

OxiCap® NLJ Series



Niobium Oxide Capacitors High CV Consumer Series



FEATURES

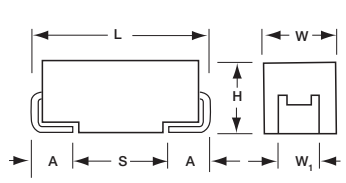
- High Volumetric efficiency
- Environmentally friendly
- 3xreflow 260°C compatible
- Consumer applications
- OxiCap® non-burn technology
- RoHS compliance
- Lead-free solution
- 6 case sizes available
- CV range: 22-150µF / 4-10V



Elektra Award
2005

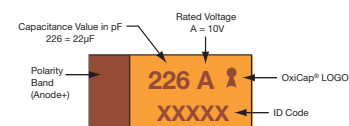
APPLICATIONS

- Consumer handhelds and entertainment

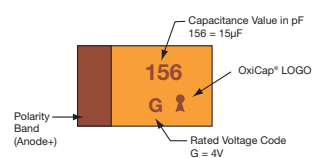


MARKING

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 ₁ ±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)

W₁ dimension applies to the termination width for A dimensional area only.

Under development

HOW TO ORDER

NLJ	A	476	M	006	R	1600
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 004 = 4Vdc 006 = 6.3Vdc 010 = 10Vdc	Packaging R = Pure Tin 7" Reel S = Pure Tin 13" Reel	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 _R)	-55°C ≤ +40°C:	4	6.3	10	
Category Voltage (V _C)	at 85°C:	2	3.2	5	
Category Voltage (V _C)	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_R, 0.1Ω/V series impedance with 60% confidence level



OxiCap® NLJ Series



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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)*		

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
4 Volt @ 85°C													
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
NLJW157M004#0400	W	150	4	85	1.3	105	2.4	60.0	400	3	520	468	208
NLJC477M004#0500	C	470	4	85	1.3	105	2.1	188.0	500	3	514	462	206
NLJY477M004#0500	Y	470	4	85	1.3	105	2.1	188.0	500	3	548	493	219
NLJD108M004#0500	D	1000	4	85	1.3	105	2.1	400.0	500	3	600	540	240
6.3 Volt @ 85°C													
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
NLJW107M006#0600	W	100	6.3	85	2	105	3.0	60.0	600	3	424	382	170
NLJC337M006#0500	C	330	6.3	85	2	105	3.3	198.0	500	3	514	462	206
NLJY337M006#0500	Y	330	6.3	85	2	105	3.3	198.0	500	3	548	493	219
NLJD687M006#0500	D	680	6.3	85	2	105	3.3	408.0	500	3	600	540	240
10 Volt @ 85°C													
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
NLJW476M010#0400	W	47	10	85	3.3	105	5.9	47.0	400	3	520	468	208
NLJC107M010#1200	C	100	10	85	3.3	105	3.0	100.0	1200	3	332	298	133
NLJY107M010#1200	Y	100	10	85	3.3	105	3.0	100.0	1200	3	354	318	141
NLJD227M010#1000	D	220	10	85	3.3	105	3.4	220.0	1000	3	424	382	170

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 202.

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.



LEAD-FREE

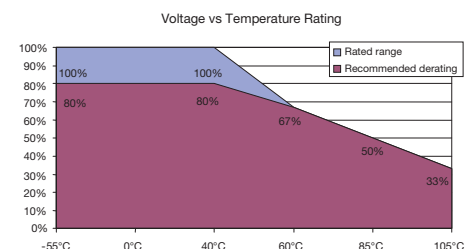
LEAD-FREE COMPATIBLE
COMPONENT



RoHS
COMPLIANT



NON-BURN
NON-SMOKE



QUALIFICATION TABLE

TEST	NLJ series (Temperature range -55°C to +105°C)									
	Condition			Characteristics						
Endurance	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					
Humidity	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					
Temperature Stability	Step	Temperature°C	Duration(min)		+20°C	-55°C	+20°C	+85°C	+105°C	+20°C
	1	+20±2	15							
	2	-55+0/-3	15							
	3	+20±2	15	DCL	2 x IL*	n/a	2 x IL**	10 x IL*	12.5 x IL*	2 x IL*
	4	+85+3/-0	15	ΔC/C	n/a	+0/-20%	±5%	+20/-0%	+25/-0%	±5%
	5	+105+3/-0	15							
	6	+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*
Surge Voltage	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