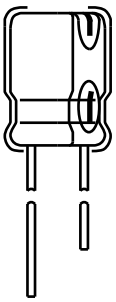
Aluminum Capacitors
+ 85 °C, Miniature, Radial Lead



FEATURES

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

Pb-free

e3

RoHS COMPLIANT

QUICK REFERENCE DATA

DESCRIPTION	VALUE
Nominal case size Ø D x L in mm	0.157" x 0.276" [4.0 x 7.0] 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	-

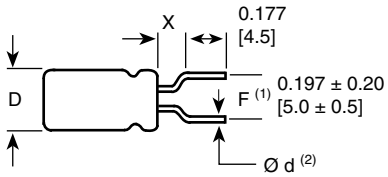
DIMENSIONS in inches [millimeters]

CASE CODE	NOMINAL CASE SIZE D x L	LEAD SPACING S	NOMINAL LEAD DIAMETER D	TYPICAL WEIGHT (g)
HW	0.157 x 0.276 [4.0 x 7.0]	0.059 [1.5]	0.018 [0.45]	0.20
JW	0.197 x 0.276 [5.0 x 7.0]	0.079 [2.0]	0.018 [0.45]	0.30
AW	0.248 x 0.276 [6.3 x 7.0]	0.098 [2.5]	0.018 [0.45]	0.40
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

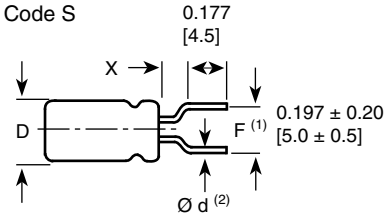
DIMENSIONS in inches [millimeters]				
CASE CODE	**NOMINAL CASE SIZE D x L**	**LEAD SPACING S**	**NOMINAL LEAD DIAMETER D**	**TYPICAL WEIGHT (g)**
CC	0.394 x 0.492 [10.0 x 12.5]	0.197 [5.0]	0.024 [0.60]	1.48
CD	0.394 x 0.630 [10.0 x 16.0]	0.197 [5.0]	0.024 [0.60]	1.75
CG	0.394 x 0.787 [10.0 x 20.0]	0.197 [5.0]	0.024 [0.60]	2.37
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]

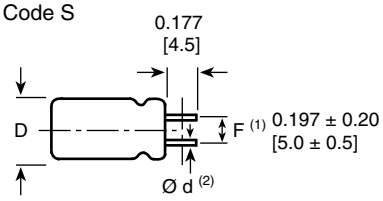
Code F



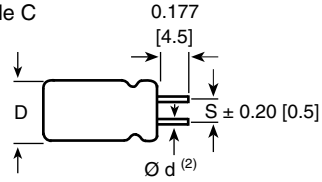
Code S



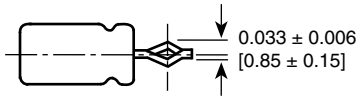
Code S



Code C

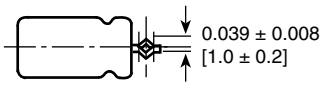


Code S



(4, 5, 6.3, 8)

Code S



(10, 12.5, 16, 18)

DIMENSIONS in inches [millimeters]						
FORMING METHOD	**FORMED LEAD CODE**	**DIMENSIONS**				
		D	**L.S.**	**P**	**e (3)**	**X (Max.)**
Formed and cut	F	0.157 [4.0]	0.197 [5.0]	0.059 [1.5]	-	0.059 [1.5]
		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	0.157 [4.0]	0.197 [5.0]	0.059 [1.5]	0.043 [1.1]	0.059 [1.5]
		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 14th AND 15th DIGITS OF PN	SPECIFICATION		LEAD SPACE	CAPACITOR SIZES AVAILABLE
		LEAD STYLE	+ - LEADER		
Ammo pack	8P	Formed lead (1)	-	0.197 [5.0]	0.157 x 0.276 - 0.492 x 0.787 [4.0 x 7.0 - 12.5 x 20.0]
					Case codes HW, JW, AW, JA, AA, BB, CC, CD, DG

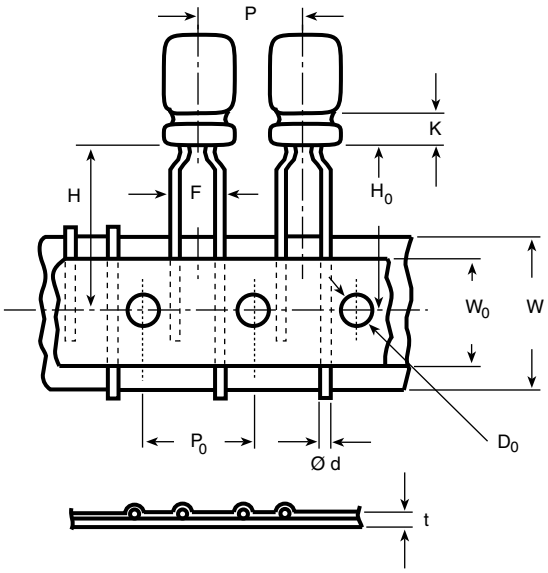
Notes

- 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	
	0.157 x 0.276 [4.0 x 7.0]	0.197 x 0.276 [5.0 x 7.0]	0.197 x 0.433 [5.0 x 11.0]	0.248 x 0.276 [6.3 x 7.0]	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	0.018 [0.45]	0.018 [0.45]	0.020 [0.5]	0.018 [0.45]	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]	0.500 [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]	0.500 [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]	0.197 [5.0]	0.197 [5.0]	0.197 [5.0]
K - Clinch height	0.059 [1.5]	0.059 [1.5]	0.098 [2.5]	0.059 [1.5]	0.098 [2.5]	0.157 [4.0]	-	-
H - Height of component	0.689 [17.5]	0.689 [17.5]	0.728 [18.5]	0.689 [17.5]	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]	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]	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]	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]	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]	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 µF)
M	Tolerance (M = ± 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 HW, JW, AW, JA, AA, BB, CC, CD, CG, DG only)

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
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 (µF)	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

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
50 WV_{DC} AT + 85 °C, SURGE = 63 V				
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
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

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
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
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 .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

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
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

LOW PROFILE RATINGS in inches [millimeters]				
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
6.3 WV_{DC} AT + 85 °C, SURGE = 8 V				
22.0	515D226M6R3HW6AE3	0.157 x 0.276 [4.0 x 7.0]	34.0	0.24
33.0	515D336M6R3JW6AE3	0.197 x 0.276 [5.0 x 7.0]	42.0	0.24
47.0	515D476M6R3JW6AE3	0.197 x 0.276 [5.0 x 7.0]	50.0	0.24
100.0	515D107M6R3AW6AE3	0.248 x 0.276 [6.3 x 7.0]	77.0	0.24
10 WV_{DC} AT + 85 °C, SURGE = 13 V				
22.0	515D226M010JW6AE3	0.197 x 0.276 [5.0 x 7.0]	38.0	0.20
33.0	515D336M010JW6AE3	0.197 x 0.276 [5.0 x 7.0]	47.0	0.20
47.0	515D476M010AW6AE3	0.248 x 0.276 [6.3 x 7.0]	59.0	0.20
16 WV_{DC} AT + 85 °C, SURGE = 20 V				
10.0	515D106M016HW6AE3	0.157 x 0.276 [4.0 x 7.0]	28.0	0.16
22.0	515D226M016JW6AE3	0.197 x 0.276 [5.0 x 7.0]	44.0	0.16
33.0	515D336M016AW6AE3	0.248 x 0.276 [6.3 x 7.0]	57.0	0.16
47.0	515D476M016AW6AE3	0.248 x 0.276 [6.3 x 7.0]	68.0	0.16
25 WV_{DC} AT + 85 °C, SURGE = 32 V				
10.0	515D106M025JW6AE3	0.197 x 0.276 [5.0 x 7.0]	33.0	0.14
22.0	515D226M025AW6AE3	0.248 x 0.276 [6.3 x 7.0]	51.0	0.14
33.0	515D336M025AW6AE3	0.248 x 0.276 [6.3 x 7.0]	63.0	0.14
35 WV_{DC} AT + 85 °C, SURGE = 44 V				
4.7	515D475M035HW6AE3	0.157 x 0.276 [4.0 x 7.0]	24.0	0.12
10.0	515D106M035JW6AE3	0.197 x 0.276 [5.0 x 7.0]	36.0	0.12
22.0	515D226M035AW6AE3	0.248 x 0.276 [6.3 x 7.0]	57.0	0.12
50 WV_{DC} AT + 85 °C, SURGE = 63 V				
0.10	515D104M050JW6AE3	0.157 x 0.276 [4.0 x 7.0]	1.0	0.10
0.22	515D224M050HW6AE3	0.157 x 0.276 [4.0 x 7.0]	2.3	0.10
0.33	515D334M050HW6AE3	0.157 x 0.276 [4.0 x 7.0]	3.5	0.10
0.47	515D474M050HW6AE3	0.157 x 0.276 [4.0 x 7.0]	5.0	0.10
1.0	515D105M050HW6AE3	0.157 x 0.276 [4.0 x 7.0]	10.0	0.10
2.2	515D225M050HW6AE3	0.157 x 0.276 [4.0 x 7.0]	19.0	0.10
3.3	515D335M050HW6AE3	0.157 x 0.276 [4.0 x 7.0]	24.0	0.10
4.7	515D475M050JW6AE3	0.197 x 0.276 [5.0 x 7.0]	29.0	0.10
10.0	515D106M050AW6AE3	0.248 x 0.276 [6.3 x 7.0]	44.0	0.10

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