

# Aluminum Capacitors

## +105 °C, Miniature, Axial Lead, General Purpose


**FEATURES**

- Long life
- High performance
- High CV per case size
- Case sizes to 0.709" [18.0 mm] diameters
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)

QUICK REFERENCE DATA	
DESCRIPTION	VALUE
Nominal case size Ø D x L in mm	0.248" x 0.512" [6.3 x 13.0] to 0.709" x 1.574" [18.0 x 40.0]
Operating temperature	-40 °C to +105 °C
Rated capacitance range, C <sub>R</sub>	1 µF to 4700 µF
Tolerance on C <sub>R</sub>	± 20 %
Rated voltage range, U <sub>R</sub>	3 WV <sub>DC</sub> to 250 WV <sub>DC</sub>
Termination	Axial leads
Life validation test at 105 °C	2000 h: ΔCAP ≤ 20 % from initial measurement. ΔESR ≤ 1.5 x initial specified limit. ΔDCL ≤ initial specified limit.
Shelf life at 85 °C	500 h: ΔCAP ≤ 20 % from initial measurement. ΔESR ≤ 1.5 x initial specified limit. ΔDCL ≤ 2.0 x initial specified limit.
DC leakage current	3 WV <sub>DC</sub> to 16 WV <sub>DC</sub> : I = 0.1·√CV + 2 25 WV <sub>DC</sub> to 250 WV <sub>DC</sub> : I = 0.2·√CV + 2 I in µA, C in µF, V in Volts

RIPPLE CURRENT MULTIPLIERS				
TEMPERATURE				
AMBIENT TEMPERATURE		MULTIPLIERS		
+105 °C		0.5		
+85 °C		1.0		
≤ 65 °C		2.0		
FREQUENCY (Hz)				
WV <sub>DC</sub>	50 TO 60	100 TO 120	300 TO 400	1K TO 100K
3 to 50	0.9	1.0	1.1	1.4
51 to 250	0.8	1.0	1.3	1.6

DIMENSIONS in inches [millimeters]						
CASE CODE	NOMINAL		STYLE 2		STYLE 5 RESIN END SEAL APPLIED	
	D	L	D (max.)	L (max.)	D (max.)	L (max.)
BA	0.248 [6.300]	0.512 [13.000]	0.276 [7.000]	0.567 [14.400]	0.276 [7.000]	0.626 [15.900]
BB	0.248 [6.300]	0.689 [17.500]	0.276 [7.000]	0.756 [19.200]	0.276 [7.000]	0.815 [20.700]
CB	0.315 [8.000]	0.689 [17.500]	0.339 [8.600]	0.756 [19.200]	0.339 [8.600]	0.815 [20.700]
CC	0.315 [8.000]	0.807 [20.500]	0.339 [8.600]	0.878 [22.300]	0.339 [8.600]	0.937 [23.800]
DC	0.374 [9.500]	0.807 [20.500]	0.402 [10.200]	0.878 [22.300]	0.402 [10.200]	0.937 [23.800]
DD	0.374 [9.500]	0.945 [24.000]	0.402 [10.200]	1.01 [25.500]	0.402 [10.200]	1.063 [27.000]
DF	0.374 [9.500]	1.260 [32.000]	0.402 [10.200]	1.319 [33.500]	0.402 [10.200]	1.378 [35.000]
DH	0.374 [9.500]	1.496 [38.000]	0.402 [10.200]	1.567 [39.800]	0.402 [10.200]	1.626 [41.300]
EF	0.433 [11.000]	1.260 [32.000]	0.465 [11.800]	1.319 [33.500]	0.465 [11.800]	1.378 [35.000]
EH	0.433 [11.000]	1.496 [38.000]	0.465 [11.800]	1.567 [39.800]	0.465 [11.800]	1.626 [41.300]
FH	0.492 [12.500]	1.496 [38.000]	0.516 [13.100]	1.567 [39.800]	0.516 [13.100]	1.626 [41.300]
FK	0.492 [12.500]	1.752 [44.500]	0.516 [13.100]	1.831 [46.500]	0.516 [13.100]	1.890 [48.000]
GH	0.630 [16.000]	1.496 [38.000]	0.654 [16.600]	1.567 [39.800]	0.654 [16.600]	1.626 [41.300]
GK	0.630 [16.000]	1.752 [44.500]	0.654 [16.600]	1.831 [46.500]	0.654 [16.600]	1.890 [48.000]
LS	0.709 [18.000]	1.575 [40.000]	0.736 [18.700]	1.673 [42.500]	0.736 [18.700]	1.693 [43.000]

**Note**

- Lead diameter AWG 20 (0.032" [0.81 mm])

**ORDERING EXAMPLE**

Electrolytic capacitor 30D series: 30D 128 M 025 EH 2 A

DESCRIPTION	
CODE	EXPLANATION
30D	Product type
128	Capacitance value (1200 $\mu$ F)
M	Tolerance (M = $\pm$ 20 %)
025	Voltage rating at 105 °C (024 = 25 V)
EH	Can size (see Dimensions table)
2	Sleeve and sealing (2 = mylar sleeve)
A	Packaging (A = bulk)

**Note**

- For lead (Pb)-free / RoHS-compliant products add suffix "E3" to part number.  
Example: 30D128M025EH2AE3

ELECTRICAL DATA AND ORDERING INFORMATION				
CAPACITANCE ( $\mu$ F)	PART NUMBER	NOMINAL CASE SIZE D x L [mm]	MAX. ESR AT +25 °C 120 Hz ( $\Omega$ )	MAX. RIPPLE AT +85 °C 120 Hz (A)
<b>6.3 WV<sub>DC</sub> AT +105 °C, SURGE = 8 V</b>				
150.0	30D157M6R3BB2A	0.248 x 0.689 [6.3 x 17.5]	2.875	0.163
330.0	30D337M6R3CC2A	0.315 x 0.807 [8.0 x 20.5]	1.277	0.299
1200.0	30D128M6R3DF2A	0.374 x 1.260 [9.5 x 32.0]	0.345	0.767
2200.0	30D228M6R3EF2A	0.433 x 1.260 [11.0 x 32.0]	0.206	1.080
4700.0	30D478M6R3GH2A	0.630 x 1.496 [16.0 x 38.0]	0.118	1.910
<b>10 WV<sub>DC</sub> AT +105 °C, SURGE = 12 V</b>				
47.0	30D476M010BA2A	0.248 x 0.512 [6.3 x 13.0]	7.487	0.089
100.0	30D107M010BB2A	0.248 x 0.689 [6.3 x 17.5]	3.561	0.147
330.0	30D337M010CC2A	0.315 x 0.807 [8.0 x 20.5]	1.081	0.325
470.0	30D477M010DC2A	0.374 x 0.807 [9.5 x 20.5]	0.748	0.434
1000.0	30D108M010DF2A	0.374 x 1.260 [9.5 x 32.0]	0.356	0.755
2200.0	30D228M010EH2A	0.433 x 1.496 [11.0 x 38.0]	0.184	1.240
<b>16 WV<sub>DC</sub> AT +105 °C, SURGE = 20 V</b>				
33.0	30D336M016BA2A	0.248 x 0.512 [6.3 x 13.0]	9.814	0.078
150.0	30D157M016CB2A	0.315 x 0.689 [8.0 x 17.5]	2.208	0.212
330.0	30D337M016DC2A	0.374 x 0.807 [9.5 x 20.5]	1.981	0.379
470.0	30D477M016DD2A	0.374 x 0.945 [9.5 x 24.0]	0.679	0.483
1200.0	30D128M016DH2A	0.374 x 1.496 [9.5 x 38.0]	0.265	0.947
4700.0	30D478M016GK2A	0.630 x 1.752 [16.0 x 44.5]	0.093	2.290
<b>20 WV<sub>DC</sub> AT +105 °C, SURGE = 25 V</b>				
150.0	30D157M020CC2A	0.315 x 0.807 [8.0 x 20.5]	2.110	0.233
220.0	30D227M020DC2A	0.374 x 0.807 [9.5 x 20.5]	1.410	0.318
1000.0	30D108M020EF2A	0.433 x 1.260 [11.0 x 32.0]	0.323	0.863
1500.0	30D158M020EH2A	0.433 x 1.496 [11.0 x 38.0]	0.221	1.140
3300.0	30D338M020GK2A	0.630 x 1.752 [16.0 x 44.5]	0.118	2.040



<b>ELECTRICAL DATA AND ORDERING INFORMATION</b>				
<b>CAPACITANCE (<math>\mu</math>F)</b>	<b>PART NUMBER</b>	<b>NOMINAL CASE SIZE D x L [mm]</b>	<b>MAX. ESR AT +25 °C 120 Hz (<math>\Omega</math>)</b>	<b>MAX. RIPPLE AT +85 °C 120 Hz (A)</b>
<b>25 WV<sub>DC</sub> AT +105 °C, SURGE = 35 V</b>				
22.0	30D226M025BA2A	0.248 x 0.512 [6.3 x 13.0]	13.270	0.067
47.0	30D476M025BB2A	0.248 x 0.689 [6.3 x 17.5]	6.128	0.112
100.0	30D107M025CC2A	0.315 x 0.807 [8.0 x 20.5]	2.914	0.197
220.0	30D227M025DC2A	0.374 x 0.807 [9.5 x 20.5]	1.327	0.326
330.0	30D337M025DD2A	0.374 x 0.945 [9.5 x 24.0]	0.885	0.423
470.0	30D477M025DF2A	0.374 x 1.260 [9.5 x 32.0]	0.612	0.575
1200.0	30D128M025EH2A	0.433 x 1.496 [11.0 x 38.0]	0.239	1.090
3300.0	30D338M025LS2A	0.709 x 1.575 [18.0 x 40.0]	0.108	2.190
<b>35 WV<sub>DC</sub> AT +105 °C, SURGE = 45 V</b>				
33.0	30D336M035BB2A	0.248 x 0.689 [6.3 x 17.5]	8.330	0.096
100.0	30D107M035DC2A	0.374 x 0.807 [9.5 x 20.5]	2.740	0.212
220.0	30D227M035DD2A	0.374 x 0.945 [9.5 x 24.0]	1.250	0.356
330.0	30D337M035DF2A	0.374 x 1.260 [9.5 x 32.0]	0.830	0.495
1000.0	30D108M035EH2A	0.433 x 1.496 [11.0 x 38.0]	0.274	1.020
2200.0	30D228M035GK2A	0.630 x 1.752 [16.0 x 44.5]	0.125	1.980
<b>40 WV<sub>DC</sub> AT +105 °C, SURGE = 50 V</b>				
15.0	30D156M040BA2A	0.248 x 0.512 [6.3 x 13.0]	17.600	0.058
22.0	30D226M040BB2A	0.248 x 0.689 [6.3 x 17.5]	11.700	0.081
47.0	30D476M040CB2A	0.315 x 0.689 [8.0 x 17.5]	5.435	0.134
100.0	30D107M040DC2A	0.374 x 0.807 [9.5 x 20.5]	2.585	0.234
470.0	30D477M040DH2A	0.374 x 1.496 [9.5 x 38.0]	0.543	0.663
1000.0	30D108M040FK2A	0.492 x 1.752 [12.5 x 44.5]	0.258	1.210
2200.0	30D228M040LS2A	0.709 x 1.575 [18.0 x 40.0]	0.125	2.040
<b>50 WV<sub>DC</sub> AT +105 °C, SURGE = 65 V</b>				
10.0	30D106M050BA2A	0.248 x 0.512 [6.3 x 13.0]	25.85	0.048
22.0	30D226M050BB2A	0.248 x 0.689 [6.3 x 17.5]	11.700	0.081
33.0	30D336M050CB2A	0.315 x 0.689 [8.0 x 17.5]	7.850	0.112
100.0	30D107M050DC2A	0.374 x 0.807 [9.5 x 20.5]	2.585	0.233
220.0	30D227M050DF2A	0.374 x 1.260 [9.5 x 32.0]	1.177	0.417
330.0	30D337M050DH2A	0.374 x 1.496 [9.5 x 38.0]	0.785	0.551
1500.0	30D158M050GK2A	0.630 x 1.752 [16.0 x 44.5]	0.176	1.670
<b>63 WV<sub>DC</sub> AT +105 °C, SURGE = 75 V</b>				
15.0	30D156M063BB2A	0.248 x 0.689 [6.3 x 17.5]	16.580	0.068
33.0	30D336M063CB2A	0.315 x 0.689 [8.0 x 17.5]	7.370	0.116
47.0	30D476M063CC2A	0.315 x 0.807 [8.0 x 20.5]	5.100	0.149
100.0	30D107M063DD2A	0.374 x 0.945 [9.5 x 24.0]	2.426	0.256
220.0	30D227M063EF2A	0.433 x 1.260 [11.0 x 32.0]	1.105	0.467
470.0	30D477M063EH2A	0.433 x 1.496 [11.0 x 38.0]	0.510	0.745
1000.0	30D108M063GK2A	0.630 x 1.752 [16.0 x 44.5]	0.242	1.420



<b>ELECTRICAL DATA AND ORDERING INFORMATION</b>				
<b>CAPACITANCE (<math>\mu</math>F)</b>	<b>PART NUMBER</b>	<b>NOMINAL CASE SIZE D x L [mm]</b>	<b>MAX. ESR AT +25 °C 120 Hz (<math>\Omega</math>)</b>	<b>MAX. RIPPLE AT +85 °C 120 Hz (A)</b>
<b>75 WV<sub>DC</sub> AT +105 °C, SURGE = 85 V</b>				
12.0	30D126M075BB2A	0.248 x 0.689 [6.3 x 17.5]	13.200	0.076
47.0	30D476M075DC2A	0.374 x 0.807 [9.5 x 20.5]	3.384	0.204
120.0	30D127M075DF2A	0.374 x 1.260 [9.5 x 32.0]	1.320	0.392
1000.0	30D108M075LS2A	0.709 x 1.575 [18.0 x 40.0]	0.160	1.810
<b>100 WV<sub>DC</sub> AT +105 °C, SURGE = 125 V</b>				
4.7	30D475M100BB2A	0.248 x 0.689 [6.3 x 17.5]	33.840	0.048
10.0	30D106M100CB2A	0.315 x 0.689 [8.0 x 17.5]	16.097	0.079
100.0	30D107M100DH2A	0.374 x 1.496 [9.5 x 38.0]	1.609	0.386
220.0	30D227M100EK2A	0.492 x 1.752 [12.5 x 44.5]	0.733	0.717
470.0	30D477M100LS2A	0.709 x 1.575 [18.0 x 40.0]	0.338	1.240
<b>160 WV<sub>DC</sub> AT +105 °C, SURGE = 180 V</b>				
1.5	30D155M160BA2A	0.248 x 0.512 [6.3 x 13.0]	110.10	0.023
3.3	30D335M160CB2A	0.315 x 0.689 [8.0 x 17.5]	48.880	0.045
10.0	30D106M160DC2A	0.374 x 0.807 [9.5 x 20.5]	16.097	0.093
22.0	30D226M160DF2A	0.374 x 1.260 [9.5 x 32.0]	7.333	0.166
33.0	30D336M160EF2A	0.433 x 1.260 [11.0 x 32.0]	4.888	0.222
47.0	30D476M160EH2A	0.433 x 1.496 [11.0 x 38.0]	3.384	0.289
100.0	30D107M160GK2A	0.630 x 1.752 [16.0 x 44.5]	1.609	0.552
<b>200 WV<sub>DC</sub> AT +105 °C, SURGE = 250 V</b>				
1.2	30D125M200BA2A	0.248 x 0.512 [6.3 x 13.0]	132.01	0.022
4.7	30D475M200CC2A	0.315 x 0.807 [8.0 x 20.5]	33.850	0.058
8.2	30D825M200DC2A	0.374 x 0.807 [9.5 x 20.5]	19.410	0.085
10.0	30D106M200DD2A	0.374 x 0.945 [9.5 x 24.0]	16.090	0.101
22.0	30D226M200DH2A	0.374 x 1.496 [9.5 x 38.0]	7.331	0.181
33.0	30D336M200EH2A	0.433 x 1.496 [11.0 x 38.0]	4.880	0.241
47.0	30D476M200EK2A	0.492 x 1.752 [12.5 x 44.5]	3.384	0.334
100.0	30D107M200LS2A	0.709 x 1.575 [18.0 x 40.0]	1.609	0.571
<b>250 WV<sub>DC</sub> AT +105 °C, SURGE = 300 V</b>				
1.0	30D105M250BA2A	0.248 x 0.512 [6.3 x 13.0]	160.97	0.021
3.3	30D335M250CC2A	0.315 x 0.807 [8.0 x 20.5]	48.010	0.049
12.0	30D126M250DF2A	0.374 x 1.260 [9.5 x 32.0]	13.210	0.124
47.0	30D476M250GH2A	0.630 x 1.496 [16.0 x 38.0]	3.384	0.355

Statements about product lifetime are based on calculations and internal testing. They should only be interpreted as estimations. Also due to external factors, the lifetime in the field application may deviate from the calculated lifetime. In general, nothing stated herein shall be construed as a guarantee of durability.



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