

## Lower Voltage Disc Capacitors

### 12V TO 1KV

Lower Voltage Capacitors are stocked in distribution. See "Packaging Options" section for other electrical and mechanical options, including Tape & Reel.

Fig 1

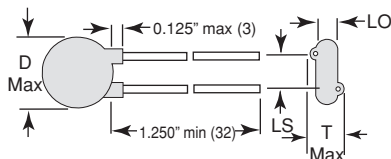


Fig 2

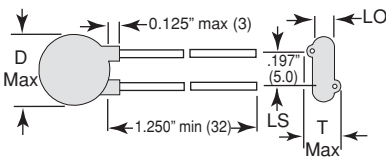
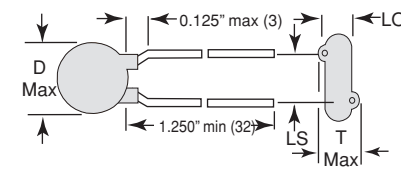


Fig 3



#### STANDARD WIRE SIZE:

- C and E Sizes - 24 gauge (.020") Tinned Copper Clad Steel Wire.
- F through Q Sizes - 22 gauge (.025") Tinned Copper Wire.

#### TAPE & REEL OPTIONS:

- Tape & Reel available on diameter sizes .250" to .680".
- To specify T & R, add two letter suffix to catalog number for example: TGS10 QA-suffix describes alternate wire lead forms & lead spacing options - see complete description in "Packaging Options" section.
- 10,000 piece minimum shipment for T & R.

| SIZE<br>CODE   | DIAMETER<br>"D" MAX |      | THICKNESS<br>"T" MAX |     | LEAD SPACING<br>"LS" FIG 1 & 3 |     |
|----------------|---------------------|------|----------------------|-----|--------------------------------|-----|
|                | in                  | mm   | in                   | mm  | in                             | mm  |
| C              | .250                | 6.4  | .156                 | 4.0 | .250                           | 6.4 |
| E              | .290                | 7.4  | .156                 | 4.0 | .250                           | 6.4 |
| E <sub>7</sub> | .330                | 8.4  | .156                 | 4.0 | .250                           | 6.4 |
| F              | .370                | 9.4  | .156                 | 4.0 | .250                           | 6.4 |
| F <sub>7</sub> | .400                | 10.2 | .156                 | 4.0 | .250                           | 6.4 |
| G              | .440                | 11.2 | .156                 | 4.0 | .250                           | 6.4 |
| G <sub>7</sub> | .460                | 11.7 | .156                 | 4.0 | .250                           | 6.4 |
| H              | .490                | 12.4 | .156                 | 4.0 | .250                           | 6.4 |
| H <sub>3</sub> | .490                | 12.4 | .156                 | 4.0 | .375                           | 9.5 |
| H <sub>7</sub> | .530                | 13.5 | .156                 | 4.0 | .375                           | 9.5 |
| J              | .560                | 14.2 | .156                 | 4.0 | .375                           | 9.5 |

| SIZE<br>CODE | DIAMETER<br>"D" MAX |      | THICKNESS<br>"T" MAX |     | LEAD SPACING<br>"LS" FIG 1 & 3 |     |
|--------------|---------------------|------|----------------------|-----|--------------------------------|-----|
|              | in                  | mm   | in                   | mm  | in                             | mm  |
| K            | .630                | 16.0 | .156                 | 4.0 | .375                           | 9.5 |
| L            | .680                | 17.3 | .156                 | 4.0 | .375                           | 9.5 |
| M            | .760                | 19.3 | .156                 | 4.0 | .375                           | 9.5 |
| P            | .890                | 22.6 | .156                 | 4.0 | .375                           | 9.5 |
| R            | .510                | 13.0 | .200                 | 5.1 | .375                           | 9.5 |
| T            | .580                | 14.7 | .200                 | 5.1 | .375                           | 9.5 |
| U            | .640                | 16.3 | .200                 | 5.1 | .375                           | 9.5 |
| W            | .700                | 17.8 | .200                 | 5.1 | .375                           | 9.5 |
| X            | .770                | 19.6 | .200                 | 5.1 | .375                           | 9.5 |
| Y            | .900                | 22.9 | .200                 | 5.1 | .375                           | 9.5 |
| Q            | .950                | 24.1 | .200                 | 5.1 | .375                           | 9.5 |

| VOLTAGE<br>CLASS | LEAD OFFSET<br>"LO" (nom) |     |
|------------------|---------------------------|-----|
|                  | in                        | mm  |
| 100              | .040                      | 1.0 |
| 500              | .040                      | 1.0 |
| 1000             | .050                      | 1.3 |

### 12/25/50/100V HYPERCON CONSTRUCTION HIGH-CAPACITANCE DISCS

- Application:  
Low Voltage Bulk Filter

| 12 VDC, Y5R, 2.5ΩF, 5% DF |         |        |        |      |
|---------------------------|---------|--------|--------|------|
| VALUE                     | CATALOG | SIZE   |        |      |
| μF                        | TOL.    | NUMBER | FIGURE | CODE |
| .05                       | Y       | HY105  | 3      | E    |
| .10                       | M       | HY110  | 1      | G    |
| .22                       | M       | HY122  | 1      | J    |
| .47                       | M       | HY147  | 1      | P    |

| 25 VDC, Y5R, 5ΩF, 5% DF |         |        |        |      |
|-------------------------|---------|--------|--------|------|
| VALUE                   | CATALOG | SIZE   |        |      |
| μF                      | TOL.    | NUMBER | FIGURE | CODE |
| .01                     | M       | HY820  | 3      | C    |
| .022                    | M       | HY825  | 3      | E    |
| .033                    | M       | HY530  | 3      | E    |
| .047                    | M       | HY835  | 3      | F    |
| .10                     | M       | HY850  | 1      | G    |

| 50 VDC, Y5R, 25ΩF, 4% DF |         |        |        |      |
|--------------------------|---------|--------|--------|------|
| VALUE                    | CATALOG | SIZE   |        |      |
| μF                       | TOL.    | NUMBER | FIGURE | CODE |
| .01                      | M       | HY920  | 3      | C    |
| .022                     | M       | HY925  | 3      | E    |
| .047                     | M       | HY935  | 1      | G    |
| .10                      | M       | HY950  | 1      | H    |

| 100 VDC, Y5S, 100ΩF, 3% DF |         |        |        |      |
|----------------------------|---------|--------|--------|------|
| VALUE                      | CATALOG | SIZE   |        |      |
| μF                         | TOL.    | NUMBER | FIGURE | CODE |
| .0022                      | M       | HMMD22 | 2      | C    |
| .0047                      | M       | HMMD47 | 2      | C    |
| .01                        | M       | HMMS10 | 3      | E    |
| .10                        | M       | HMMP10 | 1      | L    |

### 100 VOLT GENERAL PURPOSE

- Application Range:  
Up to 250 VDC, 75 VAC RMS\*\*

| VALUE | CATALOG | SIZE   |        |      | TEMP.<br>COEF. |
|-------|---------|--------|--------|------|----------------|
| μF    | TOL.    | NUMBER | FIGURE | CODE |                |
| 10    | D       | TSQ10  | 2      | C    | NP0            |
| 22    | J       | TSQ22  | 2      | C    | NP0            |
| 33    | K       | TSQ33  | 2      | C    | U2J            |
| 47    | K       | TSQ47  | 2      | C    | U2J            |
| 100   | K       | TST10  | 2      | C    | X7R            |
| 220   | K       | TST22  | 2      | C    | X7R            |
| 330   | K       | TST33  | 2      | C    | X7R            |

- Insulation Resistance: 10,000 MΩ minimum, 500ΩF
- Dissipation Factor: 3.0% maximum

| VALUE  | CATALOG | SIZE   |        |      | TEMP.<br>COEF. |
|--------|---------|--------|--------|------|----------------|
| μF     | TOL.    | NUMBER | FIGURE | CODE |                |
| 470    | K       | TST47  | 2      | C    | X7R            |
| 1000   | K       | TSD10  | 2      | C    | X7R            |
| 2200   | K       | TSD22  | 2      | F    | X7R            |
| 3300   | K       | TSD33  | 2      | F    | X7R            |
| 4700   | K       | TSD47  | 2      | G    | X7S            |
| 6800   | K       | TSD68  | 2      | H    | X7S            |
| 0.01μF | K       | TSS10  | 2      | J    | X7S            |

| VALUE | CATALOG | SIZE   |        |      | TEMP.<br>COEF. |
|-------|---------|--------|--------|------|----------------|
| μF    | TOL.    | NUMBER | FIGURE | CODE |                |
| .005  | M       | TGD50  | 1      | E    | Z5U            |
| .01   | M       | TGS10  | 1      | F    | Z5U            |
| .02   | M       | TGS20  | 1      | G    | Z5U            |
| .022  | M       | TSS22  | 1      | T    | X7S            |
| .047  | M       | TGS47  | 1      | R    | Z5U            |
| .050  | M       | TGS50  | 1      | R    | Z5U            |
| .10   | M       | TGP10  | 1      | W    | Z5U            |

\*\* See "Application Data" section for limits on AC voltage.



# GA, HK, HM, HY, TC, TG, TS Series

## Lower Voltage Disc Capacitors

## Vishay Cera-Mite

### 500 VOLT GENERAL PURPOSE

- Application Range:  
Up to 600 VDC, 100 VAC RMS\*\*

- Insulation Resistance: 15,000 MΩ minimum, 750ΩF
- Dissipation Factor: 3.0% maximum

| VALUE |      | CATALOG NUMBER | SIZE |      | TEMP. COEF. |
|-------|------|----------------|------|------|-------------|
| pF    | TOL. |                | FIG. | CODE |             |
| 1000  | K    | 5TSD10         | 3    | E    | X7R         |
| 1000  | M    | 5TSSD10        | 3    | C    | Y5U         |
| 1500  | K    | 5TSD15         | 3    | F    | X7R         |
| 2200  | K    | 5TSD22         | 3    | F    | X7R         |
| 3300  | K    | 5TSD33         | 1    | G    | X7R         |
| 4700  | K    | 5TSD47         | 1    | H    | X7R         |
| 5000  | Z    | 5TSD50         | 1    | F    | Z5U         |

| VALUE |      | CATALOG NUMBER | SIZE |      | TEMP. COEF. |
|-------|------|----------------|------|------|-------------|
| μF    | TOL. |                | FIG. | CODE |             |
| .0068 | K    | 5TSD68         | 1    | H    | X7S         |
| .01   | K    | 5TSS10         | 1    | J    | X7S         |
| .01   | M    | 5GASS10        | 1    | G    | Z5U         |
| .01   | Z    | 5HKSS10        | 1    | G    | Z5U         |
| .02   | M    | 5GASS20        | 1    | J    | Z5U         |
| .022  | M    | 5TSS22         | 1    | L    | X7S         |
| .033  | M    | 5TSS33         | 1    | X    | X7S         |

| VALUE |      | CATALOG NUMBER | SIZE |      | TEMP. COEF. |
|-------|------|----------------|------|------|-------------|
| μF    | TOL. |                | FIG. | CODE |             |
| .05   | M    | 5GAS50         | 1    | P    | Z5U         |
| .05   | Z    | 5HKS50         | 1    | T    | Z5U         |
| .10   | M    | 5GAP10         | 1    | X    | Z5U         |
| .10   | Y    | 5HKSP10        | 1    | Q    | Y5V         |
| .10   | Z    | 5HKP10         | 1    | X    | Z5U         |
| .15   | Y    | 5GAP15         | 1    | Y    | Z5U         |
| .20   | M    | 5GAP20         | 1    | Q    | Z5U         |

### 562C Series

- Dielectric Strength:  
1500 VDC, 300 VAC RMS

### 1000 VOLT GENERAL PURPOSE

- Application Range:  
Up to 1000 VDC, 150 VAC RMS\*\*

- Insulation Resistance: 20,000 MΩ minimum, 1000ΩF
- Dissipation Factor: 2.5% maximum

| VALUE |      | CATALOG NUMBER | SIZE |      | TEMP. COEF. |
|-------|------|----------------|------|------|-------------|
| pF    | TOL. |                | FIG. | CODE |             |
| 10    | M    | 5GAQ10         | 3    | C    | NP0         |
| 20    | M    | 5GAQ20         | 3    | C    | NP0         |
| 33    | M    | 5GAQ33         | 3    | E    | U2J         |
| 47    | M    | 5GAQ47         | 3    | E    | U2J         |
| 100   | M    | 5GAT10         | 3    | C    | X5F         |
| 150   | M    | 5GAT15         | 3    | C    | X5F         |
| 200   | M    | 5GAT20         | 3    | C    | X5F         |
| 220   | M    | 5GAT22         | 3    | C    | X5F         |
| 330   | M    | 5GAT33         | 3    | C    | X5F         |
| 470   | M    | 5GAT47         | 3    | C    | X5F         |
| 500   | M    | 5GAT50         | 3    | C    | X5F         |

| VALUE |      | CATALOG NUMBER | SIZE |      | TEMP. COEF. |
|-------|------|----------------|------|------|-------------|
| pF    | TOL. |                | FIG. | CODE |             |
| 1000  | M    | 5GAD10         | 3    | E    | X7R         |
| 1000  | P    | 5HKD10         | 3    | E    | Y5U         |
| 1200  | M    | 5GAD12         | 3    | E    | Z5U         |
| 1500  | M    | 5GAD15         | 3    | E    | Z5U         |
| 2000  | M    | 5GAD20         | 3    | E    | Z5U         |
| 2200  | M    | 5GAD22         | 3    | E    | Z5U         |
| 2500  | M    | 5GAD25         | 3    | E    | Z5U         |
| 2700  | M    | 5GAD27         | 3    | E    | Z5U         |
| 3000  | M    | 5GAD30         | 3    | E    | Z5U         |
| 3300  | M    | 5GAD33         | 3    | E    | Z5U         |
| 4700  | M    | 5GAD47         | 1    | F    | Z5U         |

| VALUE  |      | CATALOG NUMBER | SIZE   |                | TEMP. COEF. |
|--------|------|----------------|--------|----------------|-------------|
| pF     | TOL. |                | FIGURE | CODE           |             |
| 5000   | M    | 5GAD50         | 1      | F              | Z5U         |
| 6800   | M    | 5GAD68         | 1      | G              | Z5U         |
| 8200   | M    | 5GAD82         | 1      | G              | Z5U         |
| 0.01μF | M    | 5GAS10         | 1      | H <sub>3</sub> | Z5U         |
| .01    | M    | 5HKMS10        | 1      | H              | Z5U         |
| .01    | P    | 5HKS10         | 1      | H <sub>3</sub> | Z5U         |
| .015   | M    | 5GAS15         | 1      | J              | Z5U         |
| .020   | M    | 5GAS20         | 1      | L              | Z5U         |
| .050   | M    | 10HKS50        | 1      | X              | Z5U         |
| .10    | M    | 10GAP10        | 1      | Q              | Z5U         |
| .15    | M    | 10GAP15        | 1      | Q              | Y5V         |

### 562C Series

- Dielectric Strength:  
2500 VDC, 500 VAC RMS

### 1KV TEMP. & VOLTAGE STABILIZED, 10% TOL.

- Application Range:  
Up to 1250 VDC, 200 VAC RMS\*\*

- Insulation Resistance: 50,000 MΩ minimum, 1000ΩF
- Dissipation Factor: 2.0% maximum

| VALUE | CATALOG | SIZE |      | TEMP. COEF. |
|-------|---------|------|------|-------------|
| pF    | NUMBER  | FIG. | CODE |             |
| 10    | 10TSQ10 | 3    | C    | NP0         |
| 25    | 10TSQ25 | 3    | E    | NP0         |
| 27    | 10TSQ27 | 3    | C    | U2J         |
| 30    | 10TSQ30 | 3    | C    | U2J         |
| 33    | 10TSQ33 | 3    | E    | U2J         |
| 39    | 10TSQ39 | 3    | E    | U2J         |
| 47    | 10TSQ47 | 3    | E    | U2J         |
| 50    | 10TSQ50 | 3    | E    | U2J         |
| 56    | 10TSQ56 | 3    | C    | X5F         |
| 68    | 10TSQ68 | 3    | C    | X5F         |

| VALUE | CATALOG | SIZE |      | TEMP. COEF. |
|-------|---------|------|------|-------------|
| pF    | NUMBER  | FIG. | CODE |             |
| 75    | 10TSQ75 | 3    | C    | X5F         |
| 82    | 10TSQ82 | 3    | C    | X5F         |
| 100   | 10TST10 | 3    | C    | X5F         |
| 120   | 10TST12 | 3    | C    | X5F         |
| 150   | 10TST15 | 3    | C    | X5F         |
| 180   | 10TST18 | 3    | C    | X5F         |
| 200   | 10TST20 | 3    | C    | X5F         |
| 220   | 10TST22 | 3    | C    | X5F         |
| 250   | 10TST25 | 3    | C    | X5F         |

| VALUE | CATALOG | SIZE |      | TEMP. COEF. |
|-------|---------|------|------|-------------|
| pF    | NUMBER  | FIG. | CODE |             |
| 270   | 10TST27 | 3    | C    | X5F         |
| 300   | 10TST30 | 3    | C    | X5F         |
| 330   | 10TST33 | 3    | C    | X5F         |
| 390   | 10TST39 | 3    | C    | X5F         |
| 470   | 10TST47 | 3    | C    | X5F         |
| 500   | 10TST50 | 3    | C    | X5F         |
| 560   | 10TST56 | 3    | E    | X5F         |
| 680   | 10TST68 | 3    | E    | X5F         |
| 750   | 10TST75 | 3    | E    | X5F         |

| VALUE | CATALOG | SIZE |                | TEMP. COEF. |
|-------|---------|------|----------------|-------------|
| pF    | NUMBER  | FIG. | CODE           |             |
| 820   | 10TST82 | 3    | E              | X5F         |
| 1000  | 10TSD10 | 3    | E              | X5F         |
| 1500  | 10TSD15 | 1    | G              | X5F         |
| 2000  | 10TSD20 | 1    | H <sub>3</sub> | X5F         |
| 2200  | 10TSD22 | 1    | H <sub>3</sub> | X5F         |
| 2700  | 10TSD27 | 1    | J              | X5F         |
| 3300  | 10TSD33 | 1    | J              | X5F         |
| 4700  | 10TSD47 | 1    | L              | X5F         |
| .01μF | 10TSS10 | 1    | L              | X5S         |

### 562C Series

- Dielectric Strength:  
2500 VDC, 750 VAC RMS

### 1KV NPO/N750 PRECISION DISC CAPACITORS, 5% TOL

- Application Range:  
Up to 1500 VDC, 300 VAC RMS\*\*
- dv/dt up to 10,000 V/usec

- Insulation Resistance: 100,000 MΩ minimum, 1000ΩF
- Dielectric Strength: 2500 VDC, 750 VAC RMS
- High Q: 1000, Dissipation Factor: 0.1% max

### 561C Series

#### Temperature/Frequency/Voltage Stable

- Application: NP0 capacitors are used when the ultimate in stability is required
- N750/S3L are smaller & ideal for "lossless snubbers".

| VALUE | CATALOG  | SIZE |      | TEMP. COEF. |
|-------|----------|------|------|-------------|
| pF*   | NUMBER   | FIG. | CODE |             |
| 1.0   | 10TCCV10 | 3    | C    |             |
| 2.2   | 10TCCV22 | 3    | C    |             |
| 2.7   | 10TCCV27 | 3    | C    |             |
| 3.0   | 10TCCV30 | 3    | C    |             |
| 3.3   | 10TCCV33 | 3    | C    |             |
| 3.9   | 10TCCV39 | 3    | C    |             |
| 4.7   | 10TCCV47 | 3    | C    |             |
| 5.0   | 10TCCV50 | 3    | C    |             |
| 5.6   | 10TCCV56 | 3    | C    |             |
| 6.8   | 10TCCV68 | 3    | C    |             |
| 8.2   | 10TCCV82 | 3    | C    |             |

| VALUE | CATALOG  | SIZE |      | TEMP. COEF. |
|-------|----------|------|------|-------------|
| pF    | NUMBER   | FIG. | CODE |             |
| 10    | 10TCCQ10 | 3    | C    |             |
| 12    | 10TCCQ12 | 3    | C    |             |
| 15    | 10TCCQ15 | 3    | C    |             |
| 18    | 10TCCQ18 | 3    | E    |             |
| 20    | 10TCCQ20 | 3    | E    |             |
| 22    | 10TCCQ22 | 3    | E    |             |
| 25    | 10TCCQ25 | 3    | E    |             |
| 27    | 10TCCQ27 | 3    | F    |             |
| 30    | 10TCCQ30 | 3    | F    |             |
| 33    | 10TCCQ33 | 3    | F    |             |
| 39    | 10TCCQ39 | 3    | F    |             |

| VALUE | CATALOG  | SIZE |                | TEMP. COEF. |
|-------|----------|------|----------------|-------------|
| pF    | NUMBER   | FIG. | CODE           |             |
| 47    | 10TCCQ47 | 1    | G              |             |
| 50    | 10TCCQ50 | 1    | G              |             |
| 56    | 10TCCQ56 | 1    | G              |             |
| 68    | 10TCCQ68 | 1    | H              |             |
| 82    | 10TCCQ82 | 1    | H <sub>3</sub> |             |
| 100   | 10TCCT10 | 1    | J              |             |
| 120   | 10TCCT12 | 1    | J              |             |
| 150   | 10TCCT15 | 1    | K              |             |
| 180   | 10TCCT18 | 1    | L              |             |
| 220   | 10TCCT22 | 1    | M              |             |
| 270   | 10TCCT27 | 1    | P              |             |

| VALUE<br>pF              | CATALOG<br>NUMBER | SIZE |      | TEMP.<br>COEF. |
|--------------------------|-------------------|------|------|----------------|
|                          |                   | FIG. | CODE |                |
| N750/S3L Disc Capacitors |                   |      |      |                |
| 33                       | 10TCUQ33          | 3    | E    | U              |
| 47                       | 10TCUQ47          | 3    | E    | U              |
| 68                       | 10TCUQ68          | 3    | F    | U              |
| 100                      | 10TCUT10          | 3    | F    | U              |
| 220                      | 10TCUT22          | 1    | G    | V              |
| 330                      | 10TCUT33          | 1    | H    | V              |
| 470                      | 10TCUT47          | 1    | J    | V              |
| 560                      | 10TCUT56          | 1    | J    | V              |
| 680                      | 10TCUT68          | 1    | K    | Y              |
| 1000                     | 10TCUD10          | 1    | L    | Y              |

\*1.0 to 10pF are D tolerance

\*\*See "Application Data" section for limits on AC voltage.



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