

# Series 1213

## Metallized Polypropylene

**Features:** Flame retardant to UL94, excellent long term stability, self healing, high insulation resistance, low dissipation factor, high frequency operation.

**Applications:** Timing circuits, switch mode power supplies (SMPS).

**Packaging:** Axial wrap and fill (TF, TC), radial lead box (EFR), axial lead epoxy tube (EC).

### Specifications

**1) Temperature Range**

-55°C to +105°C at rated voltage.

**2) Capacitance**

0.001µF to 20µF

**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 80,000 Megohm-Microfarads, but need not exceed 120,000 Megohms.

**5) Humidity Resistance**

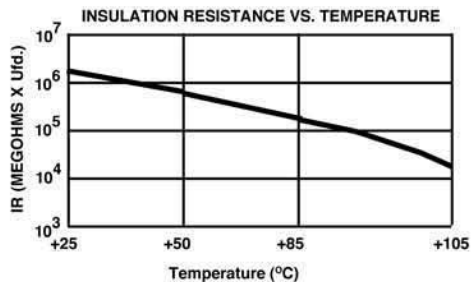
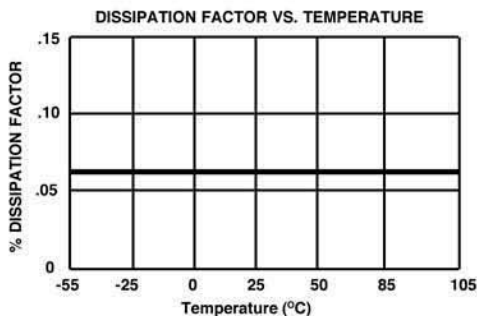
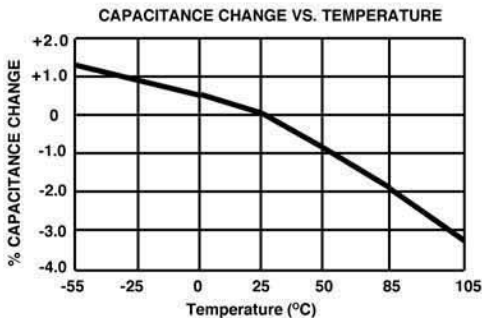
Series 1213 shall meet the requirements of MIL-STD. 202, Method 103B.

**6) Dissipation Factor**

Shall be 0.1% max. when measured at 1 KHz and 25°C.

**7) Life Test**

Will withstand the application of 150% rated voltage at + 85°C for 250 hours with not more than one failure in 12 permitted.



### Typical Temperature Curves Metallized Polypropylene

# Catalog Nomenclature

**\* 1 3 0 6 E F R - 3 - . 0 0 1 - 1 - 5**

**Case Code:**

TC - Wrap & Fill - Round - Axial  
 TF - Wrap & Fill - Flat - Axial  
 EC - Epoxy Case - Round - Axial  
 EFR - Epoxy Case - Flat - Radial  
 DFR - Dipped Construction - Flat - Radial  
 HS - Hermetically Sealed

**Dielectric Code:**

1206 - Polypropylene/Foil  
 1213 - Metallized Polypropylene  
 1306 - Polyester/Foil  
 1313 - Metallized Polyester  
 1613 - Metallized Polycarbonate  
 1906 - Polystyrene/Foil  
 2113 - Metallized Polyphenylene Sulfide

**Size Code:**

3 - Standard  
 2 - Miniature (1313DFR Series Only)  
 X - Non-standard  
 Or one letter case code

**Capacitance:**

In microfarads ( $\mu$ F)

**Voltage:**

.35 - 35 VDC  
 0 - 50 VDC  
 1 - 100 VDC  
 2 - 200 VDC  
 3 - 300 VDC  
 4 - 400 VDC  
 10 - 1000 VDC  
 1.6K - 1600VDC  
 Etc.

**Tolerance:**

1 - 1%  
 2 - 2%  
 5 - 5%  
 Etc.

**\* Options**

The following options are available from EFC by specifying the appropriate prefix.

A - Aluminum foil electrodes  
 T - Tin foil electrodes  
 HV - High voltage DC applications  
 AC - AC voltage rated applications  
 MF - Metallized and foil hybrid for maximum pulse current applications  
 M - Dual metallized design for pulse current applications  
 SP - Low ESR, high RMS current applications  
 PC - Direct mount terminals for high current filter applications  
 FT - Feed thru filter applications  
 RC - Resistor capacitor suppressors



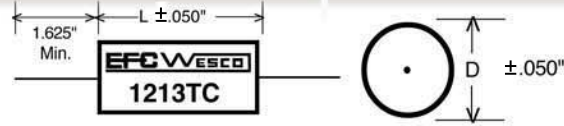
Please consult factory for special requirements, including non-standard values and sizes

## 1213TC Tubular Wrap & Fill

## Metallized Polypropylene Capacitors

Lead Spec.  
Tinned Copperweld  
Under .250D = 24 AWG  
.250 - .440D = 22AWG  
Above .440D = 20 AWG

### Dimensions and Ratings



Cap.	50 VDC		
µF	Part #	D	L
.001	1213TC-3-.001-0-*	.160	.406
.0012	1213TC-3-.0012-0-*	.160	.406
.0015	1213TC-3-.0015-0-*	.160	.406
.0022	1213TC-3-.0022-0-*	.160	.406
.0027	1213TC-3-.0027-0-*	.160	.406
.0039	1213TC-3-.0039-0-*	.160	.406
.0047	1213TC-3-.0047-0-*	.160	.406
.0056	1213TC-3-.0056-0-*	.160	.406
.0068	1213TC-3-.0068-0-*	.160	.406
.0082	1213TC-3-.0082-0-*	.160	.406
.01	1213TC-3-.01-0-*	.160	.406
.012	1213TC-3-.012-0-*	.160	.406
.015	1213TC-3-.015-0-*	.160	.406
.018	1213TC-3-.018-0-*	.160	.406
.022	1213TC-3-.022-0-*	.160	.406
.027	1213TC-3-.027-0-*	.170	.406
.033	1213TC-3-.033-0-*	.180	.406
.039	1213TC-3-.039-0-*	.200	.406
.047	1213TC-3-.047-0-*	.210	.406
.056	1213TC-3-.056-0-*	.230	.406
.068	1213TC-3-.068-0-*	.250	.406
.082	1213TC-3-.082-0-*	.190	.531
.1	1213TC-3-.1-0-*	.210	.531
.12	1213TC-3-.12-0-*	.220	.531
.15	1213TC-3-.15-0-*	.250	.531
.18	1213TC-3-.18-0-*	.270	.531
.22	1213TC-3-.22-0-*	.300	.531
.27	1213TC-3-.27-0-*	.260	.656
.33	1213TC-3-.33-0-*	.290	.656
.39	1213TC-3-.39-0-*	.310	.656
.47	1213TC-3-.47-0-*	.340	.656
.56	1213TC-3-.56-0-*	.320	.781
.68	1213TC-3-.68-0-*	.350	.781
.82	1213TC-3-.82-0-*	.390	.781
1.0	1213TC-3-1.0-0-*	.420	.781
1.25	1213TC-3-1.2-0-*	.420	.906
1.5	1213TC-3-1.5-0-*	.460	.906
2.0	1213TC-3-2.0-0-*	.450	1.190
3.0	1213TC-3-3.0-0-*	.550	1.190
4.0	1213TC-3-4.0-0-*	.630	1.190
5.0	1213TC-3-5.0-0-*	.620	1.440
6.0	1213TC-3-6.0-0-*	.680	1.440

Cap.	100 VDC		
µF	Part #	D	L
.001	1213TC-3-.001-1-*	.180	.406
.0012	1213TC-3-.0012-1-*	.180	.406
.0015	1213TC-3-.0015-1-*	.180	.406
.0022	1213TC-3-.0022-1-*	.180	.406
.0027	1213TC-3-.0027-1-*	.180	.406
.0039	1213TC-3-.0039-1-*	.180	.406
.0047	1213TC-3-.0047-1-*	.180	.406
.0056	1213TC-3-.0056-1-*	.180	.406
.0068	1213TC-3-.0068-1-*	.180	.406
.0082	1213TC-3-.0082-1-*	.180	.406
.01	1213TC-3-.01-1-*	.180	.406
.012	1213TC-3-.012-1-*	.180	.406
.015	1213TC-3-.015-1-*	.180	.406
.018	1213TC-3-.018-1-*	.180	.406
.022	1213TC-3-.022-1-*	.180	.406
.027	1213TC-3-.027-1-*	.200	.406
.033	1213TC-3-.033-1-*	.220	.406
.039	1213TC-3-.039-1-*	.240	.406
.047	1213TC-3-.047-1-*	.180	.531
.056	1213TC-3-.056-1-*	.190	.531
.068	1213TC-3-.068-1-*	.210	.531
.082	1213TC-3-.082-1-*	.220	.531
.1	1213TC-3-.1-1-*	.250	.531
.12	1213TC-3-.12-1-*	.270	.531
.15	1213TC-3-.15-1-*	.300	.531
.18	1213TC-3-.18-1-*	.260	.656
.22	1213TC-3-.22-1-*	.290	.656
.27	1213TC-3-.27-1-*	.320	.656
.33	1213TC-3-.33-1-*	.350	.656
.39	1213TC-3-.39-1-*	.330	.781
.47	1213TC-3-.47-1-*	.360	.781
.56	1213TC-3-.56-1-*	.390	.781
.68	1213TC-3-.68-1-*	.390	.906
.82	1213TC-3-.82-1-*	.420	.906
1.0	1213TC-3-1.0-1-*	.460	.906
1.25	1213TC-3-1.2-1-*	.440	1.190
1.5	1213TC-3-1.5-1-*	.480	1.190
2.0	1213TC-3-2.0-1-*	.550	1.190
3.0	1213TC-3-3.0-1-*	.590	1.440
4.0	1213TC-3-4.0-1-*	.680	1.440
5.0	1213TC-3-5.0-1-*	.760	1.440
6.0	1213TC-3-6.0-1-*	.790	1.570
8.0	1213TC-3-8.0-1-*	.910	1.570
10.0	1213TC-3-10.0-1-*	.970	1.690
12.0	1213TC-3-12.0-1-*	.970	1.940
15.0	1213TC-3-15.0-1-*	1.080	1.940
20.0	1213TC-3-20.0-1-*	1.160	2.250

Cap.	160 VDC		
µF	Part #	D	L
.001	1213TC-3-.001-1.6-*	.180	.406
.0012	1213TC-3-.0012-1.6-*	.180	.406
.0015	1213TC-3-.0015-1.6-*	.180	.406
.0022	1213TC-3-.0022-1.6-*	.180	.406
.0027	1213TC-3-.0027-1.6-*	.180	.406
.0039	1213TC-3-.0039-1.6-*	.180	.406
.0047	1213TC-3-.0047-1.6-*	.180	.406
.0056	1213TC-3-.0056-1.6-*	.180	.406
.0068	1213TC-3-.0068-1.6-*	.180	.406
.0082	1213TC-3-.0082-1.6-*	.180	.406
.01	1213TC-3-.01-1.6-*	.180	.406
.012	1213TC-3-.012-1.6-*	.180	.406
.015	1213TC-3-.015-1.6-*	.180	.406
.018	1213TC-3-.018-1.6-*	.180	.406
.022	1213TC-3-.022-1.6-*	.180	.406
.027	1213TC-3-.027-1.6-*	.200	.406
.033	1213TC-3-.033-1.6-*	.220	.406
.039	1213TC-3-.039-1.6-*	.240	.406
.047	1213TC-3-.047-1.6-*	.180	.531
.056	1213TC-3-.056-1.6-*	.190	.531
.068	1213TC-3-.068-1.6-*	.210	.531
.082	1213TC-3-.082-1.6-*	.220	.531
.1	1213TC-3-.1-1.6-*	.250	.531
.12	1213TC-3-.12-1.6-*	.270	.531
.15	1213TC-3-.15-1.6-*	.300	.531
.18	1213TC-3-.18-1.6-*	.260	.656
.22	1213TC-3-.22-1.6-*	.290	.656
.27	1213TC-3-.27-1.6-*	.320	.656
.33	1213TC-3-.33-1.6-*	.350	.656
.39	1213TC-3-.39-1.6-*	.330	.781
.47	1213TC-3-.47-1.6-*	.360	.781
.56	1213TC-3-.56-1.6-*	.390	.781
.68	1213TC-3-.68-1.6-*	.390	.906
.82	1213TC-3-.82-1.6-*	.420	.906
1.0	1213TC-3-1.0-1.6-*	.460	.906
1.25	1213TC-3-1.25-1.6-*	.440	1.190
1.5	1213TC-3-1.5-1.6-*	.480	1.190
2.0	1213TC-3-2.0-1.6-*	.550	1.190
3.0	1213TC-3-3.0-1.6-*	.590	1.440
4.0	1213TC-3-4.0-1.6-*	.680	1.440
5.0	1213TC-3-5.0-1.6-*	.760	1.440
6.0	1213TC-3-6.0-1.6-*	.790	1.570
8.0	1213TC-3-8.0-1.6-*	.910	1.570
10.0	1213TC-3-10.0-1.6-*	.970	1.690
12.0	1213TC-3-12.0-1.6-*	.970	1.940
15.0	1213TC-3-15.0-1.6-*	1.080	1.940
20.0	1213TC-3-20.0-1.6-*	1.160	2.250

\* - Please insert appropriate tolerance code



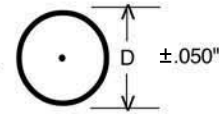
Please consult factory for special requirements, including non-standard values and sizes

## 1213TC Tubular Wrap & Fill

## Metallized Polypropylene Capacitors

Lead Spec.  
Tinned Copperweld  
Under .250D = 24 AWG  
.250 - .440D = 22AWG  
Above .440D = 20 AWG

### Dimensions and Ratings



200 VDC				400 VDC				600 VDC			
Cap.	Part #	D	L	Cap.	Part #	D	L	Cap.	Part #	D	L
.001	1213TC-3-.001-2-*	.180	.406	.001	1213TC-3-.001-4-*	.180	.406	.001	1213TC-3-.001-6-*	.180	.531
.0012	1213TC-3-.0012-2-*	.180	.406	.0012	1213TC-3-.0012-4-*	.180	.406	.0012	1213TC-3-.0012-6-*	.180	.531
.0015	1213TC-3-.0015-2-*	.180	.406	.0015	1213TC-3-.0015-4-*	.180	.406	.0015	1213TC-3-.0015-6-*	.180	.531
.0022	1213TC-3-.0022-2-*	.180	.406	.0022	1213TC-3-.0022-4-*	.180	.406	.0022	1213TC-3-.0022-6-*	.180	.531
.0027	1213TC-3-.0027-2-*	.180	.406	.0027	1213TC-3-.0027-4-*	.180	.406	.0027	1213TC-3-.0027-6-*	.180	.531
.0039	1213TC-3-.0039-2-*	.180	.406	.0039	1213TC-3-.0039-4-*	.180	.406	.0039	1213TC-3-.0039-6-*	.180	.531
.0047	1213TC-3-.0047-2-*	.180	.406	.0047	1213TC-3-.0047-4-*	.180	.406	.0047	1213TC-3-.0047-6-*	.180	.531
.0056	1213TC-3-.0056-2-*	.180	.406	.0056	1213TC-3-.0056-4-*	.180	.406	.0056	1213TC-3-.0056-6-*	.180	.531
.0068	1213TC-3-.0068-2-*	.180	.406	.0068	1213TC-3-.0068-4-*	.180	.406	.0068	1213TC-3-.0068-6-*	.180	.531
.0082	1213TC-3-.0082-2-*	.180	.406	.0082	1213TC-3-.0082-4-*	.180	.406	.0082	1213TC-3-.0082-6-*	.180	.531
.01	1213TC-3-.01-2-*	.180	.406	.01	1213TC-3-.01-4-*	.190	.406	.01	1213TC-3-.01-6-*	.190	.531
.012	1213TC-3-.012-2-*	.180	.406	.012	1213TC-3-.012-4-*	.210	.406	.012	1213TC-3-.012-6-*	.210	.531
.015	1213TC-3-.015-2-*	.180	.406	.015	1213TC-3-.015-4-*	.230	.406	.015	1213TC-3-.015-6-*	.230	.531
.018	1213TC-3-.018-2-*	.200	.406	.018	1213TC-3-.018-4-*	.250	.406	.018	1213TC-3-.018-6-*	.250	.531
.022	1213TC-3-.022-2-*	.210	.406	.022	1213TC-3-.022-4-*	.190	.531	.022	1213TC-3-.022-6-*	.270	.531
.027	1213TC-3-.027-2-*	.230	.406	.027	1213TC-3-.027-4-*	.210	.531	.027	1213TC-3-.027-6-*	.300	.531
.033	1213TC-3-.033-2-*	.180	.531	.033	1213TC-3-.033-4-*	.230	.531	.033	1213TC-3-.033-6-*	.270	.656
.039	1213TC-3-.039-2-*	.190	.531	.039	1213TC-3-.039-4-*	.250	.531	.039	1213TC-3-.039-6-*	.290	.656
.047	1213TC-3-.047-2-*	.210	.531	.047	1213TC-3-.047-4-*	.270	.531	.047	1213TC-3-.047-6-*	.320	.656
.056	1213TC-3-.056-2-*	.220	.531	.056	1213TC-3-.056-4-*	.290	.531	.056	1213TC-3-.056-6-*	.350	.656
.068	1213TC-3-.068-2-*	.240	.531	.068	1213TC-3-.068-4-*	.260	.656	.068	1213TC-3-.068-6-*	.330	.781
.082	1213TC-3-.082-2-*	.270	.531	.082	1213TC-3-.082-4-*	.280	.656	.082	1213TC-3-.082-6-*	.360	.781
.1	1213TC-3-.1-2-*	.290	.531	.1	1213TC-3-.1-4-*	.310	.656	.1	1213TC-3-.1-6-*	.360	.906
.12	1213TC-3-.12-2-*	.260	.656	.12	1213TC-3-.12-4-*	.340	.656	.12	1213TC-3-.12-6-*	.390	.906
.15	1213TC-3-.15-2-*	.290	.656	.15	1213TC-3-.15-4-*	.330	.781	.15	1213TC-3-.15-6-*	.430	.906
.18	1213TC-3-.18-2-*	.310	.656	.18	1213TC-3-.18-4-*	.360	.781	.18	1213TC-3-.18-6-*	.470	.906
.22	1213TC-3-.22-2-*	.340	.656	.22	1213TC-3-.22-4-*	.390	.781	.22	1213TC-3-.22-6-*	.450	1.190
.27	1213TC-3-.27-2-*	.330	.781	.27	1213TC-3-.27-4-*	.390	.906	.27	1213TC-3-.27-6-*	.490	1.190
.33	1213TC-3-.33-2-*	.360	.781	.33	1213TC-3-.33-4-*	.430	.906	.33	1213TC-3-.33-6-*	.540	1.190
.39	1213TC-3-.39-2-*	.390	.781	.39	1213TC-3-.39-4-*	.460	.906	.39	1213TC-3-.39-6-*	.580	1.190
.47	1213TC-3-.47-2-*	.380	.906	.47	1213TC-3-.47-4-*	.430	1.190	.47	1213TC-3-.47-6-*	.640	1.190
.56	1213TC-3-.56-2-*	.420	.906	.56	1213TC-3-.56-4-*	.470	1.190	.56	1213TC-3-.56-6-*	.610	1.190
.68	1213TC-3-.68-2-*	.460	.906	.68	1213TC-3-.68-4-*	.520	1.190	.68	1213TC-3-.68-6-*	.670	1.190
.82	1213TC-3-.82-2-*	.500	.906	.82	1213TC-3-.82-4-*	.570	1.190	.82	1213TC-3-.82-6-*	.740	1.440
1.0	1213TC-3-1.0-2-*	.470	1.190	1.0	1213TC-3-1.0-4-*	.620	1.190	1.0	1213TC-3-1.0-6-*	.770	1.570
1.25	1213TC-3-1.25-2-*	.530	1.190	1.25	1213TC-3-1.25-4-*	.610	1.440	1.25	1213TC-3-1.25-6-*	.860	1.570
1.5	1213TC-3-1.5-2-*	.570	1.190	1.5	1213TC-3-1.5-4-*	.670	1.440	1.5	1213TC-3-1.5-6-*	.900	1.690
2.0	1213TC-3-2.0-2-*	.580	1.440	2.0	1213TC-3-2.0-4-*	.770	1.440	2.0	1213TC-3-2.0-6-*	1.040	1.690
3.0	1213TC-3-3.0-2-*	.710	1.440	3.0	1213TC-3-3.0-4-*	.890	1.570	3.0	1213TC-3-3.0-6-*	1.260	1.690
4.0	1213TC-3-4.0-2-*	.770	1.570	4.0	1213TC-3-4.0-4-*	.980	1.690	4.0	1213TC-3-4.0-6-*	1.340	1.940
5.0	1213TC-3-5.0-2-*	.860	1.570	5.0	1213TC-3-5.0-4-*	1.090	1.690	5.0	1213TC-3-5.0-6-*	1.390	2.250
6.0	1213TC-3-6.0-2-*	.900	1.690	6.0	1213TC-3-6.0-4-*	1.100	1.940				
8.0	1213TC-3-8.0-2-*	.950	1.940	8.0	1213TC-3-8.0-4-*	1.180	2.250				
10.0	1213TC-3-10.0-2-*	1.060	1.940	10.0	1213TC-3-10.0-4-*	1.310	2.250				
12.0	1213TC-3-12.0-2-*	1.080	2.250								
15.0	1213TC-3-15.0-2-*	1.210	2.250								

\* - Please insert appropriate tolerance code