



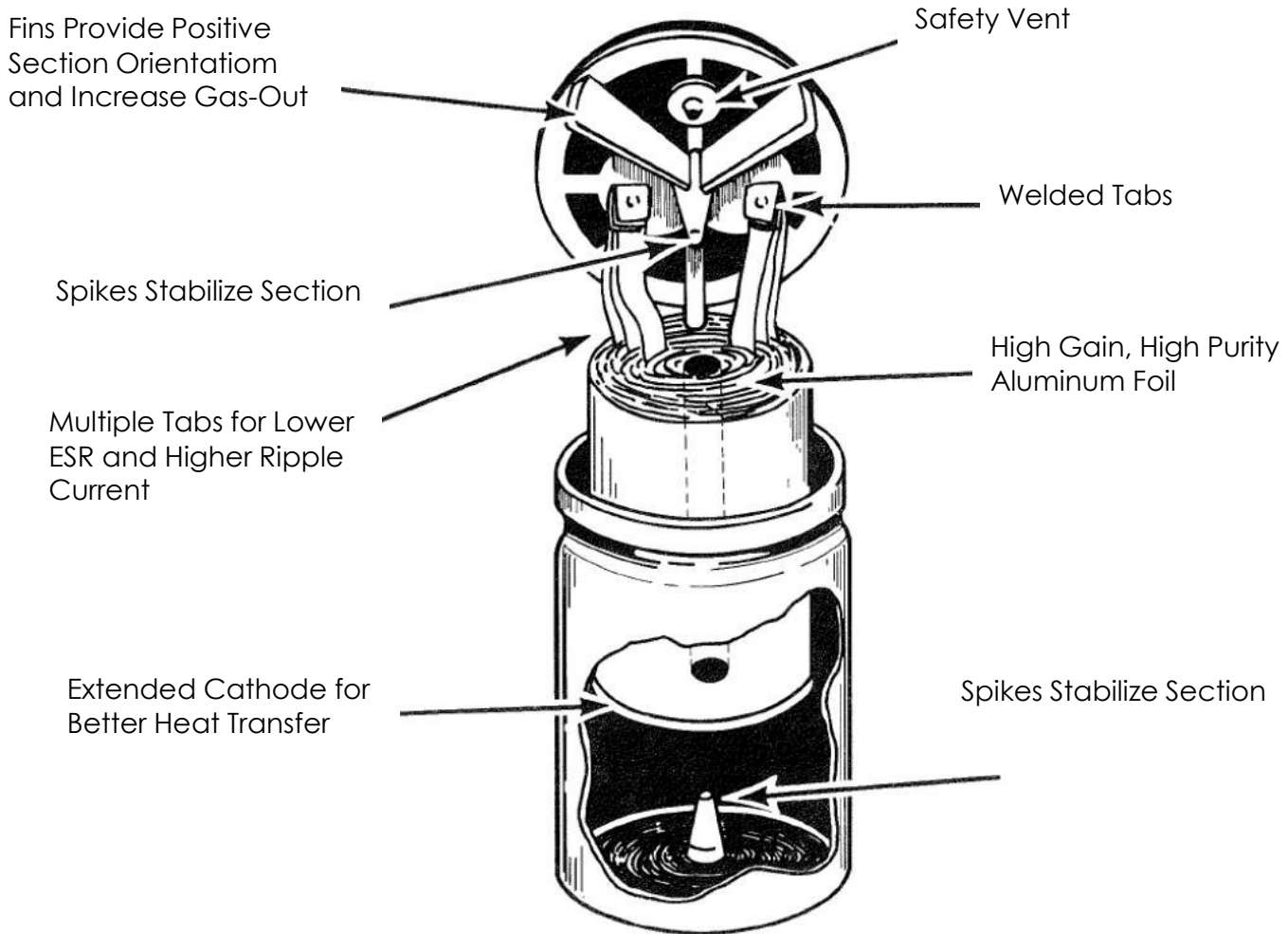
SCREW TERMINAL ELECTROLYTIC CAPACITORS

Proven EIA-IS 749 Compliant



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Pitchless Design



Typical Features

1. High Gain Aluminum foil

Allows more capacitance in can, miniaturized sizes and lighter weight

2. Better Heat Dissipation

Extended cathode design permits better heat transfer from core to ambient and lower internal temperatures

3. Consistent Shock and Vibration Performance

Section held by compression cannot move with time

4. Extended Life Characteristics

High purity materials and elimination of potting compound produces long life

5. Reliable Safety Vent

Vent will not become obstructed by potting compound

23 A 71 3 G 060 FL 1 H 1

Electrolytic Capacitors

Series Type:
 A = Standard
 B = Premium
 C = Long Life
 D = Switching Power Supply
 F = Extended Temperature
 H = Inverter Grade
 J = High Temp. Inverter Grade
 M = Standard High Ripple Current

uF Rating (pt. 1): Number
 71 uF

uF Rating (pt. 2): # of Zero
 000 uF

Capacitance Tolerance:
 F = -10%,+50%
 G = -10%,+75%
 M = ±20%
 K = ±10%

DC Voltage Rating:
 Zeros are used to precede the voltage rating where necessary to make a 3 digit number

Case Size / Height

First letter, Diameter		Second letter, Height	
Base Code	Size	Height Code	Size
B	1.375"	B	2.125"
C	1.750"	C	2.625"
D	2.000"	D	3.125"
E	2.500"	E	3.625"
F	3.000"	F	4.125"
		G	4.625"
		H	5.125"
		I	5.625"
		J	5.875"
		M	6.625"
		K	7.625"
		L	8.625"

Sleeve
 0 = No Sleeve / No Stud
 1 = Std PVC Sleeve / No Stud
 2 = Other Sleeve / No Stud
 3 = UL PVC Sleeve / No Stud
 4 = Special Sleeve / Special Stud
 5 = No Sleeve / Bottom Stud
 6 = PVC Sleeve / Bottom Stud
 7 = Other Sleeve / Bottom Stud
 8 = UL Sleeve / Bottom Stud

Bottom Stud Base Size Code
 B = 8mm
 C, D, E, F = 12mm

Terminal Types (Standard):
 H = High Post 10-32 Screw
 L = Low Post 10-32 Screw
 D = High Current 1/4-28 Screw
 N = High Current High Screw
 P = PC Terminal
 S = Solder Lug
 M = High Post Metric M5 Screw
 K = High Current Metric M6 Screw

Data for Example Part Nbr Above:

Series Type:	Standard
uF Rating:	71,000uF
Capacitance Tolerance:	-10%,+50%
Voltage Rating:	60VDC
Case Size / Height:	3.000" / 8.625"
Sleeve Type:	Std PVC Sleeve / No Stud
Terminal Type:	High Post 10-32 Screw

Design Number: Assigned by Factory.
 Enter 1 unless advised by factory

Improper application of aluminum electrolytic capacitors is extremely hazardous.

The high watt-second capability of electrolytic capacitors requires extreme caution in testing and application. Users should provide for proper protection in design considerations. This should include protection against leaking or exploding capacitors.

EXTREME CAUTION SHOULD BE TAKEN AT ALL TIMES WHEN WORKING WITH ENERGIZED CAPACITORS. ALL SERVICING SHOULD BE PERFORMED BY QUALIFIED PERSONNEL ONLY!

SEE ADDITIONAL SAFETY RELATED INFORMATION ON PAGES 76 & 77 OF THIS CATALOG.

(Capacitor Mounting Applications; Electrolyte Fluids; Safety)

Series	Type	Capacitance Range (uF)	WVDC Range	Temperature Range (°C)	Life Test @+85°C	Standard Terminals
23A	Standard	900 to 230,000	50 to 150	-40 to +85	1,000	(H) 10-32
23B	Premium	300 to 140,000	50 to 250	-40 to +85	3,000	(H) 10-32
23C	Long Life	380 to 180,000	50 to 250	-40 to +95	2,000 1,000 @ +95	(H) 10-32
23D	Switching Power Supply	2,900 to 110,000	7.5 to 55	-55 to +85	1,000	(H) 10-32
23F	Extended Temperature	250 to 150,000	50 to 250	-55 to +105	3,000 1,000 @ +105	(H) 10-32
23H	Inverter Grade	150 to 15,000	200 to 450	-40 to +85	2,000	(H) 10-32 **
23J	High Temp. Inverter Grade	150 to 11,000	200 to 400	-40 to +105	2,000 @ +105	(H) 10-32 **
23M	Std. High Ripple	150 to 20,000	200 to 450	-40 to +85	2,000	(H) 10-32

All product supplied with 8 Mil. PVC Sleeve and labels, as standard.

(H) High Post 10-32 Terminals, as standard

** For Applications Less than 40 Amps RMS Current. For Applications 40 Amps and Above, should use (D) or (N) High Current Terminals

Electrolytic Capacitors

23A Series - Standard Product Line

STANDARD PRODUCT LINE:

- Broad Capacitance Range
- Increased Volumetric Efficiency
- Low ESR
- Standard Ratings

SPECIFICATIONS:

Capacitance Range:	900 to 230,000 μ F
Voltage Range:	50 to 150 WVDC
Capacitance Tolerance:	-10% / +50% Standard
Operating Temperature:	-40oC to +85°C
Life @ 85oC:	1,000 Hrs.
Terminals:	10-32 High Post – Standard (Other terminal configurations available)

RIPPLE CURRENT APPLICATION GUIDLINES:

RIPPLE CURRENT FREQUENCY MULTIPLIERS					
100 Hz	120 Hz	400 Hz	4 KHz	10 KHz	20 KHz
0.95	1.00	1.15	1.20	1.35	1.40

RIPPLE CURRENT TEMPERATURE MULTIPLIERS					
85	75	65	55	45	35
1.0	1.4	1.7	2.0	2.3	2.5

FOR COMPLETE APPLICATION SPECIFICATION DETAILS SEE APPLICATION GUIDELINES SECTION OF CATALOG

Electrolytic Capacitors

23A Series – Standard Product Line

Voltage (WVDC)	Capacitance (µF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
50	7,800	23A 782 F 050 BB 1H1	1.375	2.125	0.0353	4.6
	11,000	23A 113 F 050 BC 1H1	1.375	2.625	0.0277	5.7
	15,000	23A 153 F 050 BD 1H1	1.375	3.125	0.0223	6.9
	18,000	23A 183 F 050 BE 1H1	1.375	3.625	0.0197	7.8
	21,000	23A 213 F 050 BF 1H1	1.375	4.125	0.0177	8.7
	25,000	23A 253 F 050 BG 1H1	1.375	4.625	0.0158	9.7
	29,000	23A 293 F 050 BH 1H1	1.375	5.125	0.0144	10.7
	32,000	23A 323 F 050 BI 1H1	1.375	5.625	0.0136	11.5
	14,000	23A 143 F 050 CB 1H1	1.750	2.125	0.0234	6.5
	20,000	23A 203 F 050 CC 1H1	1.750	2.625	0.0183	8.0
	27,000	23A 273 F 050 CD 1H1	1.750	3.125	0.0151	9.5
	34,000	23A 343 F 050 CE 1H1	1.750	3.625	0.0131	10.9
	39,000	23A 393 F 050 CF 1H1	1.750	4.125	0.0121	12.0
	46,000	23A 463 F 050 CG 1H1	1.750	4.625	0.0111	13.3
	52,000	23A 523 F 050 CH 1H1	1.750	5.125	0.0104	14.3
	58,000	23A 583 F 050 CI 1H1	1.750	5.625	0.0099	15.4
	18,000	23A 183 F 050 DB 1H1	2.000	2.125	0.0197	7.7
	26,000	23A 263 F 050 DC 1H1	2.000	2.625	0.0154	9.4
	35,000	23A 353 F 050 DD 1H1	2.000	3.125	0.0129	11.1
	43,000	23A 433 F 050 DE 1H1	2.000	3.625	0.0115	12.6
	50,000	23A 503 F 050 DF 1H1	2.000	4.125	0.0106	13.8
	59,000	23A 593 F 050 DG 1H1	2.000	4.625	0.0098	15.2
	67,000	23A 673 F 050 DH 1H1	2.000	5.125	0.0092	16.4
	75,000	23A 753 F 050 DI 1H1	2.000	5.625	0.0088	17.5
	57,000	23A 573 F 050 ED 1H1	2.500	3.125	0.0100	14.4
	72,000	23A 723 F 050 EE 1H1	2.500	3.625	0.0090	16.1
	83,000	23A 833 F 050 EF 1H1	2.500	4.125	0.0085	17.6
	100,000	23A 104 F 050 EG 1H1	2.500	4.625	0.0079	19.1
	110,000	23A 114 F 050 EH 1H1	2.500	5.125	0.0077	20.3
	120,000	23A 124 F 050 EI 1H1	2.500	5.625	0.0074	21.5
	83,000	23A 833 F 050 FD 1H1	3.000	3.125	0.0085	17.4
	100,000	23A 104 F 050 FE 1H1	3.000	3.625	0.0079	19.1
	120,000	23A 124 F 050 FF 1H1	3.000	4.125	0.0074	20.8
	140,000	23A 144 F 050 FG 1H1	3.000	4.625	0.0071	22.3
160,000	23A 164 F 050 FH 1H1	3.000	5.125	0.0069	23.8	
180,000	23A 184 F 050 FI 1H1	3.000	5.625	0.0067	25.1	
190,000	23A 194 F 050 FJ 1H1	3.000	5.875	0.0066	25.5	
230,000	23A 234 F 050 FL 1H1	3.000	8.625	0.0063	31.2	

Electrolytic Capacitors

23A Series – Standard Product Line

Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
60	6,300	23A 632 F 060 BB 1H1	1.375	2.125	0.0369	4.5
	9,000	23A 902 F 060 BC 1H1	1.375	2.625	0.0271	5.8
	12,000	23A 123 F 060 BD 1H1	1.375	3.125	0.0214	7.0
	15,000	23A 153 F 060 BE 1H1	1.375	3.625	0.0179	8.2
	17,000	23A 173 F 060 BF 1H1	1.375	4.125	0.0163	9.1
	20,000	23A 203 F 060 BG 1H1	1.375	4.625	0.0146	10.2
	23,000	23A 233 F 060 BH 1H1	1.375	5.125	0.0132	11.2
	26,000	23A 263 F 060 BI 1H1	1.375	5.625	0.0122	12.1
	11,000	23A 113 F 060 CB 1H1	1.750	2.125	0.0229	6.6
	16,000	23A 163 F 060 CC 1H1	1.750	2.625	0.0171	8.3
	22,000	23A 223 F 060 CD 1H1	1.750	3.125	0.0136	10.0
	27,000	23A 273 F 060 CE 1H1	1.750	3.625	0.0120	11.4
	31,000	23A 313 F 060 CF 1H1	1.750	4.125	0.0110	12.6
	37,000	23A 373 F 060 CG 1H1	1.750	4.625	0.0100	13.9
	42,000	23A 423 F 060 CH 1H1	1.750	5.125	0.0094	15.1
	47,000	23A 473 F 060 CI 1H1	1.750	5.625	0.0090	16.1
	15,000	23A 153 F 060 DB 1H1	2.000	2.125	0.0179	8.0
	21,000	23A 213 F 060 DC 1H1	2.000	2.625	0.0141	9.9
	28,000	23A 283 F 060 DD 1H1	2.000	3.125	0.0117	11.7
	35,000	23A 353 F 060 DE 1H1	2.000	3.625	0.0103	13.3
	40,000	23A 403 F 060 DF 1H1	2.000	4.125	0.0097	14.5
	48,000	23A 483 F 060 DG 1H1	2.000	4.625	0.0089	15.9
	54,000	23A 543 F 060 DH 1H1	2.000	5.125	0.0085	17.1
	61,000	23A 613 F 060 DI 1H1	2.000	5.625	0.0082	18.2
	46,000	23A 463 F 060 ED 1H1	2.500	3.125	0.0091	15.1
	58,000	23A 583 F 060 EE 1H1	2.500	3.625	0.0083	16.8
	67,000	23A 673 F 060 EF 1H1	2.500	4.125	0.0079	18.1
	78,000	23A 783 F 060 EG 1H1	2.500	4.625	0.0077	19.4
	89,000	23A 893 F 060 EH 1H1	2.500	5.125	0.0075	20.6
	100,000	23A 104 F 060 EI 1H1	2.500	5.625	0.0074	21.6
	67,000	23A 673 F 060 FD 1H1	3.000	3.125	0.0079	17.9
	84,000	23A 843 F 060 FE 1H1	3.000	3.625	0.0076	19.6
	100,000	23A 104 F 060 FF 1H1	3.000	4.125	0.0074	20.9
	110,000	23A 114 F 060 FG 1H1	3.000	4.625	0.0073	22.0
130,000	23A 134 F 060 FH 1H1	3.000	5.125	0.0073	23.0	
150,000	23A 154 F 060 FI 1H1	3.000	5.625	0.0073	24.0	
150,000	23A 154 F 060 FJ 1H1	3.000	5.875	0.0073	24.2	
180,000	23A 184 F 060 FL 1H1	3.000	8.625	0.0073	29.1	

Electrolytic Capacitors

23A Series – Standard Product Line



Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
75	4,800	23A 482 F 075 BB 1H1	1.375	2.125	0.0469	4.0
	6,800	23A 682 F 075 BC 1H1	1.375	2.625	0.0344	5.1
	9,000	23A 902 F 075 BD 1H1	1.375	3.125	0.0270	6.2
	11,000	23A 113 F 075 BE 1H1	1.375	3.625	0.0229	7.2
	13,000	23A 133 F 075 BF 1H1	1.375	4.125	0.0200	8.2
	15,000	23A 153 F 075 BG 1H1	1.375	4.625	0.0179	9.2
	17,000	23A 173 F 075 BH 1H1	1.375	5.125	0.0163	10.1
	19,000	23A 193 F 075 BI 1H1	1.375	5.625	0.0150	11.0
	8,700	23A 872 F 075 CB 1H1	1.750	2.125	0.0278	6.0
	12,000	23A 123 F 075 CC 1H1	1.750	2.625	0.0213	7.4
	16,000	23A 163 F 075 CD 1H1	1.750	3.125	0.0171	9.0
	20,000	23A 203 F 075 CE 1H1	1.750	3.625	0.0145	10.4
	24,000	23A 243 F 075 CF 1H1	1.750	4.125	0.0128	11.7
	28,000	23A 283 F 075 CG 1H1	1.750	4.625	0.0116	12.9
	32,000	23A 323 F 075 CH 1H1	1.750	5.125	0.0107	14.1
	35,000	23A 353 F 075 CI 1H1	1.750	5.625	0.0102	15.1
	11,000	23A 113 F 075 DB 1H1	2.000	2.125	0.0229	7.1
	16,000	23A 163 F 075 DC 1H1	2.000	2.625	0.0171	9.0
	21,000	23A 213 F 075 DD 1H1	2.000	3.125	0.0104	10.7
	27,000	23A 273 F 075 DE 1H1	2.000	3.625	0.0119	12.4
	31,000	23A 313 F 075 DF 1H1	2.000	4.125	0.0109	13.6
	36,000	23A 363 F 075 DG 1H1	2.000	4.625	0.0100	15.0
	41,000	23A 413 F 075 DH 1H1	2.000	5.125	0.0094	16.2
	46,000	23A 463 F 075 DI 1H1	2.000	5.625	0.0089	17.4
	35,000	23A 353 F 075 ED 1H1	2.500	3.125	0.0102	14.2
	44,000	23A 443 F 075 EE 1H1	2.500	3.625	0.0090	16.1
	50,000	23A 503 F 075 EF 1H1	2.500	4.125	0.0085	17.5
	59,000	23A 593 F 075 EG 1H1	2.500	4.625	0.0079	19.1
	68,000	23A 683 F 075 EH 1H1	2.500	5.125	0.0075	20.5
	76,000	23A 763 F 075 EI 1H1	2.500	5.625	0.0073	21.7
	51,000	23A 513 F 075 FD 1H1	3.000	3.125	0.0084	17.4
	64,000	23A 643 F 075 FE 1H1	3.000	3.625	0.0077	19.4
	73,000	23A 733 F 075 FF 1H1	3.000	4.125	0.0074	20.9
86,000	23A 863 F 075 FG 1H1	3.000	4.625	0.0070	22.5	
100,000	23A 104 F 075 FH 1H1	3.000	5.125	0.0068	23.9	
110,000	23A 114 F 075 FI 1H1	3.000	5.625	0.0066	25.2	
110,000	23A 114 F 075 FJ 1H1	3.000	5.875	0.0066	25.4	
140,000	23A 144 F 075 FL 1H1	3.000	8.625	0.0064	31.1	

Electrolytic Capacitors

23A Series – Standard Product Line

Voltage (WVDC)	Capacitance (µF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
80	4,400	23A 442 F 080 BB 1H1	1.375	2.125	0.4020	4.3
	6,300	23A 632 F 080 BC 1H1	1.375	2.625	0.0357	5.0
	8,400	23A 842 F 080 BD 1H1	1.375	3.125	0.0306	5.9
	10,000	23A 103 F 080 BE 1H1	1.375	3.625	0.0275	6.6
	12,000	23A 123 F 080 BF 1H1	1.375	4.125	0.0244	7.4
	14,000	23A 143 F 080 BG 1H1	1.375	4.625	0.0220	8.3
	16,000	23A 163 F 080 BH 1H1	1.375	5.125	0.0201	9.1
	18,000	23A 183 F 080 BI 1H1	1.375	5.625	0.0186	9.9
	8,000	23A 802 F 080 CB 1H1	1.750	2.125	0.0315	5.6
	11,000	23A 113 F 080 CC 1H1	1.750	2.625	0.0259	6.8
	15,000	23A 153 F 080 CD 1H1	1.750	3.125	0.0210	8.1
	19,000	23A 193 F 080 CE 1H1	1.750	3.625	0.0179	9.3
	22,000	23A 223 F 080 CF 1H1	1.750	4.125	0.0162	10.4
	26,000	23A 263 F 080 CG 1H1	1.750	4.625	0.0145	11.6
	29,000	23A 293 F 080 CH 1H1	1.750	5.125	0.0135	12.6
	33,000	23A 333 F 080 CI 1H1	1.750	5.625	0.0124	13.7
	10,000	23A 103 F 080 DB 1H1	2.000	2.125	0.0275	6.5
	15,000	23A 153 F 080 DC 1H1	2.000	2.625	0.0210	8.1
	20,000	23A 203 F 080 DD 1H1	2.000	3.125	0.0173	9.6
	25,000	23A 253 F 080 DE 1H1	2.000	3.625	0.0149	11.0
	28,000	23A 283 F 080 DF 1H1	2.000	4.125	0.0138	12.1
	33,000	23A 333 F 080 DG 1H1	2.000	4.625	0.0124	13.5
	38,000	23A 383 F 080 DH 1H1	2.000	5.125	0.0114	14.7
	43,000	23A 433 F 080 DI 1H1	2.000	5.625	0.0106	15.9
	32,000	23A 323 F 080 ED 1H1	2.500	3.125	0.0127	12.7
	41,000	23A 413 F 080 EE 1H1	2.500	3.625	0.0109	14.6
	47,000	23A 473 F 080 EF 1H1	2.500	4.125	0.0101	16.1
	55,000	23A 553 F 080 EG 1H1	2.500	4.625	0.0092	17.7
	63,000	23A 633 F 080 EH 1H1	2.500	5.125	0.0086	19.2
	70,000	23A 703 F 080 EI 1H1	2.500	5.625	0.0082	20.5
	47,000	23A 473 F 080 FD 1H1	3.000	3.125	0.0101	15.9
	59,000	23A 593 F 080 FE 1H1	3.000	3.625	0.0089	18.0
	68,000	23A 683 F 080 FF 1H1	3.000	4.125	0.0083	19.7
	80,000	23A 803 F 080 FG 1H1	3.000	4.625	0.0077	21.5
91,000	23A 913 F 080 FH 1H1	3.000	5.125	0.0073	23.1	
100,000	23A 104 F 080 FI 1H1	3.000	5.625	0.0070	24.6	
110,000	23A 114 F 080 FJ 1H1	3.000	5.875	0.0067	25.3	
130,000	23A 134 F 080 FL 1H1	3.000	8.625	0.0063	31.3	

Electrolytic Capacitors

23A Series – Standard Product Line

Voltage (WVDC)	Capacitance (µF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
100	2,500	23A 252 F 100 BB 1H1	1.375	2.125	0.0665	3.4
	3,500	23A 352 F 100 BC 1H1	1.375	2.625	0.0555	4.0
	4,700	23A 472 F 100 BD 1H1	1.375	3.125	0.0459	4.8
	5,900	23A 592 F 100 BE 1H1	1.375	3.625	0.0394	5.5
	6,800	23A 682 F 100 BF 1H1	1.375	4.125	0.0357	6.2
	8,000	23A 802 F 100 BG 1H1	1.375	4.625	0.0319	6.9
	9,100	23A 912 F 100 BH 1H1	1.375	5.125	0.0292	7.5
	10,000	23A 103 F 100 BI 1H1	1.375	5.625	0.0273	8.1
	4,500	23A 452 F 100 CB 1H1	1.750	2.125	0.0473	4.6
	6,500	23A 652 F 100 CC 1H1	1.750	2.625	0.0368	5.7
	8,600	23A 862 F 100 CD 1H1	1.750	3.125	0.0303	6.7
	11,000	23A 113 F 100 CE 1H1	1.750	3.625	0.0256	7.8
	12,000	23A 123 F 100 CF 1H1	1.750	4.125	0.0242	8.5
	15,000	23A 153 F 100 CG 1H1	1.750	4.625	0.0209	9.6
	17,000	23A 173 F 100 CH 1H1	1.750	5.125	0.0194	10.5
	19,000	23A 193 F 100 CI 1H1	1.750	5.625	0.0181	11.4
	5,900	23A 592 F 100 DB 1H1	2.000	2.125	0.0394	5.4
	8,400	23A 842 F 100 DC 1H1	2.000	2.625	0.0308	6.7
	11,000	23A 113 F 100 DD 1H1	2.000	3.125	0.0256	7.9
	14,000	23A 143 F 100 DE 1H1	2.000	3.625	0.0219	9.1
	16,000	23A 163 F 100 DF 1H1	2.000	4.125	0.0201	10.1
	19,000	23A 193 F 100 DG 1H1	2.000	4.625	0.0181	11.2
	22,000	23A 223 F 100 DH 1H1	2.000	5.125	0.0166	12.2
	24,000	23A 243 F 100 DI 1H1	2.000	5.625	0.0159	13.0
	18,000	23A 183 F 100 ED 1H1	2.500	3.125	0.0187	10.5
	23,000	23A 233 F 100 EE 1H1	2.500	3.625	0.0162	12.0
	26,000	23A 263 F 100 EF 1H1	2.500	4.125	0.0152	13.1
	31,000	23A 313 F 100 EG 1H1	2.500	4.625	0.0139	14.4
	35,000	23A 353 F 100 EH 1H1	2.500	5.125	0.0131	15.5
	40,000	23A 403 F 100 EI 1H1	2.500	5.625	0.0123	16.7
	27,000	23A 273 F 100 FD 1H1	3.000	3.125	0.0149	13.1
	33,000	23A 333 F 100 FE 1H1	3.000	3.625	0.0135	14.6
	38,000	23A 383 F 100 FF 1H1	3.000	4.125	0.0126	16.0
	45,000	23A 453 F 100 FG 1H1	3.000	4.625	0.0117	17.4
52,000	23A 523 F 100 FH 1H1	3.000	5.125	0.0111	18.7	
58,000	23A 583 F 100 FI 1H1	3.000	5.625	0.0107	19.8	
60,000	23A 603 F 100 FJ 1H1	3.000	5.875	0.0106	20.2	
72,000	23A 723 F 100 FL 1H1	3.000	8.625	0.0099	24.9	

Electrolytic Capacitors

23A Series – Standard Product Line

Voltage (WVDC)	Capacitance (µF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
150	910	23A 911 F 150 BB 1H1	1.375	2.125	0.1431	2.3
	1,300	23A 132 F 150 BC 1H1	1.375	2.625	0.1044	2.9
	1,700	23A 172 F 150 BD 1H1	1.375	3.125	0.0816	3.6
	2,200	23A 222 F 150 BE 1H1	1.375	3.625	0.0641	4.3
	2,500	23A 252 F 150 BF 1H1	1.375	4.125	0.0568	4.9
	2,900	23A 292 F 150 BG 1H1	1.375	4.625	0.0493	5.5
	3,300	23A 332 F 150 BH 1H1	1.375	5.125	0.0435	6.2
	3,700	23A 372 F 150 BI 1H1	1.375	5.625	0.0390	6.8
	1,700	23A 172 F 150 CB 1H1	1.750	2.125	0.0816	3.5
	2,400	23A 242 F 150 CC 1H1	1.750	2.625	0.0590	4.5
	3,100	23A 312 F 150 CD 1H1	1.750	3.125	0.0468	5.4
	3,900	23A 392 F 150 CE 1H1	1.750	3.625	0.0370	6.5
	4,500	23A 452 F 150 CF 1H1	1.750	4.125	0.0322	7.4
	5,300	23A 532 F 150 CG 1H1	1.750	4.625	0.0275	8.4
	6,100	23A 612 F 150 CH 1H1	1.750	5.125	0.0240	9.4
	6,800	23A 682 F 150 CI 1H1	1.750	5.625	0.0216	10.4
	2,200	23A 222 F 150 DB 1H1	2.000	2.125	0.0641	4.2
	3,100	23A 312 F 150 DC 1H1	2.000	2.625	0.0462	5.5
	4,100	23A 412 F 150 DD 1H1	2.000	3.125	0.0353	6.7
	5,100	23A 512 F 150 DE 1H1	2.000	3.625	0.0285	8.0
	5,900	23A 592 F 150 DF 1H1	2.000	4.125	0.0248	9.1
	6,900	23A 692 F 150 DG 1H1	2.000	4.625	0.0212	10.3
	7,900	23A 795 F 150 DH 1H1	2.000	5.125	0.0186	11.5
	8,800	23A 882 F 150 DI 1H1	2.000	5.625	0.0167	12.7
	6,700	23A 672 F 150 ED 1H1	2.500	3.125	0.0219	9.7
	8,400	23A 842 F 150 EE 1H1	2.500	3.625	0.0175	11.5
	10,000	23A 103 F 150 EF 1H1	2.500	4.125	0.0148	13.3
	11,000	23A 113 F 150 EG 1H1	2.500	4.625	0.0134	14.7
	13,000	23A 133 F 150 EH 1H1	2.500	5.125	0.0114	16.6
	15,000	23A 153 F 150 EI 1H1	2.500	5.625	0.0099	18.6
	10,000	23A 103 F 150 FD 1H1	3.000	3.125	0.0148	13.2
	12,000	23A 123 F 150 FE 1H1	3.000	3.625	0.0123	15.3
14,000	23A 143 F 150 FF 1H1	3.000	4.125	0.0106	17.4	
17,000	23A 173 F 150 FG 1H1	3.000	4.625	0.0088	20.1	
19,000	23A 193 F 150 FH 1H1	3.000	5.125	0.0079	22.2	
21,000	23A 213 F 150 FI 1H1	3.000	5.625	0.0071	24.3	
22,000	23A 223 F 150 FJ 1H1	3.000	5.875	0.0068	25.1	
26,000	23A 263 F 150 FL 1H1	3.000	8.625	0.0058	32.7	

Electrolytic Capacitors

23B Series - Standard Product Line

PREMIUM PRODUCT LINE:

- Broad Capacitance Range
- Increased Volumetric Efficiency
- Low ESR
- Standard Ratings

SPECIFICATIONS:

Capacitance Range:	300 to 140,000 μ F
Voltage Range:	50 to 250 WVDC
Capacitance Tolerance:	-10% / +50% Standard
Operating Temperature:	-40 $^{\circ}$ C to +85 $^{\circ}$ C
Life @ 85 $^{\circ}$ C:	3,000 Hrs.
Terminals:	10-32 High Post – Standard (Other terminal configurations available)

RIPPLE CURRENT APPLICATION GUIDELINES:

RIPPLE CURRENT **FREQUENCY** MULTIPLIERS

100 Hz	120 Hz	400 Hz	4 KHz	10 KHz	20 KHz
0.97	1.00	1.10	1.15	1.25	1.25

RIPPLE CURRENT **TEMPERATURE** MULTIPLIERS

85	75	65	55	45	35
1.0	1.4	1.7	2.0	2.3	2.5

FOR COMPLETE APPLICATION SPECIFICATION DETAILS SEE
APPLICATION GUIDELINES SECTION OF CATALOG

Electrolytic Capacitors

23B Series - Standard Product Line



Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
50	5,000	23B 502 F 050 BB 1H1	1.375	2.125	0.0285	7.2
	7,000	23B 702 F 050 BC 1H1	1.375	2.625	0.0199	9.5
	9,000	23B 902 F 050 BD 1H1	1.375	3.125	0.0159	11.5
	12,000	23B 123 F 050 BE 1H1	1.375	3.625	0.0129	13.6
	14,000	23B 143 F 050 BF 1H1	1.375	4.125	0.0117	15.2
	16,000	23B 163 F 050 BG 1H1	1.375	4.625	0.0109	16.6
	18,000	23B 183 F 050 BH 1H1	1.375	5.125	0.0103	17.9
	20,000	23B 203 F 050 BI 1H1	1.375	5.625	0.0099	19.1
	9,100	23B 912 F 050 CB 1H1	1.750	2.125	0.0157	11.2
	13,000	23B 133 F 050 CC 1H1	1.750	2.625	0.0123	13.9
	17,000	23B 173 F 050 CD 1H1	1.750	3.125	0.0106	16.1
	22,000	23B 223 F 050 CE 1H1	1.750	3.625	0.0095	18.1
	25,000	23B 253 F 050 CF 1H1	1.750	4.125	0.0091	19.6
	29,000	23B 293 F 050 CG 1H1	1.750	4.625	0.0087	21.1
	33,000	23B 333 F 050 CH 1H1	1.750	5.125	0.0084	22.5
	37,000	23B 373 F 050 CI 1H1	1.750	5.625	0.0082	23.8
	12,000	23B 123 F 050 DB 1H1	2.000	2.125	0.0129	13.4
	17,000	23B 173 F 050 DC 1H1	2.000	2.625	0.0106	16.1
	22,000	23B 223 F 050 DD 1H1	2.000	3.125	0.0095	18.3
	28,000	23B 283 F 050 DE 1H1	2.000	3.625	0.0088	20.3
	32,000	23B 323 F 050 DF 1H1	2.000	4.125	0.0085	21.9
	38,000	23B 383 F 050 DG 1H1	2.000	4.625	0.0082	23.5
	43,000	23B 433 F 050 DH 1H1	2.000	5.125	0.0080	24.9
	48,000	23B 483 F 050 DI 1H1	2.000	5.625	0.0078	26.3
	37,000	23B 373 F 050 ED 1H1	2.500	3.125	0.0082	22.4
	46,000	23B 463 F 050 EE 1H1	2.500	3.625	0.0079	24.4
	53,000	23B 533 F 050 EF 1H1	2.500	4.125	0.0077	26.1
	62,000	23B 623 F 050 EG 1H1	2.500	4.625	0.0075	27.7
	71,000	23B 713 F 050 EH 1H1	2.500	5.125	0.0074	29.2
	79,000	23B 793 F 050 EI 1H1	2.500	5.625	0.0073	30.7
	53,000	23B 533 F 050 FD 1H1	3.000	3.125	0.0077	25.8
	70,000	23B 703 F 050 FE 1H1	3.000	3.625	0.0074	27.9
	80,000	23B 803 F 050 FF 1H1	3.000	4.125	0.0073	29.7
	90,000	23B 903 F 050 FG 1H1	3.000	4.625	0.0072	31.3
100,000	23B 104 F 050 FH 1H1	3.000	5.125	0.0072	32.9	
120,000	23B 124 F 050 FI 1H1	3.000	5.625	0.0071	34.5	
120,000	23B 124 F 050 FJ 1H1	3.000	5.875	0.0071	34.8	
140,000	23B 144 F 050 FL 1H1	3.000	8.625	0.0070	42.0	

Electrolytic Capacitors

23B Series - Standard Product Line

Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
60	4,700	23B 472 F 060 BB 1H1	1.375	2.125	0.0255	7.6
	6,600	23B 662 F 060 BC 1H1	1.375	2.625	0.0185	9.8
	9,000	23B 902 F 060 BD 1H1	1.375	3.125	0.0146	12.0
	11,000	23B 113 F 060 BE 1H1	1.375	3.625	0.0129	13.6
	13,000	23B 133 F 060 BF 1H1	1.375	4.125	0.0118	15.1
	15,000	23B 153 F 060 BG 1H1	1.375	4.625	0.0110	16.5
	17,000	23B 173 F 060 BH 1H1	1.375	5.125	0.0105	17.8
	19,000	23B 193 F 060 BI 1H1	1.375	5.625	0.0100	19.0
	8,500	23B 852 F 060 CB 1H1	1.750	2.125	0.0152	11.4
	12,000	23B 123 F 060 CC 1H1	1.750	2.625	0.0123	13.9
	16,000	23B 163 F 060 CD 1H1	1.750	3.125	0.0107	16.0
	20,000	23B 203 F 060 CE 1H1	1.750	3.625	0.0099	17.8
	23,000	23B 233 F 060 CF 1H1	1.750	4.125	0.0094	19.3
	27,000	23B 273 F 060 CG 1H1	1.750	4.625	0.0090	20.8
	31,000	23B 313 F 060 CH 1H1	1.750	5.125	0.0087	22.1
	35,000	23B 353 F 060 CI 1H1	1.750	5.625	0.0085	23.4
	11,000	23B 113 F 060 DB 1H1	2.000	2.125	0.0129	13.4
	16,000	23B 163 F 060 DC 1H1	2.000	2.625	0.0107	16.0
	21,000	23B 213 F 060 DD 1H1	2.000	3.125	0.0097	18.1
	26,000	23B 263 F 060 DE 1H1	2.000	3.625	0.0091	19.9
	30,000	23B 303 F 060 DF 1H1	2.000	4.125	0.0088	21.5
	35,000	23B 353 F 060 DG 1H1	2.000	4.625	0.0085	23.0
	40,000	23B 403 F 060 DH 1H1	2.000	5.125	0.0083	24.4
	45,000	23B 453 F 060 DI 1H1	2.000	5.625	0.0082	25.7
	34,000	23B 343 F 060 ED 1H1	2.500	3.125	0.0086	21.9
	43,000	23B 433 F 060 EE 1H1	2.500	3.625	0.0082	23.9
	49,000	23B 493 F 060 EF 1H1	2.500	4.125	0.0080	25.5
	58,000	23B 583 F 060 EG 1H1	2.500	4.625	0.0079	27.1
	66,000	23B 663 F 060 EH 1H1	2.500	5.125	0.0078	28.5
	74,000	23B 743 F 060 EI 1H1	2.500	5.625	0.0077	29.9
	50,000	23B 503 F 060 FD 1H1	3.000	3.125	0.0080	25.2
	62,000	23B 623 F 060 FE 1H1	3.000	3.625	0.0078	27.2
	72,000	23B 723 F 060 FF 1H1	3.000	4.125	0.0077	28.9
	84,000	23B 843 F 060 FG 1H1	3.000	4.625	0.0076	30.6
100,000	23B 104 F 060 FH 1H1	3.000	5.125	0.0075	32.2	
110,000	23B 114 F 060 FI 1H1	3.000	5.625	0.0074	33.6	
110,000	23B 114 F 060 FJ 1H1	3.000	5.875	0.0074	34.0	
130,000	23B 134 F 060 FL 1H1	3.000	8.625	0.0074	41.0	

Electrolytic Capacitors

23B Series - Standard Product Line

Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
75	3,500	23B 352 F 075 BB 1H1	1.375	2.125	0.0372	6.3
	5,000	23B 502 F 075 BC 1H1	1.375	2.625	0.0239	8.7
	6,700	23B 672 F 075 BD 1H1	1.375	3.125	0.0177	10.9
	8,000	23B 802 F 075 BE 1H1	1.375	3.625	0.0151	12.6
	10,000	23B 103 F 075 BF 1H1	1.375	4.125	0.0128	14.5
	11,000	23B 113 F 075 BG 1H1	1.375	4.625	0.0120	15.8
	13,000	23B 133 F 075 BH 1H1	1.375	5.125	0.0109	17.4
	15,000	23B 153 F 075 BI 1H1	1.375	5.625	0.0102	18.8
	6,500	23B 652 F 075 CB 1H1	1.750	2.125	0.0182	10.4
	9,000	23B 902 F 075 CC 1H1	1.750	2.625	0.0138	13.1
	12,000	23B 123 F 075 CD 1H1	1.750	3.125	0.0114	15.5
	15,000	23B 153 F 075 CE 1H1	1.750	3.625	0.0102	17.5
	18,000	23B 183 F 075 CF 1H1	1.750	4.125	0.0094	19.3
	21,000	23B 213 F 075 CG 1H1	1.750	4.625	0.0089	20.9
	24,000	23B 243 F 075 CH 1H1	1.750	5.125	0.0086	22.4
	26,000	23B 263 F 075 CI 1H1	1.750	5.625	0.0084	23.6
	8,400	23B 842 F 075 DB 1H1	2.000	2.125	0.0145	12.6
	12,000	23B 123 F 075 DC 1H1	2.000	2.625	0.0114	15.5
	16,000	23B 163 F 075 DD 1H1	2.000	3.125	0.0099	18.0
	20,000	23B 203 F 075 DE 1H1	2.000	3.625	0.0091	20.0
	23,000	23B 233 F 075 DF 1H1	2.000	4.125	0.0087	21.7
	27,000	23B 273 F 075 DG 1H1	2.000	4.625	0.0083	23.3
	31,000	23B 313 F 075 DH 1H1	2.000	5.125	0.0080	24.8
	34,000	23B 343 F 075 DI 1H1	2.000	5.625	0.0079	26.1
	26,000	23B 263 F 075 ED 1H1	2.500	3.125	0.0084	22.2
	33,000	23B 333 F 075 EE 1H1	2.500	3.625	0.0079	24.3
	38,000	23B 383 F 075 EF 1H1	2.500	4.125	0.0077	26.0
	44,000	23B 443 F 075 EG 1H1	2.500	4.625	0.0075	27.7
	50,000	23B 503 F 075 EH 1H1	2.500	5.125	0.0074	29.2
	56,000	23B 563 F 075 EI 1H1	2.500	5.625	0.0073	30.7
	38,000	23B 383 F 075 FD 1H1	3.000	3.125	0.0077	25.7
	47,000	23B 473 F 075 FE 1H1	3.000	3.625	0.0075	27.8
	55,000	23B 553 F 075 FF 1H1	3.000	4.125	0.0073	29.6
	64,000	23B 643 F 075 FG 1H1	3.000	4.625	0.0072	31.4
	73,000	23B 733 F 075 FH 1H1	3.000	5.125	0.0071	33.0
	82,000	23B 823 F 075 FI 1H1	3.000	5.625	0.0071	34.5
	85,000	23B 853 F 075 FJ 1H1	3.000	5.875	0.0070	34.9
	100,000	23B 104 F 075 FL 1H1	3.000	8.625	0.0070	42.2

Electrolytic Capacitors

23B Series - Standard Product Line



Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
80	2,900	23B 292 F 080 BB 1H1	1.375	2.125	0.0332	6.7
	4,100	23B 412 F 080 BC 1H1	1.375	2.625	0.0237	8.7
	5,500	23B 552 F 080 BD 1H1	1.375	3.125	0.0187	10.6
	6,900	23B 692 F 080 BE 1H1	1.375	3.625	0.0161	12.2
	7,900	23B 792 F 080 BF 1H1	1.375	4.125	0.0149	13.5
	9,000	23B 902 F 080 BG 1H1	1.375	4.625	0.0139	14.7
	11,000	23B 113 F 080 BH 1H1	1.375	5.125	0.0127	16.1
	12,000	23B 123 F 080 BI 1H1	1.375	5.625	0.0123	17.1
	5,300	23B 532 F 080 CB 1H1	1.750	2.125	0.0192	10.1
	7,600	23B 762 F 080 CC 1H1	1.750	2.625	0.0152	12.5
	10,000	23B 103 F 080 CD 1H1	1.750	3.125	0.0132	14.4
	13,000	23B 133 F 080 CE 1H1	1.750	3.625	0.0119	16.2
	14,000	23B 143 F 080 CF 1H1	1.750	4.125	0.0116	17.4
	17,000	23B 173 F 080 CG 1H1	1.750	4.625	0.0110	18.9
	19,000	23B 193 F 080 CH 1H1	1.750	5.125	0.0106	20.1
	22,000	23B 223 F 080 CI 1H1	1.750	5.625	0.0103	21.3
	6,900	23B 692 F 080 DB 1H1	2.000	2.125	0.0161	12.0
	10,000	23B 103 F 080 DC 1H1	2.000	2.625	0.0132	14.4
	13,000	23B 133 F 080 DD 1H1	2.000	3.125	0.0119	16.4
	16,000	23B 163 F 080 DE 1H1	2.000	3.625	0.0111	18.0
	19,000	23B 193 F 080 DF 1H1	2.000	4.125	0.0106	19.6
	22,000	23B 223 F 080 DG 1H1	2.000	4.625	0.0103	20.9
	25,000	23B 253 F 080 DH 1H1	2.000	5.125	0.0100	22.2
	28,000	23B 283 F 080 DI 1H1	2.000	5.625	0.0098	23.4
	21,000	23B 213 F 080 ED 1H1	2.500	3.125	0.0104	19.9
	27,000	23B 273 F 080 EE 1H1	2.500	3.625	0.0099	21.8
	31,000	23B 313 F 080 EF 1H1	2.500	4.125	0.0096	23.3
	36,000	23B 363 F 080 EG 1H1	2.500	4.625	0.0094	24.7
	41,000	23B 413 F 080 EH 1H1	2.500	5.125	0.0093	26.1
	46,000	23B 463 F 080 EI 1H1	2.500	5.625	0.0092	27.4
	31,000	23B 313 F 080 FD 1H1	3.000	3.125	0.0096	23.0
	39,000	23B 393 F 080 FE 1H1	3.000	3.625	0.0093	24.9
	45,000	23B 453 F 080 FF 1H1	3.000	4.125	0.0092	26.5
	53,000	23B 533 F 080 FG 1H1	3.000	4.625	0.0090	28.0
	60,000	23B 603 F 080 FH 1H1	3.000	5.125	0.0089	29.5
	67,000	23B 673 F 080 FI 1H1	3.000	5.625	0.0089	30.8
	70,000	23B 703 F 080 FJ 1H1	3.000	5.875	0.0088	31.2
	84,000	23B 843 F 080 FL 1H1	3.000	8.625	0.0087	37.7

Electrolytic Capacitors

23B Series - Standard Product Line



Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
100	1,500	23B 152 F 100 BB 1H1	1.375	2.125	0.0643	4.8
	2,100	23B 212 F 100 BC 1H1	1.375	2.625	0.0454	6.3
	2,800	23B 282 F 100 BD 1H1	1.375	3.125	0.0344	7.8
	4,000	23B 402 F 100 BF 1H1	1.375	4.125	0.0252	10.3
	4,700	23B 472 F 100 BG 1H1	1.375	4.625	0.0222	11.6
	5,400	23B 542 F 100 BH 1H1	1.375	5.125	0.0199	12.9
	6,000	23B 602 F 100 BI 1H1	1.375	5.625	0.0185	14.0
	2,700	23B 272 F 100 CB 1H1	1.750	2.125	0.0356	7.4
	3,800	23B 382 F 100 CC 1H1	1.750	2.625	0.0263	9.5
	5,100	23B 512 F 100 CD 1H1	1.750	3.125	0.0208	11.5
	6,400	23B 642 F 100 CE 1H1	1.750	3.625	0.0176	13.3
	7,300	23B 732 F 100 CF 1H1	1.750	4.125	0.0161	14.8
	8,600	23B 862 F 100 CG 1H1	1.750	4.625	0.0145	16.4
	10,000	23B 103 F 100 CH 1H1	1.750	5.125	0.0133	17.9
	11,000	23B 113 F 100 CI 1H1	1.750	5.625	0.0126	19.2
	3,500	23B 352 F 100 DB 1H1	2.000	2.125	0.0282	9.0
	5,000	23B 502 F 100 DC 1H1	2.000	2.625	0.0211	11.4
	6,600	23B 662 F 100 DD 1H1	2.000	3.125	0.0173	13.6
	8,200	23B 822 F 100 DE 1H1	2.000	3.625	0.0150	15.6
	9,000	23B 902 F 100 DF 1H1	2.000	4.125	0.0141	17.0
	11,000	23B 113 F 100 DG 1H1	2.000	4.625	0.0126	18.9
	13,000	23B 133 F 100 DH 1H1	2.000	5.125	0.0116	20.7
	14,000	23B 143 F 100 DI 1H1	2.000	5.625	0.0112	22.0
	11,000	23B 113 F 100 ED 1H1	2.500	3.125	0.0126	18.1
	14,000	23B 143 F 100 EE 1H1	2.500	3.625	0.0112	20.5
	16,000	23B 163 F 100 EF 1H1	2.500	4.125	0.0105	22.3
	18,000	23B 183 F 100 EG 1H1	2.500	4.625	0.0100	24.0
	21,000	23B 213 F 100 EH 1H1	2.500	5.125	0.0094	25.9
	23,000	23B 233 F 100 EI 1H1	2.500	5.625	0.0091	27.5
	16,000	23B 163 F 100 FD 1H1	3.000	3.125	0.0105	22.1
	20,000	23B 203 F 100 FE 1H1	3.000	3.625	0.0096	24.5
	23,000	23B 233 F 100 FF 1H1	3.000	4.125	0.0091	26.6
	27,000	23B 273 F 100 FG 1H1	3.000	4.625	0.0086	28.7
	31,000	23B 313 F 100 FH 1H1	3.000	5.125	0.0083	30.6
34,000	23B 343 F 100 FI 1H1	3.000	5.625	0.0081	32.2	
35,000	23B 353 F 100 FJ 1H1	3.000	5.875	0.0080	32.7	
43,000	23B 433 F 100 FL 1H1	3.000	8.625	0.0076	40.2	

Electrolytic Capacitors

23B Series - Standard Product Line



Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
150	710	23B 711 F 150 BB 1H1	1.375	2.125	0.1283	3.4
	1,000	23B 102 F 150 BC 1H1	1.375	2.625	0.0889	4.5
	1,300	23B 132 F 150 BD 1H1	1.375	3.125	0.0689	5.5
	1,700	23B 172 F 150 BE 1H1	1.375	3.625	0.0528	6.7
	1,900	23B 192 F 150 BF 1H1	1.375	4.125	0.0474	7.5
	2,300	23B 232 F 150 BG 1H1	1.375	4.625	0.0395	8.7
	2,600	23B 262 F 150 BH 1H1	1.375	5.125	0.0352	9.7
	2,900	23B 292 F 150 BI 1H1	1.375	5.625	0.0318	10.7
	1,300	23B 132 F 150 CB 1H1	1.750	2.125	0.0689	5.4
	1,800	23B 182 F 150 CC 1H1	1.750	2.625	0.0500	6.9
	2,400	23B 242 F 150 CD 1H1	1.750	3.125	0.0379	8.5
	3,000	23B 302 F 150 CE 1H1	1.750	3.625	0.0308	10.1
	3,500	23B 352 F 150 CF 1H1	1.750	4.125	0.0268	11.5
	4,100	23B 412 F 150 CG 1H1	1.750	4.625	0.0232	12.9
	4,700	23B 472 F 150 CH 1H1	1.750	5.125	0.0206	14.4
	5,300	23B 532 F 150 CI 1H1	1.750	5.625	0.0186	15.8
	1,700	23B 172 F 150 DB 1H1	2.000	2.125	0.0528	6.6
	2,400	23B 242 F 150 DC 1H1	2.000	2.625	0.0379	8.5
	3,100	23B 312 F 150 DD 1H1	2.000	3.125	0.0299	10.3
	3,900	23B 392 F 150 DE 1H1	2.000	3.625	0.0243	12.2
	4,500	23B 452 F 150 DF 1H1	2.000	4.125	0.0214	13.8
	5,300	23B 532 F 150 DG 1H1	2.000	4.625	0.0186	15.6
	6,100	23B 612 F 150 DH 1H1	2.000	5.125	0.0166	17.3
	6,800	23B 682 F 150 DI 1H1	2.000	5.625	0.0152	18.9
	5,200	23B 522 F 150 ED 1H1	2.500	3.125	0.0189	14.8
	6,500	23B 652 F 150 EE 1H1	2.500	3.625	0.0157	17.2
	7,500	23B 752 F 150 EF 1H1	2.500	4.125	0.0140	19.3
	8,800	23B 882 F 150 EG 1H1	2.500	4.625	0.0124	21.6
	10,000	23B 103 F 150 EH 1H1	2.500	5.125	0.0113	23.7
	11,000	23B 113 F 150 EI 1H1	2.500	5.625	0.0105	25.6
	7,600	23B 762 F 150 FD 1H1	3.000	3.125	0.0139	19.2
	9,000	23B 902 F 150 FE 1H1	3.000	3.625	0.0122	21.8
	11,000	23B 113 F 150 FF 1H1	3.000	4.125	0.0105	24.7
	13,000	23B 133 F 150 FG 1H1	3.000	4.625	0.0094	27.5
	15,000	23B 153 F 150 FH 1H1	3.000	5.125	0.0085	30.2
	16,000	23B 163 F 150 FI 1H1	3.000	5.625	0.0082	32.1
	17,000	23B 173 F 150 FJ 1H1	3.000	5.875	0.0079	33.0
	20,000	23B 203 F 150 FL 1H1	3.000	8.625	0.0071	41.6

Electrolytic Capacitors

23B Series - Standard Product Line



Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
200	380	23B 381 F 200 BB 1H1	1.375	2.125	0.2502	2.4
	540	23B 541 F 200 BC 1H1	1.375	2.625	0.1600	3.3
	720	23B 721 F 200 BD 1H1	1.375	3.125	0.1137	4.3
	900	23B 901 F 200 BE 1H1	1.375	3.625	0.0885	5.2
	1,000	23B 102 F 200 BF 1H1	1.375	4.125	0.0790	5.8
	1,200	23B 122 F 200 BG 1H1	1.375	4.625	0.0653	6.8
	1,400	23B 142 F 200 BH 1H1	1.375	5.125	0.0559	7.7
	1,600	23B 162 F 200 BI 1H1	1.375	5.625	0.0492	8.6
	690	23B 691 F 200 CB 1H1	1.750	2.125	0.1194	4.1
	1,000	23B 102 F 200 CC 1H1	1.750	2.625	0.0790	5.5
	1,300	23B 132 F 200 CD 1H1	1.750	3.125	0.0602	6.7
	1,600	23B 162 F 200 CE 1H1	1.750	3.625	0.0492	8.0
	1,900	23B 192 F 200 CF 1H1	1.750	4.125	0.0419	9.2
	2,200	23B 222 F 200 CG 1H1	1.750	4.625	0.0368	10.3
	2,500	23B 252 F 200 CH 1H1	1.750	5.125	0.0329	11.4
	2,800	23B 282 F 200 CI 1H1	1.750	5.625	0.0300	12.5
	900	23B 901 F 200 DB 1H1	2.000	2.125	0.0885	5.1
	1,300	23B 132 F 200 DC 1H1	2.000	2.625	0.0602	6.8
	1,700	23B 172 F 200 DD 1H1	2.000	3.125	0.0464	8.3
	2,100	23B 212 F 200 DE 1H1	2.000	3.625	0.0383	9.7
	2,400	23B 242 F 200 DF 1H1	2.000	4.125	0.0341	10.9
	2,900	23B 292 F 200 DG 1H1	2.000	4.625	0.0292	12.4
	3,300	23B 332 F 200 DH 1H1	2.000	5.125	0.0264	13.7
	3,700	23B 372 F 200 DI 1H1	2.000	5.625	0.0242	14.9
	2,800	23B 282 F 200 ED 1H1	2.500	3.125	0.0300	11.7
	3,500	23B 352 F 200 EE 1H1	2.500	3.625	0.0252	13.6
	4,000	23B 402 F 200 EF 1H1	2.500	4.125	0.0229	15.1
	4,700	23B 472 F 200 EG 1H1	2.500	4.625	0.0204	16.8
	5,400	23B 542 F 200 EH 1H1	2.500	5.125	0.0187	18.4
	6,000	23B 602 F 200 EI 1H1	2.500	5.625	0.0175	19.8
	4,000	23B 402 F 200 FD 1H1	3.000	3.125	0.0229	15.0
	5,000	23B 502 F 200 FE 1H1	3.000	3.625	0.0196	17.2
	5,800	23B 582 F 200 FF 1H1	3.000	4.125	0.0179	19.0
	6,800	23B 682 F 200 FG 1H1	3.000	4.625	0.0163	20.9
	7,800	23B 782 F 200 FH 1H1	3.000	5.125	0.0151	22.7
	8,700	23B 872 F 200 FI 1H1	3.000	5.625	0.0142	24.3
	9,100	23B 912 F 200 FJ 1H1	3.000	5.875	0.0139	24.8
	11,000	23B 113 F 200 FL 1H1	3.000	8.625	0.0128	31.1

Electrolytic Capacitors

23B Series - Standard Product Line



Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
250	300	23B 301 F 250 BB 1H1	1.375	2.125	0.3374	2.1
	420	23B 421 F 250 BC 1H1	1.375	2.625	0.2398	2.7
	560	23B 561 F 250 BD 1H1	1.375	3.125	0.1789	3.4
	700	23B 701 F 250 BE 1H1	1.375	3.625	0.1424	4.1
	810	23B 811 F 250 BF 1H1	1.375	4.125	0.1227	4.7
	1,000	23B 102 F 250 BG 1H1	1.375	4.625	0.0989	5.5
	1,100	23B 112 F 250 BH 1H1	1.375	5.125	0.0897	6.1
	1,200	23B 122 F 250 BI 1H1	1.375	5.625	0.0821	6.6
	540	23B 541 F 250 CB 1H1	1.750	2.125	0.1857	3.3
	770	23B 771 F 250 CC 1H1	1.750	2.625	0.1292	4.3
	1,000	23B 102 F 250 CD 1H1	1.750	3.125	0.0989	5.3
	1,300	23B 132 F 250 CE 1H1	1.750	3.625	0.0757	6.4
	1,500	23B 152 F 250 CF 1H1	1.750	4.125	0.0655	7.3
	1,700	23B 172 F 250 CG 1H1	1.750	4.625	0.0577	8.2
	2,000	23B 202 F 250 CH 1H1	1.750	5.125	0.0491	9.3
	2,200	23B 222 F 250 CI 1H1	1.750	5.625	0.0448	10.2
	700	23B 701 F 250 DB 1H1	2.000	2.125	0.1424	4.0
	1,000	23B 102 F 250 DC 1H1	2.000	2.625	0.0989	5.3
	1,300	23B 132 F 250 DD 1H1	2.000	3.125	0.0757	6.5
	1,700	23B 172 F 250 DE 1H1	2.000	3.625	0.0577	7.9
	1,900	23B 192 F 250 DF 1H1	2.000	4.125	0.0517	8.9
	2,200	23B 222 F 250 DG 1H1	2.000	4.625	0.0448	10.0
	2,600	23B 262 F 250 DH 1H1	2.000	5.125	0.0382	11.4
	2,900	23B 292 F 250 DI 1H1	2.000	5.625	0.0346	12.5
	2,200	23B 222 F 250 ED 1H1	2.500	3.125	0.0448	9.6
	2,700	23B 272 F 250 EE 1H1	2.500	3.625	0.0369	11.2
	3,100	23B 312 F 250 EF 1H1	2.500	4.125	0.0327	12.6
	3,700	23B 372 F 250 EG 1H1	2.500	4.625	0.0282	14.3
	4,200	23B 422 F 250 EH 1H1	2.500	5.125	0.0257	15.7
	4,700	23B 472 F 250 EI 1H1	2.500	5.625	0.0239	16.9
	3,100	23B 312 F 250 FD 1H1	3.000	3.125	0.0327	12.5
	3,900	23B 392 F 250 FE 1H1	3.000	3.625	0.0271	14.6
	4,500	23B 452 F 250 FF 1H1	3.000	4.125	0.0246	16.2
	5,300	23B 532 F 250 FG 1H1	3.000	4.625	0.0224	17.8
6,100	23B 612 F 250 FH 1H1	3.000	5.125	0.0211	19.2	
6,800	23B 682 F 250 FI 1H1	3.000	5.625	0.0205	20.3	
7,100	23B 712 F 250 FJ 1H1	3.000	5.875	0.0203	20.5	
8,500	23B 852 F 250 FL 1H1	3.000	8.625	0.0202	24.7	

LONG LIFE SERIES:

- Broad Capacitance Range
- Increased Volumetric Efficiency
- Low ESR
- Standard Ratings

SPECIFICATIONS:

Capacitance Range:	380 to 180,000 μ F
Voltage Range:	50 to 250 WVDC
Capacitance Tolerance:	-10% / +50% Standard
Operating Temperature:	-45°C to +95°C
Life @ 85oC:	1,000 Hrs.
Terminals:	10-32 High Post – Standard (Other terminal configurations available)

RIPPLE CURRENT APPLICATION GUIDLINES:

RIPPLE CURRENT **FREQUENCY** MULTIPLIERS

100 Hz	120 Hz	400 Hz	4 KHz	10 KHz	20 KHz
0.95	1.00	1.15	1.20	1.35	1.40

RIPPLE CURRENT **TEMPERATURE** MULTIPLIERS

105	95	85	75	65	55	45	35
-	1.0	1.4	1.7	2.0	2.3	2.5	2.7

FOR COMPLETE APPLICATION SPECIFICATION DETAILS SEE
APPLICATION GUIDELINES SECTION OF CATALOG

Electrolytic Capacitors

23C Series - Long Life Series

Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
50	6,200	23C 622 F 050 BB 1H1	1.375	2.125	0.0237	6.9
	8,800	23C 882 F 050 BC 1H1	1.375	2.625	0.0174	8.8
	12,000	23C 123 F 050 BD 1H1	1.375	3.125	0.0137	10.7
	15,000	23C 153 F 050 BE 1H1	1.375	3.625	0.0118	12.3
	17,000	23C 173 F 050 BF 1H1	1.375	4.125	0.0110	13.6
	20,000	23C 203 F 050 BG 1H1	1.375	4.625	0.0100	15.0
	23,000	23C 233 F 050 BH 1H1	1.375	5.125	0.0093	16.3
	25,000	23C 253 F 050 BI 1H1	1.375	5.625	0.0090	17.4
	11,000	23C 113 F 050 CB 1H1	1.750	2.125	0.0146	10.1
	16,000	23C 163 F 050 CC 1H1	1.750	2.625	0.0114	12.5
	21,000	23C 213 F 050 CD 1H1	1.750	3.125	0.0098	14.5
	27,000	23C 273 F 050 CE 1H1	1.750	3.625	0.0087	16.5
	31,000	23C 313 F 050 CF 1H1	1.750	4.125	0.0082	17.9
	36,000	23C 363 F 050 CG 1H1	1.750	4.625	0.0077	19.4
	41,000	23C 413 F 050 CH 1H1	1.750	5.125	0.0074	20.8
	46,000	23C 463 F 050 CI 1H1	1.750	5.625	0.0071	22.1
	21,000	23C 213 F 050 DB 1H1	2.000	2.125	0.0118	12.1
	28,000	23C 283 F 050 DC 1H1	2.000	2.625	0.0098	14.5
	35,000	23C 353 F 050 DD 1H1	2.000	3.125	0.0085	16.7
	40,000	23C 403 F 050 DE 1H1	2.000	3.625	0.0078	18.7
	47,000	23C 473 F 050 DF 1H1	2.000	4.125	0.0075	20.2
	54,000	23C 543 F 050 DG 1H1	2.000	4.625	0.0071	21.8
	60,000	23C 603 F 050 DH 1H1	2.000	5.125	0.0068	23.3
	48,000	23C 483 F 050 DI 1H1	2.000	5.625	0.0066	24.7
	46,000	23C 463 F 050 ED 1H1	2.500	3.125	0.0071	20.8
	57,000	23C 573 F 050 EE 1H1	2.500	3.625	0.0067	22.8
	66,000	23C 663 F 050 EF 1H1	2.500	4.125	0.0065	24.6
	77,000	23C 773 F 050 EG 1H1	2.500	4.625	0.0063	26.2
	88,000	23C 883 F 050 EH 1H1	2.500	5.125	0.0061	27.8
	100,000	23C 104 F 050 EI 1H1	2.500	5.625	0.0060	29.3
	66,000	23C 663 F 050 FD 1H1	3.000	3.125	0.0065	24.3
	83,000	23C 833 F 050 FE 1H1	3.000	3.625	0.0062	26.4
	100,000	23C 104 F 050 FF 1H1	3.000	4.125	0.0060	28.3
110,000	23C 114 F 050 FG 1H1	3.000	4.625	0.0059	30.0	
130,000	23C 134 F 050 FH 1H1	3.000	5.125	0.0058	31.7	
140,000	23C 144 F 050 FI 1H1	3.000	5.625	0.0057	33.2	
150,000	23C 154 F 050 FJ 1H1	3.000	5.875	0.0057	33.6	
180,000	23C 184 F 050 FL 1H1	3.000	8.625	0.0056	40.7	

Electrolytic Capacitors

23C Series - Long Life Series

Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
60	6,100	23C 612 F 060 BB 1H1	1.375	2.125	0.0363	5.6
	8,700	23C 872 F 060 BC 1H1	1.375	2.625	0.0267	7.1
	12,000	23C 123 F 060 BD 1H1	1.375	3.125	0.0206	8.7
	14,000	23C 143 F 060 BE 1H1	1.375	3.625	0.0183	9.9
	17,000	23C 173 F 060 BF 1H1	1.375	4.125	0.0160	11.3
	20,000	23C 203 F 060 BG 1H1	1.375	4.625	0.0143	12.6
	22,000	23C 223 F 060 BH 1H1	1.375	5.125	0.0134	13.6
	25,000	23C 253 F 060 BI 1H1	1.375	5.625	0.0124	14.8
	11,000	23C 113 F 060 CB 1H1	1.750	2.125	0.0221	8.2
	16,000	23C 163 F 060 CC 1H1	1.750	2.625	0.0166	10.3
	21,000	23C 213 F 060 CD 1H1	1.750	3.125	0.0138	12.2
	26,000	23C 263 F 060 CE 1H1	1.750	3.625	0.0121	13.9
	30,000	23C 303 F 060 CF 1H1	1.750	4.125	0.0112	15.4
	36,000	23C 363 F 060 CG 1H1	1.750	4.625	0.0101	17.0
	41,000	23C 413 F 060 CH 1H1	1.750	5.125	0.0095	18.4
	45,000	23C 453 F 060 CI 1H1	1.750	5.625	0.0091	19.6
	14,000	23C 143 F 060 DB 1H1	2.000	2.125	0.0183	9.7
	20,000	23C 203 F 060 DC 1H1	2.000	2.625	0.0143	12.0
	27,000	23C 273 F 060 DD 1H1	2.000	3.125	0.0119	14.2
	34,000	23C 343 F 060 DE 1H1	2.000	3.625	0.0104	16.1
	39,000	23C 393 F 060 DF 1H1	2.000	4.125	0.0097	17.7
	46,000	23C 463 F 060 DG 1H1	2.000	4.625	0.0090	19.4
	52,000	23C 523 F 060 DH 1H1	2.000	5.125	0.0086	20.8
	59,000	23C 593 F 060 DI 1H1	2.000	5.625	0.0081	22.3
	45,000	23C 453 F 060 ED 1H1	2.500	3.125	0.0091	18.4
	56,000	23C 563 F 060 EE 1H1	2.500	3.625	0.0083	20.5
	64,000	23C 643 F 060 EF 1H1	2.500	4.125	0.0079	22.3
	76,000	23C 763 F 060 EG 1H1	2.500	4.625	0.0074	24.1
	86,000	23C 863 F 060 EH 1H1	2.500	5.125	0.0072	25.7
	100,000	23C 104 F 060 EI 1H1	2.500	5.625	0.0069	27.4
	65,000	23C 653 F 060 FD 1H1	3.000	3.125	0.0078	22.1
	81,000	23C 813 F 060 FE 1H1	3.000	3.625	0.0073	24.4
	90,000	23C 903 F 060 FF 1H1	3.000	4.125	0.0071	26.1
	110,000	23C 114 F 060 FG 1H1	3.000	4.625	0.0067	28.2
130,000	23C 134 F 060 FH 1H1	3.000	5.125	0.0064	30.1	
140,000	23C 144 F 060 FI 1H1	3.000	5.625	0.0063	31.6	
150,000	23C 154 F 060 FJ 1H1	3.000	5.875	0.0062	32.1	
180,000	23C 184 F 060 FL 1H1	3.000	8.625	0.0060	39.2	

Electrolytic Capacitors

23C Series - Long Life Series

Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
75	3,800	23C 382 F 075 BB 1H1	1.375	2.125	0.0582	4.4
	5,400	23C 542 F 075 BC 1H1	1.375	2.625	0.0410	5.7
	7,100	23C 712 F 075 BD 1H1	1.375	3.125	0.0318	7.0
	8,900	23C 892 F 075 BE 1H1	1.375	3.625	0.0260	8.3
	10,000	23C 103 F 075 BF 1H1	1.375	4.125	0.0235	9.3
	12,000	23C 123 F 075 BG 1H1	1.375	4.625	0.0203	10.5
	14,000	23C 143 F 075 BH 1H1	1.375	5.125	0.0180	11.7
	15,000	23C 153 F 075 BI 1H1	1.375	5.625	0.0171	12.6
	6,900	23C 692 F 075 CB 1H1	1.750	2.125	0.0326	6.7
	10,000	23C 103 F 075 CC 1H1	1.750	2.625	0.0235	8.7
	13,000	23C 133 F 075 CD 1H1	1.750	3.125	0.0190	10.4
	16,000	23C 163 F 075 CE 1H1	1.750	3.625	0.0163	12.0
	19,000	23C 193 F 075 CF 1H1	1.750	4.125	0.0144	13.5
	22,000	23C 223 F 075 CG 1H1	1.750	4.625	0.0130	15.0
	25,000	23C 253 F 075 CH 1H1	1.750	5.125	0.0120	16.3
	28,000	23C 283 F 075 CI 1H1	1.750	5.625	0.0112	17.7
	8,900	23C 892 F 075 DB 1H1	2.000	2.125	0.0260	8.2
	13,000	23C 133 F 075 DC 1H1	2.000	2.625	0.0190	10.4
	17,000	23C 173 F 075 DD 1H1	2.000	3.125	0.0156	12.4
	21,000	23C 213 F 075 DE 1H1	2.000	3.625	0.0134	14.2
	24,000	23C 243 F 075 DF 1H1	2.000	4.125	0.0123	15.7
	29,000	23C 293 F 075 DG 1H1	2.000	4.625	0.0110	17.5
	33,000	23C 333 F 075 DH 1H1	2.000	5.125	0.0102	19.1
	36,000	23C 363 F 075 DI 1H1	2.000	5.625	0.0097	20.4
	28,000	23C 283 F 075 ED 1H1	2.500	3.125	0.0112	16.6
	35,000	23C 353 F 075 EE 1H1	2.500	3.625	0.0099	18.8
	40,000	23C 403 F 075 EF 1H1	2.500	4.125	0.0092	20.6
	47,000	23C 473 F 075 EG 1H1	2.500	4.625	0.0086	22.5
	54,000	23C 543 F 075 EH 1H1	2.500	5.125	0.0080	24.3
	60,000	23C 603 F 075 EI 1H1	2.500	5.625	0.0077	25.9
	40,000	23C 403 F 075 FD 1H1	3.000	3.125	0.0092	20.4
	50,000	23C 504 F 075 FE 1H1	3.000	3.625	0.0083	22.8
	58,000	23C 583 F 075 FF 1H1	3.000	4.125	0.0078	24.8
68,000	23C 683 F 075 FG 1H1	3.000	4.625	0.0074	26.9	
78,000	23C 783 F 075 FH 1H1	3.000	5.125	0.0070	28.8	
87,000	23C 873 F 075 FI 1H1	3.000	5.625	0.0068	30.5	
90,000	23C 903 F 075 FJ 1H1	3.000	5.875	0.0067	31.0	
110,000	23C 114 F 075 FL 1H1	3.000	8.625	0.0063	38.3	

Electrolytic Capacitors

23C Series - Long Life Series

Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
80	3,500	23C 352 F 080 BB 1H1	1.375	2.125	0.0379	5.4
	5,000	23C 502 F 080 BC 1H1	1.375	2.625	0.0265	7.1
	6,600	23C 662 F 080 BD 1H1	1.375	3.125	0.0205	8.8
	8,300	23C 832 F 080 BE 1H1	1.375	3.625	0.0169	10.3
	10,000	23C 103 F 080 BF 1H1	1.375	4.125	0.0145	11.8
	11,000	23C 113 F 080 BG 1H1	1.375	4.625	0.0135	12.9
	13,000	23C 133 F 080 BH 1H1	1.375	5.125	0.0120	14.4
	14,000	23C 143 F 080 BI 1H1	1.375	5.625	0.0114	15.4
	6,400	23C 642 F 080 CB 1H1	1.750	2.125	0.0211	8.4
	9,000	23C 902 F 080 CC 1H1	1.750	2.625	0.0158	10.6
	12,000	23C 123 F 080 CD 1H1	1.750	3.125	0.0127	12.7
	15,000	23C 153 F 080 CE 1H1	1.750	3.625	0.0109	14.7
	17,000	23C 173 F 080 CF 1H1	1.750	4.125	0.0100	16.2
	21,000	23C 213 F 080 CG 1H1	1.750	4.625	0.0089	18.2
	23,000	23C 233 F 080 CH 1H1	1.750	5.125	0.0084	19.5
	26,000	23C 263 F 080 CI 1H1	1.750	5.625	0.0079	21.0
	8,300	23C 832 F 080 DB 1H1	2.000	2.125	0.0169	10.1
	12,000	23C 123 F 080 DC 1H1	2.000	2.625	0.0127	12.8
	16,000	23C 163 F 080 DD 1H1	2.000	3.125	0.0104	15.1
	20,000	23C 203 F 080 DE 1H1	2.000	3.625	0.0091	17.3
	23,000	23C 233 F 080 DF 1H1	2.000	4.125	0.0084	19.0
	27,000	23C 273 F 080 DG 1H1	2.000	4.625	0.0078	20.9
	30,000	23C 303 F 080 DH 1H1	2.000	5.125	0.0074	22.4
	34,000	23C 343 F 080 DI 1H1	2.000	5.625	0.0070	24.1
	26,000	23C 263 F 080 ED 1H1	2.500	3.125	0.0079	19.8
	32,000	23C 323 F 080 EE 1H1	2.500	3.625	0.0072	22.1
	37,000	23C 373 F 080 EF 1H1	2.500	4.125	0.0067	24.1
	44,000	23C 443 F 080 EG 1H1	2.500	4.625	0.0063	26.2
	50,000	23C 503 F 080 EH 1H1	2.500	5.125	0.0060	28.1
	56,000	23C 563 F 080 EI 1H1	2.500	5.625	0.0058	29.8
	37,000	23C 373 F 080 FD 1H1	3.000	3.125	0.0070	23.9
	47,000	23C 473 F 080 FE 1H1	3.000	3.625	0.0062	26.5
	54,000	23C 543 F 080 FF 1H1	3.000	4.125	0.0059	28.7
	64,000	23C 643 F 080 FG 1H1	3.000	4.625	0.0056	30.9
73,000	23C 733 F 080 FH 1H1	3.000	5.125	0.0054	32.8	
81,000	23C 813 F 080 FI 1H1	3.000	5.625	0.0053	34.6	
84,000	23C 843 F 080 FJ 1H1	3.000	5.875	0.0052	35.1	
100,000	23C 104 F 080 FL 1H1	3.000	8.625	0.0050	43.0	

Electrolytic Capacitors

23C Series - Long Life Series



Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
100	2,400	23C 242 F 100 BB 1H1	1.375	2.125	0.0510	4.7
	3,400	23C 343 F 100 BC 1H1	1.375	2.625	0.0368	6.1
	4,600	23C 462 F 100 BD 1H1	1.375	3.125	0.0280	7.5
	5,700	23C 572 F 100 BE 1H1	1.375	3.625	0.0233	8.8
	6,600	23C 662 F 100 BF 1H1	1.375	4.125	0.0206	9.9
	7,700	23C 772 F 100 BG 1H1	1.375	4.625	0.0182	11.1
	8,800	23C 882 F 100 BH 1H1	1.375	5.125	0.0164	12.3
	10,000	23C 103 F 100 BI 1H1	1.375	5.625	0.0149	13.5
	4,400	23C 442 F 100 CB 1H1	1.750	2.125	0.0291	7.1
	6,300	23C 632 F 100 CC 1H1	1.750	2.625	0.0214	9.1
	8,300	23C 832 F 100 CD 1H1	1.750	3.125	0.0172	10.9
	10,000	23C 103 F 100 CE 1H1	1.750	3.625	0.0149	12.5
	12,000	23C 123 F 100 CF 1H1	1.750	4.125	0.0131	14.2
	14,000	23C 143 F 100 CG 1H1	1.750	4.625	0.0118	15.8
	16,000	23C 163 F 100 CH 1H1	1.750	5.125	0.0108	17.3
	18,000	23C 183 F 100 CI 1H1	1.750	5.625	0.0100	18.7
	5,700	23C 572 F 100 DB 1H1	2.000	2.125	0.0233	8.6
	8,100	23C 812 F 100 DC 1H1	2.000	2.625	0.0175	10.9
	11,000	23C 113 F 100 DD 1H1	2.000	3.125	0.0139	13.1
	13,000	23C 133 F 100 DE 1H1	2.000	3.625	0.0124	14.8
	16,000	23C 163 F 100 DF 1H1	2.000	4.125	0.0108	16.8
	18,000	23C 183 F 100 DG 1H1	2.000	4.625	0.0100	18.4
	21,000	23C 213 F 100 DH 1H1	2.000	5.125	0.0091	20.1
	23,000	23C 233 F 100 DI 1H1	2.000	5.625	0.0087	21.6
	18,000	23C 183 F 100 ED 1H1	2.500	3.125	0.0100	17.6
	22,000	23C 223 F 100 EE 1H1	2.500	3.625	0.0089	19.8
	26,000	23C 263 F 100 EF 1H1	2.500	4.125	0.0081	21.9
	30,000	23C 303 F 100 EG 1H1	2.500	4.625	0.0076	23.9
	34,000	23C 343 F 100 EH 1H1	2.500	5.125	0.0072	25.7
	38,000	23C 383 F 100 EI 1H1	2.500	5.625	0.0068	27.5
	26,000	23C 263 F 100 FD 1H1	3.000	3.125	0.0081	21.7
	32,000	23C 323 F 100 FE 1H1	3.000	3.625	0.0074	24.3
	37,000	23C 373 F 100 FF 1H1	3.000	4.125	0.0069	26.5
	44,000	23C 443 F 100 FG 1H1	3.000	4.625	0.0064	28.8
50,000	23C 503 F 100 FH 1H1	3.000	5.125	0.0061	30.8	
56,000	23C 563 F 100 FI 1H1	3.000	5.625	0.0059	32.7	
58,000	23C 583 F 100 FJ 1H1	3.000	5.875	0.0058	33.2	
70,000	23C 703 F 100 FL 1H1	3.000	8.625	0.0055	41.1	

Electrolytic Capacitors

23C Series - Long Life Series

Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
150	880	23C 881 F 150 BB 1H1	1.375	2.125	0.1275	3.0
	1,200	23C 122 F 150 BC 1H1	1.375	2.625	0.0850	4.0
	1,700	23C 172 F 150 BD 1H1	1.375	3.125	0.0619	5.0
	2,100	23C 212 F 150 BE 1H1	1.375	3.625	0.0500	6.0
	2,400	23C 242 F 150 BF 1H1	1.375	4.125	0.0439	6.8
	2,800	23C 282 F 150 BG 1H1	1.375	4.625	0.0379	7.7
	3,200	23C 322 F 150 BH 1H1	1.375	5.125	0.0335	8.6
	3,600	23C 362 F 150 BI 1H1	1.375	5.625	0.0302	9.5
	1,600	23C 162 F 150 CB 1H1	1.750	2.125	0.0659	4.7
	2,300	23C 232 F 150 CC 1H1	1.750	2.625	0.0457	6.2
	3,000	23C 302 F 150 CD 1H1	1.750	3.125	0.0356	7.6
	3,800	23C 382 F 150 CE 1H1	1.750	3.625	0.0288	9.0
	4,400	23C 442 F 150 CF 1H1	1.750	4.125	0.0254	10.2
	5,200	23C 522 F 150 CG 1H1	1.750	4.625	0.0221	11.5
	5,900	23C 592 F 150 CH 1H1	1.750	5.125	0.0200	12.7
	6,600	23C 662 F 150 CI 1H1	1.750	5.625	0.0184	13.8
	2,100	23C 212 F 150 DB 1H1	2.000	2.125	0.0500	5.9
	3,000	23C 302 F 150 DC 1H1	2.000	2.625	0.0356	7.6
	3,900	23C 392 F 150 DD 1H1	2.000	3.125	0.0281	9.2
	4,900	23C 492 F 150 DE 1H1	2.000	3.625	0.0232	10.8
	5,700	23C 572 F 150 DF 1H1	2.000	4.125	0.0206	12.2
	6,700	23C 672 F 150 DG 1H1	2.000	4.625	0.0182	13.6
	7,600	23C 762 F 150 DH 1H1	2.000	5.125	0.0166	15.0
	8,500	23C 852 F 150 DI 1H1	2.000	5.625	0.0153	16.2
	6,500	23C 652 F 150 ED 1H1	2.500	3.125	0.0186	12.9
	8,100	23C 812 F 150 EE 1H1	2.500	3.625	0.0158	14.9
	9,000	23C 902 F 150 EF 1H1	2.500	4.125	0.0147	16.3
	11,000	23C 113 F 150 EG 1H1	2.500	4.625	0.0129	18.3
	13,000	23C 133 F 150 EH 1H1	2.500	5.125	0.0117	20.1
	14,000	23C 143 F 150 EI 1H1	2.500	5.625	0.0112	21.4
	9,000	23C 902 F 150 FD 1H1	3.000	3.125	0.0147	16.1
	12,000	23C 123 F 150 FE 1H1	3.000	3.625	0.0123	18.8
	14,000	23C 143 F 150 FF 1H1	3.000	4.125	0.0112	20.7
16,000	23C 163 F 150 FG 1H1	3.000	4.625	0.0105	22.6	
18,000	23C 183 F 150 FH 1H1	3.000	5.125	0.0098	24.3	
20,000	23C 203 F 150 FI 1H1	3.000	5.625	0.0094	26.0	
21,000	23C 213 F 150 FJ 1H1	3.000	5.875	0.0092	26.5	
26,000	23C 263 F 150 FL 1H1	3.000	8.625	0.0084	33.3	

Electrolytic Capacitors

23C Series - Long Life Series

Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
200	500	23C 501 F 200 BB 1H1	1.375	2.125	0.1745	3.5
	710	23C 711 F 200 BC 1H1	1.375	2.625	0.1283	3.9
	1,000	23C 102 F 200 BD 1H1	1.375	3.125	0.0940	4.5
	1,200	23C 122 F 200 BE 1H1	1.375	3.625	0.0795	4.8
	1,400	23C 142 F 200 BF 1H1	1.375	4.125	0.0689	5.1
	1,600	23C 162 F 200 BG 1H1	1.375	4.625	0.0609	5.3
	1,800	23C 182 F 200 BH 1H1	1.375	5.125	0.0545	5.6
	2,100	23C 212 F 200 BI 1H1	1.375	5.625	0.0473	6.0
	900	23C 901 F 200 CB 1H1	1.750	2.125	0.1035	5.3
	1,300	23C 132 F 200 CC 1H1	1.750	2.625	0.0738	5.9
	1,700	23C 172 F 200 CD 1H1	1.750	3.125	0.0575	6.4
	2,200	23C 222 F 200 CE 1H1	1.750	3.625	0.0453	7.1
	2,500	23C 252 F 200 CF 1H1	1.750	4.125	0.0402	7.4
	2,900	23C 292 F 200 CG 1H1	1.750	4.625	0.0351	7.8
	3,300	23C 332 F 200 CH 1H1	1.750	5.125	0.0311	8.1
	3,700	23C 372 F 200 CI 1H1	1.750	5.625	0.0280	8.5
	1,200	23C 122 F 200 DB 1H1	2.000	2.125	0.0795	6.6
	1,700	23C 172 F 200 DC 1H1	2.000	2.625	0.0575	7.4
	2,200	23C 222 F 200 DD 1H1	2.000	3.125	0.0453	7.9
	2,800	23C 282 F 200 DE 1H1	2.000	3.625	0.0362	8.5
	3,200	23C 322 F 200 DF 1H1	2.000	4.125	0.0320	8.8
	3,800	23C 382 F 200 DG 1H1	2.000	4.625	0.0274	9.4
	4,300	23C 432 F 200 DH 1H1	2.000	5.125	0.0245	9.8
	4,800	23C 482 F 200 DI 1H1	2.000	5.625	0.0222	10.2
	3,700	23C 372 F 200 ED 1H1	2.500	3.125	0.0280	11.4
	4,600	23C 462 F 200 EE 1H1	2.500	3.625	0.0230	12.4
	5,300	23C 532 F 200 EF 1H1	2.500	4.125	0.0203	12.6
	6,300	23C 632 F 200 EG 1H1	2.500	4.625	0.0174	13.2
	7,100	23C 712 F 200 EH 1H1	2.500	5.125	0.0157	13.6
	8,000	23C 802 F 200 EI 1H1	2.500	5.625	0.0142	14.0
	5,300	23C 532 F 200 FD 1H1	3.000	3.125	0.0203	14.8
	6,700	23C 672 F 200 FE 1H1	3.000	3.625	0.0165	16.2
	7,700	23C 772 F 200 FF 1H1	3.000	4.125	0.0147	17.3
	9,000	23C 902 F 200 FG 1H1	3.000	4.625	0.0129	17.5
10,000	23C 103 F 200 FH 1H1	3.000	5.125	0.0118	17.6	
12,000	23C 123 F 200 FI 1H1	3.000	5.625	0.0102	18.3	
12,000	23C 123 F 200 FJ 1H1	3.000	5.875	0.0102	17.8	
14,000	23C 143 F 200 FL 1H1	3.000	8.625	0.0090	18.0	

Electrolytic Capacitors

23C Series - Long Life Series

Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
250	380	23C 381 F 250 BB 1H1	1.375	2.125	0.3124	2.6
	540	23C 541 F 250 BC 1H1	1.375	2.625	0.2141	3.0
	710	23C 711 F 250 BD 1H1	1.375	3.125	0.1608	3.4
	890	23C 891 F 250 BE 1H1	1.375	3.625	0.1276	3.8
	1,000	23C 102 F 250 BF 1H1	1.375	4.125	0.1134	4.0
	1,200	23C 122 F 250 BG 1H1	1.375	4.625	0.0946	4.3
	1,400	23C 142 F 250 BH 1H1	1.375	5.125	0.0813	4.6
	1,500	23C 152 F 250 BI 1H1	1.375	5.625	0.0760	4.7
	680	23C 681 F 250 CB 1H1	1.750	2.125	0.1681	4.2
	1,000	23C 102 F 250 CC 1H1	1.750	2.625	0.1134	4.8
	1,300	23C 132 F 250 CD 1H1	1.750	3.125	0.0874	5.2
	1,600	23C 162 F 250 CE 1H1	1.750	3.625	0.0714	5.6
	1,900	23C 192 F 250 CF 1H1	1.750	4.125	0.0606	6.0
	2,200	23C 222 F 250 CG 1H1	1.750	4.625	0.0528	6.4
	2,500	23C 252 F 250 CH 1H1	1.750	5.125	0.0468	6.6
	2,800	23C 282 F 250 CI 1H1	1.750	5.625	0.0422	7.0
	890	23C 891 F 250 DB 1H1	2.000	2.125	0.1276	5.2
	1,300	23C 132 F 250 DC 1H1	2.000	2.625	0.0874	6.0
	1,700	23C 172 F 250 DD 1H1	2.000	3.125	0.0674	6.5
	2,100	23C 212 F 250 DE 1H1	2.000	3.625	0.0551	6.9
	2,400	23C 242 F 250 DF 1H1	2.000	4.125	0.0486	7.1
	2,800	23C 282 F 250 DG 1H1	2.000	4.625	0.0422	7.6
	3,200	23C 322 F 250 DH 1H1	2.000	5.125	0.0374	7.9
	3,600	23C 362 F 250 DI 1H1	2.000	5.625	0.0337	8.3
	2,800	23C 282 F 250 ED 1H1	2.500	3.125	0.0422	9.3
	3,500	23C 352 F 250 EE 1H1	2.500	3.625	0.0346	10.1
	4,000	23C 402 F 250 EF 1H1	2.500	4.125	0.0308	10.3
	4,700	23C 472 F 250 EG 1H1	2.500	4.625	0.0268	10.6
	5,300	23C 532 F 250 EH 1H1	2.500	5.125	0.0242	11.0
	6,000	23C 602 F 250 EI 1H1	2.500	5.625	0.0219	11.3
	4,000	23C 402 F 250 FD 1H1	3.000	3.125	0.0308	12.0
	5,000	23C 502 F 250 FE 1H1	3.000	3.625	0.0254	13.0
	5,800	23C 582 F 250 FF 1H1	3.000	4.125	0.0225	14.0
	6,800	23C 682 F 250 FG 1H1	3.000	4.625	0.0198	14.1
7,700	23C 772 F 250 FH 1H1	3.000	5.125	0.0180	14.2	
8,600	23C 862 F 250 FI 1H1	3.000	5.625	0.0166	14.4	
9,000	23C 902 F 250 FJ 1H1	3.000	5.875	0.0160	14.2	
11,000	23C 113 F 250 FL 1H1	3.000	8.625	0.0139	14.5	

Electrolytic Capacitors

23D Series - Switching Power Supply Line

SWITCHING POWER SUPPLY LINE:

- Broad Capacitance Range
- Increased Volumetric Efficiency
- Low ESR
- Standard Ratings

SPECIFICATIONS:

Capacitance Range:	2,900 to 110,000 μ F
Voltage Range:	7.5 to 55 WVDC
Capacitance Tolerance:	-10% / +50% Standard
Operating Temperature:	-55°C to +85°C
Life @ 85oC:	1,000 Hrs.
Terminals:	10-32 High Post – Standard (Other terminal configurations available)

RIPPLE CURRENT APPLICATION GUIDLINES:

RIPPLE CURRENT FREQUENCY MULTIPLIERS					
100 Hz	120 Hz	400 Hz	4 KHz	10 KHz	20 KHz
0.92	1.00	1.04	1.08	1.25	1.25

RIPPLE CURRENT TEMPERATURE MULTIPLIERS					
85	75	65	55	45	35
1.0	1.4	1.7	2.0	2.3	2.5

FOR COMPLETE APPLICATION SPECIFICATION DETAILS SEE APPLICATION GUIDELINES SECTION OF CATALOG

Electrolytic Capacitors

23D Series - Switching Power Supply Line

Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
7.5	17,000	23D 173 F 007 BB 1H1	1.375	2.125	0.0067	10.6
	23,000	23D 233 F 007 BC 1H1	1.375	2.625	0.0060	12.3
	30,000	23D 303 F 007 BD 1H1	1.375	3.125	0.0054	13.9
	36,000	23D 363 F 007 BE 1H1	1.375	3.625	0.0050	15.4
	43,000	23D 433 F 007 BF 1H1	1.375	4.125	0.0048	16.9
	49,000	23D 493 F 007 BG 1H1	1.375	4.625	0.0046	18.2
	56,000	23D 563 F 007 BH 1H1	1.375	5.125	0.0044	19.4
	62,000	23D 623 F 007 BI 1H1	1.375	5.625	0.0042	20.6
	31,000	23D 313 F 007 CB 1H1	1.750	2.125	0.0053	13.6
	43,000	23D 433 F 007 CC 1H1	1.750	2.625	0.0048	15.8
	55,000	23D 553 F 007 CD 1H1	1.750	3.125	0.0044	17.7
	66,000	23D 663 F 007 CE 1H1	1.750	3.625	0.0042	19.3
	78,000	23D 783 F 007 CF 1H1	1.750	4.125	0.0040	20.9
	90,000	23D 903 F 007 CG 1H1	1.750	4.625	0.0039	22.4
	100,000	23D 104 F 007 CH 1H1	1.750	5.125	0.0038	23.8
	110,000	23D 114 F 007 CI 1H1	1.750	5.625	0.0037	25.1

Electrolytic Capacitors

23D Series - Switching Power Supply Line

Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
16	9,800	23D 982 F 016 BB 1H1	1.375	2.125	0.0074	10.0
	14,000	23D 143 F 016 BC 1H1	1.375	2.625	0.0066	11.7
	17,000	23D 173 F 016 BD 1H1	1.375	3.125	0.0061	13.2
	21,000	23D 213 F 016 BE 1H1	1.375	3.625	0.0055	14.8
	25,000	23D 253 F 016 BF 1H1	1.375	4.125	0.0051	16.3
	28,000	23D 283 F 016 BG 1H1	1.375	4.625	0.0049	17.6
	32,000	23D 323 F 016 BH 1H1	1.375	5.125	0.0046	19.0
	36,000	23D 363 F 016 BI 1H1	1.375	5.625	0.0044	20.3
	18,000	23D 183 F 016 CB 1H1	1.750	2.125	0.0059	12.9
	25,000	23D 253 F 016 CC 1H1	1.750	2.625	0.0051	15.2
	32,000	23D 323 F 016 CD 1H1	1.750	3.125	0.0046	17.3
	38,000	23D 383 F 016 CE 1H1	1.750	3.625	0.0043	19.1
	45,000	23D 453 F 016 CF 1H1	1.750	4.125	0.0040	20.9
	52,000	23D 523 F 016 CG 1H1	1.750	4.625	0.0038	22.6
	59,000	23D 593 F 016 CH 1H1	1.750	5.125	0.0036	24.2
	66,000	23D 663 F 016 CI 1H1	1.750	5.625	0.0035	25.8

Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
20	8,400	23D 842 F 020 BB 1H1	1.375	2.125	0.0077	9.8
	12,000	23D 123 F 020 BC 1H1	1.375	2.625	0.0068	11.5
	15,000	23D 153 F 020 BD 1H1	1.375	3.125	0.0061	13.1
	18,000	23D 183 F 020 BE 1H1	1.375	3.625	0.0056	14.6
	21,000	23D 213 F 020 BF 1H1	1.375	4.125	0.0053	16.0
	25,000	23D 253 F 020 BG 1H1	1.375	4.625	0.0049	17.5
	28,000	23D 283 F 020 BH 1H1	1.375	5.125	0.0047	18.9
	31,000	23D 313 F 020 BI 1H1	1.375	5.625	0.0045	20.1
	15,000	23D 153 F 020 CB 1H1	1.750	2.125	0.0061	12.7
	21,000	23D 213 F 020 CC 1H1	1.750	2.625	0.0053	15.0
	27,000	23D 273 F 020 CD 1H1	1.750	3.125	0.0047	17.0
	33,000	23D 333 F 020 CE 1H1	1.750	3.625	0.0044	19.0
	39,000	23D 393 F 020 CF 1H1	1.750	4.125	0.0041	20.7
	45,000	23D 453 F 020 CG 1H1	1.750	4.625	0.0039	22.4
	51,000	23D 513 F 020 CH 1H1	1.750	5.125	0.0037	24.0
	56,000	23D 563 F 020 CI 1H1	1.750	5.625	0.0036	25.4

Electrolytic Capacitors

23D Series - Switching Power Supply Line

Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
28	6,100	23D 612 F 028 BB 1H1	1.375	2.125	0.0082	9.5
	8,500	23D 852 F 028 BC 1H1	1.375	2.625	0.0072	11.2
	11,000	23D 113 F 028 BD 1H1	1.375	3.125	0.0063	12.9
	13,000	23D 133 F 028 BE 1H1	1.375	3.625	0.0058	14.3
	15,000	23D 153 F 028 BF 1H1	1.375	4.125	0.0054	15.8
	18,000	23D 183 F 028 BG 1H1	1.375	4.625	0.0050	17.4
	20,000	23D 203 F 028 BH 1H1	1.375	5.125	0.0047	18.7
	22,000	23D 223 F 028 BI 1H1	1.375	5.625	0.0045	20.0
	11,000	23D 113 F 028 CB 1H1	1.750	2.125	0.0063	12.5
	15,000	23D 153 F 028 CC 1H1	1.750	2.625	0.0054	14.7
	20,000	23D 203 F 028 CD 1H1	1.750	3.125	0.0047	17.1
	24,000	23D 243 F 028 CE 1H1	1.750	3.625	0.0043	19.0
	28,000	23D 283 F 028 CF 1H1	1.750	4.125	0.0040	20.8
	32,000	23D 323 F 028 CG 1H1	1.750	4.625	0.0038	22.6
	37,000	23D 373 F 028 CH 1H1	1.750	5.125	0.0036	24.3
	41,000	23D 413 F 028 CI 1H1	1.750	5.625	0.0035	25.9

Electrolytic Capacitors

23D Series - Switching Power Supply Line



Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
35	4,800	23D 482 F 035 BB 1H1	1.375	2.125	0.0083	9.5
	6,600	23D 662 F 035 BC 1H1	1.375	2.625	0.0074	11.0
	8,400	23D 842 F 035 BD 1H1	1.375	3.125	0.0065	12.7
	10,000	23D 103 F 035 BE 1H1	1.375	3.625	0.0060	14.2
	12,000	23D 123 F 035 BF 1H1	1.375	4.125	0.0054	15.8
	14,000	23D 143 F 035 BG 1H1	1.375	4.625	0.0050	17.3
	16,000	23D 163 F 035 BH 1H1	1.375	5.125	0.0047	18.8
	17,000	23D 173 F 035 BI 1H1	1.375	5.625	0.0046	19.9
	8,700	23D 872 F 035 CB 1H1	1.750	2.125	0.0064	12.4
	12,000	23D 123 F 035 CC 1H1	1.750	2.625	0.0054	14.7
	15,000	23D 153 F 035 CD 1H1	1.750	3.125	0.0048	16.8
	19,000	23D 193 F 035 CE 1H1	1.750	3.625	0.0043	19.0
	22,000	23D 223 F 035 CF 1H1	1.750	4.125	0.0040	20.9
	25,000	23D 253 F 035 CG 1H1	1.750	4.625	0.0038	22.7
	29,000	23D 293 F 035 CH 1H1	1.750	5.125	0.0036	24.5
	32,000	23D 323 F 035 CI 1H1	1.750	5.625	0.0034	26.1

Electrolytic Capacitors

23D Series - Switching Power Supply Line

Voltage (WVDC)	Capacitance (μ F)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
55	2,900	23D 292 F 055 BB 1H1	1.375	2.125	0.0096	8.8
	4,000	23D 402 F 055 BC 1H1	1.375	2.625	0.0085	10.3
	5,100	23D 512 F 055 BD 1H1	1.375	3.125	0.0074	11.9
	6,200	23D 622 F 055 BE 1H1	1.375	3.625	0.0066	13.5
	7,300	23D 732 F 055 BF 1H1	1.375	4.125	0.0059	15.1
	8,400	23D 842 F 055 BG 1H1	1.375	4.625	0.0054	16.7
	9,500	23D 952 F 055 BH 1H1	1.375	5.125	0.0045	18.2
	11,000	23D 113 F 055 BI 1H1	1.375	5.625	0.0045	20.0
	5,300	23D 532 F 055 CB 1H1	1.750	2.125	0.0073	11.7
	7,300	23D 732 F 055 CC 1H1	1.750	2.625	0.0059	14.1
	9,300	23D 932 F 055 CD 1H1	1.750	3.125	0.0050	16.5
	11,000	23D 113 F 055 CE 1H1	1.750	3.625	0.0045	18.6
	13,000	23D 133 F 055 CF 1H1	1.750	4.125	0.0040	20.8
	15,000	23D 153 F 055 CG 1H1	1.750	4.625	0.0037	23.0
	17,000	23D 173 F 055 CH 1H1	1.750	5.125	0.0034	25.1
	19,000	23D 193 F 055 CI 1H1	1.750	5.625	0.0032	27.1

Electrolytic Capacitors

23F Series - Extended Temperature Line

EXTENDED TEMPERATURE LINE:

- Broad Capacitance Range
- Increased Volumetric Efficiency
- Low ESR
- Standard Ratings

SPECIFICATIONS:

Capacitance Range:	250 to 150,000 μ F
Voltage Range:	50 to 250 WVDC
Capacitance Tolerance:	-10% / +50% Standard
Operating Temperature:	-55°C to +105°C
Life @ 85oC:	1,000 Hrs.
Terminals:	10-32 High Post – Standard (Other terminal configurations available)

RIPPLE CURRENT APPLICATION GUIDLINES:

RIPPLE CURRENT FREQUENCY MULTIPLIERS					
100 Hz	120 Hz	400 Hz	4 KHz	10 KHz	20 KHz
0.95	1.00	1.04	1.06	1.10	1.15

RIPPLE CURRENT TEMPERATURE MULTIPLIERS							
105	95	85	75	65	55	45	35
-	0.7	1.0	1.2	1.4	1.6	1.7	1.9

FOR COMPLETE APPLICATION SPECIFICATION DETAILS SEE
APPLICATION GUIDELINES SECTION OF CATALOG

Electrolytic Capacitors

23F Series - Extended Temperature Line



Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
50	5,300	23F 532 F 050 BB 1H1	1.375	2.125	0.0238	7.9
	7,500	23F 752 F 050 BC 1H1	1.375	2.625	0.0177	10.1
	10,000	23F 103 F 050 BD 1H1	1.375	3.125	0.0139	12.3
	12,000	23F 123 F 050 BE 1H1	1.375	3.625	0.0121	14.1
	14,000	23F 143 F 050 BF 1H1	1.375	4.125	0.0107	15.9
	17,000	23F 173 F 050 BG 1H1	1.375	4.625	0.0093	18.0
	19,000	23F 193 F 050 BH 1H1	1.375	5.125	0.0086	19.6
	22,000	23F 223 F 050 BI 1H1	1.375	5.625	0.0078	21.5
	9,600	23F 962 F 050 CB 1H1	1.750	2.125	0.0144	11.7
	14,000	23F 143 F 050 CC 1H1	1.750	2.625	0.0107	14.8
	18,000	23F 183 F 050 CD 1H1	1.750	3.125	0.0089	17.5
	23,000	23F 233 F 050 CE 1H1	1.750	3.625	0.0076	20.3
	26,000	23F 263 F 050 CF 1H1	1.750	4.125	0.0070	22.4
	31,000	23F 313 F 050 CG 1H1	1.750	4.625	0.0063	24.8
	35,000	23F 353 F 050 CH 1H1	1.750	5.125	0.0059	26.9
	39,000	23F 393 F 050 CI 1H1	1.750	5.625	0.0056	29.0
	12,000	23F 123 F 050 DB 1H1	2.000	2.125	0.0121	13.8
	18,000	23F 183 F 050 DC 1H1	2.000	2.625	0.0089	17.5
	23,000	23F 233 F 050 DD 1H1	2.000	3.125	0.0076	20.5
	29,000	23F 293 F 050 DE 1H1	2.000	3.625	0.0066	23.5
	34,000	23F 343 F 050 DF 1H1	2.000	4.125	0.0060	26.1
	40,000	23F 403 F 050 DG 1H1	2.000	4.625	0.0055	28.6
	45,000	23F 453 F 050 DH 1H1	2.000	5.125	0.0052	30.9
	51,000	23F 513 F 050 DI 1H1	2.000	5.625	0.0049	33.2
	39,000	23F 393 F 050 ED 1H1	2.500	3.125	0.0056	27.2
	48,000	23F 483 F 050 EE 1H1	2.500	3.625	0.0050	30.5
	56,000	23F 563 F 050 EF 1H1	2.500	4.125	0.0047	33.4
	66,000	23F 663 F 050 EG 1H1	2.500	4.625	0.0044	36.3
	75,000	23F 753 F 050 EH 1H1	2.500	5.125	0.0042	38.9
	84,000	23F 843 F 050 EI 1H1	2.500	5.625	0.0040	41.4
	56,000	23F 563 F 050 FD 1H1	3.000	3.125	0.0047	33.0
	70,000	23F 703 F 050 FE 1H1	3.000	3.625	0.0043	36.7
	81,000	23F 813 F 050 FF 1H1	3.000	4.125	0.0041	39.8
	95,000	23F 953 F 050 FG 1H1	3.000	4.625	0.0039	42.8
110,000	23F 114 F 050 FH 1H1	3.000	5.125	0.0037	45.8	
120,000	23F 124 F 050 FI 1H1	3.000	5.625	0.0036	48.2	
130,000	23F 134 F 050 FJ 1H1	3.000	5.875	0.0035	49.2	
150,000	23F 154 F 050 FL 1H1	3.000	8.625	0.0034	60.1	

Electrolytic Capacitors

23F Series - Extended Temperature Line

Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
60	3,300	23F 332 F 060 BB 1H1	1.375	2.125	0.0280	7.3
	4,600	23F 462 F 060 BC 1H1	1.375	2.625	0.0224	9.0
	6,200	23F 622 F 060 BD 1H1	1.375	3.125	0.0180	10.8
	7,700	23F 772 F 060 BE 1H1	1.375	3.625	0.0153	12.5
	8,900	23F 892 F 060 BF 1H1	1.375	4.125	0.0137	14.0
	10,000	23F 103 F 060 BG 1H1	1.375	4.625	0.0126	15.5
	12,000	23F 123 F 060 BH 1H1	1.375	5.125	0.0110	17.4
	13,000	23F 133 F 060 BI 1H1	1.375	5.625	0.0104	18.7
	6,000	23F 602 F 060 CB 1H1	1.750	2.125	0.0184	10.3
	8,500	23F 852 F 060 CC 1H1	1.750	2.625	0.0142	12.9
	11,000	23F 113 F 060 CD 1H1	1.750	3.125	0.0117	15.3
	14,000	23F 143 F 060 CE 1H1	1.750	3.625	0.0098	17.8
	16,000	23F 163 F 060 CF 1H1	1.750	4.125	0.0089	19.8
	19,000	23F 193 F 060 CG 1H1	1.750	4.625	0.0079	22.2
	22,000	23F 223 F 060 CH 1H1	1.750	5.125	0.0072	24.4
	24,000	23F 243 F 060 CI 1H1	1.750	5.625	0.0068	26.2
	7,700	23F 772 F 060 DB 1H1	2.000	2.125	0.0153	12.3
	11,000	23F 113 F 060 DC 1H1	2.000	2.625	0.0117	15.3
	15,000	23F 153 F 060 DD 1H1	2.000	3.125	0.0093	18.5
	18,000	23F 183 F 060 DE 1H1	2.000	3.625	0.0082	21.0
	21,000	23F 213 F 060 DF 1H1	2.000	4.125	0.0074	23.4
	25,000	23F 253 F 060 DG 1H1	2.000	4.625	0.0066	26.1
	28,000	23F 283 F 060 DH 1H1	2.000	5.125	0.0062	28.3
	32,000	23F 323 F 060 DI 1H1	2.000	5.625	0.0057	30.7
	24,000	23F 243 F 060 ED 1H1	2.500	3.125	0.0068	24.6
	30,000	23F 303 F 060 EE 1H1	2.500	3.625	0.0059	28.1
	35,000	23F 353 F 060 EF 1H1	2.500	4.125	0.0054	31.0
	41,000	23F 413 F 060 EG 1H1	2.500	4.625	0.0050	34.1
	46,000	23F 463 F 060 EH 1H1	2.500	5.125	0.0047	36.7
	52,000	23F 523 F 060 EI 1H1	2.500	5.625	0.0044	39.4
	35,000	23F 353 F 060 FD 1H1	3.000	3.125	0.0054	30.7
	44,000	23F 443 F 060 FE 1H1	3.000	3.625	0.0048	34.7
	50,000	23F 503 F 060 FF 1H1	3.000	4.125	0.0045	37.8
59,000	23F 593 F 060 FG 1H1	3.000	4.625	0.0042	41.2	
67,000	23F 673 F 060 FH 1H1	3.000	5.125	0.0040	44.3	
75,000	23F 753 F 060 FI 1H1	3.000	5.625	0.0038	47.2	
78,000	23F 783 F 060 FJ 1H1	3.000	5.875	0.0037	48.0	
94,000	23F 943 F 060 FL 1H1	3.000	8.625	0.0035	59.6	

Electrolytic Capacitors

23F Series - Extended Temperature Line



Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
75	3,000	23F 302 F 075 BB 1H1	1.375	2.125	0.0310	6.9
	4,300	23F 432 F 075 BC 1H1	1.375	2.625	0.2540	8.4
	5,700	23F 572 F 075 BD 1H1	1.375	3.125	0.2100	10.0
	7,200	23F 722 F 075 BE 1H1	1.375	3.625	0.0177	11.6
	8,300	23F 832 F 075 BF 1H1	1.375	4.125	0.0159	13.0
	9,700	23F 972 F 075 BG 1H1	1.375	4.625	0.0142	14.6
	11,000	23F 113 F 075 BH 1H1	1.375	5.125	0.0129	16.0
	12,000	23F 123 F 075 BI 1H1	1.375	5.625	0.0121	17.3
	5,500	23F 552 F 075 CB 1H1	1.750	2.125	0.0215	9.6
	7,900	23F 792 F 075 CC 1H1	1.750	2.625	0.0165	11.9
	10,000	23F 103 F 075 CD 1H1	1.750	3.125	0.0138	14.1
	13,000	23F 133 F 075 CE 1H1	1.750	3.625	0.0114	16.6
	15,000	23F 153 F 075 CF 1H1	1.750	4.125	0.0102	18.6
	18,000	23F 183 F 075 CG 1H1	1.750	4.625	0.0089	20.9
	20,000	23F 203 F 075 CH 1H1	1.750	5.125	0.0083	22.8
	23,000	23F 233 F 075 CI 1H1	1.750	5.625	0.0075	25.0
	7,200	23F 722 F 075 DB 1H1	2.000	2.125	0.0177	11.4
	10,000	23F 103 F 075 DC 1H1	2.000	2.625	0.0138	14.1
	14,000	23F 143 F 075 DD 1H1	2.000	3.125	0.0107	17.2
	17,000	23F 173 F 075 DE 1H1	2.000	3.625	0.0093	19.8
	19,000	23F 193 F 075 DF 1H1	2.000	4.125	0.0086	21.8
	23,000	23F 233 F 075 DG 1H1	2.000	4.625	0.0075	24.5
	26,000	23F 263 F 075 DH 1H1	2.000	5.125	0.0069	26.8
	29,000	23F 293 F 075 DI 1H1	2.000	5.625	0.0064	29.0
	22,000	23F 223 F 075 ED 1H1	2.500	3.125	0.0077	23.1
	28,000	23F 283 F 075 EE 1H1	2.500	3.625	0.0065	26.7
	32,000	23F 323 F 075 EF 1H1	2.500	4.125	0.0060	29.5
	38,000	23F 383 F 075 EG 1H1	2.500	4.625	0.0054	32.7
	43,000	23F 433 F 075 EH 1H1	2.500	5.125	0.0050	35.5
	48,000	23F 483 F 075 EI 1H1	2.500	5.625	0.0047	38.2
	32,000	23F 323 F 075 FD 1H1	3.000	3.125	0.0060	29.2
	40,000	23F 403 F 075 FE 1H1	3.000	3.625	0.0052	33.2
	47,000	23F 473 F 075 FF 1H1	3.000	4.125	0.0048	36.8
	55,000	23F 553 F 075 FG 1H1	3.000	4.625	0.0044	40.3
63,000	23F 633 F 075 FH 1H1	3.000	5.125	0.0041	43.6	
70,000	23F 703 F 075 FI 1H1	3.000	5.625	0.0039	46.6	
73,000	23F 733 F 075 FJ 1H1	3.000	5.875	0.0038	47.5	
80,000	23F 883 F 075 FL 1H1	3.000	8.625	0.0035	59.5	

Electrolytic Capacitors

23F Series - Extended Temperature Line



Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
80	2,500	23F 252 F 080 BB 1H1	1.375	2.125	0.0470	5.6
	3,500	23F 352 F 080 BC 1H1	1.375	2.625	0.0322	7.5
	4,700	23F 472 F 080 BD 1H1	1.375	3.125	0.0239	9.4
	5,900	23F 592 F 080 BE 1H1	1.375	3.625	0.0194	11.1
	6,800	23F 682 F 080 BF 1H1	1.375	4.125	0.0172	12.5
	8,000	23F 802 F 080 BG 1H1	1.375	4.625	0.0151	14.1
	9,100	23F 912 F 080 BH 1H1	1.375	5.125	0.1370	15.5
	10,000	23F 103 F 080 BI 1H1	1.375	5.625	0.0129	16.8
	4,500	23F 452 F 080 CB 1H1	1.750	2.125	0.0250	8.9
	6,500	23F 652 F 080 CC 1H1	1.750	2.625	0.0179	11.5
	8,600	23F 862 F 080 CD 1H1	1.750	3.125	0.0143	13.8
	11,000	23F 113 F 080 CE 1H1	1.750	3.625	0.0121	16.1
	12,000	23F 123 F 080 CF 1H1	1.750	4.125	0.0114	17.5
	15,000	23F 153 F 080 CG 1H1	1.750	4.625	0.0100	19.7
	17,000	23F 173 F 080 CH 1H1	1.750	5.125	0.0093	21.4
	19,000	23F 193 F 080 CI 1H1	1.750	5.625	0.0088	23.0
	5,900	23F 592 F 080 DB 1H1	2.000	2.125	0.0194	10.9
	8,400	23F 842 F 080 DC 1H1	2.000	2.625	0.0146	13.7
	11,000	23F 113 F 080 DD 1H1	2.000	3.125	0.0121	16.3
	14,000	23F 143 F 080 DE 1H1	2.000	3.625	0.0104	18.7
	16,000	23F 163 F 080 DF 1H1	2.000	4.125	0.0096	20.5
	19,000	23F 193 F 080 DG 1H1	2.000	4.625	0.0088	22.6
	21,000	23F 213 F 080 DH 1H1	2.000	5.125	0.0084	24.2
	24,000	23F 243 F 080 DI 1H1	2.000	5.625	0.0080	26.0
	18,000	23F 183 F 080 ED 1H1	2.500	3.125	0.0091	21.3
	23,000	23F 233 F 080 EE 1H1	2.500	3.625	0.0081	24.0
	26,000	23F 263 F 080 EF 1H1	2.500	4.125	0.0077	26.0
	31,000	23F 313 F 080 EG 1H1	2.500	4.625	0.0072	28.3
	35,000	23F 353 F 080 EH 1H1	2.500	5.125	0.0069	30.2
	39,000	23F 393 F 080 EI 1H1	2.500	5.625	0.0067	32.0
	27,000	23F 273 F 080 FD 1H1	3.000	3.125	0.0076	25.9
	33,000	23F 333 F 080 FE 1H1	3.000	3.625	0.0071	28.6
	38,000	23F 383 F 080 FF 1H1	3.000	4.125	0.0068	30.8
	45,000	23F 453 F 080 FG 1H1	3.000	4.625	0.0065	33.1
	51,000	23F 513 F 080 FH 1H1	3.000	5.125	0.0063	35.2
	57,000	23F 573 F 080 FI 1H1	3.000	5.625	0.0061	37.1
60,000	23F 603 F 080 FJ 1H1	3.000	5.875	0.0060	37.7	
72,000	23F 723 F 080 FL 1H1	3.000	8.625	0.0058	46.0	

Electrolytic Capacitors

23F Series - Extended Temperature Line

Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
100	1,300	23F 132 F 100 BB 1H1	1.375	2.125	0.0670	4.7
	1,800	23F 182 F 100 BC 1H1	1.375	2.625	0.0541	5.9
	2,400	23F 242 F 100 BD 1H1	1.375	3.125	0.0406	7.2
	3,000	23F 302 F 100 BE 1H1	1.375	3.625	0.0339	8.4
	3,400	23F 342 F 100 BF 1H1	1.375	4.125	0.0307	9.4
	4,000	23F 402 F 100 BG 1H1	1.375	4.625	0.0270	10.5
	4,600	23F 462 F 100 BH 1H1	1.375	5.125	0.0243	11.7
	5,200	23F 522 F 100 BI 1H1	1.375	5.625	0.0221	12.8
	2,300	23F 232 F 100 CB 1H1	1.750	2.125	0.0421	6.8
	3,300	23F 332 F 100 CC 1H1	1.750	2.625	0.0314	8.7
	4,400	23F 442 F 100 CD 1H1	1.750	3.125	0.0251	10.5
	5,400	23F 542 F 100 CE 1H1	1.750	3.625	0.0215	12.1
	6,300	23F 632 F 100 CF 1H1	1.750	4.125	0.0193	13.5
	7,400	23F 742 F 100 CG 1H1	1.750	4.625	0.0172	15.0
	8,400	23F 842 F 100 CH 1H1	1.750	5.125	0.0158	16.5
	9,400	23F 942 F 100 CI 1H1	1.750	5.625	0.0147	17.8
	3,000	23F 302 F 100 DB 1H1	2.000	2.125	0.0339	8.3
	4,200	23F 422 F 100 DC 1H1	2.000	2.625	0.0260	10.3
	5,600	23F 562 F 100 DD 1H1	2.000	3.125	0.0210	12.3
	7,000	23F 702 F 100 DE 1H1	2.000	3.625	0.0179	14.2
	8,100	23F 812 F 100 DF 1H1	2.000	4.125	0.0162	15.8
	9,600	23F 962 F 100 DG 1H1	2.000	4.625	0.0145	17.6
	11,000	23F 113 F 100 DH 1H1	2.000	5.125	0.0134	19.2
	12,000	23F 123 F 100 DI 1H1	2.000	5.625	0.0127	20.6
	9,300	23F 932 F 100 ED 1H1	2.500	3.125	0.0148	16.7
	12,000	23F 123 F 100 EE 1H1	2.500	3.625	0.0127	19.2
	13,000	23F 133 F 100 EF 1H1	2.500	4.125	0.0121	20.8
	16,000	23F 163 F 100 EG 1H1	2.500	4.625	0.0108	23.1
	18,000	23F 183 F 100 EH 1H1	2.500	5.125	0.0102	24.9
	20,000	23F 203 F 100 EI 1H1	2.500	5.625	0.0097	26.6
	13,000	23F 133 F 100 FD 1H1	3.000	3.125	0.0121	20.5
	17,000	23F 173 F 100 FE 1H1	3.000	3.625	0.0105	23.4
	19,000	23F 193 F 100 FF 1H1	3.000	4.125	0.0100	25.4
	23,000	23F 232 F 100 FG 1H1	3.000	4.625	0.0092	27.8
	26,000	23F 263 F 100 FH 1H1	3.000	5.125	0.0087	29.8
	29,000	23F 293 F 100 FI 1H1	3.000	5.625	0.0083	31.7
	30,000	23F 303 F 100 FJ 1H1	3.000	5.875	0.0082	32.3
37,000	23F 373 F 100 FL 1H1	3.000	8.625	0.0077	40.1	

Electrolytic Capacitors

23F Series - Extended Temperature Line



Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
150	510	23F 511 F 150 BB 1H1	1.375	2.125	0.2099	2.7
	720	23F 721 F 150 BC 1H1	1.375	2.625	0.1467	3.5
	960	23F 961 F 150 BD 1H1	1.375	3.125	0.1099	4.4
	1,200	23F 122 F 150 BE 1H1	1.375	3.625	0.0883	5.2
	1,400	23F 142 F 150 BF 1H1	1.375	4.125	0.0761	6.0
	1,600	23F 162 F 150 BG 1H1	1.375	4.625	0.0671	6.7
	1,900	23F 192 F 150 BH 1H1	1.375	5.125	0.0572	7.6
	2,100	23F 212 F 150 BI 1H1	1.375	5.625	0.0523	8.3
	920	23F 921 F 150 CB 1H1	1.750	2.125	0.1146	4.1
	1,300	23F 132 F 150 CC 1H1	1.750	2.625	0.0817	5.4
	1,700	23F 172 F 150 CD 1H1	1.750	3.125	0.0634	6.6
	2,200	23F 222 F 150 CE 1H1	1.750	3.625	0.0501	7.9
	2,500	23F 252 F 150 CF 1H1	1.750	4.125	0.0447	8.9
	2,900	23F 292 F 150 CG 1H1	1.750	4.625	0.0393	10.0
	3,400	23F 342 F 150 CH 1H1	1.750	5.125	0.0343	11.2
	3,800	23F 382 F 150 CI 1H1	1.750	5.625	0.0313	12.2
	1,200	23F 122 F 150 DB 1H1	2.000	2.125	0.0883	5.1
	1,700	23F 172 F 150 DC 1H1	2.000	2.625	0.0634	6.6
	2,300	23F 232 F 150 DD 1H1	2.000	3.125	0.0482	8.1
	2,800	23F 282 F 150 DE 1H1	2.000	3.625	0.0405	9.5
	3,200	23F 322 F 150 DF 1H1	2.000	4.125	0.0361	10.6
	3,800	23F 382 F 150 DG 1H1	2.000	4.625	0.0313	12.0
	4,400	23F 442 F 150 DH 1H1	2.000	5.125	0.0278	13.3
	4,900	23F 492 F 150 DI 1H1	2.000	5.625	0.0256	14.5
	3,700	23F 372 F 150 ED 1H1	2.500	3.125	0.0320	11.3
	4,700	23F 472 F 150 EE 1H1	2.500	3.625	0.0264	13.3
	5,400	23F 542 F 150 EF 1H1	2.500	4.125	0.0238	14.8
	6,300	23F 632 F 150 EG 1H1	2.500	4.625	0.0212	16.5
	7,200	23F 722 F 150 EH 1H1	2.500	5.125	0.0193	18.1
	8,000	23F 802 F 150 EI 1H1	2.500	5.625	0.0180	19.6
	5,400	23F 542 F 150 FD 1H1	3.000	3.125	0.0238	14.7
	6,700	23F 672 F 150 FE 1H1	3.000	3.625	0.0203	16.9
	7,800	23F 782 F 150 FF 1H1	3.000	4.125	0.0183	18.8
	9,200	23F 922 F 150 FG 1H1	3.000	4.625	0.0164	20.8
10,000	23F 103 F 150 FH 1H1	3.000	5.125	0.0156	22.3	
12,000	23F 123 F 150 FI 1H1	3.000	5.625	0.0140	24.5	
12,000	23F 123 F 150 FJ 1H1	3.000	5.875	0.0140	24.8	
15,000	23F 153 F 150 FL 1H1	3.000	8.625	0.0124	31.6	

Electrolytic Capacitors

23F Series - Extended Temperature Line



Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
200	320	23F 321 F 200 BB 1H1	1.375	2.125	0.2355	3.4
	460	23F 461 F 200 BC 1H1	1.375	2.625	0.1858	3.7
	610	23F 611 F 200 BD 1H1	1.375	3.125	0.1501	4.1
	770	23F 771 F 200 BE 1H1	1.375	3.625	0.1245	4.4
	880	23F 881 F 200 BF 1H1	1.375	4.125	0.1116	4.6
	1,000	23F 102 F 200 BG 1H1	1.375	4.625	0.1003	4.8
	1,200	23F 122 F 200 BH 1H1	1.375	5.125	0.0859	5.2
	1,300	23F 132 F 200 BI 1H1	1.375	5.625	0.0803	5.3
	590	23F 591 F 200 CB 1H1	1.750	2.125	0.1541	5.0
	840	23F 841 F 200 CC 1H1	1.750	2.625	0.1159	5.4
	1,100	23F 112 F 200 CD 1H1	1.750	3.125	0.0925	5.9
	1,400	23F 142 F 200 CE 1H1	1.750	3.625	0.0754	6.3
	1,600	23F 162 F 200 CF 1H1	1.750	4.125	0.0673	6.6
	1,900	23F 192 F 200 CG 1H1	1.750	4.625	0.0582	7.0
	2,200	23F 222 F 200 CH 1H1	1.750	5.125	0.0514	7.3
	2,400	23F 242 F 200 CI 1H1	1.750	5.625	0.0478	7.6
	770	23F 771 F 200 DB 1H1	2.000	2.125	0.1245	6.1
	1,100	23F 112 F 200 DC 1H1	2.000	2.625	0.0925	6.7
	1,400	23F 142 F 200 DD 1H1	2.000	3.125	0.0754	7.1
	1,800	23F 182 F 200 DE 1H1	2.000	3.625	0.0609	7.6
	2,100	23F 212 F 200 DF 1H1	2.000	4.125	0.0535	7.9
	2,500	23F 252 F 200 DG 1H1	2.000	4.625	0.0462	8.3
	2,800	23F 282 F 200 DH 1H1	2.000	5.125	0.0421	8.6
	3,100	23F 312 F 200 DI 1H1	2.000	5.625	0.0388	8.9
	2,400	23F 242 F 200 ED 1H1	2.500	3.125	0.0478	10.0
	3,000	23F 302 F 200 EE 1H1	2.500	3.625	0.0398	10.9
	3,400	23F 342 F 200 EF 1H1	2.500	4.125	0.0360	11.0
	4,000	23F 402 F 200 EG 1H1	2.500	4.625	0.0316	11.3
	4,600	23F 462 F 200 EH 1H1	2.500	5.125	0.0284	11.7
	5,200	23F 522 F 200 EI 1H1	2.500	5.625	0.0259	12.0
	3,400	23F 342 F 200 FD 1H1	3.000	3.125	0.0360	12.8
	4,300	23F 432 F 200 FE 1H1	3.000	3.625	0.0299	13.9
	5,000	23F 502 F 200 FF 1H1	3.000	4.125	0.0267	14.8
	5,800	23F 582 F 200 FG 1H1	3.000	4.625	0.0239	14.8
6,700	23F 672 F 200 FH 1H1	3.000	5.125	0.0216	15.0	
7,400	23F 742 F 200 FI 1H1	3.000	5.625	0.0202	15.0	
7,700	23F 772 F 200 FJ 1H1	3.000	5.875	0.0196	14.8	
9,300	23F 932 F 200 FL 1H1	3.000	8.625	0.0174	15.0	

Electrolytic Capacitors

23F Series - Extended Temperature Line



Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
250	250	23F 251 F 250 BB 1H1	1.375	2.125	0.3607	2.8
	360	23F 361 F 250 BC 1H1	1.375	2.625	0.2625	3.1
	480	23F 481 F 250 BD 1H1	1.375	3.125	0.2030	3.5
	600	23F 601 F 250 BE 1H1	1.375	3.625	0.1660	3.8
	690	23F 691 F 250 BF 1H1	1.375	4.125	0.1463	4.0
	810	23F 811 F 250 BG 1H1	1.375	4.625	0.1266	4.3
	930	23F 931 F 250 BH 1H1	1.375	5.125	0.1118	4.5
	1,000	23F 102 F 250 BI 1H1	1.375	5.625	0.1048	4.7
	460	23F 461 F 250 CB 1H1	1.750	2.125	0.2109	4.3
	660	23F 661 F 250 CC 1H1	1.750	2.625	0.1523	4.7
	870	23F 871 F 250 CD 1H1	1.750	3.125	0.1187	5.2
	1,100	23F 112 F 250 CE 1H1	1.750	3.625	0.0963	5.6
	1,300	23F 132 F 250 CF 1H1	1.750	4.125	0.0831	5.9
	1,500	23F 152 F 250 CG 1H1	1.750	4.625	0.0733	6.2
	1,700	23F 172 F 250 CH 1H1	1.750	5.125	0.0658	6.5
	1,900	23F 192 F 250 CI 1H1	1.750	5.625	0.0598	6.8
	600	23F 601 F 250 DB 1H1	2.000	2.125	0.1660	5.3
	850	23F 854 F 250 DC 1H1	2.000	2.625	0.1212	5.9
	1,100	23F 112 F 250 DD 1H1	2.000	3.125	0.0963	6.3
	1,400	23F 142 F 250 DE 1H1	2.000	3.625	0.0778	6.7
	1,600	23F 162 F 250 DF 1H1	2.000	4.125	0.0693	6.9
	1,900	23F 192 F 250 DG 1H1	2.000	4.625	0.0598	7.3
	2,200	23F 222 F 250 DH 1H1	2.000	5.125	0.0529	7.7
	2,400	23F 242 F 250 DI 1H1	2.000	5.625	0.0493	7.9
	1,900	23F 192 F 250 ED 1H1	2.500	3.125	0.0598	9.0
	2,300	23F 232 F 250 EE 1H1	2.500	3.625	0.0510	9.6
	2,700	23F 272 F 250 EF 1H1	2.500	4.125	0.0448	9.8
	3,200	23F 322 F 250 EG 1H1	2.500	4.625	0.0391	10.2
	3,600	23F 362 F 250 EH 1H1	2.500	5.125	0.0357	10.4
	4,000	23F 402 F 250 EI 1H1	2.500	5.625	0.0330	10.6
	2,700	23F 272 F 250 FD 1H1	3.000	3.125	0.0448	11.5
	3,400	23F 342 F 250 FE 1H1	3.000	3.625	0.0373	12.4
	3,900	23F 392 F 250 FF 1H1	3.000	4.125	0.0337	13.2
	4,600	23F 462 F 250 FG 1H1	3.000	4.625	0.0298	13.3
5,200	23F 522 F 250 FH 1H1	3.000	5.125	0.0274	13.3	
5,800	23F 582 F 250 FI 1H1	3.000	5.625	0.0254	13.4	
6,000	23F 602 F 250 FJ 1H1	3.000	5.875	0.0249	13.1	
7,300	23F 732 F 250 FL 1H1	3.000	8.625	0.0219	13.3	

Electrolytic Capacitors

23H Series - Inverter Grade Product Line

INVERTER GRADE PRODUCT LINE:

- Broad Capacitance Range
- Increased Volumetric Efficiency
- Low ESR
- Standard Ratings

SPECIFICATIONS:

Capacitance Range:	150 to 15,000 μ F
Voltage Range:	200 to 450 WVDC
Capacitance Tolerance:	-10% / +50% Standard
Operating Temperature:	-40°C to +85°C
Life @ 85oC:	2,000 Hrs.
Terminals:	10-32 High Post – Standard for less than 40 Amps RA For applications of 40 Amps RMS and above, specify High Current (D) or (N) terminal assembly

RIPPLE CURRENT APPLICATION GUIDLINES:

RIPPLE CURRENT FREQUENCY MULTIPLIERS					
100 Hz	120 Hz	400 Hz	4 KHz	10 KHz	20 KHz
0.95	1.00	1.10	1.15	1.25	1.25

RIPPLE CURRENT TEMPERATURE MULTIPLIERS					
85	75	65	55	45	35
1.0	1.4	2.0	2.3	2.5	2.7

FOR COMPLETE APPLICATION SPECIFICATION DETAILS SEE APPLICATION GUIDELINES SECTION OF CATALOG

Electrolytic Capacitors

23H Series - Inverter Grade Product Line



Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
200	640	23H 641 F 200 BB 1H1	1.375	2.125	0.1240	3.3
	890	23H 891 F 200 BC 1H1	1.375	2.625	0.0890	3.8
	1,100	23H 112 F 200 BD 1H1	1.375	3.125	0.1010	3.5
	1,300	23H 132 F 200 BE 1H1	1.375	3.625	0.0850	3.7
	1,600	23H 162 F 200 BF 1H1	1.375	4.125	0.0690	4.1
	1,700	23H 172 F 200 BG 1H1	1.375	4.625	0.0650	4.2
	2,000	23H 203 F 200 BH 1H1	1.375	5.125	0.0550	4.5
	2,200	23H 222 F 200 BI 1H1	1.375	5.625	0.0500	4.7
	1,100	23H 112 F 200 CB 1H1	1.750	2.125	0.1010	4.4
	1,600	23H 162 F 200 CC 1H1	1.750	2.625	0.0690	4.9
	2,000	23H 202 F 200 CD 1H1	1.750	3.125	0.0550	5.3
	2,400	23H 242 F 200 CE 1H1	1.750	3.625	0.0460	5.7
	2,900	23H 292 F 200 CF 1H1	1.750	4.125	0.0380	6.2
	3,200	23H 322 F 200 CG 1H1	1.750	4.625	0.0340	6.4
	3,600	23H 362 F 200 CH 1H1	1.750	5.125	0.0300	6.8
	4,100	23H 412 F 200 CI 1H1	1.750	5.625	0.0270	7.1
	1,200	23H 122 F 200 DB 1H1	2.000	2.125	0.0920	5.0
	1,700	23H 172 F 200 DC 1H1	2.000	2.625	0.0650	5.6
	2,300	23H 232 F 200 DD 1H1	2.000	3.125	0.0480	6.2
	2,900	23H 292 F 200 DE 1H1	2.000	3.625	0.0380	6.7
	3,300	23H 332 F 200 DF 1H1	2.000	4.125	0.0330	7.1
	3,900	23H 392 F 200 DG 1H1	2.000	4.625	0.0280	7.5
	4,500	23H 452 F 200 DH 1H1	2.000	5.125	0.0240	8.0
	5,000	23H 502 F 200 DI 1H1	2.000	5.625	0.0220	8.3
	3,800	23H 382 F 200 ED 1H1	2.500	3.125	0.0290	9.1
	4,800	23H 482 F 200 EE 1H1	2.500	3.625	0.0230	10.1
	5,500	23H 552 F 200 EF 1H1	2.500	4.125	0.0200	10.4
	6,500	23H 652 F 200 EG 1H1	2.500	4.625	0.0170	10.9
	7,400	23H 742 F 200 EH 1H1	2.500	5.125	0.0150	11.3
	8,300	23H 832 F 200 EI 1H1	2.500	5.625	0.0130	12.0
	5,600	23H 562 F 200 FD 1H1	3.000	3.125	0.0190	12.4
	7,000	23H 702 F 200 FE 1H1	3.000	3.625	0.0150	13.8
	8,100	23H 812 F 200 FF 1H1	3.000	4.125	0.0130	14.9
9,500	23H 952 F 200 FG 1H1	3.000	4.625	0.0110	15.4	
10,000	23H 103 F 200 FH 1H1	3.000	5.125	0.0110	14.8	
12,000	23H 123 F 200 FI 1H1	3.000	5.625	0.0092	15.7	
15,000	23H 153 F 200 FL 1H1	3.000	8.625	0.0074	16.1	

Electrolytic Capacitors

23H Series - Inverter Grade Product Line



Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
250	500	23H 501 F 250 BB 1H1	1.375	2.125	0.1400	3.1
	700	23H 701 F 250 BC 1H1	1.375	2.625	0.1000	3.5
	870	23H 871 F 250 BD 1H1	1.375	3.125	0.0810	3.9
	1,000	23H 102 F 250 BE 1H1	1.375	3.625	0.0700	4.1
	1,200	23H 122 F 250 BF 1H1	1.375	4.125	0.0620	4.4
	1,400	23H 142 F 250 BG 1H1	1.375	4.625	0.0520	4.7
	1,500	23H 152 F 250 BH 1H1	1.375	5.125	0.0480	4.8
	1,700	23H 172 F 250 BI 1H1	1.375	5.625	0.0430	5.1
	910	23H 911 F 250 CB 1H1	1.750	2.125	0.0770	5.0
	1,200	23H 122 F 250 CC 1H1	1.750	2.625	0.0600	5.3
	1,500	23H 152 F 250 CD 1H1	1.750	3.125	0.0480	5.7
	1,900	23H 192 F 250 CE 1H1	1.750	3.625	0.0380	6.3
	2,200	23H 222 F 250 CF 1H1	1.750	4.125	0.0330	6.6
	2,500	23H 252 F 250 CG 1H1	1.750	4.625	0.0290	7.0
	2,800	23H 282 F 250 CH 1H1	1.750	5.125	0.0260	7.3
	3,200	23H 322 F 250 CI 1H1	1.750	5.625	0.0230	7.7
	960	23H 961 F 250 DB 1H1	2.000	2.125	0.0730	5.6
	1,300	23H 132 F 250 DC 1H1	2.000	2.625	0.0560	6.1
	1,800	23H 182 F 250 DD 1H1	2.000	3.125	0.0400	6.8
	2,200	23H 222 F 250 DE 1H1	2.000	3.625	0.0330	7.2
	2,600	23H 262 F 250 DF 1H1	2.000	4.125	0.0280	7.7
	3,100	23H 312 F 250 DG 1H1	2.000	4.625	0.0230	8.2
	3,500	23H 352 F 250 DH 1H1	2.000	5.125	0.0210	8.6
	3,900	23H 392 F 250 DI 1H1	2.000	5.625	0.0190	9.0
	3,000	23H 302 F 250 ED 1H1	2.500	3.125	0.0240	10.0
	3,700	23H 372 F 250 EE 1H1	2.500	3.625	0.0200	11.0
	4,300	23H 432 F 250 EF 1H1	2.500	4.125	0.0170	11.3
	5,100	23H 512 F 250 EG 1H1	2.500	4.625	0.0140	11.9
	5,800	23H 582 F 250 EH 1H1	2.500	5.125	0.0120	12.4
	6,500	23H 652 F 250 EI 1H1	2.500	5.625	0.0110	12.9
	4,300	23H 432 F 250 FD 1H1	3.000	3.125	0.0170	13.2
	5,400	23H 542 F 250 FE 1H1	3.000	3.625	0.0130	14.6
	6,300	23H 632 F 250 FF 1H1	3.000	4.125	0.0110	15.9
	7,400	23H 742 F 250 FG 1H1	3.000	4.625	0.0100	16.3
8,500	23H 852 F 250 FH 1H1	3.000	5.125	0.0085	16.8	
9,500	23H 952 F 250 FI 1H1	3.000	5.625	0.0076	17.3	
11,000	23H 113 F 250 FL 1H1	3.000	8.625	0.0065	17.2	

Electrolytic Capacitors

23H Series - Inverter Grade Product Line



Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
300	400	23H 401 F 300 BB 1H1	1.375	2.125	0.1650	2.6
	560	23H 561 F 300 BC 1H1	1.375	2.625	0.1180	3.3
	700	23H 701 F 300 BD 1H1	1.375	3.125	0.0940	3.6
	850	23H 851 F 300 BE 1H1	1.375	3.625	0.0780	3.9
	1,000	23H 102 F 300 BF 1H1	1.375	4.125	0.0660	4.2
	1,100	23H 112 F 300 BG 1H1	1.375	4.625	0.0740	3.9
	1,200	23H 122 F 300 BH 1H1	1.375	5.125	0.0680	4.1
	1,400	23H 142 F 300 BI 1H1	1.375	5.625	0.0580	4.4
	730	23H 731 F 300 CB 1H1	1.750	2.125	0.0900	4.6
	1,000	23H 102 F 300 CC 1H1	1.750	2.625	0.0660	5.1
	1,200	23H 122 F 300 CD 1H1	1.750	3.125	0.0680	4.8
	1,500	23H 152 F 300 CE 1H1	1.750	3.625	0.0540	5.2
	1,800	23H 182 F 300 CF 1H1	1.750	4.125	0.0450	5.6
	2,000	23H 202 F 300 CG 1H1	1.750	4.625	0.0400	5.9
	2,300	23H 232 F 300 CH 1H1	1.750	5.125	0.0350	6.3
	2,600	23H 262 F 300 CI 1H1	1.750	5.625	0.0310	6.6
	780	23H 781 F 300 DB 1H1	2.000	2.125	0.0850	5.2
	1,100	23H 112 F 300 DC 1H1	2.000	2.625	0.0740	5.3
	1,400	23H 142 F 300 DD 1H1	2.000	3.125	0.0580	5.6
	1,800	23H 182 F 300 DE 1H1	2.000	3.625	0.0450	6.2
	2,100	23H 212 F 300 DF 1H1	2.000	4.125	0.0380	6.6
	2,500	23H 252 F 300 DG 1H1	2.000	4.625	0.0320	7.0
	2,800	23H 282 F 300 DH 1H1	2.000	5.125	0.0290	7.3
	3,100	23H 312 F 300 DI 1H1	2.000	5.625	0.0260	7.6
	2,400	23H 242 F 300 ED 1H1	2.500	3.125	0.0340	8.4
	3,000	23H 302 F 300 EE 1H1	2.500	3.625	0.0270	9.3
	3,500	23H 352 F 300 EF 1H1	2.500	4.125	0.0230	9.7
	4,100	23H 412 F 300 EG 1H1	2.500	4.625	0.0190	10.3
	4,700	23H 472 F 300 EH 1H1	2.500	5.125	0.0170	10.6
	5,200	23H 522 F 300 EI 1H1	2.500	5.625	0.0150	11.1
	3,500	23H 352 F 300 FD 1H1	3.000	3.125	0.0230	11.3
	4,400	23H 442 F 300 FE 1H1	3.000	3.625	0.0180	12.6
	5,100	23H 512 F 300 FF 1H1	3.000	4.125	0.0160	13.5
	6,000	23H 602 F 300 FG 1H1	3.000	4.625	0.0130	14.1
6,800	23H 682 F 300 FH 1H1	3.000	5.125	0.0120	14.2	
7,600	23H 762 F 300 FI 1H1	3.000	5.625	0.0100	15.1	
9,500	23H 952 F 300 FL 1H1	3.000	8.625	0.0066	15.0	

Electrolytic Capacitors

23H Series - Inverter Grade Product Line



Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C	
350	260	23H 261 F 350 BB 1H1	1.375	2.125	0.1930	2.6	
	370	23H 371 F 350 BC 1H1	1.375	2.625	0.1360	3.0	
	460	23H 461 F 350 BD 1H1	1.375	3.125	0.1090	3.3	
	560	23H 561 F 350 BE 1H1	1.375	3.625	0.0890	3.6	
	660	23H 661 F 350 BF 1H1	1.375	4.125	0.0760	3.9	
	740	23H 741 F 350 BG 1H1	1.375	4.625	0.0680	4.1	
	830	23H 831 F 350 BH 1H1	1.375	5.125	0.0600	4.3	
	940	23H 941 F 350 BI 1H1	1.375	5.625	0.0530	4.6	
	480	23H 481 F 350 CB 1H1	1.750	2.125	0.1040	4.3	
	670	23H 671 F 350 CC 1H1	1.750	2.625	0.0750	4.7	
	840	23H 841 F 350 CD 1H1	1.750	3.125	0.0590	5.1	
	1,000	23H 102 F 350 CE 1H1	1.750	3.625	0.0500	5.5	
	1,200	23H 122 F 350 CF 1H1	1.750	4.125	0.0490	5.4	
	1,300	23H 132 F 350 CG 1H1	1.750	4.625	0.0450	5.6	
	1,500	23H 152 F 350 CH 1H1	1.750	5.125	0.0390	5.9	
	1,700	23H 172 F 350 CI 1H1	1.750	5.625	0.0350	6.2	
	510	23H 511 F 350 DB 1H1	2.000	2.125	0.0980	4.8	
	720	23H 721 F 350 DC 1H1	2.000	2.625	0.0690	5.5	
	960	23H 961 F 350 DD 1H1	2.000	3.125	0.0520	6.0	
	1,200	23H 122 F 350 DE 1H1	2.000	3.625	0.0490	5.9	
	1,300	23H 132 F 350 DF 1H1	2.000	4.125	0.0450	6.0	
	1,600	23H 162 F 350 DG 1H1	2.000	4.625	0.0370	6.5	
	1,800	23H 182 F 350 DH 1H1	2.000	5.125	0.0330	6.8	
	2,000	23H 202 F 350 DI 1H1	2.000	5.625	0.0290	7.2	
	1,500	23H 152 F 350 ED 1H1	2.500	3.125	0.0390	7.8	
	1,900	23H 192 F 350 EE 1H1	2.500	3.625	0.0310	8.7	
	2,200	23H 222 F 350 EF 1H1	2.500	4.125	0.0270	8.9	
	2,700	23H 272 F 350 EG 1H1	2.500	4.625	0.0220	9.6	
	3,000	23H 302 F 350 EH 1H1	2.500	5.125	0.0190	10.1	
	2,300	23H 232 F 350 FD 1H1	3.000	3.125	0.0250	10.8	
	2,800	23H 282 F 350 FE 1H1	3.000	3.625	0.0210	11.7	
	3,300	23H 332 F 350 FF 1H1	3.000	4.125	0.0180	12.7	
3,900	23H 392 F 350 FG 1H1	3.000	4.625	0.0150	13.2		
4,400	23H 442 F 350 FH 1H1	3.000	5.125	0.0130	13.6		
5,000	23H 502 F 350 FI 1H1	3.000	5.625	0.0110	14.4		
6,200	23H 622 F 350 FL 1H1	3.000	8.625	0.0096	14.1		

Electrolytic Capacitors

23H Series - Inverter Grade Product Line



Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
400	200	23H 201 F 400 BB 1H1	1.375	2.125	0.3380	2.0
	280	23H 281 F 400 BC 1H1	1.375	2.625	0.2410	2.3
	350	23H 351 F 400 BD 1H1	1.375	3.125	0.1930	2.5
	430	23H 431 F 400 BE 1H1	1.375	3.625	0.1570	2.7
	500	23H 501 F 400 BF 1H1	1.375	4.125	0.1350	2.9
	570	23H 571 F 400 BG 1H1	1.375	4.625	0.1180	3.1
	640	23H 641 F 400 BH 1H1	1.375	5.125	0.1050	3.3
	720	23H 721 F 400 BI 1H1	1.375	5.625	0.0930	3.5
	370	23H 371 F 400 CB 1H1	1.750	2.125	0.1820	3.2
	510	23H 511 F 400 CC 1H1	1.750	2.625	0.1320	3.6
	640	23H 641 F 400 CD 1H1	1.750	3.125	0.1050	3.8
	780	23H 781 F 400 CE 1H1	1.750	3.625	0.0860	4.1
	920	23H 921 F 400 CF 1H1	1.750	4.125	0.0730	4.4
	1,000	23H 102 F 400 CG 1H1	1.750	4.625	0.0670	4.6
	1,100	23H 112 F 400 CH 1H1	1.750	5.125	0.0740	4.3
	1,300	23H 132 F 400 CI 1H1	1.750	5.625	0.0630	4.6
	390	23H 391 F 400 DB 1H1	2.000	2.125	0.1730	3.6
	560	23H 561 F 400 DC 1H1	2.000	2.625	0.1200	4.1
	740	23H 741 F 400 DD 1H1	2.000	3.125	0.0910	4.5
	930	23H 931 F 400 DE 1H1	2.000	3.625	0.0720	4.9
	1,000	23H 102 F 400 DF 1H1	2.000	4.125	0.0670	4.9
	1,200	23H 122 F 400 DG 1H1	2.000	4.625	0.0680	4.8
	1,400	23H 142 F 400 DH 1H1	2.000	5.125	0.0580	5.1
	1,600	23H 162 F 400 DI 1H1	2.000	5.625	0.0510	5.4
	1,200	23H 122 F 400 ED 1H1	2.500	3.125	0.0680	5.9
	1,500	23H 152 F 400 EE 1H1	2.500	3.625	0.0540	6.6
	1,700	23H 172 F 400 EF 1H1	2.500	4.125	0.0480	6.7
	2,000	23H 202 F 400 EG 1H1	2.500	4.625	0.0410	7.0
	2,300	23H 232 F 400 EH 1H1	2.500	5.125	0.0350	7.4
	2,600	23H 262 F 400 EI 1H1	2.500	5.625	0.0310	7.7
	1,700	23H 172 F 400 FD 1H1	3.000	3.125	0.0480	7.8
	2,200	23H 222 F 400 FE 1H1	3.000	3.625	0.0370	8.8
	2,500	23H 252 F 400 FF 1H1	3.000	4.125	0.0320	9.5
	3,000	23H 302 F 400 FG 1H1	3.000	4.625	0.0270	9.8
3,400	23H 342 F 400 FH 1H1	3.000	5.125	0.0240	10.0	
3,800	23H 382 F 400 FI 1H1	3.000	5.625	0.0210	10.4	
4,800	23H 482 F 400 FL 1H1	3.000	8.625	0.0170	10.6	

Electrolytic Capacitors

23H Series - Inverter Grade Product Line



Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
450	150	23H 151 F 450 BB 1H1	1.375	2.125	0.3970	1.8
	210	23H 211 F 450 BC 1H1	1.375	2.625	0.2840	2.1
	260	23H 261 F 450 BD 1H1	1.375	3.125	0.2290	2.3
	320	23H 321 F 450 BE 1H1	1.375	3.625	0.1860	2.5
	370	23H 371 F 450 BF 1H1	1.375	4.125	0.1610	2.7
	440	23H 441 F 450 BG 1H1	1.375	4.625	0.1420	2.8
	470	23H 470 F 450 BH 1H1	1.375	5.125	0.1260	3.0
	530	23H 531 F 450 BI 1H1	1.375	5.625	0.1120	3.1
	270	23H 271 F 450 CB 1H1	1.750	2.125	0.2210	2.9
	380	23H 381 F 450 CC 1H1	1.750	2.625	0.1570	3.3
	480	23H 481 F 450 CD 1H1	1.750	3.125	0.1240	3.5
	580	23H 581 F 450 CE 1H1	1.750	3.625	0.1020	3.8
	680	23H 681 F 450 CF 1H1	1.750	4.125	0.0870	4.0
	770	23H 771 F 450 CG 1H1	1.750	4.625	0.0770	4.2
	860	23H 861 F 450 CH 1H1	1.750	5.125	0.0690	4.4
	980	23H 981 F 450 CI 1H1	1.750	5.625	0.0600	4.7
	290	23H 291 F 450 DB 1H1	2.000	2.125	0.2050	3.3
	410	23H 411 F 450 DC 1H1	2.000	2.625	0.1450	3.8
	550	23H 551 F 450 DD 1H1	2.000	3.125	0.1080	4.1
	690	23H 691 F 450 DE 1H1	2.000	3.625	0.0860	4.5
	790	23H 791 F 450 DF 1H1	2.000	4.125	0.0750	4.7
	940	23H 941 F 450 DG 1H1	2.000	4.625	0.0630	5.0
	1,000	23H 102 F 450 DH 1H1	2.000	5.125	0.0590	5.1
	1,200	23H 122 F 450 DI 1H1	2.000	5.625	0.0590	5.0
	900	23H 901 F 450 ED 1H1	2.500	3.125	0.0660	6.0
	1,100	23H 112 F 450 EE 1H1	2.500	3.625	0.0650	6.0
	1,300	23H 132 F 450 EF 1H1	2.500	4.125	0.0550	6.2
	1,500	23H 152 F 450 EG 1H1	2.500	4.625	0.0470	6.5
	1,700	23H 172 F 450 EH 1H1	2.500	5.125	0.0420	6.7
	1,900	23H 192 F 450 EI 1H1	2.500	5.625	0.0370	7.1
	1,300	23H 132 F 450 FD 1H1	3.000	3.125	0.0550	7.3
	1,600	23H 162 F 450 FE 1H1	3.000	3.625	0.0440	8.0
	1,800	23H 182 F 450 FF 1H1	3.000	4.125	0.0390	8.6
	2,200	23H 222 F 450 FG 1H1	3.000	4.625	0.0320	9.0
	2,500	23H 252 F 450 FH 1H1	3.000	5.125	0.0280	9.3
2,800	23H 282 F 450 FI 1H1	3.000	5.625	0.0250	9.5	
3,500	23H 352 F 450 FL 1H1	3.000	8.625	0.0200	9.8	

23J Series - High Temperature Inverter Grade

HIGH TEMP INVERTER PRODUCT:

- Broad Capacitance Range
- Increased Volumetric Efficiency
- Low ESR
- Standard Ratings

SPECIFICATIONS:

Capacitance Range:	150 to 11,000 μ F
Voltage Range:	200 to 400 WVDC
Capacitance Tolerance:	-10% / +50% Standard
Operating Temperature:	-40°C to +105°C
Life @ 85oC:	2,000 Hrs.
Terminals:	10-32 High Post – Standard for less than 40 Amps RA For applications of 40 Amps RMS and above, specify High Current (D) or (N) terminal assembly

RIPPLE CURRENT APPLICATION GUIDLINES:

RIPPLE CURRENT FREQUENCY MULTIPLIERS					
100 Hz	120 Hz	400 Hz	4 KHz	10 KHz	20 KHz
0.95	1.00	1.10	1.12	1.15	1.18

RIPPLE CURRENT TEMPERATURE MULTIPLIERS					
85	75	65	55	45	35
1.0	1.4	2.0	2.3	2.5	2.7

FOR COMPLETE APPLICATION SPECIFICATION DETAILS SEE
APPLICATION GUIDELINES SECTION OF CATALOG

Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
200	480	23J 481 F 200 BB 1H1	1.375	2.125	0.1430	4.4
	670	23J 671 F 200 BC 1H1	1.375	2.625	0.1020	5.0
	840	23J 841 F 200 BD 1H1	1.375	3.125	0.0820	5.5
	1,000	23J 102 F 200 BE 1H1	1.375	3.625	0.0830	5.4
	1,200	23J 122 F 200 BF 1H1	1.375	4.125	0.0690	5.9
	1,300	23J 132 F 200 BG 1H1	1.375	4.625	0.0640	6.0
	1,500	23J 152 F 200 BH 1H1	1.375	5.125	0.0550	6.5
	1,700	23J 172 F 200 BI 1H1	1.375	5.625	0.0490	6.8
	880	23J 881 F 200 CB 1H1	1.750	2.125	0.0780	7.1
	1,200	23J 122 F 200 CC 1H1	1.750	2.625	0.0690	7.1
	1,500	23J 152 F 200 CD 1H1	1.750	3.125	0.0550	7.6
	1,800	23J 182 F 200 CE 1H1	1.750	3.625	0.0460	8.1
	2,200	23J 222 F 200 CF 1H1	1.750	4.125	0.0370	8.9
	2,400	23J 242 F 200 CG 1H1	1.750	4.625	0.0340	9.1
	2,700	23J 272 F 200 CH 1H1	1.750	5.125	0.0300	9.6
	3,100	23J 312 F 200 CI 1H1	1.750	5.625	0.0260	10.3
	930	23J 931 F 200 DB 1H1	2.000	2.125	0.0740	7.9
	1,300	23J 132 F 200 DC 1H1	2.000	2.625	0.0640	8.1
	1,700	23J 172 F 200 DD 1H1	2.000	3.125	0.0490	8.8
	2,200	23J 222 F 200 DE 1H1	2.000	3.625	0.0370	9.7
	2,500	23J 252 F 200 DF 1H1	2.000	4.125	0.0330	10.0
	3,000	23J 302 F 200 DG 1H1	2.000	4.625	0.0270	10.9
	3,400	23J 342 F 200 DH 1H1	2.000	5.125	0.0240	11.4
	3,800	23J 382 F 200 DI 1H1	2.000	5.625	0.0210	12.1
	2,900	23J 292 F 200 ED 1H1	2.500	3.125	0.0280	13.1
	3,600	23J 362 F 200 EE 1H1	2.500	3.625	0.0230	14.4
	4,200	23J 422 F 200 EF 1H1	2.500	4.125	0.0190	15.1
	4,900	23J 492 F 200 EG 1H1	2.500	4.625	0.0170	15.5
	5,600	23J 562 F 200 EH 1H1	2.500	5.125	0.0140	16.7
	6,300	23J 632 F 200 EI 1H1	2.500	5.625	0.0130	17.0
	4,200	23J 422 F 200 FD 1H1	3.000	3.125	0.0190	17.6
	5,300	23J 532 F 200 FE 1H1	3.000	3.625	0.0150	19.6
	6,100	23J 612 F 200 FF 1H1	3.000	4.125	0.0130	21.2
7,200	23J 722 F 200 FG 1H1	3.000	4.625	0.0110	21.8	
8,200	23J 822 F 200 FH 1H1	3.000	5.125	0.0100	22.0	
9,100	23J 912 F 200 FI 1H1	3.000	5.625	0.0091	22.4	
11,000	23J 113 F 200 FL 1H1	3.000	8.625	0.0075	22.7	

Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
250	400	23J 401 F 250 BB 1H1	1.375	2.125	0.1620	4.1
	560	23J 561 F 250 BC 1H1	1.375	2.625	0.1160	4.7
	710	23J 711 F 250 BD 1H1	1.375	3.125	0.0910	5.2
	860	23J 861 F 250 BE 1H1	1.375	3.625	0.0750	5.7
	1,000	23J 102 F 250 BF 1H1	1.375	4.125	0.0720	5.7
	1,100	23J 112 F 250 BG 1H1	1.375	4.625	0.0660	6.0
	1,200	23J 122 F 250 BH 1H1	1.375	5.125	0.0600	6.2
	1,400	23J 142 F 250 BI 1H1	1.375	5.625	0.0520	6.6
	740	23J 741 F 250 CB 1H1	1.750	2.125	0.0870	6.7
	1,000	23J 102 F 250 CC 1H1	1.750	2.625	0.0720	6.9
	1,200	23J 122 F 250 CD 1H1	1.750	3.125	0.0600	7.3
	1,500	23J 152 F 250 CE 1H1	1.750	3.625	0.0480	7.9
	1,800	23J 182 F 250 CF 1H1	1.750	4.125	0.0400	8.5
	2,000	23J 202 F 250 CG 1H1	1.750	4.625	0.0360	8.9
	2,300	23J 232 F 250 CH 1H1	1.750	5.125	0.0310	9.5
	2,600	23J 262 F 250 CI 1H1	1.750	5.625	0.0280	9.9
	780	23J 781 F 250 DB 1H1	2.000	2.125	0.0830	7.5
	1,100	23J 112 F 250 DC 1H1	2.000	2.625	0.0660	8.0
	1,400	23J 142 F 250 DD 1H1	2.000	3.125	0.0520	8.5
	1,800	23J 182 F 250 DE 1H1	2.000	3.625	0.0400	9.4
	2,100	23J 212 F 250 DF 1H1	2.000	4.125	0.0340	9.9
	2,500	23J 252 F 250 DG 1H1	2.000	4.625	0.0290	10.5
	2,800	23J 282 F 250 DH 1H1	2.000	5.125	0.0260	11.0
	3,200	23J 322 F 250 DI 1H1	2.000	5.625	0.0220	11.8
	2,400	23J 242 F 250 ED 1H1	2.500	3.125	0.0300	12.7
	3,000	23J 302 F 250 EE 1H1	2.500	3.625	0.0240	14.1
	3,500	23J 352 F 250 EF 1H1	2.500	4.125	0.0200	14.7
	4,100	23J 412 F 250 EG 1H1	2.500	4.625	0.0170	15.5
	4,700	23J 472 F 250 EH 1H1	2.500	5.125	0.0150	16.1
	5,300	23J 532 F 250 EI 1H1	2.500	5.625	0.0130	17.0
	3,500	23J 352 F 250 FD 1H1	3.000	3.125	0.0200	17.2
	4,400	23J 442 F 250 FE 1H1	3.000	3.625	0.0160	19.0
	5,100	23J 512 F 250 FF 1H1	3.000	4.125	0.0140	20.4
6,000	23J 602 F 250 FG 1H1	3.000	4.625	0.0120	20.9	
6,900	23J 692 F 250 FH 1H1	3.000	5.125	0.0100	22.0	
7,700	23J 772 F 250 FI 1H1	3.000	5.625	0.0094	22.1	
9,600	23J 962 F 250 FL 1H1	3.000	8.625	0.0079	22.7	

Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
300	310	23J 311 F 300 BB 1H1	1.375	2.125	0.1710	4.0
	430	23J 431 F 300 BC 1H1	1.375	2.625	0.1230	4.5
	540	23J 541 F 300 BD 1H1	1.375	3.125	0.0980	5.0
	660	23J 661 F 300 BE 1H1	1.375	3.625	0.0800	5.5
	770	23J 771 F 300 BF 1H1	1.375	4.125	0.0680	5.9
	860	23J 861 F 300 BG 1H1	1.375	4.625	0.0610	6.1
	970	23J 971 F 300 BH 1H1	1.375	5.125	0.0540	6.5
	1,100	23J 112 F 300 BI 1H1	1.375	5.625	0.0570	6.3
	560	23J 561 F 300 CB 1H1	1.750	2.125	0.0940	6.4
	790	23J 791 F 300 CC 1H1	1.750	2.625	0.0670	7.1
	980	23J 981 F 300 CD 1H1	1.750	3.125	0.0540	7.6
	1,200	23J 122 F 300 CE 1H1	1.750	3.625	0.0520	7.6
	1,400	23J 142 F 300 CF 1H1	1.750	4.125	0.0440	8.1
	1,500	23J 152 F 300 CG 1H1	1.750	4.625	0.0410	8.3
	1,700	23J 172 F 300 CH 1H1	1.750	5.125	0.0370	8.6
	2,000	23J 202 F 300 CI 1H1	1.750	5.625	0.0310	9.3
	600	23J 601 F 300 DB 1H1	2.000	2.125	0.0880	7.2
	850	23J 851 F 300 DC 1H1	2.000	2.625	0.0620	8.2
	1,100	23J 112 F 300 DD 1H1	2.000	3.125	0.0570	8.1
	1,400	23J 142 F 300 DE 1H1	2.000	3.625	0.0440	8.9
	1,600	23J 162 F 300 DF 1H1	2.000	4.125	0.0390	9.2
	1,900	23J 192 F 300 DG 1H1	2.000	4.625	0.0330	9.8
	2,200	23J 222 F 300 DH 1H1	2.000	5.125	0.0280	10.5
	2,400	23J 242 F 300 DI 1H1	2.000	5.625	0.0260	10.8
	1,800	23J 182 F 300 ED 1H1	2.500	3.125	0.0340	11.9
	2,300	23J 232 F 300 EE 1H1	2.500	3.625	0.0270	13.2
	2,600	23J 262 F 300 EF 1H1	2.500	4.125	0.0240	13.4
	3,100	23J 312 F 300 EG 1H1	2.500	4.625	0.0200	14.2
	3,600	23J 362 F 300 EH 1H1	2.500	5.125	0.0170	15.1
	4,000	23J 402 F 300 EI 1H1	2.500	5.625	0.0150	15.8
	2,700	23J 272 F 300 FD 1H1	3.000	3.125	0.0230	16.0
	3,400	23J 342 F 300 FE 1H1	3.000	3.625	0.0180	17.9
	3,900	23J 392 F 300 FF 1H1	3.000	4.125	0.0160	19.1
4,600	23J 462 F 300 FG 1H1	3.000	4.625	0.0130	20.0	
5,200	23J 522 F 300 FH 1H1	3.000	5.125	0.0120	20.0	
5,800	23J 582 F 300 FI 1H1	3.000	5.625	0.0100	21.4	
7,300	23J 732 F 300 FL 1H1	3.000	8.625	0.0860	21.2	

Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
350	210	23J 211 F 350 BB 1H1	1.375	2.125	0.3090	2.9
	290	23J 291 F 350 BC 1H1	1.375	2.625	0.2240	3.4
	360	23J 361 F 350 BD 1H1	1.375	3.125	0.1800	3.7
	440	23J 441 F 350 BE 1H1	1.375	3.625	0.1470	4.0
	520	23J 521 F 350 BF 1H1	1.375	4.125	0.1240	4.3
	590	23J 591 F 350 BG 1H1	1.375	4.625	0.1100	4.6
	660	23J 661 F 350 BH 1H1	1.375	5.125	0.0980	4.8
	750	23J 751 F 350 BI 1H1	1.375	5.625	0.0860	5.1
	380	23J 381 F 350 CB 1H1	1.750	2.125	0.1710	4.7
	530	23J 531 F 350 CC 1H1	1.750	2.625	0.1220	5.3
	670	23J 671 F 350 CD 1H1	1.750	3.125	0.0960	5.7
	810	23J 811 F 350 CE 1H1	1.750	3.625	0.0800	6.1
	950	23J 951 F 350 CF 1H1	1.750	4.125	0.0680	6.5
	1,000	23J 102 F 350 CG 1H1	1.750	4.625	0.0640	6.6
	1,200	23J 122 F 350 CH 1H1	1.750	5.125	0.0580	6.9
	1,300	23J 132 F 350 CI 1H1	1.750	5.625	0.0530	7.1
	400	23J 401 F 350 DB 1H1	2.000	2.125	0.1620	5.3
	580	23J 581 F 350 DC 1H1	2.000	2.625	0.1120	6.1
	770	23J 771 F 350 DD 1H1	2.000	3.125	0.0840	6.6
	960	23J 961 F 350 DE 1H1	2.000	3.625	0.0670	7.2
	1,100	23J 112 F 350 DF 1H1	2.000	4.125	0.0630	7.2
	1,300	23J 132 F 350 DG 1H1	2.000	4.625	0.0530	7.7
	1,400	23J 142 F 350 DH 1H1	2.000	5.125	0.0490	7.9
	1,600	23J 162 F 350 DI 1H1	2.000	5.625	0.0430	8.4
	1,200	23J 122 F 350 ED 1H1	2.500	3.125	0.0580	9.1
	1,500	23J 152 F 350 EE 1H1	2.500	3.625	0.0460	10.1
	1,800	23J 182 F 350 EF 1H1	2.500	4.125	0.0380	10.6
	2,100	23J 212 F 350 EG 1H1	2.500	4.625	0.0330	11.1
	2,400	23J 242 F 350 EH 1H1	2.500	5.125	0.0290	11.5
	2,700	23J 272 F 350 EI 1H1	2.500	5.625	0.0250	12.2
	1,800	23J 182 F 350 FD 1H1	3.000	3.125	0.0380	12.4
	2,300	23J 232 F 350 FE 1H1	3.000	3.625	0.0300	13.8
	2,600	23J 262 F 350 FF 1H1	3.000	4.125	0.0260	14.9
3,100	23J 312 F 350 FG 1H1	3.000	4.625	0.0220	15.4	
3,500	23J 352 F 350 FH 1H1	3.000	5.125	0.0190	15.9	
3,900	23J 392 F 350 FI 1H1	3.000	5.625	0.0170	16.4	
4,900	23J 492 F 350 FL 1H1	3.000	8.625	0.0140	16.6	

Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
400	150	23J 151 F 400 BB 1H1	1.375	2.125	0.3970	2.6
	210	23J 211 F 400 BC 1H1	1.375	2.625	0.2840	3.0
	260	23J 261 F 400 BD 1H1	1.375	3.125	0.2290	3.3
	320	23J 321 F 400 BE 1H1	1.375	3.625	0.1860	3.6
	380	23J 381 F 400 BF 1H1	1.375	4.125	0.1570	3.8
	420	23J 421 F 400 BG 1H1	1.375	4.625	0.1420	4.0
	480	23J 481 F 400 BH 1H1	1.375	5.125	0.1240	4.3
	540	23J 541 F 400 BI 1H1	1.375	5.625	0.1100	4.5
	270	23J 271 F 400 CB 1H1	1.750	2.125	0.2210	4.2
	390	23J 391 F 400 CC 1H1	1.750	2.625	0.1530	4.7
	480	23J 481 F 400 CD 1H1	1.750	3.125	0.1240	5.0
	590	23J 591 F 400 CE 1H1	1.750	3.625	0.1010	5.4
	690	23J 691 F 400 CF 1H1	1.750	4.125	0.0860	5.8
	780	23J 781 F 400 CG 1H1	1.750	4.625	0.0860	6.1
	870	23J 871 F 400 CH 1H1	1.750	5.125	0.0680	6.3
	990	23J 991 F 400 CI 1H1	1.750	5.625	0.0600	6.7
	290	23J 291 F 400 DB 1H1	2.000	2.125	0.2050	4.7
	420	23J 421 F 400 DC 1H1	2.000	2.625	0.1420	5.4
	560	23J 561 F 400 DD 1H1	2.000	3.125	0.1060	5.9
	700	23J 701 F 400 DE 1H1	2.000	3.625	0.0850	6.4
	810	23J 811 F 400 DF 1H1	2.000	4.125	0.0730	6.7
	950	23J 951 F 400 DG 1H1	2.000	4.625	0.0620	7.1
	1,000	23J 102 F 400 DH 1H1	2.000	5.125	0.0590	7.2
	1,200	23J 122 F 400 DI 1H1	2.000	5.625	0.0550	7.4
	920	23J 921 F 400 ED 1H1	2.500	3.125	0.0640	8.6
	1,100	23J 112 F 400 EE 1H1	2.500	3.625	0.0600	8.9
	1,300	23J 132 F 400 EF 1H1	2.500	4.125	0.0510	9.2
	1,500	23J 152 F 400 EG 1H1	2.500	4.625	0.0440	9.6
	1,700	23J 172 F 400 EH 1H1	2.500	5.125	0.0390	9.9
	1,900	23J 192 F 400 EI 1H1	2.500	5.625	0.0340	10.4
	1,300	23J 132 F 400 FD 1H1	3.000	3.125	0.0510	10.7
	1,600	23J 162 F 400 FE 1H1	3.000	3.625	0.0410	11.8
	1,900	23J 192 F 400 FF 1H1	3.000	4.125	0.0340	13.1
	2,200	23J 222 F 400 FG 1H1	3.000	4.625	0.0300	13.2
	2,500	23J 252 F 400 FH 1H1	3.000	5.125	0.0260	13.6
	2,800	23J 282 F 400 FI 1H1	3.000	5.625	0.0230	14.1
3,600	23J 362 F 400 FL 1H1	3.000	8.625	0.0180	14.6	

23M Series - Standard High Ripple Current Line

STANDARD HIGH RIPPLE CURRENT LINE:

- Broad Capacitance Range
- Increased Volumetric Efficiency
- Low ESR
- Standard Ratings

SPECIFICATIONS:

Capacitance Range:	150 to 20,000 μ F
Voltage Range:	200 to 450 WVDC
Capacitance Tolerance:	-10% / +50% Standard
Operating Temperature:	-40°C to +85°C
Life @ 85oC:	2,000 Hrs.
Terminals:	10-32 High Post – Standard
	(Other terminal configurations available)

RIPPLE CURRENT APPLICATION GUIDLINES:

RIPPLE CURRENT FREQUENCY MULTIPLIERS					
100 Hz	120 Hz	400 Hz	4 KHz	10 KHz	20 KHz
0.95	1.00	1.04	1.06	1.10	1.15

RIPPLE CURRENT TEMPERATURE MULTIPLIERS							
105	95	85	75	65	55	45	35
0.0	0.7	1.0	1.2	1.4	1.6	1.7	1.9

FOR COMPLETE APPLICATION SPECIFICATION DETAILS SEE APPLICATION GUIDELINES SECTION OF CATALOG

Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
200	700	23M 701 F 200 BB 1H1	1.375	2.125	0.1700	2.9
	1,200	23M 122 F 200 BC 1H1	1.375	2.625	0.1390	3.1
	1,400	23M 142 F 200 BD 1H1	1.375	3.125	0.1190	3.2
	1,600	23M 162 F 200 BE 1H1	1.375	3.625	0.1040	3.4
	1,900	23M 192 F 200 BF 1H1	1.375	4.125	0.0870	3.7
	2,300	23M 232 F 200 BG 1H1	1.375	4.625	0.0720	4.0
	2,500	23M 252 F 200 BH 1H1	1.375	5.125	0.0660	4.2
	2,900	23M 292 F 200 BI 1H1	1.375	5.625	0.0570	4.5
	1,300	23M 132 F 200 CB 1H1	1.750	2.125	0.1280	3.9
	1,800	23M 182 F 200 CC 1H1	1.750	2.625	0.0920	4.3
	2,400	23M 242 F 200 CD 1H1	1.750	3.125	0.0690	4.8
	3,000	23M 302 F 200 CE 1H1	1.750	3.625	0.0550	5.3
	3,400	23M 342 F 200 CF 1H1	1.750	4.125	0.0490	5.4
	4,100	23M 412 F 200 CG 1H1	1.750	4.625	0.0400	6.0
	4,700	23M 472 F 200 CH 1H1	1.750	5.125	0.0350	6.3
	5,200	23M 522 F 200 CI 1H1	1.750	5.625	0.0320	6.5
	1,600	23M 162 F 200 DB 1H1	2.000	2.125	0.1040	4.7
	2,300	23M 232 F 200 DC 1H1	2.000	2.625	0.0720	5.4
	3,100	23M 312 F 200 DD 1H1	2.000	3.125	0.0530	6.0
	3,900	23M 392 F 200 DE 1H1	2.000	3.625	0.0420	6.5
	4,400	23M 442 F 200 DF 1H1	2.000	4.125	0.0370	6.7
	5,200	23M 522 F 200 DG 1H1	2.000	4.625	0.0320	7.1
	5,900	23M 592 F 200 DH 1H1	2.000	5.125	0.0280	7.5
	6,700	23M 672 F 200 DI 1H1	2.000	5.625	0.0240	8.0
	5,100	23M 512 F 200 ED 1H1	2.500	3.125	0.0320	8.7
	6,400	23M 642 F 200 EE 1H1	2.500	3.625	0.0260	9.5
	7,400	23M 742 F 200 EF 1H1	2.500	4.125	0.0220	9.9
	8,600	23M 862 F 200 EG 1H1	2.500	4.625	0.0190	10.3
	9,900	23M 992 F 200 EH 1H1	2.500	5.125	0.0160	11.0
	11,000	23M 113 F 200 EI 1H1	2.500	5.625	0.0150	11.2
	7,500	23M 752 F 200 FD 1H1	3.000	3.125	0.0220	11.6
	9,000	23M 902 F 200 FE 1H1	3.000	3.625	0.0180	12.7
	11,000	23M 113 F 200 FF 1H1	3.000	4.125	0.0150	14.0
	13,000	23M 133 F 200 FG 1H1	3.000	4.625	0.0120	14.8
14,000	23M 143 F 200 FH 1H1	3.000	5.125	0.0110	14.9	
16,000	23M 163 F 200 FI 1H1	3.000	5.625	0.0100	15.1	
17,000	23M 173 F 200 FJ 1H1	3.000	5.875	0.0090	15.6	
20,000	23M 203 F 200 FL 1H1	3.000	8.625	0.0080	15.6	

Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
250	500	23M 501 F 250 BB 1H1	1.375	2.125	0.2100	2.5
	750	23M 751 F 250 BC 1H1	1.375	2.625	0.1400	3.0
	1,000	23M 102 F 250 BD 1H1	1.375	3.125	0.1050	3.4
	1,200	23M 122 F 250 BE 1H1	1.375	3.625	0.0900	3.7
	1,400	23M 142 F 250 BF 1H1	1.375	4.125	0.0770	3.9
	1,700	23M 172 F 250 BG 1H1	1.375	4.625	0.0630	4.3
	1,900	23M 192 F 250 BH 1H1	1.375	5.125	0.0570	4.4
	2,200	23M 222 F 250 BI 1H1	1.375	5.625	0.0490	4.8
	1,000	23M 102 F 250 CB 1H1	1.750	2.125	0.1080	4.2
	1,400	23M 142 F 250 CC 1H1	1.750	2.625	0.0770	4.7
	1,800	23M 182 F 250 CD 1H1	1.750	3.125	0.0600	5.1
	2,300	23M 232 F 250 CE 1H1	1.750	3.625	0.0470	5.6
	2,600	23M 262 F 250 CF 1H1	1.750	4.125	0.0410	5.9
	3,100	23M 312 F 250 CG 1H1	1.750	4.625	0.0340	6.5
	3,500	23M 352 F 250 CH 1H1	1.750	5.125	0.0300	6.6
	3,900	23M 392 F 250 CI 1H1	1.750	5.625	0.0270	7.1
	1,200	23M 122 F 250 DB 1H1	2.000	2.125	0.0900	5.1
	1,700	23M 172 F 250 DC 1H1	2.000	2.625	0.0630	5.8
	2,300	23M 232 F 250 DD 1H1	2.000	3.125	0.0470	6.3
	2,900	23M 292 F 250 DE 1H1	2.000	3.625	0.0370	6.9
	3,300	23M 332 F 250 DF 1H1	2.000	4.125	0.0320	7.1
	4,000	23M 402 F 250 DG 1H1	2.000	4.625	0.0270	7.6
	4,500	23M 452 F 250 DH 1H1	2.000	5.125	0.0240	8.0
	5,000	23M 502 F 250 DI 1H1	2.000	5.625	0.0210	8.5
	3,800	23M 382 F 250 ED 1H1	2.500	3.125	0.0280	9.2
	4,800	23M 482 F 250 EE 1H1	2.500	3.625	0.0220	10.2
	5,500	23M 552 F 250 EF 1H1	2.500	4.125	0.0190	10.4
	6,500	23M 652 F 250 EG 1H1	2.500	4.625	0.0160	11.2
	7,400	23M 742 F 250 EH 1H1	2.500	5.125	0.0140	11.7
	8,300	23M 832 F 250 EI 1H1	2.500	5.625	0.0130	11.9
	5,600	23M 562 F 250 FD 1H1	3.000	3.125	0.0190	12.3
	6,900	23M 692 F 250 FE 1H1	3.000	3.625	0.0150	13.8
	8,000	23M 802 F 250 FF 1H1	3.000	4.125	0.0130	14.9
9,000	23M 902 F 250 FG 1H1	3.000	4.625	0.0120	14.5	
11,000	23M 113 F 250 FH 1H1	3.000	5.125	0.0100	15.6	
12,000	23M 123 F 250 FI 1H1	3.000	5.625	0.0090	15.8	
13,000	23M 133 F 250 FJ 1H1	3.000	5.875	0.0080	16.2	
15,000	23M 153 F 250 FL 1H1	3.000	8.625	0.0070	16.1	

Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
300	400	23M 401 F 300 BB 1H1	1.375	2.125	0.2480	2.4
	600	23M 601 F 300 BC 1H1	1.375	2.625	0.1650	2.8
	770	23M 771 F 300 BD 1H1	1.375	3.125	0.1290	3.1
	1,000	23M 102 F 300 BE 1H1	1.375	3.625	0.1180	3.2
	1,100	23M 112 F 300 BF 1H1	1.375	4.125	0.1110	3.3
	1,400	23M 142 F 300 BG 1H1	1.375	4.625	0.0870	3.7
	1,500	23M 152 F 300 BH 1H1	1.375	5.125	0.0810	3.8
	1,700	23M 172 F 300 BI 1H1	1.375	5.625	0.0720	4.0
	700	23M 701 F 300 CB 1H1	1.750	2.125	0.1420	3.7
	1,100	23M 112 F 300 CC 1H1	1.750	2.625	0.1110	3.9
	1,400	23M 142 F 300 CD 1H1	1.750	3.125	0.0870	4.2
	1,800	23M 182 F 300 CE 1H1	1.750	3.625	0.0680	4.7
	2,100	23M 212 F 300 CF 1H1	1.750	4.125	0.0580	5.0
	2,400	23M 242 F 300 CG 1H1	1.750	4.625	0.0510	5.3
	2,700	23M 272 F 300 CH 1H1	1.750	5.125	0.0450	5.5
	3,100	23M 312 F 300 CI 1H1	1.750	5.625	0.0390	5.9
	1,000	23M 102 F 300 DB 1H1	2.000	2.125	0.1180	4.4
	1,300	23M 132 F 300 DC 1H1	2.000	2.625	0.0940	4.8
	1,800	23M 182 F 300 DD 1H1	2.000	3.125	0.0680	5.2
	2,300	23M 232 F 300 DE 1H1	2.000	3.625	0.0530	5.8
	2,600	23M 262 F 300 DF 1H1	2.000	4.125	0.0470	5.9
	3,100	23M 312 F 300 DG 1H1	2.000	4.625	0.0390	6.4
	3,500	23M 352 F 300 DH 1H1	2.000	5.125	0.0350	6.6
	4,000	23M 402 F 300 DI 1H1	2.000	5.625	0.0300	7.1
	3,000	23M 302 F 300 ED 1H1	2.500	3.125	0.0400	7.7
	3,800	23M 382 F 300 EE 1H1	2.500	3.625	0.0320	8.6
	4,300	23M 432 F 300 EF 1H1	2.500	4.125	0.0280	8.7
	5,100	23M 512 F 300 EG 1H1	2.500	4.625	0.0240	9.1
	5,900	23M 592 F 300 EH 1H1	2.500	5.125	0.0200	9.8
	6,500	23M 652 F 300 EI 1H1	2.500	5.625	0.0180	10.1
	4,400	23M 442 F 300 FD 1H1	3.000	3.125	0.0270	10.4
	5,500	23M 552 F 300 FE 1H1	3.000	3.625	0.0220	11.3
	6,300	23M 632 F 300 FF 1H1	3.000	4.125	0.0190	12.2
7,400	23M 742 F 300 FG 1H1	3.000	4.625	0.0160	12.8	
8,500	23M 852 F 300 FH 1H1	3.000	5.125	0.0140	13.1	
9,900	23M 992 F 300 FI 1H1	3.000	5.625	0.0120	13.7	
9,900	23M 992 F 300 FJ 1H1	3.000	5.875	0.0120	13.2	
12,000	23M 123 F 300 FL 1H1	3.000	8.625	0.0100	13.6	

Voltage (WVDC)	Capacitance (µF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
350	300	23M 301 F 350 BB 1H1	1.375	2.125	0.2510	0.8
	430	23M 431 F 350 BC 1H1	1.375	2.625	0.1750	2.7
	550	23M 551 F 350 BD 1H1	1.375	3.125	0.1370	3.0
	700	23M 701 F 350 BE 1H1	1.375	3.625	0.1070	3.3
	800	23M 801 F 350 BF 1H1	1.375	4.125	0.0940	3.6
	1,000	23M 102 F 350 BG 1H1	1.375	4.625	0.0870	3.7
	1,100	23M 112 F 350 BH 1H1	1.375	5.125	0.0810	3.8
	1,200	23M 122 F 350 BI 1H1	1.375	5.625	0.0740	3.9
	540	23M 541 F 350 CB 1H1	1.750	2.125	0.1390	3.7
	800	23M 801 F 350 CC 1H1	1.750	2.625	0.0940	4.2
	1,000	23M 102 F 350 CD 1H1	1.750	3.125	0.0870	4.3
	1,300	23M 132 F 350 CE 1H1	1.750	3.625	0.0680	4.8
	1,400	23M 142 F 350 CF 1H1	1.750	4.125	0.0630	4.8
	1,700	23M 172 F 350 CG 1H1	1.750	4.625	0.0520	5.2
	2,000	23M 202 F 350 CH 1H1	1.750	5.125	0.0440	5.6
	2,200	23M 222 F 350 CI 1H1	1.750	5.625	0.0400	5.8
	700	23M 701 F 350 DB 1H1	2.000	2.125	0.1070	4.6
	1,000	23M 102 F 350 DC 1H1	2.000	2.625	0.0870	4.9
	1,400	23M 142 F 350 DD 1H1	2.000	3.125	0.0630	5.5
	1,600	23M 162 F 350 DE 1H1	2.000	3.625	0.0550	5.6
	1,900	23M 192 F 350 DF 1H1	2.000	4.125	0.0470	5.9
	2,300	23M 232 F 350 DG 1H1	2.000	4.625	0.0380	6.5
	2,500	23M 252 F 350 DH 1H1	2.000	5.125	0.0350	6.6
	2,900	23M 292 F 350 DI 1H1	2.000	5.625	0.0300	7.1
	2,200	23M 222 F 350 ED 1H1	2.500	3.125	0.0400	7.7
	2,700	23M 272 F 350 EE 1H1	2.500	3.625	0.0330	8.5
	3,200	23M 322 F 350 EF 1H1	2.500	4.125	0.0270	8.9
	3,700	23M 372 F 350 EG 1H1	2.500	4.625	0.0240	9.2
	4,200	23M 422 F 350 EH 1H1	2.500	5.125	0.0210	9.6
	4,700	23M 472 F 350 EI 1H1	2.500	5.625	0.0190	9.8
	3,200	23M 322 F 350 FD 1H1	3.000	3.125	0.0270	10.3
	4,000	23M 402 F 350 FE 1H1	3.000	3.625	0.0220	11.3
	4,500	23M 452 F 350 FF 1H1	3.000	4.125	0.0190	12.5
	5,300	23M 532 F 350 FG 1H1	3.000	4.625	0.0160	12.7
6,100	23M 612 F 350 FH 1H1	3.000	5.125	0.0140	13.1	
6,700	23M 672 F 350 FI 1H1	3.000	5.625	0.0130	13.2	
6,900	23M 692 F 350 FJ 1H1	3.000	5.875	0.0120	13.4	
8,300	23M 832 F 350 FL 1H1	3.000	8.625	0.0100	13.6	

Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
400	220	23M 221 F 400 BB 1H1	1.375	2.125	0.4610	1.7
	300	23M 301 F 400 BC 1H1	1.375	2.625	0.3380	2.0
	400	23M 401 F 400 BD 1H1	1.375	3.125	0.2530	2.2
	500	23M 501 F 400 BE 1H1	1.375	3.625	0.2020	2.5
	600	23M 601 F 400 BF 1H1	1.375	4.125	0.1690	2.6
	700	23M 701 F 400 BG 1H1	1.375	4.625	0.1440	2.9
	800	23M 801 F 400 BH 1H1	1.375	5.125	0.1260	3.1
	900	23M 901 F 400 BI 1H1	1.375	5.625	0.1120	3.2
	400	23M 401 F 400 CB 1H1	1.750	2.125	0.2530	2.8
	550	23M 551 F 400 CC 1H1	1.750	2.625	0.1840	3.0
	730	23M 731 F 400 CD 1H1	1.750	3.125	0.1380	3.3
	900	23M 901 F 400 CE 1H1	1.750	3.625	0.1120	3.7
	1,100	23M 112 F 400 CF 1H1	1.750	4.125	0.1030	3.8
	1,300	23M 132 F 400 CG 1H1	1.750	4.625	0.0940	3.9
	1,400	23M 142 F 400 CH 1H1	1.750	5.125	0.0880	3.9
	1,600	23M 162 F 400 CI 1H1	1.750	5.625	0.0770	4.2
	500	23M 501 F 400 DB 1H1	2.000	2.125	0.2020	3.3
	700	23M 701 F 400 DC 1H1	2.000	2.625	0.1440	3.8
	1,000	23M 102 F 400 DD 1H1	2.000	3.125	0.1070	4.2
	1,200	23M 122 F 400 DE 1H1	2.000	3.625	0.1020	4.1
	1,400	23M 142 F 400 DF 1H1	2.000	4.125	0.0880	4.3
	1,600	23M 162 F 400 DG 1H1	2.000	4.625	0.0770	4.5
	1,800	23M 182 F 400 DH 1H1	2.000	5.125	0.0680	4.7
	2,100	23M 212 F 400 DI 1H1	2.000	5.625	0.0580	5.2
	1,500	23M 152 F 400 ED 1H1	2.500	3.125	0.0820	5.4
	2,000	23M 202 F 400 EE 1H1	2.500	3.625	0.0610	6.2
	2,300	23M 232 F 400 EF 1H1	2.500	4.125	0.0530	6.3
	2,700	23M 272 F 400 EG 1H1	2.500	4.625	0.0450	6.7
	3,100	23M 312 F 400 EH 1H1	2.500	5.125	0.0390	7.0
	3,400	23M 342 F 400 EI 1H1	2.500	5.625	0.0360	7.2
	2,300	23M 232 F 400 FD 1H1	3.000	3.125	0.0530	7.4
	2,800	23M 282 F 400 FE 1H1	3.000	3.625	0.0440	8.0
	3,200	23M 322 F 400 FF 1H1	3.000	4.125	0.0380	8.8
3,900	23M 392 F 400 FG 1H1	3.000	4.625	0.0310	9.1	
4,400	23M 442 F 400 FH 1H1	3.000	5.125	0.0280	9.3	
4,900	23M 492 F 400 FI 1H1	3.000	5.625	0.0250	9.4	
5,100	23M 512 F 400 FJ 1H1	3.000	5.875	0.0240	9.4	
6,100	23M 612 F 400 FL 1H1	3.000	8.625	0.0200	9.9	

Voltage (WVDC)	Capacitance (μF)	Catalog Number	Base Size (in.)	Height C (in.)	Max ESR 120 Hz@25°C	Max Ripple 120 Hz@85°C
450	150	23M 151 F 450 BB 1H1	1.375	2.125	0.5960	1.5
	230	23M 231 F 450 BC 1H1	1.375	2.625	0.3890	1.8
	300	23M 301 F 450 BD 1H1	1.375	3.125	0.2980	2.1
	370	23M 371 F 450 BE 1H1	1.375	3.625	0.2410	2.3
	430	23M 431 F 450 BF 1H1	1.375	4.125	0.2080	2.4
	500	23M 501 F 450 BG 1H1	1.375	4.625	0.1790	2.6
	580	23M 581 F 450 BH 1H1	1.375	5.125	0.1540	2.7
	640	23M 641 F 450 BI 1H1	1.375	5.625	0.1390	2.8
	290	23M 291 F 450 CB 1H1	1.750	2.125	0.3080	2.5
	400	23M 401 F 450 CC 1H1	1.750	2.625	0.2230	2.8
	540	23M 541 F 450 CD 1H1	1.750	3.125	0.1650	3.1
	680	23M 681 F 450 CE 1H1	1.750	3.625	0.1310	3.4
	800	23M 801 F 450 CF 1H1	1.750	4.125	0.1110	3.6
	900	23M 901 F 450 CG 1H1	1.750	4.625	0.0990	3.7
	1,100	23M 112 F 450 CH 1H1	1.750	5.125	0.0970	3.7
	1,200	23M 122 F 450 CI 1H1	1.750	5.625	0.0890	3.9
	370	23M 371 F 450 DB 1H1	2.000	2.125	0.2410	3.1
	520	23M 521 F 450 DC 1H1	2.000	2.625	0.1720	3.5
	700	23M 701 F 450 DD 1H1	2.000	3.125	0.1270	3.8
	900	23M 901 F 450 DE 1H1	2.000	3.625	0.0990	4.3
	1,000	23M 102 F 450 DF 1H1	2.000	4.125	0.0980	4.3
	1,200	23M 122 F 450 DG 1H1	2.000	4.625	0.0890	4.2
	1,400	23M 142 F 450 DH 1H1	2.000	5.125	0.0760	4.5
	1,500	23M 152 F 450 DI 1H1	2.000	5.625	0.0710	4.6
	1,200	23M 122 F 450 ED 1H1	2.500	3.125	0.0890	5.2
	1,400	23M 142 F 450 EE 1H1	2.500	3.625	0.0760	5.5
	1,600	23M 162 F 450 EF 1H1	2.500	4.125	0.0670	5.6
	2,000	23M 202 F 450 EG 1H1	2.500	4.625	0.0530	6.1
	2,300	23M 232 F 450 EH 1H1	2.500	5.125	0.0460	6.5
	2,500	23M 252 F 450 EI 1H1	2.500	5.625	0.0420	6.7
	1,600	23M 162 F 450 FD 1H1	3.000	3.125	0.0670	6.6
	1,800	23M 182 F 450 FH 1H1	3.000	5.125	0.0590	6.4
	2,100	23M 212 F 450 FE 1H1	3.000	3.625	0.0510	7.5
	2,400	23M 242 F 450 FF 1H1	3.000	4.125	0.0440	8.1
	2,800	23M 282 F 450 FG 1H1	3.000	4.625	0.0380	8.2
	3,200	23M 322 F 450 FH 1H1	3.000	5.125	0.0330	8.4
3,600	23M 362 F 450 FI 1H1	3.000	5.625	0.0290	8.7	
3,700	23M 372 F 450 FJ 1H1	3.000	5.875	0.0290	8.5	
4,500	23M 452 F 450 FL 1H1	3.000	8.625	0.0230	9.1	

Sensitivity to Frequency and Temperature:

Ripple current ratings are specified at an ambient temperature of 85°C in circulating air, using the 25°C values of E.S.R.

The maximum allowable ripple current may be adjusted for frequencies other than 120 Hz and temperatures other than 85°C using the tables below.

RIPPLE CURRENT FREQUENCY MULTIPLIERS

Series	100 Hz	120 Hz	400 Hz	4 KHz	10 KHz	20 KHz
23A	0.95	1.00	1.15	1.20	1.35	1.40
23B	0.97	1.00	1.10	1.15	1.25	1.25
23C	0.95	1.00	1.15	1.20	1.35	1.40
23D	0.92	1.00	1.04	1.08	1.25	1.25
23F	0.95	1.00	1.04	1.06	1.10	1.15
23H	0.95	1.00	1.10	1.15	1.25	1.25
23J	0.95	1.00	1.10	1.12	1.15	1.18
23M	0.97	1.00	1.10	1.15	1.25	1.25

Table-AP1

RIPPLE CURRENT TEMPERATURE MULTIPLIERS

Series	105°C	95°C	85°C	75°C	65°C	55°C	45°C	35°C
23A	-----	-----	1.0	1.4	1.7	2.0	2.3	2.5
23B	-----	-----	1.0	1.4	1.7	2.0	2.3	2.5
23C	-----	1.0	1.4	1.7	2.0	2.3	2.5	2.7
23D	-----	-----	1.0	1.4	1.7	2.0	2.3	2.5
23F	0.0	0.7	1.0	1.2	1.4	1.6	1.7	1.9
23H	-----	-----	1.0	1.4	2.0	2.3	2.5	2.7
23J	-----	-----	1.0	1.4	2.0	2.3	2.5	2.7
23M	0.0	0.7	1.0	1.2	1.4	1.6	1.7	1.9

Table-AP2

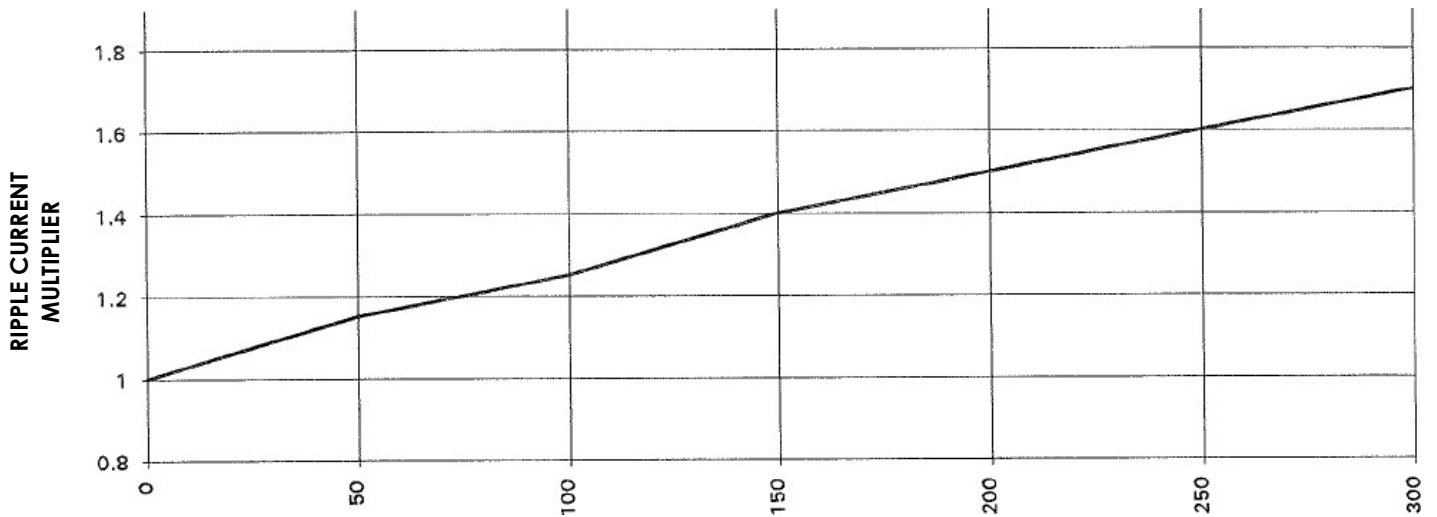
RIPPLE CURRENT AIR-FLOW MULTIPLIERS

AIR-FLOW MULTIPLIERS							
LFM	0	50	100	150	200	250	300
All Series	1	1.15	1.25	1.4	1.5	1.6	1.7

Note: Air-Flow Multiplier is in addition to other applied multipliers

Table-AP3

AIR-FLOW MULTIPLIERS



LFM (Linear FT / MIN-Airflow)

Chart- APC1

APPLIED VOLTAGE

The combined Peak AC Voltage and DC Voltage shall not exceed the DC Voltage Rating of the capacitor, or the reverse DC Voltage Rating of the capacitor.

REVERSE VOLTAGE

Unless otherwise specified, the maximum permissible reverse voltage rating for all aluminum Electrolytic Capacitors is 1.5 volts.

RMS CURRENT LIMITS FOR TERMINAL TYPES *

Terminal Type	Case Diameter				
	1.375	1.750	2.000	2.500	3.000
P	25	25	25	N/A	N/A
L	30	30	30	30	30
H	30	30	30	40	40
D	N/A	N/A	N/A	50	50
N	N/A	N/A	N/A	50	50
M	30	30	30	40	40
K	N/A	N/A	N/A	50	50

Table-AP4

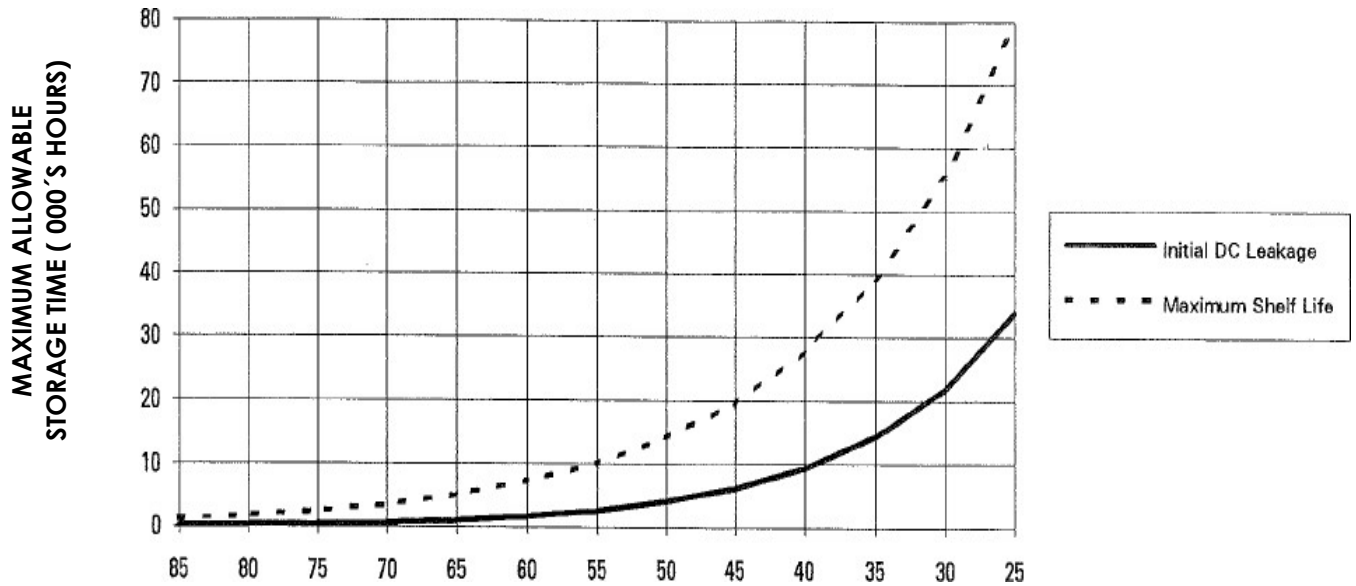
* NOTE: The maximum values shown in the above table are expressed in Amps RMS, and based on the minimum specified torque in Table AP4A, and assuming a minimum of 4 threads are fully engaged.

SHELF LIFE

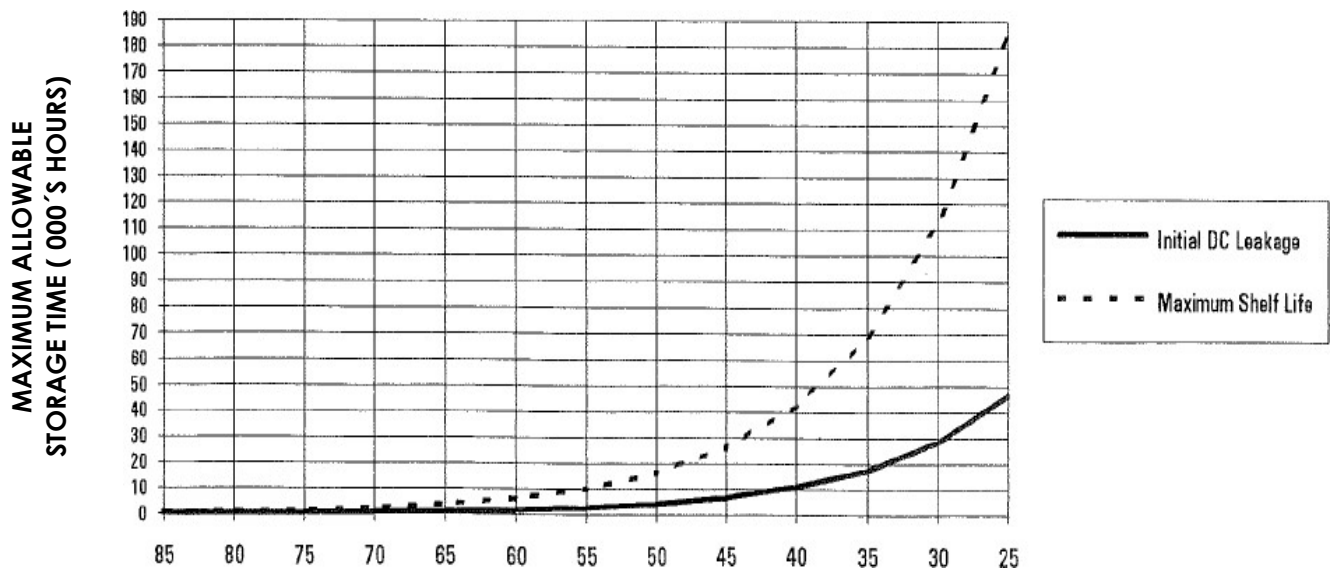
Aluminum Electrolytic Capacitors which have been stored for extended periods or in elevated temperatures undergo dielectric deterioration causing DC Leakage currents to increase beyond allowable levels. Sustained elevated Leakage currents cause decreased service life due to higher device operating temperatures. Use of capacitors exhibiting excessive leakage currents may cause premature activation of the pressure sensitive safety vent, or total dielectric failure.

The normal shelf life expectancy for these capacitors is described by Charts APC2 & APC3 on page 70. Units suspected of exceeding the "maximum Shelf Life" line in this chart, should be discarded and replaced. It is recommended that units be reformed only once to reduce the DC Leakage current to specification levels.

MAXIMUM STORAGE LIFE (23A – 23E) Series



MAXIMUM STORAGE LIFE (23H – 23M) Series



OPERATING LIFE

Operating life of capacitors is determined by operating temperature and applied voltage. Operating life can be extended by derating applied voltage, operating temperature, or applied RMS ripple current. Refer to the equations below for estimating capacitor life.

EXPECTED CAPACITOR OPERATING LIFE

$$L_e = L_b \times L_v \times L_t$$

To calculate the predicted life expectancy at 100% DUTY CYCLE for a given Electrolytic capacitor, the following specification information and operating parameters must first be determined.

L_e: Expected Capacitor Life

L_b: This is the base life for the capacitor being used, as shown in Table-AP5 (BASE LIFE BY SERIES) on page 74 of this catalog.

L_v: Represents the extension of life of the capacitor due to voltage derating; determined by the

$$L_v = 2^{\left[\frac{V_r - V_a \times 6.66}{V_r} \right]}$$

V_a: Represents the applied DC working voltage (worst case) the capacitor will see during operation.

V_r: Represents the maximum rated DC working voltage (WVDC) of the capacitor selected; this value is shown on the capacitor specification sheet or listed by part number in this catalog.

L_t: Represents the extension of life of the capacitor due to the derating of the core temperature;

$$L_t = 2^{\left[\frac{(T_m - T_c)}{10} \right]}$$

T_m: Represents the maximum allowable core temperature, for the series, as shown in Table-AP5.

T_c: Is the operating core temperature determined by the following calculation:

$$T_c = T_a + \left[\frac{(I)^2 (ESR) + (V_a) (I_{dcl})}{(AREA) (Kt)} \right]$$

T_a: Represents the highest ambient temperature in the immediate vicinity of the capacitor (in Degrees C).

I: Represents the applied RMS ripple current.

ESR: Represents the equivalent series resistance of the capacitor as shown on the specification sheet, or listed for the capacitor in this catalog.

OPERATING LIFE (cont'd)

Idcl: Represents the rated DC leakage current. This value is found on the individual specification sheet for the capacitor intended for this application, or determined from the following calculation:

$$Idcl = \frac{(X) \sqrt{C} \times V}{V}$$

Where C = Capacitance in uF; V = Rated working voltage (WVDC) of the capacitors, and (X) = the value found in Table-AP8 on page 74.

AREA: Represents the area of the aluminum case of the capacitor as shown in **Table-AP6** (SURFACE AREA OF ALUMINUM CASE) on page 75.

Kt: Represents the thermal conductivity of the selected capacitor. This is found by using the case code of the capacitor part number, and selecting the appropriate **Kt value** shown in **Table-AP7** (THERMAL CONDUCTANCE) on page 75.

EXAMPLE: Part Number – 23J252F400FH1H1

THE FOLLOWING ARE SAMPLE APPLICATION PARAMETERS TO BE USED IN THE EXAMPLE FOR LIFE EXPECTANCY CALCULATION.

- 1) C = 2,500 uF (Microfarads of example part)
- 2) Vr = 400 WVDC (Rated Voltage)
- 3) Va = 325 VDC (The applied voltage for application)
- 4) ESR = 0.026 Ohms (Rated E.S.R. of the capacitor as shown in the catalog or specification sheet)
- 5) Ta = 65°C (ambient temperature in application)
- 6) I = 9.2 Amps RMS @ 120 Hz (Applied RMS ripple current)

$$Le = Lb \times Lv \times Lt$$

- 7) Lb = 2,000 (Base life from **Table-AP5** on page 74)

$$8) \quad Lv = 2^{\left[\frac{400 - 325 \times 6.66}{400} \right]}$$

$$9) \quad Idcl = (X) \sqrt{C} \times V = (0.75) \sqrt{2,500} \times 400 = (0.75) 1,000 = 750 \mu A$$

For purposes of calculating Tc, Idcl should be expressed in AMPS.

$$10) \quad Tc = Ta + \frac{(I)^2 (ESR) + (Va) (Idcl)}{(AREA) (Kt)} = 65 + \left[\frac{(9.2)^2 (0.026) + (325) (0.00075)}{(55.37) (0.0044)} \right]$$

$$11) \quad Lv = 2^{\left[\frac{105 - 75.05}{10} \right]} = 8$$

$$12) \quad Le = Lb \times Lv \times Lt$$

$$13) \quad Le = 2,000 \times 2.38 \times 8 = 38,080 \text{ Hrs}$$

OPERATING LIFE (cont'd)

In the foregoing example for estimating capacitor life, all calculations were made based on 120 Hz. Operation and convective air-flow condition. For additional considerations at other than 120 Hz. And where air-flow is available, see the additional calculations below.

EXAMPLE: Use the following to determine Life Expectancy, when the capacitor is exposed to 150 LFM (linear feet per minute) air-flow and operating at 400 Hz. Where T_c = Core temperature and is used to determine derating or extension of life; the following should be used to determine life extension where above adjustments are to be considered.

$$T_c = T_a + \frac{(I)^2 (ESR \times \sqrt{1 / \text{Ripple current mult.}}) + (V_a) (Idc)}{(AREA) (Kt \times \sqrt{\text{Airflow mult.}})}$$

The Ripple current multiplier = 1.10 (found in **Table-AP1** on page 67)

The Airflow multiplier = 1.40 (found in **Table-AP3** on page 68)

$$T_c = 65 + \frac{(9.2)^2 (0.026 \times \sqrt{1 / 1.10}) + (325) (0.00075)}{(55.37) (0.0044 \times \sqrt{1.40.})} = 73.12$$

Recalculating expected life under the additional operating conditions results in the following:

$$L_e = 2,000 \times 2.38 \times L_t$$

$$LV = 2^{\left[\frac{105 - 73.12}{10} \right]} = 9$$

$$L_e = 2,000 \times 2.38 \times 9 = 42,480 \text{ Hrs. (Operated at 400 Hz. And forced air at 150 LFM) (At 100% Duty Cy)}$$

TERMINAL TORQUE (Expressed in Inch Pounds) (Minimum of 4 threads engaged)

Terminal Size	CLASS 2B		CLASS 2C	
	Min.	Max.	Min.	Max.
L	14	20	8	10
H	20	30	10	15
D	32	50	16	25
N	32	50	20	30
M5	20	30	10	15
M6	32	50	16	25

Table-AP4A

BASE LIFE by SERIES

Series Type	Rated Ambient Temp (°C)	Max. Core Temp (°C)	Base Life (Hours)
23A	85	95	1,000
23B	85	105	3,000
23C	85	100	2,000
23D	85	95	1,000
23F	85	105	3,000
23H	85	95	2,000
23H (500V)	65	75	1,000
23J	105	105	2,000
23M	85	95	2,000

Table-AP8

Idcl value of X

Series Type	Value of X
23A	3.00
23B	1.50
23C	3.00
23D	1.50
23F	1.50
23H	1.00
23J	0.75
23M	2.00

Table-AP5

SURFACE AREA OF ALUMINUM CASE (Square Inches)

THERMAL CONDUTANCE (Watts per Square Inch Degrees C)

Case Code	DIA.	LNG.	Kt
BB	1.375	2.125	0.0130
BC	1.375	2.625	0.0101
BD	1.375	3.125	0.0083
BE	1.375	3.625	0.0071
BF	1.375	4.125	0.0062
BG	1.375	4.625	0.0054
BH	1.375	5.125	0.0049
BI	1.375	5.625	0.0044
CB	1.750	2.125	0.0139
CC	1.750	2.625	0.0102
CD	1.750	3.125	0.0081
CE	1.750	3.625	0.0068
CF	1.750	4.125	0.0058
CG	1.750	4.625	0.0051
CH	1.750	5.125	0.0045
CI	1.750	5.625	0.0041
DB	2.000	2.125	0.0140
DC	2.000	2.625	0.0107
DD	2.000	3.125	0.0083
DE	2.000	3.625	0.0068
DF	2.000	4.125	0.0057
DG	2.000	4.625	0.0050
DH	2.000	5.125	0.0044
DI	2.000	5.625	0.0040
DJ	2.000	5.875	0.0038
DL	2.000	8.625	0.0033
EC	2.500	2.625	0.0102
ED	2.500	3.125	0.0082
EE	2.500	3.625	0.0071
EF	2.500	4.125	0.0058
EG	2.500	4.625	0.0049
EH	2.500	5.125	0.0043
EI	2.500	5.625	0.0038
FD	3.000	3.125	0.0081
FE	3.000	3.625	0.0070
FF	3.000	4.125	0.0064
FG	3.000	4.625	0.0052
FH	3.000	5.125	0.0044
FI	3.000	5.625	0.0038
FJ	3.000	5.875	0.0035
FK	3.000	7.625	0.0026
FL	3.000	8.625	0.0022
FM	3.000	6.625	0.0030

Table-AP6

Case Code	DIA.	LNG.	AREA
BB	1.375	2.125	10.66
BC	1.375	2.625	12.82
BD	1.375	3.125	14.98
BE	1.375	3.625	17.14
BF	1.375	4.125	19.30
BG	1.375	4.625	21.45
BH	1.375	5.125	23.62
BI	1.375	5.625	25.78
CB	1.750	2.125	14.09
CC	1.750	2.625	16.84
CD	1.750	3.125	19.59
CE	1.750	3.625	22.33
CF	1.750	4.125	25.08
CG	1.750	4.625	27.83
CH	1.750	5.125	30.58
CI	1.750	5.625	33.33
DB	2.000	2.125	16.49
DC	2.000	2.625	19.63
DD	2.000	3.125	22.78
DE	2.000	3.625	25.92
DF	2.000	4.125	29.06
DG	2.000	4.625	32.20
DH	2.000	5.125	35.34
DI	2.000	5.625	38.48
DJ	2.000	5.875	40.05
DL	2.000	8.625	57.33
EC	2.500	2.625	25.52
ED	2.500	3.125	29.45
EE	2.500	3.625	33.38
EF	2.500	4.125	37.31
EG	2.500	4.625	41.23
EH	2.500	5.125	45.16
EI	2.500	5.625	49.09
FD	3.000	3.125	36.52
FE	3.000	3.625	41.23
FF	3.000	4.125	45.95
FG	3.000	4.625	50.66
FH	3.000	5.125	55.37
FI	3.000	5.625	60.08
FJ	3.000	5.875	62.44
FK	3.000	7.625	78.93
FL	3.000	8.625	88.36
FM	3.000	6.625	69.51

Table-AP6

REPETITIVE DISCHARGE APPLICATIONS

Applications wherein the capacitor may experience repetitive discharges into inductive loads, should be protected using a free wheeling diode, or a blocking diode to prevent the capacitor from being exposed to excessive reverse voltage.

HIGH ALTITUDE APPLICATIONS

Capcom's Electrolytic Capacitors may be stored or operated at altitudes up to 100,000 feet with no adverse effects.

CAPACITOR MOUNTING APPLICATIONS

Capcom's utilizes a pitchless construction for all case sizes. This allows capacitors to be mounted in any orientation; however, Regal-Beloit recommends that all electrolytic capacitors be mounted with the terminals in a vertical position. This provides the best possible protection against loss of electrolyte in the event of vent activation. (SEE ELECTROLYTE FLUIDS)

As with all Electrolytic Capacitor "Electrolyte Fluids," a precaution should be taken and appropriate action should be taken in the event of spill or exposure, as described in Capcom's Material Safety Data Sheets.

ELECTROLYTE FLUIDS

Capcom will upon request, provide Material Safety Data Sheets for the various fluids used in manufacture of any Regal-Beloit Electrolytic Capacitor. The Capcom number must be advised so we may supply the correct Data Sheet.

USE OF CLEANING SOLVENTS or ELECTRICAL JOINT COMPOUNDS

Capcom recommends using only those cleaning solvents and electrical compounds which are free of halogens, or halogen groups. Further, Regal-Beloit recommends not using any petroleum or petroleum distillate products.

VIBRATION SPECIFICATIONS

Capcom Capacitors are capable of withstanding 10 G's of sinusoidal vibration with a frequency range of 10 to 500 Hz., provided mounting is accomplished using an approved clamp around the capacitor case.

(Reference MIL Std 202(F); Method 204D; Test condition A) Products are designed and produce commercially with the capability of meeting the vibration conditions referenced.

USE OF CAPACITORS IN SERIES

DC VOLTAGE SHARING

Capacitors can safely be used in series pairs to allow application at higher DC bus voltages, provided proper voltage sharing within the series group is maintained using balancing resistors. This will provide proper voltage sharing over the course of the useful life of the capacitor, if the resistors are sized such that the current through the resistor is roughly a factor of 10 greater than the initial specified DC Leakage current of the capacitor.

TRANSIENT VOLTAGE SHARING

Voltage sharing of series-connected capacitors under transient voltage conditions can be accomplished by matching the capacitance values of the series connected units. The degree of matching required is determined by the degree of derating on the unit. The greater the derating allowed, the less critical exact voltage sharing becomes. Generally, a 10 percent symmetrical tolerance is sufficient for most applications.

FUSING OF SERIES CAPACITORS

Fusing of individual series groups is recommended to minimize the risk of catastrophic failure in the event of a device fault. It is recommended that a common midpoint connection NOT be used due to the risk of cascaded failures.

SAFETY

ELECTROLYTIC CAPACITORS HAVE A HIGH WATT-SECOND CAPABILITY. IT IS IMPORTANT THAT SUITABLE PRECAUTIONS BE OBSERVED IN THE TESTING AND APPLICATION OF THESE CAPACITORS. BLEEDER RESISTORS AND OTHER DISCHARGE CIRCUITRY SHOULD BE USED FOR PROTECTION AGAINST ELECTRICAL SHOCK. MECHANICAL STRUCTURES MUST BE DESIGNED TO WITHSTAND CATASTROPHIC FAILURE DUE TO THE LARGE FAULT CURRENTS WHICH MAY OCCUR IN THE EVENT OF A CAPACITOR SHORT CIRCUIT. THE MECHANICAL STRUCTURE SHOULD BE CONSTRUCTED SUCH THAT IT WILL BE CAPABLE OF CONTAINING THE CAPACITOR(S) IF A CAPACITOR EXPLOSION SHOULD OCCUR. EXTREME CAUTION SHOULD BE TAKEN AT ALL TIMES WHEN WORKING WITH ENERGIZED SYSTEMS. **UNDER NO CIRCUMSTANCES SHOULD ANY ENERGIZED EQUIPMENT BE RENDERED UNSECURE AS TO CAUSE PERSONAL INJURY OF PROPERTY DAMAGE IN THE EVENT OF A CAPACITOR EXPLOSION.**

OPERATING AND STORAGE TEMPERATURE

The permissible operating and storage temperature range for each product series is specified in **Table-PC1**.

Series	Operating Temperature *		Storage Temperature *	
23A	-40	+85	-55	+95
23B	-40	+85	-55	+95
23C	-40	+95	-55	+105
23D	-40	+85	-55	+95
23F	-55	+105	-55	+105
23H	-40	+85	-55	+95
23J	-40	+105	-55	+105
23M	-40	+85	-55	+95

* All Temperatures expressed in Degrees C.

Table-PC1

SHELF LIFE PERFORMANCE TEST

The capacitors shall be placed in a circulating air oven maintained at $85^{\circ} \pm 2^{\circ}\text{C}$ for a period of 100 ± 4 hours with no voltage applied. After completion of this phase, the units shall be allowed to cool for a period of at least 4 hours in an ambient temperature of 25°C .

Once cooled, capacitance and E.S.R. shall be measured as follows, and shall meet the initial specifications: and RMS test signal of either 100 milliamps or 1 volt. The capacitor(s) shall meet the tolerance specified for the device(s) being tested.

E.S.R. measurements shall be made using a 4-terminal bridge using a test signal of 100 milliamps RMS or 1 volt RMS at a frequency of 120 Hz. The test shall be performed after the capacitor has been stabilized at a temperature of $25^{\circ} \pm 2^{\circ}\text{C}$ for a minimum of 2 hours. The capacitor(s) shall meet the initial E.S.R. specified for the device(s) being tested.

DC WORKING VOLTAGE

The DC Working voltage is the maximum operating voltage for continuous duty at the maximum rated ambient temperature specified for the capacitor.

SURGE VOLTAGE

The DC Surge voltage is the maximum voltage to which the capacitor can be subjected to under any conditions. Surge Voltage capability can be tested using the following procedure: Connect the capacitor in series with a current limiting resistor * and apply the DC Surge voltage for a period of 30 seconds at an ambient temperature of $25\text{o} \pm 2\text{oC}$, then discharge the capacitor through the resistor. This procedure shall be repeated at 10 minute intervals for a period of 24 hours. The leakage current should be measured 4 hours after completion of the test and must not exceed the initially specified leakage current for the device. There should be no distortion of the capacitor case, and there should be no leaking electrolyte from the seal or vent hole.

Note: For capacitors up to 2,500uF the value of the current limiting should be 1,000 Ohms; For capacitors greater than 2,500uF the value of the current limiting resistor should be 100 Ohms.

DC LEAKAGE CURRENT

DC Leakage current tests shall be performed after the capacitor(s) are preconditioned as follows: Capacitor(s) shall be preconditioned by applying rated voltage for 30 minutes. Leakage current measurements shall be made within 48 after preconditioning.

Measurements should be made at $25\text{o} \pm 2\text{oC}$, with the reading of the Leakage current taken by measuring the voltage drop across a 1,000 Ohm resistor connected in series with each capacitor being tested. Rated working voltage should be applied from a steady source of DC power, such as a laboratory quality, regulated DC power supply. Readings should be taken within 5 ± 0.5 minutes after the capacitor being tested reaches rated working voltage. The DC leakage current shall not exceed that which is specified for the device, or when this value is not readily available, the value determined by the following equation:

$$|dcl| (\text{max}) = X \sqrt{C \times V} \quad (|dcl| (\text{max}) = \text{maximum leakage current in microAmps})$$

Where:

X is determined from **Table-AP8** on page 74

C is the value of capacitance in microfarads

V is the rated DC working voltage specified for the capacitor

*** NOTE: In no case shall the DC Leakage current exceed 5,000 microAmps**

LOW TEMPERATURE PERFORMANCE

The following general guidelines may be used when estimating capacitance and E.S.R. values for reduced temperature performance; (All test parameters are the same as those used for "SHELF LIFE PERFORMANCE" shown on page 78; except that reduced temperature measurement values should be used).

* **NOTE:** For specific performance values at reduced temperature, contract Capcom engineering.

Temperature	% of Nominal	% of Nominal E.S.R.
-10°C	85%	200%
-25°C	70%	300%
-40°C	50%	600%

THERMAL SHOCK

All Electrolytic capacitors should be resistant to thermal shock based on the following test guidelines: Capacitors shall be subject to the following thermal cycle conditions:

- 4 Hours @ 105°C (then)
- 4 Hours @ 25°C (then)
- 4 Hours @ -55°C (then)
- 4 Hours @ 25°C (then)



Four complete cycles constitutes one complete test cycle

The above cycle should be performed four (4) times in a circulating air environment. Following the final temperature cycle, the capacitor(s) being tested should be placed in a water bath maintained at 90 - 95°C for 5 minutes. A failure shall be defined as any unit exhibiting a **continuous** chain of bubbles from the gasket or vent area during immersion. (a few non-sustained bubbles of trapped air should not be considered as a failure of the performance test)

LIFE TEST

Capcom Electrolytic capacitors are capable of the published life, shown in **Table-PC2** on page 81 of this catalog, based on the following test conditions:

Rated DC voltage and Ripple current shall be applied to the capacitors, such that the sum of the AC and DC portions of voltage do not exceed the rated working voltage. The tests shall be performed at the rated temperature and for the Proof Life hours as shown in **Table-PC2**.

After completion of the Life Test, the capacitors(s) shall be allowed to cool to $25^{\circ} \pm 2^{\circ}$ for a period of at least 4 hours during which time the rated DC working voltage of the capacitor(s) shall be continuously applied. The following results shall be met:

Capacitance shall not have changed more than $\pm 15\%$ from initial pre-test value.

E.S.R. shall not have increased to more than 200% of the initial pre-test value.

DC Leakage current shall meet the specified requirements as shown under "DC Leakage Current" on page 79 of this catalog.

Acceptable life criteria shall be defined as not more than 1 failure be permitted in 24 capacitors being tested.

LIFE TEST (cont'd)

Series	Rated Temperature *	Proof Life Hours
23A	85	1,000
23B	85	3,000
23C	95	1,000
23D	85	1,000
23F	105	1,000
23H	85	2,000
23J	105	2,000
23M	85	2,000

* All Temperatures expressed in Degrees C.

Table-PC2

VIBRATION TEST

Capcom Electrolytic capacitors shall be capable of being subjected to sinusoidal vibration over a frequency range of 10 to 55 Hz. And return, traversed within a period of one minute for a test duration of two (2) hours each in three (3) mutually perpendicular directions. A maximum displacement of 0.06 inches or maximum acceleration of 10 G's will be allowed, whichever is less.

Capacitors shall be securely mounted to the test fixture by the body of the device, using an approved clamp. During the last hour of the test, the capacitor shall be connected to a capacitance bridge, and shall be observed continuously for a period of five (5) minutes. During this time, the capacitor shall be capable of providing a continuous capacitance and E.S.R. reading and there shall be no evidence or indication of any intermittent electrical connection within the capacitor.

Capacitor Outlines

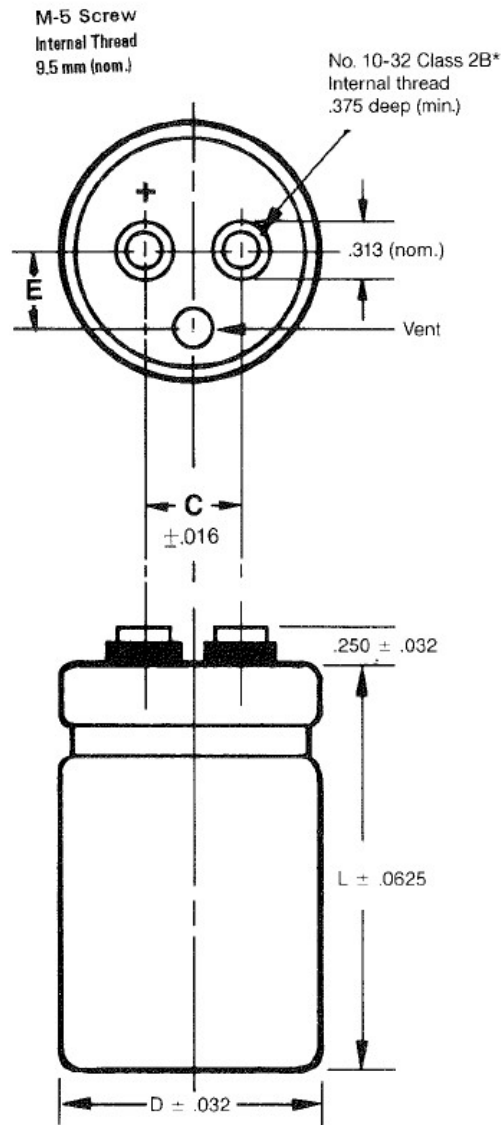
Capacitor Dimensions Uninsulated (inches)

Case Diameter	C	E
1.375	0.500	0.391
1.750	0.750	0.406
2.000	0.875	0.500
2.500	1.125	0.625
3.000	1.250	0.750

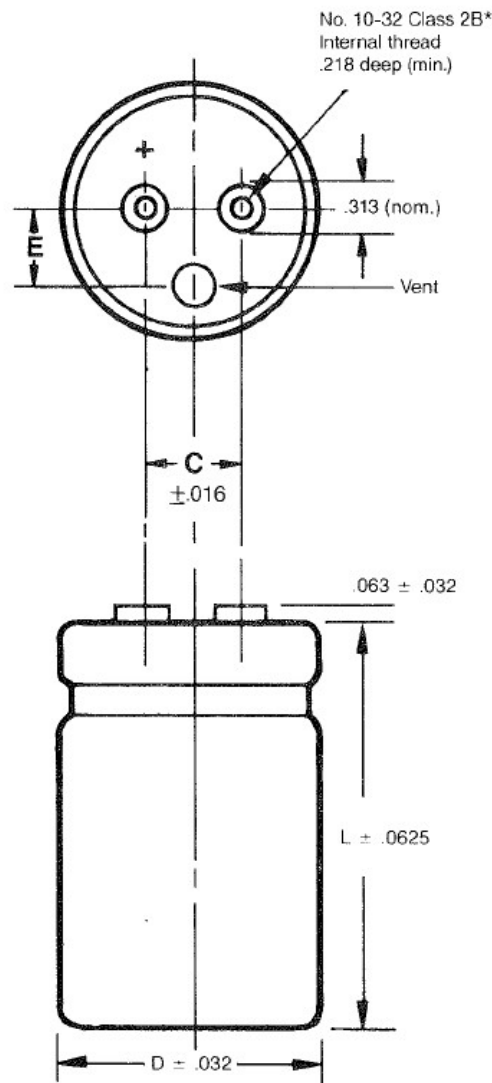
Insulation Type	Insulation Adder	
	D	L
0.008 PVC	0.016	0.024
0.012 PVC	0.024	0.040
0.016 PVC	0.032	0.048

High Post (H) Screw Insert Terminal Metric Terminal High Post (M)

For (M) Terminal

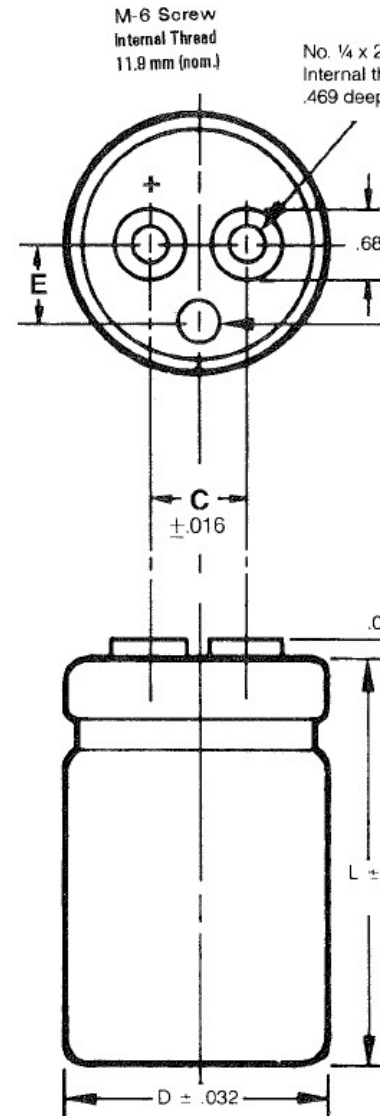


Low Post (L) Screw Insert Terminal



High Current (D) Screw Insert Terminal 2,500 or 3,000 only Metric Terminal High Current (K)

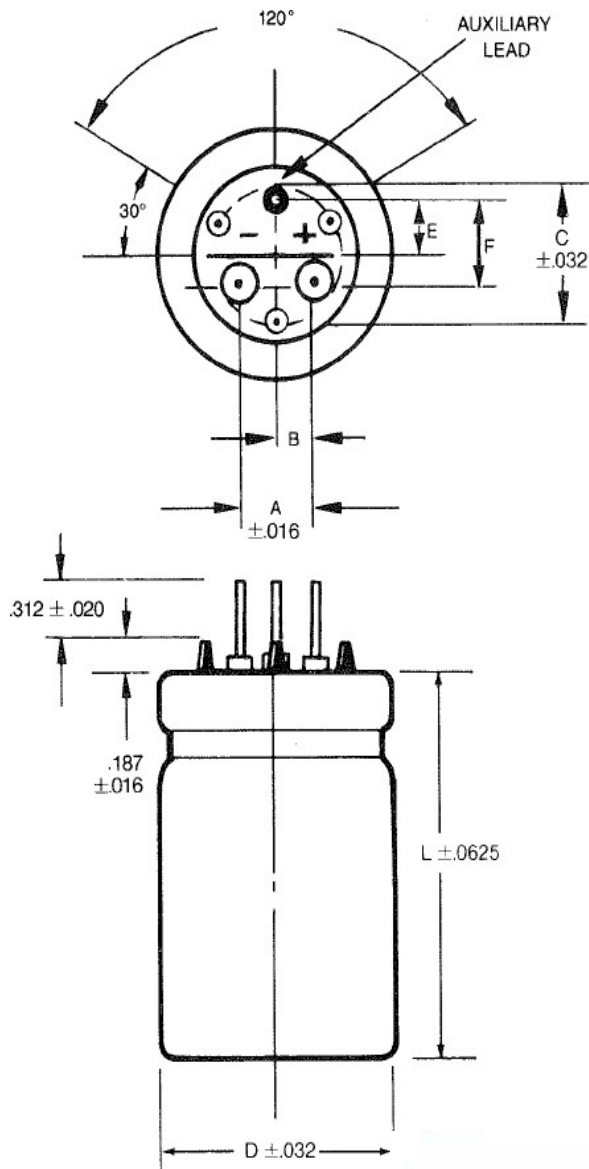
For (K) Terminal



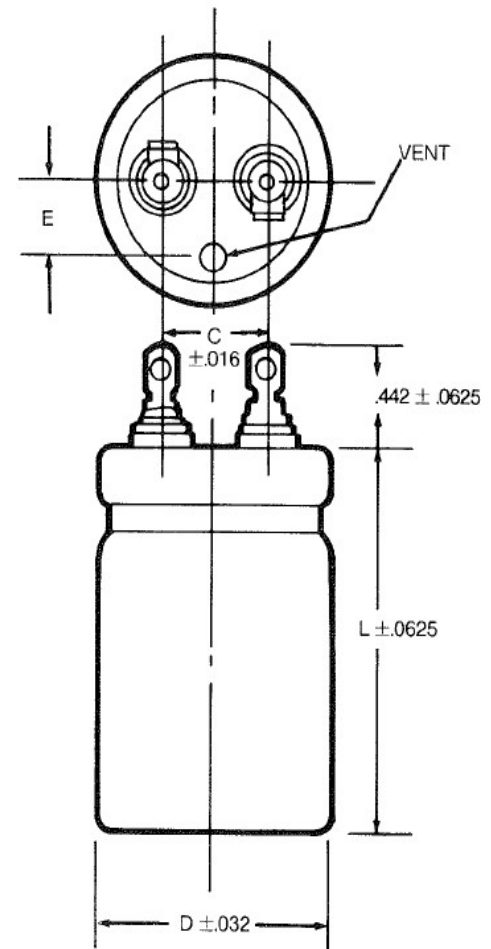
Case Diameter	A	B	C	E	F	Lead Size Nom. Dia.	AWG No.
1.375	0.500	0.250	0.937	0.375	0.550	0.064	14
1.750	0.700	0.350	1.250	0.525	0.900	0.064	14
2.000	0.800	0.400	1.500	0.575	1.000	0.064	14

Case Diameter	C	E
1.375	0.500	0.391
1.750	0.750	0.406
2.000	0.875	0.500
2.500	1.125	0.625
3.000	1.250	0.750

PC (P) Mounting Terminal



Solder Lug (S) Terminal



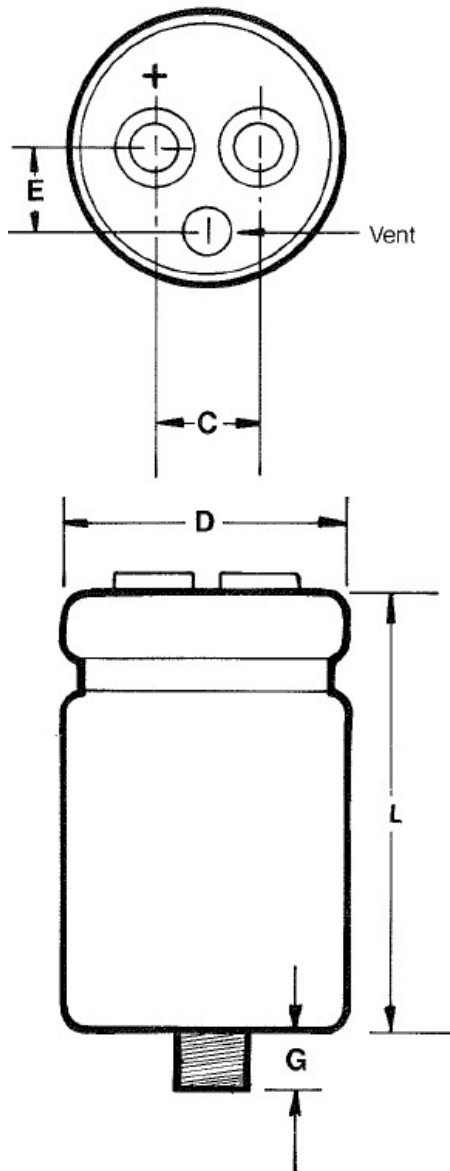
Capacitor Outlines

Capacitor Dimensions Uninsulated

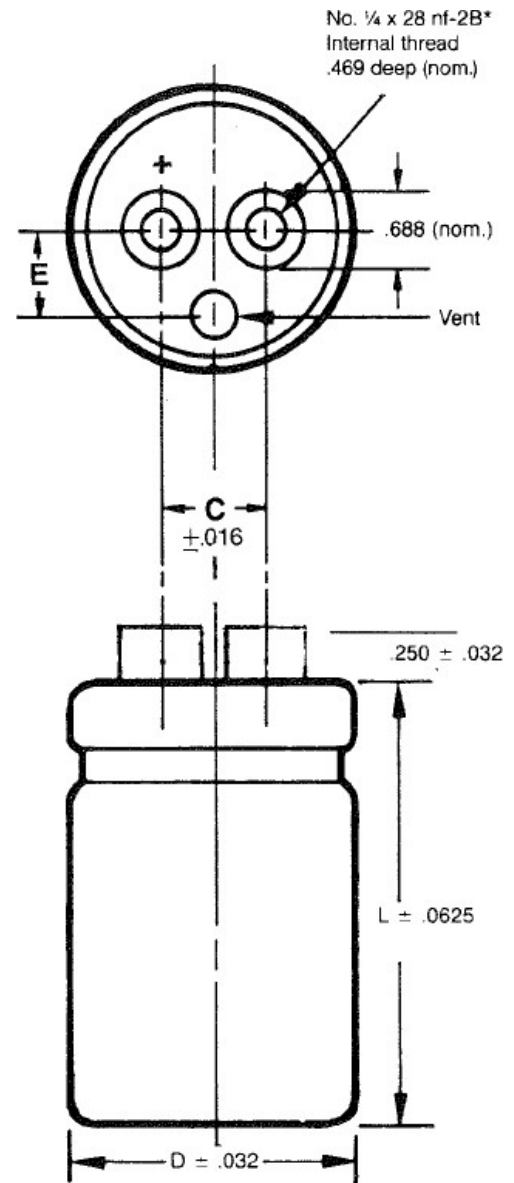
Case Diameter	Stud Thread Type	G (mm)
1.375	M8	12
1.750	M12	16
2.000	M12	16
2.500	M12	16
3.000	M12	16

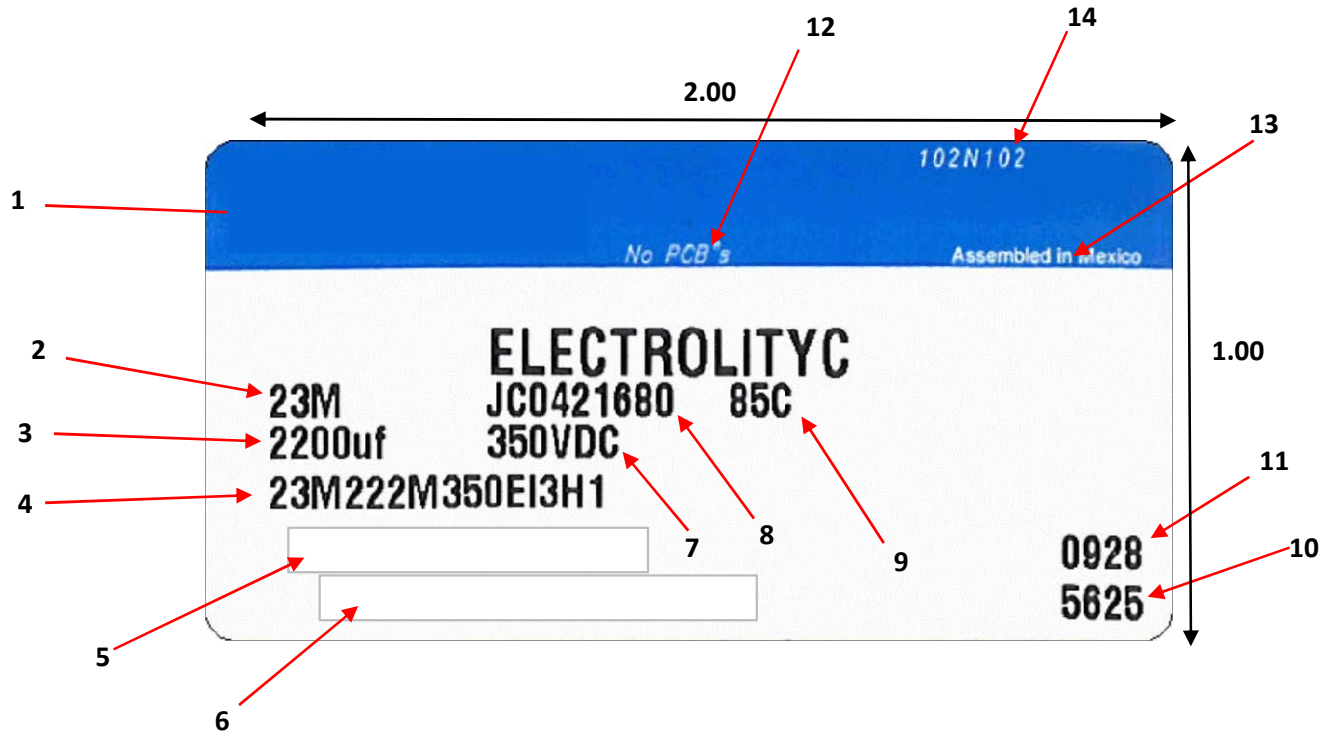
Studded Bottom Mount Case Available with High Post (H), Low Post (L), and High Current (D) Screw Insert Terminals

Studded Bottom Mount Case



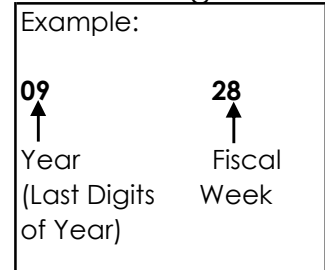
High Current / High Screw (N) Terminal





1. Product / Brand
2. Genteq Series Name
3. Capacitance in Micro-Farads
4. Genteq Catalog Model Number
5. Customer Part Number
6. Customer Part Number Bar Code
7. DC Voltage Rating
8. Manufacturing Job Number
9. Temperature Rating
10. Label Sequence Number

11. Manufacturing Date Code



12. No PCBs Statement
13. Country of Origin
14. Label Part Number (Internal)



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