

Filter Cards

Filter Cards for Single Phase Loads:
Brushed Motors, Voice Coils, and other Single Phase Loads

Model Number	Inductance Line to Line	Continuous Current	Voltage Rating
FC1010	20 μ H	10A	200V
FC10010	200 μ H	10A	250V
FC15030	300 μ H	30A	400V

Filter Cards for Three Phase Loads:
Brushless Motors, Linear Motors, and other Three Phase Loads

BFC1010	20 μ H	10A	200V
BFC10010	200 μ H	10A	250V
BFC15030	300 μ H	30A	400V
BFC15030800	300 μ H	30A	800V



FC1010



FC10010



FC15030



BFC1010



BFC10010



BFC15030



BFC15030800

Description

The FC and BFC series of filter cards have been designed to complement **ADVANCED Motion Controls'** servo drives. These filters contain two inductors for single phase loads and three inductors for three phase loads.

Inductive filter cards have two typical applications:

1. **To increase the inductance to meet the minimum load inductance requirement of *ADVANCED Motion Controls* servo drives.**

Some motors have inductances that are less than the minimum load inductance requirement for the servo drive. For example, "basket-wound" and "pancake" motors do not have a conventional iron core rotor so the winding inductance is usually less than 25 μ H. For this type of application the filter card should be sized so the total inductance of the motor plus filter card meets or exceeds the inductance requirements of the servo drive. The filter card must also be rated to the required current.

2. **To reduce the DV/DT of the motor outputs.**

The main source of emitted drive noise is the high DV/DT (typically about 1V/nanosecond) of the drive's output power stage. Unfiltered motor outputs can introduce noise in digital encoder signals. For applications with noise sensitive devices (e.g. video cameras, magnetic/capacitive sensors) the use of an external inductive filter card may reduce emitted noise.

Note: Most applications do not require external filters.

Features

- ▲ Increases Load Inductance
- ▲ Small Size, Low Cost, Ease of Use
- ▲ Provides Dramatic Noise Reduction

Agency Approvals



US and Canadian safety compliance with UL 508c, the industrial standard for power conversion electronics. UL registered under file number E140173. Note that machine components compliant with UL are considered UL registered as opposed to UL listed, as would be the case for commercial products.



Compliant with European CE for both the Class A EMC Directive 2004/108/EC on Electromagnetic Compatibility (specifically EN 61000-6-4:2007 and EN 61000-6-2:2005) and LVD requirements of directive 2006/95/EC (specifically EN 60204-1:2006), a low voltage directive to protect users from electrical shock.

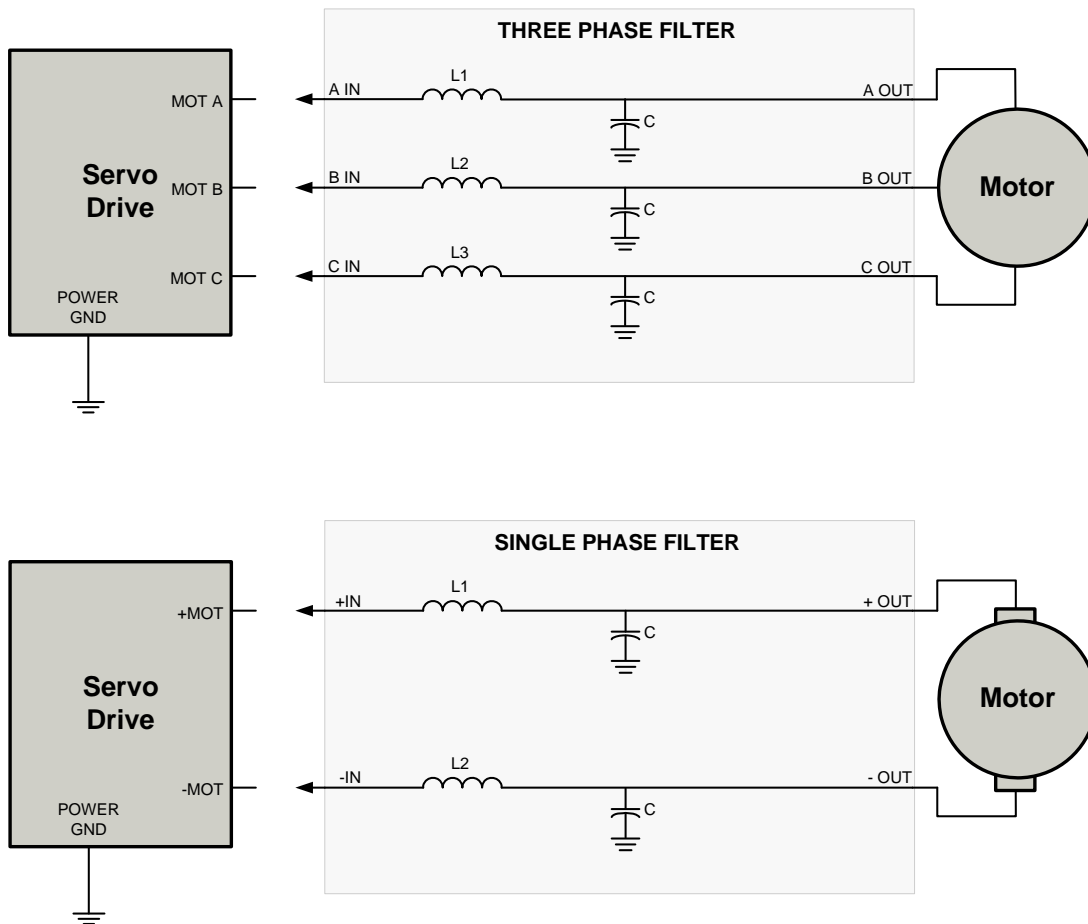


RoHS (Reduction of Hazardous Substances) is intended to prevent hazardous substances such as lead from being manufactured in electrical and electronic equipment.

SPECIFICATIONS

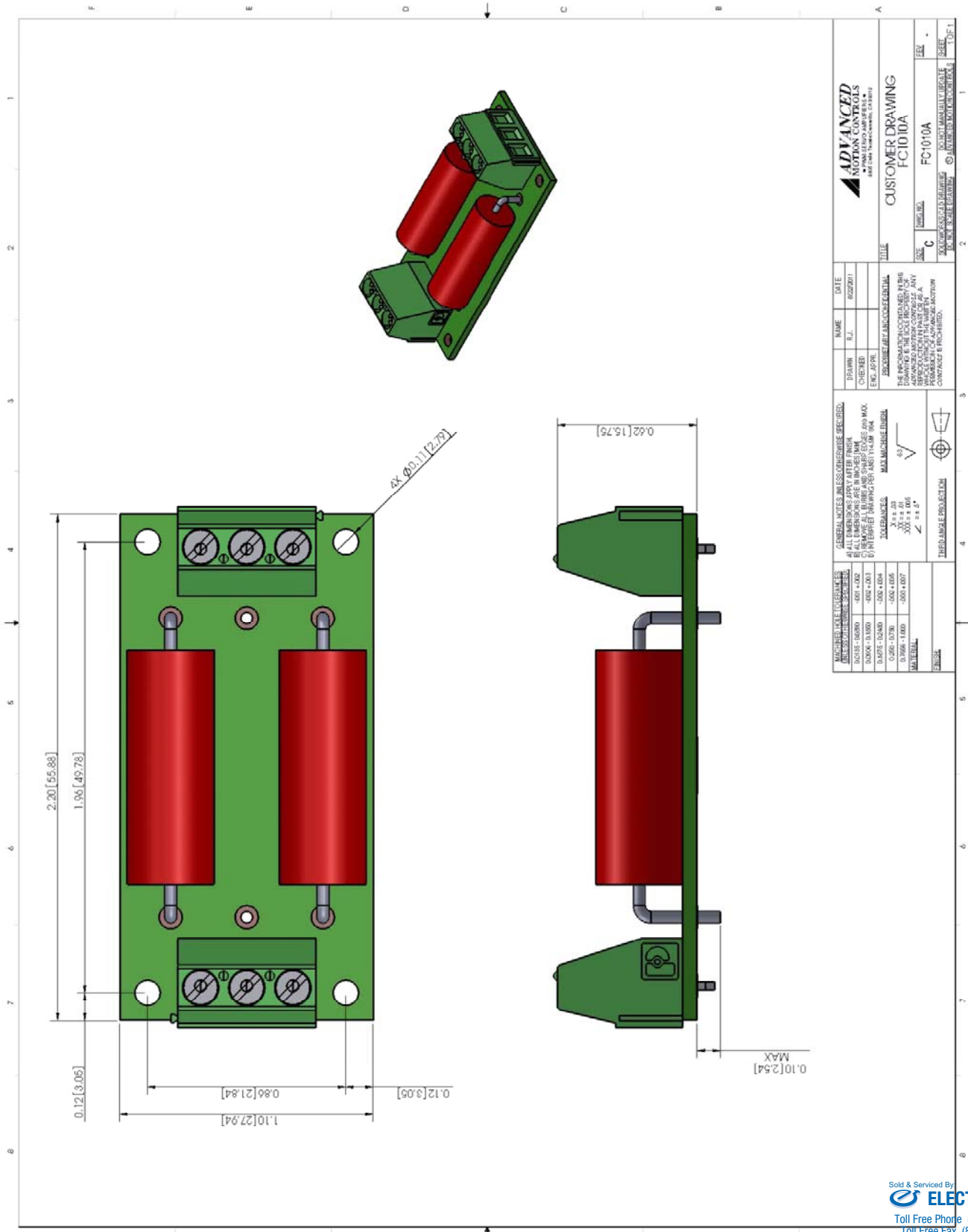
Power Specifications								
Description	Units	FC1010	FC10010	FC15030	BFC1010	BFC10010	BFC15030	BFC15030800
Inductance (Line to Line)	μH	20	200	300	20	200	300	300
Continuous Current	A	10	10	30	10	10	30	30
Voltage Rating	VDC	200	250	400	200	250	400	800
Capacitance (C)	μF	-	.01	.068	-	.01	-	-
Mechanical Specifications								
Description	Units	FC1010	FC10010	FC15030	BFC1010	BFC10010	BFC15030	BFC15030800
Connector	-	Screw Terminals						
Size (HxWxD)	mm (in)	56.5x28.0x15.8 (2.23x1.10x0.62)	65.3x51.3x25.7 (2.57x2.02x1.01)	101.6x88.9x44.5 (4.00x3.5x1.75)	56.5x28.6x15.8 (2.23x1.13x0.62)	65.3x64.8x25.7 (2.57x2.55x1.01)	134.6x113.7x43.5 (5.30x4.48x1.71)	173.7x113.7x52.4 (6.84x4.48x2.06)
Weight	kg (lbs)	0.027 (0.06)	0.14 (0.32)	0.95 (2.1)	0.037 (0.08)	0.21 (0.46)	1.43 (3.16)	1.63 (3.60)
Operating Temperature Range	°C (°F)	-40 - 75 (-40 - 167)						

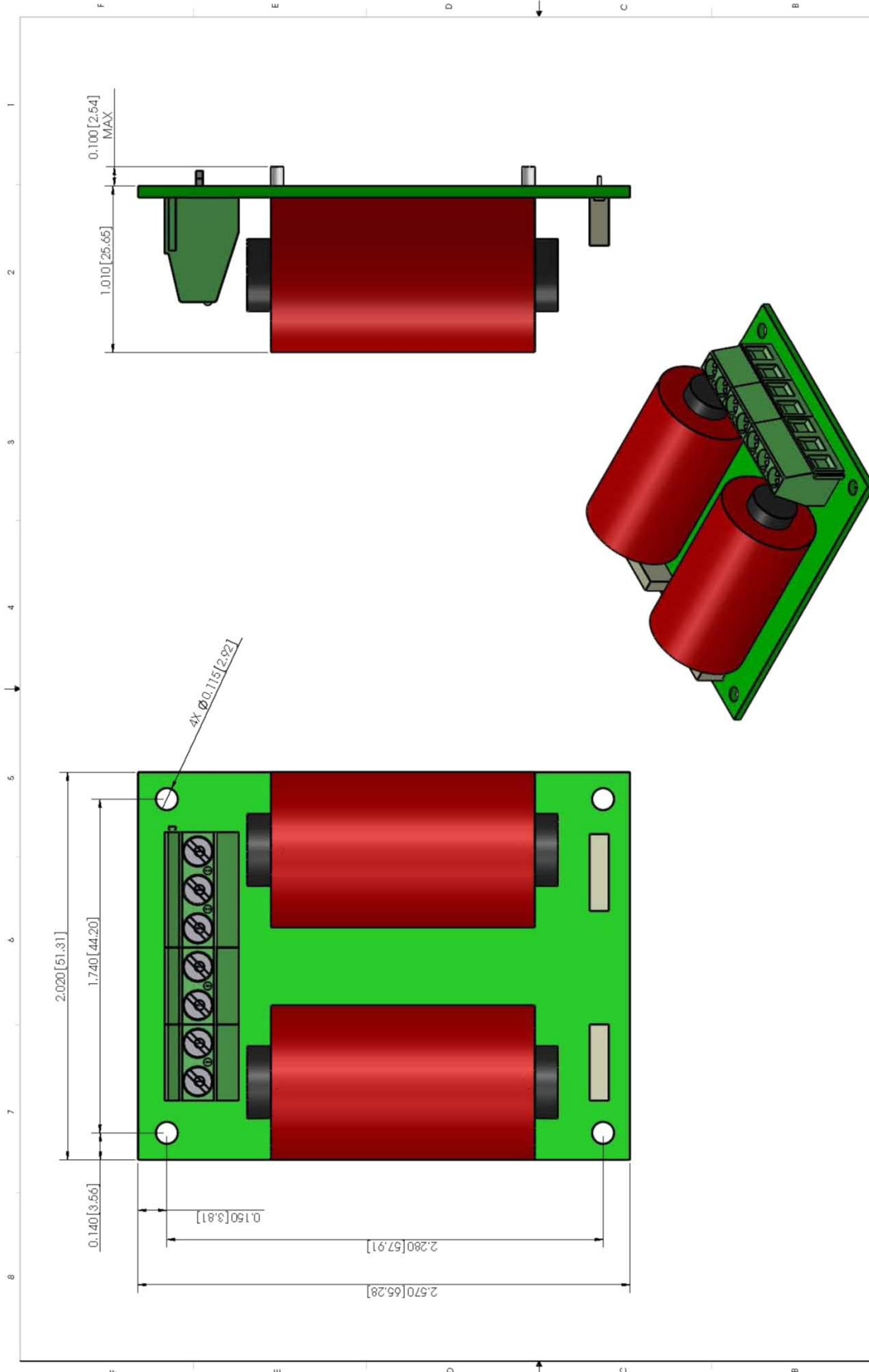
BLOCK DIAGRAM



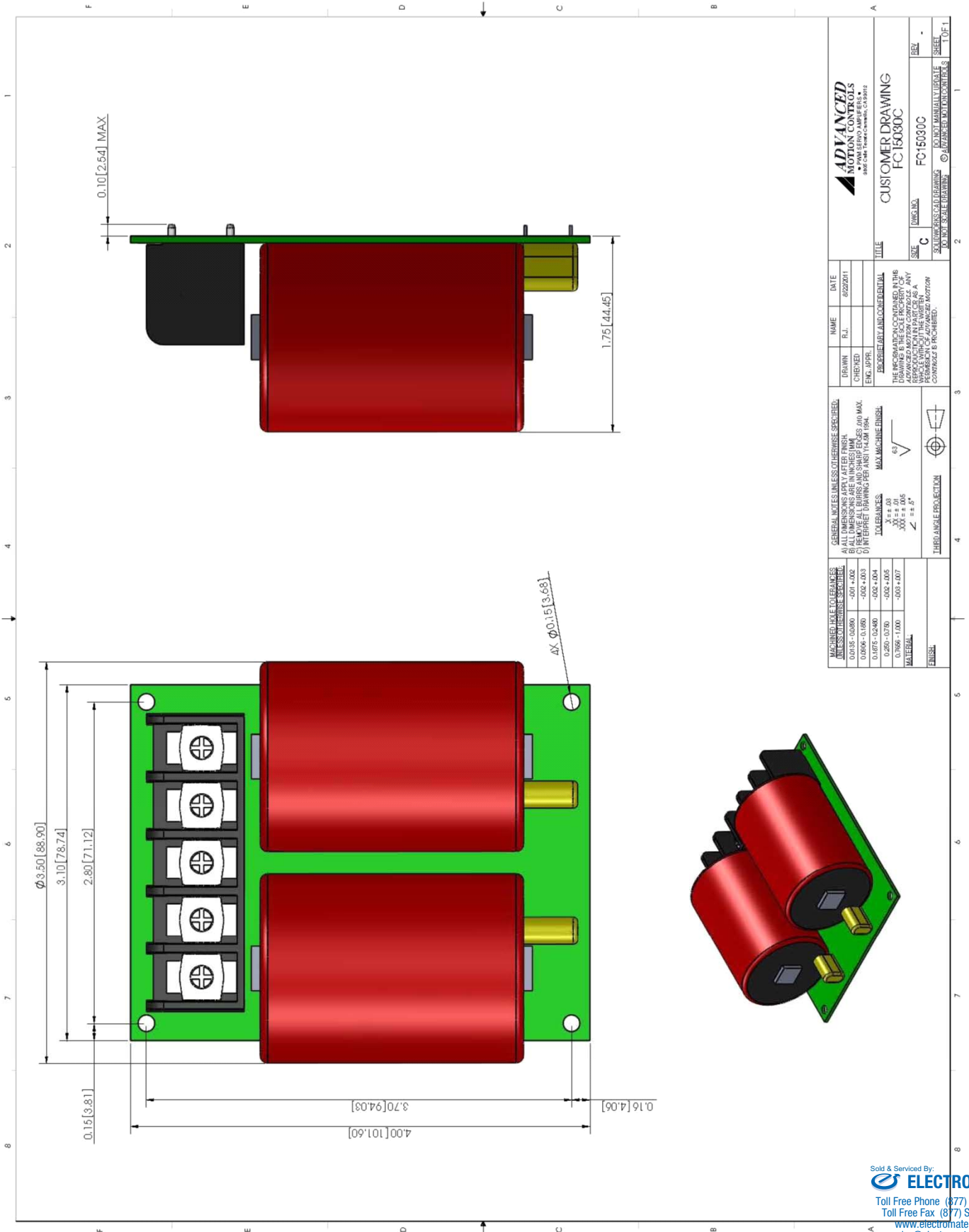
NOTE: Capacitor is not used on all models. See Specifications above for applicable capacitance values

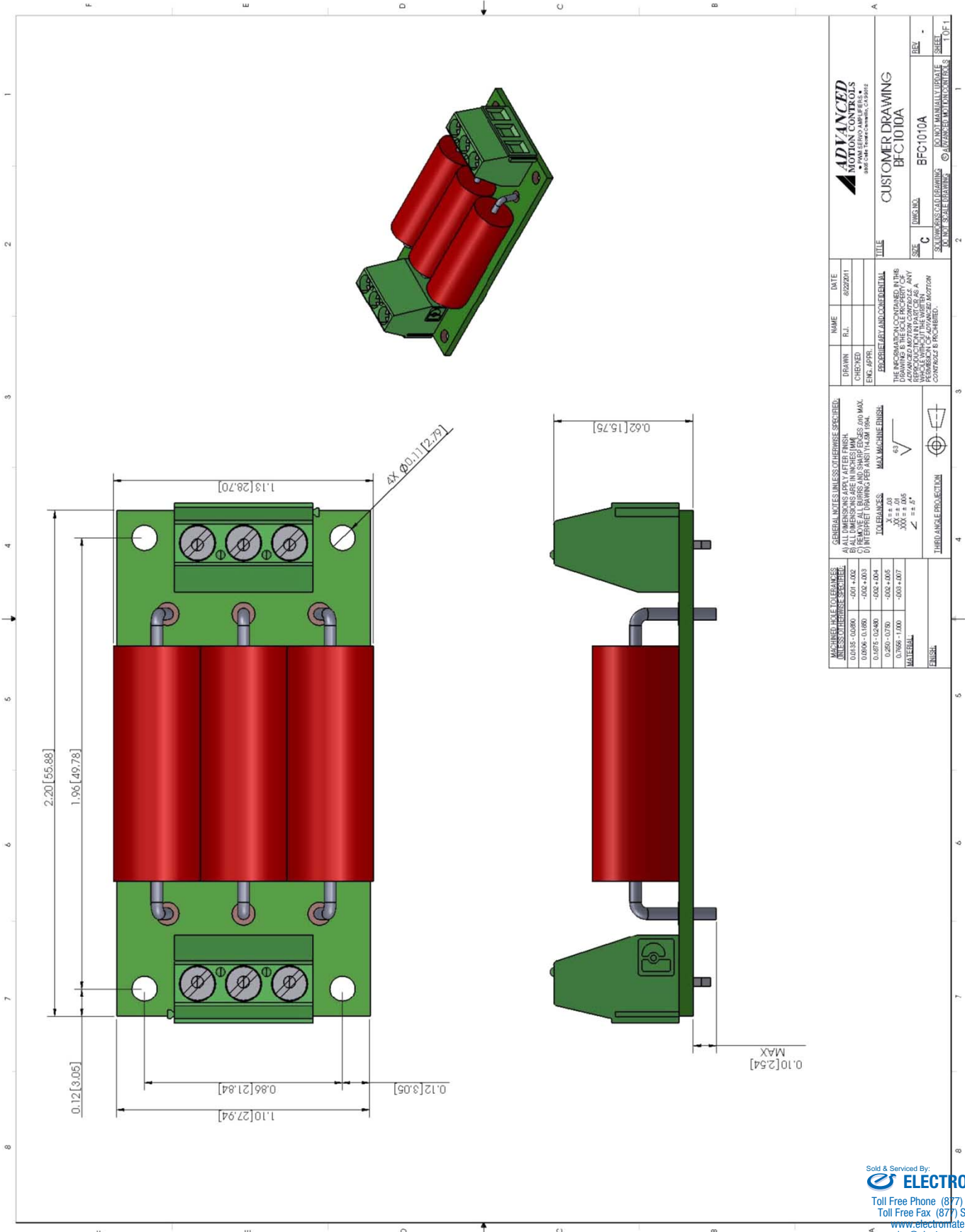
MOUNTING DIMENSIONS

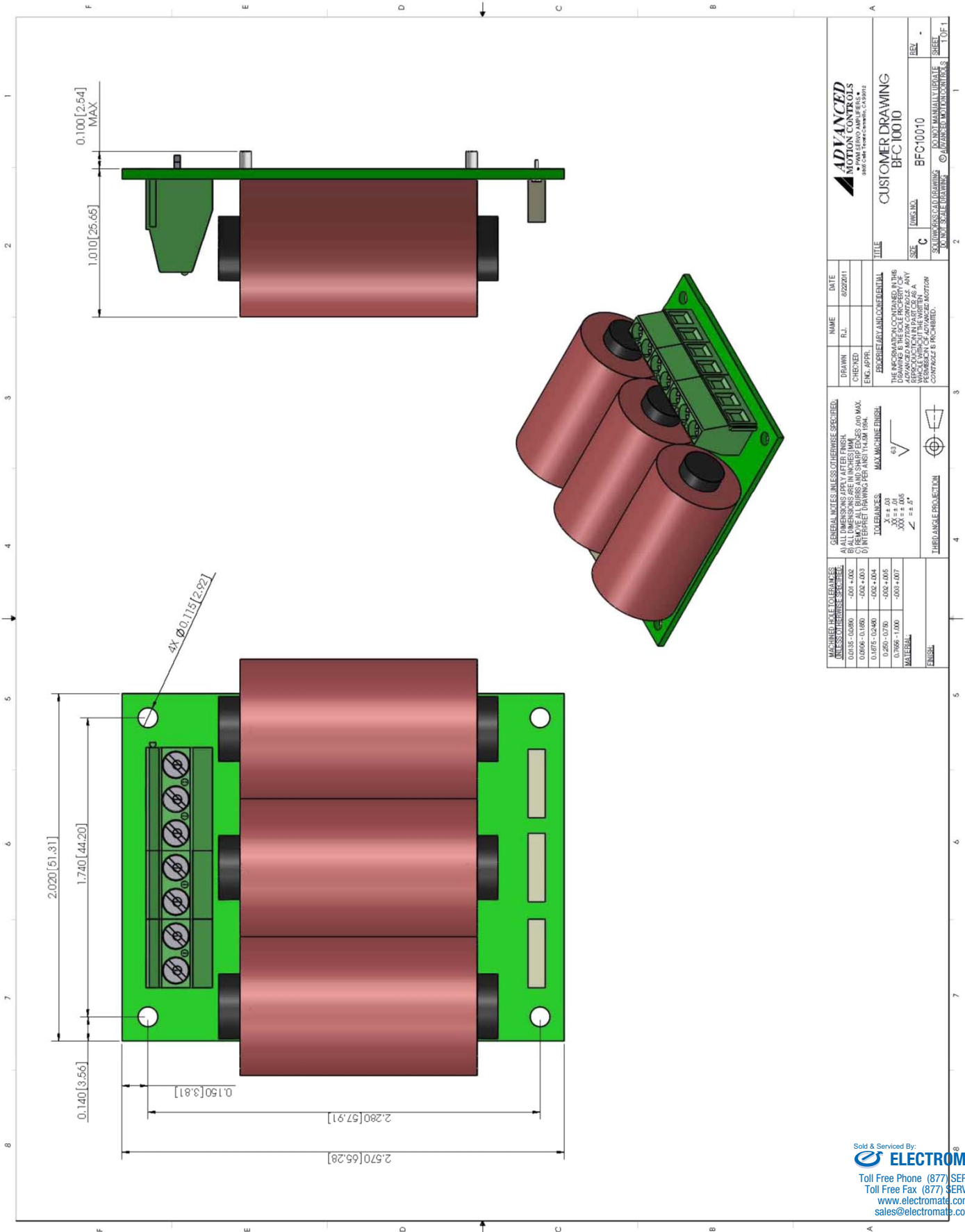




MATERIALS TO BE USED		GENERAL NOTES		DRAWN		NAME		DATE	
0.035 - 0.060	-0.01 +0.02	A	REMOVE ALL BURRS AND SHARP EDGES, 0.00 MAX.	FCL	02/27/01	ADVANCED MOTION CONTROLS	FC:10010	REV	
0.060 - 0.160	-0.02 +0.03	B	ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.	CHECKED		MOTION CONTROLS	FC:10010	REV	
0.165 - 0.240	-0.02 +0.04	C	REMOVE ALL BURRS AND SHARP EDGES, 0.00 MAX.	ENG. APPR.		ADVANCED MOTION CONTROLS	FC:10010	REV	
0.250 - 0.750	-0.02 +0.05	D	IN EDGES: DOWNSHARP PER ANSI Y14.5M 1994.			ADVANCED MOTION CONTROLS	FC:10010	REV	
0.750 - 1.000	-0.03 +0.07	E	TOLERANCES			ADVANCED MOTION CONTROLS	FC:10010	REV	
MATERIAL		FINISH		TITLE		SHEET		OF	
		TYPED ANGLE PROJECTION		CUSTOMER DRAWING		FC:10010		1 OF 1	

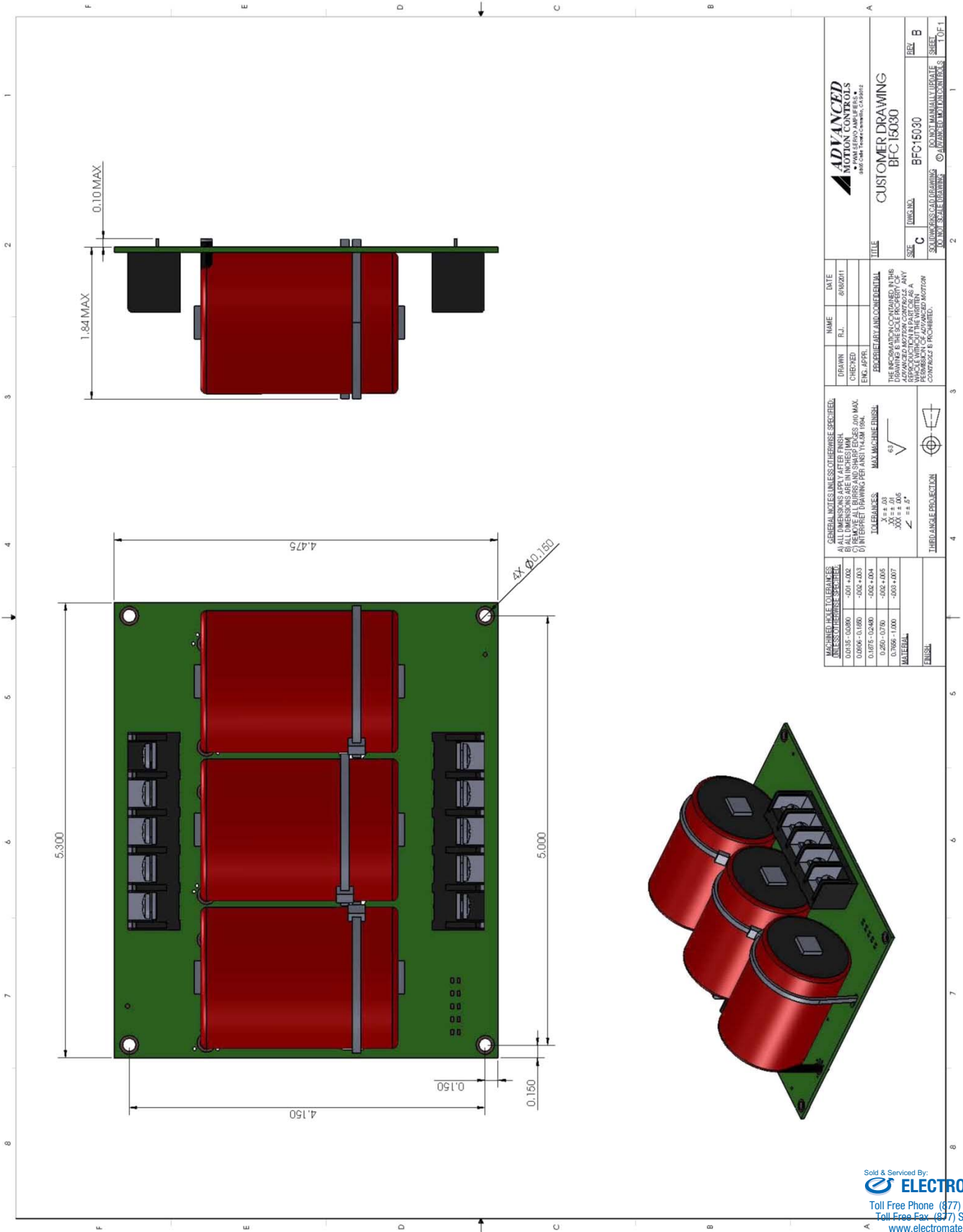


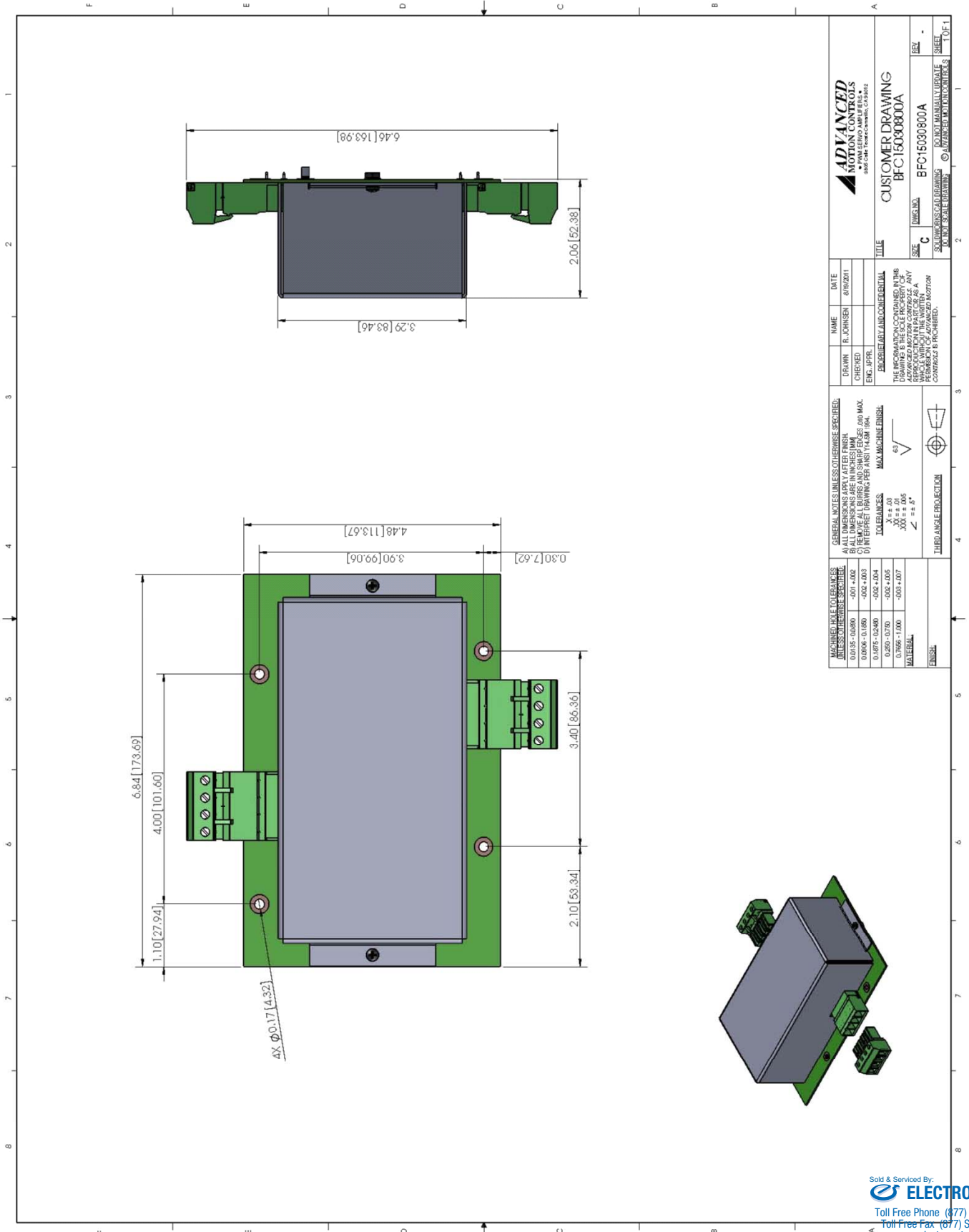




ADVANCED MOTION CONTROLS 3800 GARDEN STREET • SANTA ANA, CA 92705		NAME	DATE
DRAWN	R.L.	8/22/2011	
CHECKED			
ENG. APPR.			
REGENERARY AND CO. GENERAL THE INFORMATION CONTAINED HEREIN IS THE PROPERTY OF ADVANCED MOTION CONTROLS. ANY REPRODUCTION OR TRANSMISSION IN ANY FORM OR BY ANY MEANS WITHOUT THE WRITTEN CONSENT OF ADVANCED MOTION CONTROLS IS PROHIBITED.		TITLE CUSTOMER DRAWING BFC10010	
SIZE	DWG. NO.	REV.	SHEET
C	BFC10010	-	1 OF 1
SOURCE: CUSTOMER DRAWING © ADVANCED MOTION CONTROLS		SCALE: AS SHOWN	

MACHINABLE TOLERANCES UNLESS OTHERWISE SPECIFIED: 0.0135 - 0.0800 -0.01 +0.02 0.0806 - 0.1600 -0.02 +0.03 0.1675 - 0.2480 -0.02 +0.04 0.250 - 0.750 -0.02 +0.05 0.7506 - 1.000 -0.03 +0.07	GENERAL NOTES UNLESS OTHERWISE SPECIFIED: (A) ALL DIMENSIONS APPLY AFTER FINISH (B) ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED (C) INTERPRET DRAWINGS PER ANSI Y14.5M 1994. (D) INTERPRET DRAWINGS PER ANSI Y14.5M 1994.	FINISH: MAX MACHINE FINISH $X \pm 0.03$ $Y \pm 0.05$ $Z \pm 0.07$ $\angle \pm 0.5^\circ$	THIRD ANGLE PROJECTION
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ADVANCED MOTION CONTROLS 10000 LINDEN DRIVE MILWAUKEE, WI 53222 800-541-7463 FAX 414-224-1100		NAME: R. JOHNSON DATE: 8/18/2011 DRAWN: R. JOHNSON CHECKED: [] ENG. APPR. []	TITLE: CUSTOMER DRAWING BFC16030800A
GENERAL NOTE: UNLESS OTHERWISE SPECIFIED: A) ALL DIMENSIONS APPLY AFTER FINISH. B) DIMENSIONS ARE TO CENTER UNLESS OTHERWISE SPECIFIED. C) DIMENSIONS TO SURFACE UNLESS OTHERWISE SPECIFIED. D) INTERFERE TIRING PER ANSI Y14.4M 1994.		REGULAR AND CONDUCTORIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF ADVANCED MOTION CONTROLS. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF ADVANCED MOTION CONTROLS IS PROHIBITED.	SIZE: C DWG. NO.: BFC16030800A REV: - SHEET: 1 OF 1
MACHINING TOLERANCES: 0.0150 - 0.0600 -0.01 +0.02 0.0606 - 0.1000 -0.02 +0.03 0.1075 - 0.2400 -0.02 +0.04 0.2500 - 0.7500 -0.02 +0.05 0.7506 - 1.0000 -0.03 +0.07	FINISH: MAX. MACHINE FINISH 6.3 X ± 0.03 Y ± 0.05 Z ± 0.05 THIRD ANGLE PROJECTION	SOLIDWORKS CAD DRAWING DON'T MANUALLY UPDATE SHEET DON'T SCALE DRAWING © ADVANCED MOTION CONTROLS	

CUSTOMIZATION INFORMATION

ADVANCED Motion Controls' products are available in many configurations. All models listed in the selection tables of the website are readily available, standard product offerings.

ADVANCED Motion Controls also has the capability to promptly develop and deliver specified products for OEMs with volume requests. Our Applications and Engineering Departments will work closely with your design team through all stages of development in order to provide the best servo drive solution for your system. Equipped with on-site manufacturing for quick-turn customs capabilities, ADVANCED Motion Controls utilizes our years of engineering and manufacturing expertise to decrease your costs and time-to-market while increasing system quality and reliability. Feel free to contact Applications Engineering for further information and details.

Examples of Customized Products

- ▲ Optimized Footprint
- ▲ Private Label Software
- ▲ OEM Specified Connectors
- ▲ No Outer Case
- ▲ Increased Current Resolution
- ▲ Increased Temperature Range
- ▲ Custom Control Interface
- ▲ Integrated System I/O
- ▲ Tailored Project File
- ▲ Silkscreen Branding
- ▲ Optimized Base Plate
- ▲ Increased Current Limits
- ▲ Increased Voltage Range
- ▲ Conformal Coating
- ▲ Multi-Axis Configurations
- ▲ Reduced Profile Size and Weight

Available Accessories

ADVANCED Motion Controls offers a variety of accessories designed to facilitate drive integration into a servo system. Visit www.a-m-c.com to see which accessories will assist with your application design and implementation.

