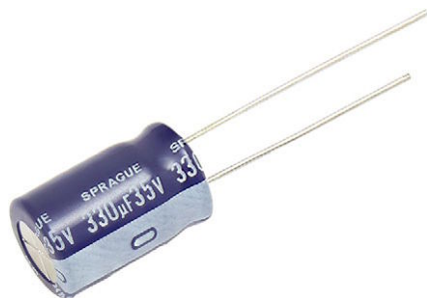




Aluminum Capacitors +85 °C, Miniature, Radial Lead



FEATURES

- High CV per case size
- Low cost
- Material categorization:
for definitions of compliance please see
www.vishay.com/doc?99912



RoHS
COMPLIANT

QUICK REFERENCE DATA

| DESCRIPTION | VALUE |
|---|--|
| Nominal case size Ø D x L in mm | 0.197" x 0.433" [5.0 x 11.0] to 0.709" x 1.575" [18.0 x 40.0] |
| Operating temperature | -40 °C to +85 °C -25 °C to +85 °C for 315 WV _{DC} to 450 WV _{DC} units |
| Rated capacitance range, C _R | 0.1 µF to 18 000 µF |
| Tolerance on C _R | ± 20 % |
| Rated voltage range, U _R | 6.3 WV _{DC} to 450 WV _{DC} |
| Termination | 2 radial leads |
| Life validation test at 85 °C | 2000 h: ΔCAP ± 20 % from initial measurement. ΔDF 2 x initial specified limit. ΔDCL ≤ initial specified limit. |
| Shelf life at 85 °C | 1000 h: ΔCAP ± 20 % from initial measurement. ΔDF 2 x initial specified limit. ΔDCL ≤ initial specified limit. |
| DC leakage current | Rated voltage for 1 and 2 min for 6.3 WV _{DC} to 100 WV _{DC} units: I < 0.03 CV or 4 µA (whichever is greater). I < 0.04 CV or 3 µA (whichever is greater). Rated voltage for 1 min for 160 WV _{DC} to 450 WV _{DC} units: I < 0.1 CV + 40 µA and CV ≤ 1000; I < 0.04 CV + 100 µA and CV > 1000 |

RIPPLE CURRENT MULTIPLIERS

| TEMPERATURE | | | | | | |
|---------------------|----------------|-------------|---------------|---------------|-------|----------|
| AMBIENT TEMPERATURE | | MULTIPLIERS | | | | |
| ≤ +70 °C | | 1.27 | | | | |
| +85 °C | | 1.0 | | | | |
| FREQUENCY (Hz) | | | | | | |
| WV _{DC} | CAP. (µF) | 50 TO 60 | 100 TO 120 | 300 TO 400 | 1 kHz | ≥ 10 kHz |
| 6.3 to 100 | 0 to 47 | 0.75 | 1 | 1.35 | 1.57 | 2.00 |
| | 100 to 470 | 0.80 | 1 | 1.23 | 1.34 | 1.50 |
| | 1000 to 18 000 | 0.85 | 1 | 1.10 | 1.13 | 1.15 |
| 160 to 450 | 0.47 to 220 | 0.80 | 1 | 1.25 | 1.40 | 1.60 |

LOW TEMPERATURE PERFORMANCE

| MAXIMUM IMPEDANCE RATIO Z ^(T) / Z ^(+20 °C) MAXIMUM AT 120 Hz | | |
|---|-----------------------|-----------------------|
| RATED VOLTAGE (WV _{DC}) | Z - 25 °C / Z + 20 °C | Z - 40 °C / Z + 20 °C |
| 6.3 | 4.0 | 10.0 |
| 10.0 | 3.0 | 8.0 |
| 16.0 | 2.0 | 6.0 |
| 25.0 | 2.0 | 4.0 |
| 35.0 to 100.0 | 2.0 | 3.0 |
| 160.0 to 200.0 | 3.0 | 4.0 |
| 250.0 | 3.0 | 6.0 |
| 315.0 to 400.0 | 6.0 | - |
| 450.0 | 15.0 | - |

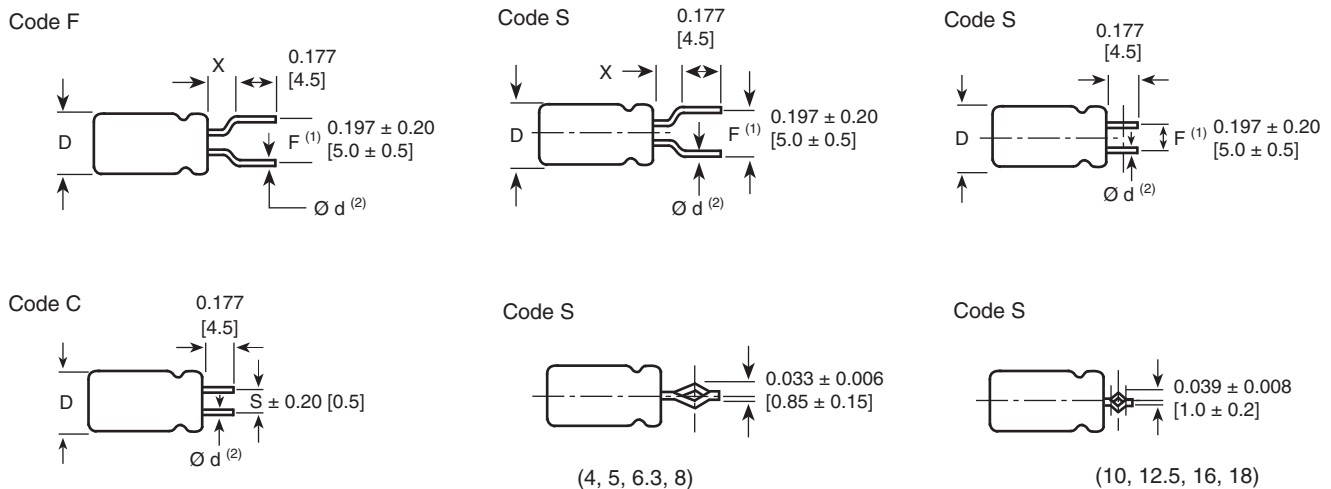
DIMENSIONS in inches [millimeters]

| CASE CODE | NOMINAL CASE SIZE D x L | LEAD SPACING S | NOMINAL LEAD DIAMETER D | TYPICAL WEIGHT (g) |
|-----------|-----------------------------|-------------------|----------------------------|-----------------------|
| JA | 0.197 x 0.433 [5.0 x 11.0] | 0.079 [2.0] | 0.020 [0.50] | 0.44 |
| AA | 0.248 x 0.433 [6.3 x 11.0] | 0.098 [2.5] | 0.020 [0.50] | 0.60 |
| BB | 0.315 x 0.453 [8.0 x 11.5] | 0.138 [3.5] | 0.024 [0.60] | 0.95 |
| CC | 0.394 x 0.492 [10.0 x 12.5] | 0.197 [5.0] | 0.024 [0.60] | 1.48 |
| CD | 0.394 x 0.630 [10.0 x 16.0] | 0.197 [5.0] | 0.024 [0.60] | 1.75 |
| CG | 0.394 x 0.787 [10.0 x 20.0] | 0.197 [5.0] | 0.024 [0.60] | 2.37 |



| DIMENSIONS in inches [millimeters] | | | | |
|------------------------------------|-----------------------------|----------------|-------------------------|--------------------|
| CASE CODE | NOMINAL CASE SIZE D x L | LEAD SPACING S | NOMINAL LEAD DIAMETER D | TYPICAL WEIGHT (g) |
| DG | 0.492 x 0.787 [12.5 x 20.0] | 0.197 [5.0] | 0.024 [0.60] | 3.73 |
| DK | 0.492 x 0.984 [12.5 x 25.0] | 0.197 [5.0] | 0.024 [0.60] | 4.85 |
| EK | 0.630 x 0.984 [16.0 x 25.0] | 0.295 [7.5] | 0.031 [0.80] | 7.08 |
| EN | 0.630 x 1.240 [16.0 x 31.5] | 0.295 [7.5] | 0.031 [0.80] | 8.94 |
| ER | 0.630 x 1.398 [16.0 x 35.5] | 0.295 [7.5] | 0.031 [0.80] | 10.50 |
| FR | 0.709 x 1.398 [18.0 x 35.5] | 0.295 [7.5] | 0.031 [0.80] | 12.53 |
| FV | 0.709 x 1.575 [18.0 x 40.0] | 0.295 [7.5] | 0.031 [0.80] | 15.71 |

ELECTROLYTIC CAPACITOR WITH CUT OR FORMED LEADS in inches [millimeters]



| DIMENSIONS in inches [millimeters] | | | | | | |
|------------------------------------|------------------|--------------|-------------|-------------|------------------|-------------|
| FORMING METHOD | FORMED LEAD CODE | DIMENSIONS | | | | |
| | | D | L.S. | P | e ⁽³⁾ | X (Max.) |
| Formed and cut | F | 0.197 [5.0] | 0.197 [5.0] | 0.079 [2.0] | - | 0.059 [1.5] |
| | | 0.248 [6.3] | 0.197 [5.0] | 0.098 [2.5] | - | 0.098 [2.5] |
| | | 0.315 [8.0] | 0.197 [5.0] | 0.138 [3.5] | - | 0.098 [2.5] |
| Cut | C | 0.394 [10.0] | 0.197 [5.0] | - | - | - |
| | | 0.492 [12.5] | 0.197 [5.0] | - | - | - |
| | | 0.630 [16.0] | 0.295 [7.5] | - | - | - |
| | | 0.709 [18.0] | 0.295 [7.5] | - | - | - |
| Snap-in | S | 0.197 [5.0] | 0.197 [5.0] | 0.079 [2.0] | 0.043 [1.1] | 0.059 [1.5] |
| | | 0.248 [6.3] | 0.197 [5.0] | 0.098 [2.5] | 0.043 [1.1] | 0.059 [1.5] |
| | | 0.315 [8.0] | 0.197 [5.0] | 0.138 [3.5] | 0.051 [1.3] | 0.059 [1.5] |
| | | 0.394 [10.0] | 0.197 [5.0] | - | 0.051 [1.3] | - |
| | | 0.492 [12.5] | 0.197 [5.0] | - | 0.051 [1.3] | - |
| | | 0.630 [16.0] | 0.295 [7.5] | - | 0.051 [1.3] | - |
| 0.709 [18.0] | 0.295 [7.5] | - | 0.051 [1.3] | - | | |

Notes

- Coding of cut or formed lead to be added to the end of type number in 15th position (with position 14 coded "6")
- (1) Formed lead
- (2) Lead thickness Ø d depends on capacitor specification
- (3) Lead protrusion at bottom of tape

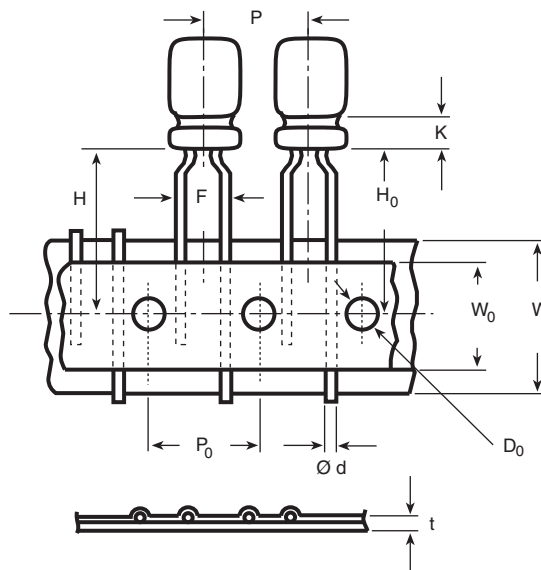
| TAPED CAPACITORS FOR AUTOMATIC INSERTION SYSTEMS in inches [millimeters] | | | | | |
|--|--|----------------------------|---------------|---------------|---|
| PACKAGING | LEAD CODE 14 th AND 15 th DIGITS OF PN | SPECIFICATION | | LEAD SPACE | CAPACITOR SIZES AVAILABLE |
| | | LEAD STYLE | + - LEADER | | |
| Ammo pack | 8P | Formed lead ⁽¹⁾ | - | 0.197 [5.0] | 0.197 x 0.433 - 0.492 x 0.787 [5.0 x 11.0 - 12.5 x 20.0] Case codes JA, AA, BB, CC, CD, DG |

Notes

- The ammo pack code is to be added at the end of part number in the 14th and 15th position as 8P. To specify formed, cut or snap-in leads and for tape and ammo, both positions 14 and 15 of the type number must be filled in with the proper codes
- ⁽¹⁾ Except 0.394 [10.0 mm] and 0.492 [12.5 mm] diameter have straight unformed leads

TAPING SPECIFICATIONS in inches [millimeters]

Formed Lead Type



| DIMENSIONS in inches [millimeters] | | | | | |
|--|----------------------------------|-------------------------------|-------------------------------|------------------------|------------------------|
| ITEM | CASE SIZE (Diameter x Length) | | | | |
| | FORMED LEAD TYPE | | | STRAIGHT LEAD TYPE | |
| | 0.197 x 0.433 [5.0 x 11.0] | 0.248 x 0.433 [6.3 x 11.0] | 0.315 x 0.453 [8.0 x 11.5] | 0.394 [10.0] (Dia.) | 0.492 [12.5] (Dia.) |
| Ø d - Lead-wire diameter | 0.020 [0.5] | 0.020 [0.5] | 0.024 [0.6] | 0.024 [0.6] | 0.024 [0.6] |
| P - Pitch of component | 0.500 [12.7] | 0.500 [12.7] | 0.500 [12.7] | 0.500 [12.7] | 0.591 [15.0] |
| P ₀ - Feed hole pitch | 0.500 [12.7] | 0.500 [12.7] | 0.500 [12.7] | 0.500 [12.7] | 0.591 [15.0] |
| F - Lead-to-lead distance | 0.197 [5.0] | 0.197 [5.0] | 0.197 [5.0] | 0.197 [5.0] | 0.197 [5.0] |
| K - Clinch height | 0.098 [2.5] | 0.098 [2.5] | 0.157 [4.0] | - | - |
| H - Height of component | 0.728 [18.5] | 0.728 [18.5] | 0.787 [20.0] | 0.728 [18.5] | 0.630 [16.0] |
| H ₀ - Lead-wire clinch height | 0.630 [16.0] | 0.630 [16.0] | 0.630 [16.0] | - | - |
| W - Tape width | 0.709 [18.0] | 0.709 [18.0] | 0.709 [18.0] | 0.709 [18.0] | 0.709 [18.0] |
| W ₀ - Hold down tape width | 0.512 [13.0] | 0.512 [13.0] | 0.512 [13.0] | 0.512 [13.0] | 0.512 [13.0] |
| D ₀ - Feed hole diameter | 0.157 [4.0] | 0.157 [4.0] | 0.157 [4.0] | 0.157 [4.0] | 0.157 [4.0] |
| t - Total tape thickness | 0.157 [4.0] | 0.157 [4.0] | 0.157 [4.0] | 0.157 [4.0] | 0.157 [4.0] |

**ORDERING EXAMPLE**

Electrolytic capacitor 515D series: 515D 107 M 6R3 JA 6 A E3

| DESCRIPTION | |
|-------------|---------------------------------------|
| CODE | EXPLANATION |
| 515D | Product type |
| 107 | Capacitance value (100 μ F) |
| M | Tolerance (M = \pm 20 %) |
| 6R3 | Voltage rating at 85 °C (6R3 = 6.3 V) |
| JA | Can size (see Dimensions table) |
| 6 | Packaging (bulk) |
| A | Lead style (uncut) |
| E3 | RoHS compliant indicator |

PACKING AND LEAD STYLES

| | |
|----|---|
| 6A | Bulk, uncut leads |
| 6C | Bulk, cut leads |
| 6F | Bulk; formed and cut leads |
| 6S | Bulk, snap-in leads |
| 8P | Ammopack (case codes JA, AA, BB, CC, CD, CG, DG only) |

| ELECTRICAL DATA AND ORDERING INFORMATION | | | | |
|---|-------------------|-----------------------------|---|--------------------------------|
| CAPACITANCE (μ F) | PART NUMBER | NOMINAL CASE SIZE D x L | MAX. RIPPLE AT +85 °C 120 Hz (mA) | MAX. DF AT +20 °C 120 Hz |
| 6.3 WV_{DC} AT +85 °C, SURGE = 8 V | | | | |
| 22.0 | 515D226M6R3JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 34.0 | 0.24 |
| 33.0 | 515D336M6R3JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 42.0 | 0.24 |
| 47.0 | 515D476M6R3JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 50.0 | 0.24 |
| 100.0 | 515D107M6R3JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 77.0 | 0.24 |
| 220.0 | 515D227M6R3AA6AE3 | 0.248 x 0.433 [6.3 x 11.0] | 215.0 | 0.24 |
| 330.0 | 515D337M6R3AA6AE3 | 0.248 x 0.433 [6.3 x 11.0] | 265.0 | 0.24 |
| 470.0 | 515D477M6R3BB6AE3 | 0.315 x 0.453 [8.0 x 11.5] | 360.0 | 0.24 |
| 1000.0 | 515D108M6R3CC6AE3 | 0.394 x 0.492 [10.0 x 12.5] | 570.0 | 0.24 |
| 2200.0 | 515D228M6R3DG6AE3 | 0.492 x 0.787 [12.5 x 20.0] | 1050.0 | 0.24 |
| 3300.0 | 515D338M6R3DG6AE3 | 0.492 x 0.787 [12.5 x 20.0] | 1250.0 | 0.24 |
| 4700.0 | 515D478M6R3EK6AE3 | 0.630 x 0.984 [16.0 x 25.0] | 1700.0 | 0.24 |
| 6800.0 | 515D688M6R3EK6AE3 | 0.630 x 0.984 [16.0 x 25.0] | 1900.0 | 0.24 |
| 10 000.0 | 515D109M6R3EN6AE3 | 0.630 x 1.240 [16.0 x 31.5] | 2250.0 | 0.24 |
| 15 000.0 | 515D159M6R3FR6AE3 | 0.709 x 1.398 [18.0 x 35.5] | 2680.0 | 0.24 |
| 18 000.0 | 515D189M6R3FV6AE3 | 0.709 x 1.575 [18.0 x 40.0] | 2750.0 | 0.24 |
| 10 WV_{DC} AT +85 °C, SURGE = 13 V | | | | |
| 22.0 | 515D226M010JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 38.0 | 0.20 |
| 33.0 | 515D336M010JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 47.0 | 0.20 |
| 47.0 | 515D476M010JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 59.0 | 0.20 |
| 100.0 | 515D107M010JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 145.0 | 0.20 |
| 220.0 | 515D227M010AA6AE3 | 0.248 x 0.433 [6.3 x 11.0] | 230.0 | 0.20 |
| 330.0 | 515D337M010BB6AE3 | 0.315 x 0.453 [8.0 x 11.5] | 330.0 | 0.20 |
| 470.0 | 515D477M010BB6AE3 | 0.315 x 0.453 [8.0 x 11.5] | 390.0 | 0.20 |
| 1000.0 | 515D108M010CD6AE3 | 0.394 x 0.630 [10.0 x 16.0] | 630.0 | 0.20 |
| 2200.0 | 515D228M010DG6AE3 | 0.492 x 0.787 [12.5 x 20.0] | 1100.0 | 0.20 |
| 3300.0 | 515D338M010DK6AE3 | 0.492 x 0.984 [12.5 x 25.0] | 1400.0 | 0.20 |
| 4700.0 | 515D478M010EK6AE3 | 0.630 x 0.984 [16.0 x 25.0] | 1800.0 | 0.20 |
| 6800.0 | 515D688M010EN6AE3 | 0.630 x 1.240 [16.0 x 31.5] | 2150.0 | 0.20 |
| 10 000.0 | 515D109M010FR6AE3 | 0.709 x 1.398 [18.0 x 35.5] | 2500.0 | 0.20 |
| 15 000.0 | 515D159M010FV6AE3 | 0.709 x 1.575 [18.0 x 40.0] | 2720.0 | 0.20 |
| 16 WV_{DC} AT +85 °C, SURGE = 20 V | | | | |
| 10.0 | 515D106M016JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 28.0 | 0.16 |
| 22.0 | 515D226M016JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 44.0 | 0.16 |
| 33.0 | 515D336M016JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 57.0 | 0.16 |
| 47.0 | 515D476M016JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 168.0 | 0.16 |



| ELECTRICAL DATA AND ORDERING INFORMATION | | | | |
|---|-------------------|-----------------------------|---|--------------------------------|
| CAPACITANCE (μ F) | PART NUMBER | NOMINAL CASE SIZE D x L | MAX. RIPPLE AT +85 °C 120 Hz (mA) | MAX. DF AT +20 °C 120 Hz |
| 16 WV_{DC} AT +85 °C, SURGE = 20 V | | | | |
| 100.0 | 515D107M016AA6AE3 | 0.248 x 0.433 [6.3 x 11.0] | 175.0 | 0.16 |
| 220.0 | 515D227M016BB6AE3 | 0.315 x 0.453 [8.0 x 11.5] | 300.0 | 0.16 |
| 330.0 | 515D337M016BB6AE3 | 0.315 x 0.453 [8.0 x 11.5] | 360.0 | 0.16 |
| 470.0 | 515D477M016CC6AE3 | 0.394 x 0.492 [10.0 x 12.5] | 470.0 | 0.16 |
| 1000.0 | 515D108M016CG6AE3 | 0.394 x 0.787 [10.0 x 20.0] | 790.0 | 0.16 |
| 2200.0 | 515D228M016DK6AE3 | 0.492 x 0.984 [12.5 x 25.0] | 1350.0 | 0.16 |
| 3300.0 | 515D338M016EK6AE3 | 0.630 x 0.984 [16.0 x 25.0] | 1700.0 | 0.16 |
| 4700.0 | 515D478M016EN6AE3 | 0.630 x 1.240 [16.0 x 31.5] | 2100.0 | 0.16 |
| 6800.0 | 515D688M016FR6AE3 | 0.709 x 1.398 [18.0 x 35.5] | 2500.0 | 0.16 |
| 10 000.0 | 515D109M016FV6AE3 | 0.709 x 1.575 [18.0 x 40.0] | 2640.0 | 0.16 |
| 25 WV_{DC} AT +85 °C, SURGE = 32 V | | | | |
| 4.7 | 515D475M025JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 30.0 | 0.14 |
| 10.0 | 515D106M025JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 33.0 | 0.14 |
| 22.0 | 515D226M025JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 51.0 | 0.14 |
| 33.0 | 515D336M025JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 63.0 | 0.14 |
| 47.0 | 515D476M025JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 115.0 | 0.14 |
| 100.0 | 515D107M025AA6AE3 | 0.248 x 0.433 [6.3 x 11.0] | 185.0 | 0.14 |
| 220.0 | 515D227M025BB6AE3 | 0.315 x 0.453 [8.0 x 11.5] | 320.0 | 0.14 |
| 330.0 | 515D337M025CC6AE3 | 0.394 x 0.492 [10.0 x 12.5] | 420.0 | 0.14 |
| 470.0 | 515D477M025CD6AE3 | 0.394 x 0.630 [10.0 x 16.0] | 540.0 | 0.14 |
| 1000.0 | 515D108M025DG6AE3 | 0.492 x 0.787 [12.5 x 20.0] | 950.0 | 0.14 |
| 2200.0 | 515D228M025EK6AE3 | 0.630 x 0.984 [16.0 x 25.0] | 1550.0 | 0.14 |
| 3300.0 | 515D338M025EN6AE3 | 0.630 x 1.240 [16.0 x 31.5] | 1950.0 | 0.14 |
| 4700.0 | 515D478M025FR6AE3 | 0.709 x 1.398 [18.0 x 35.5] | 2360.0 | 0.14 |
| 35 WV_{DC} AT +85 °C, SURGE = 44 V | | | | |
| 4.7 | 515D475M035JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 24.0 | 0.12 |
| 10.0 | 515D106M035JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 36.0 | 0.12 |
| 22.0 | 515D226M035JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 57.0 | 0.12 |
| 33.0 | 515D336M035JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 105.0 | 0.12 |
| 47.0 | 515D476M035AA6AE3 | 0.248 x 0.433 [6.3 x 11.0] | 140.0 | 0.12 |
| 100.0 | 515D107M035BB6AE3 | 0.315 x 0.453 [8.0 x 11.5] | 230.0 | 0.12 |
| 220.0 | 515D227M035CC6AE3 | 0.394 x 0.492 [10.0 x 12.5] | 370.0 | 0.12 |
| 330.0 | 515D337M035CD6AE3 | 0.394 x 0.630 [10.0 x 16.0] | 490.0 | 0.12 |
| 470.0 | 515D477M035CG6AE3 | 0.394 x 0.787 [10.0 x 20.0] | 640.0 | 0.12 |
| 1000.0 | 515D108M035DK6AE3 | 0.492 x 0.984 [12.5 x 25.0] | 1100.0 | 0.12 |
| 2200.0 | 515D228M035EN6AE3 | 0.630 x 1.240 [16.0 x 31.5] | 1850.0 | 0.12 |
| 3300.0 | 515D338M035FR6AE3 | 0.709 x 1.382 [18.0 x 35.5] | 2220.0 | 0.12 |
| 4700.0 | 515D478M035FV6AE3 | 0.709 x 1.575 [18.0 x 40.0] | 2490.0 | 0.12 |
| 50 WV_{DC} AT +85 °C, SURGE = 63 V | | | | |
| 0.10 | 515D104M050JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 1.0 | 0.10 |
| 0.22 | 515D224M050JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 2.3 | 0.10 |
| 0.33 | 515D334M050JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 3.5 | 0.10 |
| 0.47 | 515D474M050JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 5.0 | 0.10 |
| 1.0 | 515D105M050JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 10.0 | 0.10 |
| 2.2 | 515D225M050JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 19.0 | 0.10 |
| 3.3 | 515D335M050JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 24.0 | 0.10 |
| 4.7 | 515D475M050JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 29.0 | 0.10 |
| 10.0 | 515D106M050JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 44.0 | 0.10 |
| 22.0 | 515D226M050JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 95.0 | 0.10 |
| 33.0 | 515D336M050AA6AE3 | 0.248 x 0.433 [6.3 x 11.0] | 125.0 | 0.10 |
| 47.0 | 515D476M050AA6AE3 | 0.248 x 0.433 [6.3 x 11.0] | 150.0 | 0.10 |
| 100.0 | 515D107M050BB6AE3 | 0.315 x 0.453 [8.0 x 11.5] | 250.0 | 0.10 |
| 220.0 | 515D227M050CD6AE3 | 0.394 x 0.630 [10.0 x 16.0] | 440.0 | 0.10 |
| 330.0 | 515D337M050CG6AE3 | 0.394 x 0.787 [10.0 x 20.0] | 580.0 | 0.10 |
| 470.0 | 515D477M050DG6AE3 | 0.492 x 0.787 [12.5 x 20.0] | 760.0 | 0.10 |
| 1000.0 | 515D108M050EK6AE3 | 0.630 x 0.984 [16.0 x 25.0] | 1350.0 | 0.10 |
| 2200.0 | 515D228M050FR6AE3 | 0.709 x 1.398 [18.0 x 35.5] | 2090.0 | 0.10 |



| ELECTRICAL DATA AND ORDERING INFORMATION | | | | |
|---|--------------------|------------------------------------|--|---|
| CAPACITANCE (μF) | PART NUMBER | NOMINAL CASE SIZE D x L | MAX. RIPPLE AT +85 °C 120 Hz (mA) | MAX. DF AT +20 °C 120 Hz |
| 63 WV_{DC} AT +85 °C, SURGE = 79 V | | | | |
| 4.7 | 515D475M063JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 45.0 | 0.08 |
| 10.0 | 515D106M063JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 70.0 | 0.08 |
| 22.0 | 515D226M063AA6AE3 | 0.248 x 0.433 [6.3 x 11.0] | 115.0 | 0.08 |
| 33.0 | 515D336M063AA6AE3 | 0.248 x 0.433 [6.3 x 11.0] | 140.0 | 0.08 |
| 47.0 | 515D476M063BB6AE3 | 0.315 x 0.453 [8.0 x 11.5] | 190.0 | 0.08 |
| 100.0 | 515D107M063CC6AE3 | 0.394 x 0.492 [10.0 x 12.5] | 300.0 | 0.08 |
| 220.0 | 515D227M063CG6AE3 | 0.394 x 0.787 [10.0 x 20.0] | 490.0 | 0.08 |
| 330.0 | 515D337M063DG6AE3 | 0.492 x 0.787 [12.5 x 20.0] | 680.0 | 0.08 |
| 470.0 | 515D477M063DK6AE3 | 0.492 x 0.984 [12.5 x 25.0] | 880.0 | 0.08 |
| 1000.0 | 515D108M063EN6AE3 | 0.630 x 1.240 [16.0 x 31.5] | 1550.0 | 0.08 |
| 2200.0 | 515D228M063FV6AE3 | 0.709 x 1.575 [18.0 x 40.0] | 2200.0 | 0.08 |
| 100 WV_{DC} AT +85 °C, SURGE = 125 V | | | | |
| 0.10 | 515D104M100JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 2.1 | 0.08 |
| 0.22 | 515D224M100JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 4.7 | 0.08 |
| 0.33 | 515D334M100JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 7.0 | 0.08 |
| 0.47 | 515D474M100JA6AE3 | 0.197 x .0433 [5.0 x 11.0] | 10.0 | 0.08 |
| 1.0 | 515D105M100JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 21.0 | 0.08 |
| 2.2 | 515D225M100JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 30.0 | 0.08 |
| 3.3 | 515D335M100JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 40.0 | 0.08 |
| 4.7 | 515D475M100JA6AE3 | 0.197 x 0.433 [5.0 x 11.0] | 45.0 | 0.08 |
| 10.0 | 515D106M100AA6AE3 | 0.248 x 0.433 [6.3 x 11.0] | 75.0 | 0.08 |
| 22.0 | 515D226M100BB6AE3 | 0.315 x 0.453 [8.0 x 11.5] | 130.0 | 0.08 |
| 33.0 | 515D336M100CC6AE3 | 0.394 x 0.492 [10.0 x 12.5] | 170.0 | 0.08 |
| 47.0 | 515D476M100CD6AE3 | 0.394 x 0.630 [10.0 x 16.0] | 230.0 | 0.08 |
| 100.0 | 515D107M100DG6AE3 | 0.492 x 0.787 [12.5 x 20.0] | 400.0 | 0.08 |
| 220.0 | 515D227M100EK6AE3 | 0.630 x 0.984 [16.0 x 25.0] | 710.0 | 0.08 |
| 330.0 | 515D337M100EK6AE3 | 0.630 x 0.984 [16.0 x 25.0] | 860.0 | 0.08 |
| 470.0 | 515D477M100EN6AE3 | 0.630 x 1.240 [16.0 x 31.5] | 1100.0 | 0.08 |
| 1000.0 | 515D108M100FV6AE3 | 0.709 x 1.575 [18.0 x 40.0] | 1690.0 | 0.08 |
| 160 WV_{DC} AT +85 °C, SURGE = 200 V | | | | |
| 0.47 | 515D474M160AA6AE3 | 0.248 x 0.433 [6.3 x 11.0] | 12.0 | 0.20 |
| 1.0 | 515D105M160AA6AE3 | 0.248 x 0.433 [6.3 x 11.0] | 17.0 | 0.20 |
| 2.2 | 515D225M160AA6AE3 | 0.248 x 0.433 [6.3 x 11.0] | 26.0 | 0.20 |
| 3.3 | 515D335M160BB6AE3 | 0.315 x 0.453 [8.0 x 11.5] | 35.0 | 0.20 |
| 4.7 | 515D475M160BB6AE3 | 0.315 x 0.453 [8.0 x 11.5] | 40.0 | 0.20 |
| 10.0 | 515D106M160CC6AE3 | 0.394 x 0.492 [10.0 x 12.5] | 65.0 | 0.20 |
| 22.0 | 515D226M160CG6AE3 | 0.394 x 0.787 [10.0 x 20.0] | 110.0 | 0.20 |
| 33.0 | 515D336M160DG6AE3 | 0.492 x 0.787 [12.5 x 20.0] | 150.0 | 0.20 |
| 47.0 | 515D476M160DK6AE3 | 0.492 x 0.984 [12.5 x 25.0] | 180.0 | 0.20 |
| 100.0 | 515D107M160EK6AE3 | 0.630 x 0.984 [16.0 x 25.0] | 300.0 | 0.20 |
| 220.0 | 515D227M160FR6AE3 | 0.709 x 1.398 [18.0 x 35.5] | 510.0 | 0.20 |
| 200 WV_{DC} AT +85 °C, SURGE = 250 V | | | | |
| 0.47 | 515D474M200AA6AE3 | 0.248 x 0.433 [6.3 x 11.0] | 12.0 | 0.20 |
| 1.0 | 515D105M200AA6AE3 | 0.248 x 0.433 [6.3 x 11.0] | 17.0 | 0.20 |
| 2.2 | 515D225M200AA6AE3 | 0.248 x 0.433 [6.3 x 11.0] | 26.0 | 0.20 |
| 3.3 | 515D335M200BB6AE3 | 0.315 x 0.453 [8.0 x 11.5] | 35.0 | 0.20 |
| 4.7 | 515D475M200CC6AE3 | 0.394 x 0.492 [10.0 x 12.5] | 45.0 | 0.20 |
| 10.0 | 515D106M200CD6AE3 | 0.394 x 0.630 [10.0 x 16.0] | 70.0 | 0.20 |
| 22.0 | 515D226M200CG6AE3 | 0.394 x 0.787 [10.0 x 20.0] | 110.0 | 0.20 |
| 33.0 | 515D336M200DK6AE3 | 0.492 x 0.984 [12.5 x 25.0] | 160.0 | 0.20 |
| 47.0 | 515D476M200DK6AE3 | 0.492 x 0.984 [12.5 x 25.0] | 180.0 | 0.20 |
| 100.0 | 515D107M200EN6AE3 | 0.630 x 1.240 [16.0 x 31.5] | 330.0 | 0.20 |
| 220.0 | 515D227M200FV6AE3 | 0.709 x 1.575 [18.0 x 40.0] | 520.0 | 0.20 |



| ELECTRICAL DATA AND ORDERING INFORMATION | | | | |
|---|--------------------|------------------------------------|--|---|
| CAPACITANCE (μF) | PART NUMBER | NOMINAL CASE SIZE D x L | MAX. RIPPLE AT +85 °C 120 Hz (mA) | MAX. DF AT +20 °C 120 Hz |
| 250 WV_{DC} AT +85 °C, SURGE = 300 V | | | | |
| 0.47 | 515D474M250AA6AE3 | 0.248 x 0.433 [6.3 x 11.0] | 12.0 | 0.20 |
| 1.0 | 515D105M250AA6AE3 | 0.248 x 0.433 [6.3 x 11.0] | 17.0 | 0.20 |
| 2.2 | 515D225M250BB6AE3 | 0.315 x 0.453 [8.0 x 11.5] | 30.0 | 0.20 |
| 3.3 | 515D335M250CC6AE3 | 0.394 x 0.492 [10.0 x 12.5] | 35.0 | 0.20 |
| 4.7 | 515D475M250CC6AE3 | 0.394 x 0.492 [10.0 x 12.5] | 45.0 | 0.20 |
| 10.0 | 515D106M250CG6AE3 | 0.394 x 0.787 [10.0 x 20.0] | 70.0 | 0.20 |
| 33.0 | 515D336M250DK6AE3 | 0.492 x 0.984 [12.5 x 25.0] | 160.0 | 0.20 |
| 47.0 | 515D476M250EK6AE3 | 0.630 x 1.240 [16.0 x 31.5] | 210.0 | 0.20 |
| 100.0 | 515D107M250FR6AE3 | 0.709 x 1.575 [18.0 x 40.0] | 340.0 | 0.20 |
| 315 WV_{DC} AT +85 °C, SURGE = 365 V | | | | |
| 1.0 | 515D105M315AA6AE3 | 0.248 x 0.433 [6.3 x 11.0] | 17.0 | 0.20 |
| 2.2 | 515D225M315BB6AE3 | 0.315 x 0.453 [8.0 x 11.5] | 30.0 | 0.20 |
| 3.3 | 515D335M315CC6AE3 | 0.394 x 0.492 [10.0 x 12.5] | 35.0 | 0.20 |
| 4.7 | 515D475M315CD6AE3 | 0.394 x 0.630 [10.0 x 16.0] | 45.0 | 0.20 |
| 10.0 | 515D106M315CG6AE3 | 0.394 x 0.787 [10.0 x 20.0] | 70.0 | 0.20 |
| 22.0 | 515D226M315DK6AE3 | 0.492 x 0.984 [12.5 x 25.0] | 120.0 | 0.20 |
| 33.0 | 515D336M315EK6AE3 | 0.630 x 0.984 [16.0 x 25.0] | 150.0 | 0.20 |
| 47.0 | 515D476M315EN6AE3 | 0.630 x 1.240 [16.0 x 31.5] | 190.0 | 0.20 |
| 100.0 | 515D107M315FV6AE3 | 0.709 x 1.575 [18.0 x 40.0] | 340.0 | 0.20 |
| 350 WV_{DC} AT +85 °C, SURGE = 400 V | | | | |
| 1.0 | 515D105M350BB6AE3 | 0.315 x 0.453 [8.0 x 11.5] | 18.0 | 0.25 |
| 2.2 | 515D225M350CC6AE3 | 0.394 x 0.492 [10.0 x 12.5] | 28.0 | 0.25 |
| 3.3 | 515D335M350CD6AE3 | 0.394 x 0.630 [10.0 x 16.0] | 35.0 | 0.25 |
| 4.7 | 515D475M350CD6AE3 | 0.394 x 0.630 [10.0 x 16.0] | 40.0 | 0.25 |
| 10.0 | 515D106M350DG6AE3 | 0.492 x 0.787 [12.5 x 20.0] | 70.0 | 0.25 |
| 22.0 | 515D226M350DK6AE3 | 0.492 x 0.984 [12.5 x 25.0] | 110.0 | 0.25 |
| 33.0 | 515D336M350EN6AE3 | 0.630 x 1.240 [16.0 x 31.5] | 140.0 | 0.25 |
| 47.0 | 515D476M350FR6AE3 | 0.709 x 1.398 [18.0 x 35.5] | 220.0 | 0.25 |
| 400 WV_{DC} AT +85 °C, SURGE = 450 V | | | | |
| 1.0 | 515D105M400BB6AE3 | 0.315 x 0.453 [8.0 x 11.5] | 18.0 | 0.25 |
| 2.2 | 515D225M400CC6AE3 | 0.394 x 0.492 [10.0 x 12.5] | 28.0 | 0.25 |
| 3.3 | 515D335M400CD6AE3 | 0.394 x 0.630 [10.0 x 16.0] | 35.0 | 0.25 |
| 4.7 | 515D475M400CD6AE3 | 0.394 x 0.787 [10.0 x 20.0] | 45.0 | 0.25 |
| 10.0 | 515D106M400DG6AE3 | 0.492 x 0.787 [12.5 x 20.0] | 70.0 | 0.25 |
| 22.0 | 515D226M400DK6AE3 | 0.630 x 0.984 [16.0 x 25.0] | 110.0 | 0.25 |
| 33.0 | 515D336M400EN6AE3 | 0.630 x 1.240 [16.0 x 31.5] | 140.0 | 0.25 |
| 47.0 | 515D476M400FR6AE3 | 0.709 x 1.398 [18.0 x 35.5] | 220.0 | 0.25 |
| 450 WV_{DC} AT +85 °C, SURGE = 500 V | | | | |
| 1.0 | 515D105M450CC6AE3 | 0.394 x 0.492 [10.0 x 12.5] | 19.0 | 0.25 |
| 2.2 | 515D225M450CD6AE3 | 0.394 x 0.630 [10.0 x 16.0] | 29.0 | 0.25 |
| 4.7 | 515D475M450DG6AE3 | 0.492 x 0.787 [12.5 x 20.0] | 50.0 | 0.25 |
| 10.0 | 515D106M450EK6AE3 | 0.492 x 0.984 [12.5 x 25.0] | 75.0 | 0.25 |
| 22.0 | 515D226M450EN6AE3 | 0.630 x 1.240 [16.0 x 31.5] | 110.0 | 0.25 |
| 33.0 | 515D336M450FR6AE3 | 0.709 x 1.398 [18.0 x 35.5] | 170.0 | 0.25 |

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