

Niobium Oxide Capacitor

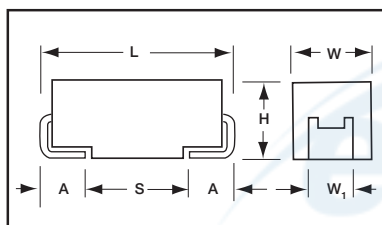


Cost versus Performance is a key requirement for consumer electronic products. A new solid electrolyte capacitor **OxiCap®** has been developed by AVX in standard EIA case sizes in order to meet this requirement as a higher performance alternative to aluminum and other SMT capacitor technologies currently on the market. The **OxiCap® non-burn¹** technology is based on **NbO niobium oxide ceramic material** as the anodic material processed through the same manufacturing process as tantalum capacitors. Nb₂O₅ dielectric in

combination to self-healing MnO₂ cathode is a basis for a good reliability level **0.5%/1000 hrs.** within a temperature range up to **105°C** and rated voltage **<6V** (rail voltage <5V). Electrical parameters are similar to general tantalum specifications. NbO and MnO₂ are widely available materials. The laser coded **orange molded body** gives total traceability.

- Reduced Voltage Derating
- Failed OxiCap® will not burn up to category voltage

CASE DIMENSIONS: millimeters (inches)



Code	EIA Code	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	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	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	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	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	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	7361-38	7.30 (0.287)	6.10 (0.240)	3.45 ±0.30 (0.136±0.012)	3.10 (0.120)	1.40 (0.055)	4.40 (0.173)
Z	7361-45	7.30 (0.287)	6.10 (0.240)	4.30 (0.169)	3.10 (0.120)	1.40 (0.055)	4.40 (0.173)

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

Under development

HOW TO ORDER

NOJ

Type

D

Case Size

107

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

M

Capacitance Tolerance
M = ±20%

006

Rated DC Voltage
001 = 1.8Vdc
002 = 2.5Vdc
004 = 4Vdc
006 = 6.3Vdc
010 = 10Vdc

R

Packaging
R = Lead Free 7" Reel
S = Lead Free 13" Reel

WJ

Additional Characters

TECHNICAL SPECIFICATIONS

Technical Data:

All technical data relate to an ambient temperature of +25°C is not stated

Capacitance Range: 4.7 µF to 2200 µF

Capacitance Tolerance: ±20%

Leakage Current DCL: 0.02CV

Rated Voltage DC (V _R)	≤+85°C:	1.8	2.5	4	6.3	10	
Category Voltage (V _C)	≤+105°C:	1.2	1.7	2.7	4	7	
Surge Voltage (V _S)	≤+85°C:	2.3	3.3	5.2	8	13	
	≤+105°C:	1.6	2.2	3.4	5	8	

Temperature Range: -55°C to +105°C

Reliability: 0.5% per 1000 hours at 85°C, V_R, 0.1Ω/V series impedance, 60% confidence level
Meets requirements of AEC-Q200

OxiCap® NOJ Series



Niobium Oxide Capacitor

CAPACITANCE AND RATED VOLTAGE RANGE (LETTER DENOTES CASE SIZE)

Capacitance		Rated Voltage DC (V _R) to 85°C / 0.66 DC to 105°C				
μF	Code	1.8V (x)	2.5V (e)	4V (G)	6.3V (J)	10V (A)
4.7	475				A	A
6.8	685				A	A
10	106				A	A/B
15	156			A	A/B	A/B
22	226		A	A/B	A/B	B/C
33	336		A/B	A/B	B/C	C
47	476	A	A/B	B/C	B/C	C
68	686	B	B/C	B/C	B/C	C/D
100	107	B/C	B/C	B/C	C/D	D
150	157	B/C	C	C/D	C/D	E
220	227	C	C	C/D	C/D/E	V
330	337	C	C/D	D	D/E	
470	477	C/D	D/E	D/E	E/V	
680	687	D	E	E/V	Z	
1000	108	E	V	V/Z		
1500	158	V	Z			
2200	228	Z				

Developmental Ratings - subject to change

Z case = 4.5mm height V



LEAD-FREE

LEAD-FREE COMPATIBLE
COMPONENT



RoHS
COMPLIANT



NON-BURN
NON-SMOKE

Niobium Oxide Capacitor

RATINGS & PART NUMBER REFERENCE

AVX Part No.	Case Size	Capacitance (μF)	Rated Voltage (V)	DCL (μA) Max.	DF % Max.	ESR Max. (Ω) @100kHz	100kHz Ripple Current (A)			100kHz Ripple Voltage (V)		
							25°C	85°C	105°C	25°C	85°C	105°C
1.8 Volt @ 85°C (1.2 Volt @ 105°C)												
NOJA476M001#	A	47	1.8	1.7	8	1.6	0.237	0.213	0.095	0.379	0.342	0.152
NOJB476M001#	B	47	1.8	1.7	6	1.6	0.252	0.227	0.101	0.404	0.364	0.162
NOJB686M001#	B	68	1.8	2.5	6	1.5	0.261	0.235	0.104	0.391	0.352	0.156
NOJB107M001#	B	100	1.8	3.6	6	1.4	0.270	0.243	0.108	0.378	0.340	0.151
NOJC107M001#	C	100	1.8	3.6	6	0.4	0.574	0.517	0.230	0.230	0.207	0.092
NOJC157M001#	C	150	1.8	5.4	8	0.4	0.574	0.517	0.230	0.230	0.207	0.092
NOJC227M001#	C	220	1.8	8.0	8	0.4	0.574	0.517	0.230	0.230	0.207	0.092
NOJC337M001#	C	330	1.8	11.9	8	0.3	0.663	0.597	0.265	0.199	0.179	0.080
2.5 Volt @ 85°C (1.7 Volt @ 105°C)												
NOJA226M002#	A	22	2.5	1.1	6	1.9	0.218	0.196	0.087	0.414	0.372	0.165
NOJA336M002#	A	33	2.5	1.7	6	1.7	0.230	0.207	0.092	0.391	0.352	0.156
NOJB336M002#	B	33	2.5	1.7	6	1.7	0.245	0.220	0.098	0.416	0.375	0.167
NOJA476M002#	A	47	2.5	2.4	8	1.6	0.237	0.213	0.095	0.379	0.342	0.152
NOJB476M002#	B	47	2.5	2.4	6	1.6	0.252	0.227	0.101	0.404	0.364	0.162
NOJB686M002#	B	68	2.5	3.4	6	1.5	0.261	0.235	0.104	0.391	0.352	0.156
NOJC686M002#	C	68	2.5	3.4	6	0.5	0.514	0.462	0.206	0.257	0.231	0.103
NOJB107M002#	B	100	2.5	5.0	6	1.4	0.270	0.243	0.108	0.378	0.340	0.151
NOJC107M002#	C	100	2.5	5.0	6	0.4	0.574	0.517	0.230	0.230	0.207	0.092
NOJC157M002#	C	150	2.5	7.5	6	0.4	0.574	0.517	0.230	0.230	0.207	0.092
NOJC227M002#	C	220	2.5	11.0	8	0.4	0.574	0.517	0.230	0.230	0.207	0.092
NOJC337M002#	C	330	2.5	16.5	10	0.3	0.663	0.597	0.265	0.199	0.179	0.080
NOJD337M002#	D	330	2.5	16.5	10	0.3	0.775	0.697	0.310	0.232	0.209	0.093
NOJD477M002#	D	470	2.5	23.5	10	0.3	0.775	0.697	0.310	0.323	0.209	0.093
NOJE477M002#	E	470	2.5	23.5	10	0.3	0.812	0.731	0.325	0.244	0.219	0.097
NOJE687M002#	E	680	2.5	34.0	12	0.3	0.812	0.731	0.325	0.244	0.219	0.097
NOJV108M002#	V	1000	2.5	50.0	18	0.3	1.000	0.900	0.400	0.300	0.270	0.120
4 Volt @ 85°C (2.7 Volt @ 105°C)												
NOJA156M004#	A	15	4	1.2	6	2	0.212	0.191	0.085	0.424	0.382	0.170
NOJA226M004#	A	22	4	1.8	6	1.9	0.218	0.196	0.087	0.414	0.372	0.165
NOJB226M004#	B	22	4	1.8	6	1.9	0.232	0.209	0.093	0.440	0.396	0.176
NOJA336M004#	A	33	4	2.6	10	1.7	0.230	0.207	0.092	0.391	0.352	0.156
NOJB336M004#	B	33	4	2.6	6	1.7	0.245	0.220	0.098	0.416	0.375	0.167
NOJB476M004#	B	47	4	3.8	6	1.6	0.252	0.227	0.101	0.404	0.364	0.162
NOJC476M004#	C	47	4	3.8	6	0.5	0.514	0.462	0.206	0.257	0.231	0.103
NOJB686M004#	B	68	4	5.4	6	1.5	0.261	0.235	0.104	0.391	0.352	0.156
NOJC686M004#	C	68	4	5.4	6	0.5	0.514	0.462	0.206	0.257	0.231	0.103
NOJB107M004#	B	100	4	8.0	16	1.4	0.270	0.243	0.108	0.378	0.340	0.151
NOJC107M004#	C	100	4	8.0	6	0.4	0.574	0.517	0.230	0.230	0.207	0.092
NOJC157M004#	C	150	4	12.0	6	0.4	0.574	0.517	0.230	0.230	0.207	0.092
NOJD157M004#	D	150	4	12.0	6	0.3	0.775	0.697	0.310	0.232	0.209	0.093
NOJC227M004#	C	220	4	17.6	8	0.4	0.574	0.517	0.230	0.230	0.207	0.092
NOJD227M004#	D	220	4	17.6	8	0.4	0.671	0.604	0.268	0.268	0.241	0.107
NOJD337M004#	D	330	4	26.4	8	0.3	0.775	0.697	0.310	0.232	0.209	0.093
NOJD477M004#	D	470	4	37.6	12	0.3	0.775	0.697	0.310	0.232	0.209	0.093
NOJE477M004#	E	470	4	37.6	12	0.3	0.812	0.731	0.325	0.244	0.219	0.097
NOJE687M004#	E	680	4	54.4	14	0.3	0.812	0.731	0.325	0.244	0.219	0.097
NOJV687M004#	V	680	4	54.4	14	0.3	1.000	0.900	0.400	0.300	0.270	0.120
NOJV108M004#	V	1000	4	80.0	18	0.3	1.000	0.900	0.400	0.300	0.270	0.120
6.3 Volt @ 85°C (4 Volt @ 105°C)												
NOJA475M006#	A	4.7	6.3	1.1	6	3.1	0.170	0.153	0.068	0.528	0.475	0.211
NOJA685M006#	A	6.8	6.3	1.1	6	2.6	0.186	0.167	0.074	0.484	0.435	0.193
NOJA106M006#	A	10	6.3	1.2	6	2.2	0.202	0.182	0.081	0.445	0.400	0.178
NOJB156M006#	B	15	6.3	1.8	6	2	0.226	0.203	0.090	0.452	0.406	0.181
NOJA156M006#	A	15	6.3	1.8	8	2	0.212	0.191	0.085	0.424	0.382	0.170
NOJB226M006#	B	22	6.3	2.6	6	1.9	0.232	0.209	0.093	0.440	0.396	0.176
NOJA226M006#	A	22	6.3	2.6	8	1.8	0.224	0.201	0.089	0.402	0.362	0.161
NOJB336M006#	B	33	6.3	4.0	6	1.7	0.245	0.220	0.098	0.416	0.375	0.167
NOJC336M006#	C	33	6.3	4.0	6	0.5	0.514	0.462	0.206	0.257	0.231	0.103
NOJB476M006#	B	47	6.3	5.6	6	1.6	0.252	0.227	0.101	0.404	0.364	0.162
NOJC476M006#	C	47	6.3	5.7	6	0.5	0.514	0.462	0.206	0.257	0.231	0.103
NOJB686M006#	B	68	6.3	8.2	20	1.5	0.261	0.235	0.104	0.391	0.352	0.156

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2V. DCL is measured at rated voltage after 5 minutes. MSL level: see packaging and reel label.

NOTE: AVX reserves the rights to supply higher voltage rating in the same case size, to the same reliability standards.

Niobium Oxide Capacitor

RATINGS & PART NUMBER REFERENCE

AVX Part No.	Case Size	Capacitance (μF)	Rated Voltage (V)	DCL (μA) Max.	DF % Max.	ESR Max. (Ω) @100kHz	100kHz Ripple Current (A)			100kHz Ripple Voltage (V)		
							25°C	85°C	105°C	25°C	85°C	105°C
6.3 Volt @ 85°C (4 Volt @ 105°C)												
NOJC686M006#	C	68	6.3	8.2	6	0.5	0.514	0.462	0.206	0.257	0.231	0.103
NOJC107M006#	C	100	6.3	12.0	8	0.4	0.574	0.517	0.230	0.230	0.207	0.092
NOJD107M006#	D	100	6.3	12.0	6	0.4	0.671	0.604	0.268	0.268	0.241	0.107
NOJC157M006#	C	150	6.3	18.0	6	0.4	0.574	0.517	0.230	0.230	0.207	0.092
NOJD157M006#	D	150	6.3	18.0	6	0.4	0.671	0.604	0.268	0.268	0.241	0.107
NOJC227M006#	C	220	6.3	26.4	14	0.4	0.574	0.517	0.230	0.230	0.207	0.092
NOJD227M006#	D	220	6.3	26.4	8	0.4	0.671	0.604	0.268	0.268	0.241	0.107
NOJE227M006#	E	220	6.3	26.4	12	0.4	0.704	0.633	0.281	0.281	0.253	0.113
NOJD337M006#	D	330	6.3	39.6	10	0.3	0.775	0.697	0.310	0.232	0.209	0.093
NOJE337M006#	E	330	6.3	39.6	12	0.3	0.812	0.731	0.325	0.244	0.219	0.097
NOJE477M006#	E	470	6.3	56.4	10	0.3	0.812	0.731	0.325	0.244	0.219	0.097
NOJV477M006#	V	470	6.3	56.4	12	0.3	1.000	0.900	0.400	0.300	0.270	0.120
10 Volt @ 85°C (7 Volt @ 105°C)												
NOJA475M010#	A	4.7	10	1.0	6	3.1	0.170	0.153	0.068	0.528	0.475	0.211
NOJA685M010#	A	6.8	10	1.4	6	2.6	0.186	0.167	0.074	0.484	0.435	0.193
NOJA106M010#	A	10	10	2.0	6	2.2	0.202	0.182	0.081	0.445	0.400	0.178
NOJB106M010#	B	10	10	2.0	6	2.2	0.215	0.194	0.086	0.474	0.426	0.189
NOJA156M010#	A	15	10	3.0	6	2	0.212	0.191	0.085	0.424	0.382	0.170
NOJB156M010#	B	15	10	3.0	6	2	0.226	0.203	0.090	0.452	0.406	0.181
NOJB226M010#	B	22	10	4.4	6	1.8	0.238	0.214	0.095	0.428	0.386	0.171
NOJC226M010#	C	22	10	4.4	6	0.5	0.514	0.462	0.206	0.257	0.231	0.103
NOJC336M010#	C	33	10	6.6	6	0.5	0.514	0.462	0.206	0.257	0.231	0.103
NOJC476M010#	C	47	10	9.4	6	0.4	0.574	0.517	0.230	0.230	0.207	0.092
NOJC686M010#	C	68	10	13.6	12	0.5	0.514	0.462	0.206	0.257	0.231	0.103
NOJD107M010#	D	100	10	20.0	12	0.4	0.671	0.604	0.268	0.268	0.241	0.107

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2V. DCL is measured at rated voltage after 5 minutes. MSL level: see packaging and reel label.

NOTE: AVX reserves the rights to supply higher voltage rating in the same case size, to the same reliability standards.