
| NOSY157M006#0100 | Y         | 150              | 6.3               | 85                     | 3                    | 125                       | 18.0          | 6           | 100                    | 1.225                  | 1.102 | 0.490 | 3   |
| NOSY157M006#0400 | Y         | 150              | 6.3               | 85                     | 3                    | 125                       | 18.0          | 6           | 400                    | 0.612                  | 0.551 | 0.245 | 3   |
| NOSD227M006#0045 | D         | 220              | 6.3               | 85                     | 3                    | 125                       | 26.4          | 8           | 45                     | 2.000                  | 1.800 | 0.800 | 3   |
| NOSD227M006#0060 | D         | 220              | 6.3               | 85                     | 3                    | 125                       | 26.4          | 8           | 60                     | 1.732                  | 1.559 | 0.693 | 3   |
| NOSD227M006#0100 | D         | 220              | 6.3               | 85                     | 3                    | 125                       | 26.4          | 8           | 100                    | 1.342                  | 1.207 | 0.537 | 3   |
| NOSD227M006#0400 | D         | 220              | 6.3               | 85                     | 3                    | 125                       | 26.4          | 8           | 400                    | 0.671                  | 0.604 | 0.268 | 3   |
| NOSE227M006#0080 | E         | 220              | 6.3               | 85                     | 3                    | 125                       | 26.4          | 12          | 80                     | 1.573                  | 1.416 | 0.629 | 3   |
| NOSE227M006#0100 | E         | 220              | 6.3               | 85                     | 3                    | 125                       | 26.4          | 12          | 100                    | 1.407                  | 1.266 | 0.563 | 3   |
| NOSE227M006#0400 | E         | 220              | 6.3               | 85                     | 3                    | 125                       | 26.4          | 12          | 400                    | 0.704                  | 0.633 | 0.281 | 3   |

# OxiCap® NOS Low ESR Series

## Niobium Oxide Capacitor



### RATINGS & PART NUMBER REFERENCE

| Part Number      | Case Size | Capacitance (μF) | Rated Voltage (V) | Rated Temperature (°C) | Category Voltage (V) | Category Temperature (°C) | DCL Max. (μA) | DF Max. (%) | ESR Max. @ 100kHz (mΩ) | 100kHz RMS Current (A) |       |       | MSL |
|------------------|-----------|------------------|-------------------|------------------------|----------------------|---------------------------|---------------|-------------|------------------------|------------------------|-------|-------|-----|
|                  |           |                  |                   |                        |                      |                           |               |             |                        | 25°C                   | 85°C  | 125°C |     |
| NOSE337M006#0080 | E         | 330              | 6.3               | 85                     | 3                    | 125                       | 39.6          | 12          | 80                     | 1.573                  | 1.416 | 0.629 | 3   |
| NOSE337M006#0100 | E         | 330              | 6.3               | 85                     | 3                    | 125                       | 39.6          | 12          | 100                    | 1.407                  | 1.266 | 0.563 | 3   |
| NOSE337M006#0300 | E         | 330              | 6.3               | 85                     | 3                    | 125                       | 39.6          | 12          | 300                    | 0.812                  | 0.731 | 0.325 | 3   |
| NOSV477M006#0075 | V         | 470              | 6.3               | 85                     | 3                    | 125                       | 56.4          | 14          | 75                     | 2.000                  | 1.800 | 0.800 | 3   |
| NOSV477M006#0300 | V         | 470              | 6.3               | 85                     | 3                    | 125                       | 56.4          | 14          | 300                    | 1.000                  | 0.900 | 0.400 | 3   |
| 8 Volt @ 85°C    |           |                  |                   |                        |                      |                           |               |             |                        |                        |       |       |     |
| NOSA106M008#2200 | A         | 10               | 8                 | 85                     | 4                    | 125                       | 1.6           | 10          | 2200                   | 0.202                  | 0.182 | 0.081 | 1   |
| NOSB106M008#1000 | B         | 10               | 8                 | 85                     | 4                    | 125                       | 1.6           | 10          | 1000                   | 0.319                  | 0.287 | 0.128 | 1   |
| NOSB156M008#1000 | B         | 15               | 8                 | 85                     | 4                    | 125                       | 2.4           | 10          | 1000                   | 0.319                  | 0.287 | 0.128 | 1   |
| NOSB226M008#0700 | B         | 22               | 8                 | 85                     | 4                    | 125                       | 3.5           | 10          | 700                    | 0.382                  | 0.344 | 0.153 | 1   |
| NOSB226M008#1800 | B         | 22               | 8                 | 85                     | 4                    | 125                       | 3.5           | 10          | 1800                   | 0.238                  | 0.214 | 0.095 | 1   |
| NOSC226M008#0500 | C         | 22               | 8                 | 85                     | 4                    | 125                       | 3.5           | 10          | 500                    | 0.514                  | 0.462 | 0.206 | 1   |
| NOSC336M008#0500 | C         | 33               | 8                 | 85                     | 4                    | 125                       | 5.3           | 10          | 500                    | 0.514                  | 0.462 | 0.206 | 1   |
| NOSC476M008#0400 | C         | 47               | 8                 | 85                     | 4                    | 125                       | 7.5           | 10          | 400                    | 0.574                  | 0.517 | 0.230 | 1   |
| NOSC686M008#0500 | C         | 68               | 8                 | 85                     | 4                    | 125                       | 11.0          | 16          | 500                    | 0.514                  | 0.462 | 0.206 | 1   |
| NOSD107M008#0400 | D         | 100              | 8                 | 85                     | 4                    | 125                       | 16.0          | 16          | 400                    | 0.671                  | 0.604 | 0.268 | 3   |

Moisture Sensitivity Level (MSL) is defined according to J-STD-020. All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes. The EIA & CECC standards for capacitors allow an ESR movement to 1.25 times catalog limit post mounting. For typical weight and composition see page 259.

**NOTE: KYOCERA AVX reserves the right to supply higher voltage ratings or tighter tolerance part in the same case size, to the same reliability standards.**

# OxiCap® NOS Low ESR Series

## Niobium Oxide Capacitor



### QUALIFICATION TABLE

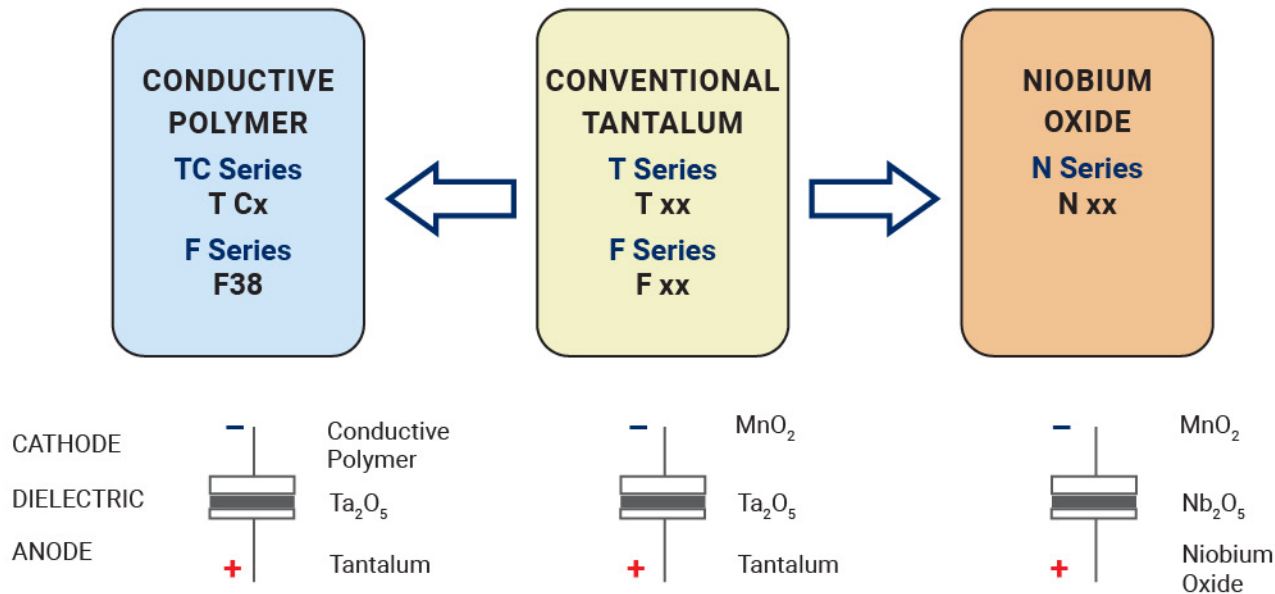
| TEST                         | NOS series (Temperature range -55°C to +125°C)                                                                                                                                                |               |               |                    |                              |           |       |           |          |       |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|--------------------|------------------------------|-----------|-------|-----------|----------|-------|
|                              | Condition                                                                                                                                                                                     |               |               | Characteristics    |                              |           |       |           |          |       |
| <b>Endurance</b>             | Apply rated voltage (Ur) at 85°C and / or category voltage (Uc) at 125°C for 2000 hours through a circuit impedance of ≤0.1Ω/V. Stabilize at room temperature for 1-2 hours before measuring. |               |               | Visual examination | no visible damage            |           |       |           |          |       |
|                              |                                                                                                                                                                                               |               |               | DCL                | initial limit                |           |       |           |          |       |
|                              |                                                                                                                                                                                               |               |               | ΔC/C               | within ±10% of initial value |           |       |           |          |       |
|                              |                                                                                                                                                                                               |               |               | DF                 | initial limit                |           |       |           |          |       |
|                              |                                                                                                                                                                                               |               |               | ESR                | 1.25 x initial limit         |           |       |           |          |       |
| <b>Storage Life</b>          | Store at 125°C, no voltage applied, for 2000 hours. Stabilize at room temperature for 1-2 hours before measuring.                                                                             |               |               | Visual examination | no visible damage            |           |       |           |          |       |
|                              |                                                                                                                                                                                               |               |               | DCL                | initial limit                |           |       |           |          |       |
|                              |                                                                                                                                                                                               |               |               | ΔC/C               | within ±10% of initial value |           |       |           |          |       |
|                              |                                                                                                                                                                                               |               |               | DF                 | initial limit                |           |       |           |          |       |
|                              |                                                                                                                                                                                               |               |               | ESR                | 1.25 x initial limit         |           |       |           |          |       |
| <b>Biased Humidity</b>       | Apply rated voltage (Ur) at 85°C, 85% relative humidity for 1000 hours. Stabilize at room temperature and humidity for 1-2 hours before measuring.                                            |               |               | Visual examination | no visible damage            |           |       |           |          |       |
|                              |                                                                                                                                                                                               |               |               | DCL                | 2 x initial limit            |           |       |           |          |       |
|                              |                                                                                                                                                                                               |               |               | ΔC/C               | within ±10% of initial value |           |       |           |          |       |
|                              |                                                                                                                                                                                               |               |               | DF                 | 1.2 x initial limit          |           |       |           |          |       |
|                              |                                                                                                                                                                                               |               |               | ESR                | 1.25 x initial limit         |           |       |           |          |       |
| <b>Temperature Stability</b> | Step                                                                                                                                                                                          | Temperature°C | Duration(min) |                    | +20°C                        | -55°C     | +20°C | +85°C     | +125°C   | +20°C |
|                              | 1                                                                                                                                                                                             | +20           | 15            |                    |                              |           |       |           |          |       |
|                              | 2                                                                                                                                                                                             | -55           | 15            | DCL                | IL*                          | n/a       | IL*   | 12 x IL*  | 15 x IL* | IL*   |
|                              | 3                                                                                                                                                                                             | +20           | 15            | ΔC/C               | n/a                          | +0/-10%   | ±5%   | +10/-0%   | +12/-0%  | ±5%   |
|                              | 4                                                                                                                                                                                             | +85           | 15            | DF                 | IL*                          | 1.5 x IL* | IL*   | 1.5 x IL* | 2 x IL*  | IL*   |
|                              | 5                                                                                                                                                                                             | +125          | 15            |                    |                              |           |       |           |          |       |
| <b>Surge Voltage</b>         | Apply 1.3x category voltage (Uc) at 125°C for 1000 cycles of duration 6 min (30 sec charge, 5 min 30 sec discharge) through a charge / discharge resistance of 1000Ω                          |               |               | Visual examination | no visible damage            |           |       |           |          |       |
|                              |                                                                                                                                                                                               |               |               | DCL                | initial limit                |           |       |           |          |       |
|                              |                                                                                                                                                                                               |               |               | ΔC/C               | within ±5% of initial value  |           |       |           |          |       |
|                              |                                                                                                                                                                                               |               |               | DF                 | initial limit                |           |       |           |          |       |
|                              |                                                                                                                                                                                               |               |               | ESR                | 1.25 x initial limit         |           |       |           |          |       |
| <b>Mechanical Shock</b>      | MIL-STD-202, Method 213, Condition F                                                                                                                                                          |               |               | Visual examination | no visible damage            |           |       |           |          |       |
|                              |                                                                                                                                                                                               |               |               | DCL                | initial limit                |           |       |           |          |       |
|                              |                                                                                                                                                                                               |               |               | ΔC/C               | within ±5% of initial value  |           |       |           |          |       |
|                              |                                                                                                                                                                                               |               |               | DF                 | initial limit                |           |       |           |          |       |
|                              |                                                                                                                                                                                               |               |               | ESR                | 1.25 x initial limit         |           |       |           |          |       |
| <b>Vibration</b>             | MIL-STD-202, Method 204, Condition D                                                                                                                                                          |               |               | Visual examination | no visible damage            |           |       |           |          |       |
|                              |                                                                                                                                                                                               |               |               | DCL                | initial limit                |           |       |           |          |       |
|                              |                                                                                                                                                                                               |               |               | ΔC/C               | within ±5% of initial value  |           |       |           |          |       |
|                              |                                                                                                                                                                                               |               |               | DF                 | initial limit                |           |       |           |          |       |
|                              |                                                                                                                                                                                               |               |               | ESR                | 1.25 x initial limit         |           |       |           |          |       |

\*Initial Limit

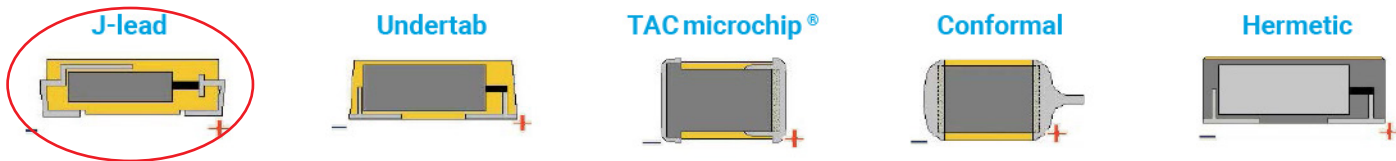
# OxiCap® NOS Low ESR Series

## Niobium Oxide Capacitor

### SOLID ELECTROLYTIC CAPACITOR ROADMAP



### FIVE CAPACITOR CONSTRUCTION STYLES



### SERIES LINE UP : NIOBIUM OXIDE OxiCap® CAPACITORS

