

ELECTRONIC FILM CAPACITORS, INC.

Reidville Industrial Park * 41 Interstate Lane
WATERBURY, CONNECTICUT 06705

PHONE (203) 755-5629 FAX (203) 755-0659



METALLIZED POLYCARBONATE

SERIES 1613

EFC Series 1613 are metallized polycarbonate capacitors. This series offers the advantage of miniature size, superior stability, self healing, high insulation resistance, low dissipation factor and high frequency operation. Suggested applications include: timing circuits, filters, high current applications. Packaging options include: wrap and fill (TF, TC), radial lead box (EFR), axial lead (EC, EF).

SPECIFICATIONS

1. TEMPERATURE RANGE

- 55 °C to +125 °C at rated voltage.

2. CAPACITANCE

Capacitors ≤ 1.0 MFD shall be measured at 1 KHz ± 20 HZ. Capacitors >1.0 MFD shall be measured at 120 HZ. Measurements shall be taken at 25 °C.

3. DIELECTRIC STRENGTH

At 25 °C, 150% of rated voltage when applied terminal to terminal for one minute through a current limiting resistance.

4. INSULATION RESISTANCE

At 25 °C after 2 minutes charge time at rated voltage or 500 VDC, whichever is less, the minimum IR shall be 50,000 Megohm-Microfarad, but need not exceed 100,000 Megohms for voltages greater than 75 VDC, and 15,000 Megohm-Microfarads, but need not exceed 50,000 Megohms for 75 VDC or less.

5. HUMIDITY RESISTANCE

Series 1613 shall meet the requirements of MIL-STD. 202C, Method 103B.

6. DISSIPATION FACTOR

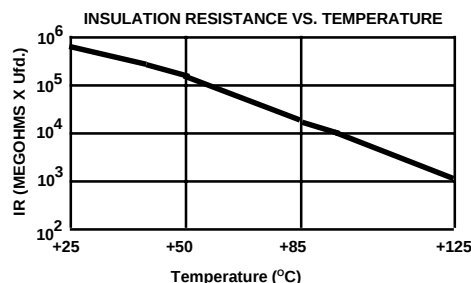
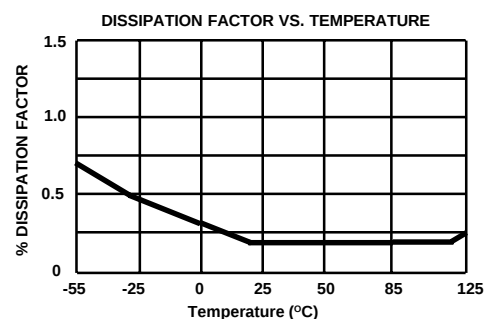
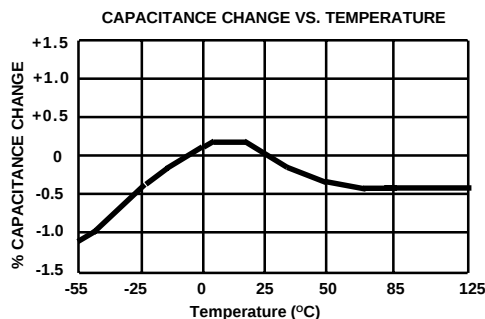
Shall be 0.3 % max. when measured as in Par. 2.

7. LIFE TEST

Will withstand the application of 140% rated voltage at +125 °C for 250 hours with not more than one failure in 12 permitted.

TYPICAL TEMPERATURE CURVES

METALLIZED POLYCARBONATE





CATALOG NOMENCLATURE

* 1613 EFR - 3 - .1 - 1 - 5

CASE CODE

TC - WRAP & FILL - ROUND - AXIAL
TF - WRAP & FILL - FLAT - AXIAL
EC - EPOXY CASE - ROUND - AXIAL
EF - EPOXY CASE - FLAT - AXIAL
EFR - EPOXY CASE - FLAT - RADIAL

DIELECTRIC CODE

1206 - POLYPROPYLENE/FOIL
1213 - METALLIZED POLYPROPYLENE
1306 - POLYESTER/FOIL
1313 - METALLIZED POLYESTER
1606 - POLYCARBONATE/FOIL
1613 - METALLIZED POLYCARBONATE
1906 - POLYSTYRENE/FOIL

SIZE CODE

3 - STANDARD
2 - MINIATURE
1 - SUBMINIATURE
X - NON-STANDARD

FOR EFC METRIC CASES USE THE
ONE LETTER CASE CODE LISTED.

FOR EFC "EC" STYLE USE THE
TWO LETTER CASE CODE.

CAPACITANCE

IN MICROFARADS (μ F)

VOLTAGE

.35 - 35 VDC
0 - 50 VDC
1 - 100 VDC
2 - 200 VDC
3 - 300 VDC
4 - 400 VDC
ETC.

TOLERANCE

1 - 1%
2 - 2%
5 - 5%
ETC.

* OPTIONS

THE FOLLOWING OPTIONS ARE AVAILABLE FROM EFC BY SPECIFYING THE APPROPRIATE PREFIX.

TEMPERATURE COEFFICIENTS:

Different T.C.'s are available in both Polypropylene and Polystyrene dielectrics. T.C.'s and the appropriate prefixes are as follows:

A1206 = -150 PPM/ $^{\circ}$ C $\pm$ 30 PPM
T1206 = -270 PPM/ $^{\circ}$ C $\pm$ 30 PPM
01906 = ZERO PPM/ $^{\circ}$ C $\pm$ 50 PPM
A1906 = -80 PPM/ $^{\circ}$ C $\pm$ 30 PPM
T1906 = -120 PPM/ $^{\circ}$ C $\pm$ 30 PPM

HIGH VOLTAGE:

EFC high voltage metallized polyester capacitors are designed for use in high voltage power supplies, rectifiers and other similar circuits. Voltage ratings to 15,000 DC are common-place at EFC. Specify with the prefix **HV**.

AC CURRENT:

Specify metallized polyester and termination procedures to enable EFC to supply a small sized **AC** rated capacitor for general purpose use at 60 HZ. Specify with the prefix **AC**.

HIGH AMPERAGE AND PULSE CURRENTS:

Dual metallized carriers allow these capacitors to handle high amperage and pulsing currents. Available in both polyester and polypropylene dielectrics. Specify with the prefix **MF**. Contact the factory for an **MF** spec. sheet.

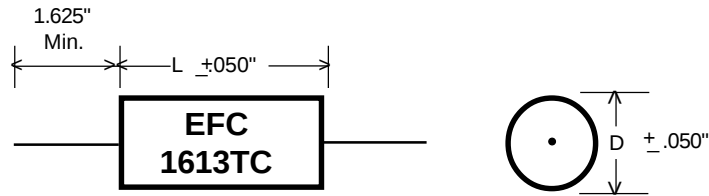
SWITCH MODE POWER SUPPLY:

Polypropylene and polyester capacitors designed for SMPS have low ESR and high current rating should be specified with the **SP** prefix.

EFC will manufacture to any non-standard value and size. Please consult factory for special requirements.

EFC**1613TC**

Metallized Polycarbonate Capacitors


**Tubular
Wrap and Fill**

(All dimensions in inches)

DIMENSIONS and RATINGS

Cap.	1613TC-1 50 VDC		1613TC-2 75 VDC		1613TC-2 100 VDC		1613TC-3 150 VDC		1613TC-3 200 VDC		1613TC-3 400 VDC		1613TC-3 600 VDC	
μF	D	L	D	L	D	L	D	L	D	L	D	L	D	L
.001	.180	.406	.180	.406	.180	.406	.180	.406	.180	.406	.180	.406	.180	.531
.0012	.180	.406	.180	.406	.180	.406	.180	.406	.180	.406	.180	.406	.180	.531
.0015	.180	.406	.180	.406	.180	.406	.180	.406	.180	.406	.180	.406	.180	.531
.0022	.180	.406	.180	.406	.180	.406	.180	.406	.180	.406	.180	.406	.180	.531
.0027	.180	.406	.180	.406	.180	.406	.180	.406	.180	.406	.180	.406	.180	.531
.0039	.180	.406	.180	.406	.180	.406	.180	.406	.180	.406	.180	.406	.180	.531
.0047	.180	.406	.180	.406	.180	.406	.180	.406	.180	.406	.180	.406	.180	.531
.0056	.180	.406	.180	.406	.180	.406	.180	.406	.180	.406	.180	.406	.190	.531
.0068	.180	.406	.180	.406	.180	.406	.180	.406	.180	.406	.200	.406	.210	.531
.0082	.180	.406	.180	.406	.180	.406	.180	.406	.180	.406	.220	.406	.230	.531
.01	.180	.406	.180	.406	.180	.406	.180	.406	.180	.406	.240	.406	.250	.531
.012	.180	.406	.180	.406	.180	.406	.180	.406	.180	.406	.180	.531	.270	.531
.015	.180	.406	.180	.406	.180	.406	.180	.406	.180	.406	.200	.531	.300	.531
.018	.180	.406	.180	.406	.180	.406	.180	.406	.200	.406	.210	.531	.270	.656
.022	.180	.406	.180	.406	.180	.406	.190	.406	.220	.406	.230	.531	.290	.656
.027	.180	.406	.180	.406	.180	.406	.200	.406	.240	.406	.250	.531	.320	.656
.033	.180	.406	.180	.406	.180	.406	.220	.406	.180	.531	.280	.531	.350	.656
.039	.180	.406	.180	.406	.180	.406	.240	.406	.190	.531	.250	.656	.340	.781
.047	.180	.406	.180	.406	.190	.406	.180	.531	.210	.531	.270	.656	.370	.781
.056	.180	.406	.180	.406	.210	.406	.190	.531	.230	.531	.300	.656	.400	.781
.068	.180	.406	.200	.406	.230	.406	.210	.531	.250	.531	.320	.656	.440	.781
.082	.180	.406	.220	.406	.200	.468	.230	.531	.270	.531	.350	.656	.430	.906
.1	.180	.406	.240	.406	.220	.468	.250	.531	.300	.531	.340	.781	.470	.906
.12	.190	.406	.260	.406	.240	.468	.270	.531	.330	.531	.370	.781	.510	.906
.15	.200	.406	.230	.468	.220	.531	.250	.656	.290	.656	.410	.781	.490	1.190
.18	.220	.406	.250	.468	.240	.531	.270	.656	.320	.656	.400	.906	.530	1.190
.22	.240	.406	.270	.468	.270	.531	.290	.656	.350	.656	.440	.906	.580	1.190
.27	.210	.468	.300	.468	.240	.656	.330	.656	.390	.656	.490	.906	.650	1.190
.33	.230	.468	.330	.468	.260	.656	.360	.656	.370	.781	.540	.906	.630	1.440
.39	.250	.468	.300	.531	.280	.656	.340	.781	.400	.781	.490	1.190	.680	1.440
.47	.230	.531	.330	.531	.310	.656	.370	.781	.390	.906	.540	1.190	.740	1.440
.56	.250	.531	.360	.531	.340	.656	.400	.781	.430	.906	.580	1.190	.770	1.570
.68	.280	.531	.390	.531	.342	.781	.390	.906	.470	.906	.640	1.190	.850	1.570
.82	.300	.531	.350	.656	.350	.781	.430	.906	.440	1.190	.620	1.440	.890	1.690
1.0	.330	.531	.380	.656	.390	.781	.410	1.190	.480	1.190	.680	1.440	.900	1.940
1.25	.300	.656	.430	.656	.430	.781	.450	1.190	.540	1.190	.760	1.440	1.000	1.940
1.5	.330	.656	.470	.656	.420	.906	.490	1.190	.590	1.190	.790	1.570	1.020	2.250
2.0	.380	.656	.460	.781	.480	.906	.570	1.190	.590	1.440	.870	1.690	1.180	2.250
3.0	.400	.781	.560	.781	.50	1.190	.610	1.440	.720	1.440	.970	1.940		
4.0	.460	.781	.580	.906	.570	1.190	.700	1.406	.790	1.570	1.120	1.940		
5.0	.450	.906	.650	.906	.560	1.440	.740	1.570	.840	1.690	1.160	2.250		
6.0	.500	.906	.590	1.190	.610	1.440	.810	1.570	.880	1.820				
8.0	.490	1.190	.680	1.190	.710	1.440	.850	1.690	1.020	1.820				
10.0	.540	1.190	.680	1.440	.750	1.570	.950	1.820	1.090	1.940				
12.0	.590	1.190	.740	1.440	.820	1.570	1.000	1.820	1.110	2.250				
15.0	.580	1.440			.870	1.690	1.110	1.940	1.240	2.250				
20.0	.670	1.440			.920	1.940	1.280	1.940						

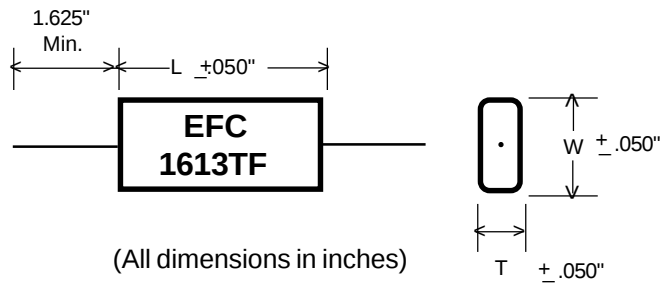
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EFC

Metallized Polycarbonate Capacitors

**1613TF**

**Oval
Wrap and Fill**

Lead Specs.

Tinned Copperweld

Under .190T = 24 AWG

.190 - .380T = 22 AWG

Above .380T = 20 AWG

DIMENSIONS and RATINGS

Cap.	1613TF-1 50 VDC			1613TF-2 75 VDC			1613TF-2 100 VDC			1613TF-3 150 VDC			1613TF-3 200 VDC			1613TF-3 400 VDC			1613TF-3 600 VDC		
μF	T	W	L	T	W	L	T	W	L	T	W	L	T	W	L	T	W	L	T	W	L
.001	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.531
.0012	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.531
.0015	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.531
.0022	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.531
.0027	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.531
.0039	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.531
.0047	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.531
.0056	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.220	.406	.130	.230	.531
.0068	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.406	.140	.230	.406	.150	.240	.531
.0082	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.406	.160	.250	.406	.170	.260	.531
.01	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.406	.180	.270	.406	.190	.280	.531
.012	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.531	.210	.310	.531
.015	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.406	.140	.230	.531	.240	.340	.531
.018	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.406	.120	.210	.406	.150	.250	.531	.210	.300	.656
.022	.120	.210	.406	.120	.210	.406	.120	.210	.406	.130	.220	.406	.160	.250	.406	.170	.270	.531	.230	.330	.656
.027	.120	.210	.406	.120	.210	.406	.120	.210	.406	.140	.240	.406	.180	.270	.406	.190	.290	.531	.260	.360	.656
.033	.120	.210	.406	.120	.210	.406	.120	.210	.406	.160	.260	.406	.120	.210	.531	.220	.310	.531	.290	.390	.656
.039	.120	.210	.406	.120	.210	.406	.120	.210	.406	.180	.270	.406	.130	.230	.531	.190	.280	.656	.260	.380	.781
.047	.120	.210	.406	.120	.210	.406	.130	.230	.406	.120	.210	.531	.150	.240	.531	.190	.320	.656	.290	.410	.781
.056	.120	.210	.406	.120	.220	.406	.150	.240	.406	.130	.230	.531	.170	.260	.531	.220	.340	.656	.320	.440	.781
.068	.120	.210	.406	.140	.230	.406	.170	.260	.406	.150	.240	.531	.190	.280	.531	.240	.370	.656	.360	.480	.781
.082	.120	.210	.406	.160	.250	.406	.140	.230	.468	.170	.260	.531	.210	.310	.531	.270	.400	.656	.350	.470	.906
.1	.120	.210	.406	.180	.270	.406	.160	.250	.468	.190	.290	.531	.240	.330	.531	.260	.380	.781	.390	.510	.906
.12	.130	.220	.406	.200	.290	.406	.180	.270	.468	.210	.310	.531	.270	.360	.531	.290	.410	.781	.430	.560	.906
.15	.140	.240	.406	.170	.260	.468	.160	.260	.531	.190	.280	.656	.230	.330	.656	.310	.470	.781	.380	.550	1.190
.18	.160	.260	.406	.190	.280	.468	.180	.280	.531	.210	.300	.656	.260	.350	.656	.300	.460	.906	.430	.590	1.190
.22	.180	.280	.406	.210	.300	.468	.210	.300	.531	.230	.330	.656	.290	.390	.656	.340	.500	.906	.480	.650	1.190
.27	.130	.250	.468	.240	.330	.468	.180	.270	.656	.270	.360	.656	.330	.420	.656	.380	.550	.906	.540	.710	1.190
.33	.170	.270	.468	.270	.360	.468	.200	.290	.656	.300	.390	.656	.290	.420	.781	.430	.600	.906	.520	.690	1.440
.39	.190	.290	.468	.240	.340	.531	.220	.320	.656	.260	.380	.781	.320	.450	.781	.380	.550	1.190	.570	.740	1.440
.47	.170	.270	.531	.270	.360	.531	.250	.340	.656	.290	.420	.781	.310	.440	.906	.430	.600	1.190	.640	.810	1.440
.56	.190	.290	.531	.300	.390	.531	.280	.370	.656	.320	.450	.781	.350	.470	.906	.480	.640	1.190	.660	.830	1.570
.68	.220	.310	.531	.330	.430	.531	.240	.370	.781	.310	.440	.906	.390	.520	.906	.530	.700	1.190	.740	.910	1.570
.82	.240	.340	.531	.290	.380	.656	.270	.400	.781	.350	.480	.906	.330	.500	1.190	.500	.690	1.440	.760	.960	1.690
1.0	.270	.370	.531	.320	.420	.656	.310	.430	.781	.300	.470	1.190	.380	.540	1.190	.560	.760	1.440	.770	.970	1.940
1.25	.240	.330	.656	.370	.460	.656	.350	.470	.781	.350	.510	1.190	.430	.600	1.190	.640	.830	1.440	.880	1.070	1.940
1.5	.270	.360	.656	.410	.500	.656	.340	.460	.906	.390	.550	1.190	.480	.650	1.190	.660	.860	1.570	.900	1.080	2.250
2.0	.320	.410	.656	.380	.510	.781	.400	.530	.906	.460	.630	1.190	.490	.650	1.440	.740	.940	1.690	1.050	1.250	2.250
3.0	.320	.440	.781	.480	.610	.781	.390	.560	1.190	.500	.670	1.440	.620	.780	1.440	.850	1.040	1.940			
4.0	.380	.500	.781	.500	.620	.906	.470	.630	1.190	.590	.760	1.440	.680	.850	1.570	.890	1.190	1.940			
5.0	.370	.500	.906	.570	.690	.906	.460	.620	1.440	.630	.800	1.570	.720	.910	1.690	1.040	1.230	2.250			
6.0	.420	.540	.906	.510	.640	1.190	.510	.670	1.440	.700	.870	1.570	.760	.950	1.820						
8.0	.380	.550	1.190	.600	.730	1.190	.600	.770	1.440	.720	.920	1.690	.890	1.090	1.920						
10.0	.440	.600	1.190	.570	.740	1.440	.620	.820	1.570	.820	1.020	1.820	.960	1.160	1.940						
12.0	.480	.650	1.190	.630	.800	1.440	.690	.840	1.570	.870	1.070	1.820	.980	1.180	2.250						
15.0	.470	.640	1.440				.750	.890	1.690	.990	1.180	1.940	1.100	1.310	2.250						
20.0	.560	.730	1.440				.800	.990	1.940	1.160	1.350	1.940									

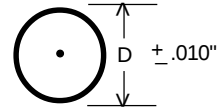
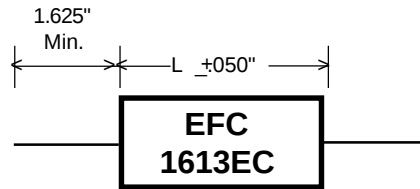
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EFC will manufacture to any non-standard value and size. Please consult factory for special requirements.

EFC**1613EC****Epoxy Case
(Axial Leads)****Metallized
Polycarbonate
Capacitors**

(All dimensions in inches)

Lead Specs.

Tinned Copperweld

Under .250D = 24 AWG

.250 - .440D = 22 AWG

Above .440D = 20 AWG

DIMENSIONS and RATINGS

Cap.	1613EC 50 VDC		1613EC 75 VDC		1613EC 100 VDC		1613EC 150 VDC		1613EC 200 VDC		1613EC 400 VDC		1613EC 600 VDC	
μF	D	L	D	L	D	L	D	L	D	L	D	L	D	L
.001	1	A	1	A	1	A	1	A	1	A	1	A	1	B
.0012	1	A	1	A	1	A	1	A	1	A	1	A	1	B
.0015	1	A	1	A	1	A	1	A	1	A	1	A	1	B
.0022	1	A	1	A	1	A	1	A	1	A	1	A	1	B
.0027	1	A	1	A	1	A	1	A	1	A	1	A	1	B
.0039	1	A	1	A	1	A	1	A	1	A	2	A	2	B
.0047	1	A	1	A	1	A	1	A	1	A	2	A	2	B
.0056	1	A	1	A	1	A	1	A	1	A	2	A	2	B
.0068	1	A	1	A	1	A	1	A	1	A	1	B	2	C
.0082	1	A	1	A	1	A	1	A	1	A	2	B	2	C
.01	1	A	1	A	1	A	1	A	2	A	2	B	3	C
.012	1	A	1	A	1	A	1	A	2	A	2	B	4	C
.015	1	A	2	A	1	A	2	A	2	A	3	B	4	C
.018	1	A	2	A	1	A	2	A	1	B	3	B	4	C
.022	1	A	2	A	1	A	2	A	2	B	3	C	4	D
.027	1	A	2	A	1	A	2	B	2	B	3	C	4	D
.033	1	A	3	A	2	A	2	B	2	B	4	C	5	D
.039	1	A	3	A	2	A	2	B	2	B	4	C	5	E
.047	1	A	2	A	2	A	2	B	3	B	4	C	5	E
.056	1	A	2	A	2	A	2	B	3	C	4	D	6	E
.068	1	A	2	A	2	B	3	B	3	C	4	D	7	E
.082	1	A	2	A	2	B	2	C	4	C	5	D	7	E
.1	2	A	3	A	2	B	3	C	4	C	5	E		
.12	2	A	2	B	2	B	3	C	4	C	5	E		
.15	2	A	2	B	3	B	4	C	4	D	6	E		
.18	3	A	2	B	2	C	4	C	4	D	7	E		
.22	3	A	3	B	3	C	4	D	5	D	7	E		
.27	1	B	3	B	4	C	4	E	5	D	7	F		
.33	2	B	3	C	4	C	5	D	5	E	7	F		
.39	3	B	4	C	4	C	5	D	6	E				
.47	3	C	4	C	4	D	5	E	6	E				
.56	4	C	4	D	5	D	6	E	7	E				
.68	4	C	5	D	5	D	6	E	7	F				
.82	4	C	5	D	5	E	7	E	7	F				
1.0	4	C	5	D	6	E	7	E						
1.25	4	D	5	E	6	E	7	F						
1.5	4	D	6	E	7	E								
2.0	5	D	6	E	7	F								
3.0	5	E	7	F										
4.0	6	F												
5.0	7	F												

DIAMETER

1 = .187 5 = .375
 2 = .225 6 = .437
 3 = .250 7 = .500
 4 = .312

SIZE CODE**LENGTH**

A = .375 D = .750
 B = .500 E = .875
 C = .625 F = 1.187

ELECTRONIC FILM CAPACITORS, INC.

Reidville Industrial Park * 41 Interstate Lane * WATERBURY, CONNECTICUT 06705

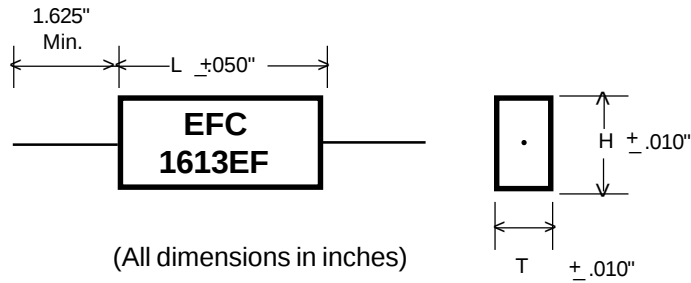
Phone (203) 755-5629

FAX (203) 755-0659

EFC will manufacture to any non-standard value and size. Please consult factory for special requirements.



Metallized Polycarbonate Capacitors



1613EF

**Epoxy Case
(Axial Leads)**

Lead Specs.

Tinned Copperweld

Under .190T = 24 AWG

.190 - .380T = 22 AWG

Above .380T = 20 AWG

DIMENSIONS and RATINGS

Cap.	1613EF-1 50 VDC			1613EF-2 75 VDC			1613EF-2 100 VDC			1613EF-3 150 VDC			1613EF-3 200 VDC			1613EF-3 400 VDC			1613EF-3 600 VDC		
μF	T	H	L	T	H	L	T	H	L	T	H	L	T	H	L	T	H	L	T	H	L
.001	.170	.290	.420	.170	.290	.420	.170	.290	.420	.170	.290	.420	.170	.290	.420	.170	.290	.420	.170	.290	.570
.0012	.170	.290	.420	.170	.290	.420	.170	.290	.420	.170	.290	.420	.170	.290	.420	.170	.290	.420	.170	.290	.570
.0015	.170	.290	.420	.170	.290	.420	.170	.290	.420	.170	.290	.420	.170	.290	.420	.170	.290	.420	.170	.290	.570
.0022	.170	.290	.420	.170	.290	.420	.170	.290	.420	.170	.290	.420	.170	.290	.420	.170	.290	.420	.170	.290	.570
.0027	.170	.290	.420	.170	.290	.420	.170	.290	.420	.170	.290	.420	.170	.290	.420	.170	.290	.420	.230	.360	.550
.0039	.170	.290	.420	.170	.290	.420	.170	.290	.420	.170	.290	.420	.170	.290	.420	.170	.290	.570	.230	.360	.550
.0047	.170	.290	.420	.170	.290	.420	.170	.290	.420	.170	.290	.420	.170	.290	.420	.170	.290	.570	.230	.360	.550
.0056	.170	.290	.420	.170	.290	.420	.170	.290	.420	.170	.290	.420	.170	.290	.420	.170	.290	.570	.230	.360	.550
.0068	.170	.290	.420	.170	.290	.420	.170	.290	.420	.170	.290	.420	.170	.290	.420	.170	.290	.570	.230	.360	.550
.0082	.170	.290	.420	.170	.290	.420	.170	.290	.420	.170	.290	.420	.170	.290	.420	.230	.360	.550	.230	.360	.550
.01	.170	.290	.420	.170	.290	.420	.170	.290	.420	.170	.290	.420	.170	.290	.420	.230	.360	.550	.290	.420	.570
.012	.170	.290	.420	.170	.290	.420	.170	.290	.420	.170	.290	.420	.170	.290	.570	.230	.360	.550	.290	.420	.550
.015	.170	.290	.420	.170	.290	.420	.170	.290	.420	.170	.290	.570	.170	.290	.570	.230	.360	.550	.290	.420	.550
.018	.170	.290	.420	.170	.290	.420	.170	.290	.420	.170	.290	.570	.230	.360	.550	.230	.360	.550	.290	.420	.670
.022	.170	.290	.420	.170	.290	.420	.170	.290	.420	.230	.360	.550	.230	.360	.550	.290	.420	.570	.290	.420	.670
.027	.170	.290	.420	.170	.290	.420	.170	.290	.420	.230	.360	.550	.230	.360	.570	.290	.420	.570	.290	.420	.820
.033	.170	.290	.420	.170	.290	.420	.170	.290	.570	.230	.360	.570	.230	.360	.550	.290	.420	.570	.290	.420	.820
.039	.170	.290	.420	.170	.290	.420	.170	.290	.570	.230	.360	.550	.230	.360	.550	.290	.420	.670	.390	.540	.820
.047	.170	.290	.420	.230	.360	.550	.170	.290	.570	.230	.360	.550	.230	.360	.550	.290	.420	.670	.390	.540	.820
.056	.170	.290	.420	.230	.360	.550	.170	.290	.570	.230	.360	.550	.230	.360	.550	.290	.420	.820	.390	.540	.820
.068	.170	.290	.420	.230	.360	.550	.230	.360	.550	.230	.360	.550	.290	.420	.570	.290	.420	.820	.390	.540	1.040
.082	.170	.290	.420	.230	.360	.550	.230	.360	.550	.290	.420	.570	.290	.420	.570	.390	.540	.820	.390	.540	1.240
.1	.230	.360	.550	.230	.360	.550	.230	.360	.550	.290	.420	.570	.290	.420	.670	.390	.540	.820	.390	.540	1.240
.12	.230	.360	.550	.230	.360	.550	.230	.360	.550	.290	.420	.570	.290	.420	.670	.390	.540	.820	.560	.720	1.240
.15	.230	.360	.550	.230	.360	.550	.290	.360	.570	.290	.420	.670	.290	.420	.670	.390	.540	.820	.560	.720	1.240
.18	.230	.360	.550	.230	.360	.570	.290	.420	.570	.290	.420	.670	.290	.420	.820	.390	.540	1.040	.560	.720	1.240
.22	.230	.360	.550	.290	.420	.570	.290	.420	.570	.290	.420	.820	.390	.540	.820	.390	.540	1.240	.560	.720	1.240
.27	.230	.360	.550	.290	.420	.570	.290	.420	.670	.290	.420	.820	.390	.540	.820	.390	.540	1.240			
.33	.230	.360	.550	.290	.420	.570	.290	.420	.670	.390	.540	.820	.390	.540	.820	.560	.720	1.240			
.39	.230	.360	.550	.290	.420	.670	.290	.420	.820	.390	.540	.820	.390	.540	1.040	.560	.720	1.240			
.47	.290	.420	.570	.290	.420	.670	.290	.420	.820	.390	.540	.820	.390	.540	1.040	.560	.720	1.240			
.56	.290	.420	.570	.290	.420	.670	.390	.540	.820	.390	.540	1.040	.390	.540	1.240	.560	.720	1.240			
.68	.290	.420	.570	.290	.420	.820	.390	.540	.820	.390	.540	1.040	.390	.550	1.240						
.82	.290	.420	.670	.390	.540	.820	.390	.540	.820	.390	.540	1.240	.560	.720	1.240						
1.0	.290	.420	.670	.390	.540	.820	.390	.540	.820	.560	.720	1.240	.560	.720	1.240						
1.25	.290	.420	.820	.390	.540	.820	.390	.540	1.040	.560	.720	1.240	.560	.720	1.240						
1.5	.290	.420	.820	.390	.540	1.040	.390	.540	1.240	.560	.720	1.240	.560	.720	1.240						
2.0	.390	.540	.820	.390	.540	1.240	.560	.720	1.240	.560	.720	1.240									
3.0	.390	.540	1.040	.560	.720	1.240	.560	.720	1.240												
4.0	.390	.540	1.240	.560	.720	1.240	.560	.720	1.240												
5.0	.390	.540	1.240	.560	.720	1.240															

ELECTRONIC FILM CAPACITORS, INC.

Reidville Industrial Park * 41 Interstate Lane * WATERBURY, CONNECTICUT 06705

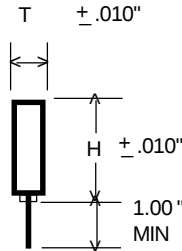
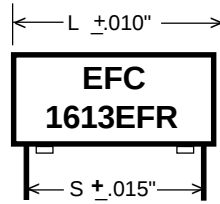
Phone (203) 755-5629

FAX (203) 755-0659

EFC will manufacture to any non-standard value and size. Please consult factory for special requirements.



Metallized Polycarbonate Capacitors



(All dimensions in inches)

1613EFR

**Epoxy Case
(Radial Leads)**

Lead Specs. - Tinned Copperweld

L	S	AWG
.420	.30	22
.550	.40	22
.670	.50	22
.820	.60	22
1.04	.80	22
1.24	1.10	20
1.75	1.60	20

DIMENSIONS and RATINGS

Cap.	1613EFR-1 50 VDC			1613EFR-2 75 VDC			1613EFR-2 100 VDC			1613EFR-3 150 VDC			1613EFR-3 200 VDC			1613EFR-3 400 VDC			1613EFR-3 600 VDC		
μF	T	L	H	T	L	H	T	L	H	T	L	H	T	L	H	T	L	H	T	L	H
.001	.160	.420	.330	.160	.420	.330	.160	.420	.330	.160	.420	.330	.160	.420	.330	.160	.420	.330	.180	.550	.330
.0012	.160	.420	.330	.160	.420	.330	.160	.420	.330	.160	.420	.330	.160	.420	.330	.160	.420	.330	.180	.550	.330
.0015	.160	.420	.330	.160	.420	.330	.160	.420	.330	.160	.420	.330	.160	.420	.330	.160	.420	.330	.180	.550	.330
.0022	.160	.420	.330	.160	.420	.330	.160	.420	.330	.160	.420	.330	.160	.420	.330	.160	.420	.330	.180	.550	.330
.0027	.160	.420	.330	.160	.420	.330	.160	.420	.330	.160	.420	.330	.160	.420	.330	.160	.420	.330	.180	.550	.330
.0039	.160	.420	.330	.160	.420	.330	.160	.420	.330	.160	.420	.330	.160	.420	.330	.180	.550	.330	.180	.550	.330
.0047	.160	.420	.330	.160	.420	.330	.160	.420	.330	.160	.420	.330	.160	.420	.330	.180	.550	.330	.240	.550	.370
.0056	.160	.420	.330	.160	.420	.330	.160	.420	.330	.160	.420	.330	.160	.420	.330	.180	.550	.330	.240	.550	.370
.0068	.160	.420	.330	.160	.420	.330	.160	.420	.330	.160	.420	.330	.160	.420	.330	.180	.550	.330	.240	.550	.370
.0082	.160	.420	.330	.160	.420	.330	.160	.420	.330	.160	.420	.330	.160	.420	.330	.180	.550	.330	.240	.550	.370
.01	.160	.420	.330	.160	.420	.330	.160	.420	.330	.160	.420	.330	.180	.420	.330	.240	.550	.370	.300	.550	.370
.012	.160	.420	.330	.160	.420	.330	.160	.420	.330	.180	.420	.330	.180	.550	.330	.240	.550	.370	.300	.550	.370
.015	.160	.420	.330	.160	.420	.330	.160	.420	.330	.180	.550	.330	.180	.550	.330	.240	.550	.370	.300	.550	.370
.018	.160	.420	.330	.160	.420	.330	.160	.420	.330	.180	.550	.330	.180	.550	.330	.240	.550	.370	.300	.670	.370
.022	.160	.420	.330	.160	.420	.330	.180	.420	.330	.180	.550	.330	.180	.550	.330	.300	.550	.430	.300	.670	.370
.027	.160	.420	.330	.160	.420	.330	.180	.420	.330	.180	.550	.330	.240	.550	.370	.300	.550	.430	.300	.820	.370
.033	.160	.420	.330	.180	.420	.330	.180	.550	.330	.240	.550	.370	.240	.550	.370	.300	.550	.430	.300	.820	.370
.039	.160	.420	.330	.180	.420	.330	.180	.550	.330	.240	.550	.370	.240	.550	.370	.300	.670	.430	.400	.820	.550
.047	.160	.420	.330	.180	.550	.330	.180	.550	.330	.240	.550	.370	.240	.550	.370	.300	.670	.430	.400	.820	.550
.056	.160	.420	.330	.180	.550	.330	.180	.550	.330	.240	.550	.370	.240	.550	.370	.300	.820	.430	.400	.820	.550
.068	.180	.420	.330	.180	.550	.330	.240	.550	.370	.240	.550	.370	.300	.550	.430	.300	.820	.430	.400	1.040	.550
.082	.180	.420	.330	.180	.550	.330	.240	.550	.370	.300	.550	.430	.300	.550	.430	.400	.820	.550	.400	1.240	.550
.1	.180	.420	.330	.180	.550	.330	.240	.550	.370	.300	.550	.430	.300	.670	.430	.400	.820	.550	.400	1.240	.550
.12	.180	.550	.330	.240	.550	.370	.240	.550	.370	.300	.550	.430	.300	.670	.430	.400	.820	.550	.570	1.240	.730
.15	.180	.550	.330	.240	.550	.370	.300	.550	.430	.300	.670	.430	.300	.670	.430	.400	.820	.550	.570	1.240	.730
.18	.180	.550	.330	.240	.550	.370	.300	.550	.430	.300	.670	.430	.300	.820	.430	.400	1.040	.550	.570	1.240	.730
.22	.240	.550	.370	.300	.550	.430	.300	.550	.430	.300	.820	.430	.400	.820	.550	.400	1.240	.550	.570	1.240	.730
.27	.240	.550	.370	.300	.550	.430	.300	.670	.430	.300	.820	.430	.400	.820	.550	.400	1.240	.550	.700	1.240	.940
.33	.240	.550	.370	.300	.550	.430	.300	.670	.430	.400	.820	.550	.400	.820	.550	.570	1.240	.730	.700	1.240	.940
.39	.240	.550	.370	.300	.670	.430	.300	.820	.430	.400	.820	.550	.400	1.040	.550	.570	1.240	.730	.700	1.240	.940
.47	.300	.550	.430	.300	.670	.430	.300	.820	.430	.400	.820	.550	.400	1.040	.550	.570	1.240	.730	.700	1.750	1.125
.56	.300	.550	.430	.300	.670	.430	.400	.820	.550	.400	1.040	.550	.400	1.240	.550	.570	1.240	.730	.700	1.750	1.125
.68	.300	.550	.430	.300	.820	.430	.400	.820	.550	.400	1.040	.550	.400	1.240	.550	.700	1.240	.940	.800	1.750	1.125
.82	.300	.670	.430	.400	.820	.550	.400	.820	.550	.400	1.240	.550	.570	1.240	.730	.700	1.240	.940	.800	1.750	1.125
1.0	.300	.670	.430	.400	.820	.550	.400	.820	.550	.570	1.240	.730	.570	1.240	.730	.700	1.750	1.125			
1.25	.300	.820	.430	.400	.820	.550	.400	1.040	.550	.570	1.240	.730	.570	1.240	.730	.700	1.750	1.125			
1.5	.300	.820	.430	.400	1.040	.550	.400	1.240	.550	.570	1.240	.730	.570	1.240	.730	.700	1.750	1.125			
2.0	.400	.820	.550	.400	1.240	.550	.570	1.240	.730	.570	1.240	.730	.700	1.240	.940	.800	1.750	1.125			
3.0	.400	1.040	.550	.570	1.240	.730	.570	1.240	.730	.570	1.750	.730	.700	1.750	1.125						
4.0	.400	1.240	.550	.570	1.240	.730	.570	1.240	.730	.700	1.750	1.125	.700	1.750	1.125						
5.0	.400	1.240	.550	.570	1.240	.730				.700	1.750	1.125	.800	1.750	1.125						
6.0										.800	1.750	1.125									

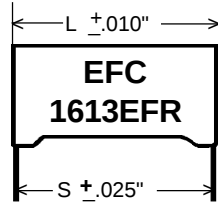
ELECTRONIC FILM CAPACITORS, INC.

Reidville Industrial Park * 41 Interstate Lane * WATERBURY, CONNECTICUT 06705
Phone (203) 755-5629 FAX (203) 755-0659

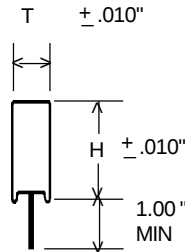
EFC will manufacture to any non-standard value and size. Please consult factory for special requirements.



Metallized Polycarbonate Capacitors



(All dimensions in inches)



1613EFR

**Epoxy Case
(Radial Leads)**

Lead Specs.
Tinned Copperweld
B through E cases: 22 AWG
F through R cases: 20 AWG

DIMENSIONS and RATINGS

Cap. μ F	63/40 VDC/VAC	100/63 VDC/VAC	160/100 VDC/VAC	250/160 VDC/VAC	400/220 VDC/VAC	630/250 VDC/VAC	CASE SIZE	L $\frac{\text{mm}}{\text{in.}}$	T $\frac{\text{mm}}{\text{in.}}$	H $\frac{\text{mm}}{\text{in.}}$	S $\frac{\text{mm}}{\text{in.}}$
.001	B	B	B	B	B	C	B	10.5 .413	4 .157	9 .354	7.5 .295
.0012	B	B	B	B	B	C	C	13 .512	4 .157	9 .354	10 .394
.0015	B	B	B	B	B	C	C	13 .512	5 .197	11 .433	10 .394
.0022	B	B	B	B	B	C	D	13 .512	6 .236	12 .472	10 .394
.0027	B	B	B	B	B	C	E	18 .709	5 .197	11 .433	15 .591
.0039	B	B	B	B	B	C	F	18 .709	6 .236	12 .472	15 .591
.0047	B	B	B	B	B	C	G	18 .709	7.5 .295	13.5 .531	15 .591
.0056	B	B	B	B	B	C	H	26.5 1.04	6 .236	15 .591	20 .787
.0068	B	B	B	B	B	C	J	26.5 1.04	7 .276	16 .630	20 .787
.0082	B	B	B	B	B	C	K	26.5 1.04	6 .236	15 .591	22.5 .886
.01	B	B	B	B	B	D	L	26.5 1.04	7 .276	16 .630	22.5 .886
.012	B	B	B	B	B	D	M	26.5 1.04	8.5 .335	16.3 .642	22.5 .886
.015	B	B	B	C	C	E	N	26.5 1.04	10 .394	19 .748	22.5 .886
.018	B	B	B	C	C	E	O	32 1.26	11 .433	20 .787	27.5 1.08
.022	B	B	B	C	C	F	P	32 1.26	13 .512	22 .866	27.5 1.08
.027	B	B	B	C	C	G	Q				
.033	B	B	C	C	D	G					
.039	B	B	C	C	D	H					
.047	B	B	C	C	D	H					
.056	B	C	C	D	E	J/L					
.068	B	C	D	D	E	J/L					
.082	B	C	D	D	F	K/M					
.1	C	C	D	D	G	K/M					
.12	C	D	D	D	H	N					
.15	C	D	E	D	H	O					
.18	C	E	E	G	J/L	O					
.22	D	E	E	G	K/M	P					
.27	D	F	F	H	K/M	P					
.33	D	F	F	H	N	P					
.39	D	G	G	K/M	N	P					
.47	E	G	G	K/M	O						
.56	F	H	H	O	O						
.68	F	H	H	O	O						
.82	G	H	J/L	O	O						
1.0	G	K/M	J/L	O	O						
1.25	H	K/M	K/M	P							
1.50	J/L	K/M	N	P							
2.00	J/L	K/M	N	P							
3.00	K/M	P	Q	Q							
4.00	N	P									
5.00	N	P									
6.00	P	Q									
8.00											

ELECTRONIC FILM CAPACITORS, INC.

Reidville Industrial Park * 41 Interstate Lane * WATERBURY, CONNECTICUT 06705

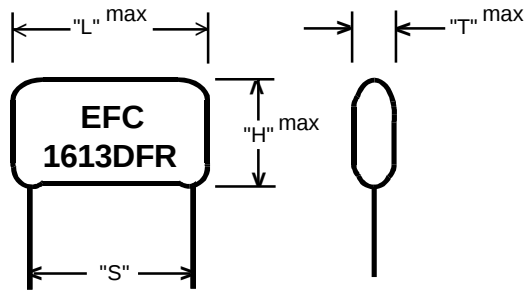
Phone (203) 755-5629

FAX (203) 755-0659

EFC will manufacture to any non-standard value and size. Please consult factory for special requirements.



Metallized Polycarbonate Capacitors



(All dimensions in millimeters)

1613DFR

Epoxy Dipped (Radial Leads)

Lead Specs. - Tinned Copperweld

L	S	DIA.
10.0	7.5	0.6
12.5	10.0	0.6
18.0	15.0	0.8
26.0	22.5	0.8
31.0	27.5	0.8

DIMENSIONS and RATINGS

Cap.	1613DFR-3 63 VDC			1613DFR-3 100 VDC			1613DFR-3 250 VDC			1613DFR-3 400 VDC			1613DFR-3 630 VDC				
µF	T	H	L	T	H	L	T	H	L	T	H	L	T	H	L		
.001	4.0	8.0	10.0	4.0	8.0	10.0	4.0	8.0	10.0	4.0	8.0	10.0	4.5	8.5	10.0		
.0012	4.0	8.0	10.0	4.0	8.0	10.0	4.0	8.0	10.0	4.0	8.0	10.0	4.5	8.5	10.0		
.0015	4.0	8.0	10.0	4.0	8.0	10.0	4.0	8.0	10.0	4.0	8.0	10.0	4.5	8.5	10.0		
.0022	4.0	8.0	10.0	4.0	8.0	10.0	4.0	8.0	10.0	4.0	8.0	10.0	4.5	8.5	10.0		
.0027	4.0	8.0	10.0	4.0	8.0	10.0	4.0	8.0	10.0	4.0	8.0	10.0	4.5	8.5	10.0		
.0039	4.0	8.0	10.0	4.0	8.0	10.0	4.0	8.0	10.0	4.0	8.0	10.0	4.5	8.5	10.0		
.0047	4.0	8.0	10.0	4.0	8.0	10.0	4.0	8.0	10.0	4.0	8.0	10.0	4.5	8.5	12.5		
.0056	4.0	8.0	10.0	4.0	8.0	10.0	4.0	8.0	10.0	4.0	8.0	10.0	4.5	8.5	12.5		
.0068	4.0	8.0	10.0	4.0	8.0	10.0	4.0	8.0	10.0	4.5	8.5	10.0	4.5	9.0	12.5		
.0082	4.0	8.0	10.0	4.0	8.0	10.0	4.0	8.0	10.0	4.5	8.5	10.0	4.5	9.0	12.5		
.01	4.0	8.0	10.0	4.0	8.0	10.0	4.0	8.0	10.0	4.5	9.0	10.0	5.0	9.5	12.5		
.012	4.0	8.0	10.0	4.0	8.0	10.0	4.0	8.0	10.0	4.5	9.0	10.0	5.5	10.5	12.5		
.015	4.0	8.0	10.0	4.0	8.0	10.0	4.5	8.5	10.0	4.5	9.0	12.5	6.0	11.0	12.5		
.018	4.0	8.0	10.0	4.0	8.0	10.0	4.5	8.5	10.0	4.5	9.0	12.5	6.0	11.0	18.0		
.022	4.0	8.0	10.0	4.0	8.0	10.0	4.5	8.5	10.0	4.5	9.0	12.5	6.0	12.0	18.0		
.027	4.0	8.0	10.0	4.0	8.0	10.0	4.5	8.5	10.0	5.0	9.5	12.5	6.5	12.5	18.0		
.033	4.0	8.0	10.0	4.0	8.0	10.0	4.5	9.0	10.0	5.5	10.5	12.5	7.0	13.0	18.0		
.039	4.0	8.0	10.0	4.0	8.0	10.0	4.5	9.0	12.5	6.0	11.0	12.5	7.5	13.5	18.0		
.047	4.0	8.0	10.0	4.0	8.0	10.0	5.0	9.5	12.5	6.5	12.0	12.5	8.0	14.5	18.0		
.056	4.0	8.0	10.0	4.0	8.0	10.0	5.0	10.0	12.5	5.0	10.0	18.0	8.0	15.0	18.0		
.068	4.0	8.0	10.0	4.5	8.5	10.0	5.5	10.5	12.5	5.5	10.5	18.0	8.5	15.5	18.0		
.082	4.0	8.0	10.0	4.5	9.0	10.0	6.0	11.0	12.5	6.0	11.0	18.0	8.5	15.5	26.0		
.1	4.0	8.0	10.0	4.5	9.0	12.5	5.5	10.5	18.0	6.0	12.0	18.0	8.5	16.0	26.0		
.12	4.0	8.0	10.0	4.5	9.5	12.5	6.0	12.0	18.0	6.5	12.5	18.0	9.0	16.5	26.0		
.15	4.0	8.0	10.0	5.0	10.0	12.5	6.5	12.5	18.0	7.5	13.5	18.0	9.5	17.0	26.0		
.18	4.0	8.0	10.0	5.5	10.5	12.5	7.0	13.0	18.0	8.5	15.5	18.0	9.0	16.5	31.0		
.22	4.0	8.5	12.5	6.0	11.0	12.5	7.5	13.5	18.0	7.5	13.5	26.0	9.5	18.0	31.0		
.27	4.5	8.5	12.5	5.5	10.5	18.0	8.0	14.0	18.0	8.5	15.5	26.0	10.0	19.0	31.0		
.33	4.5	9.0	12.5	5.5	11.0	18.0	8.5	15.5	18.0	9.0	16.0	26.0	11.5	20.5	31.0		
.39	5.0	9.5	12.5	6.0	12.0	18.0	7.5	13.5	26.0	9.5	17.0	26.0	12.0	21.0	31.0		
.47	5.5	10.0	12.5	7.0	13.0	18.0	8.0	15.0	26.0	10.0	19.0	26.0	13.0	23.0	31.0		
.56	5.5	10.5	12.5	7.5	14.0	18.0	8.5	16.0	26.0	9.5	17.0	31.0	13.5	25.0	31.0		
.68	6.0	11.0	12.5	8.0	15.0	18.0	9.5	17.0	26.0	10.5	20.0	31.0	15.0	27.0	31.0		

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