# OxiCap® NOS Low ESR Series

## Niobium Oxide Capacitor



### FEATURES

- Low ESR Nb0 Capacitors
- Non-Burn Safe Technology
- Reliability Level: 0.2%/1000 hrs.
- 100% Surge Current Tested
- CV Range: 10-470µF / 1.8-8V
- 5 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

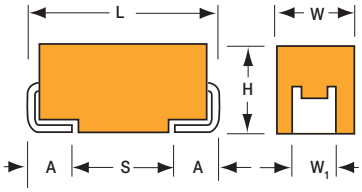
**LEAD-FREE COMPATIBLE COMPONENT**

RoHS COMPLIANT

**NON-BURN NON-SMOKE**

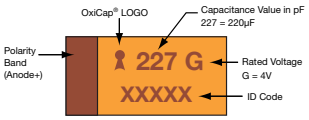


Elektra Award 2005




### MARKING

#### A, B, C, D, 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) |
| 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) |

**$W_1$ dimension applies to the termination width for A dimensional area only.**

### HOW TO ORDER

| NOS | D | 107 | M | 006 | R | 0100 | – |
|---|---|---|---|---|---|---|---|
| **Type** | **Case Size** See table above | **Capacitance Code** 1st two digits represent significant figures, 3rd digit represents multiplier in pF | **Tolerance** M = ±20% | **Rated DC Voltage** 001 = 1.8Vdc 002 = 2.5Vdc 004 = 4Vdc 006 = 6.3Vdc 008 = 8Vdc | **Packaging** R = Pure Tin 7" Reel S = Pure Tin 13" Reel | **ESR in mΩ** | **Additional characters may be added for special requirements** V = Dry pack Option (selected codes only) with exception of D & Y cases |

### TECHNICAL SPECIFICATIONS

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Technical Data: | | All technical data relate to an ambient temperature of +25°C is not stated | | | | | |
| Capacitance Range: | | 10 µF to 470 µF | | | | | |
| Capacitance Tolerance: | | ±20% | | | | | |
| Leakage Current DCL: | | 0.02CV | | | | | |
| Rated Voltage DC ($V_R$) | ≤ +85°C: | 1.8 | 2.5 | 4 | 6.3 | 8 | |
| Category Voltage ($V_C$) | ≤ +105°C: | 1.2 | 1.7 | 2.7 | 4 | 7 | |
| Category Voltage ($V_C$) | ≤ +125°C: | 0.9 | 1.3 | 2 | 3 | 4 | |
| Surge Voltage ($V_S$) | ≤ +85°C: | 2.3 | 3.3 | 5.2 | 8 | 10 | |
| Surge Voltage ($V_S$) | ≤ +105°C: | 1.6 | 2.2 | 3.4 | 5 | 8 | |
| Surge Voltage ($V_S$) | ≤ +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, $V_R$, 0.1Ω/V series impedance, 60% confidence level | | | | | |
| | | Meets requirements of AEC-Q200 | | | | | |



The Important Information/Disclaimer is incorporated in the catalog where these specifications came from or available online at www.kyocera-avx.com/disclaimer/ by reference and should be reviewed in full before placing any order.

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

| Capacitance | | Rated Voltage DC ($V_R$) 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(2000) | |
| 22 | 226 | | | B(1900) | B(600,1900) | B(700,1800) |
| 33 | 336 | | | | B(600,1700)<br>C(500) | |
| 47 | 476 | | | B(500,1600) | B(500,800)<br>C(300,500) | C(400) |
| 68 | 686 | | | | C(75,200,500) | C(500) |
| 100 | 107 | | | C(70,150,400) | C(150,400)<br>D(80,100,400<br>Y(100,400) | |
| 150 | 157 | | | C(90,150,400)<br>Y(400) | D(70,100,400)<br>Y(100,400) | |
| 220 | 227 | C(125,400) | C(80,125,400) | D(60,100,400) | D(60,100,400) | |
| 330 | 337 | | D(100,300) | D(100,300) | | |
| 470 | 477 | | D(55,100,300) | D(100,300) | | |

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.

### 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** | | | | | | | | | | | | | |
| 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 |
| **2.5 Volt @ 85°C** | | | | | | | | | | | | | |
| 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 |
| 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 |
| 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 |
| **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#1900 | B | 22 | 4 | 85 | 2 | 125 | 1.8 | 6 | 1900 | 0.232 | 0.209 | 0.093 | 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 |
| 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 |
| 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#0400 | Y | 150 | 4 | 85 | 2 | 125 | 12.0 | 6 | 400 | 0.612 | 0.551 | 0.245 | 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 |
| 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 |
| 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 |
| **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#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 |
| 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 |
| 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#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 |




The Important Information/Disclaimer is incorporated in the catalog where these specifications came from or available online at www.kyocera-avx.com/disclaimer/ by reference and should be reviewed in full before placing any order.

### 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 | |
| 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 |
| **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 |
| 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 |
| 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 |

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, refer to the *Product Safety Information Datasheet* at the end of the Polymer, Tantalum and Niobium Oxide Capacitors catalog.

**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.**

## QUALIFICATION TABLE

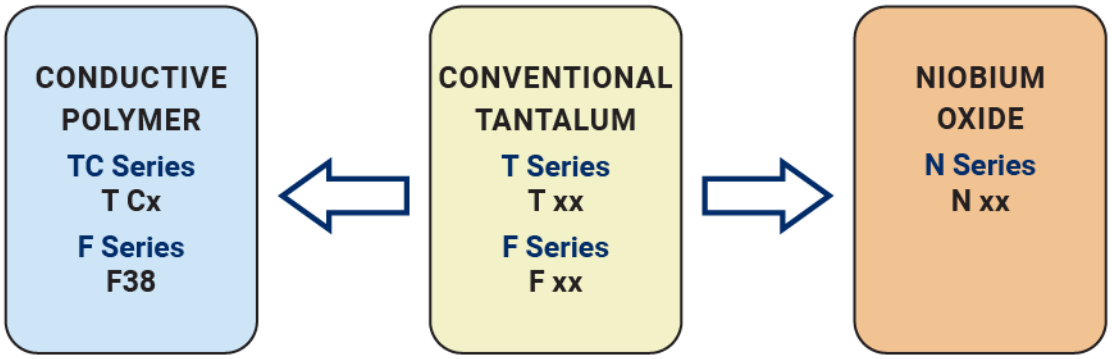
<table>
<tr><th rowspan="2">TEST</th><th colspan="9">NOS series (Temperature range -55ºC to +125ºC)</th></tr>
<tr><th colspan="4">Condition</th><th colspan="5">Characteristics</th></tr>
<tr><td rowspan="5">Endurance</td><td colspan="4" rowspan="5">Apply rated voltage (Ur) at 85ºC and / or category voltage (Uc) at 125ºC for 2000 hours through a circuit impedance of ≤0.1Ω/V. Stabilize at room temperature for 1-2 hours before measuring.</td><td>Visual examination</td><td colspan="4">no visible damage</td></tr>
<tr><td>DCL</td><td colspan="4">initial limit</td></tr>
<tr><td>ΔC/C</td><td colspan="4">within ±10% of initial value</td></tr>
<tr><td>DF</td><td colspan="4">initial limit</td></tr>
<tr><td>ESR</td><td colspan="4">1.25 x initial limit</td></tr>
<tr><td rowspan="5">Storage Life</td><td colspan="4" rowspan="5">Store at 125ºC, no voltage applied, for 2000 hours. Stabilize at room temperature for 1-2 hours before measuring.</td><td>Visual examination</td><td colspan="4">no visible damage</td></tr>
<tr><td>DCL</td><td colspan="4">initial limit</td></tr>
<tr><td>ΔC/C</td><td colspan="4">within ±10% of initial value</td></tr>
<tr><td>DF</td><td colspan="4">initial limit</td></tr>
<tr><td>ESR</td><td colspan="4">1.25 x initial limit</td></tr>
<tr><td rowspan="5">Biased Humidity</td><td colspan="4" rowspan="5">Apply rated voltage (Ur) at 85ºC, 85% relative humidity for 1000 hours. Stabilize at room temperature and humidity for 1-2 hours before measuring.</td><td>Visual examination</td><td colspan="4">no visible damage</td></tr>
<tr><td>DCL</td><td colspan="4">2 x initial limit</td></tr>
<tr><td>ΔC/C</td><td colspan="4">within ±10% of initial value</td></tr>
<tr><td>DF</td><td colspan="4">1.2 x initial limit</td></tr>
<tr><td>ESR</td><td colspan="4">1.25 x initial limit</td></tr>
<tr><td rowspan="8">Temperature Stability</td><td>Step</td><td>Temperature°C</td><td>Duration(min)</td><td></td><td>+20ºC</td><td>-55ºC</td><td>+20ºC</td><td>+85ºC</td><td>+125ºC</td><td>+20ºC</td></tr>
<tr><td>1</td><td>+20</td><td>15</td><td>DCL</td><td>IL*</td><td>n/a</td><td>IL*</td><td>12 x IL*</td><td>15 x IL*</td><td>IL*</td></tr>
<tr><td>2</td><td>-55</td><td>15</td><td>ΔC/C</td><td>n/a</td><td>+0/-10%</td><td>±5%</td><td>+10/-0%</td><td>+12/-0%</td><td>±5%</td></tr>
<tr><td>3</td><td>+20</td><td>15</td><td>DF</td><td>IL*</td><td>1.5 x IL*</td><td>IL*</td><td>1.5 x IL*</td><td>2 x IL*</td><td>IL*</td></tr>
<tr><td>4</td><td>+85</td><td>15</td><td>ESR</td><td>1.25xIL*</td><td>2.5xIL*</td><td>1.25xIL*</td><td>1.25xIL*</td><td>1.25xIL*</td><td>1.25xIL*</td></tr>
<tr><td>5</td><td>+125</td><td>15</td><td colspan="6"></td></tr>
<tr><td>6</td><td>+20</td><td>15</td><td colspan="6"></td></tr>
<tr><td rowspan="5">Surge Voltage</td><td colspan="4" rowspan="5">Apply 1.3x category voltage (Uc) at 125ºC for 1000 cycles of duration 6 min (30 sec charge, 5 min 30 sec discharge) through a charge / discharge resistance of 1000Ω</td><td>Visual examination</td><td colspan="4">no visible damage</td></tr>
<tr><td>DCL</td><td colspan="4">initial limit</td></tr>
<tr><td>ΔC/C</td><td colspan="4">within ±5% of initial value</td></tr>
<tr><td>DF</td><td colspan="4">initial limit</td></tr>
<tr><td>ESR</td><td colspan="4">1.25 x initial limit</td></tr>
<tr><td rowspan="5">Mechanical Shock</td><td colspan="4" rowspan="5">MIL-STD-202, Method 213, Condition F</td><td>Visual examination</td><td colspan="4">no visible damage</td></tr>
<tr><td>DCL</td><td colspan="4">initial limit</td></tr>
<tr><td>ΔC/C</td><td colspan="4">within ±5% of initial value</td></tr>
<tr><td>DF</td><td colspan="4">initial limit</td></tr>
<tr><td>ESR</td><td colspan="4">1.25 x initial limit</td></tr>
<tr><td rowspan="5">Vibration</td><td colspan="4" rowspan="5">MIL-STD-202, Method 204, Condition D</td><td>Visual examination</td><td colspan="4">no visible damage</td></tr>
<tr><td>DCL</td><td colspan="4">initial limit</td></tr>
<tr><td>ΔC/C</td><td colspan="4">within ±5% of initial value</td></tr>
<tr><td>DF</td><td colspan="4">initial limit</td></tr>
<tr><td>ESR</td><td colspan="4">1.25 x initial limit</td></tr>
</table>

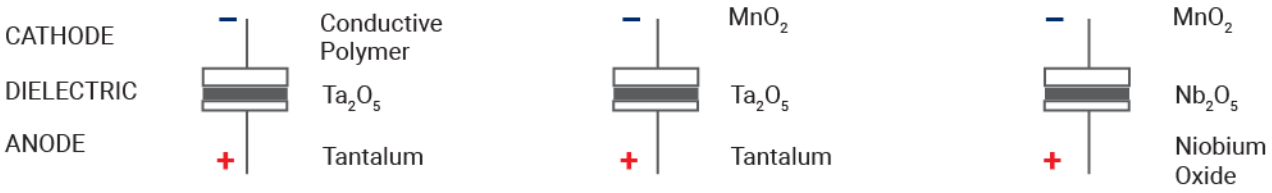
*Initial Limit



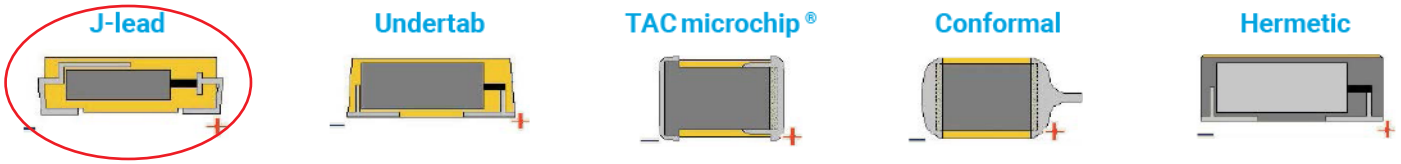
The Important Information/Disclaimer is incorporated in the catalog where these specifications came from or available online at www.kyocera-avx.com/disclaimer/ by reference and should be reviewed in full before placing any order.

### SOLID ELECTROLYTIC CAPACITOR ROADMAP




### FIVE CAPACITOR CONSTRUCTION STYLES




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

