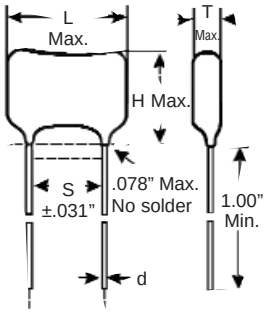
Types CD16, CD30, CDV16, CDV19, CDV30 Mica Capacitors

Highlights

With 75% lower impedance at resonance than ceramic disks and twice the dV/dt capability of our best polypropylene film/foil capacitors, CDE mica caps are the choice for snubber and resonant power applications. They're quiet, too: there's no piezoelectric buzz like with high K ceramic capacitors. While the industry standard IEC test procedure permits 3% capacitance change after 10,000 dV/dt pulses, CDE mica caps show no change after a million shots.

Specifications

- Up to 9.0 amps continuous current
- Up to 3,700 amps peak current
- Up to 1,500 Vdc, 400 Vac
- 100,000 V/µs capability minimum
- Quiet—no piezoelectric buzzing
- No capacitance change with voltage, temperature or frequency
- -55°C to +125°C at rated voltage
- Silvered mica dielectric



Measured at point where phenolic cone becomes a cylinder

Copper-clad steel leads

Type	AWG
CD16	20
CD30	18
CDV16	20
CDV19	20
CDV30	18

Ratings

Cap. pF	Catalog Number	Dimensions (in.) L	H	T	S	d	Ipk Amps	Irms, 85°C 100 kHz	250 kHz	500 kHz	1 MHz	2.5 MHz	5 MHz
500 Vdc (300 Vac)													
100	CD16FD101J03	.43	.46	.15	.23	.032	20	.019	.047	.09	.19	.47	.78
120	CD16FD121J03	.43	.46	.15	.23	.032	24	.023	.057	.11	.23	.57	.86
150	CD16FD151J03	.43	.46	.15	.23	.032	30	.028	.071	.14	.28	.71	.96
180	CD16FD181J03	.43	.46	.15	.23	.032	36	.034	.085	.17	.34	.85	1.10
220	CD16FD221J03	.43	.46	.15	.23	.032	44	.041	.100	.21	.41	1.00	1.20
270	CD16FD271J03	.45	.47	.16	.23	.032	54	.051	.130	.25	.51	1.30	1.30
330	CD16FD331J03	.45	.47	.16	.23	.032	66	.062	.160	.31	.62	1.50	1.50
390	CD16FD391J03	.45	.47	.16	.23	.032	78	.074	.180	.37	.74	1.60	1.60
470	CD16FD471J03	.45	.47	.16	.23	.032	94	.089	.220	.44	.89	1.80	1.80
560	CD16FD561J03	.46	.50	.18	.23	.032	110	.110	.260	.53	1.10	2.00	2.00
680	CD16FD681J03	.46	.50	.18	.23	.032	130	.130	.320	.64	1.30	2.30	2.30
820	CD16FD821J03	.46	.50	.18	.23	.032	160	.150	.390	.77	1.50	2.50	2.50
1000	CD16FD102J03	.46	.50	.18	.23	.032	200	.190	.470	.94	1.90	2.70	2.70
1200	CD16FD122J03	.46	.50	.18	.23	.032	240	.230	.570	1.10	2.30	3.00	3.00
1500	CD16FD152J03	.46	.50	.18	.23	.032	300	.280	.710	1.40	2.70	3.30	3.30
1800	CD16FD182J03	.47	.52	.25	.23	.032	360	.340	.850	1.70	3.40	4.10	4.10
2200	CD16FD222J03	.47	.52	.25	.23	.032	440	.410	1.000	2.10	4.10	4.50	4.50
2700	CD16FD272J03	.47	.52	.25	.23	.032	540	.510	1.300	2.50	5.00	5.00	5.00
3000	CD16FD302J03	.47	.52	.25	.23	.032	600	.570	1.400	2.80	5.20	5.20	5.20

1605 East Rodney French Blvd.
New Bedford, MA 02744
(508) 996-8564, Fax (508) 996-3830
http://www.cornell-dubilier.com
E-mail: cdenb@cornell-dubilier.com

Ratings

Cap. pF	Catalog Number	Dimensions (in.) L	H	T	S	d	Ipk Amps	Irms, 85°C 100 kHz	250 kHz	500 kHz	1 MHz	2.5 MHz	5 MHz
500 Vdc (300 Vac)													
3300	CD16FD332J03	.48	.54	.28	.23	.032	600	.57	1.40	2.80	5.70	6.80	6.80
3600	CD16FD362J03	.48	.54	.28	.23	.032	720	.68	1.70	3.40	6.80	7.10	7.10
3900	CD16FD392J03	.48	.54	.28	.23	.032	780	.74	1.80	3.70	7.40	7.40	7.40
4300	CD16FD432J03	.48	.54	.28	.23	.032	860	.81	2.00	4.00	7.00	7.80	7.80
4700	CD16FD472J03	.49	.56	.31	.23	.032	940	.89	2.20	4.40	8.50	8.50	8.50
5600	CD16FD562J03	.49	.56	.33	.23	.032	1100	1.10	2.60	5.30	9.00	9.00	9.00
6800	CD16FD682J03	.50	.58	.38	.23	.032	1300	1.30	3.20	6.40	9.00	9.00	9.00
7500	CD16FD752J03	.50	.58	.40	.23	.032	1500	1.40	3.50	7.10	9.00	9.00	9.00
8200	CD30FD822J03	.79	.88	.32	.43	.040	1200	1.50	3.80	5.40	7.70	7.70	7.70
10000	CD30FD103J03	.80	.89	.34	.43	.040	1500	1.90	4.20	6.00	8.50	8.50	8.50
1000 Vdc (350 Vac)													
100	CDV16FF101J03	.43	.46	.15	.23	.032	23	.022	.055	.11	.22	.55	.92
150	CDV16FF151J03	.43	.46	.15	.23	.032	34	.033	.082	.16	.33	.82	1.10
220	CDV16FF221J03	.43	.46	.15	.23	.032	50	.048	.120	.24	.48	1.20	1.40
330	CDV16FF331J03	.45	.47	.16	.23	.032	74	.073	.180	.36	.73	1.80	1.80
470	CDV16FF471J03	.45	.47	.16	.23	.032	100	.100	.260	.52	1.00	2.10	2.10
680	CDV16FF681J03	.46	.50	.18	.23	.032	150	.150	.370	.75	1.50	2.70	2.70
1000	CDV16FF102J03	.46	.50	.18	.23	.032	220	.220	.550	1.10	2.20	3.20	3.20
1500	CDV16FF152J03	.46	.50	.18	.23	.032	330	.330	.820	1.60	3.30	3.90	3.90
2200	CDV16FF222J03	.47	.52	.25	.23	032	600	.480	1.20	2.40	4.80	5.30	5.30
3000	CDV16FF302J03	.47	.52	.25	.23	.032	825	.660	1.60	3.30	6.20	6.20	6.20
3300	CDV19FF332J03	.72	.59	.38	.34	.032	700						
4700	CDV19FF472J03	.76	.63	.46	.34	.032	1000						
6800	CDV30FF682J03	.80	.89	.36	.44	.040	2100						
8200	CDV30FF822J03	.81	.90	.39	.44	.040	2500						
10000	CDV30FF103J03	.82	.91	.42	.44	.040	3000						
1500 Vdc (400 Vac)													
100	CDV30FH101J03	.77	.85	.25	.43	.040	46						
150	CDV30FH151J03	.77	.85	.25	.43	.040	68						
220	CDV30FH221J03	.77	.85	.25	.43	.040	100						
330	CDV30FH331J03	.77	.85	.25	.43	.040	150						
470	CDV30FH471J03	.77	.85	.25	.43	.040	210						
680	CDV30FH681J03	.77	.85	.25	.43	.040	310						
1000	CDV30FH102J03	.77	.86	.26	.43	.040	460						
1500	CDV30FH152J03	.78	.87	.28	.43	.040	680						
2200	CDV30FH222J03	.79	.88	.31	.43	.040	1000						
3300	CDV30FH332J03	.80	.89	.35	.43	.040	1500						
4700	CDV30FH472J03	.81	.90	.38	.43	.040	2100						
6800	CDV30FH682J03	.83	.92	.42	.43	.040	3100						
8200	CDV30FH822J03	.84	.93	.46	.43	.040	3700						

1605 East Rodney French Blvd.
New Bedford, MA 02744
(508) 996-8564, Fax (508) 996-3830
http://www.cornell-dubilier.com
E-mail: cdenb@cornell-dubilier.com

Specifications and Application Guide

Capacitance Tolerance: ±5% is standard. Capacitance is within tolerance when measured at these frequencies:

1 - 1000 pF @ 1 MHz
>1000 pF @ 1 kHz

Dissipation Factor is equal to DF=2πfRC, where *f* is the test frequency, *R* is the equivalent series resistance, and *C* is the capacitance. Limits are:

Capacitance	Dissipation Factor
100-1000 pF	0.00075 max at 1 MHz
1200-3300 pF	0.0014 max at 1 kHz
3900-9100 pF	0.0013 max at 1 kHz
10,000 pF	0.0012 max at 1 kHz

Quality Factor Q is the reciprocal of dissipation factor.

Insulation Resistance is no less than 100 GΩ at 25°C and 10 GΩ at 125°C.

Pulse Capability: The brass clips used in these capacitors allow them to endure huge transient currents. All are capable of withstanding an unlimited number of pulses with a dV/dt of 100,000 V/µs tested per IEC 384-1. dV/dt ratings are:

Rated Volts	Types		
	CD16 CDV16	CDV19	CD30 CDV30
	dV/dt maximum, V/µs		
500	275000		152000
1000	275000	213000	303000
1500			455000

The peak current rating in amps is the rated capacitance in µF times the dV/dt rating:

$$Ipk = C(dV/dt)$$

Voltage Coefficient: The change in capacitance from 0 volts to rated voltage is less than 0.1%.

Temperature Coefficient and Capacitance Drift: Measure capacitance at 25°C, -55°C, 25°C, 125°C and at 25°C after stabilizing at each temperature. The temperature coefficient will be 35 ±35 ppm/°C and the capacitance will be the initial value ±(.05%+.1 pF).

Marking: Per EIA RS153 B and includes CDE's name, nominal capacitance in pF, capacitance tolerance, and DC working voltage if other than 500 V.

Solderability: After an 8-hour steam aging, coat leads with rosin flux (R) and immerse in molten 245°C ±5%C 60/40 tin lead solder. Solder coverage will be no less than 95% when examined at 10X magnification.

Life Test: Subject the capacitors to maximum operating temperature (+125°C or +150°C) with 1.5 times rated voltage applied for 2000 hours. There will be no visual damage and the capacitors will meet these after-test limits:

- Withstanding voltage and insulation resistance initial requirements;
- capacitance change ±1% maximum; and,
- DF 150% initial limit maximum.

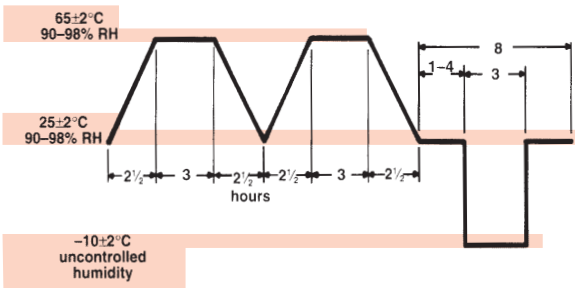
Moisture Resistance: Capacitors will meet the requirements of MIL-STD-202, Method 106F as outlined here and diagrammed below. Refer to MIL-STD-202 for details.

1. Dry capacitors for 24 hours in a 50±2°C oven and then allow to stabilize at room temperature.
2. Subject the capacitors to ten 24-hour continuous cycles with relative humidity and temperature as shown.
3. 24 hours after completion of the last cycle the capacitors will show no visual damage and will meet these after-test limits:
   - Withstanding voltage initial requirement;
   - insulation resistance 30 GΩ minimum;
   - capacitance change ±1% maximum; and,
   - DF 150% initial limit maximum.

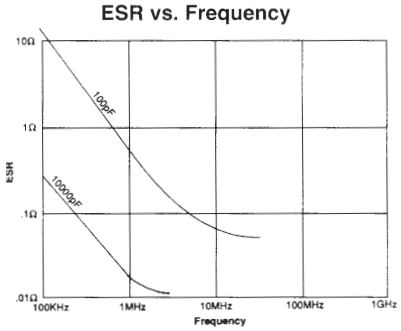
1605 East Rodney French Blvd.
New Bedford, MA 02744
(508) 996-8564, Fax (508) 996-3830
http://www.cornell-dubilier.com
E-mail: cdenb@cornell-dubilier.com

Specifications and Application Guide

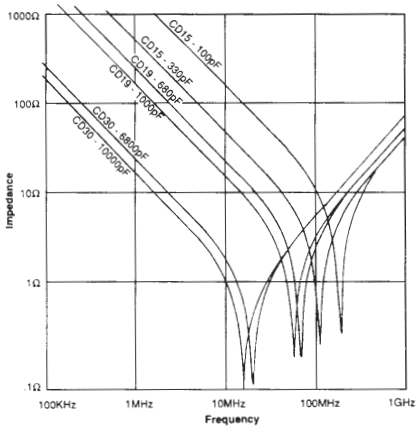
24-Hour Moisture Resistance Cycle



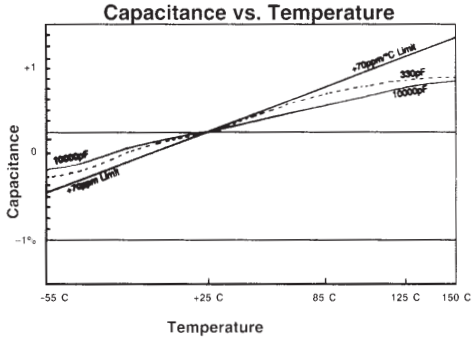
ESR vs. Frequency



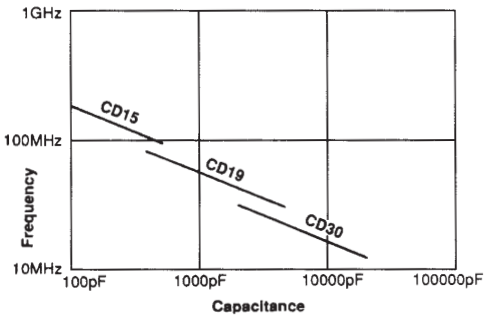
Impedance vs. Frequency



Capacitance vs. Temperature



Self-Resonant Frequency



1605 East Rodney French Blvd.
New Bedford, MA 02744
(508) 996-8564, Fax (508) 996-3830
http://www.cornell-dubilier.com
E-mail: cdenb@cornell-dubilier.com