

# Type TCG Axial Leaded Aluminum Electrolytic Capacitors

## 85 °C Computer Grade Capacitor



Type TCG is an axial leaded, 85 °C, industrial and computer grade quality aluminum electrolytic capacitor that is suitable for computers, communication equipment and power supplies.

### Highlights

- Industrial grade
- Computer grade
- Low profile mounting

### Specifications

|                              |                                                                                                                                            |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Capacitance Range:           | 10 to 10,000 µF                                                                                                                            |
| Voltage Range:               | 10 to 450 WVdc                                                                                                                             |
| Capacitance Tolerance:       | 10 to 75 WVdc, -10 +75%<br>150 to 450 WVdc, -10 +50%                                                                                       |
| Operating Temperature Range: | -40 °C to 85 °C                                                                                                                            |
| DC Leakage Current:          | $I = 6 \sqrt{CV}$ after 5 minutes<br>Not to exceed 3 mA @ 25 °C<br>I = leakage current in µA<br>C = Capacitance in µF<br>V = Rated voltage |

### Ripple Current Multipliers:

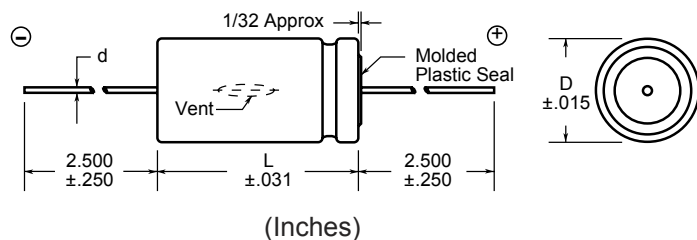
| Rated<br>WVdc | Ripple Multipliers |        |         |         |
|---------------|--------------------|--------|---------|---------|
|               | 60 Hz              | 400 Hz | 1000 Hz | 2400 Hz |
| 0 to 50       | 0.8                | 1.05   | 1.10    | 1.14    |
| 51 to 150     | 0.8                | 1.08   | 1.13    | 1.16    |
| 151 & up      | 0.8                | 1.15   | 1.21    | 1.25    |

| Ambient Temp.     | +45 °C | +55 °C | +65 °C | +75 °C | +85 °C |
|-------------------|--------|--------|--------|--------|--------|
| Ripple Multiplier | 2.2    | 2.0    | 1.7    | 1.4    | 1.0    |

### QA Stability Test:

- Apply WVdc for 1,000 h at 85 °C
- Capacitance change  $\pm 15\%$  from initial limits
  - DC leakage current meets initial limits
  - ESR  $\leq 150\%$  of initial measured value

### Outline Drawing



Parts are supplied with PVC insulating sleeve.  
Add .010" to diameter and .125" max  
to length to allow for insulation.

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## Ratings

| Cap<br>( $\mu$ F)        | Catalog<br>Part Number | Max ESR<br>120 Hz<br>25 °C<br>( $\Omega$ ) | Max Ripple<br>120 Hz<br>85 °C<br>(A) | Size                      |                         |                     |
|--------------------------|------------------------|--------------------------------------------|--------------------------------------|---------------------------|-------------------------|---------------------|
|                          |                        |                                            |                                      | Diameter<br>D<br>(Inches) | Length<br>L<br>(Inches) | Lead<br>Wire<br>(d) |
| 10 WVdc ( 12 Vdc Surge ) |                        |                                            |                                      |                           |                         |                     |
| 2,500                    | TCG252U010L1C          | 0.170                                      | 1.407                                | 0.875                     | 1.125                   | 0.040               |
| 2,500                    | TCG252U010N1C          | 0.171                                      | 1.521                                | 1.000                     | 1.125                   | 0.040               |
| 3,500                    | TCG352U010N1L          | 0.092                                      | 2.424                                | 1.000                     | 1.625                   | 0.040               |
| 5,000                    | TCG502U010N1G          | 0.082                                      | 2.488                                | 1.000                     | 1.375                   | 0.040               |
| 5,500                    | TCG552U010N1L          | 0.081                                      | 2.584                                | 1.000                     | 1.625                   | 0.040               |
| 10,000                   | TCG103U010L3C          | 0.046                                      | 4.274                                | 0.875                     | 3.125                   | 0.040               |
| 10,000                   | TCG103U010N2C          | 0.048                                      | 3.772                                | 1.000                     | 2.125                   | 0.040               |
| 15 WVdc ( 20 Vdc Surge ) |                        |                                            |                                      |                           |                         |                     |
| 2,500                    | TCG252U015G2L          | 0.126                                      | 1.989                                | 0.625                     | 2.625                   | 0.032               |
| 2,900                    | TCG292U015G2L          | 0.110                                      | 2.134                                | 0.625                     | 2.625                   | 0.032               |
| 4,000                    | TCG402U015N1L          | 0.085                                      | 2.518                                | 1.000                     | 1.625                   | 0.040               |
| 4,100                    | TCG412U015N1L          | 0.083                                      | 2.544                                | 1.000                     | 1.625                   | 0.040               |
| 5,000                    | TCG502U015J2L          | 0.067                                      | 3.015                                | 0.750                     | 2.625                   | 0.040               |
| 6,300                    | TCG632U015L2L          | 0.055                                      | 3.612                                | 0.875                     | 2.625                   | 0.040               |
| 8,000                    | TCG802U015N2L          | 0.045                                      | 4.269                                | 1.000                     | 2.625                   | 0.040               |
| 8,200                    | TCG822U015N2L          | 0.044                                      | 4.310                                | 1.000                     | 2.625                   | 0.040               |
| 10,000                   | TCG103U015N2L          | 0.038                                      | 4.634                                | 1.000                     | 2.625                   | 0.040               |
| 25 WVdc ( 30 Vdc Surge ) |                        |                                            |                                      |                           |                         |                     |
| 1,000                    | TCG102U025N1C          | 0.216                                      | 1.352                                | 1.000                     | 1.125                   | 0.040               |
| 1,100                    | TCG112U025J1L          | 0.190                                      | 1.431                                | 0.750                     | 1.625                   | 0.040               |
| 2,000                    | TCG202U025N1L          | 0.154                                      | 2.137                                | 1.000                     | 1.625                   | 0.040               |
| 2,200                    | TCG222U025J2L          | 0.098                                      | 2.487                                | 0.750                     | 2.625                   | 0.040               |
| 4,000                    | TCG402U025L3C          | 0.057                                      | 3.827                                | 0.875                     | 3.125                   | 0.040               |
| 30 WVdc ( 40 Vdc Surge ) |                        |                                            |                                      |                           |                         |                     |
| 500                      | TCG501U030J1C          | 0.369                                      | 0.874                                | 0.750                     | 1.125                   | 0.040               |
| 1,100                    | TCG112U030G2L          | 0.169                                      | 1.721                                | 0.625                     | 2.625                   | 0.032               |
| 2,100                    | TCG212U030L2L          | 0.072                                      | 3.159                                | 0.875                     | 2.625                   | 0.040               |
| 2,400                    | TCG242U030L2L          | 0.082                                      | 2.961                                | 0.875                     | 2.625                   | 0.040               |
| 2,500                    | TCG252U030N2L          | 0.078                                      | 3.005                                | 1.000                     | 2.625                   | 0.040               |
| 3,000                    | TCG302U030L2C          | 0.065                                      | 3.004                                | 0.875                     | 2.125                   | 0.040               |
| 50 WVdc ( 65 Vdc Surge ) |                        |                                            |                                      |                           |                         |                     |
| 250                      | TCG251U050G1G          | 0.499                                      | 0.742                                | 0.625                     | 1.375                   | 0.032               |
| 500                      | TCG501U050G2L          | 0.156                                      | 1.788                                | 0.625                     | 2.625                   | 0.032               |
| 500                      | TCG501U050N1C          | 0.262                                      | 1.227                                | 1.000                     | 1.125                   | 0.040               |
| 600                      | TCG601U050G2L          | 0.211                                      | 1.539                                | 0.625                     | 2.625                   | 0.032               |
| 600                      | TCG601U050L1G          | 0.215                                      | 1.363                                | 0.875                     | 1.375                   | 0.040               |
| 1,100                    | TCG112U050N1G          | 1.050                                      | 2.480                                | 1.000                     | 1.375                   | 0.040               |

| Cap<br>( $\mu$ F)          | Catalog<br>Part Number | Max ESR                         | Max Ripple             | Size                      |                         |                     |
|----------------------------|------------------------|---------------------------------|------------------------|---------------------------|-------------------------|---------------------|
|                            |                        | 120 Hz<br>25 °C<br>( $\Omega$ ) | 120 Hz<br>85 °C<br>(A) | Diameter<br>D<br>(Inches) | Length<br>L<br>(Inches) | Lead<br>Wire<br>(d) |
| 50 WVdc ( 65 Vdc Surge )   |                        |                                 |                        |                           |                         |                     |
| 1,200                      | TCG122U050L2C          | 0.110                           | 2.313                  | 0.875                     | 2.125                   | 0.040               |
| 2,300                      | TCG232U050N2L          | 0.062                           | 3.653                  | 1.000                     | 2.625                   | 0.040               |
| 2,500                      | TCG252U050N2L          | 0.058                           | 3.777                  | 1.000                     | 2.625                   | 0.040               |
| 150 WVdc ( 175 Vdc Surge ) |                        |                                 |                        |                           |                         |                     |
| 100                        | TCG101T150J1L          | 0.696                           | 0.748                  | 0.750                     | 1.625                   | 0.040               |
| 110                        | TCG111T150J1L          | 0.634                           | 0.784                  | 0.750                     | 1.625                   | 0.040               |
| 250                        | TCG251T150L2C          | 0.284                           | 1.439                  | 0.875                     | 2.125                   | 0.040               |
| 530                        | TCG531T150N3C          | 0.139                           | 2.639                  | 1.000                     | 3.125                   | 0.040               |
| 560                        | TCG561T150N3C          | 0.133                           | 2.705                  | 1.000                     | 3.125                   | 0.040               |
| 200 WVdc ( 250 Vdc Surge ) |                        |                                 |                        |                           |                         |                     |
| 210                        | TCG211T200N2C          | 0.646                           | 1.780                  | 1.000                     | 2.125                   | 0.040               |
| 300                        | TCG301T200N2C          | 0.517                           | 1.977                  | 1.000                     | 2.125                   | 0.040               |
| 430                        | TCG431U200N3L          | 0.411                           | 2.116                  | 1.000                     | 3.625                   | 0.040               |
| 250 WVdc ( 300 Vdc Surge ) |                        |                                 |                        |                           |                         |                     |
| 50                         | TCG500T250L1G          | 2.450                           | 0.607                  | 0.875                     | 1.375                   | 0.040               |
| 100                        | TCG101T250L2C          | 1.230                           | 1.039                  | 0.875                     | 2.125                   | 0.040               |
| 200                        | TCG201T250N2L          | 0.277                           | 1.726                  | 1.000                     | 2.625                   | 0.040               |
| 350 WVdc ( 400 Vdc Surge ) |                        |                                 |                        |                           |                         |                     |
| 20                         | TCG200T350G1L          | 9.500                           | 0.294                  | 0.625                     | 1.625                   | 0.032               |
| 20                         | TCG200T350J1C          | 9.520                           | 0.276                  | 0.750                     | 1.125                   | 0.040               |
| 30                         | TCG300T350G2C          | 6.336                           | 0.408                  | 0.625                     | 2.125                   | 0.032               |
| 30                         | TCG300T350L1C          | 6.368                           | 0.369                  | 0.875                     | 1.125                   | 0.040               |
| 40                         | TCG400T350N1C          | 4.200                           | 0.460                  | 1.000                     | 1.125                   | 0.040               |
| 50                         | TCG500T350N1G          | 3.353                           | 0.560                  | 1.000                     | 1.375                   | 0.040               |
| 100                        | TCG101T350N2C          | 1.680                           | 0.957                  | 1.000                     | 2.125                   | 0.040               |
| 160                        | TCG161T350N2L          | 0.469                           | 1.327                  | 1.000                     | 2.625                   | 0.040               |
| 180                        | TCG181T350N3C          | 0.417                           | 1.524                  | 1.000                     | 3.125                   | 0.040               |
| 450 WVdc ( 525 Vdc Surge ) |                        |                                 |                        |                           |                         |                     |
| 10                         | TCG100T450G1L          | 17.392                          | 0.217                  | 0.625                     | 1.625                   | 0.032               |
| 10                         | TCG100T450J1C          | 17.404                          | 0.204                  | 0.750                     | 1.125                   | 0.040               |
| 12                         | TCG120T450J1G          | 14.500                          | 0.244                  | 0.750                     | 1.375                   | 0.040               |
| 20                         | TCG200T450G2L          | 8.704                           | 0.384                  | 0.625                     | 2.625                   | 0.032               |
| 20                         | TCG200T450N1C          | 8.732                           | 0.341                  | 1.000                     | 1.125                   | 0.040               |
| 50                         | TCG500T450N1L          | 4.742                           | 0.709                  | 1.000                     | 1.625                   | 0.040               |
| 50                         | TCG500T450N2C          | 4.049                           | 0.548                  | 1.000                     | 2.125                   | 0.040               |
| 60                         | TCG600T450N2L          | 3.950                           | 0.890                  | 1.000                     | 2.625                   | 0.040               |
| 85                         | TCG850T450N2L          | 1.869                           | 0.998                  | 1.000                     | 2.625                   | 0.040               |

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## Case Code Format for Type TCG

| Case Code Chart |        |       |             |      |        |     |
|-----------------|--------|-------|-------------|------|--------|-----|
| Case            | Inches |       | Millimeters |      | d      |     |
| Code            | D      | L     | D           | L    | Inches | AWG |
| E1G             | 0.500  | 1.375 | 12.7        | 34.9 | 0.032  | #20 |
| E2C             | 0.500  | 2.125 | 12.7        | 53.9 | 0.032  | #20 |
| G1C             | 0.625  | 1.125 | 15.9        | 28.6 | 0.032  | #20 |
| G1G             | 0.625  | 1.375 | 15.9        | 34.9 | 0.032  | #20 |
| G1L             | 0.625  | 1.625 | 15.9        | 41.3 | 0.032  | #20 |
| G2C             | 0.625  | 2.125 | 15.9        | 53.9 | 0.032  | #20 |
| G2L             | 0.625  | 2.625 | 15.9        | 66.7 | 0.032  | #20 |
| G3C             | 0.625  | 3.125 | 15.9        | 79.4 | 0.032  | #20 |
| G3L             | 0.625  | 3.625 | 15.9        | 92.1 | 0.032  | #20 |
| J1C             | 0.750  | 1.125 | 19.1        | 28.6 | 0.040  | #18 |
| J1G             | 0.750  | 1.375 | 19.1        | 34.9 | 0.040  | #18 |
| J1L             | 0.750  | 1.625 | 19.1        | 41.3 | 0.040  | #18 |
| J2C             | 0.750  | 2.125 | 19.1        | 53.9 | 0.040  | #18 |
| J2L             | 0.750  | 2.625 | 19.1        | 66.7 | 0.040  | #18 |
| J3C             | 0.750  | 3.125 | 19.1        | 79.4 | 0.040  | #18 |
| J3L             | 0.750  | 3.625 | 19.1        | 92.1 | 0.040  | #18 |
| L1C             | 0.875  | 1.125 | 22.2        | 28.6 | 0.040  | #18 |
| L1G             | 0.875  | 1.375 | 22.2        | 34.9 | 0.040  | #18 |
| L1L             | 0.875  | 1.625 | 22.2        | 41.3 | 0.040  | #18 |
| L2C             | 0.875  | 2.125 | 22.2        | 53.9 | 0.040  | #18 |
| L2L             | 0.875  | 2.625 | 22.2        | 66.7 | 0.040  | #18 |
| L3C             | 0.875  | 3.125 | 22.2        | 79.4 | 0.040  | #18 |
| L3L             | 0.875  | 3.625 | 22.2        | 92.1 | 0.040  | #18 |
| N1C             | 1.000  | 1.125 | 25.4        | 28.6 | 0.040  | #18 |
| N1G             | 1.000  | 1.375 | 25.4        | 34.9 | 0.040  | #18 |
| N1L             | 1.000  | 1.625 | 25.4        | 41.3 | 0.040  | #18 |
| N2C             | 1.000  | 2.125 | 25.4        | 53.9 | 0.040  | #18 |
| N2L             | 1.000  | 2.625 | 25.4        | 66.7 | 0.040  | #18 |
| N3C             | 1.000  | 3.125 | 25.4        | 79.4 | 0.040  | #18 |
| N3L             | 1.000  | 3.625 | 25.4        | 92.1 | 0.040  | #18 |

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