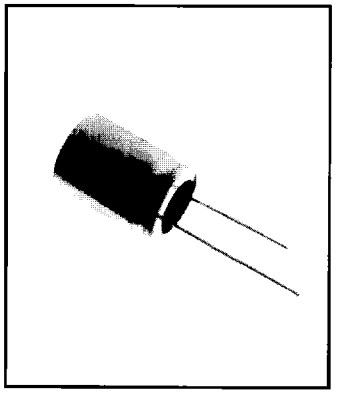
# Type VTL
# Radial Leaded Capacitors

MALLORY



- 85°C - General Purpose
- 5 to 18 mm Diameters

## GENERAL SPECIFICATIONS

Operating Temperature:
-40°C to +85°C

Voltage Range:
6.3 WVDC to 250 WVDC
Over 250 VDC available

Capacitance Range:
.47 μ to 10,000 μF

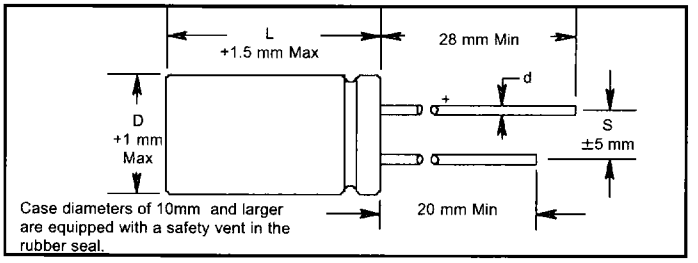
Capacitance Tolerance:
± 20%

DC Leakage Current:
I = .01 CV + 3 mA maximum
C = Capacitance in μF
V = Rated Voltage
I = Leakage Current in mA

QA Stability Test:
Apply WVDC for 2,000 hrs at +85°C
- •Capacitance change ≤20% of initial limits
- •DC Leakage current meets initial limits
- •ESR ≤150% of initial measured value

The maximum ripple current at 85°C and 120 Hz for VTL capacitors is shown in the Standard Rating Table. Maximum ripple current may be adjusted by the multipliers in the following table.

| Temperature | Ripple Multipliers | | | | |
|---|---|---|---|---|---|
| | 60 Hz | 120 Hz | 400 Hz | 1000 Hz | 10kHz Up |
| 85°C | 0.8 | 1.0 | 1.1 | 1.35 | 1.5 |
| 75°C | 1.1 | 1.4 | 1.55 | 1.9 | 2.1 |
| 65°C | 1.2 | 1.6 | 1.75 | 2.1 | 2.4 |
| 45°C | 1.5 | 1.9 | 2.1 | 2.5 | 2.8 |
| 25°C | 1.8 | 2.25 | 2.5 | 3.0 | 3.3 |




| Cap μF | Max ESR Ohms 120Hz 25°C | Max Ripple mA 120Hz 85°C | Size (Inches) D x L | S | Size (mm) D x L | S | d | Catalog Number |
|---|---|---|---|---|---|---|---|---|
| **6.3 WVDC; 8 VDC Surge** | | | | | | | | |
| 33 | 8.84 | 70 | .197X.433 | .079 | 5X11 | 2.0 | .5 | VTL33S6 |
| 47 | 6.21 | 90 | .197X.433 | .079 | 5X11 | 2.0 | .5 | VTL47S6 |
| 100 | 2.92 | 140 | .236X.433 | .098 | 6X11 | 2.5 | .5 | VTL100S6 |
| 220 | 1.33 | 240 | .315X.472 | .138 | 8X12 | 3.5 | .5 | VTL220S6 |
| 330 | .88 | 310 | .394X.512 | .197 | 10X13 | 5.0 | .6 | VTL330S6 |
| 470 | .62 | 380 | .394X.512 | .197 | 10X13 | 5.0 | .6 | VTL470S6 |
| 1000 | .29 | 600 | .394X.630 | .197 | 10X16 | 5.0 | .6 | VTL1000S6 |
| 2200 | .14 | 920 | .512X.827 | .197 | 13X21 | 5.0 | .6 | VTL2200S6 |
| 3300 | .10 | 1100 | .512X.827 | .295 | 13X21 | 7.5 | .8 | VTL3300S6 |
| 4700 | .08 | 1400 | .512X1.023 | .295 | 13X26 | 7.5 | .8 | VTL4700S6 |
| 6800 | .06 | 1600 | .630X1.260 | .295 | 16X32 | 7.5 | .8 | VTL6800S6 |
| 10,000 | .05 | 2000 | .709X1.457 | .295 | 18X37 | 1.5 | .8 | VTL10000S6 |
| **10 WVDC; 13 VDC Surge** | | | | | | | | |
| 22 | 11.45 | 55 | .197X.433 | .078 | 5X11 | 2.0 | .5 | VTL22S10 |
| 33 | 7.64 | 70 | .197X.433 | .078 | 5X11 | 2.0 | .5 | VTL33S10 |
| 47 | 5.36 | 90 | .197X.433 | .078 | 5X11 | 2.0 | .5 | VTL47S10 |
| 100 | 2.52 | 150 | .236X.433 | .098 | 6X11 | 2.5 | .5 | VTL100S10 |
| 220 | 1.15 | 260 | .315X.472 | .138 | 8X12 | 3.5 | .6 | VTL220S10 |
| 330 | .76 | 340 | .394X.472 | .197 | 10X12 | 5.0 | .6 | VTL330S10 |
| 470 | .54 | 430 | .394X.512 | .197 | 10X13 | 5.0 | .6 | VTL470S10 |
| 1000 | .26 | 700 | .394X.630 | .197 | 10X16 | 5.0 | .6 | VTL1000S10 |
| 2200 | .13 | 1050 | .512X.826 | .197 | 13X21 | 5.0 | .6 | VTL2200S10 |
| 3300 | .09 | 1350 | .630X1.220 | .295 | 16X31 | 7.5 | .8 | VTL3300S10 |
| 4700 | .07 | 1600 | .630X1.063 | .295 | 16X27 | 7.5 | .8 | VTL4700S10 |
| 6800 | .06 | 2000 | .630X1.418 | .295 | 16X36 | 7.5 | .8 | VTL6800S10 |
| **16 WVDC; 20 VDC Surge** | | | | | | | | |
| 10 | 21.22 | 40 | .197 | .433 | .079 | 5X11 | 2.0 | .5 | VTL10S16 |
| 22 | 9.65 | 70 | .197X.433 | .079 | 5X11 | 2.0 | .5 | VTL22S16 |
| 33 | 6.43 | 85 | .197X.433 | .079 | 5X11 | 2.0 | .5 | VTL33S16 |
| 47 | 4.52 | 110 | .236X.433 | .098 | 6X11 | 2.5 | .5 | VTL47S16 |
| 68 | 3.12 | 160 | .315X.472 | .138 | 8X12 | 3.5 | .5 | VTL68S16 |
| 100 | 2.12 | 190 | .315X.472 | .138 | 8X12 | 3.5 | .5 | VTL100S16A |
| 220 | .97 | 320 | .394X.512 | .197 | 10X13 | 5.0 | .6 | VTL220S16A |
| 330 | .64 | 410 | .394X.512 | .197 | 10X13 | 5.0 | .6 | VTL330S16A |
| 470 | .45 | 520 | .394X.512 | .197 | 10X13 | 5.0 | .6 | VTL470S16A |

| Cap μF | Max ESR Ohms 120Hz 25°C | Max Ripple mA 120Hz 85°C | Size (Inches) D x L | S | Size (mm) D x L | S | d | Catalog Number |
|---|---|---|---|---|---|---|---|---|
| **16 WVDC; 20 VDC Surge** | | | | | | | | |
| 1000 | .21 | 800 | .394X.787 | .197 | 10X20 | 5.0 | .6 | VTL1000S16 |
| 1000 | .21 | 800 | .512X.787 | .295 | 13X20 | 7.5 | .6 | VTL1000S16A |
| 2200 | .11 | 1200 | .512X1.024 | .295 | 13X26 | 7.5 | .8 | VTL2200S16 |
| 3300 | .08 | 1500 | .630X1.062 | .295 | 16X27 | 7.5 | .8 | VTL3300S16 |
| 4700 | .06 | 1800 | .630X1.497 | .295 | 16X38 | 7.5 | .8 | VTL4700S16 |
| **25 WVDC; 32 VDC Surge** | | | | | | | | |
| 4.7 | 39.51 | 30 | .197X.433 | .079 | 5X11 | 2.0 | .5 | VTL4R7S25 |
| 22 | 8.44 | 90 | .197X.433 | .079 | 5X11 | 2.0 | .5 | VTL22S25 |
| 33 | 5.63 | 115 | .236X.433 | .098 | 6X11 | 2.5 | .5 | VTL33S25 |
| 47 | 3.95 | 150 | .236X.433 | .098 | 6X11 | 2.5 | .5 | VTL47S25 |
| 68 | 2.73 | 200 | .315X.472 | .138 | 8X12 | 3.5 | .5 | VTL68S25 |
| 100 | 1.86 | 250 | .315X.472 | .138 | 8X12 | 3.5 | .5 | VTL100S25 |
| 220 | .84 | 430 | .315X.512 | .197 | 8X13 | 5.0 | .6 | VTL220S25 |
| 330 | .56 | 560 | .394X.630 | .197 | 10X16 | 5.0 | .6 | VTL330S25 |
| 470 | .40 | 720 | .394X.630 | .197 | 10X16 | 5.0 | .6 | VTL470S25 |
| 1000 | .19 | 1100 | .512X.827 | .295 | 13X21 | 7.5 | .8 | VTL1000S25 |
| 2200 | .10 | 1500 | .630X1.220 | .295 | 16X31 | 7.5 | .8 | VTL2200S25 |
| 3300 | .07 | 1800 | .709X1.338 | .295 | 18X34 | 7.5 | .8 | VTL3300S25 |
| **35 WVDC; 44 VDC Surge** | | | | | | | | |
| 4.7 | 33.88 | 30 | .197X.433 | .079 | 5X11 | 2.0 | .5 | VTL4R7S35 |
| 10 | 15.92 | 50 | .197X.433 | .079 | 5X11 | 2.0 | .5 | VTL10S35 |
| 22 | 7.24 | 100 | .236X.433 | .098 | 6X11 | 2.5 | .5 | VTL22S35 |
| 33 | 4.83 | 130 | .236X.433 | .098 | 6X11 | 2.5 | .5 | VTL33S35 |
| 47 | 3.39 | 170 | .236X.433 | .098 | 6X11 | 2.5 | .5 | VTL47S35 |
| 100 | 1.59 | 300 | .394X.512 | .197 | 10X13 | 5.0 | .6 | VTL100S35 |
| 220 | .72 | 480 | .394X.630 | .197 | 10X16 | 5.0 | .6 | VTL220S35 |
| 330 | .48 | 610 | .394X.787 | .197 | 10X20 | 5.0 | .6 | VTL330S35 |
| 470 | .34 | 750 | .512X.827 | .197 | 13X21 | 5.0 | .6 | VTL470S35 |
| 1000 | .16 | 1200 | .512X1.024 | .295 | 13X26 | 7.5 | .8 | VTL1000S35 |
| 2200 | .08 | 1800 | .709X1.339 | .295 | 18X34 | 7.5 | .8 | VTL2200S35 |

Aluminum Capacitors



North American Capacitor Company/P.O. Box 1284/Indianapolis IN 46206-1284/Phone: (317)273-0090/Fax: (317)273-2400

# Type VTL
# Radial Leaded Capacitors

MALLORY

| Cap µF | Max ESR Ohms 120Hz 25 C | Max Ripple mA 120Hz 85 C | Size (inches) D x L | S | Size (mm) D x L | S | d | Catalog Number |
|---|---|---|---|---|---|---|---|---|
| **50 WVDC; 63 VDC Surge** | | | | | | | | |
| .47 | 282.33 | 7 | .197X.433 | .079 | 5X11 | 2.0 | .5 | VTLR47S50 |
| 1 | 132.70 | 12 | .197X.433 | .079 | 5X11 | 2.0 | .5 | VTL1S50 |
| 2.2 | 60.32 | 21 | .197X.433 | .079 | 5X11 | 2.0 | .5 | VTL2R2S50 |
| 3.3 | 40.21 | 28 | .197X.433 | .079 | 5X11 | 2.0 | .5 | VTL3R3S50 |
| 4.7 | 28.23 | 35 | .197X.433 | .079 | 5X11 | 2.0 | .5 | VTL4R7S50 |
| 10 | 13.27 | 60 | .197X.433 | .079 | 5X11 | 2.0 | .5 | VTL10S50 |
| 22 | 6.03 | 110 | .236X.433 | .098 | 6X11 | 2.5 | .5 | VTL22S50 |
| 33 | 4.02 | 150 | .315X.472 | .138 | 8X12 | 3.5 | .5 | VTL33S50 |
| 47 | 2.82 | 190 | .315X.472 | .138 | 8X12 | 3.5 | .5 | VTL47S50 |
| 100 | 1.33 | 330 | .394X.512 | .197 | 10X13 | 5.0 | .6 | VTL100S50 |
| 220 | .60 | 540 | .394X1.024 | .197 | 10X26 | 5.0 | .6 | VTL220S50 |
| 330 | .40 | 650 | .512X.787 | .197 | 13X20 | 5.0 | .6 | VTL330S50 |
| 470 | .28 | 800 | .512X.984 | .295 | 13X25 | 7.5 | .8 | VTL470S50 |
| 1000 | .13 | 1250 | .630X1.220 | .295 | 16X31 | 7.5 | .8 | VTL1000S50 |
| **63 WVDC; 80 VDC Surge** | | | | | | | | |
| 4.7 | 28.33 | 35 | .197X.433 | .079 | 5X11 | 2.0 | .5 | VTL4R7S63 |
| 10 | 13.27 | 65 | .236X.433 | .098 | 6X11 | 2.5 | .5 | VTL10S63 |
| 22 | 6.03 | 120 | .315X.472 | .138 | 8X12 | 3.5 | .5 | VTL22S63 |
| 33 | 4.02 | 165 | .315X.472 | .138 | 8X12 | 3.5 | .5 | VTL33S63 |
| 47 | 2.82 | 210 | .394X.512 | .197 | 10X13 | 5.0 | .5 | VTL47S63 |
| 100 | 1.33 | 340 | .394X.630 | .197 | 10X16 | 5.0 | .5 | VTL100S63 |
| 220 | .60 | 580 | .512X.787 | .197 | 13X20 | 5.0 | .5 | VTL220S63 |
| 330 | .40 | 760 | .512X1.181 | .197 | 13X30 | 5.0 | .5 | VTL330S63 |
| 470 | .28 | 900 | .630X1.026 | .295 | 16X26 | 7.5 | .8 | VTL470S63 |
| 1000 | .13 | 1400 | .630X1.496 | .295 | 16X38 | 7.5 | .8 | VTL1000S63 |
| **100 WVDC; 125 VDC Surge** | | | | | | | | |
| .47 | 225.87 | 8 | .197X.433 | .079 | 5X11 | 2.0 | .5 | VTLR47S100 |
| 1 | 106.16 | 15 | .197X.433 | .079 | 5X11 | 2.0 | .5 | VTL1S100 |
| 2.2 | 48.25 | 25 | .197X.433 | .079 | 5X11 | 2.0 | .5 | VTL2R2S100 |
| 3.3 | 32.17 | 35 | .197X.433 | .079 | 5X11 | 2.0 | .5 | VTL3R3S100 |
| 4.7 | 22.59 | 45 | .236X.433 | .098 | 6X11 | 2.5 | .5 | VTL4R7S100 |
| 10 | 10.62 | 80 | .315X.472 | .138 | 8X12 | 3.5 | .5 | VTL10S100 |
| 22 | 4.83 | 140 | .394X.512 | .197 | 10X13 | 5.0 | .6 | VTL22S100 |
| 33 | 3.22 | 195 | .394X.630 | .197 | 10X16 | 5.0 | .6 | VTL33S100 |
| 47 | 2.26 | 250 | .394X.787 | .197 | 10X20 | 5.0 | .6 | VTL47S100 |
| 100 | 1.06 | 420 | .512X.787 | .197 | 13X20 | 5.0 | .6 | VTL100S100 |
| 220 | .48 | 700 | .512X1.220 | .295 | 13X31 | 7.5 | .8 | VTL220S100 |
| 330 | .32 | 900 | .630X1.220 | .295 | 16X31 | 7.5 | .8 | VTL330S100 |
| 470 | .23 | 1100 | .630X1.496 | .295 | 16X38 | 7.5 | .8 | VTL470S100 |

| Cap µF | Max ESR Ohms 120Hz 25 C | Max Ripple mA 120Hz 85 C | Size (inches) D x L | S | Size (mm) D x L | S | d | Catalog Number |
|---|---|---|---|---|---|---|---|---|
| **160 WVDC; 185 VDC Surge** | | | | | | | | |
| 4.7 | 31.35 | 37 | .315X.472 | .138 | 8X12 | 3.5 | .5 | VTL4R7S160 |
| 10 | 14.74 | 70 | .394X.630 | .197 | 10X16 | 5.0 | .6 | VTL10S160 |
| 22 | 6.98 | 126 | .394X.827 | .197 | 10X21 | 5.0 | .6 | VTL22S160 |
| 33 | 4.47 | 165 | .512X.787 | .197 | 13X20 | 5.0 | .6 | VTL33S160 |
| 47 | 3.14 | 230 | .512X1.024 | .295 | 13X26 | 7.5 | .8 | VTL47S160 |
| 100 | 1.47 | 386 | .630X.984 | .295 | 16X25 | 7.5 | .8 | VTL100S160 |
| 220 | .67 | 748 | .709X1.417 | .295 | 18X36 | 7.5 | .8 | VTL220S160 |
| 330 | .45 | 1022 | .866X1.378 | .394 | 22X35 | 10.0 | 1.0 | VTL330S160 |
| **200 WVDC; 250 VDC Surge** | | | | | | | | |
| 3.3 | 44.67 | 36 | .315X.472 | .138 | 8X12 | 3.5 | .5 | VTL3R3S200 |
| 4.7 | 31.35 | 49 | .394X.512 | .197 | 10X13 | 5.0 | .6 | VTL4R7S200 |
| 10 | 14.74 | 79 | .394X.630 | .197 | 10X16 | 5.0 | .6 | VTL10S200 |
| 22 | 6.69 | 137 | .394X1.025 | .197 | 10X26 | 5.0 | .6 | VTL22S200 |
| 33 | 4.46 | 184 | .512X1.025 | .197 | 13X26 | 5.0 | .6 | VTL33S200 |
| 47 | 3.14 | 234 | .512X1.181 | .197 | 13X30 | 5.0 | .6 | VTL47S200 |
| 100 | 1.47 | 450 | .630X1.417 | .295 | 16X36 | 7.5 | .8 | VTL100S200 |
| 150 | .98 | 614 | .709X1.417 | .295 | 18X36 | 7.5 | .8 | VTL150S200 |
| 220 | .67 | 856 | .709X1.575 | .295 | 18X40 | 7.4 | .8 | VTL220S200 |
| **250 WVDC; 300 VDC Surge** | | | | | | | | |
| 1 | 294.70 | 16 | .236X.472 | .098 | 6X12 | 2.5 | .5 | VTL1S250 |
| 2.2 | 134.00 | 24 | .315X.472 | .138 | 8X12 | 3.5 | .5 | VTL2R2S250 |
| 3.3 | 89.31 | 33 | .394X.512 | .197 | 10X13 | 5.0 | .6 | VTL3R3S250 |
| 4.7 | 62.71 | 40 | .394X.512 | .197 | 10X13 | 5.0 | .6 | VTL4R7S250 |
| 10 | 29.47 | 64 | .394X.827 | .197 | 10X21 | 5.0 | .6 | VTL10S250 |
| 22 | 13.40 | 123 | .512X1.025 | .197 | 13X26 | 5.0 | .6 | VTL22S250 |
| 33 | 8.93 | 160 | .512X1.025 | .197 | 13X26 | 5.0 | .6 | VTL33S250 |
| 47 | 6.27 | 219 | .630X.984 | .295 | 16X25 | 7.5 | .8 | VTL47S250 |
| 100 | 2.95 | 389 | .709X1.417 | .295 | 18X36 | 7.5 | .8 | VTL100S250 |