

# Discoidal Capacitors

Ceramic discoidal feed-through capacitors are the building blocks of the EMI filter industry. API's Spectrum Control discoidal capacitors provide great versatility in meeting varied voltage, capacitance and dimensional requirements. Our nonpolar, multilayer capacitors are small, reliable and high in dielectric strength. Operational temperatures of  $-55^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$  are achieved with no voltage de-rating.

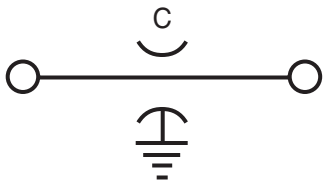
The versatile nature of our discoidals makes them ideally suited for by-pass and filtering applications. Due to their low inductance construction, these capacitors perform extremely well in high frequency applications. The circular geometry of a discoidal feed-through capacitor offers many paths to ground, resulting in lower impedance and better filtering performance.

The low profile and rugged design of our discoidal capacitors offer an excellent alternative to ceramic tubes.

## Features

- Excellent high frequency performance
- Low profile design
- Rugged construction
- Low impedance, many paths to ground
- Low inductance, non-polar
- AC applications up to 240V
- DC applications up to 500V
- $-55^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$  operation

## Feed-Through Circuit



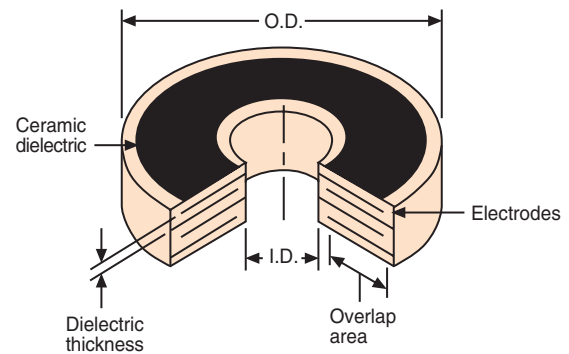
## Specialty Ceramic Capacitors

We offer many variations of discoidal and array capacitors to fit your custom application:

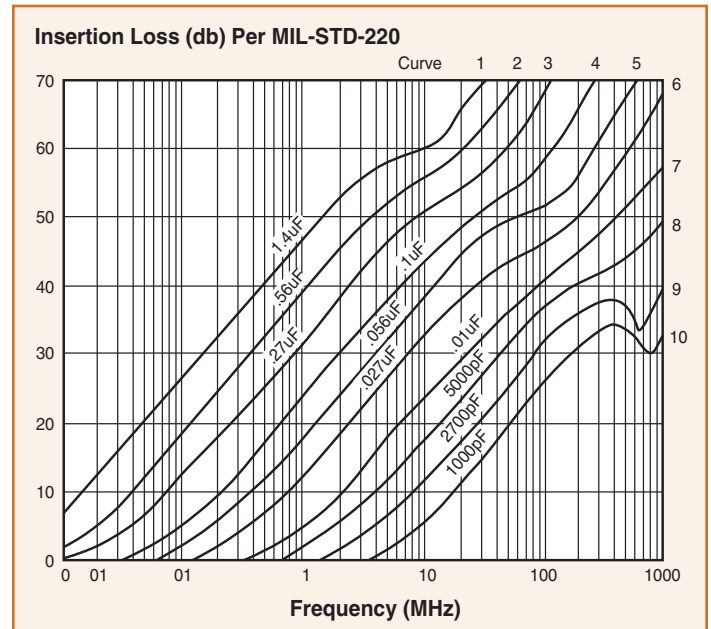
- Various OD, ID and thickness configurations
- Pressed discoidals with surface printed terminals
- Multi-hole discoidal designs
- Miniature discoidals down to .080" OD
- Arrays
- Custom style capability
- High voltage designs available
- High temperature designs available



## Multilayer Discoidal

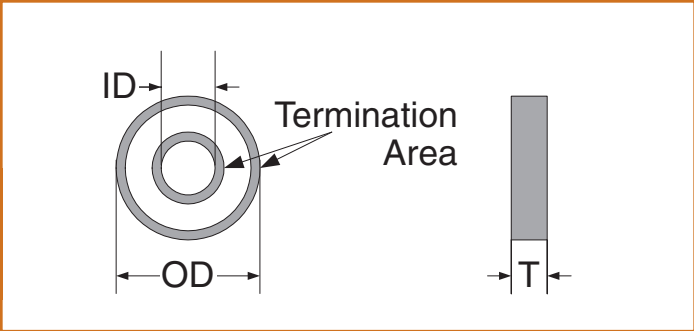


## Insertion Loss



## Metallization

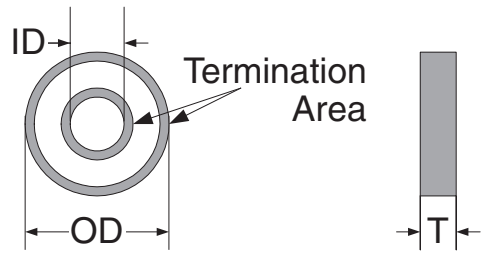
Standard metallization is solderable silver. Other metallizations are available upon request.



# Discoidal NP0

| OD      | (in)    | <b>0.080</b> ±0.005 | <b>0.100</b> ±0.005 | <b>0.135</b> ±0.005 | <b>0.150</b> ±0.010 | <b>0.195</b> ±0.010 | <b>0.340</b> ±0.010 | <b>0.595</b> ±0.010 |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
|---------|---------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|----|-----|-----|-----|----|-----|-----|-----|----|-----|-----|-----|----|-----|-----|-----|----|
|         | (mm)    | <b>2.03</b> ±0.13   | <b>2.54</b> ±0.13   | <b>3.43</b> ±0.13   | <b>3.81</b> ±0.25   | <b>4.95</b> ±0.25   | <b>8.64</b> ±0.25   | <b>15.11</b> ±0.25  |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| ID      | (in)    | <b>0.030</b> ±0.005 | <b>0.040</b> ±0.005 | <b>0.040</b> ±0.005 | <b>0.045</b> ±0.005 | <b>0.062</b> ±0.005 | <b>0.055</b> ±0.005 | <b>0.095</b> ±0.005 |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
|         | (mm)    | <b>0.76</b> ±0.13   | <b>1.02</b> ±0.13   | <b>1.02</b> ±0.13   | <b>1.14</b> ±0.13   | <b>1.52</b> ±0.13   | <b>1.40</b> ±0.13   | <b>2.41</b> ±0.13   |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| T Max   | (in)    | 0.045               | 0.060               | 0.060               | 0.110               | 0.120               | 0.120               | 0.125               |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
|         | (mm)    | 1.14                | 1.52                | 1.52                | 2.79                | 3.05                | 3.05                | 3.18                |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| Term BW | (in)    | 0.000 - 0.015       | 0.000 - 0.020       | 0.000 - 0.025       | 0.000 - 0.025       | 0.002 - 0.025       | 0.005 - 0.045       | 0.005 - 0.055       |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
|         | (mm)    | 0.00 - 0.38         | 0.00 - 0.51         | 0.00 - 0.64         | 0.00 - 0.64         | 0.05 - 0.64         | 0.13 - 1.14         | 0.13 - 1.40         |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| Cap(pF) | WV(VDC) | 500                 | 200                 | 100                 | 50                  | 500                 | 200                 | 100                 | 50 | 500 | 200 | 100 | 50 | 500 | 200 | 100 | 50 | 500 | 200 | 100 | 50 | 500 | 200 | 100 | 50 |
|         |         | 33                  |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 39      |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 47      |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 56      |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 68      |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 82      |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 100     |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 120     |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 150     |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 180     |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 220     |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 270     |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 330     |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 390     |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 470     |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 560     |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 680     |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 820     |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 1,000   |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 1,200   |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 1,500   |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 1,800   |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 2,200   |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 2,700   |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 3,300   |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 3,900   |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 4,700   |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 5,600   |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 6,800   |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 8,200   |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 10,000  |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 12,000  |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 15,000  |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 18,000  |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 22,000  |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 27,000  |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 33,000  |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 39,000  |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 47,000  |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 56,000  |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 68,000  |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 82,000  |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 100,000 |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 120,000 |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 150,000 |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 180,000 |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 220,000 |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 270,000 |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |

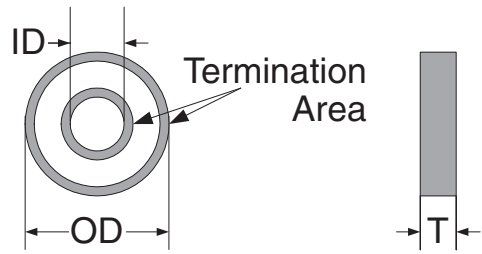
Note: AC voltage determined upon request



# Discoidal X7R

| OD        | (in)    | <b>0.080</b> ±0.005 | <b>0.100</b> ±0.005 | <b>0.135</b> ±0.005 | <b>0.150</b> ±0.010 | <b>0.195</b> ±0.010 | <b>0.340</b> ±0.010 | <b>0.595</b> ±0.010 |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
|-----------|---------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|----|-----|-----|-----|----|-----|-----|-----|----|-----|-----|-----|----|-----|-----|-----|----|-----|-----|-----|----|
|           | (mm)    | <b>2.03</b> ±0.13   | <b>2.54</b> ±0.13   | <b>3.43</b> ±0.13   | <b>3.81</b> ±0.25   | <b>4.95</b> ±0.25   | <b>8.64</b> ±0.25   | <b>15.11</b> ±0.25  |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| ID        | (in)    | <b>0.030</b> ±0.005 | <b>0.040</b> ±0.005 | <b>0.040</b> ±0.005 | <b>0.045</b> ±0.005 | <b>0.062</b> ±0.005 | <b>0.055</b> ±0.005 | <b>0.095</b> ±0.005 |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
|           | (mm)    | <b>0.76</b> ±0.13   | <b>1.02</b> ±0.13   | <b>1.02</b> ±0.13   | <b>1.14</b> ±0.13   | <b>1.52</b> ±0.13   | <b>1.40</b> ±0.13   | <b>2.41</b> ±0.13   |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| T Max     | (in)    | 0.045               | 0.060               | 0.060               | 0.110               | 0.120               | 0.120               | 0.125               |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
|           | (mm)    | 1.14                | 1.52                | 1.52                | 2.79                | 3.05                | 3.05                | 3.18                |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| Term BW   | (in)    | 0.000 - 0.015       | 0.000 - 0.020       | 0.000 - 0.025       | 0.000 - 0.025       | 0.002 - 0.025       | 0.005 - 0.045       | 0.005 - 0.055       |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
|           | (mm)    | 0.00 - 0.38         | 0.00 - 0.51         | 0.00 - 0.64         | 0.00 - 0.64         | 0.05 - 0.64         | 0.13 - 1.14         | 0.13 - 1.40         |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| Cap(pF)   | WV(VDC) | 500                 | 200                 | 100                 | 50                  | 500                 | 200                 | 100                 | 50 | 500 | 200 | 100 | 50 | 500 | 200 | 100 | 50 | 500 | 200 | 100 | 50 | 500 | 200 | 100 | 50 | 500 | 200 | 100 | 50 |
|           |         | 1,000               |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 1,200     |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 1,500     |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 1,800     |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 2,200     |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 2,700     |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 3,300     |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 3,900     |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 4,700     |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 5,600     |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 6,800     |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 8,200     |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 10,000    |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 12,000    |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 15,000    |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 18,000    |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 22,000    |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 27,000    |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 33,000    |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 39,000    |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 47,000    |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 56,000    |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 68,000    |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 82,000    |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 100,000   |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 120,000   |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 150,000   |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 180,000   |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 220,000   |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 270,000   |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 330,000   |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 390,000   |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 470,000   |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 560,000   |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 680,000   |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 820,000   |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 1,000,000 |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 1,200,000 |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 1,500,000 |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 1,800,000 |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 2,200,000 |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 2,700,000 |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 3,300,000 |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 3,900,000 |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |
| 6,800,000 |         |                     |                     |                     |                     |                     |                     |                     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |     |     |     |    |

Note: AC voltage determined upon request



# Discoidal Z5U

| OD         | 0.080 ±0.005  |      | 0.100 ±0.005  |      | 0.135 ±0.005  |      | 0.150 ±0.010  |      | 0.195 ±0.010  |      | 0.340 ±0.010  |      | 0.595 ±0.010  |      |     |    |     |     |     |    |     |     |     |    |
|------------|---------------|------|---------------|------|---------------|------|---------------|------|---------------|------|---------------|------|---------------|------|-----|----|-----|-----|-----|----|-----|-----|-----|----|
|            | (in)          | (mm) | (in)          | (mm) | (in)          | (mm) | (in)          | (mm) | (in)          | (mm) | (in)          | (mm) | (in)          | (mm) |     |    |     |     |     |    |     |     |     |    |
| ID         | 0.030 ±0.005  |      | 0.040 ±0.005  |      | 0.040 ±0.005  |      | 0.045 ±0.005  |      | 0.062 ±0.005  |      | 0.055 ±0.005  |      | 0.095 ±0.005  |      |     |    |     |     |     |    |     |     |     |    |
|            | (in)          | (mm) | (in)          | (mm) | (in)          | (mm) | (in)          | (mm) | (in)          | (mm) | (in)          | (mm) | (in)          | (mm) |     |    |     |     |     |    |     |     |     |    |
| T Max      | 0.045         |      | 0.060         |      | 0.060         |      | 0.110         |      | 0.120         |      | 0.120         |      | 0.125         |      |     |    |     |     |     |    |     |     |     |    |
|            | (in)          |      | (in)          |      | (in)          |      | (in)          |      | (in)          |      | (in)          |      | (in)          |      |     |    |     |     |     |    |     |     |     |    |
| Term BW    | 0.000 - 0.015 |      | 0.000 - 0.020 |      | 0.000 - 0.025 |      | 0.000 - 0.025 |      | 0.002 - 0.025 |      | 0.005 - 0.045 |      | 0.005 - 0.055 |      |     |    |     |     |     |    |     |     |     |    |
|            | (in)          |      | (in)          |      | (in)          |      | (in)          |      | (in)          |      | (in)          |      | (in)          |      |     |    |     |     |     |    |     |     |     |    |
| Cap(pF)    | 0.00 - 0.38   |      | 0.00 - 0.51   |      | 0.00 - 0.64   |      | 0.00 - 0.64   |      | 0.05 - 0.64   |      | 0.13 - 1.14   |      | 0.13 - 1.40   |      |     |    |     |     |     |    |     |     |     |    |
|            | (mm)          |      | (mm)          |      | (mm)          |      | (mm)          |      | (mm)          |      | (mm)          |      | (mm)          |      |     |    |     |     |     |    |     |     |     |    |
| WV(VDC)    | 500           | 200  | 100           | 50   | 500           | 200  | 100           | 50   | 500           | 200  | 100           | 50   | 500           | 200  | 100 | 50 | 500 | 200 | 100 | 50 | 500 | 200 | 100 | 50 |
| 1,800      |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 2,200      |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 2,700      |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 3,300      |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 3,900      |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 4,700      |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 5,600      |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 6,800      |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 8,200      |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 10,000     |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 12,000     |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 15,000     |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 18,000     |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 22,000     |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 27,000     |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 33,000     |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 39,000     |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 47,000     |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 56,000     |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 68,000     |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 82,000     |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 100,000    |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 120,000    |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 150,000    |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 180,000    |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 220,000    |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 270,000    |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 330,000    |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 390,000    |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 470,000    |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 560,000    |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 680,000    |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 820,000    |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 1,000,000  |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 1,200,000  |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 1,500,000  |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 1,800,000  |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 2,200,000  |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 2,700,000  |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 3,300,000  |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 3,900,000  |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 6,800,000  |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 8,200,000  |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 10,000,000 |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 12,000,000 |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |
| 15,000,000 |               |      |               |      |               |      |               |      |               |      |               |      |               |      |     |    |     |     |     |    |     |     |     |    |

Note: AC voltage determined upon request

# Discoidal Electrical Testing

| Electrical Parameter            | Test Method             | Temperature Coefficient                                    |  |  |
|---------------------------------|-------------------------|--|--|--|
|                                 |                         | NP0  | X7R  | Z5U  |
| Temperature Coefficient         | EIA 198                 | ±30 ppm/ °C, - 55 to +125°C                                | ±15%, -55 to +125°C                            | +22, -56%, +10 to +85°C                        |
| Capacitance Tolerance           | EIA Tolerance Code      | K, M, P  | K, M, P  | M, P, Z  |
| Capacitance Test@ 25°C          | MIL-STD-202, Method 305 | Cap ≤ 100 pF: 1 MHz, 1 Vrms<br>Cap > 100 pF: 1 KHz, 1 Vrms | 1 KHz, 1 Vrms                                  | 1 KHz, 0.5 Vrms                                |
| Dissipation Factor @ 25°C       | MIL-STD-202, Method 305 | 0.15% Max  | 3.5% Max                                       | 3.5% Max                                       |
| Aging Rate (Per Decade)         |                         | 0%   | <2.0%  | <3.5%  |
| Insulation Resistance @ 25°C    | MIL-STD-202, Method 302 | 1000 MΩ · μF or 100 KMΩ, whichever is less                 | 1000 MΩ · μF or 100 KMΩ, whichever is less     | 1000 MΩ · μF or 100 KMΩ, whichever is less     |
| Insulation Resistance @ 125°C   | MIL-STD-202, Method 302 | 100 MΩ · μF or 10 KMΩ, whichever is less                   | 100 MΩ · μF or 10 KMΩ, whichever is less       | 100 MΩ · μF or 10 KMΩ, whichever is less       |
| Dielectric Withstanding Voltage | MIL-STD-202, Method 301 | 250% of Rated Voltage, 5 second hold, 30-50 mA             | 250% of Rated Voltage, 5 second hold, 30-50 mA | 250% of Rated Voltage, 5 second hold, 30-50 mA |

## Discoidal Part Numbering System

After determining the capacitor properties required for a given application, use information from pages AC4-7 and the part numbering system below to place the order. If there are any questions, do not hesitate to contact API's customer service.

*Example:* **340055AX145P6B0**

The part number shown represents a discoidal with an outer diameter of 0.340" and inner diameter of 0.055". The voltage rating for this part is 50 VDC. The ceramic type will be X7R. The capacitance value is 1,400,000 pF with a tolerance of +100, -0%. The termination will be silver and the parts will receive bulk packaging. Since the last identifier in the part number is "0", there are no special requirements.

|                       |                       |   |                            |                             |  |                    |                  |                                    |
|-----------------------|-----------------------|---|----------------------------|-----------------------------|--|--------------------|------------------|------------------------------------|
| <b>340</b>            | <b>055</b>            | <b>A</b>  | <b>X</b>                   | <b>145</b>                  | <b>P</b>   | <b>6</b>           | <b>B</b>         | <b>0</b>                           |
| <b>Outer Diameter</b> | <b>Inner Diameter</b> | <b>Voltage Rating</b>                               | <b>Ceramic Code</b>        | <b>EIA Cap Code</b>         | <b>EIA Cap Tolerance</b>                         | <b>Termination</b> | <b>Packaging</b> | <b>Special Requirements</b>        |
| Example: 0.340" = 340 | Example: 0.055" = 055 | A: 50 VDC<br>B: 100 VDC<br>C: 200 VDC<br>E: 500 VDC | N: NP0<br>X: X7R<br>Z: Z5U | Example: 1,400,000 pF = 145 | K: ±10%<br>M: ±20%<br>P: +100 -0%<br>Z: +80 -20% | 6: Silver          | B: Bulk          | 0: None<br>D: Class B<br>G: Custom |