

Aluminum Capacitors +85 °C, Tubular, Axial Lead, General Purpose



FEATURES

- General purpose capacitor
- Rugged construction
- Largest CV ratings in axial lead capacitor
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912



| QUICK REFERENCE DATA | |
|--|--|
| DESCRIPTION | VALUE |
| Nominal case size Ø D x L in mm | 0.75" x 1.125" [19.05 x 28.575] to 1.375" x 4.125" [34.925 x 104.775] |
| Operating temperature | -40 °C to +85 °C |
| Rated capacitance range, C _R | 15 µF to 220 000 µF |
| Tolerance on C _R | -10 %, +50 %; -10 %, +75 % |
| Rated voltage range, U _R | 6.3 WV _{DC} to 450 WV _{DC} |
| Termination | Axial leads |
| Life validation test at 85 °C | 1000 h: ΔCAP ≤ 15 % from initial measurement. ΔESR ≤ 1.5 x initial specified limit. ΔDCL ≤ initial specified limit. |
| Shelf life at 85 °C | 500 h: ΔCAP ≤ 10 % from initial measurement. ΔESR ≤ 1.3 x initial specified limit. ΔDCL ≤ 2.0 x initial specified limit. |
| DC leakage current (after 5 min charge) | $I = k\sqrt{CV}$ k = 6.0 at +25 °C; k = 36.0 at +85 °C I in µA, C in µF, V in Volts |

| RIPPLE CURRENT MULTIPLIERS | | | |
|----------------------------|----------|-------------|-------------|
| TEMPERATURE | | | |
| AMBIENT TEMPERATURE | | MULTIPLIERS | |
| +75 °C | | 1.4 | |
| +65 °C | | 1.7 | |
| +45 °C and below | | 2.0 | |
| FREQUENCY (Hz) | | | |
| WV _{DC} | 50 TO 60 | 300 TO 400 | 1000 AND UP |
| 0 to 50 | 0.85 | 1.10 | 1.15 |
| 51 to 299 | 0.85 | 1.15 | 1.20 |
| 300 to up | 0.80 | 1.30 | 1.40 |

| LOW TEMPERATURE PERFORMANCE | |
|--|-----------------------|
| CAPACITANCE RATIO C ^{-40 °C} /C ^{+25 °C} MINIMUM AT 120 Hz | |
| Rated Voltage (WV _{DC}) | Capacitance Remaining |
| 0 to 40 | 35 |
| 41 to 63 | 45 |
| 64 to 100 | 60 |
| 101 to 350 | 20 |
| 351 to 450 | 15 |
| ESR RATIO ESR ^{-40 °C} /ESR ^{+25 °C} MAXIMUM AT 120 Hz | |
| Rated Voltage (WV _{DC}) | Multiplier |
| 0 to 40 | 60 |
| 41 to 63 | 55 |
| 64 to 100 | 65 |
| 101 to 350 | 180 |
| 351 to 450 | 190 |

| DIMENSIONS in inches [millimeters] | | | | | | | |
|------------------------------------|--------------------------------|--------------------------------|--------------------|-----------|--------------------------------|---------------------------------|--------------------|
| CASE CODE | STYLE 6 AND 7 | | TYPICAL WEIGHT | CASE CODE | STYLE 6 AND 7 | | TYPICAL WEIGHT |
| | D | L | | | D | L | |
| GE | 0.760 ± 0.020 [19.3 ± 0.51] | 1.141 ± 0.062 [29.0 ± 1.58] | 0.46 oz. (13 g) | GL | 0.760 ± 0.020 [19.3 ± 0.51] | 2.141 ± 0.062 [54.4 ± 1.58] | 0.74 oz. (21 g) |
| GJ | 0.760 ± 0.020 [19.3 ± 0.51] | 1.641 ± 0.062 [41.7 ± 1.58] | 0.67 oz. (19 g) | GP | 0.760 ± 0.020 [19.3 ± 0.51] | 2.641 ± 0.062 [67.1 ± 1.58] | 0.88 oz. (25 g) |
| GS | 0.760 ± 0.020 [19.3 ± 0.51] | 3.141 ± 0.062 [79.8 ± 1.58] | 1.16 oz. (33 g) | KS | 1.135 ± 0.020 [28.8 ± 0.51] | 3.141 ± 0.062 [79.8 ± 1.58] | 2.54 oz. (72 g) |
| GT | 0.760 ± 0.020 [19.3 ± 0.51] | 3.641 ± 0.062 [92.5 ± 1.58] | 1.34 oz. (38 g) | KT | 1.135 ± 0.020 [28.8 ± 0.51] | 3.641 ± 0.062 [92.5 ± 1.58] | 2.96 oz. (84 g) |
| HE | 0.885 ± 0.020 [22.5 ± 0.51] | 1.141 ± 0.062 [29.0 ± 1.58] | 0.63 oz. (18 g) | KD | 1.135 ± 0.020 [28.8 ± 0.51] | 4.141 ± 0.062 [105.2 ± 1.58] | 3.35 oz. (95 g) |

| DIMENSIONS in inches [millimeters] | | | | | | | |
|------------------------------------|--------------------------------|--------------------------------|--------------------|-----------|--------------------------------|---------------------------------|---------------------|
| CASE CODE | STYLE 6 AND 7 | | TYPICAL WEIGHT | CASE CODE | STYLE 6 AND 7 | | TYPICAL WEIGHT |
| | D | L | | | D | L | |
| HJ | 0.885 ± 0.020 [22.5 ± 0.51] | 1.641 ± 0.062 [41.7 ± 1.58] | 0.95 oz. (27 g) | LE | 1.260 ± 0.020 [32.0 ± 0.51] | 1.141 ± 0.062 [29.0 ± 1.58] | 1.13 oz. (32 g) |
| HL | 0.885 ± 0.020 [22.5 ± 0.51] | 2.141 ± 0.062 [54.4 ± 1.58] | 1.02 oz. (29 g) | LJ | 1.260 ± 0.020 [32.0 ± 0.51] | 1.641 ± 0.062 [41.7 ± 1.58] | 1.62 oz. (46 g) |
| HP | 0.885 ± 0.020 [22.5 ± 0.51] | 2.641 ± 0.062 [67.1 ± 1.58] | 1.38 oz. (39 g) | LL | 1.260 ± 0.020 [32.0 ± 0.51] | 2.141 ± 0.062 [54.4 ± 1.58] | 2.11 oz. (60 g) |
| HS | 0.885 ± 0.020 [22.5 ± 0.51] | 3.141 ± 0.062 [79.8 ± 1.58] | 1.73 oz. (49 g) | LP | 1.260 ± 0.020 [32.0 ± 0.51] | 2.641 ± 0.062 [67.1 ± 1.58] | 2.65 oz. (75 g) |
| HT | 0.885 ± 0.020 [22.5 ± 0.51] | 3.641 ± 0.062 [92.5 ± 1.58] | 2.08 oz. (59 g) | LS | 1.260 ± 0.020 [32.0 ± 0.51] | 3.141 ± 0.062 [79.8 ± 1.58] | 3.14 oz. (89 g) |
| JE | 1.010 ± 0.020 [25.7 ± 0.51] | 1.141 ± 0.062 [29.0 ± 1.58] | 0.81 oz. (23 g) | LT | 1.260 ± 0.020 [32.0 ± 0.51] | 3.641 ± 0.062 [92.5 ± 1.58] | 3.63 oz. (103 g) |
| JJ | 1.010 ± 0.020 [25.7 ± 0.51] | 1.641 ± 0.062 [41.7 ± 1.58] | 1.02 oz. (29 g) | LD | 1.260 ± 0.020 [32.0 ± 0.51] | 4.141 ± 0.062 [105.2 ± 1.58] | 4.16 oz. (118 g) |
| JL | 1.010 ± 0.020 [25.7 ± 0.51] | 2.141 ± 0.062 [54.4 ± 1.58] | 1.55 oz. (44 g) | ME | 1.375 ± 0.020 [34.9 ± 0.51] | 1.141 ± 0.062 [29.0 ± 1.58] | 1.38 oz. (39 g) |
| JP | 1.010 ± 0.020 [25.7 ± 0.51] | 2.641 ± 0.062 [67.1 ± 1.58] | 1.87 oz. (53 g) | MJ | 1.375 ± 0.020 [34.9 ± 0.51] | 1.641 ± 0.062 [41.7 ± 1.58] | 1.98 oz. (56 g) |
| JS | 1.010 ± 0.020 [25.7 ± 0.51] | 3.141 ± 0.062 [79.8 ± 1.58] | 2.22 oz. (63 g) | ML | 1.375 ± 0.020 [34.9 ± 0.51] | 2.141 ± 0.062 [54.4 ± 1.58] | 2.57 oz. (73 g) |
| JT | 1.010 ± 0.020 [25.7 ± 0.51] | 3.641 ± 0.062 [92.5 ± 1.58] | 2.54 oz. (72 g) | MP | 1.375 ± 0.020 [34.9 ± 0.51] | 2.641 ± 0.062 [67.1 ± 1.58] | 3.21 oz. (91 g) |
| KE | 1.135 ± 0.020 [28.8 ± 0.51] | 1.141 ± 0.062 [29.0 ± 1.58] | 0.92 oz. (26 g) | MS | 1.375 ± 0.020 [34.9 ± 0.51] | 3.141 ± 0.062 [79.8 ± 1.58] | 3.81 oz. (108 g) |
| KJ | 1.135 ± 0.020 [28.8 ± 0.51] | 1.641 ± 0.062 [41.7 ± 1.58] | 1.31 oz. (37 g) | MT | 1.375 ± 0.020 [34.9 ± 0.51] | 3.641 ± 0.062 [92.5 ± 1.58] | 4.44 oz. (126 g) |
| KL | 1.135 ± 0.020 [28.8 ± 0.51] | 2.141 ± 0.062 [54.4 ± 1.58] | 1.73 oz. (49 g) | MD | 1.375 ± 0.020 [34.9 ± 0.51] | 4.141 ± 0.062 [105.2 ± 1.58] | 5.04 oz. (143 g) |
| KP | 1.135 ± 0.020 [28.8 ± 0.51] | 2.641 ± 0.062 [67.1 ± 1.58] | 2.15 oz. (61 g) | - | - | - | - |

DIMENSIONS AND AVAILABLE FORMS



Lead diameter
No. 18 AWG (0.040" [1.016 mm] Dia.)

ORDERING EXAMPLE

Electrolytic capacitor 53D series: 53D 282 G 025 GJ 6

| DESCRIPTION | |
|-------------|--|
| CODE | EXPLANATION |
| 53D | Product type |
| 282 | Capacitance value (2800 µF) |
| G | Tolerance (G = -10 %/+75 %; F = -10 %/+50 %) |
| 025 | Voltage rating at 85 °C (025 = 25 V) |
| GJ | Can size (see Dimensions table) |
| 6 | Sleeve and sealing (6 = P.V.C. sleeve) |

Note

- For lead (Pb)-free/RoHS compliant products add suffix "E3" to part number.
Example: 53D282G025GJ6E3



| ELECTRICAL DATA AND ORDERING INFORMATION | | | | |
|---|----------------------|--------------------|---|--|
| CAPACITANCE (μF) | CASE CODE | PART NUMBER | MAX. ESR AT +25 °C 120 Hz (mΩ) | MAX. RMS RIPPLE AT +85 °C 120 Hz (mA) |
| 16 WV_{DC} AT +85 °C, SURGE = 18 V | | | | |
| 6900.0 | HJ | 53D692G016HJ6 | 73 | 2150 |
| 10 000.0 | HL | 53D103G016HL6 | 52 | 2840 |
| 25 WV_{DC} AT +85 °C, SURGE = 35 V | | | | |
| 2800.0 | GJ | 53D282G025GJ6 | 103 | 1650 |
| 4300.0 | HJ | 53D432G025HJ6 | 72 | 2170 |
| 6200.0 | HL | 53D622G025HL6 | 51 | 2870 |
| 11 000.0 | JP | 53D113G025JP6 | 33 | 4230 |
| 35 WV_{DC} AT +85 °C, SURGE = 45 V | | | | |
| 1100.0 | GE | 53D112G035GE6 | 219 | 980 |
| 2100.0 | GJ | 53D212G035GJ6 | 111 | 1590 |
| 3200.0 | HJ | 53D322G035HJ6 | 77 | 2090 |
| 4700.0 | HL | 53D472G035HL6 | 54 | 2780 |
| 8300.0 | JP | 53D832G035JP6 | 34 | 4110 |
| 50 WV_{DC} AT +85 °C, SURGE = 70 V | | | | |
| 1000.0 | GE | 53D102G050GE6 | 231 | 950 |
| 1300.0 | GJ | 53D132G050GJ6 | 131 | 1470 |
| 1900.0 | HJ | 53D192G050HJ6 | 94 | 1900 |
| 2800.0 | HL | 53D282G050HL6 | 65 | 2540 |
| 3800.0 | JL | 53D382G050JL6 | 51 | 3090 |
| 5000.0 | JP | 53D502G050JP6 | 40 | 3810 |
| 63 WV_{DC} AT +85 °C, SURGE = 80 V | | | | |
| 1000.0 | GJ | 53D102G063GJ6 | 145 | 1400 |
| 2200.0 | HL | 53D222G063HL6 | 86 | 2210 |
| 200 WV_{DC} AT +85 °C, SURGE = 250 V | | | | |
| 350.0 | JL | 53D351F200JL6 | 499 | 1000 |
| 460.0 | JP | 53D461F200JP6 | 379 | 1250 |
| 250 WV_{DC} AT +85 °C, SURGE = 300 V | | | | |
| 56.0 | GE | 53D560F250GE6 | 3035 | 263 |
| 100.0 | GJ | 53D101F250GJ6 | 1593 | 420 |
| 130.0 | HJ | 53D131F250HJ6 | 1238 | 520 |
| 400 WV_{DC} AT +85 °C, SURGE = 450 V | | | | |
| 100.0 | JL | 53D101F400JL6 | 1524 | 560 |
| 140.0 | JS | 53D141F400JS6 | 1084 | 790 |
| 150.0 | JS | 53D151F400JS6 | 1011 | 820 |



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