

# OxiCap® NLJ Series



## Niobium Oxide Capacitors High CV Consumer Series



### FEATURES

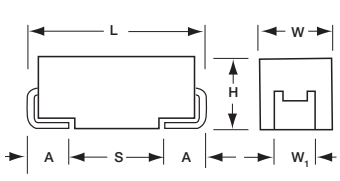
- High Volumetric efficiency
- Environmentally friendly
- 3xreflow 260°C compatible
- Consumer applications
- OxiCap® non-burn technology
- RoHS compliance
- Lead-free solution
- 6 case sizes available
- CV range: 22-150µF / 4-10V



Elektra Award  
2005

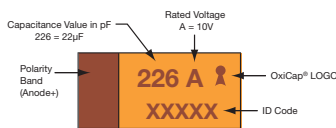
### APPLICATIONS

- Consumer handhelds and entertainment

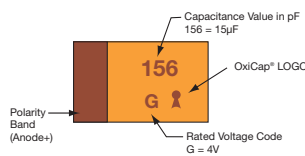


### MARKING

#### F, S, T, W, X, Y CASE



#### P 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)	W <sub>1</sub> ±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)
G	1206	3216-15	3.20 (0.126)	1.60 (0.063)	1.50 (0.059) max	1.20 (0.047)	0.80 (0.031)	1.10 (0.043)
P	0805	2012-15	2.05 (0.081)	1.35 (0.053)	1.50 (0.059) max	1.00±0.10 (0.039±0.004)	0.50 (0.020)	0.85 (0.033)
S	1206	3216-12	3.20 (0.126)	1.60 (0.063)	1.20 (0.047) max	1.20 (0.047)	0.80 (0.031)	1.10 (0.043)
T	1210	3528-12	3.50 (0.138)	2.80 (0.110)	1.20 (0.047) max	2.20 (0.087)	0.80 (0.031)	1.40 (0.055)
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)
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.

Under development

### HOW TO ORDER

**NLJ**

Type

**A**

Case Size  
See table above

**476**

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

**M**

Tolerance  
M=±20%

**006**

Rated DC Voltage  
004 = 4Vdc  
006 = 6.3Vdc  
010 = 10Vdc

**R**

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

**1600**

ESR in mΩ

### TECHNICAL SPECIFICATIONS

Technical Data:

All technical data relate to an ambient temperature of +25°C

Capacitance Range: 6.8 µF to 1000 µF

Capacitance Tolerance: ±20%

Leakage Current DCL: 0.1CV

Rated Voltage DC (V<sub>R</sub>) -55°C ≤ +40°C: 4 6.3 10

Category Voltage (V<sub>C</sub>) at 85°C: 2 3.2 5

Category Voltage (V<sub>C</sub>) at 105°C: 1.3 2 3.3

Temperature Range: -55°C to +105°C with category voltage

Reliability: 0.2% per 1000 hours at 85°C, 0.5xV<sub>R</sub>, 0.1Ω/V series impedance with 60% confidence level

# OxiCap® NLJ Series



## Niobium Oxide Capacitors High CV Consumer Series

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

Capacitance		Rated Voltage DC to 40°C / 0.5DC to 85°C / 0.33DC to 105°C		
µF	Code	4V (G)	6.3V (J)	10V (A)
6.8	685			K(4000)*/P(5000)*
10	106		K(4000)*	K(2200)*/P(6000)*
15	156	K(4000)*/P(4000)*	P(3500)*	L(2800)*/S(2000)*
22	226	P(4000)	L(2500)*/S(1800)	A(4000)/G(3000) L(2200)*
33	336	A(3000)*/S(1700)*	G(2200)/L(2500)*	A(1700)/T(1800)*
47	476	A(2600)*/G(2600)* L(1600)*	A(1600)/T(1600)	B(1000)/H(1000)* W(400)*
68	686	A(1500)*/T(1500)*	H(900)*	B(1400)*
100	107	H(900)*	B(1700)/W(600)*	C(1200)*/Y(1200)*
150	157	B(1500)/W(400)*		
220	227			D(1000)*
330	337		C(500)*/Y(500)*	
470	477	C(500)*/Y(500)*		
680	687		D(500)*	
1000	108	D(500)*		



LEAD-FREE

LEAD-FREE COMPATIBLE  
COMPONENT



RoHS  
COMPLIANT



NON-BURN  
NON-SMOKE

Available Ratings, (ESR ratings in mOhms in brackets)

Engineering samples - please contact manufacturer

\*Codes under development - subject to change

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

### RATINGS & PART NUMBER REFERENCE

AVX Part No.	Case Size	Capacitance (µF)	Rated Voltage (V)	Rated Temperature (°C)	Category Voltage (V)	Category Temperature (°C)	Maximum Surge Current (A)	DCL (µA) Max.	ESR Max. (mΩ) @ 100kHz	MSL	100kHz RMS Current (mA)		
											25°C	85°C	105°C
<b>4 Volt @ 85°C</b>													
NLJP226M004#4000	P	22	4	85	1.3	105	0.4	8.8	4000	3	134	121	54
NLJB157M004#1500	B	150	4	85	1.3	105	1.0	60.0	1500	3	261	235	104
<b>6.3 Volt @ 85°C</b>													
NLJS226M006#1800	S	22	6.3	85	2	105	1.4	13.2	1800	3	208	187	83
NLJG336M006#2200	G	33	6.3	85	2	105	1.2	19.8	2200	3	195	176	78
NLJA476M006#1600	A	47	6.3	85	2	105	1.5	28.2	1600	3	237	213	98
NLJT476M006#1600	T	47	6.3	85	2	105	1.5	28.2	1600	3	245	220	98
NLJB107M006#1700	B	100	6.3	85	2	105	1.5	60.0	1700	3	245	220	98
<b>10 Volt @ 85°C</b>													
NLJA226M010#4000	A	22	10	85	3.3	105	1.1	22.0	4000	3	150	135	60
NLJG226M010#3000	G	22	10	85	3.3	105	1.4	22.0	3000	3	167	151	67
NLJA336M010#1700	A	33	10	85	3.3	105	2.3	33.0	1700	3	230	207	92
NLJB476M010#1000	B	47	10	85	3.3	105	3.4	47.0	1000	3	319	287	128

Moisture Sensitivity Level (MSL) is defined according to J-STD-020.

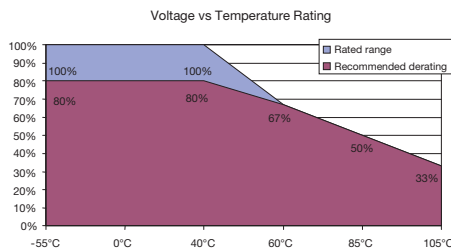
All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

ESR allowed to move up to 1.25 times catalogue limit post mounting

DCL allowed to move up to 2.00 times catalogue limit post mounting

For typical weight and composition see page 220.

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



### QUALIFICATION TABLE

TEST	NLJ series (Temperature range -55°C to +105°C)										
	Condition			Characteristics							
<b>Endurance</b>	Determine after application of rated voltage for 2000 +48/-0 hours at 40±2°C and then leaving 1-2 hours at room temperature. Also determine of 85°C temperature, category voltage for 2000 +48/-0 hours and then leaving 1-2 hours at room temperature. Power supply impedance to be ≤0.1Ω/V.			Visual examination	no visible damage						
				DCL	2 x initial limit						
				ΔC/C	within ±10% of initial value						
				ESR	1.25 x initial limit						
<b>Humidity</b>	Determine after storage without applied voltage at 65±2°C and 90-95±2% relative humidity for 500hrs and then recovery 1-2 hours at room temperature.			Visual examination	no visible damage						
				DCL	2 x initial limit						
				ΔC/C	within ±10% of initial value						
				ESR	1.25 x initial limit						
<b>Temperature Stability</b>	Step	Temperature°C	Duration(min)		+20°C	-55°C	+20°C	+85°C	+105°C	+20°C	
	1	+20±2	15	DCL	2 x IL*	n/a	2 x IL**	10 x IL*	12.5 x IL*	2 x IL*	
	2	-55+0/-3	15		ΔC/C	n/a	+0/-20%	±5%	+20/-0%	+25/-0%	±5%
	3	+20±2	15	ESR		1.25 x IL*	2.5 x IL*	1.25 x IL*	1.25 x IL*	1.25 x IL*	1.25 x IL*
	4	+85+3/-0	15								
	5	+105+3/-0	15								
	6	+20±2	15								
<b>Surge Voltage</b>	Test temperature: 40°C+3/0°C Test voltage: 1.3 x rated voltage Series protection resistance 1000±100Ω Discharge resistance: 1000Ω Number of cycles: 1000x Cycle duration: 6 min; 30 sec charge, 5 min 30 sec discharge			Visual examination	no visible damage						
				DCL	2 x initial limit						
				ΔC/C	within ±5% of initial value						
				ESR	1.25 x initial limit						

\*Initial Limit