Filter Cards

	Model Number	Inductance Line to Line	Continuous Current	Voltage Rating
Filter Cards for Single Phase Loads: Brushed Motors, Voice Coils, and other Single Phase Loads	FC1010	20µH	10A	200V
	FC10010	200µH	10A	250V
	FC15030	300µH	30A	400V
Filter Cards for Three Phase Loads: Brushless Motors, Linear Motors, and other Three Phase Loads	BFC1010	20µH	10A	200V
	BFC10010	200µH	10A	250V
	BFC15030	300µH	30A	400V

FC1010

FC10010

FC15030

BFC1010

BFC10010

BFC15030

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 µH. 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.

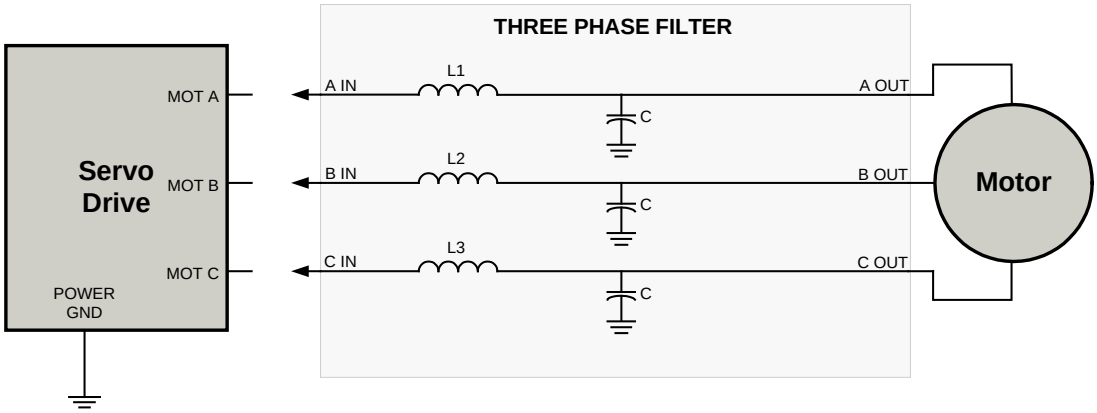
Compliant with European EMC Directive 2004/108/EC on Electromagnetic Compatibility (specifically EN 61000-6-4:2007 for Emissions, Class A and EN 61000-6-2:2005 for Immunity, Performance Criteria A). LVD requirements of Directive 2006/95/EC (specifically, EN 60204-1:2004, a Low Voltage Directive to protect users from electrical shock).

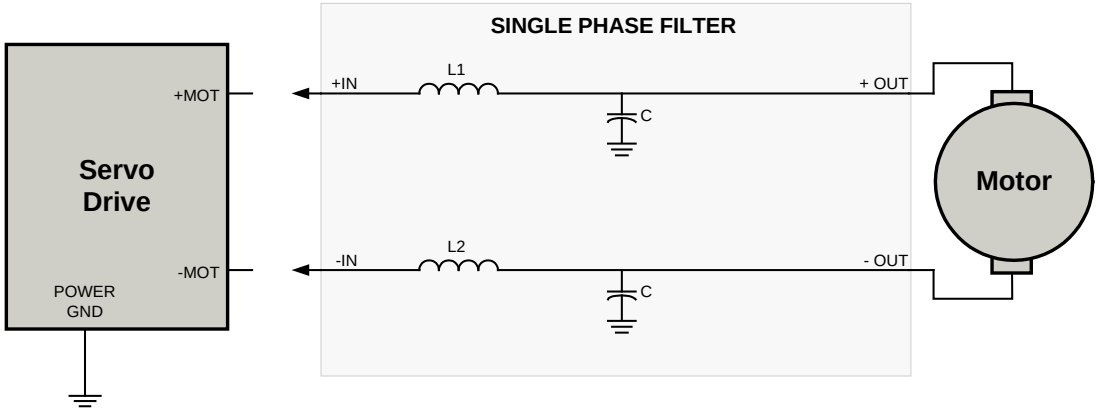
The RoHS II Directive 2011/65/EU restricts the use of certain substances including lead, mercury, cadmium, hexavalent chromium and halogenated flame retardants PBB and PBDE in electronic equipment.

SPECIFICATIONS

Power Specifications							
Description	Units	FC1010	FC10010	FC15030	BFC1010	BFC10010	BFC15030
Inductance (Line to Line)	µH	20	200	300	20	200	300
Continuous Current	A	10	10	30	10	10	30
Voltage Rating	VDC	200	250	400	200	250	400
Capacitance (C)	µF	-	.01	.068	-	.01	-
Mechanical Specifications							
Description	Units	FC1010	FC10010	FC15030	BFC1010	BFC10010	BFC15030
Connector	-	Screw Terminals					
Size (HxWxD)	mm (in)	55.9x27.9x15.8 (2.20x1.10x0.62)	65.3x51.3x25.7 (2.57x2.02x1.01)	101.6x88.9x44.5 (4.00x3.5x1.75)	56.5x28.6x15.8 (2.23x1.13x0.62)	71.0x50.6x25.0 (2.60x1.99x1.0)	134.6x113.7x43.5 (5.30x4.48x1.71)
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)
Operating Temperature Range	°C (°F)	-40 - 75 (-40 - 167)					

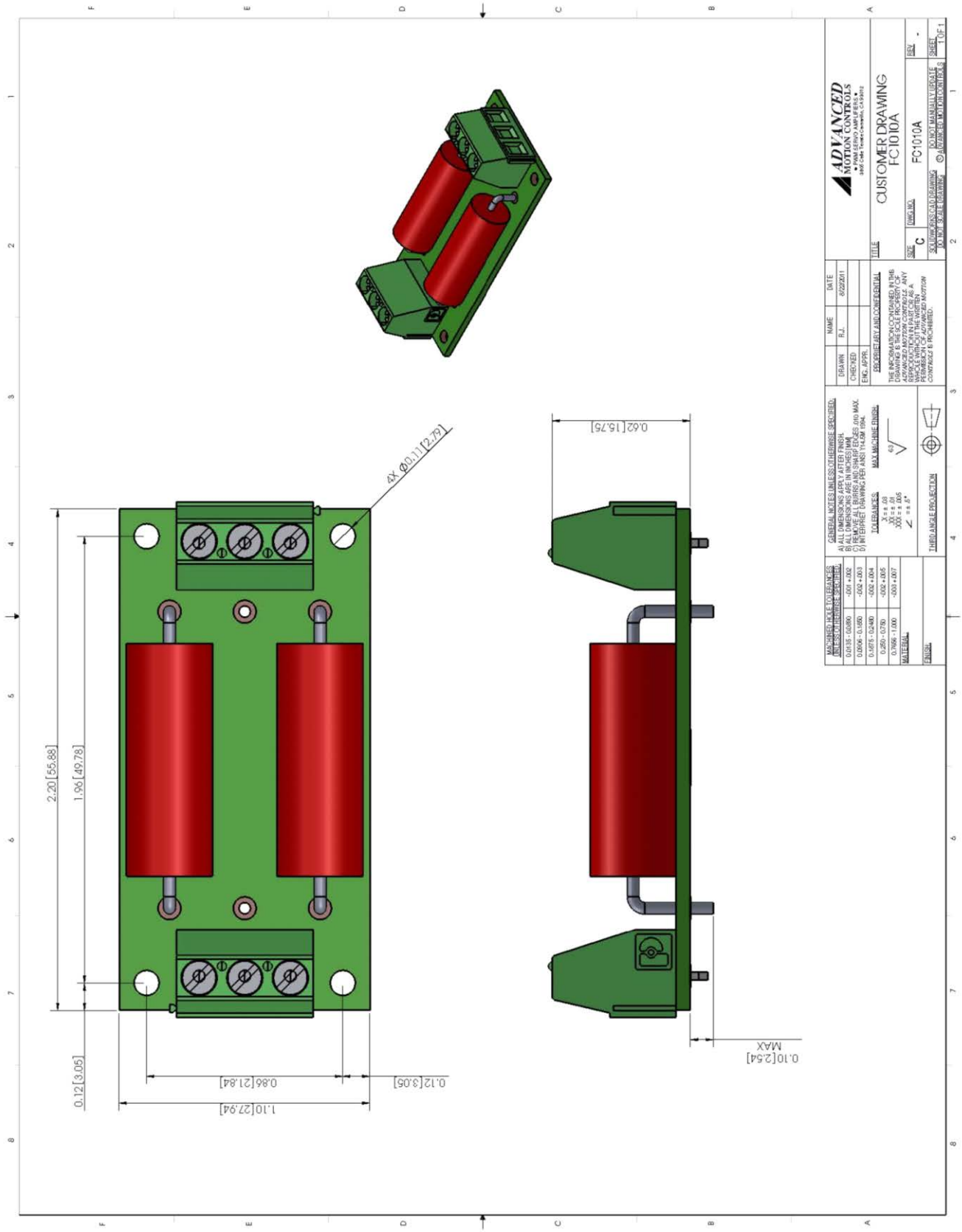
BLOCK DIAGRAM

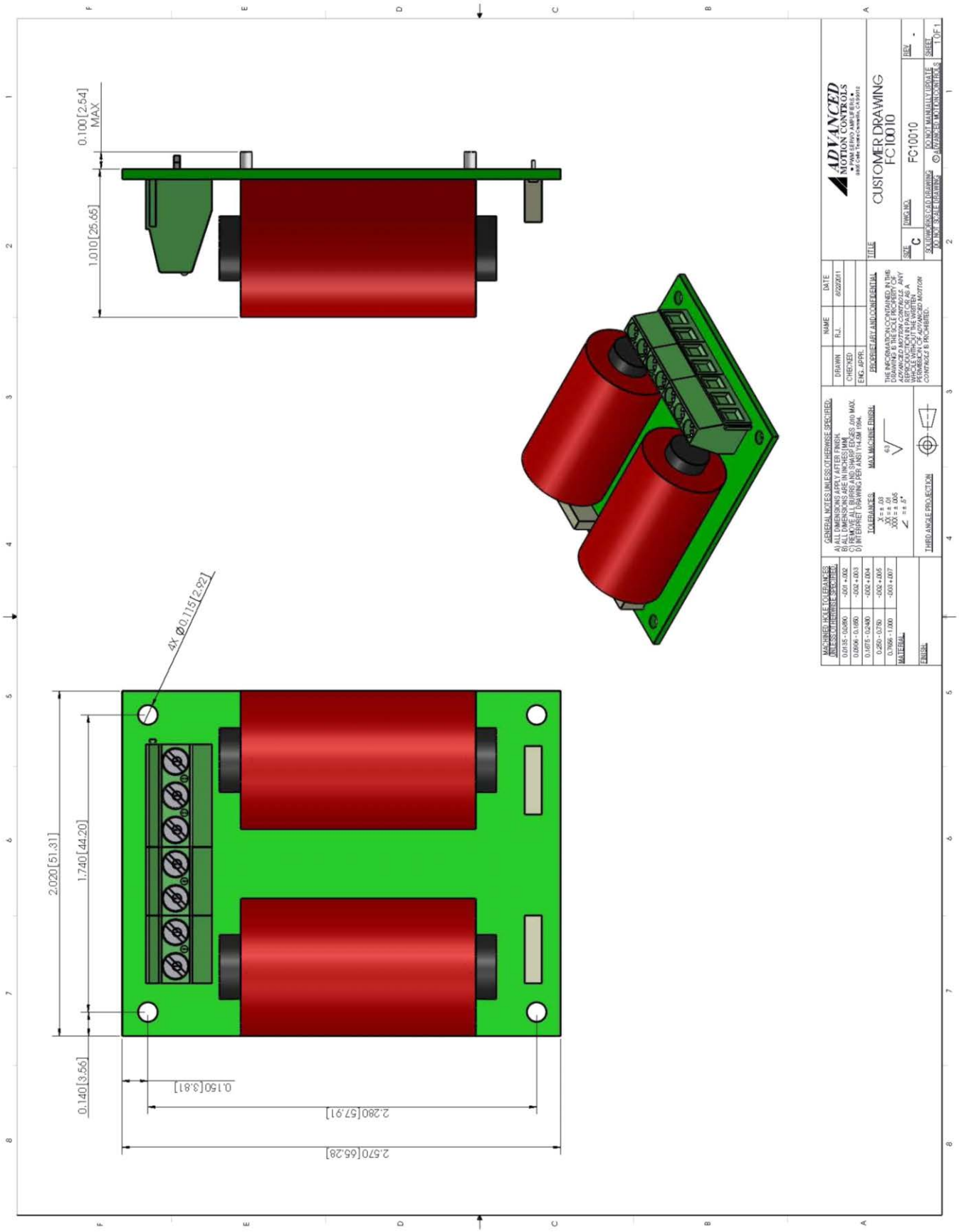




NOTE: Capacitor is not used on all models. See Specifications above for applicable capacitance values

MOUNTING DIMENSIONS

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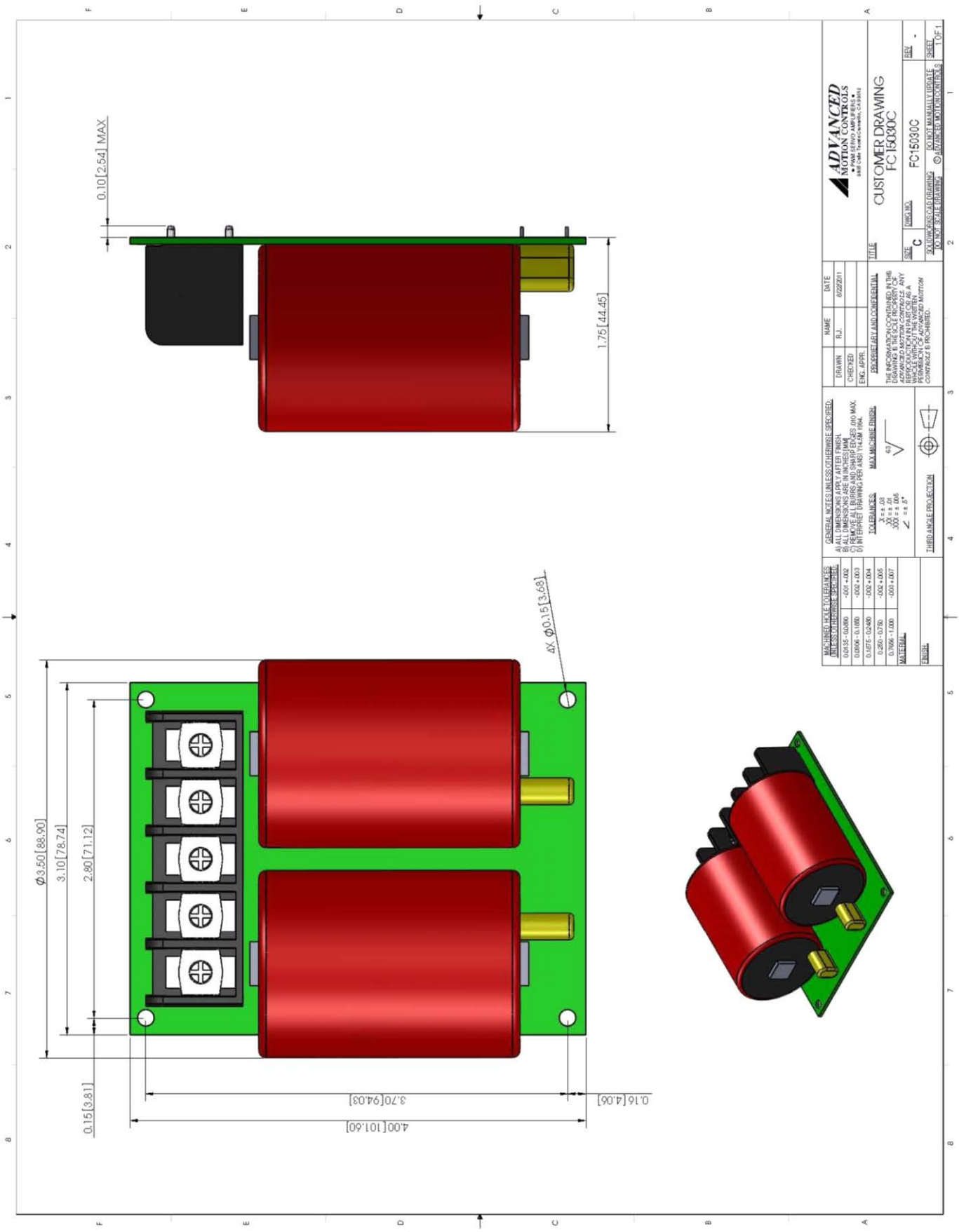
1.010[25.65]
4X Ø0.115[2.92]
2.020[51.31]
1.740[44.20]
0.140[3.56]
0.150[3.81]
2.280[57.91]
2.570[65.28]
ADVANCED MOTION CONTROLS
CUSTOMER DRAWING
FC10010
FG10010
C
PROPRIETARY AND CONFIDENTIAL
THIRD ANGLE PROJECTION


0.10[2.54] MAX
1.75[44.45]
4X Ø0.15[3.68]
Ø3.50[88.90]
3.10[78.74]
2.80[71.12]
0.15[3.81]
3.70[94.03]
4.00[101.60]
0.16[4.06]
CUSTOMER DRAWING
FC15030C
ADVANCED MOTION CONTROLS
3805 Calle Tecate Camarillo, CA 93012
DRAWN
CHECKED
ENG. APPR.
NAME
DATE
R.J.
6/22/2011
PROPRIETARY AND CONFIDENTIAL
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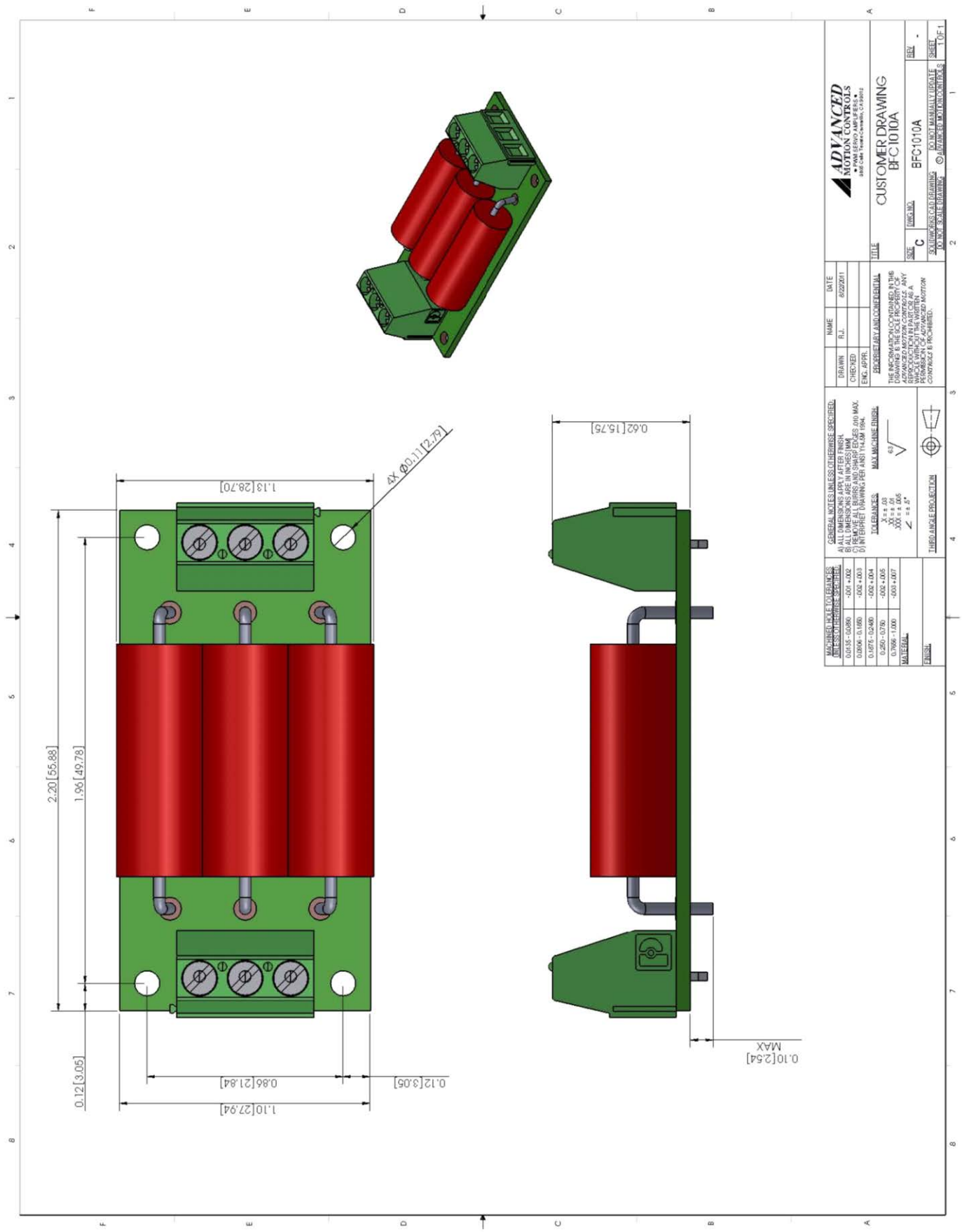
SIZE
C
DWG NO.
FC15030C
REV
-
SHEET
1 OF 1
SOLIDWORKS CAD DRAWING
DO NOT SCALE DRAWING
DO NOT MANUALLY UPDATE
© ADVANCED MOTION CONTROLS
GENERAL NOTES (UNLESS OTHERWISE SPECIFIED)
A) ALL DIMENSIONS APPLY AFTER FINISH.
B) ALL DIMENSIONS ARE IN INCHES [MM].
C) REMOVE ALL BURRS AND SHARP EDGES .010 MAX.
D) INTERPRET DRAWING PER ANSI Y14.5M 1994.
TOLERANCES:
MAX MACHINE FINISH:
THIRD ANGLE PROJECTION
MATERIAL:
FINISH: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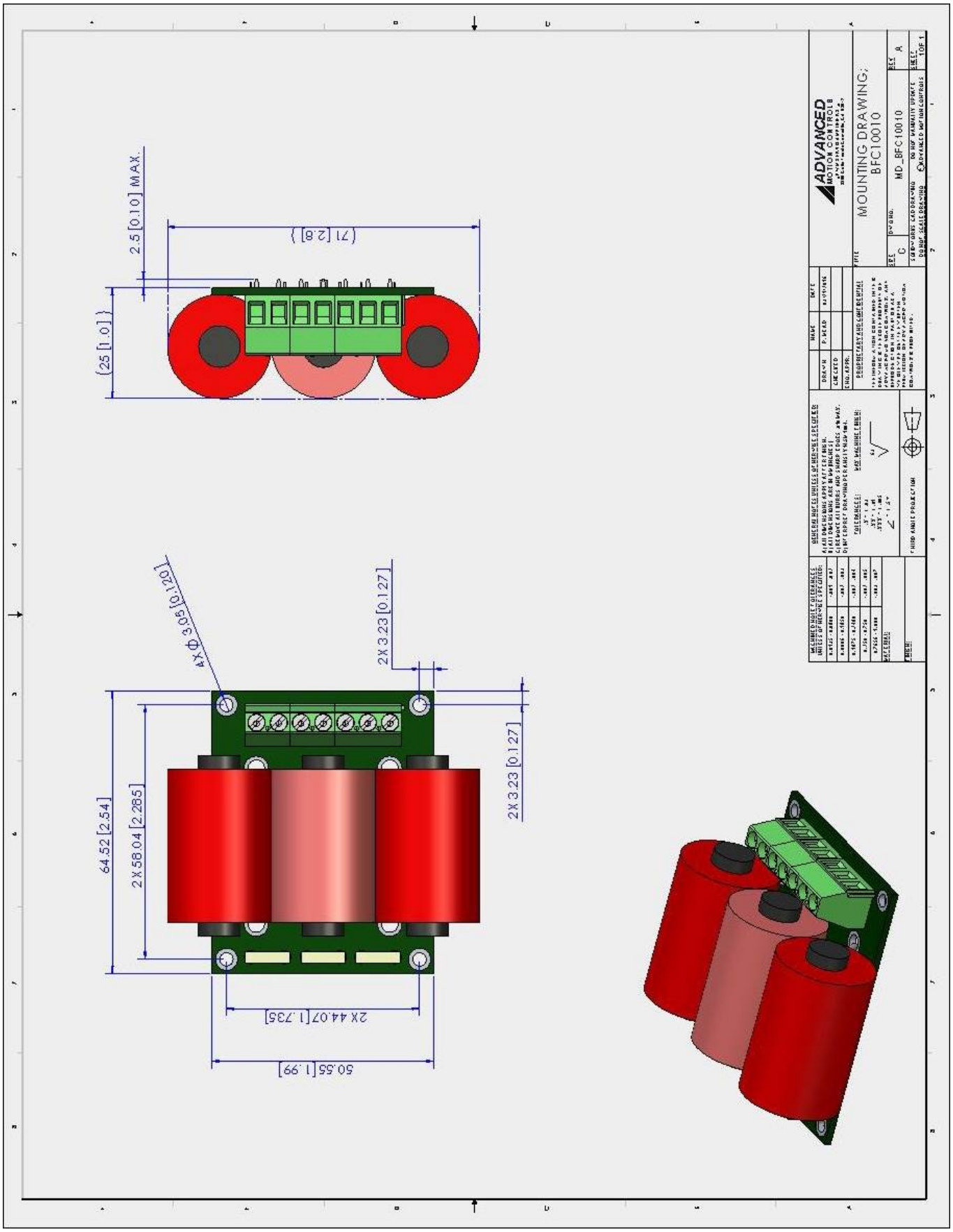
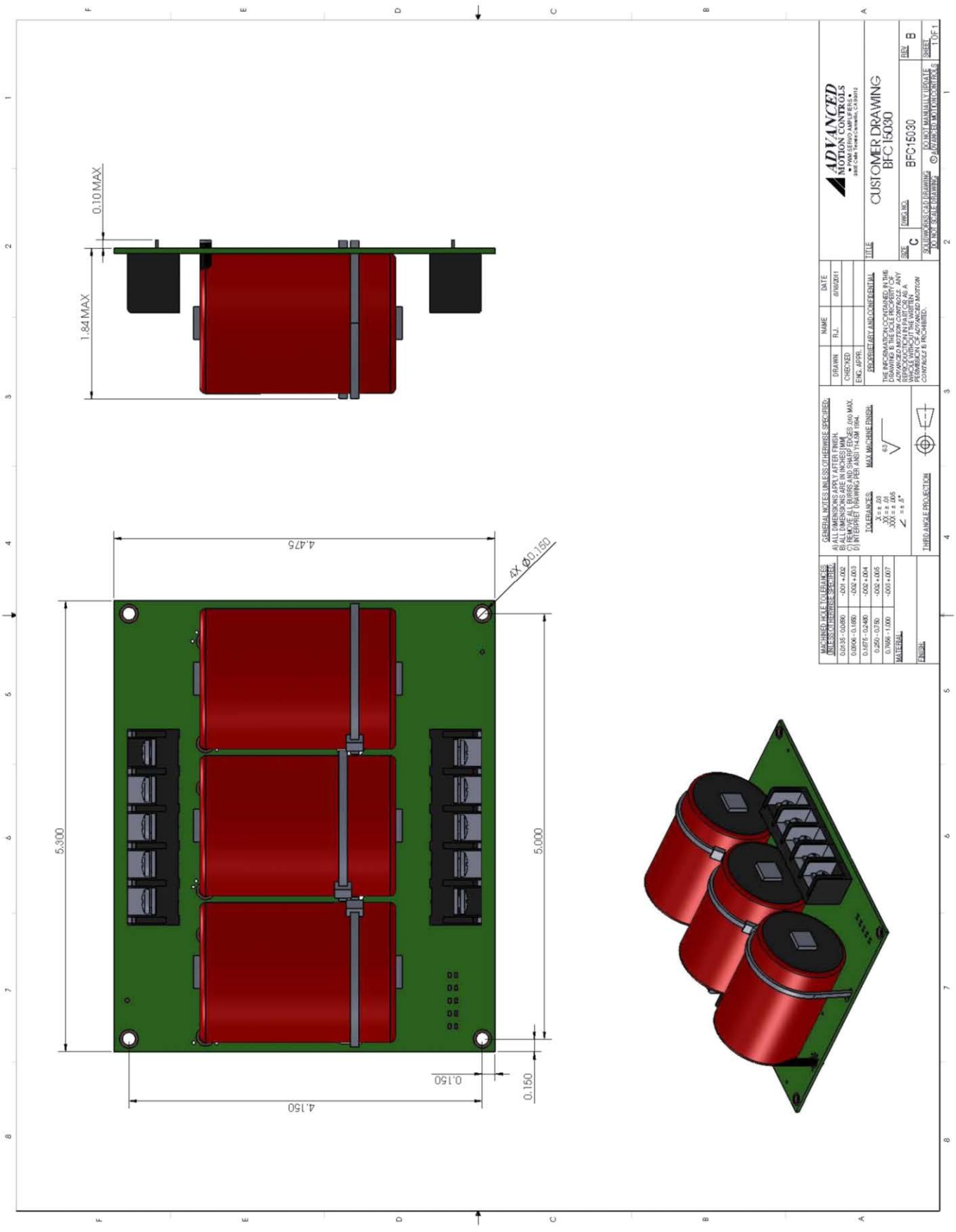
4X Ø0.11[2.79]
2.20[55.88]
1.96[49.78]
0.12[3.05]
0.86[21.84]
0.12[3.05]
1.10[27.94]
0.62[15.75]
0.10[2.54]
MAX
ADVANCED MOTION CONTROLS
CUSTOMER DRAWING
BFC1010A
DWG NO. BFC1010A
REV -
SIZE C
SHEET 1 OF 1
DRAWN
CHECKED
ENG. APPR.
NAME
DATE
PROPRIETARY AND CONFIDENTIAL
GENERAL NOTES (UNLESS OTHERWISE SPECIFIED)
A) ALL DIMENSIONS APPLY AFTER FINISH.
B) ALL DIMENSIONS ARE IN INCHES [MM].
C) REMOVE ALL BURRS AND SHARP EDGES .010 MAX.
D) INTERPRET DRAWING PER ANSI Y14.5M 1994.
TOLERANCES:
MAX MACHINE FINISH:
MACHINED HOLE TOLERANCES (UNLESS OTHERWISE SPECIFIED)
MATERIAL:
FINISH:
THIRD ANGLE PROJECTION
DO NOT MANUALLY UPDATE
© ADVANCED MOTION CONTROLS


2.5 [0.10] MAX.
(71 [2.8])
(25 [1.0])
4X Φ 3.05 [0.120]
2X 3.23 [0.127]
64.52 [2.54]
2X 58.04 [2.285]
2X 44.07 [1.735]
50.55 [1.99]
MOUNTING DRAWING;
BFC10010
MD_BFC10010


0.10 MAX
1.84 MAX
4.475
4X Ø0.150
5.300
5.000
0.150
4.150
0.150
ADVANCED MOTION CONTROLS
CUSTOMER DRAWING
BFC150030
SIZE C
DWG NO. BFC150030
REV B
SHEET 1 OF 1
SOLIDWORKS CAD DRAWING
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DRAWN R.J. 6/16/2011
CHECKED
ENG. APPR.
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GENERAL NOTES UNLESS OTHERWISE SPECIFIED:
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B) ALL DIMENSIONS ARE IN INCHES[MM.
C) REMOVE ALL BURRS AND SHARP EDGES .010 MAX.
D) INTERPRET DIMENSIONS PER ANSI Y14.5M-1994.
TOLERANCES:
X = ± .03
.XX = ± .010
.XXX = ± .005
∠ = ± 5°
MAX MACHINE FINISH:
63
THIRD ANGLE PROJECTION
MACHINED HOLE TOLERANCES UNLESS OTHERWISE SPECIFIED
0.0135 - 0.0890 -.001 +.002
0.0906 - 0.1660 -.002 +.003
0.1675 - 0.2480 -.002 +.004
0.2500 - 0.3750 -.002 +.005
0.3906 - 1.000 -.005 +.007
MATERIAL:
FINISH:

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.

Power Supplies

Shunt Regulators

Drive(s)

Filter Cards

To Motor