Aluminum Capacitors
+ 85 °C, Miniature, Radial Lead

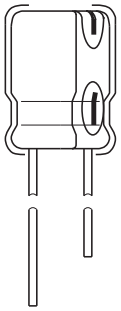


Fig.1 Component outline.

FEATURES

- High CV per case size
- Low cost
- Solvent resistant construction (through 100 WVDC)
- Low profile ratings

Pb-free Available

QUICK REFERENCE DATA

DESCRIPTION	VALUE
Nominal case size	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 WVDC to 450 WVDC 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 WVDC to 450 WVDC
Termination	2 radial leads
Life validation test at 85 °C	2000 hours: Δ CAP ± 20 % from initial measurement. Δ DF 2 x initial specified limit. Δ DCL ≤ initial specified limit
Shelf life at 85 °C	1000 hours: Δ CAP ± 20 % from initial measurement. Δ DF 2 x initial specified limit. Δ DCL ≤ initial specified limit
DC leakage current	rated voltage for 1 and 2 minutes for 6.3 WVDC to 100 WVDC 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 minute for 160 WVDC to 450 WVDC units: I < 0.1 CV + 40 µA and CV ≤ 1000; I < 0.04 CV + 100 µA and CV > 1000
Solvent Resistance	Capacitors rated 6.3 WVDC to 100 WVDC will withstand exposure of up to 5 minutes in Freon TE, TES, TMS by either vapor immersion or ultrasonic degreasing

RIPPLE CURRENT MULTIPLIERS

TEMPERATURE	
Ambient Temperature	Multipliers
≤ + 70°C	1.27
+ 85 °C	1.0

FREQUENCY (Hz)						
WVDC	Cap. (µF)	50 - 60	100 - 120	300 - 400	1 kHz	≤ 10 kHz
6.3 - 100	0 - 47	0.75	1	1.35	1.57	2.00
	100 - 470	0.80	1	1.23	1.34	1.50
	1000 - 18000	0.85	1	1.10	1.13	1.15
160 - 450	0.47 - 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 (WVDC)	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 - 100.0	2.0	3.0
160.0 - 200.0	3.0	4.0
250.0	3.0	6.0
315.0 - 400.0	6.0	-
450.0	15.0	-

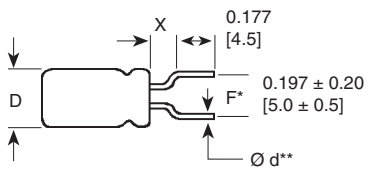
DIMENSIONS in inches [millimeters]

CASE CODE	NOMINAL CASE SIZE D X L	LEAD SPACING S	NOMINAL LEAD DIAMETER D	TYPICAL WEIGHT (GRAMS)
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

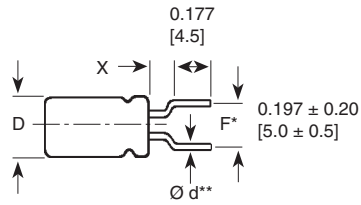
DIMENSIONS in inches [millimeters]				
CASE CODE	**NOMINAL CASE SIZE D X L**	**LEAD SPACING S**	**NOMINAL LEAD DIAMETER D**	**TYPICAL WEIGHT (GRAMS)**
AA	0.248 x 0.433 [6.3 x 11.0]	0.098 [2.5]	0.020 [0.50]	0.60
BB	0.315 x 0.453 [8.0 x 11.5]	0.138 [3.5]	0.024 [0.60]	0.95
CC	0.394 x 0.492 [10.0 x 12.5]	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
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



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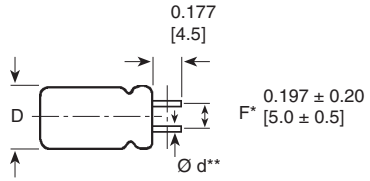
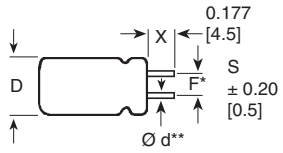
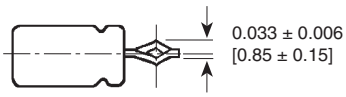


Code C

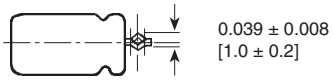


Code S



(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*** **	**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]	-

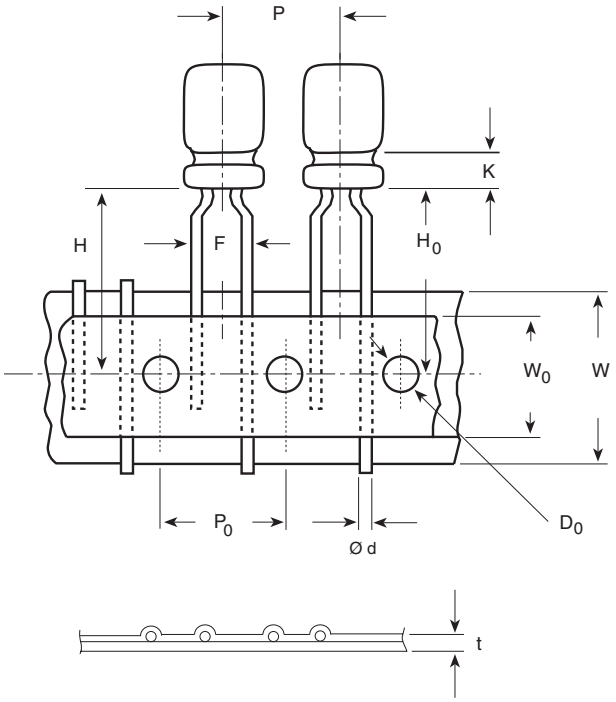
Note: Coding of cut or formed lead to be added to the end of type number in 15th position (with position 14 coded “6”).
* Formed lead. ** Lead thickness Ø d depends on capacitor specification. *** Lead protrusion at bottom of tape.

TAPED CAPACITORS FOR AUTOMATIC INSERTION SYSTEMS in inches [millimeters]					
PACKAGING	**LEAD CODE**	**SPECIFICATION**		**LEAD SPACE**	**CAPACITOR SIZES AVAILABLE**
		LEAD STYLE	**+ - LEADER**		
Ammo Pack	P	Formed Lead**	-	0.197 [5.0]	0.157 x 0.276 - 0.492 x 0.787 [4.0 x 7.0 - 12.5 x 20.0]

Note: The ammo pack code is to be added to the end of type number in the 15th position (with position 14 coded as “8” as appropriate.) 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.
** 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 from Tape Center	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]

Aluminum Capacitors
+ 85 °C, Miniature, Radial Lead

ELECTRICAL DATA	
SYMBOL	**DESCRIPTION**
µF	rated capacitance
± %	M = ± 20 %
DC	voltage rating at 85 °C
JA	see dimensions in millimeters table
6	packaging code
A	termination

ORDERING EXAMPLE*

Electrolytic capacitor 515D series

515D 107M 6R3 JA 6A

6A = Bulk, Uncut leads.

6C = Cut leads (not stocked).

6F = Formed and cut leads (not stocked).

6S = Snap-in leads (not stocked).

For Cases Codes HW, JW, AW, JA, AA, BB, CC, CD, CG, and DG only: 8P = Ammo-Pack.

All items stating “not stocked” are items that are not generally stocked unless a Purchase Order is placed. Lead time is 14 - 15 weeks for these items unless there is excess inventory.

*Note: For lead (Pb)-free, add suffix E3 to part number. Example 515D107M6R3JA6AE3

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 WVDC at + 85 °C, SURGE = 8 V				
22.0	515D226M6R3JA6A	0.197 x 0.433 [5.0 x 11.0]	34.0	0.24
33.0	515D336M6R3JA6A	0.197 x 0.433 [5.0 x 11.0]	42.0	0.24
47.0	515D476M6R3JA6A	0.197 x 0.433 [5.0 x 11.0]	50.0	0.24
100.0	515D107M6R3JA6A	0.197 x 0.433 [5.0 x 11.0]	77.0	0.24
220.0	515D227M6R3AA6A	0.248 x 0.433 [6.3 x 11.0]	215.0	0.24
330.0	515D337M6R3AA6A	0.248 x 0.433 [6.3 x 11.0]	265.0	0.24
470.0	515D477M6R3BB6A	0.315 x 0.453 [8.0 x 11.5]	360.0	0.24
1000.0	515D108M6R3CC6A	0.394 x 0.492 [10.0 x 12.5]	570.0	0.24
2200.0	515D228M6R3DG6A	0.492 x 0.787 [12.5 x 20.0]	1050.0	0.24
3300.0	515D338M6R3DG6A	0.492 x0 .787 [12.5 x 20.0]	1250.0	0.24
4700.0	515D478M6R3EK6A	0.630 x 0.984 [16.0 x 25.0]	1700.0	0.24
6800.0	515D688M6R3EK6A	0.630 x 0.984 [16.0 x 25.0]	1900.0	0.24
10000.0	515D109M6R3EN6A	0.630 x 1.240 [16.0 x 31.5]	2250.0	0.24
15000.0	515D159M6R3FR6A	0.709 x 1.398 [18.0 x 35.5]	2680.0	0.24
18000.0	515D189M6R3FV6A	0.709 x 1.575 [18.0 x 40.0]	2750.0	0.24
10 WVDC at + 85 °C, SURGE = 13 V				
22.0	515D226M010JA6A	0.197 x0 .433 [5.0 x 11.0]	38.0	0.20
33.0	515D336M010JA6A	0.197 x 0.433 [5.0 x 11.0]	47.0	0.20
47.0	515D476M010JA6A	0.197 x 0.433 [5.0 x 11.0]	59.0	0.20
100.0	515D107M010JA6A	0.197 x 0.433 [5.0 x 11.0]	145.0	0.20
220.0	515D227M010AA6A	0.248 x 0.433 [6.3 x 11.0]	230.0	0.20
330.0	515D337M010BB6A	0.315 x 0.453 [8.0 x 11.5]	330.0	0.20
470.0	515D477M010BB6A	0.315 x 0.453 [8.0 x 11.5]	390.0	0.20
1000.0	515D108M010CD6A	0.394 x 0.630 [10.0 x 16.0]	630.0	0.20
2200.0	515D228M010DG6A	0.492 x .0787 [12.5 x 20.0]	1100.0	0.20
3300.0	515D338M010DK6A	0.492 x 0.984 [12.5 x 25.0]	1400.0	0.20
4700.0	515D478M010EK6A	0.630 x .0984 [16.0 x 25.0]	1800.0	0.20
6800.0	515D688M010EN6A	0.630 x 1.240 [16.0 x 31.5]	2150.0	0.20
10000.0	515D109M010FR6A	0.709 x 1.398 [18.0 x 35.5]	2500.0	0.20
15000.0	515D159M010FV6A	0.709 x 1.575 [18.0 x 40.0]	2720.0	0.20
16 WVDC at + 85 °C, SURGE = 20 V				
10.0	515D106M016JA6A	0.197 x .433 [5.0 x 11.0]	28.0	0.16
22.0	515D226M016JA6A	0.197 x 0.433 [5.0 x 11.0]	44.0	0.16
33.0	515D336M016JA6A	0.197 x 0.433 [5.0 x 11.0]	57.0	0.16
47.0	515D476M016JA6A	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 WVDC at + 85 °C, SURGE = 20 V				
100.0	515D107M016AA6A	0.248 x 0.433 [6.3 x 11.0]	175.0	0.16
220.0	515D227M016BB6A	0.315 x 0.453 [8.0 x 11.5]	300.0	0.16
330.0	515D337M016BB6A	0.315 x 0.453 [8.0 x 11.5]	360.0	0.16
470.0	515D477M016CC6A	0.394 x 0.492 [10.0 x 12.5]	470.0	0.16
1000.0	515D108M016CG6A	0.394 x 0.787 [10.0 x 20.0]	790.0	0.16
2200.0	515D228M016DK6A	0.492 x 0.984 [12.5 x 25.0]	1350.0	0.16
3300.0	515D338M016EK6A	0.630 x 0.984 [16.0 x 25.0]	1700.0	0.16
4700.0	515D478M016EN6A	0.630 x 1.240 [16.0 x 31.5]	2100.0	0.16
6800.0	515D688M016FR6A	0.709 x 1.398 [18.0 x 35.5]	2500.0	0.16
10000.0	515D109M016FV6A	0.709 x 1.575 [18.0 x 40.0]	2640.0	0.16
25 WVDC at + 85 °C, SURGE = 32 V				
4.7	515D475M025JA6A	0.197 x 0.433 [5.0 x 11.0]	30.0	0.14
10.0	515D106M025JA6A	0.197 x 0.433 [5.0 x 11.0]	33.0	0.14
22.0	515D226M025JA6A	0.197 x 0.433 [5.0 x 11.0]	51.0	0.14
33.0	515D336M025JA6A	0.197 x 0.433 [5.0 x 11.0]	63.0	0.14
47.0	515D476M025JA6A	0.197 x 0.433 [5.0 x 11.0]	115.0	0.14
100.0	515D107M025AA6A	0.248 x 0.433 [6.3 x 11.0]	185.0	0.14
220.0	515D227M025BB6A	0.315 x 0.453 [8.0 x 11.5]	320.0	0.14
330.0	515D337M025CC6A	0.394 x 0.492 [10.0 x 12.5]	420.0	0.14
470.0	515D477M025CD6A	0.394 x 0.630 [10.0 x 16.0]	540.0	0.14
1000.0	515D108M025DG6A	0.492 x 0.787 [12.5 x 20.0]	950.0	0.14
2200.0	515D228M025EK6A	0.630 x 0.984 [16.0 x 25.0]	1550.0	0.14
3300.0	515D338M025EN6A	0.630 x 1.240 [16.0 x 31.5]	1950.0	0.14
4700.0	515D478M025FR6A	0.709 x 1.398 [18.0 x 35.5]	2360.0	0.14
35 WVDC at + 85 °C, SURGE = 44 V				
4.7	515D475M035JA6A	0.197 x 0.433 [5.0 x 11.0]	24.0	0.12
10.0	515D106M035JA6A	0.197 x 0.433 [5.0 x 11.0]	36.0	0.12
22.0	515D226M035JA6A	0.197 x 0.433 [5.0 x 11.0]	57.0	0.12
33.0	515D336M035JA6A	0.197 x 0.433 [5.0 x 11.0]	105.0	0.12
47.0	515D476M035AA6A	0.248 x 0.433 [6.3 x 11.0]	140.0	0.12
100.0	515D107M035BB6A	0.315 x 0.453 [8.0 x 11.5]	230.0	0.12
220.0	515D227M035CC6A	0.394 x 0.492 [10.0 x 12.5]	370.0	0.12
330.0	515D337M035CD6A	0.394 x 0.630 [10.0 x 16.0]	490.0	0.12
470.0	515D477M035CG6A	0.394 x 0.787 [10.0 x 20.0]	640.0	0.12
1000.0	515D108M035DK6A	0.492 x 0.984 [12.5 x 25.0]	1100.0	0.12
2200.0	515D228M035EN6A	0.630 x 1.240 [16.0 x 31.5]	1850.0	0.12
3300.0	515D338M035FR6A	0.709 x 1.382 [18.0 x 35.5]	2220.0	0.12
4700.0	515D478M035FV6A	0.709 x 1.575 [18.0 x 40.0]	2490.0	0.12
50 WVDC at + 85 °C, SURGE = 63 V				
0.1	515D104M050JA6A	0.197 x 0.433 [5.0 x 11.0]	1.0	0.10
0.22	515D224M050JA6A	0.197 x 0.433 [5.0 x 11.0]	2.3	0.10
0.33	515D334M050JA6A	0.197 x 0.433 [5.0 x 11.0]	3.5	0.10
0.47	515D474M050JA6A	0.197 x 0.433 [5.0 x 11.0]	5.0	0.10
1.0	515D105M050JA6A	0.197 x 0.433 [5.0 x 11.0]	10.0	0.10
2.2	515D225M050JA6A	0.197 x 0.433 [5.0 x 11.0]	19.0	0.10
3.3	515D335M050JA6A	0.197 x 0.433 [5.0 x 11.0]	24.0	0.10
4.7	515D475M050JA6A	0.197 x 0.433 [5.0 x 11.0]	29.0	0.10
10.0	515D106M050JA6A	0.197 x 0.433 [5.0 x 11.0]	44.0	0.10
22.0	515D226M050JA6A	0.197 x 0.433 [5.0 x 11.0]	95.0	0.10
33.0	515D336M050AA6A	0.248 x 0.433 [6.3 x 11.0]	125.0	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 WVDC at + 85 °C, SURGE = 63 V				
47.0	515D476M050AA6A	0.248 x 0.433 [6.3 x 11.0]	150.0	0.10
100.0	515D107M050BB6A	0.315 x 0.453 [8.0 x 11.5]	250.0	0.10
220.0	515D227M050CD6A	0.394 x 0.630 [10.0 x 16.0]	440.0	0.10
330.0	515D337M050CG6A	0.394 x 0.787 [10.0 x 20.0]	580.0	0.10
470.0	515D477M050DG6A	0.492 x 0.787 [12.5 x 20.0]	760.0	0.10
1000.0	515D108M050EK6A	0.630 x 0.984 [16.0 x 25.0]	1350.0	0.10
2200.0	515D228M050FR6A	0.709 x 1.398 [18.0 x 35.5]	2090.0	0.10
63 WVDC at + 85 °C, SURGE = 79 V				
4.7	515D475M063JA6A	0.197 x 0.433 [5.0 x 11.0]	45.0	0.08
10.0	515D106M063JA6A	0.197 x 0.433 [5.0 x 11.0]	70.0	0.08
22.0	515D226M063AA6A	0.248 x 0.433 [6.3 x 11.0]	115.0	0.08
33.0	515D336M063AA6A	0.248 x 0.433 [6.3 x 11.0]	140.0	0.08
47.0	515D476M063BB6A	0.315 x 0.453 [8.0 x 11.5]	190.0	0.08
100.0	515D107M063CC6A	0.394 x 0.492 [10.0 x 12.5]	300.0	0.08
220.0	515D227M063CG6A	0.394 x 0.787 [10.0 x 20.0]	490.0	0.08
330.0	515D337M063DG6A	0.492 x 0.787 [12.5 x 20.0]	680.0	0.08
470.0	515D477M063DK6A	0.492 x 0.984 [12.5 x 25.0]	880.0	0.08
1000.0	515D108M063EN6A	0.630 x 1.240 [16.0 x 31.5]	1550.0	0.08
2200.0	515D228M063FV6A	0.709 x 1.575 [18.0 x 40.0]	2200.0	0.08
100 WVDC at + 85 °C, SURGE = 125 V				
0.1	515D104M100JA6A	0.197 x 0.433 [5.0 x 11.0]	2.1	0.08
0.22	515D224M100JA6A	0.197 x 0.433 [5.0 x 11.0]	4.7	0.08
0.33	515D334M100JA6A	0.197 x 0.433 [5.0 x 11.0]	7.0	0.08
0.47	515D474M100JA6A	0.197 x .0433 [5.0 x 11.0]	10.0	0.08
1.0	515D105M100JA6A	0.197 x 0.433 [5.0 x 11.0]	21.0	0.08
2.2	515D225M100JA6A	0.197 x 0.433 [5.0 x 11.0]	30.0	0.08
3.3	515D335M100JA6A	0.197 x 0.433 [5.0 x 11.0]	40.0	0.08
4.7	515D475M100JA6A	0.197 x 0.433 [5.0 x 11.0]	45.0	0.08
10.0	515D106M100AA6A	0.248 x 0.433 [6.3 x 11.0]	75.0	0.08
22.0	515D226M100BB6A	0.315 x 0.453 [8.0 x 11.5]	130.0	0.08
33.0	515D336M100CC6A	0.394 x 0.492 [10.0 x 12.5]	170.0	0.08
47.0	515D476M100CD6A	0.394 x 0.630 [10.0 x 16.0]	230.0	0.08
100.0	515D107M100DG6A	0.492 x 0.787 [12.5 x 20.0]	400.0	0.08
220.0	515D227M100EK6A	0.630 x 0.984 [16.0 x 25.0]	710.0	0.08
330.0	515D337M100EK6A	0.630 x 0.984 [16.0 x 25.0]	860.0	0.08
470.0	515D477M100EN6A	0.630 x 1.240 [16.0 x 31.5]	1100.0	0.08
1000.0	515D108M100FV6A	0.709 x 1.575 [18.0 x 40.0]	1690.0	0.08
160 WVDC at + 85 °C, SURGE = 200 V				
0.47	515D474M160AA6A	0.248 x 0.433 [6.3 x 11.0]	12.0	0.20
1.0	515D105M160AA6A	0.248 x 0.433 [6.3 x 11.0]	17.0	0.20
2.2	515D225M160AA6A	0.248 x 0.433 [6.3 x 11.0]	26.0	0.20
3.3	515D335M160BB6A	0.315 x 0.453 [8.0 x 11.5]	35.0	0.20
4.7	515D475M160BB6A	0.315 x 0.453 [8.0 x 11.5]	40.0	0.20
10.0	515D106M160CC6A	0.394 x 0.492 [10.0 x 12.5]	65.0	0.20
22.0	515D226M160CG6A	0.394 x 0.787 [10.0 x 20.0]	110.0	0.20
33.0	515D336M160DG6A	0.492 x 0.787 [12.5 x 20.0]	150.0	0.20
47.0	515D476M160DK6A	0.492 x 0.984 [12.5 x 25.0]	180.0	0.20
100.0	515D107M160EK6A	0.630 x 0.984 [16.0 x 25.0]	300.0	0.20
220.0	515D227M160FR6A	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 WVDC at + 85 °C, SURGE = 250 V				
0.47	515D474M200AA6A	0.248 x 0.433 [6.3 x 11.0]	12.0	0.20
1.0	515D105M200AA6A	0.248 x 0.433 [6.3 x 11.0]	17.0	0.20
2.2	515D225M200AA6A	0.248 x 0.433 [6.3 x 11.0]	26.0	0.20
3.3	515D335M200BB6A	0.315 x 0.453 [8.0 x 11.5]	35.0	0.20
4.7	515D475M200CC6A	0.394 x 0.492 [10.0 x 12.5]	45.0	0.20
10.0	515D106M200CD6A	0.394 x 0.630 [10.0 x 16.0]	70.0	0.20
22.0	515D226M200CG6A	0.394 x 0.787 [10.0 x 20.0]	110.0	0.20
33.0	515D336M200DK6A	0.492 x 0.984 [12.5 x 25.0]	160.0	0.20
47.0	515D476M200DK6A	0.492 x 0.984 [12.5 x 25.0]	180.0	0.20
100.0	515D107M200EN6A	0.630 x 1.240 [16.0 x 31.5]	330.0	0.20
220.0	515D227M200FV6A	0.709 x 1.575 [18.0 x 40.0]	520.0	0.20
250 WVDC at + 85 °C, SURGE = 300 V				
0.47	515D474M250AA6A	0.248 x 0.433 [6.3 x 11.0]	12.0	0.20
1.0	515D105M250AA6A	0.248 x 0.433 [6.3 x 11.0]	17.0	0.20
2.2	515D225M250BB6A	0.315 x 0.453 [8.0 x 11.5]	30.0	0.20
3.3	515D335M250CC6A	0.394 x 0.492 [10.0 x 12.5]	35.0	0.20
4.7	515D475M250CC6A	0.394 x 0.492 [10.0 x 12.5]	45.0	0.20
10.0	515D106M250CG6A	0.394 x 0.787 [10.0 x 20.0]	70.0	0.20
33.0	515D336M250DK6A	0.492 x 0.984 [12.5 x 25.0]	160.0	0.20
47.0	515D476M250EK6A	0.630 x 1.240 [16.0 x 31.5]	210.0	0.20
100.0	515D107M250FR6A	0.709 x 1.575 [18.0 x 40.0]	340.0	0.20
315 WVDC at + 85 °C, SURGE = 365 V				
1.0	515D105M315AA6A	0.248 x 0.433 [6.3 x 11.0]	17.0	0.20
2.2	515D225M315BB6A	0.315 x 0.453 [8.0 x 11.5]	30.0	0.20
3.3	515D335M315CC6A	0.394 x 0.492 [10.0 x 12.5]	35.0	0.20
4.7	515D475M315CD6A	0.394 x 0.630 [10.0 x 16.0]	45.0	0.20
10.0	515D106M315CG6A	0.394 x 0.787 [10.0 x 20.0]	70.0	0.20
22.0	515D226M315DK6A	0.492 x 0.984 [12.5 x 25.0]	120.0	0.20
33.0	515D336M315EK6A	0.630 x 0.984 [16.0 x 25.0]	150.0	0.20
47.0	515D476M315EN6A	0.630 x 1.240 [16.0 x 31.5]	190.0	0.20
100.0	515D107M315FV6A	0.709 x 1.575 [18.0 x 40.0]	340.0	0.20
350 WVDC at + 85 °C, SURGE = 400 V				
1.0	515D105M350BB6A	0.315 x .453 [8.0 x 11.5]	18.0	0.25
2.2	515D225M350CC6A	0.394 x .492 [10.0 x 12.5]	28.0	0.25
3.3	515D335M350CD6A	0.394 x .630 [10.0 x 16.0]	35.0	0.25
4.7	515D475M350CD6A	0.394 x .630 [10.0 x 16.0]	40.0	0.25
10.0	515D106M350DG6A	0.492 x .787 [12.5 x 20.0]	70.0	0.25
22.0	515D226M350DK6A	0.492 x .984 [12.5 x 25.0]	110.0	0.25
33.0	515D336M350EN6A	0.630 x 1.240 [16.0 x 31.5]	140.0	0.25
47.0	515D476M350FR6A	0.709 x 1.398 [18.0 x 35.5]	220.0	0.25
400 WVDC at + 85 °C, SURGE = 450 V				
1.0	515D105M400BB6A	0.315 x 0.453 [8.0 x 11.5]	18.0	0.25
2.2	515D225M400CC6A	0.394 x 0.492 [10.0 x 12.5]	28.0	0.25
3.3	515D335M400CD6A	0.394 x 0.630 [10.0 x 16.0]	35.0	0.25
4.7	515D475M400CD6A	0.394 x 0.787 [10.0 x 20.0]	45.0	0.25
10.0	515D106M400DG6A	0.492 x 0.787 [12.5 x 20.0]	70.0	0.25
22.0	515D226M400DK6A	0.630 x 0.984 [16.0 x 25.0]	110.0	0.25
33.0	515D336M400EN6A	0.630 x 1.240 [16.0 x 31.5]	140.0	0.25
47.0	515D476M400FR6A	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 WVDC at + 85 °C, SURGE = 500 V				
1.0	515D105M450CC6A	0.394 x 0.492 [10.0 x 12.5]	19.0	0.25
2.2	515D225M450CD6A	0.394 x 0.630 [10.0 x 16.0]	29.0	0.25
4.7	515D475M450DG6A	0.492 x 0.787 [12.5 x 20.0]	50.0	0.25
10.0	515D106M450EK6A	0.492 x 0.984 [12.5 x 25.0]	75.0	0.25
22.0	515D226M450EN6A	0.630 x 1.240 [16.0 x 31.5]	110.0	0.25
33.0	515D336M450FR6A	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 WVDC at + 85 °C, SURGE = 8 V				
22.0	515D226M6R3HW6A	0.157 x 0.276 [4.0 x 7.0]	34.0	0.24
33.0	515D336M6R3JW6A	0.197 x 0.276 [5.0 x 7.0]	42.0	0.24
47.0	515D476M6R3JW6A	0.197 x 0.276 [5.0 x 7.0]	50.0	0.24
100.0	515D107M6R3AW6A	0.248 x 0.276 [6.3 x 7.0]	77.0	0.24
10 WVDC at + 85 °C, SURGE = 13 V				
22.0	515D226M010JW6A	0.197 x 0.276 [5.0 x 7.0]	38.0	0.20
33.0	515D336M010JW6A	0.197 x 0.276 [5.0 x 7.0]	47.0	0.20
47.0	515D476M010AW6A	0.248 x 0.276 [6.3 x 7.0]	59.0	0.20
16 WVDC at + 85 °C, SURGE = 20 V				
10.0	515D106M016HW6A	0.157 x 0.276 [4.0 x 7.0]	28.0	0.16
22.0	515D226M016JW6A	0.197 x 0.276 [5.0 x 7.0]	44.0	0.16
33.0	515D336M016AW6A	0.248 x 0.276 [6.3 x 7.0]	57.0	0.16
47.0	515D476M016AW6A	0.248 x 0.276 [6.3 x 7.0]	68.0	0.16
25 WVDC at + 85 °C, SURGE = 32 V				
10.0	515D106M025JW6A	0.197 x 0.276 [5.0 x 7.0]	33.0	0.14
22.0	515D226M025AW6A	0.248 x 0.276 [6.3 x 7.0]	51.0	0.14
33.0	515D336M025AW6A	0.248 x 0.276 [6.3 x 7.0]	63.0	0.14
35 WVDC at + 85 °C, SURGE = 44 V				
4.7	515D475M035HW6A	0.157 x 0.276 [4.0 x 7.0]	24.0	0.12
10.0	515D106M035JW6A	0.197 x 0.276 [5.0 x 7.0]	36.0	0.12
22.0	515D226M035AW6A	0.248 x 0.276 [6.3 x 7.0]	57.0	0.12
50 WVDC at + 85 °C, SURGE = 63 V				
0.1	515D104M050JW6A	0.157 x 0.276 [4.0 x 7.0]	1.0	0.10
0.22	515D224M050HW6A	0.157 x 0.276 [4.0 x 7.0]	2.3	0.10
0.33	515D334M050HW6A	0.157 x 0.276 [4.0 x 7.0]	3.5	0.10
0.47	515D474M050HW6A	0.157 x 0.276 [4.0 x 7.0]	5.0	0.10
1.0	515D105M050HW6A	0.157 x 0.276 [4.0 x 7.0]	10.0	0.10
2.2	515D225M050HW6A	0.157 x 0.276 [4.0 x 7.0]	19.0	0.10
3.3	515D335M050HW6A	0.157 x 0.276 [4.0 x 7.0]	24.0	0.10
4.7	515D475M050JW6A	0.197 x 0.276 [5.0 x 7.0]	29.0	0.10
10.0	515D106M050AW6A	0.248 x 0.276 [6.3 x 7.0]	44.0	0.10

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