

## Lower Voltage Ceramic Disc Capacitors 100 VDC to 1000 VDC

Fig. 1

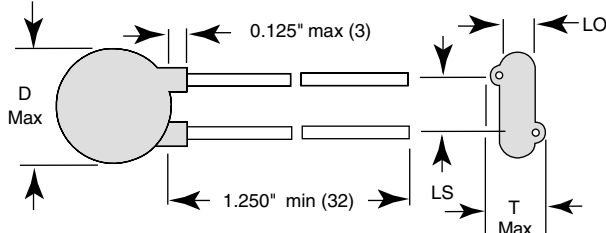
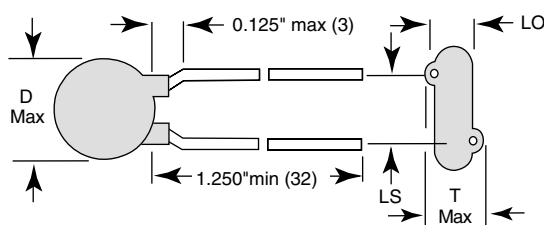


Fig. 2



| LEAD OFFSET 'LO' (NOMINAL) |                |
|----------------------------|----------------|
| 100 VDC                    | 0.040 (1.0 mm) |
| 500 VDC                    | 0.040 (1.0 mm) |
| 1000 VDC                   | 0.050 (1.3 mm) |

### INSULATION RESISTANCE:

100 VDC: min. 500  $\Omega$ F or 10 000 M $\Omega$   
 500 VDC: min. 750  $\Omega$ F or 15 000 M $\Omega$   
 1000 VDC: min. 1000  $\Omega$ F or 20 000 M $\Omega$

### TOLERANCE ON CAPACITANCE:

$\pm 5\%$ ;  $\pm 10\%$ ;  $\pm 20\%$

### DISSIPATION FACTOR:

100 VDC: 3.0 % max. at 1 kHz; 1 V  
 500 VDC: 3.0 % max. at 1 kHz; 1 V  
 1000 VDC: 2.5 % max. at 1 kHz; 1 V

### CATEGORY TEMPERATURE RANGE:

(- 55 to + 125) °C C0G, U2J, X7R, X7S  
 (- 25 to + 85) °C X5F, Y5U, Y5V, Z5U

### CLIMATIC CATEGORY ACC. TO EN60068-1:

55/125/21 C0G, U2J, X7R, X7S  
 25/085/21 X5F, Y5U, Y5V, Z5U

### OPERATING TEMPERATURE RANGE:

(- 55 to + 105) °C

### FEATURES

- Low losses
- High stability
- High capacitance in small size
- Complete Range of Capacitance Values

### APPLICATIONS

- Bypassing
- Resonant circuit
- Coupling

### DESIGN

The capacitors consist of a ceramic disc of which both sides are silver-plated. Connection leads are made of tinned copper or tinned copper clad steel having diameters of 0.020" (0.51 mm) or 0.025" (0.64 mm).

The capacitors may be supplied with radial kinked or straight leads having lead spacing of 0.250 (6.35 mm) or 0.375" (9.5 mm).

The standard tolerances are  $\pm 10\%$  or  $\pm 20\%$ .

Coating is made of resin coating or flammable resistant epoxy resin in accordance with "UL94V-0".

### CAPACITANCE RANGE:

10 pF to 0.15  $\mu$ F

### RATED VOLTAGE:

100 VDC  
 500 VDC  
 1000 VDC

### DIELECTRIC STRENGTH BETWEEN LEADS:

Component test:

100 VDC 500 VDC, 2 s  
 500 VDC 1500 VDC, 2 s  
 1000 VDC 2500 VDC, 2 s

### CERAMIC DIELECTRIC:

C0G, U2J, (Class 1)  
 X5F, X7R, X7S, Y5U, Y5V, Z5U (Class 2)



# 561R, 562R & 565R Series

Vishay Cera-Mite

Lower Voltage Ceramic Disc Capacitors  
100 VDC to 1000 VDC



| ORDERING INFORMATION, CERAMIC 100 VDC GENERAL PURPOSE |             |                            |                             |                     |      |           |              |                  |
|-------------------------------------------------------|-------------|----------------------------|-----------------------------|---------------------|------|-----------|--------------|------------------|
| C<br>(pF)                                             | TOL.<br>(%) | D<br>DIAMETER<br>INCH (mm) | T<br>THICKNESS<br>INCH (mm) | LS<br>LEAD<br>SPACE | FIG. | WIRE SIZE |              | ORDERING<br>CODE |
| AWG                                                   |             | INCH (mm)                  |                             |                     |      |           |              |                  |
| C0G (NP0)                                             |             |                            |                             |                     |      |           |              |                  |
| 10                                                    | ± 5 %       | 0.250 (6.4)                | 0.156 (4.0)                 | 0.197 (5.0)         | 1    | 24        | 0.020 (.51)  | 561RTSQ10        |
| 22                                                    |             |                            |                             |                     |      |           |              | 561RTSQ22        |
| U2J (N750)                                            |             |                            |                             |                     |      |           |              |                  |
| 33                                                    | ± 10 %      | 0.250 (6.4)                | 0.156 (4.0)                 | 0.197 (5.0)         | 1    | 24        | 0.020 (0.51) | 561RTSQ33        |
| 47                                                    |             |                            |                             |                     |      |           |              | 561RTSQ47        |
| X7R                                                   |             |                            |                             |                     |      |           |              |                  |
| 100                                                   | ± 10 %      | 0.250 (6.4)                | 0.156 (4.0)                 |                     | 1    | 24        | 0.020 (0.51) | 562RTST10        |
| 220                                                   |             | 0.250 (6.4)                | 0.156 (4.0)                 |                     |      |           |              | 562RTST22        |
| 330                                                   |             | 0.250 (6.4)                | 0.156 (4.0)                 |                     |      |           |              | 562RTST33        |
| 470                                                   |             | 0.250 (6.4)                | 0.156 (4.0)                 |                     |      |           |              | 562RTST47        |
| 1000                                                  |             | 0.250 (6.4)                | 0.156 (4.0)                 | 0.197 (5.0)         |      | 22        | 0.025 (.64)  | 562RTSD10        |
| 2200                                                  |             | 0.370 (9.4)                | 0.156 (4.0)                 |                     |      |           |              | 562RTSD22        |
| 3300                                                  |             | 0.370 (9.4)                | 0.156 (4.0)                 |                     |      |           |              | 562RTSD33        |
|                                                       |             |                            |                             |                     |      |           |              |                  |
| X7S                                                   |             |                            |                             |                     |      |           |              |                  |
| 4700                                                  | ± 10 %      | 0.440 (11.2)               | 0.156 (4.0)                 | 0.197 (5.0)         | 1    | 22        | 0.025 (.64)  | 562RTSD47        |
| 6800                                                  |             | 0.490 (12.4)               | 0.156 (4.0)                 |                     |      |           |              | 562RTSD68        |
| 0.01 μF                                               |             | 0.560 (14.2)               | 0.156 (4.0)                 | 0.375 (9.5)         |      |           |              | 562RTSS10        |
| 0.022 μF                                              |             | 0.580 (14.7)               | 0.200 (5.1)                 |                     |      |           |              | 565RTSS22        |
| Z5U                                                   |             |                            |                             |                     |      |           |              |                  |
| 0.005 μF                                              | ± 20 %      | 0.760 (19.3)               | 0.156 (4.0)                 | 0.250 (6.4)         | 1    | 24        | 0.020 (0.51) | 562RTGD50        |
| 0.01 μF                                               |             | 0.370 (9.4)                | 0.156 (4.0)                 |                     |      | 22        | 0.025 (.64)  | 562RTGS10        |
| 0.02 μF                                               |             | 0.440 (11.2)               | 0.156 (4.0)                 |                     |      |           |              | 562RTGS20        |
| 0.047 μF                                              |             | 0.510 (13.0)               | 0.200 (5.1)                 | 0.375 (9.5)         |      |           |              | 565RTGS47        |
| 0.050 μF                                              |             | 0.700 (17.8)               | 0.200 (5.1)                 |                     |      | 565RTGS50 |              |                  |
| 0.10 μF                                               |             | 0.510 (13.0)               | 0.200 (5.1)                 |                     |      | 565RTGP10 |              |                  |

## TAPE & REEL OPTIONS

Tape & Reel available on diameter sizes 0.250" to 0.680"

To specify T & R, add two letter suffix to the ordering code (Details of the packaging code see general selection of the catalog)



# 561R, 562R & 565R Series

Lower Voltage Ceramic Disc Capacitors  
100 VDC to 1000 VDC

Vishay Cera-Mite

| ORDERING INFORMATION, CERAMIC 500 VDC GENERAL PURPOSE |             |                            |                             |                     |            |           |              |                  |
|-------------------------------------------------------|-------------|----------------------------|-----------------------------|---------------------|------------|-----------|--------------|------------------|
| C<br>(pF)                                             | TOL.<br>(%) | D<br>DIAMETER<br>INCH (mm) | T<br>THICKNESS<br>INCH (mm) | LS<br>LEAD<br>SPACE | FIG.       | WIRE SIZE |              | ORDERING<br>CODE |
| X7R                                                   |             |                            |                             |                     |            |           |              |                  |
| 1000                                                  | ± 10 %      | 0.290 (7.4)                | 0.156 (4.0)                 | 0.250 (6.4)         | 2          | 24        | 0.020 (0.51) | 562R5TSD10       |
| 1500                                                  | ± 10 %      | 0.370 (9.4)                |                             |                     |            |           |              | 562R5TSD15       |
| 2200                                                  | ± 10 %      |                            |                             |                     |            | 22        | 0.025 (0.64) | 562R5TSD22       |
| 3300                                                  | ± 10 %      | 0.440 (11.2)               |                             |                     | 562R5TSD33 |           |              |                  |
| 4700                                                  | ± 10 %      | 0.490 (12.4)               |                             |                     | 562R5TSD47 |           |              |                  |
| X7S                                                   |             |                            |                             |                     |            |           |              |                  |
| 0.0068                                                | ± 10 %      | 0.490 (12.4)               | 0.156 (4.0)                 | 0.250 (6.4)         | 1          | 22        | 0.025 (0.64) | 562R5TSD68       |
| 0.010                                                 | ± 10 %      | 0.560 (14.2)               | 0.156 (4.0)                 | 0.375 (9.5)         |            |           |              | 562R5TSS10       |
| 0.022                                                 | ± 20 %      | 0.680 (17.3)               |                             |                     |            |           |              | 562R5TSS22       |
| 0.033                                                 | ± 20 %      | 0.770 (19.6)               | 0.200 (5.1)                 | 0.375 (9.5)         |            |           |              | 562R5TSS33       |
| Y5U                                                   |             |                            |                             |                     |            |           |              |                  |
| 1000                                                  | ± 20 %      | 0.250 (6.4)                | 0.156 (4.0)                 | 0.250 (6.4)         | 2          | 22        | 0.025 (0.64) | 562R5TSSD10      |
| Y5V                                                   |             |                            |                             |                     |            |           |              |                  |
| 0.10 μF                                               | - 20 + 50 % | 0.950 (24.1)               | 0.200 (5.1)                 | 0.375 (9.5)         | 1          | 22        | 0.025 (0.64) | 562R5HKSP10      |
| Z5U                                                   |             |                            |                             |                     |            |           |              |                  |
| 5000                                                  | - 20 + 80 % | 0.370 (9.4)                | 0.156 (4.0)                 | 0.250 (6.4)         | 1          | 22        | 0.025 (0.64) | 562R5TSD50       |
| 0.010 μF                                              | ± 20 %      | 0.440 (11.2)               |                             |                     |            |           |              | 562R5GASS10      |
| 0.010 μF                                              | - 20 + 80 % |                            |                             |                     |            |           |              | 562R5HKSS10      |
| 0.020 μF                                              | ± 20 %      | 0.560 (14.2)               | 0.156 (4.0)                 | 0.375 (9.5)         |            |           |              | 562R5GASS20      |
| 0.050 μF                                              | ± 20 %      | 0.890 (22.6)               |                             |                     |            |           |              | 562R5GAS50       |
| 0.050 μF                                              | - 20 + 80 % | 0.580 (14.7)               | 0.200 (5.1)                 | 0.375 (9.5)         |            |           |              | 562R5HKS50       |
| 0.10 μF                                               | ± 20 %      | 0.770 (19.6)               |                             |                     |            |           |              | 565R5GAP10       |
| 0.10 μF                                               | - 20 + 80 % |                            |                             |                     |            |           |              | 565R5HKP10       |
| 0.15 μF                                               | - 20 + 50 % |                            |                             |                     |            |           |              | 565R5GAP15       |
| 0.20 μF                                               | ± 20 %      | 0.950 (24.1)               |                             |                     |            |           |              | 565R5GAP20       |

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- Tape & Reel available on diameter sizes 0.250" to 0.680"
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# 561R, 562R & 565R Series

Vishay Cera-Mite

Lower Voltage Ceramic Disc Capacitors  
100 VDC to 1000 VDC



| ORDERING INFORMATION, CERAMIC 1000 VDC GENERAL PURPOSE |              |                            |                             |                     |             |             |              |                  |             |
|--------------------------------------------------------|--------------|----------------------------|-----------------------------|---------------------|-------------|-------------|--------------|------------------|-------------|
| C<br>(pF)                                              | TOL.<br>(%)  | D<br>DIAMETER<br>INCH (mm) | T<br>THICKNESS<br>INCH (mm) | LS<br>LEAD<br>SPACE | FIG.        | WIRE SIZE   |              | ORDERING<br>CODE |             |
| AWG                                                    |              | INCH (mm)                  |                             |                     |             |             |              |                  |             |
| C0G (NP0)                                              |              |                            |                             |                     |             |             |              |                  |             |
| 10                                                     | ± 20 %       | 0.250 (6.4)                | 0.156 (4.0)                 | 0.250 (6.4)         | 2           | 24          | 0.020 (0.51) | 561R5GAQ10       |             |
| 20                                                     |              |                            |                             |                     |             |             |              | 561R5GAQ20       |             |
| U2J (N750)                                             |              |                            |                             |                     |             |             |              |                  |             |
| 33                                                     | ± 20 %       | 0.290 (7.4)                | 0.156 (4.0)                 | 0.250 (6.4)         | 2           | 24          | 0.020 (0.51) | 561R5GAQ47       |             |
| 47                                                     |              |                            |                             |                     |             |             |              | 561R5GAQ34       |             |
| X5F                                                    |              |                            |                             |                     |             |             |              |                  |             |
| 100                                                    | ± 20 %       | 0.250 (6.4)                | 0.156 (4.0)                 | 0.250 (6.4)         | 2           | 24          | 0.020 (0.51) | 562R5GAT10       |             |
| 150                                                    |              |                            |                             |                     |             |             |              | 562R5GAT15       |             |
| 200                                                    |              |                            |                             |                     |             |             |              | 562R5GAT20       |             |
| 220                                                    |              |                            |                             |                     |             |             |              | 562R5GAT22       |             |
| 330                                                    |              |                            |                             |                     |             |             |              | 562R5GAT33       |             |
| 470                                                    |              |                            |                             |                     |             |             |              | 562R5GAT47       |             |
| 500                                                    |              |                            |                             |                     |             |             |              | 562R5GAT50       |             |
| X7R                                                    |              |                            |                             |                     |             |             |              |                  |             |
| 1000                                                   | ± 20 %       | 0.290 (7.4)                | 0.156 (4.0)                 | 0.250 (6.4)         | 2           | 24          | 0.020 (0.51) | 562R5GAD10       |             |
| Y5U                                                    |              |                            |                             |                     |             |             |              |                  |             |
| 1000                                                   | ± 20 %       | 0.290 (7.4)                | 0.156 (4.0)                 | 0.250 (6.4)         | 2           | 24          | 0.020 (0.51) | 562R5HKD10       |             |
| Z5U                                                    |              |                            |                             |                     |             |             |              |                  |             |
| 1200                                                   | ± 20 %       | 0.290 (7.4)                | 0.156 (4.0)                 | 0.250 (6.4)         | 2           | 24          | 0.020 (0.51) | 562R5GAD12       |             |
| 1500                                                   |              |                            |                             |                     |             |             |              | 562R5GAD15       |             |
| 2000                                                   |              |                            |                             |                     |             |             |              | 562R5GAD20       |             |
| 2200                                                   |              |                            |                             |                     |             |             |              | 562R5GAD22       |             |
| 2500                                                   |              |                            |                             |                     |             |             |              | 562R5GAD25       |             |
| 2700                                                   |              |                            |                             |                     |             |             |              | 562R5GAD27       |             |
| 3000                                                   |              |                            |                             |                     |             |             |              | 562R5GAD30       |             |
| 3300                                                   |              |                            |                             |                     |             |             |              | 562R5GAD33       |             |
| 4700                                                   |              | 0.370 (9.4)                | 0.156 (4.0)                 | 0.250 (6.4)         | 1           | 22          | 0.025 (0.64) | 562R5GAD47       |             |
| 5000                                                   |              | 0.370 (9.4)                | 0.156 (4.0)                 | 0.250 (6.4)         |             |             |              | 562R5GAD50       |             |
| 6800                                                   |              | 0.440 (11.2)               | 0.156 (4.0)                 | 0.250 (6.4)         |             |             |              | 562R5GAD68       |             |
| 8200                                                   |              | 0.440 (11.2)               | 0.156 (4.0)                 | 0.250 (6.4)         |             |             |              | 562R5GAD82       |             |
| 0.010 µF                                               |              | 0.490 (12.4)               | 0.156 (4.0)                 | 0.375 (9.5)         |             |             |              | 562R5GAS10       |             |
| 0.010 µF                                               |              | 0.490 (12.4)               | 0.156 (4.0)                 | 0.250 (6.4)         |             |             |              | 562R5HKMS10      |             |
| 0.010 µF                                               |              | + 100 - 0 %                | 0.490 (12.4)                | 0.156 (4.0)         |             |             |              | 0.375 (9.5)      | 562R5HKS10  |
| 0.015 µF                                               |              |                            | ± 20 %                      | 0.560 (14.2)        |             |             |              | 0.156 (4.0)      | 0.375 (9.5) |
| 0.020 µF                                               | 0.680 (17.3) |                            |                             | 0.156 (4.0)         | 0.375 (9.5) | 562R5GAS20  |              |                  |             |
| 0.050 µF                                               | 0.770 (19.6) |                            |                             | 0.200 (5.1)         | 0.375 (9.5) | 565R10HKS50 |              |                  |             |
| 0.10 µF                                                | 0.950 (24.1) |                            |                             | 0.200 (5.1)         | 0.375 (9.5) | 565R10GAP10 |              |                  |             |
| Y5V                                                    |              |                            |                             |                     |             |             |              |                  |             |
| 0.15 µF                                                | ± 20 %       | 0.950 (24.1)               | 0.200 (5.1)                 | 0.375 (9.5)         | 1           | 22          | 0.025 (0.64) | 565R10GAP15      |             |

## TAPE & REEL OPTIONS

Tape & Reel available on diameter sizes 0.250" to 0.680"

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