

# Disc Ceramic Capacitors



## Safety Ceramic Capacitors

### DEFINITIONS (IEC 384-14 1993)

**X FUNCTION:** applications where the capacitor failure does not lead to danger of electrical shock. There are three subclasses related to the peak voltage of the impulses superimposed to the mains voltage:

Subclass X1: impulses up to 4000V

Subclass X2: impulses up to 2500V

Subclass X3: impulses up to 1200V

**Y FUNCTION:** applications where the capacitor failure may lead to danger of electrical shock. There are four subclasses related to the peak voltage of the impulses applied before the life test:

Subclass Y1: impulses up to 8000V

Subclass Y2: impulses up to 5000V

Subclass Y3: rated 250Vac without impulses

Subclass Y4: impulses up to 2500V

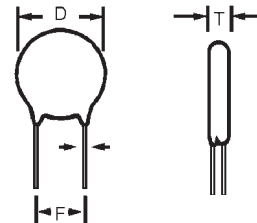
**ANTENNA:** the capacitors are used to decouple the antenna leads of video and audio equipment, whose failure may lead to danger of electrical shock.

### TPC Safety Capacitors:

61V (GZO): meets subclasses X1, Y1 Test voltage 4000 VAC

62O (GKO): meets subclasses X1, Y2 Test voltage 2500 VAC

65N (GAY): meets subclasses X2, Y3 Test voltage 1800 VAC



### HOW TO ORDER

|              |          |             |           |              |                    |           |           |
|--------------|----------|-------------|-----------|--------------|--------------------|-----------|-----------|
| <b>61</b>    | <b>V</b> | <b>101</b>  | <b>K</b>  | <b>B</b>     | <b>D</b>           | <b>C</b>  | <b>A</b>  |
| Product Code | Voltage  | Capacitance | Tolerance | Lead Forming | Capacitor Diameter | Finishing | Packaging |

### PERFORMANCE CHARACTERISTICS

|                                  | 61V                       | 62O                       | 65N                       |
|----------------------------------|---------------------------|---------------------------|---------------------------|
| Measured at                      | 1.0 kHz / 0.3 Vrms / 25°C | 1.0 kHz / 0.3 Vrms / 25°C | 1.0 kHz / 0.3 Vrms / 25°C |
| Capacitance Tolerance            | ±20% / -20 +50%           | ±20% / -20 +50%           | ±20% / -20 +50%           |
| D.F max. @ 25°C                  | 1.5%                      | 1.5%                      | 1.5%                      |
| Insulation Resistance (IR)       | ≥ 10 GΩ                   | ≥ 10 GΩ                   | ≥ 10 GΩ                   |
| Test Voltage Between Leads*      | 4.000 VAC                 | 2.500 VAC                 | 1.800 VAC                 |
| Test Voltage Leads to Body       | 4.000 VAC                 | 2.500 VAC                 | 1.800 VAC                 |
| Operating Temperature Range (°C) | -40 +125                  | -40 +125                  | -40 +125                  |

\* Main reference voltage

### CERTIFICATION BODY APPROVALS

|     | Standard                            | 61V                     |                            |                   | 62O                |                            |                   | 65N                |               |                   |
|-----|-------------------------------------|-------------------------|----------------------------|-------------------|--------------------|----------------------------|-------------------|--------------------|---------------|-------------------|
|     |                                     | Certificate Number      | Rated Voltage              | Climatic Category | Certificate Number | Rated Voltage              | Climatic Category | Certificate Number | Rated Voltage | Climatic Category |
| UL  | UL 1414                             | E 147842 (N)            | 250 VAC                    |                   | E 147842 (N)       | 250 VAC                    |                   | E 147842 (N)       | 250 VAC       | -                 |
| CAS | CAN/CSA - C22.2 No. 1-94            | LR 100430-2             | 250 VAC                    |                   | LR 100430-1        | 250 VAC                    |                   | -                  | -             | -                 |
| VDE | DIN BDE 0560 Part 2                 | -                       | -                          |                   | 76830<br>76804     | 400 VAC                    | 25/85/21          | -                  | -             | -                 |
|     | DIN EN 132400: 1995                 | 94612<br>94610<br>94634 | X1: 400 VAC<br>Y1: 250 VAC | 40/85/21/C        | 101384             | X1: 400 VAC<br>Y1: 250 VAC | 40/85/21/C        | -                  | -             | -                 |
|     | IEC 384-14: 1993                    |                         |                            |                   |                    |                            |                   |                    |               |                   |
| IMQ | EN 132400: 1994<br>IEC 384-14: 1993 | V4551                   | X1: 400 VAC<br>Y1: 250 VAC | 40/125/21/C       | V4635              | X1: 400 VAC<br>Y2: 250 VAC | 40/125/21/C       | -                  | -             | -                 |

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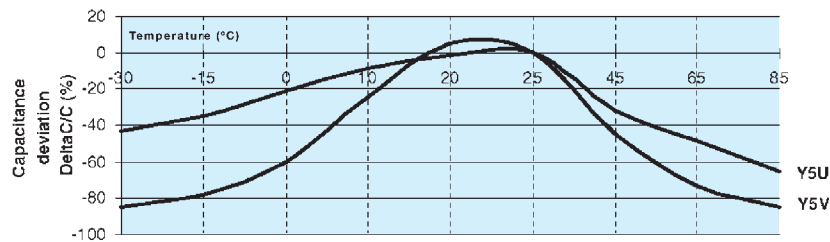
## Safety Ceramic Capacitors Epoxy Coated



### CAPACITANCE VS. DISC DIAMETER

| Digits 1, 2, 3<br>of P.N.<br>C <sub>R</sub> (pF) | 61V          | 620          | 65N |  |
|--------------------------------------------------|--------------|--------------|-----|--|
| 33                                               | 6.0 (0.236)  | 6.0 (0.236)  |     |  |
| 39                                               |              |              |     |  |
| 47                                               |              |              |     |  |
| 56                                               |              |              |     |  |
| 68                                               |              |              |     |  |
| 82                                               | 7.0 (0.276)  |              |     |  |
| 100                                              |              |              |     |  |
| 120                                              |              |              |     |  |
| 150                                              |              |              |     |  |
| 180                                              |              |              |     |  |
| 220                                              |              |              |     |  |
| 270                                              |              |              |     |  |
| 330                                              |              |              |     |  |
| 390                                              |              |              |     |  |
| 470                                              |              |              |     |  |
| 560                                              |              |              |     |  |
| 680                                              |              |              |     |  |
| 820                                              | 8.0 (0.315)  | 7.0 (0.276)  |     |  |
| 1000                                             |              |              |     |  |
| 1200                                             |              |              |     |  |
| 1500                                             |              |              |     |  |
| 1800                                             |              |              |     |  |
| 2200                                             | 11.0 (0.433) | 10.0 (0.394) |     |  |
| 2700                                             | 12.0 (0.472) |              |     |  |
| 3300                                             | 14.0 (0.551) |              |     |  |
| 3900                                             | 16.0 (0.630) |              |     |  |
| 4700                                             |              |              |     |  |
| 8200                                             |              | 16.0 (0.630) |     |  |
| 10000                                            | 19.0 (0.748) |              |     |  |
| 20000                                            |              |              |     |  |

### TEMPERATURE COEFFICIENT – TYPICAL CURVES



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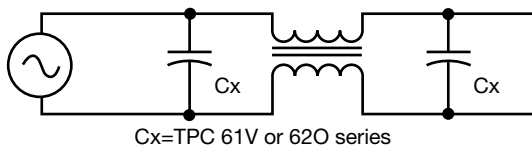


### APPROVED LOGOS

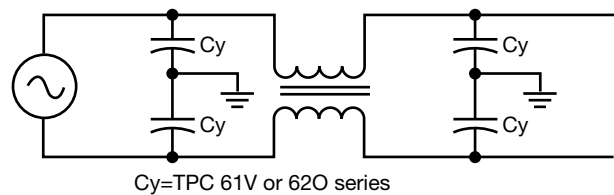


### TYPICAL APPLICATION FOR SAFETY CERAMIC DISCS AND SWITCH MODE

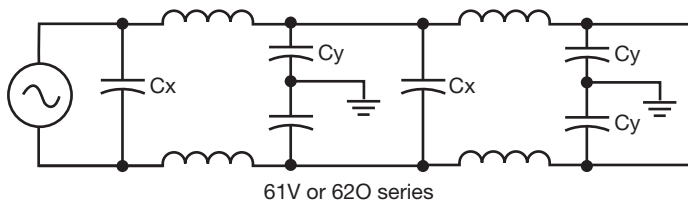
#### Across the line capacitors for noise suppression



#### Line by-pass for noise suppression



#### Typical X and Y function application



#### Protection and suppression of a motor (X and Y function)

