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

FEATURES

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

Pb-free Available

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

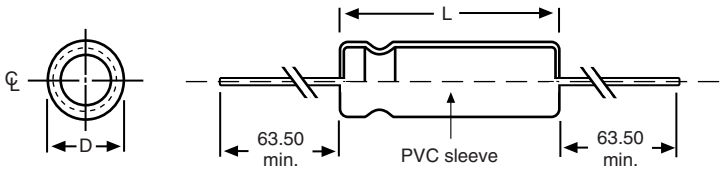
CAPACITANCE RATIO $C^{-40\ °C}$ / $C^{+25\ °C}$ MINIMUM AT 120 Hz	
Rated Voltage (WV_{DC})	Capacitance Remaining
0 to 40	35
41 to 63	45
64 to 100	60
101 to 350	20
351 to 450	15
ESR RATIO $ESR^{-40\ °C}$ / $ESR^{+25\ °C}$ MAXIMUM AT 120 Hz	
Rated Voltage (WV_{DC})	Multiplier
0 to 40	60
41 to 63	55
64 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 WEIGTH
	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 WEIGTH
	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

Statements about product lifetime are based on calculations and internal testing. They should only be interpreted as estimations. Also due to external factors, the lifetime in the field application may deviate from the calculated lifetime. In general, nothing stated herein shall be construed as a guarantee of durability.

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