CERTIFICATE OF COMPLIANCE

Certificate Number	20160226-E139109
Report Reference	E139109-A160-UL
Issue Date	2016-FEBRUARY-26

Issued to:	XP POWER L L C 15641 RED HILL AVE, SUITE 100 TUSTIN CA 92780 UNITED STATES

This is to certify that representative samples of	Component - Power Supplies for Information Technology Equipment Including Electrical Business Equipment Switching Power Supply, Model N12-MMMM-PPFNN (Where M can be blank or a letter A-Z, indicating module designation; where P can be any number 0-9 or blank; where F can be A or C; where N can be any number 0-9 or blank; "-" provided optionally) Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.
Standard(s) for Safety:	UL 60950-1 and CAN/CSA C22.2 No. 60950-1-07 - Information Technology Equipment - Safety - Part 1: General Requirements
Additional Information:	See the UL Online Certifications Directory at www.ul.com/database for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's Certification and Follow-Up Service.

Recognized components are incomplete in certain constructional features or restricted in performance capabilities and are intended for use as components of complete equipment submitted for investigation rather than for direct separate installation in the field. The final acceptance of the component is dependent upon its installation and use in complete equipment submitted to UL LLC.

Look for the UL Certification Mark on the product.

Bruce Mahrenholz, Director North American Certification Program

UL LLC

UL TEST REPORT AND PROCEDURE

Standard:	UL 60950-1, 2nd Edition, 2014-10-14 (Information Technology Equipment - Safety - Part 1: General Requirements) CAN/CSA C22.2 No. 60950-1-07, 2nd Edition, 2014-10 (Information Technology Equipment - Safety - Part 1: General Requirements)
Certification Type:	Component Recognition
CCN:	QQGQ2, QQGQ8 (Power Supplies for Information Technology Equipment Including Electrical Business Equipment)
Product:	Switching Power Supply
Model:	N12-MMMM-PPFNN (Where M can be blank or a letter A-Z, indicating module designation; where P can be any number 0-9 or blank; where F can be A or C; where N can be any number 0-9 or blank; "-" provided optionally)
Rating:	Input: 100-240 Vac, 50/60Hz, 10 A Output: See Model Differences
Applicant Name and Address:	XP POWER L L C 15641 RED HILL AVE, SUITE 100 TUSTIN CA 92780 UNITED STATES

This is to certify that representative samples of the products covered by this Test Report have been investigated in accordance with the above referenced Standards. The products have been found to comply with the requirements covering the category and the products are judged to be eligible for Follow-Up Service under the indicated Test Procedure. The manufacturer is authorized to use the UL Mark on such products which comply with this Test Report and any other applicable requirements of UL LLC ('UL') in accordance with the Follow-Up Service Agreement. Only those products which properly bear the UL Mark are considered as being covered by UL's Follow-Up Service under the indicated Test Procedure.

The applicant is authorized to reproduce the referenced Test Report provided it is reproduced in its entirety.

UL authorizes the applicant to reproduce the latest pages of the referenced Test Report consisting of the first page of the Specific Technical Criteria through to the end of the Conditions of Acceptability.

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL.

Prepared by: Michael J. Howell Reviewed by: Randy Johnson

Supporting Documentation

The following documents located at the beginning of this Procedure supplement the requirements of this Test Report:

A. Authorization - The Authorization page may include additional Factory Identification Code markings.

B. Generic Inspection Instructions -

i. Part AC details important information which may be applicable to products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of this Test Report.

ii. Part AE details any requirements which may be applicable to all products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of each Test Report.

iii. Part AF details the requirements for the UL Certification Mark which is not controlled by the technical standard used to investigate these products. Products are permitted to bear only the Certification Mark(s) corresponding to the countries for which it is certified, as indicated in each Test Report.

Product Description

The model covered in this Report is a modular component switching power supply intended for building-in to Information Technology Equipment.

The power supply consists of an input power platform and various plug-in output modules. Each plug-in output module is one slot width. Each power platform supports four slots per platform.

Outputs can be connected in series or in parallel.

Model Differences

All models are provided with a power platform and various combinations of output modules.

Power Platform Chassis:
N12: Max 1200 W (100-240 Vac): up to four output modules provided.

Output Module Ratings:
Modules A-E: 3.3 to 5.5 Vdc, 40 A max, 200 W max.
Modules F-J : 8 to 15 Vdc, 20.8 A max, 250 W max.
Modules K-O: 18 to 30 Vdc, 12.5 A max, 300 W max.
Modules P-T: 33 to 60 Vdc, 6.25 A max, 300 W max.

Technical Considerations

- Equipment mobility : for building-in
- Connection to the mains : permanent connection or pluggable A
- Operating condition : continuous
- Access location : for building-in
- Over voltage category (OVC) : OVC II
- Mains supply tolerance (%) or absolute mains supply values : +10%, -10%
- Tested for IT power systems : Yes
- IT testing, phase-phase voltage (V) : 230
- Class of equipment : Class I
- Considered current rating of protective device as part of the building installation (A) : 20 A
- Pollution degree (PD) : PD 2

- IP protection class : IPX0
- Altitude of operation (m) : 3048
- Altitude of test laboratory (m) : up to 2000
- Mass of equipment (kg) : 1.45
- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 50°C at 100% load, increasing linearly to 70°C at 50% load (see Enclosure 7-12)
- The means of connection to the mains supply is: permanent connection or pluggable A
- The product is intended for use on the following power systems: IT,TN
- The product was investigated to the following additional standards: EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013 (which includes all European national differences, including those specified in this test report).
- The following were investigated as part of the protective earthing/bonding: Printed wiring board trace (refer to Enclosure - Schematics + PWB for layouts)
- According to IEC60664-1, Table A2, required Clearances have been adjusted by multiplying the clearance at sea level by a factor of 1.15 for operating at an altitude of 3048 meters.

Engineering Conditions of Acceptability

For use only in or with complete equipment where the acceptability of the combination is determined by UL LLC. When installed in an end-product, consideration must be given to the following:

- The following Production-Line tests are conducted for this product: Electric Strength, Earthing Continuity
- The end-product Electric Strength Test is to be based upon a maximum working voltage of: Primary-Earthed Dead Metal: 232 Vrms, 340 Vpk, Primary-SELV: 127 Vrms, 284 Vpk
- The following secondary output circuits are SELV: The outputs of Modules A-Q are considered SELV. The outputs of Modules R-T are considered Hazardous Voltage Secondary. The end-product evaluation shall additionally consider accessibility of these circuits in the end-use application.
- The following secondary output circuits are at hazardous energy levels: The outputs of Modules F-T
- The following secondary output circuits are at non-hazardous energy levels: The outputs of Modules A-E
- The power supply terminals and/or connectors are: Suitable for field wiring (terminal block)
- The maximum investigated branch circuit rating is: 20A
- The investigated Pollution Degree is: 2
- Proper bonding to the end-product main protective earthing termination is: Required
- An investigation of the protective bonding terminals has: Been conducted
- The following input terminals/connectors must be connected to the end-product supply neutral: ACN J1
- The following magnetic devices (e.g. transformers or inductor) are provided with an OBJY2 insulation system with the indicated rating greater than Class A (105°C): T1 - T6 (Class F, 155°C), L5 (Class F, 155°C)
- The following end-product enclosures are required: Mechanical, Electrical and Fire
- The equipment is suitable for direct connection to: AC mains supply
- Printed Wiring Board rated 130°C.
- Consideration to repeating the Touch Current test should be given in the end-product evaluation.

- Clearances were evaluated for 3048 m altitude. Additional consideration maybe necessary in the end-use product.
- The equipment has been evaluated for building-in only and the equipment enclosures have not been evaluated for being suitable as operator accessible. The end-product evaluation shall additionally consider suitability of the front face enclosure to be operator accessible as applicable.
- The Protective Bonding test shall be repeated as part of end-product evaluation.
- Suitable warning markings to service persons regarding double pole/neutral fusing shall be provided as part of the end-product in accordance with Clause 2.7.6.

Additional Information

The attached Marking Plate for Model N12-CHMR-00A00 is considered representative of the entire series.

Additional Standards

The product fulfills the requirements of: CSA C22.2 No. 60950-1-07 + A1:2011 + A2:2014, EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011 + A2:2013, IEC 60950-1:2005 + A1:2009 + A2:2013, UL 60950-1 2nd Ed. Revised 2014-10-14

Markings and instructions

Clause Title	Marking or Instruction Details
Power rating - Ratings	Ratings (voltage, frequency/dc, current)
Power rating - Company identification	Listee's or Recognized company's name, Trade Name, Trademark or File Number
Power rating - Model	Model Number
Fuses - Non-operator access/soldered-in fuses	Unambiguous reference to service documentation for instructions for replacement of fuses replaceable only by service personnel
Terminals for external primary power supply conductors	Capital letter "N" located adjacent to a terminal intended exclusively for connection of the primary power neutral conductor

Special Instructions to UL Representative

N/A

Production-Line Testing Requirements

Electric Strength Test Special Constructions - Refer to Generic Inspection Instructions, Part AC for further information.

Model	Component	Removable Parts	Test probe location	V rms	V dc	Test Time, s
N/A						

Earthing Continuity Test Exemptions - This test is not required for the following models:

Electric Strength Test Exemptions - This test is not required for the following models:

Electric Strength Test Component Exemptions - The following solid-state components may be disconnected from the remainder of the circuitry during the performance of this test:

Sample and Test Specifics for Follow-Up Tests at UL

Model	Component	Material	Test	Sample(s)	Test Specifics
N/A					

1.5.1	**TABLE: list of critical components**					Pass
Object/part or Description	Manufacturer/ trademark	type/model	technical data	Product Category CCN(s)	Required Marks of Conformity	Supplement ID
Power Platform Chassis	-	-	Aluminum. U-shaped. Overall approx. 28.8 by 10.6 by 4.2 cm by 1.5 mm thick.	-	-	
Power Platform – Front Cover	-	-	Aluminum. L-shaped. Overall approx. 13.1 by 10.4 by 3.9 cm by 1 mm thick. Provided with ventilation and power input openings. Secured to Power Platform Chassis with screws.	-	-	
Power Platform – Front Cover – Optional – For models with IEC Input Connector	-	-	Aluminum. L-shaped. Overall approx. 13.1 by 10.4 by 3.9 cm by 1 mm thick. Provided with ventilation and power input openings. Secured to Power Platform Chassis with screws.	-	-	
Power Platform – Back Cover	-	-	Aluminum. U-shaped. Overall approx. 16 by 10.4 by 0.4 cm by 1 mm thick. Secured to Power Platform Chassis with screws. Bottom side provided with Kapton tape, type KPT-4, overall 10.8 by 10.1 cm, spaced 3.3 cm from front edge and 1.9 cm from rear edge.	-	-	
Printed Wiring Board – EMI PWB	Interchangeable	Interchangeable	Min V-1, 130°C, rated for direct support of live parts. Provided with one standoff, 14.3 mm long. Secured to EMI Shield Bracket by screws. See Enclosures 5-01 and 5-09 for trace layout diagrams.	ZPMV2	UL	
EMI Shield Bracket – EMI PWB – Terminal	-	-	Aluminum. U-shaped, overall approx. 12.6 by 3.7 by 4 cm,	-	-	

Block Version			min. 1 mm thick. Secured to Power Platform Chassis by screws.			
Alternate - IEC Connector Bracket – EMI PWB – Appliance Inlet Version	-	-	Aluminum. Overall approx. 4 by 3.9 by 1 cm by min. 1 mm thick, Secured to EMI Shield Bracket by screws.	-	-	
Insulator Sheet – EMI PWB	Formex	Formex GK	Rated min V-2 or VTM-2, 130°C RTI, 100 CTI (PLC 4), min 0.25 mm thick. Located between EMI PWB and bottom of EMI Shield Bracket. See Enclosure 7-11 for details.	QMFZ2 (E121855)	UL	
Input Terminal Block (TB201) – EMI PWB	Dinkle Enterprise Co Ltd	DT-2 Series	Rate min. 300V, min. 10A, 3 position	XCFR2, XCFR8 (E102914)	UL, cUL	
IEC Connector (J201) - EMI PWB - Optional	Schurter Inc.	GSP2 Series	Alternate to Input Terminal Block (TB201). Rated 250V, 10A. Secured and soldered to Printed Wiring Board.	AXUT2 (E96454)	UL	
Fuses (F201, F202) – EMI PWB	Littelfuse Inc	216 Series	Rated 250 V, 12.5 A. Fast acting. Pig-tail type soldered through PWB.	JDYX2 (E10480)	UL	
Thermal Cutoff (TF-201) – EMI PWB	Xiamen Set Electronics Co Ltd	T115	Rated 250 V, Ir 15/16 A, 115°C	XCMQ2, XCMQ8 (E214712)	UL, cUL	
Resistor (R201) – EMI PWB	Interchangeable	Interchangeable	Rated 220k ohm, 2W	-	-	
X-Capacitors (C203,C206,C209,C212, C213,C214,C215,C217) – EMI PWB	Xiamen Faratronic Co Ltd	MKP61R (C40 Series)	Rated max. 1.0 uF, min. 250 V, marked X2.	FOWX2, FOWX8 (E186600)	UL, cUL	
X-Capacitors (C203,C206,C209,C212, C213,C214,C215,C217) – EMI PWB - Alternate	Xiamen Faratronic Co Ltd	MKP62 (C42 Series)	Rated max. 1.0 uF, min. 250 V, marked X2.	FOWX2, FOWX8 (E186600)	UL, cUL	
X-Capacitors (C203,C206,C209,C212, C213,C214,C215,C217)	Illinois Capacitor Inc.	MKP Series	Rated max. 1.0 uF, min. 250 V, marked X2.	FOWX2, FOWX8 (E317135)	UL, cUL	

– EMI PWB - Alternate						
Inductor (L201, L202) – EMI PWB	XP Power	10015247	Toroidal. Copper Magnet Wire, (OBMW2), rated min. 130°C, wound on ferrite core. Overall approx. 25 mm dia. by 11 mm wide. See Enclosure 7-04 for details.	-	-	
Inductor Insulator Sheet – EMI PWB	E I Dupont De Nemurs & Co Inc	410 (Nomex)	Overall approx. 66 by 22 mm, min. 0.38 mm thick. Rated min. V-0, min. 130°C. Provided between Inductors (L201, L202) and EMI PWB. See Enclosure 7-10 for details.	QMFZ2 (E34739)	UL	
Printed Wiring Board – Power Platform	Interchangeable	Interchangeable	Min V-1, 130°C, rated for direct support of live parts. Multilayer PWB with each layer min. 0.4 mm thick. PWB standoffs min. 3.2 mm tall. See Enclosure 5-02 for trace layout diagrams.	ZPMV2	UL	
Printed Wiring Boards – Conformal Coating - Optional	Dow Corning	1-2577	Rated V-0, min. 130°C, min. 60-120 microns. (not relied upon for reduced creepage and clearances.)	QMJU2 (E81611)	UL	
Printed Wiring Boards – Conformal Coating – Optional - Alternate	Interchangeable	Interchangeable	Rated V-0, min. 130°C, min. 60-120 microns. (not relied upon for reduced creepage and clearances.)	QMJU2	UL	
Power Platform - Chassis Insulator Sheet	Formex	Formex GK	Rated min V-2 or VTM-2, 130°C, RTI, 100 CTI (PLC 4), min 0.25 mm thick. Located between PWB and chassis. See Enclosure 7-09 for overall insulator dimensions.	QMFZ2 (E121855)	UL	
Fans	Sunonwealth Electric Machine Industry Co Ltd	PF38281B1-Q0 Series (PF38281B1-Q03U-A99)	Two provided. Rated 12 Vdc, 0.37 A Max. (min. 18.1 CFM). Inward or outward airflow direction. Fan wiring sleeved	GPWV2 (E77551)	UL	

			min 0.4 mm thick. Secured to Fan Panel Bracket by Screws.			
Fan Panel Bracket	-	-	Metal. Overall approx. 10.2 by 4.1 by min. 1 mm thick. Provided with two openings for fan, approx. 3.6 cm dia. Secured to Power Platform Chassis by screws.	-	-	
Diodes (D5, D43)	Interchangeable	Interchangeable	Rated min. 600V, min 3A.	-	-	
Diodes (D1-D4)	Interchangeable	Interchangeable	Rated min. 650V, min 6A.	-	-	
MOSFETS (Q1-Q4)	Interchangeable	Interchangeable	Rated min. 650V, 57A.	-	-	
Heatsink (HSK1)	-	-	Aluminum. T-shaped, overall approx. 4.7 by 3.8 by 2.6 cm by min. 3 mm thick.	-	-	
Heatsink (HSK1) – Insulator	Arlon LLC	Secure 1500FG	Overall approx. 4.9 by 2.3 cm by min. 0.17 mm thick. Provided between Heatsink (HSK1) and Diodes (D1-D4) and (Q1-Q4).	QMFZ2 (E54153)	UL	
Capacitor (C87)	Interchangeable	Interchangeable	Polyester Film Capacitor, rated max. 47uF, min. 400V, 105°C.	-	-	
Thermistor (RT1)	Ametherm	SL18 Series	NTC. Rated min. 240 V, min. 172°C, 7 ohm, Iss min. 10 A (Not relied upon for safety).	-	-	
Thermistor (RT1) – Alternate	Interchangeable	Interchangeable	NTC. Rated min. 240 V, min. 172°C, 7 ohm, Iss min. 10 A (Not relied upon for safety).	-	-	
Relay (K1)	Tyco Electronica Austria GmbH	RT Series (RTD34012)	Rated 250V, min. 16A. Contacts: min. 12Vdc (Not relied upon for isolation).	NDLX2 (E214025)	UL	
Pico Fuse (F1)	Littelfuse	251 Series	Rated 125 V, 7A. Fast acting. (Not relied upon for safety. Non-operator replaceable)	JDYX2 (E10480)	UL	
Electrolytic Capacitors (C5-C10)	Interchangeable	Interchangeable	Rated max. 1000uF, min. 420V 105°C. Provided with integral pressure relief. Body of C5 provided with Insulating Tape.	-	-	

Insulating Tape (Capacitor C5)	3M	1350	Tape Polyester Film, min. 130°C. Provided on Electrolytic Capacitor C5, see Enclosure 7-14 for application and dimension for details.	OANZ2 (E17385)	UL	
Insulating Tape (Capacitor C5) – Alternate	Jingjiang Yahua Pressure Sensitive Glue Co Ltd	CT (CT286)	Tape Polyester Film, min. 130°C. Provided on Electrolytic Capacitor C5, see Enclosure 7-14 for application and dimension for details.	OANZ2 (E165111)	UL	
Electrolytic Capacitors (C3,C4,C14)	Interchangeable	Interchangeable	Rated max. 47uF, min. 25V, 105°C. Provided with integral pressure relief.	-	-	
Y-Capacitors (C15, C16)	Murata Mfg Co Ltd	KX Series	Rated max. 680 pF, min. 250V. Marked Y1.	FOWX2, FOWX8 (E37921)	UL, cUL	
Capacitor (C11)	Interchangeable (ITW Packtron)	Interchangeable (474K400RA6-FA)	Rated max. 0.47 uF, min. 400 Vdc, 105°C	-	-	
Capacitors (C12,C13)	Interchangeable (Vishay BComponents)	Interchangeable (BFC238320563)	Film Capacitor, rated max. 0.056 uF, min. 630 V, 105°C.	-	-	
Transformer, Drive (T3)	XP Power LLC	10017557	Toroidal. Triple Insulated Wire wound on ferrite core. Overall approx. 10.4 mm dia. by 6.4 mm wide. Provided with base (QMFZ2), rated min. V-0, overall approx. 12.7 by 9 by 5 mm by min. 1.5 mm thick. See Enclosure 7-02 for details.	-	-	
Transformer, Drive (T3)-Insulation System	XP Power LLC	Designated F	Class F, rated 155°C	OBJY2 (E324960)	UL	
Transformer, Drive (T3) – Triple Insulated Wire	Rubadue Wire Co	T-AA-X-XX-T-XXX-L (T30A01TXXX-1.5)	Reinforced Insulation. Rated 155°C, min. 1500 Vpk, 30 AWG. (Dielectric passed 7kVpk as part of component evaluation.)	OBJT2 (E206198)	UL	
Transformer, Drive (T3)	3M Company	1350 or 1298	Tape Polyester Film, min. 0.25	OANZ2 (E17385)	UL	

– Outerwrap	Electrical Markets Div. (EMD)		mm, 130°C. (Not relied upon for reinforced insulation)			
MOSFET (Q5,Q6)	Interchangeable	Interchangeable	Rated min. 600V, min. 57.7A.	-	-	
Heatsink (HSK2)	-	-	Aluminum. L-shaped, overall approx. 4.7 by 2.7 by 0.6 cm by min. 1 mm thick.	-	-	
Heatsink (HSK2) – Insulator	Arlon LLC	Secure 1500FG	Overall approx. 3 by 2.5 cm by min. 0.17 mm thick. Provided between Heatsink (HSK2) and MOSFET (Q5, Q6).	QMFZ2 (E54153)	UL	
Inductors, PFC (L1-L4)	XP Power LLC	10017560	Toroidal. Copper Magnet Wire, (OBMW2), rated min. 130°C, wound on ferrite core. Overall approx. 30 mm dia. by 13.7 mm wide. See Enclosure 7-05 for details.	-	-	
Inductors, PFC (L1-L4) – Base	Interchangeable	Interchangeable	Rated Min. V-1, min. 130°C, "FR-4". Provided between PWB and Inductors (L1-L4).	ZPMV2	UL	
Inductor, Resonant (L5)	XP Power LLC	10017559	Open type. Ferrite Core. Overall approx. 34 by 33 by 21 mm. Provided with Class F Insulation System. Legs provided with heat shrink tubing. See Enclosure 7-06 for details.	-	-	
Inductor, Resonant (L5) – Insulation System	XP Power LLC	Designated F	Class F, rated 155°C.	OBJY2 (E324960)	UL	
Inductor, Resonant (L5) – Bobbin	Sumitomo Bakelite Co, Ltd	PQ2016, or PM9820, or PM9630	Min. V-0, 155°C, min. 0.8 mm thick.	QMFZ2 (E41429)	UL	
Inductor, Resonant (L5) – Gap Material	E I Dupont De Nemours & Co., Inc.	Nomex 410	Rated V-0, minimum 130°C, minimum 0.13 mm thick. Provided between cores.	QMFZ2 (E34739)	UL	
Inductor, Resonant (L5) - Insulating Tape/Outer Wrap	3M Company Electrical Markets Div. (EMD)	1350 or 1298	Tape Polyester Film, min. 0.25 mm, 130°C. (Not relied upon for reinforced insulation)	OANZ2 (E17385)	UL	

Transformer, Current (T1,T2,T5,T6)	XP Power LLC	10017558	Toroidal. Triple Insulated Wire wound on ferrite core. Overall approx. 10.4 mm dia. by 6.4 mm wide. Provided with base (QMFZ2), rated min. V-0, overall approx. 12.7 by 9 by 5 mm by min. 1.5 mm thick. See Enclosure 7-01 for details.	-	-	
Transformer, Current (T1,T2,T5,T6) - Insulation System	XP Power LLC	Designated F	Rated 155°C	OBJY2 (E324960)	UL	
Transformer, Current (T1,T2,T5,T6) – Triple Insulated Wire	Great Leoflon Industrial Co, Ltd	TRW (F)	Reinforced Insulation. Rated 155°C. (Dielectric passed 6kVpk as part of component evaluation.)	OBJT2 (E211989)	UL	
Transformer, Current (T1,T2,T5,T6) – Triple Insulated Wire - Alternate	Kuo Kuang Electronic Wire Co, Ltd	REFU-F	Reinforced Insulation. Rated 155°C. (Dielectric passed 15kVpk as part of component evaluation.)	OBJT2 (E222087)	UL	
Transformer, Current (T1,T2,T5,T6) – Triple Insulated Wire - Alternate	Rubadue Wire Co	T-AA-X-XX-T-XXX-L (T24A01TXXX-1.5)	Reinforced Insulation. Rated 155°C. 1500 Vpk. (Dielectric passed 7kVpk as part of component evaluation.)	OBJT2 (E206198)	UL	
Transformer, Current (T1,T2,T5,T6) – Outerwrap	3M Company Electrical Markets Div. (EMD)	1350 or 1298	Tape Polyester Film, min. 0.25 mm, 130°C. (Not relied upon for reinforced insulation)	OANZ2 (E17385)	UL	
Transformer, Bias (T4) (PRI-SEC)	XP Power LLC	10015003	Open-type, overall approx. 2.2 by 1.4 by 2 cm. Provided with Class F insulation. See Enclosure 7-03 for details.	-	-	
Transformer, Bias (T4) (PRI-SEC) - Insulation System	XP Power LLC	Designated F	Rated 155°C	OBJY2 (E324960)	UL	
Transformer, Bias (T4) (PRI-SEC) – Bobbin	Sumitomo Bakelite Co, Ltd	PM-9820 or PM9630	Rated V-0, min. 1 mm thick, 150°C	QMFZ2 (E41429)	UL	
Transformer, Bias (T4) (PRI-SEC) – Bobbin -	Chang Chun Plastics Co Ltd	T375J	Rated V-0, min. 1 mm thick, 150°C	QMFZ2 (E59481)	UL	

Alternate						
Transformer, Bias (T4) (PRI-SEC) – Gap Material	E I Dupont De Nemurs & Co Inc	Nomex 410	Rated V-0, minimum 130°C, minimum 0.13 mm thick. Provided between cores.	QMFZ2 (E34739)	UL	
Transformer, Bias (T4) (PRI-SEC) - Triple Insulated Wire	Great Leoflon Industrial Co, Ltd	TRW (F)	Reinforced Insulation. Rated 155°C. (Dielectric passed 6kVpk as part of component evaluation.)	OBJT2 (E211989)	UL	
Transformer, Bias (T4) (PRI-SEC) - Triple Insulated Wire - Alternate	Kuo Kuang Electronic Wire Co, Ltd	REFU-F	Reinforced Insulation. Rated 155°C. (Dielectric passed 15kVpk as part of component evaluation.)	OBJT2 (E222087)	UL	
Transformer, Bias (T4) (PRI-SEC) - Triple Insulated Wire - Alternate	Rubadue Wire Co	T-AA-X-XX-T-XXX-L (T28AO1TXXX-1.5)	Reinforced Insulation. Rated 155°C. 1500 Vpk. (Dielectric passed 7kVpk as part of component evaluation.)	OBJT2 (E206198)	UL	
Transformer, Bias (T4) (PRI-SEC) - Outerwrap	3M Company Electrical Markets Div. (EMD)	1350 or 1298	Tape Polyester Film, min. 0.25 mm, 130°C. (Not relied upon for reinforced insulation.)	OANZ2 (E17385)	UL	
Optical Isolators (U11,U12,U13)	Lite On	LTV-816 Series	Double protection, isolation voltage 5000 V, min 0.4mm DTI, 100°C	FPQU2 (E113898)	UL, CSA	
Optical Isolators (U11,U12,U13) - Alternate	Renesas Electronics Corp (NEC)	PS2561 Series	Double protection, isolation voltage 5000 V, min 0.4mm DTI, 100°C	FPQU2 (E72422)	UL, CSA	
Main Transformer, Planar	XP Power	10015252	Provided with six PWBs stacked around ferrite core and stacked in the following order from top to bottom: (1) PRI 1, (2) SEC 1, (3) SEC 2, (4) SEC 3, (5) SEC 4, (6) PRI 2. Overall approx. 10.2 by 9.6 by 2.2 cm high. Each PWB provided with openings approx. 31.8 by 8.5 mm for wrapping/stacking around core. All four inner PWBs (SEC 1 to	-	-	

			SEC 4) are Secondary with Top and Bottom Primary PWBs (PRI 1 and PRI 2) connected together by connector J1. Insulator Sheet provided between each PWB and between Top Primary PWB and core. See Main Transformer, Planer – Insulator Sheet for details. Provided with nylon spacer between Primary and Secondary PWBs, approx. 6.4 mm wide by 1 mm thick. PWBs secured to Main Transformer Bottom Bracket by screws. See Enclosures 5-04 and 7-07 for details.			
Main Transformer, Planar – PRI 1 PWB	Interchangeable	Interchangeable	Rated min. V-0, 130°C (P/N 10014131). See Enclosure 5-04 for details.	ZPMV2	UL	
Main Transformer, Planar – PRI 1 PWB – Insulating Tape	3M	92	Rated min. 130°C, Polyimide insulating tape. Wrapped around feedthrough pin openings and inside core opening.	OANZ2 (E17385)	UL	
Main Transformer, Planar – SEC 1 PWB	Interchangeable	Interchangeable	Rated min V-1, 130°C (P/N 10014139). See Enclosure 5-04 for details.	ZPMV2	UL	
Main Transformer, Planar – SEC 2 PWB	Interchangeable	Interchangeable	Rated min V-1, 130°C (P/N 10014137). See Enclosure 5-04 for details.	ZPMV2	UL	
Main Transformer, Planar – SEC 3 PWB	Interchangeable	Interchangeable	Rated min V-1, 130°C (P/N 10014135). See Enclosure 5-04 for details.	ZPMV2	UL	
Main Transformer,	Interchangeable	Interchangeable	Rated min V-1, 130°C (P/N	ZPMV2	UL	

Planar – SEC 4 PWB			10014133). See Enclosure 5-04 for details.			
Main Transformer, Planar – PRI 2 PWB	Interchangeable	Interchangeable	Rated min V-0, 130°C (P/N 10014141). See Enclosure 5-04 for details.	ZPMV2	UL	
Main Transformer, Planar – Insulator Sheet (Between PRI-SEC PWBs)	E I Dupont	Nomex 410	Two Provided. Rated V-0, min. 130°C, min. 0.4 mm thick. Provided between Primary and Secondary PWBs.	QMFZ2 (E57692)	UL	
Main Transformer, Planar – Insulator Sheet (Between SEC PWBs)	E I Dupont	Nomex 410	Rated V-0, min. 130°C, min. 0.3 mm thick. Provided between each Secondary PWB.	QMFZ2 (E57692)	UL	
Main Transformer, Planar – Bottom Bracket	Interchangeable	Interchangeable	Rated min. V-0, min. 1.5 mm thick.	QMFZ2	UL	
Main Transformer, Planar –Insulator Sheet	E I Dupont	Nomex 410	Rated V-0, min. 130°C, min. 0.38 mm thick. Provided between Main Transformer and Power Platform PWB. Secured to Power Platform PWB with Standoff and plastic tab.	QMFZ2 (E57692)	UL	
Main Transformer, Planar – Standoffs	-	-	Two provided, 6 mm tall. Provided between Power Platform PWB and Main Transformer.	-	-	
Logic Control Board PWB	Interchangeable	Interchangeable	Rated min V-0, 130°C (P/N 10014380). Secured to Power Platform by screws and two 3 mm standoffs.	ZPMV2	UL	
Logic Control Board PWB - Electrolytic Capacitors (C302, C303, C304, C305, C306, C307)	Interchangeable	Interchangeable	Rated max. 180 uF, min. 16 V, 105°C. Provided with integral pressure relief.	-	-	
Output Modules - PWB	Interchangeable	Interchangeable	Rated min V-0, 130°C, overall	ZPMV2	UL	

			approx. 12.4 by 3.7 cm by 1.5 mm thick. See Enclosures 5-05 to 5-08 for details.			
Output Modules - Electrolytic Capacitors (C2, C3) - For Modules A-O only	Interchangeable	Interchangeable	Rated max. 270uF, min. 25V, 105°C.	-	-	
Output Modules - Electrolytic Capacitors (C2, C3, C29) - For Modules P-T only	Interchangeable	Interchangeable	Rated max. 68uF, min. 25V, 105°C.	-	-	
Output Modules - Transistors (Q1,Q2,Q3,Q4) - For Modules A-O only	Interchangeable	Interchangeable	Rated min. 60V, min. 90A.	-	-	
Output Modules - Transistors (Q1, Q2,Q6,Q11, Q12) - For Modules P-T only	Interchangeable	Interchangeable	Rated min. 60V, min. 3A.	-	-	
Output Modules - Optical Isolators (U1, U5 for Modules P-T only)	Renesas Electronics Corp (NEC)	PS2801 Series	Single protection, isolation voltage 2500 V, min 0.4mm DTI, 100°C	FPQU2 (E72422)	UL, CSA	
Output Modules - Optical Isolators (U1, U5 for Modules P-T only) - Alternate	Vishay Semiconductor GMBH	TCMT1106 Series	Double protection, isolation voltage 3750 V, min 0.4mm DTI, 100°C	FPQU2, FPQU8 (E76222)	UL, cUL	
Output Modules - Output Inductor (L1,L2) – For Modules A-O only	XP Power	Interchangeable (100XXXXX, where X can be any number between 0 and 9)	Toroidal, approx. 15.6 mm OD by 12 mm wide. Winding: (OBWM2), Copper Magnet Wire, rated min. 155°C.	-	-	
Output Modules - Output Inductor (L1) – For Modules P-T only	XP Power	Interchangeable (100XXXXX, where X can be any number between 0 and 9)	Toroidal, approx. 16 mm OD by 22.5 mm wide. Winding: (OBWM2), Copper Magnet Wire, rated min. 155°C.	-	-	
Output Modules -Output	3M	1298 or 1350	Rated 180°C. Wrapped around	OANZ2 (E17385)	UL	

Inductor (L1,L2) – Tape			core.			
Output Modules - Output Inductor (L1,L2) – Base – For A to O Modules only – Optional	Interchangeable	Interchangeable	Rated Min. V-1, min. 130°C, "FR-4". Provided between Inductors (L1-L2) and Base.	ZPMV2	UL	
Output Modules - Output Inductor (L1,L2) – Base – For Modules A to O only	Interchangeable	Interchangeable	Min V-1, 130°C, rated for direct support of live parts, overall approx. 17.8 by 17.8 mm by min. 1.5 mm thick.	ZPMV2	UL	
Output Modules - Electrolytic Capacitors (C10,C11,C12,C45) – For Modules A-O only	Interchangeable	Interchangeable	Rated max. 1800uF, min. 6.3V 105°C.	-	-	
Output Modules - Electrolytic Capacitors (C10,C11,C45) – For Modules P-T only	Interchangeable	Interchangeable	Rated max. 147uF, min. 63V, 105°C.	-	-	
Output Modules – AUX1 PWB	Interchangeable	Interchangeable	Rated min V-0, 130°C. Overall approx. 3 by 1.6 cm by 1.3 mm thick.	ZPMV2	UL	
Output Modules – AUX1 PWB – Transistor (Q201, Q202)	Interchangeable	Interchangeable	Rated min. 60V, min. 50A	-	-	
Output Modules – AUX2 PWB	Interchangeable	Interchangeable	Rated min V-0, 130°C. Overall approx. 5.4 by 1.6 cm by 0.8mm thick.	ZPMV2	UL	
Output Modules – AUX2 PWB – Optical Isolators (U308 – For Modules A-O only, U309, U310)	Renesas Electronics Corp (NEC)	PS2801 Series	Single protection, isolation voltage 2500 V, min 0.4mm DTI, 100°C	FPQU2 (E72422)	UL, CSA	
Output Modules – AUX2 PWB – Optical Isolators (U308 – For Modules A-O only, U309, U310) - Alternate	Vishay Semiconductor GMBH	TCMT1106 Series	Double protection, isolation voltage 3750 V, min 0.4mm DTI, 100°C	FPQU2, FPQU8 (E76222)	UL, cUL	
Output Modules – Bracket	-	-	Aluminium, U-shaped, overall approx. 4 by 1.7 by 1.1 cm by	-	-	

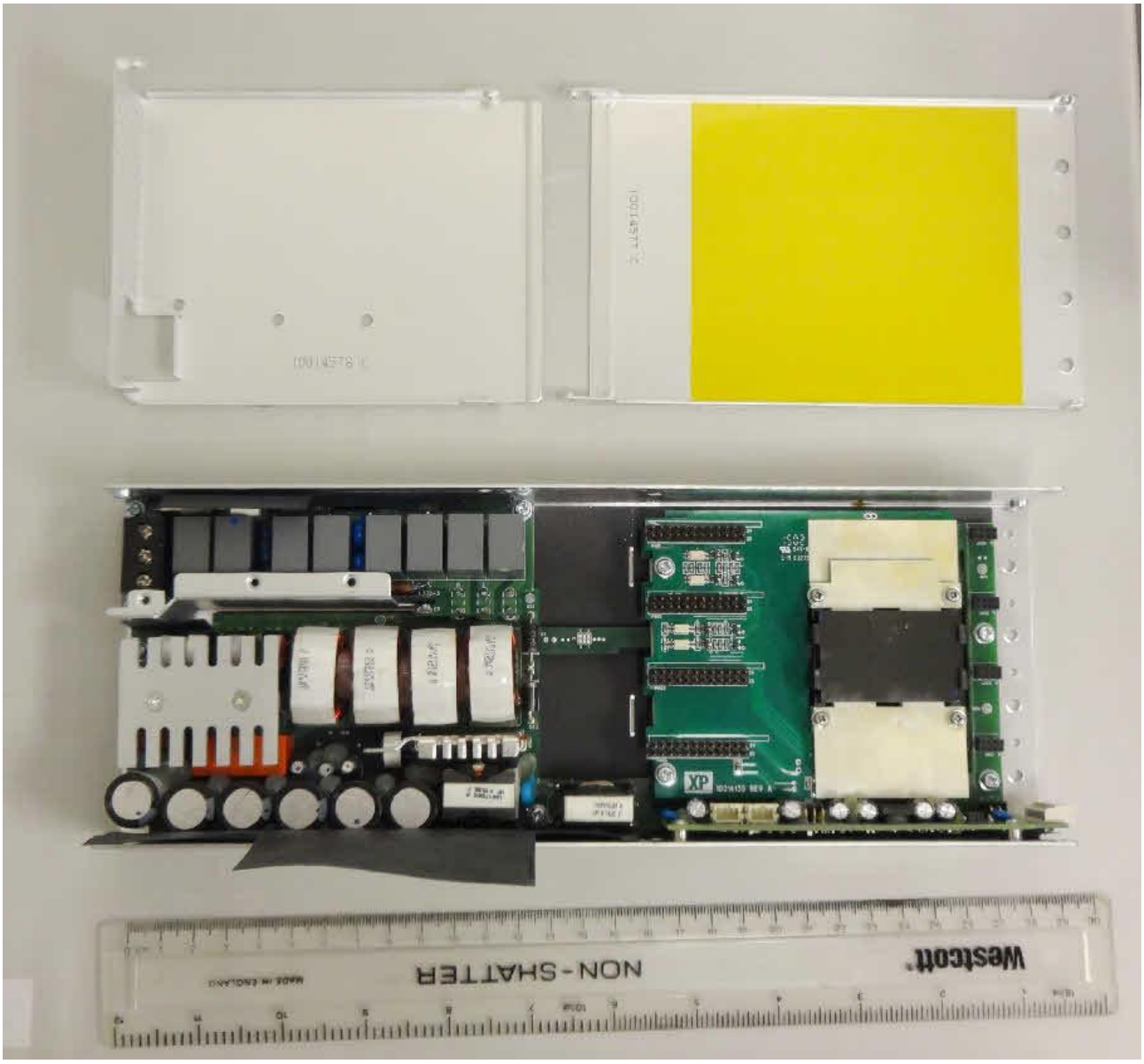
			min. 0.8mm thick. Secured to PWB by solder. Bracket provided with two screw holes on for securing Output Modules to Power Platform Chassis.			
Output Modules – Output Terminals – For Modules A-E only	-	-I	Two provided. Copper Alloy, L-shaped, overall approx. 17.7 by 9.8 by 9 mm by min. 1.0 mm thick. Secured to PWB by screws and solder. Each terminal provided with two screw openings.	-	-	
Output Modules – Output Terminals – (except Modules A-E)	-	-	Two provided. Copper Alloy, L-shaped, overall approx. 12 by 10 by 9 mm by min. 1.0 mm thick. Secured to PWB by screws and solder. Each terminal provided with one screw opening.	-	-	
Output Modules – Output Divider	Sabic Innovative Plastics US LLC	420SE0	Rated min. V-0. T-shaped, overall approx. 30 by 17 by 17 mm by min. 1 mm thick. Provided between Output Terminals and top of Output Bracket.	QMFZ2 (E121562)	UL	
Cable Ties	Interchangeable	Interchangeable	Rated min. 130°C	ZODZ2	UL	
Topical Adhesive - Optional	Interchangeable	Interchangeable	RTV/silicone or hot melt glue. Applied to T1 primary leads, C19, C20 and C15 (platform). Optional elsewhere.	QMFZ2	UL	
Internal Primary Connectors	Interchangeable	Interchangeable	Copper alloy pins housed in bodies of QMFZ2, rated min. V-2.	RTRT2 or ECBT2	UL	
Insulating Tubing/Sleeving	Interchangeable	Interchangeable	FEP, PTFE, PVC, TFE, neoprene, polyamide or marked VW-1 or FT-1; min 130ºC, 300 V.	YDPU2, YDQS2 or UZCW2	UL	

Label	Interchangeable (Brady Worldwide Inc.)	Interchangeable (B-423)	150°C, for application to aluminium.	PGJI2 (MH17154)	UL	
Label – Alternate	3M	7816 or 7818	Rated 150°C, for application to aluminium.	PGJI2 (MH116411) (MH17154)	UL	
Label - Alternate	Interchangeable	Interchangeable	Rated 150°C, for application to aluminium.	PGDQ2 or PGJI2	UL	

Enclosures

Type	Supplement Id	Description
Photographs	3-01	Overall Internal View - without Output Modules
Photographs	3-02	Insulator Sheet - Power Platform
Photographs	3-03	Internal - Input Side View
Photographs	3-04	Internal - Output Side View - with Output Modules
Photographs	3-05	Internal Top View - without Output Modules
Photographs	3-06	Internal - Output Side View - without Output Modules
Photographs	3-07	Internal View - Logic Board and Main Transformer
Photographs	3-08	Overall Top View
Photographs	3-09	Input Side - View
Photographs	3-10	Output Side View - with Output Modules
Photographs	3-11	EMI Board with terminal block - Internal Top View
Photographs	3-12	EMI Board with IEC Connector - Internal Top View
Photographs	3-13	5V Output Module - Top View
Photographs	3-14	5V Output Module - Bottom View
Photographs	3-15	12V Output Module - Top View
Photographs	3-16	12V Output Module - Bottom View
Photographs	3-17	24V Output Module - Top View
Photographs	3-18	24V Output Module - Bottom View
Photographs	3-19	48V Output Module - Top View
Photographs	3-20	48V Output Module - Bottom View
Schematics + PWB	5-01	EMI PWB Layout - Terminal Block Version
Schematics + PWB	5-02	Front End - PWB Layout
Schematics + PWB	5-03	Logic Board - PWB Layout
Schematics + PWB	5-04	Main Transformer PWB Layouts
Schematics + PWB	5-05	12V Output Module - PWB Layout
Schematics + PWB	5-06	48V Output Module - PWB Layout
Schematics + PWB	5-07	24V Output Module - PWB Layout
Schematics + PWB	5-08	5V Output Module - PWB Layout
Schematics + PWB	5-09	EMI PWB Layout - Appliance Inlet Version
Miscellaneous	7-01	Current Transformer (T1,T2,T5,T6)
Miscellaneous	7-02	Drive Transformer (T3)
Miscellaneous	7-03	Bias Transformer (T4)
Miscellaneous	7-04	EMI Inductor (L201, L202)
Miscellaneous	7-05	Inductors, PFC (L1-L4)

Miscellaneous	7-06	Resonant Inductor (L5)
Miscellaneous	7-07	Main Transformer Assembly Diagram
Miscellaneous	7-08	Platform Assembly Diagram
Miscellaneous	7-09	Chassis Insulator Sheet
Miscellaneous	7-10	EMI Inductor Insulator Sheet
Miscellaneous	7-11	EMI PWB Insulator Sheet
Miscellaneous	7-12	Maximum Ambient Temperature (Tma) Curve
Miscellaneous	7-13	Letter of Assurance
Miscellaneous	7-14	C5 Insulation Tape Detail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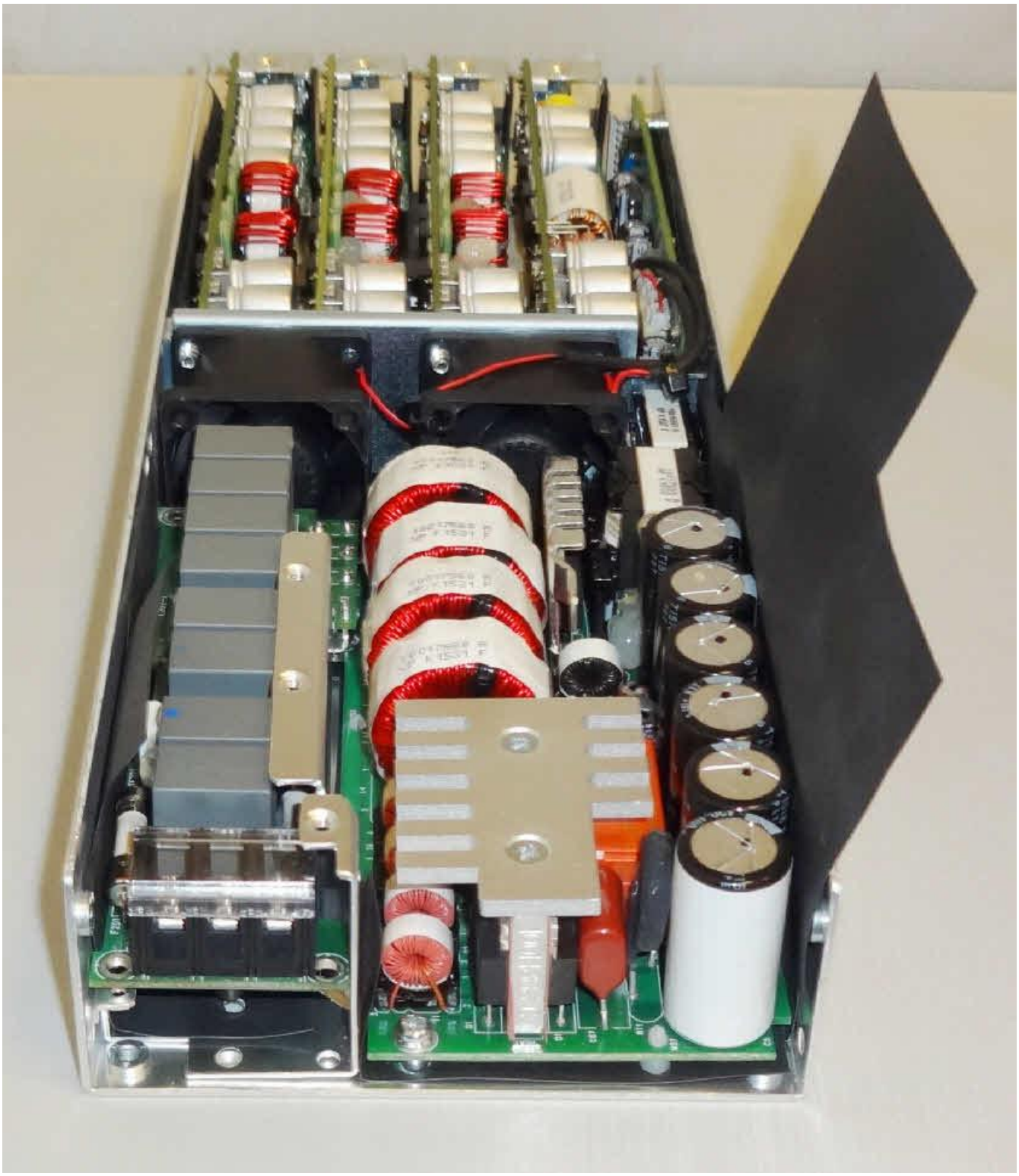
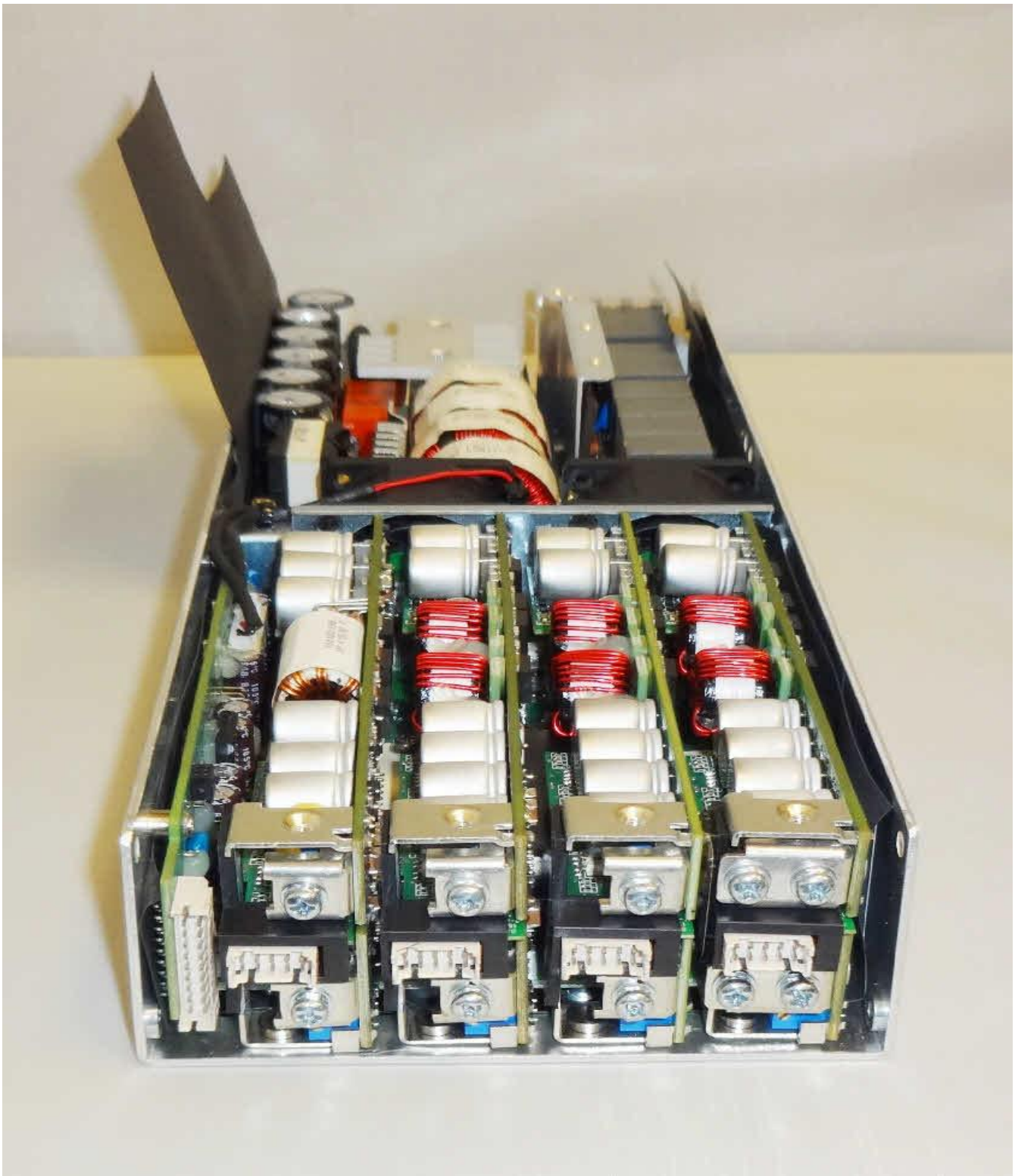
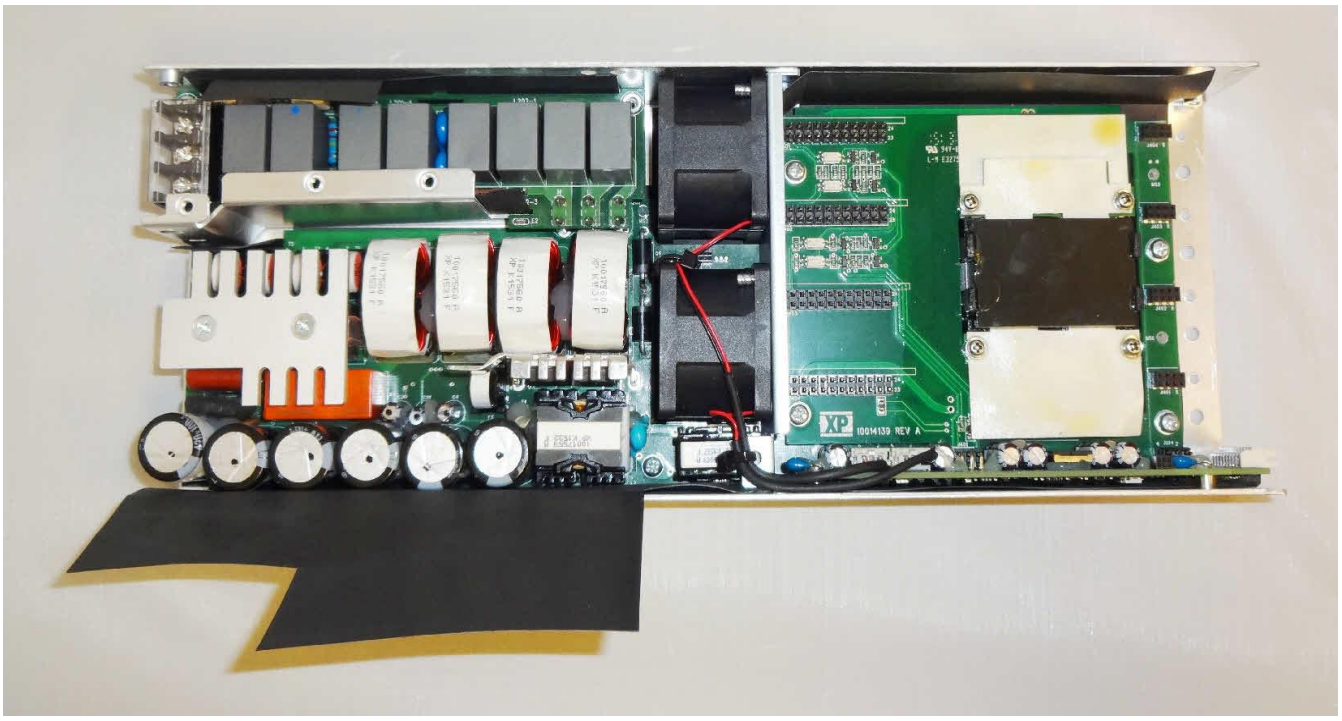
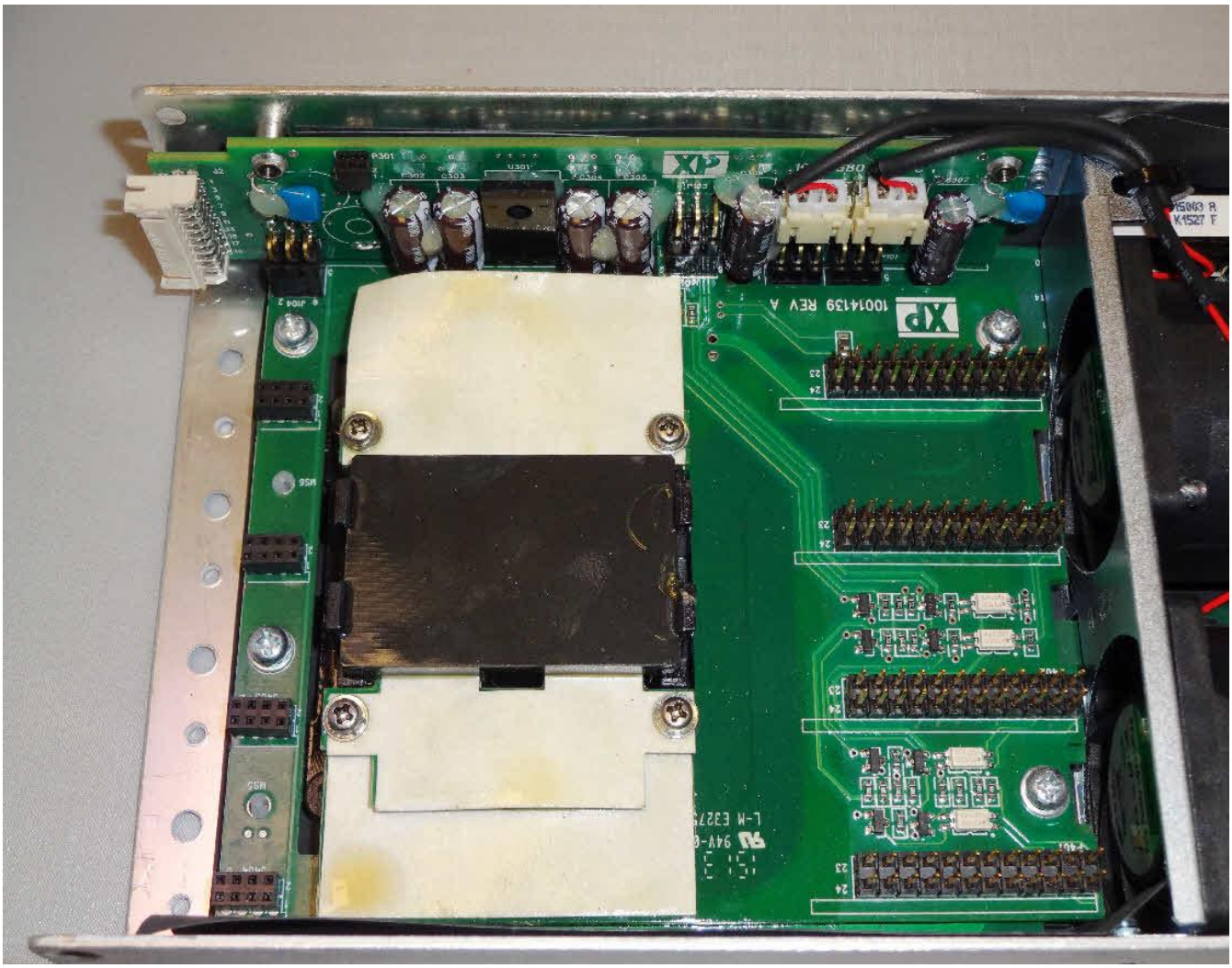
Westcott






XP
10014139 REV A


SUNON
SUNON


XP
1001413 REV A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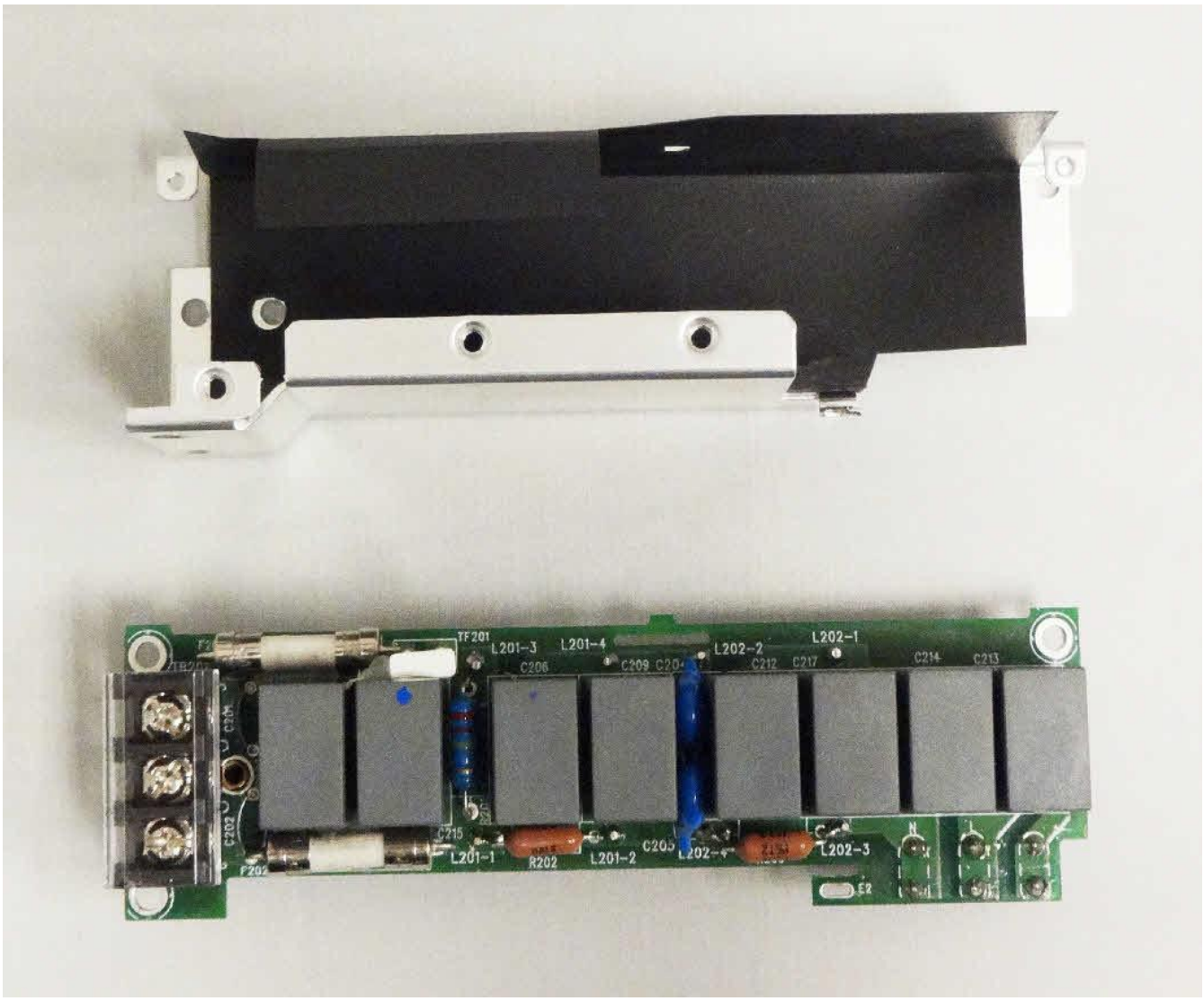
48V/6.25A
24V/12.5A
12V/20.8A
5V/40A


TF201
L201-3
L201-4
L202-2
L202-1
C206
C209
C212
C217
C214
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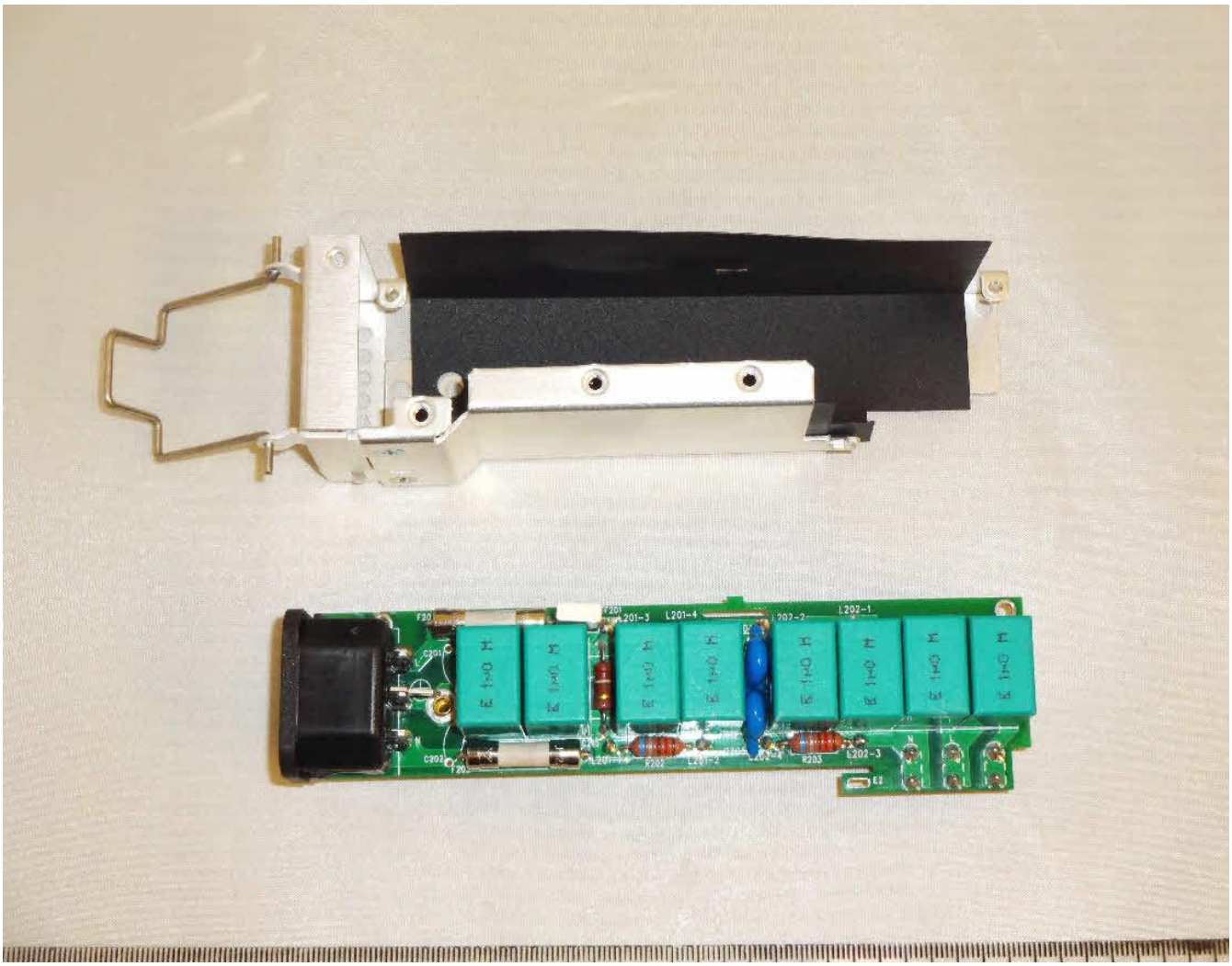
R202
L201-2
L202-3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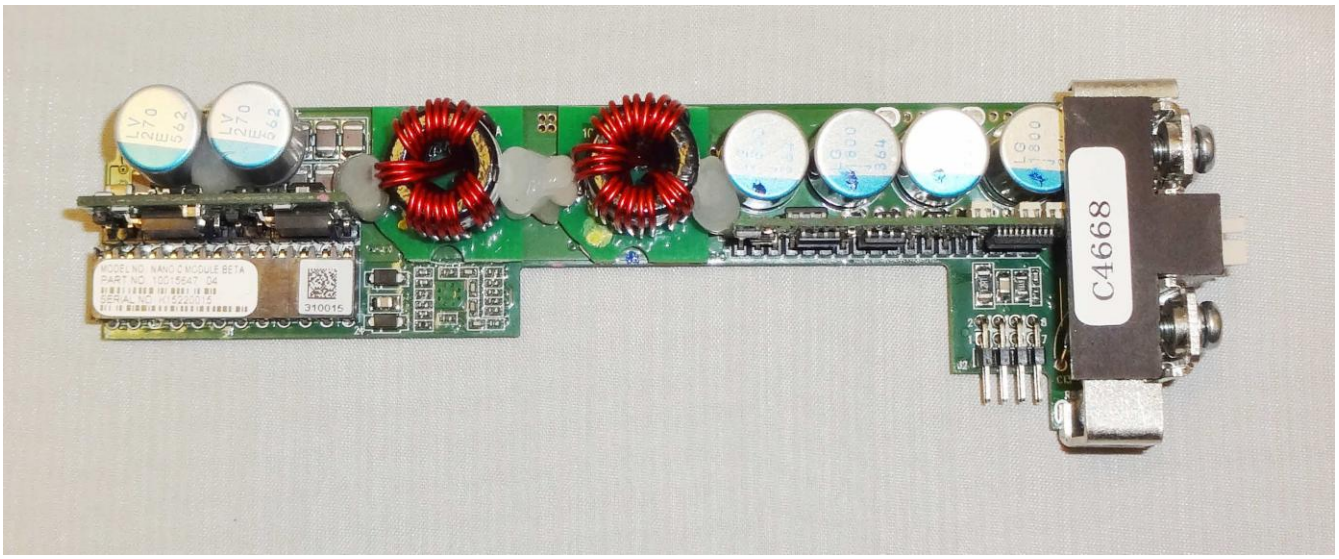
L202-2
L202-1
L202-3
R203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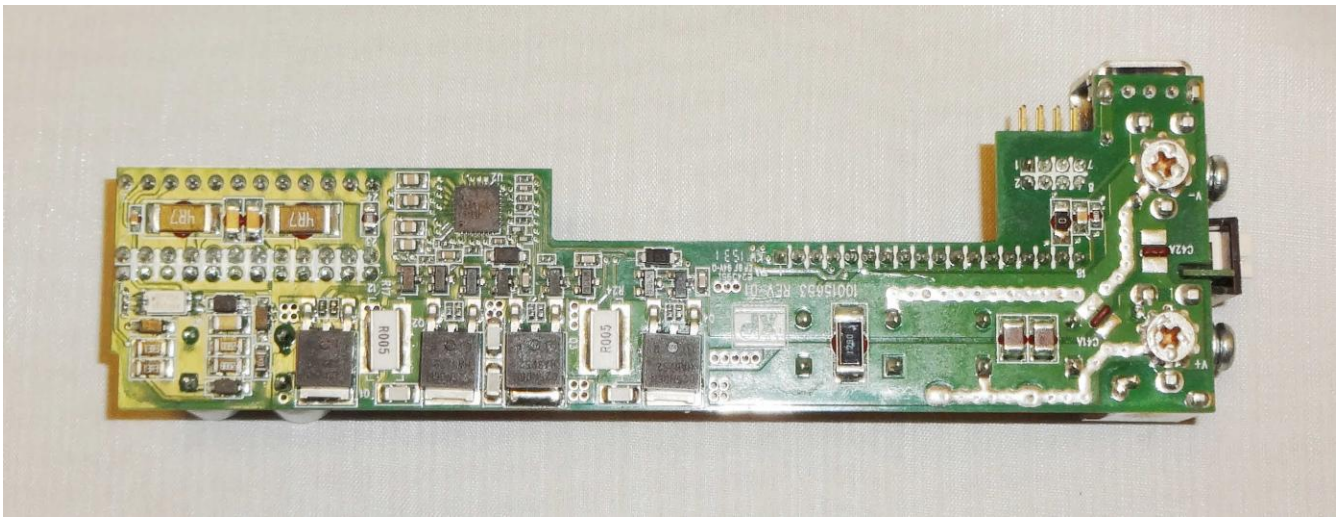
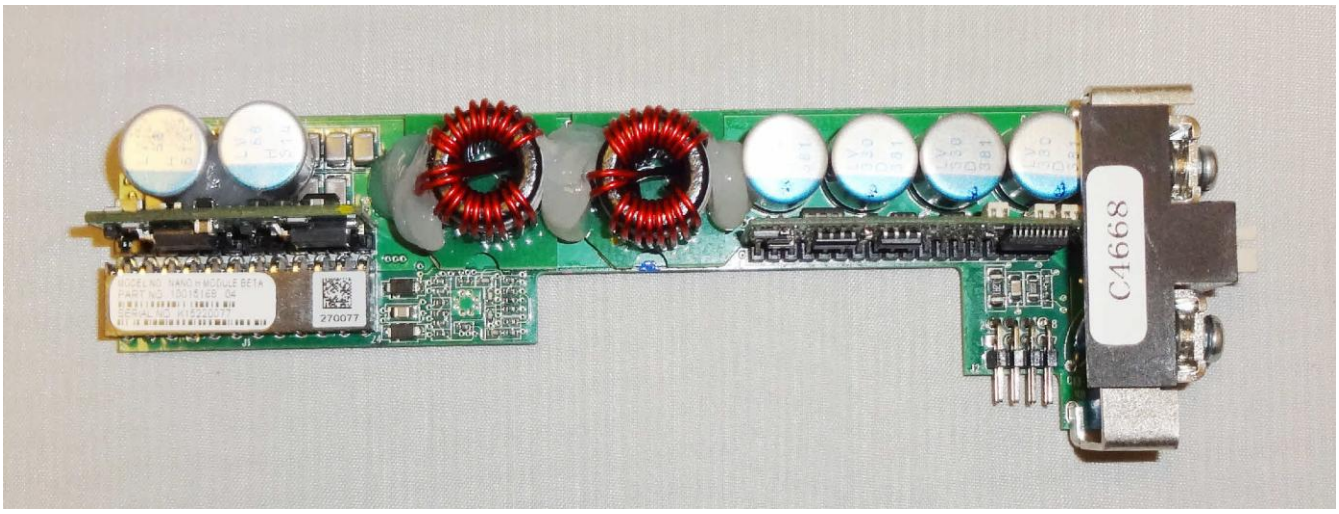

HR7
HR7
R005
R005
C42A
C41A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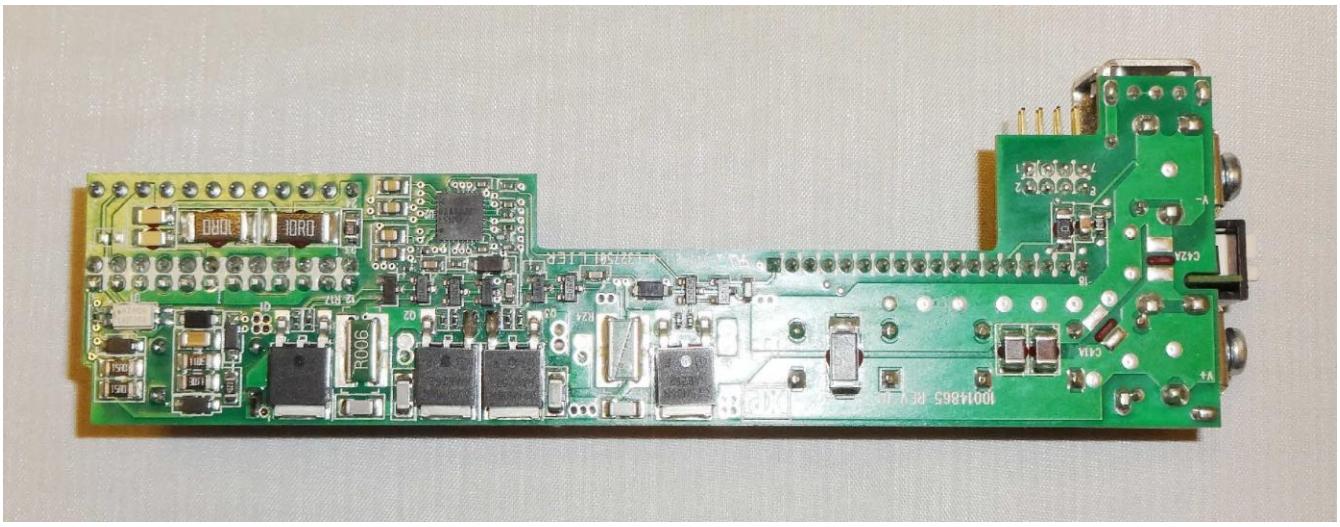
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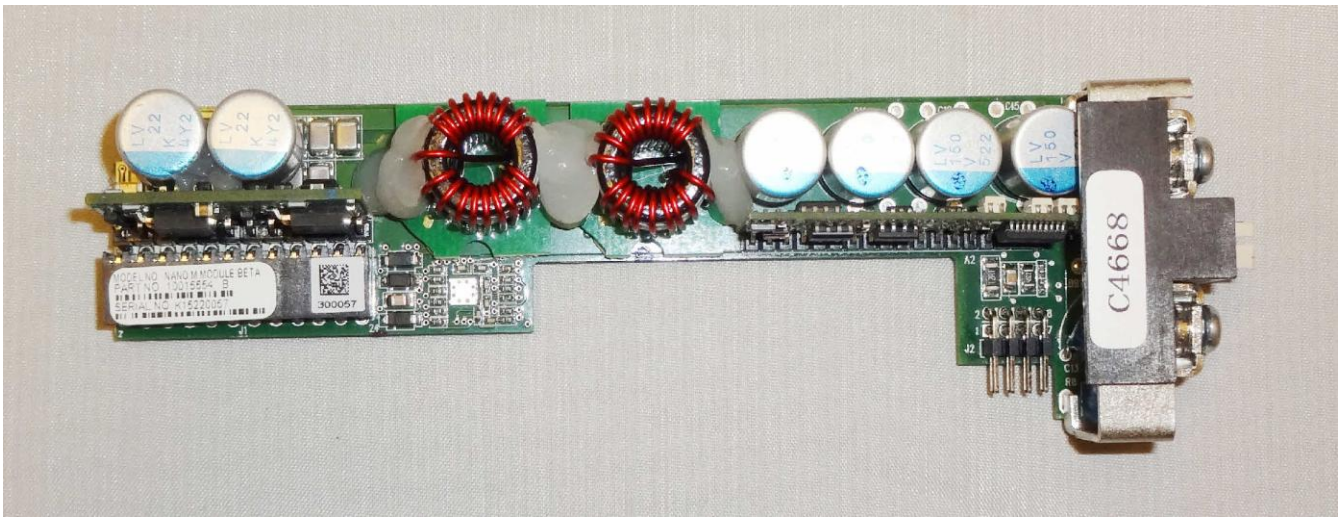
10R0
R006
C42A
C41A
V+
V-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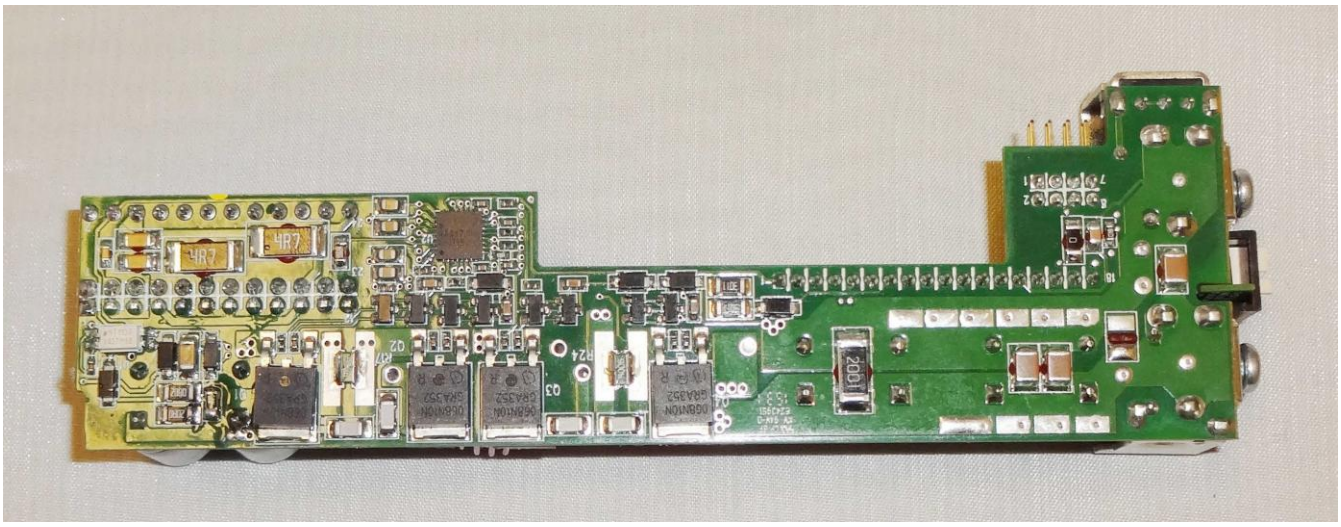
4R7
4R7
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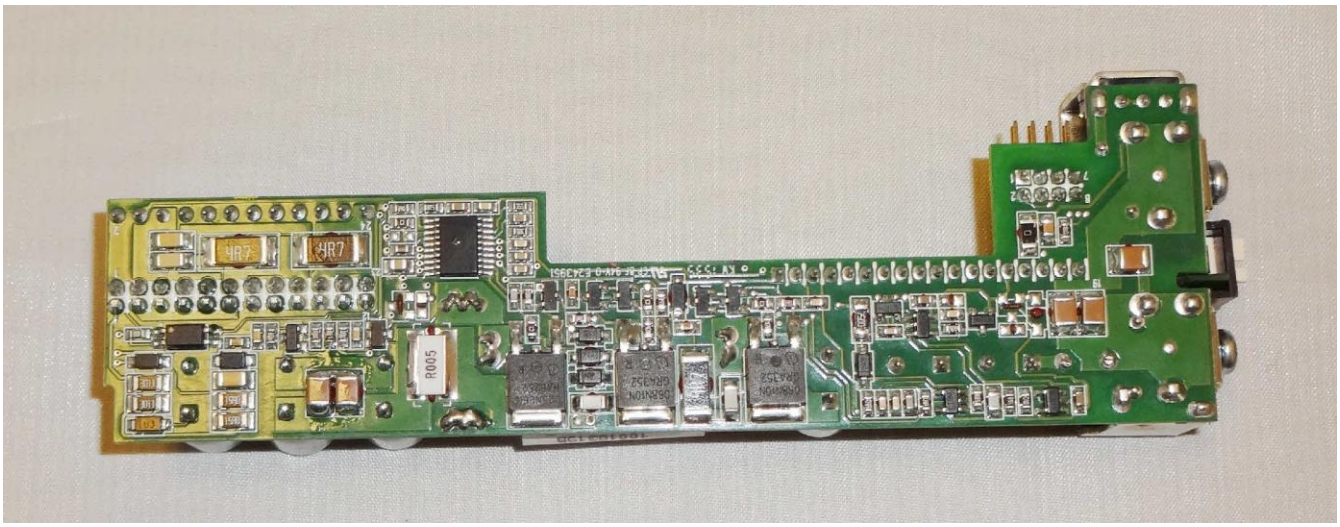
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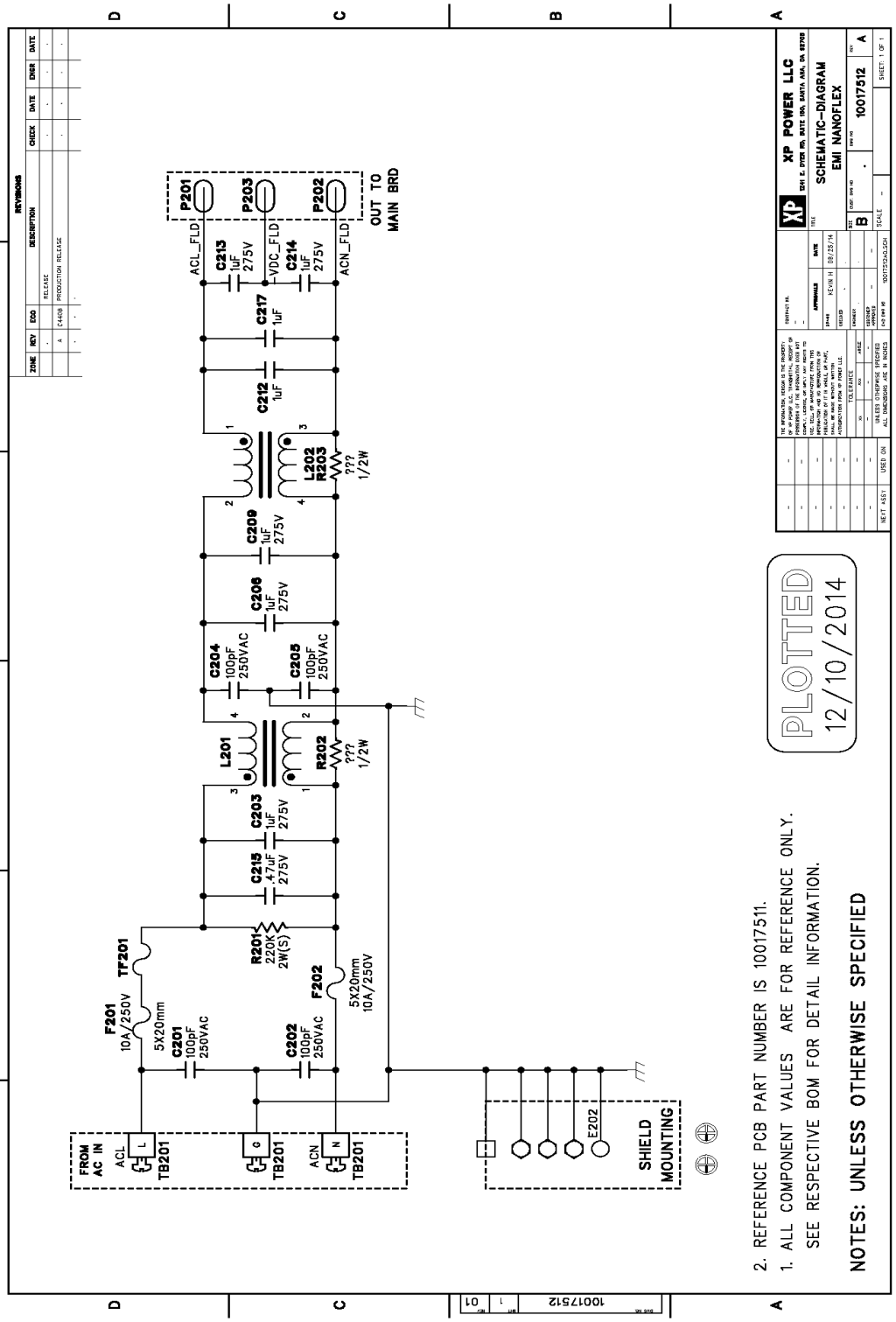
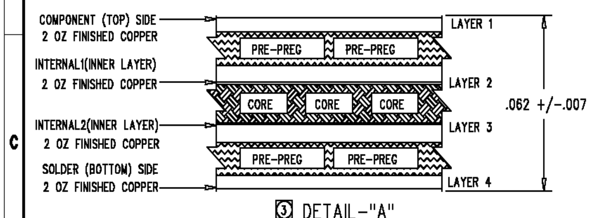

REVISIONS
ZONE REV ECO DESCRIPTION CHECK DATE ENGR DATE
RELEASE
A C1440B PRODUCTION RELEASE
FROM AC IN
ACL
ACN
TB201
F201 10A/250V 5X20mm
TF201
C201 100pF 250VAC
C202 100pF 250VAC
R201 220K 2W(S)
F202 5X20mm 10A/250V
C215 .47uF 275V
C203 1uF 275V
L201
R202 ??? 1/2W
C204 100pF 250VAC
C205 100pF 250VAC
C206 1uF 275V
C209 1uF 275V
L202
R203 ??? 1/2W
C212 1uF
C217 1uF
C213 1uF 275V
C214 1uF 275V
P201
P203
P202
ACL_FLD
VDC_FLD
ACN_FLD
OUT TO MAIN BRD
E202
SHIELD MOUNTING
PLOTTED 12/10/2014
NOTES: UNLESS OTHERWISE SPECIFIED
1. ALL COMPONENT VALUES ARE FOR REFERENCE ONLY. SEE RESPECTIVE BOM FOR DETAIL INFORMATION.
2. REFERENCE PCB PART NUMBER IS 10017511.
XP POWER LLC
SCHEMATIC-DIAGRAM
EMI NANOFLEX
10017512
SHEET: 1 OF 1

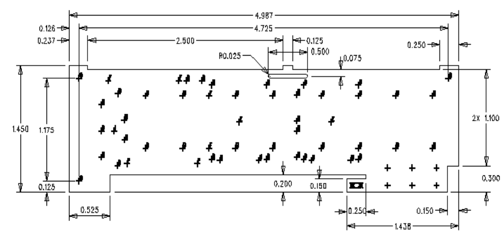
DWG NO. 10017511 SHT 1 REV C

REVISIONS

ZONE	REV	ECO	DESCRIPTION	CHECK	DATE	ENGR	DATE
	01		RELEASE	.	.	V.T.	.
	02		RELEASE CHANGES	.	.	.	.
	A	C4408	PRODUCTION RELEASE				
	B	C4554	BETA UPDATES				
	C	C4707	PER ECO UPDATES				



3 DETAIL-"A"



14 MANUFACTURER TO DATE CODE ALL PWB'S.

13 CIRCUIT BOARDS SHALL CONFORM TO THE REQUIREMENTS OF IPC-A-600. (ACCEPTABILITY)

12 NO CIRCUIT REPAIRS ALLOWABLE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM XP POWER LLC.

11 SILKSCREEN TOP AND BOTTOM SIDE(AS REQUESTED BY GERBER DATA), COLOR WHITE, USING A NON-CONDUCTIVE EPOXY INK.

10 GOLD PLATE OVER NICKEL ALL CONDUCTIVE SURFACES WITH 1 TO 6 MICROINCH THICKNESS. ALTERNATE FINISH: LEAD FREE HASL.

9 SOLDER MASK OVER BARE COPPER, BOTH SIDES, COLOR GREEN, USING LIQUID PHOTO IMAGEABLE SOLDER MASK, PBB AND PBDE FREE AND ROHS COMPLIANT WITH COMPONENT SIDE AND SOLDER SIDE SOLDER MASK SCREENS. SOLDER MASK IMAGES SHALL NOT BE ENLARGED BEYOND .003 PER SIDE OR .006 OVERALL RELATIVE TO COMPONENT PADS.

8 HOLE DIAMETER TOLERANCE PER IPC-D-300, CLASS 1, +/- .003.

7 HOLE DIAMETERS APPLY AFTER PLATING THRU.

6 HOLES TO BE PLATED THRU AND SHALL HAVE A MINIMUM WALL THICKNESS OF .001 ELECTROPLATED COPPER AS MEASURED BY IPC-TC-500.

5 DRILL HOLES CONCENTRIC WITH PAD CENTERS WITHIN .005 T.I.R.

4 LAYER REGISTRATION SHALL BE WITHIN .005 T.I.R.

3 MATERIAL: .062 +/-.007 TOTAL THK, 4 LAYERS, 2 OZ. (SEE DETAIL-"A") FINISHED COPPER GLASS EPOXY LAMINATE, NEMA GRADE G-10 OR EQUIV, FR-4 FLAMMIBILITY RATING. EACH LAYER TO BE .016 THK MINIMUM.

2 FINISHED BOARD SHALL MEET/EXCEED UL94V-0 FLAMMABILITY CLASSIFICATION AND BE SO MARKED WITH UL IDENTIFICATION CODE IN THE SILKSCREEN.

1 INTERPRET DIMENSIONS AND TOLERANCES PER ANSI Y14.5 AND ASTM-E-300.
UNITS: PRIMARY (IMPERIAL) XXX
ALTERNATE (METRIC) [XXX]
METRIC TOLERANCES: .X +\- .5 , .XX +\- .25.

NOTES: UNLESS OTHERWISE SPECIFIED

SIZE	QTY	SYM	PLATED	TOL
0.037	25	[illegible]	YES	+/-0.003
0.057	13	[illegible]	YES	+/-0.003
0.067	6	+	YES	+/-0.003
0.1	3	[illegible]	YES	+/-0.003
0.144	1	+	YES	+/-0.003
0.1	2	[illegible]	NO	+/-0.003
0.042	6	[illegible]	YES	+/-0.003
0.047 x 0.15	1	X	YES	+/-0.003

PLOTTED
12/23/2015

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TOLERANCE: .XX .02 | .XXX .010 | ANGLE 0 Deg-30'

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN INCHES

NEXT ASSY | USED ON

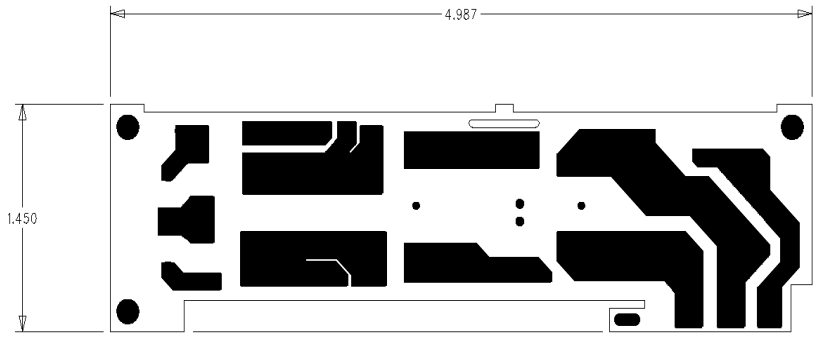
APPROVALS | DATE
DRAWN KEVIN HOANG | 08/25/14

XP POWER LLC

PCB FAB-DRILL
EMI NANOFLEX

SIZE B | DWG NO. 10017511 | REV C

CAD DWG NO 10017511C0.PCB | SCALE 1/1 | SHEET 1 OF 1



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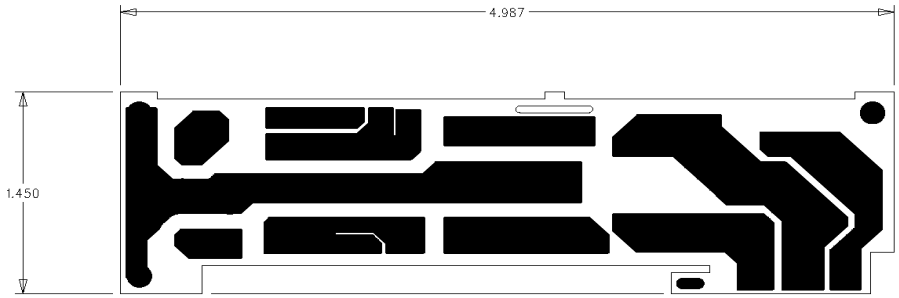
		DRAWN KEVIN HOANG / DATE 08/25/14	LAYER: TOP SIDE ART (LAYER 1)
DO NOT SCALE DRAWING		CHECKED . / DATE .	
		APPROVED . / DATE .	TITLE EMI NANOFLEX
		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	PART No. 10017511 / REV C
NEXT ASSY	USED ON	DIMENSIONAL TOLERANCE XX .01 XXX .005	CAD FILE NAME 10017511C0.PCB

art0118.pho – Wed Dec 23 10:42:42 2015



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS

DRAWN	KEVIN HOANG	DATE 08/25/14
CHECKED	.	DATE .
APPROVED	.	DATE .

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE
XX .01 XXX .005

XP POWER LLC
15641 Red Hill Ave, #100
Tustin, CA 92780

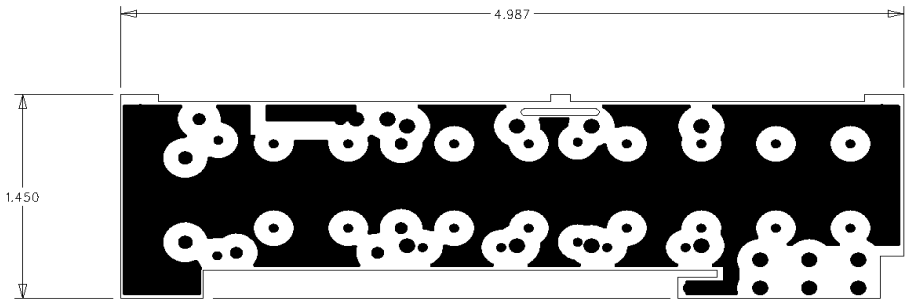
LAYER: INT1 INNER ART (LAYER 2)

TITLE: EMI NANOFLEX

PART No. 10017511 REV C

CAD FILE NAME 10017511C0.PCB

art0218.pho – Thu Jan 21 16:37:42 2016



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS		
DRAWN	KEVIN HOANG	DATE 08/25/14
CHECKED	.	DATE .
APPROVED	.	DATE .

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE XX .01 XXX .005

XP POWER LLC
15641 Red Hill Ave, #100
Tustin, CA 92780

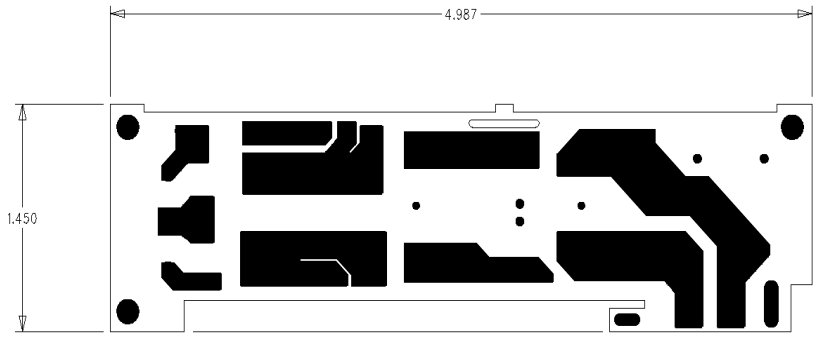
LAYER: INT2 INNER ART (LAYER 3)

TITLE: EMI NANOFLEX

PART No. 10017511 REV C

CAD FILE NAME 10017511C0.PCB

art0318.pho – Thu Jan 21 16:38:29 2016



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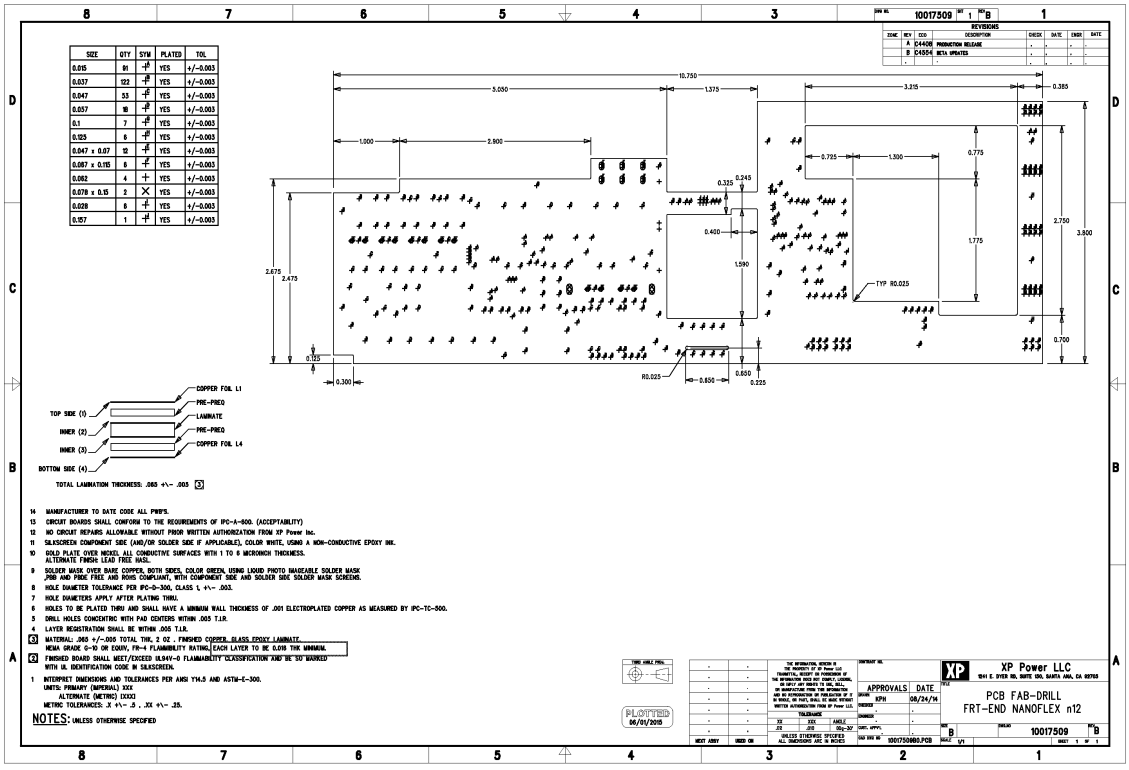
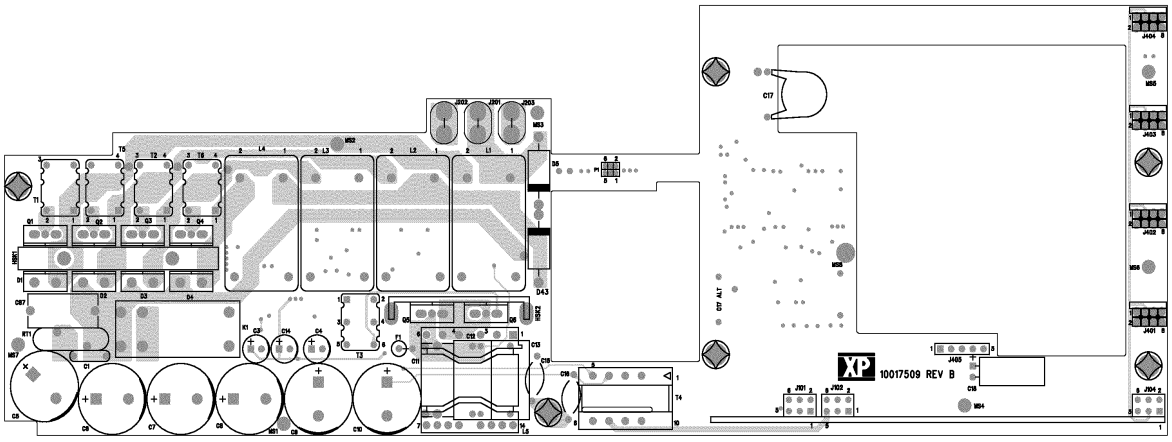
	DRAWN KEVIN HOANG	DATE 08/25/14	LAYER: BOTTOM SIDE (LAYER 4)
	CHECKED .	DATE .	
	APPROVED .	DATE .	TITLE EMI NANOFLEX
	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		PART No. 10017511 REV C
	DIMENSIONAL TOLERANCE XX .01 XXX .005		CAD FILE NAME 10017511C0.PCB
DO NOT SCALE DRAWING			
NEXT ASSY	USED ON		

art0418.pho – Wed Dec 23 10:42:46 2015

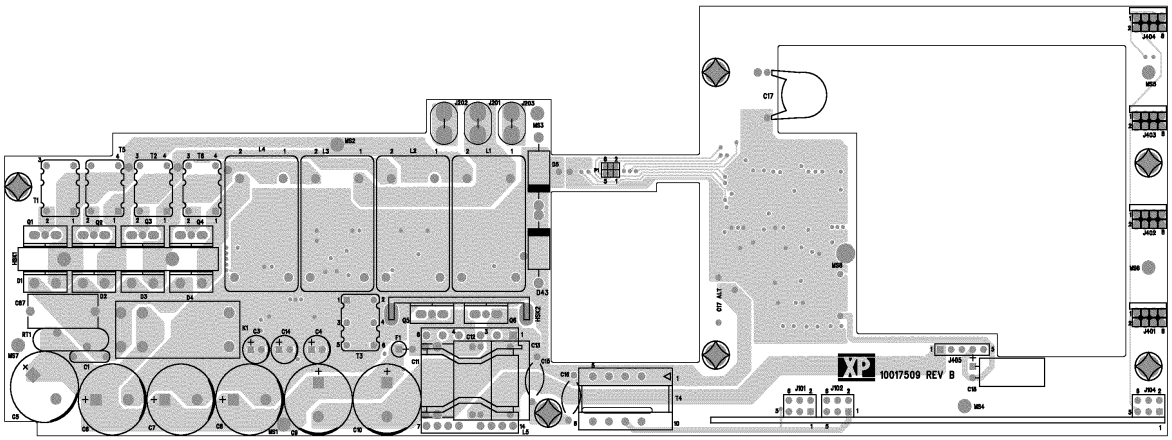


10017509B0.pcb – Wed Jan 06 15:32:17 2016



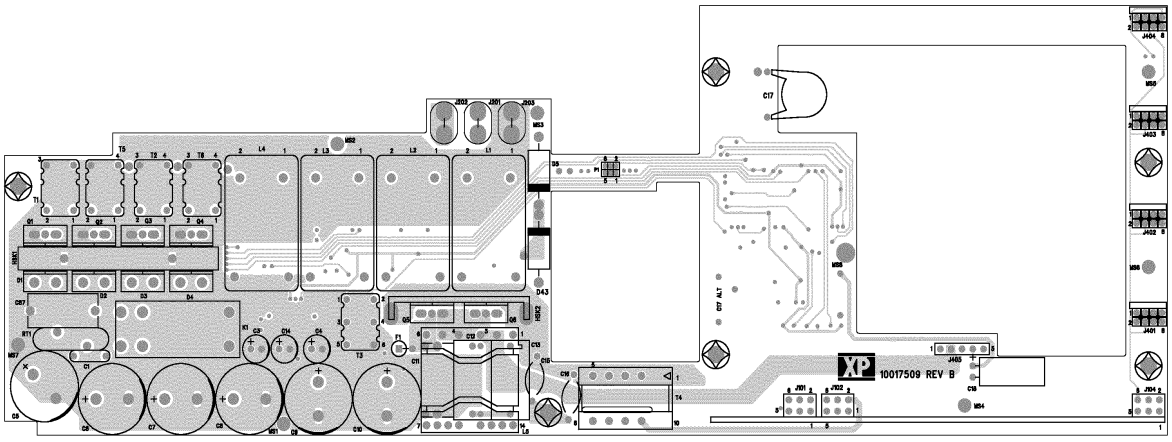
SILKSCREEN TOP (1)
ARTWORK TOP (1)

10017509B0.pcb – Wed Oct 28 09:59:05 2015



SILKSCREEN TOP (1)
ARTWORK TOP (1)
ARTWORK INNER LAYER (2)

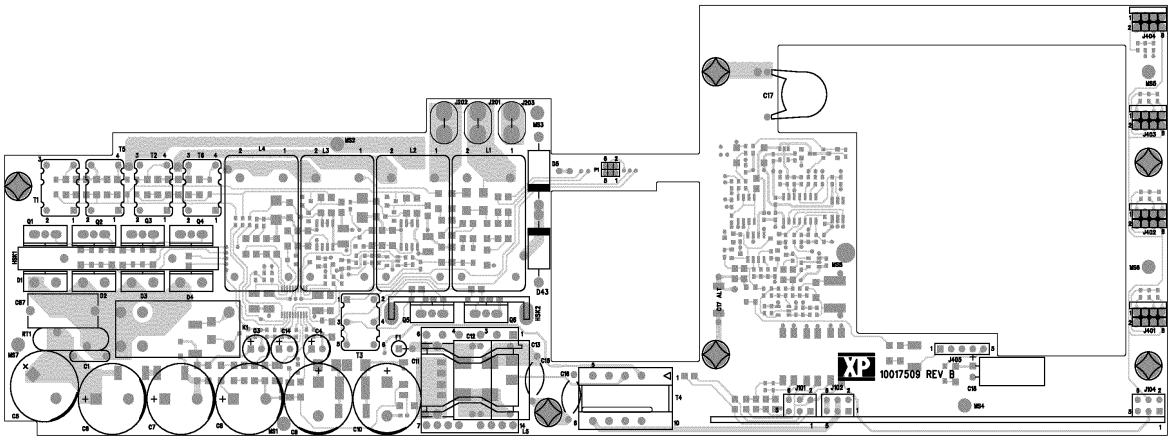
10017509B0.pcb – Wed Oct 28 09:59:06 2015



SILKSCREEN TOP (1)
ARTWORK TOP (1)

ARTWORK INNER LAYER (3)

10017509B0.pcb – Wed Oct 28 09:59:07 2015

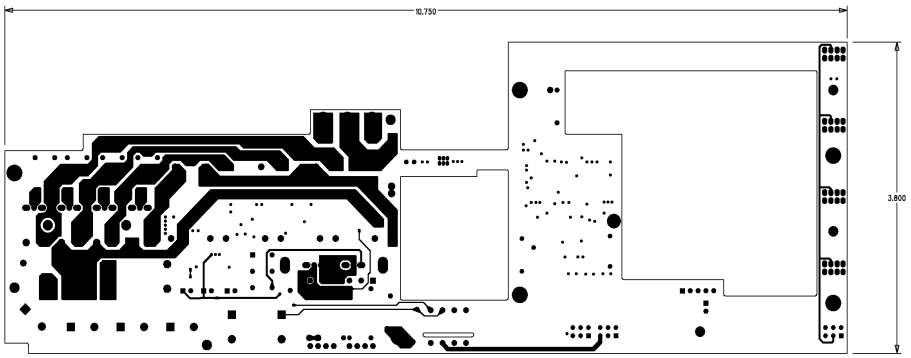


SILKSCREEN TOP (1)

ARTWORK BOT (4)

ARTWORK BOT (4)

10017509B0.pcb – Wed Oct 28 09:59:08 2015



SIMILAR TO:	NEW
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NEXT ASSY	USED ON

DIMENSIONAL TOLERANCE		
XX	XXX	ANGLE
.02	.010	0° 30'

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE INCHES

APPROVALS		
DRAWN BY	K.P. HOANG	DATE 08/24/14
CHECKED BY	.	DATE .
ENGINEER	.	DATE .
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CAD DWG NO	10017509B0.PCB	DATE 08/01/19

XP Power LLC
15641 RED HILL AVE, SUITE 100, TUSTIN, CA 92780

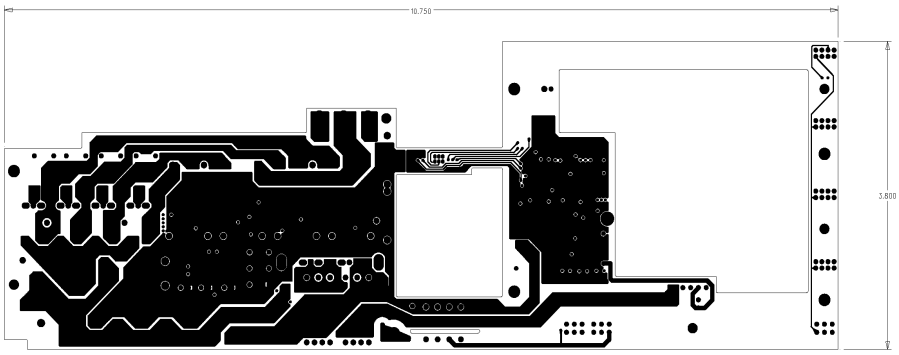
DWG. TITLE: PWB, FRT-END NANOFLEX n12

ARTWORK TOP (1)

DWG NO: 10017509 REV: B

DATE | FILM SIZE: – | SHT OF

art0118.pho – Wed Oct 28 10:00:23 2015



SIMILAR TO:	NEW
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NEXT ASSY	USED ON

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DIMENSIONAL TOLERANCE		
XX	XXX	ANGLE
.02	.010	0° 30'

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE INCHES

APPROVALS		
DRAWN BY	K.P. HOANG	DATE 08/24/14
CHECKED BY	.	DATE .
ENGINEER	.	DATE .
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CAD DWG NO	10017509B0.PCB	DATE 08/01/15

XP Power LLC
15841 RED HILL AVE, SUITE 100, TUSTIN, CA 92780

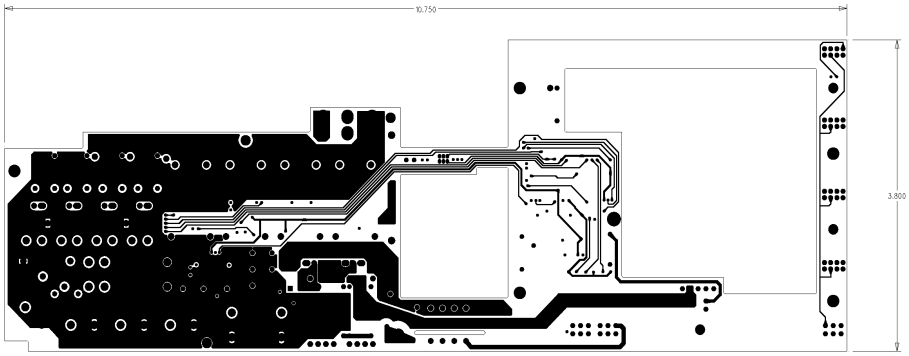
DWG. TITLE: PWB, FRT-END NANOFLEX n12

ARTWORK INNER LAYER (2)

DWG NO: 10017509 REV: B

DATE | FILM SIZE - | SHT OF

art0218.pho – Fri Jan 22 09:04:12 2016



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NEXT ASSY	USED ON

DIMENSIONAL TOLERANCE		
XX	XXX	ANGLE
.02	.010	0° 30'

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE INCHES

APPROVALS		
DRAWN BY	K.P. HOANG	DATE 08/24/14
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CAD DWG NO	10017509B0.PCB	DATE 08/01/19

XP Power LLC
15641 RED HILL AVE, SUITE 100, TUSTIN, CA 92780

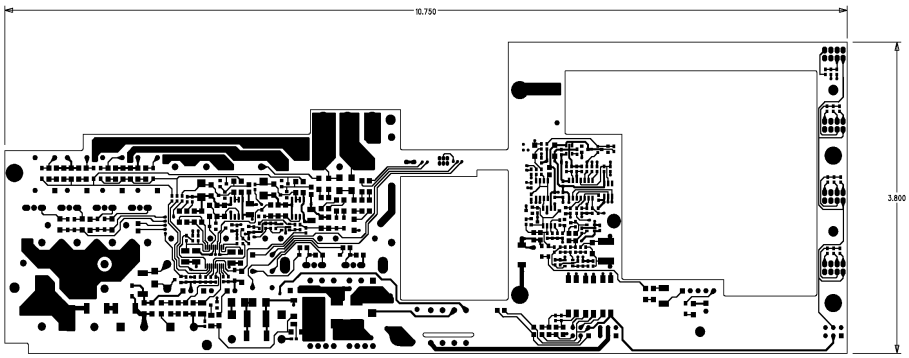
DWG. TITLE: PWB, FRT-END NANOFLEX n12

ARTWORK INNER LAYER (3)

DWG NO	REV
10017509	B

DATE | FILE SIZE – | SHT OF

art0318.pho – Fri Jan 22 09:05:07 2016



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NEXT ASSY	USED ON

DIMENSIONAL TOLERANCE		
XX	XXX	ANGLE
.02	.010	0° 30'

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE INCHES

APPROVALS		
DRAWN BY	K.P. HOANG	DATE 08/24/14
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ENGINEER	.	DATE .
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CAD DWG NO	10017509B0.PCB	DATE 08/01/19

XP Power LLC
15641 RED HILL AVE, SUITE 100, TUSTIN, CA 92780

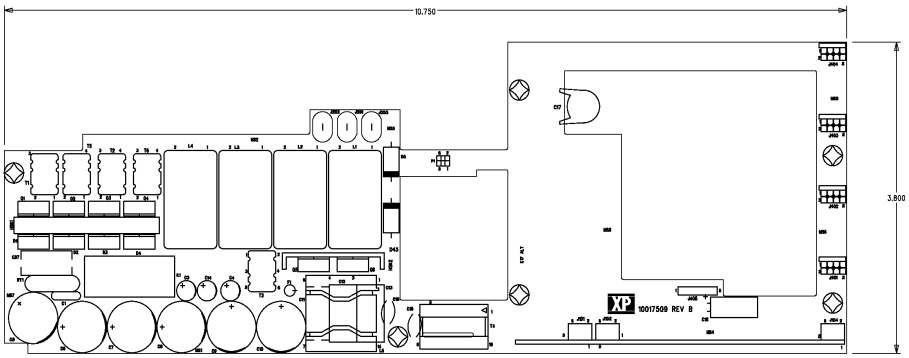
DWG. TITLE PWB, FRT-END NANOFLEX n12

ARTWORK BOT (4) (4) TOS XROWTRA

DWG NO	REV
10017509	B

DATE | FILM SIZE – | SHT OF

art0418.pho – Wed Oct 28 10:00:27 2015



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NEXT ASSY	USED ON

DIMENSIONAL TOLERANCE		
XX	XXX	ANGLE
.02	.010	0° 30'

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE INCHES

APPROVALS		
DRAWN BY	K.P. HOANG	DATE 08/24/14
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CAD DWG NO	10017509B0.PCB	DATE 08/01/15

XP Power LLC
15641 RED HILL AVE, SUITE 100, TUSTIN, CA 92780

DWG. TITLE: PWB, FRT-END NANOFLEX n12
SILKSCREEN TOP (1)

DWG NO	REV
10017509	B

DATE | FILM SIZE – | SHT OF

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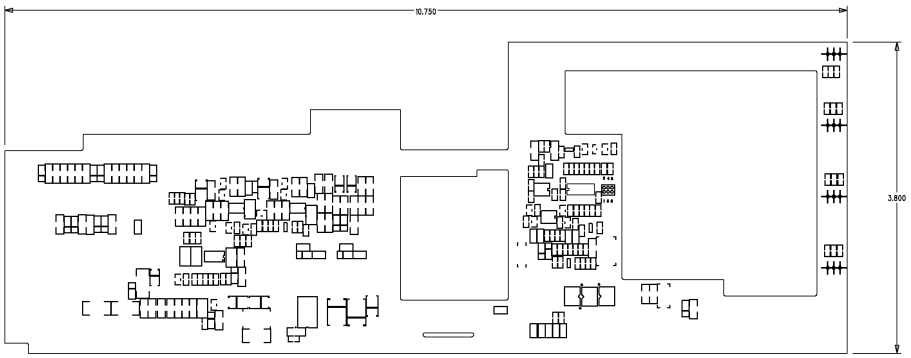

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NEXT ASSY	USED ON

DIMENSIONAL TOLERANCE		
XX	XXX	ANGLE
.02	.010	0° 30'

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE INCHES

APPROVALS		
DRAWN BY	K.P. HOANG	DATE 08/24/14
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CAD DWG NO	10017509B0.PCB	DATE 08/01/19

XP Power LLC
15641 RED HILL AVE, SUITE 100, TUSTIN, CA 92780

DWG. TITLE: PWB, FRT-END NANOFLEX n12

ARTWORK BOT (4)
SILKSCREEN BOTTOM(4)

ARTWORK BOT (4)
SILKSCREEN BOTTOM(4)

DWG NO	REV
10017509	B

DATE | FILM SIZE – | SHT OF

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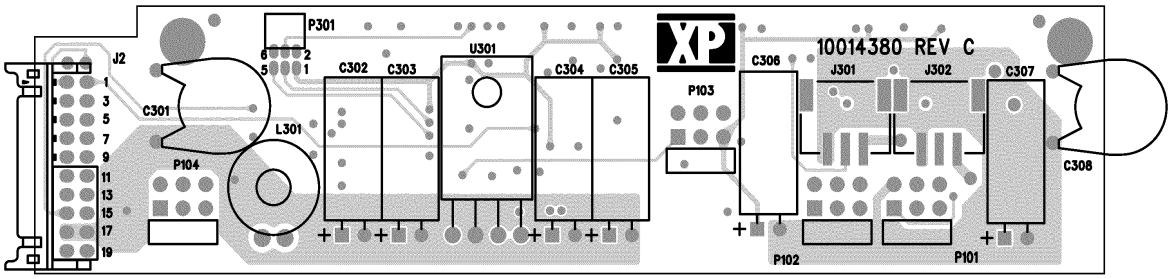
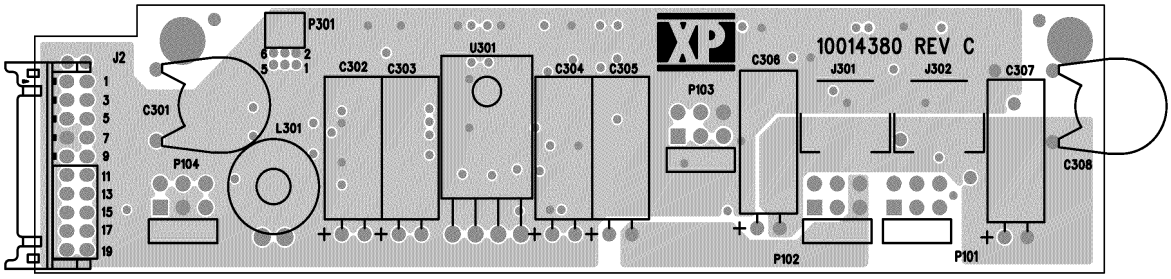


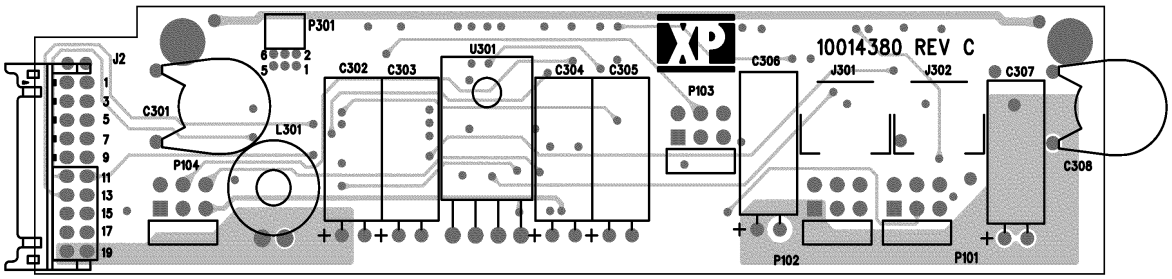
SILKSCREEN TOP (1)
ARTWORK TOP (1)

10014380C0.pcb – Wed Oct 28 10:41:57 2015



SILKSCREEN TOP (1)
ARTWORK TOP (1)
ARTWORK INNER LAYER (2)

10014380C0.pcb – Wed Oct 28 10:41:57 2015



SILKSCREEN TOP (1)
ARTWORK TOP (1)

ARTWORK INNER LAYER (3)

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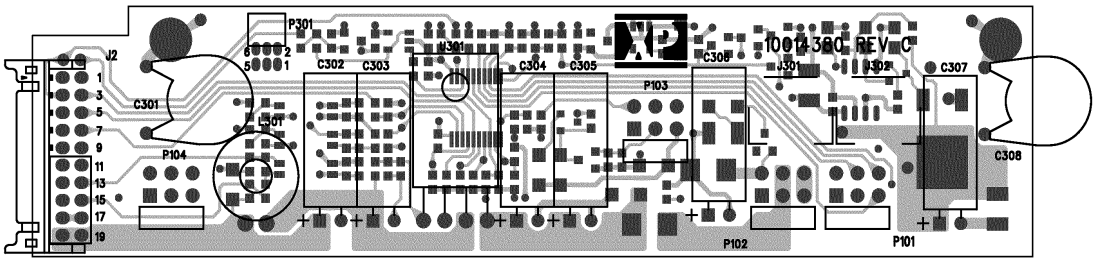
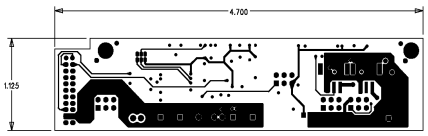


SILKSCREEN TOP (1)

ARTWORK BOT (4)

ARTWORK BOT (4)

10014380C0.pcb – Wed Oct 28 10:41:58 2015



SIMILAR TO:	NEW
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NEXT ASSY	USED ON

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DIMENSIONAL TOLERANCE		
XX	XXX	ANGLE
.02	.010	0° 30'

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE INCHES

APPROVALS		
DRAWN BY	K.P. HOANG	DATE 10/09/13
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CAD DWG NO	10014380C0.PCB	DATE 06/19/15

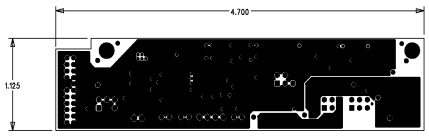
XP Power LLC
15641 RED HILL AVE, SUITE 100, TUSTIN, CA 92780

DWG. TITLE PWB, FAN/LOGIC BOARD NANOFLEX

ARTWORK TOP (1)

DWG NO	REV
10014380	C

DATE | FILM SIZE – | SHT OF



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NEXT ASSY	USED ON

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DIMENSIONAL TOLERANCE

XX	XXX	ANGLE
.02	.010	0° 30'

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE INCHES

APPROVALS		
DRAWN BY	K.P. HOANG	DATE 10/09/13
CHECKED BY	.	DATE .
ENGINEER	.	DATE .
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CAD DWG NO	10014380C0.PCB	DATE 08/19/15

XP Power LLC
15641 RED HILL AVE, SUITE 100, TUSTIN, CA 92780

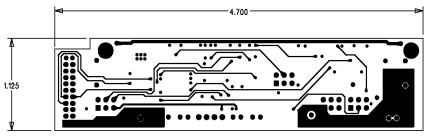
DWG. TITLE PWB, FAN/LOGIC BOARD NANOFLEX

ARTWORK INNER LAYER (2)

DWG NO 10014380 REV C

DATE FILM SIZE – SHT OF

art0218.pho – Wed Oct 28 10:42:00 2015



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NEXT ASSY	USED ON

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DIMENSIONAL TOLERANCE		
XX	XXX	ANGLE
.02	.010	0° 30'

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE INCHES

APPROVALS		
DRAWN BY	K.P. HOANG	DATE 10/09/13
CHECKED BY	.	DATE .
ENGINEER	.	DATE .
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CAD DWG NO	10014380C0.PCB	DATE 06/19/15

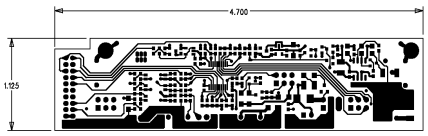
XP Power LLC
15641 RED HILL AVE, SUITE 100, TUSTIN, CA 92780

DWG. TITLE PWB, FAN/LOGIC BOARD NANOFLEX

ARTWORK INNER LAYER (3)

DWG NO	REV
10014380	C

DATE | FILM SIZE – | SHT OF



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DIMENSIONAL TOLERANCE		
XX	XXX	ANGLE
.02	.010	0° 30'

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE INCHES

APPROVALS		
DRAWN BY	K.P. HOANG	DATE 10/09/13
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ENGINEER	.	DATE .
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CAD DWG NO	10014380C0.PCB	DATE 06/19/15

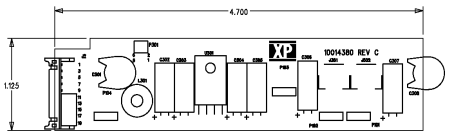
XP Power LLC
15641 RED HILL AVE, SUITE 100, TUSTIN, CA 92780

DWG. TITLE PWB, FAN/LOGIC BOARD NANOFLEX

ARTWORK BOT (4) (4) TOB XROWTRA

DWG NO	REV
10014380	C

DATE | FILM SIZE – | SHT OF



SIMILAR TO:	NEW
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NEXT ASSY	USED ON

DIMENSIONAL TOLERANCE		
XX	XXX	ANGLE
.02	.010	0° 30'

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE INCHES

APPROVALS		
DRAWN BY	K.P. HOANG	DATE 10/09/13
CHECKED BY	.	DATE .
ENGINEER	.	DATE .
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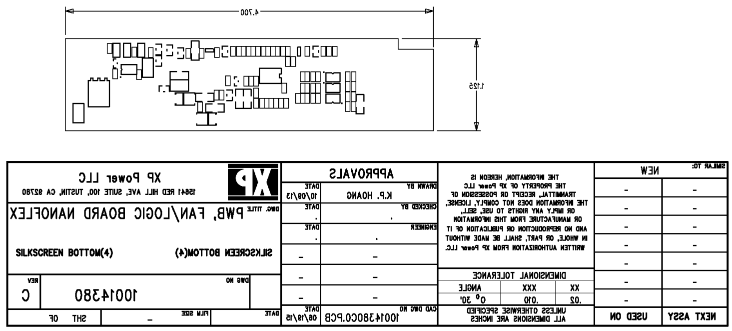
CAD DWG NO	10014380C0.PCB	DATE 06/19/15

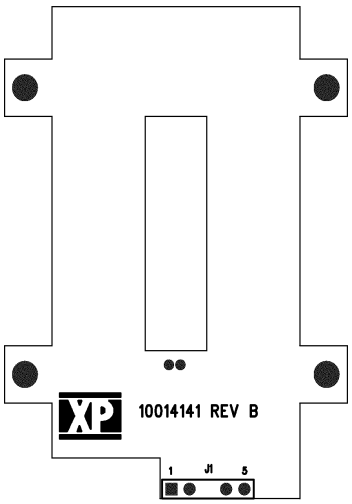
XP Power LLC
15641 RED HILL AVE, SUITE 100, TUSTIN, CA 92780

DWG. TITLE PWB, FAN/LOGIC BOARD NANOFLEX
SILKSCREEN TOP (1)

DWG NO 10014380 REV C

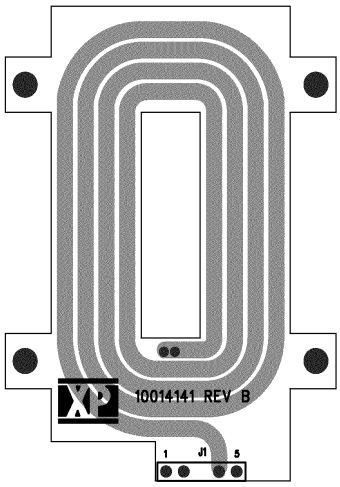
DATE | FILM SIZE – | SHT OF


4.700
1.125
XP Power LLC
15641 RED HILL AVE, SUITE 100, TUSTIN, CA 92780
PWB, FAN/LOGIC BOARD NANOFLEX
SILKSCREEN BOTTOM(4)
10014380
C
APPROVALS
K.P. HOANG
10014380C0.PCB
DIMENSIONAL TOLERANCE
UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE INCHES
NEW
NEXT ASSY
USED ON



SILKSCREEN TOP (1)
TOP SIDE ART (LAYER 1)

10014141B0.pcb – Wed Oct 28 10:15:12 2015



SILKSCREEN TOP (1)
TOP SIDE ART (LAYER 1)
INT1 INNER ART (LAYER 2)

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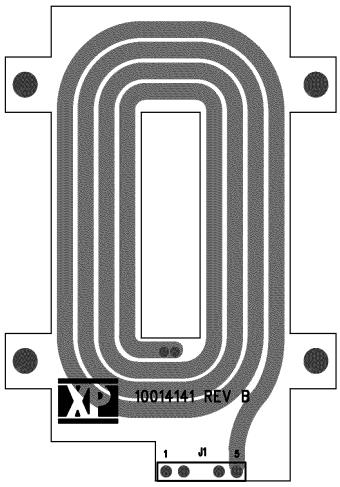

SILKSCREEN TOP (1)
TOP SIDE ART (LAYER 1)
INT2 INNER ART (LAYER 3)

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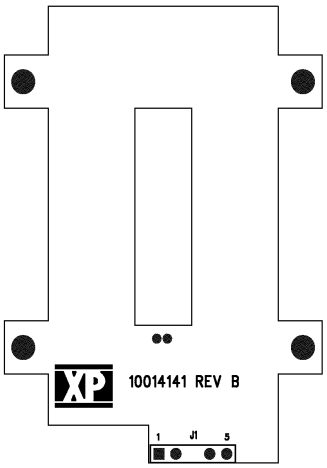
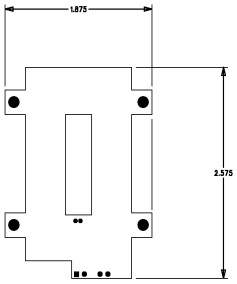


SILKSCREEN TOP (1)

BOTTOM SIDE ART (LAYER 4)

10014141B0.pcb – Wed Oct 28 10:15:13 2015



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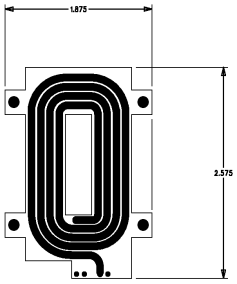
	DRAWN KPH	DATE 10/19/13	
	CHECKED .	DATE .	LAYER: TOP SIDE ART (LAYER 1)
	APPROVED .	DATE .	
DO NOT SCALE DRAWING	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		
	DIMENSIONAL TOLERANCE XX .01 XXX .005		TITLE PWB PLR-XFR PRI 2
NEXT ASSY / USED ON	CAD FILE NAME 10014141B0.PCB		PART No. 10014141 REV B

art0118.pho – Wed Oct 28 10:15:41 2015



DO NOT SCALE DRAWING

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APPROVALS

DRAWN	KPH	DATE 10/19/13
CHECKED	.	DATE .
APPROVED	.	DATE .

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE XX .01 XXX .005

CAD FILE NAME 10014141B0.PCB

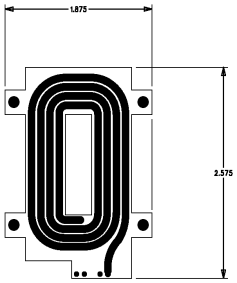
XP Power LLC
1241 E. DYER ROAD, SUITE 150
SANTA ANA, CA 92705

LAYER: INT1 INNER ART (LAYER 2)

TITLE PWB PLR-XFR PRI 2

PART No. 10014141 REV B

art0218.pho – Wed Oct 28 10:15:42 2015



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS

DRAWN	KPH	DATE 10/19/13
CHECKED	.	DATE .
APPROVED	.	DATE .

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE XX .01 XXX .005

CAD FILE NAME 10014141B0.PCB

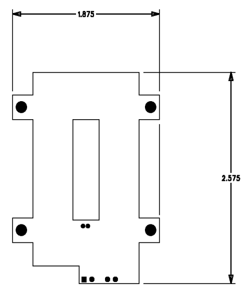
XP Power LLC
1241 E. DYER ROAD, SUITE 150
SANTA ANA, CA 92705

LAYER: INT2 INNER ART (LAYER 3)

TITLE PWB PLR-XFR PRI 2

PART No. 10014141 REV B

art0318.pho – Wed Oct 28 10:15:43 2015



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DO NOT SCALE DRAWING	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	LAYER: BOTTOM SIDE ART (LAYER 4) BOT SIDE ART(LAYER 4)	
	DIMENSIONAL TOLERANCE XX .01 XXX .005	TITLE PWB PLR-XFR PRI 2	
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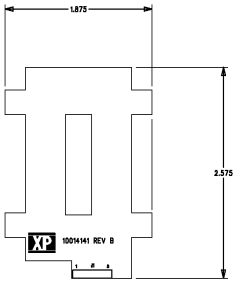


DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS

DRAWN	KPH	DATE 10/19/13
CHECKED	.	DATE .
APPROVED	.	DATE .

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE XX .01 XXX .005

CAD FILE NAME 10014141B0.PCB

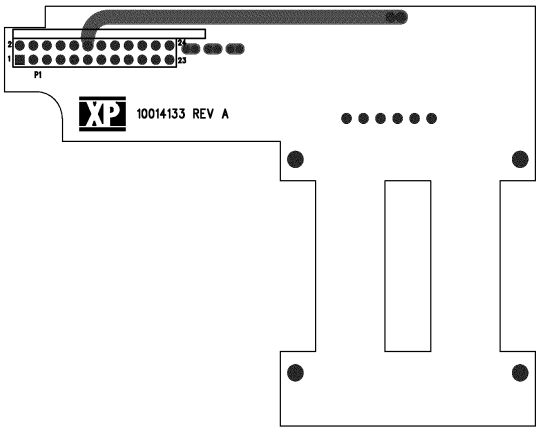
XP Power LLC
1241 E. DYER ROAD, SUITE 150
SANTA ANA, CA 92705

LAYER: SILKSCREEN TOP (1)

TITLE PWB PLR-XFR PRI 2

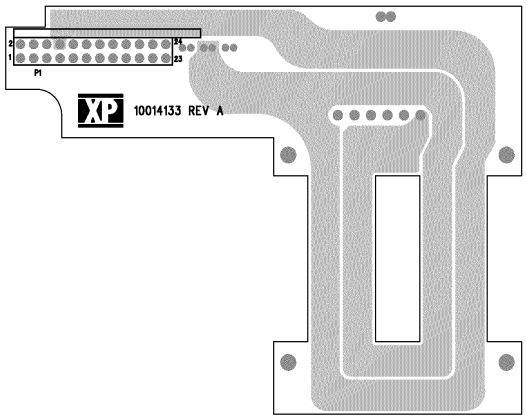
PART No. 10014141 REV B

sst0118.pho – Wed Oct 28 10:15:44 2015



SILKSCREEN TOP (1)
TOP SIDE ART (LAYER 1)

10014133A0.pcb – Wed Oct 28 10:18:40 2015



SILKSCREEN TOP (1)
TOP SIDE ART (LAYER 1)
INT1 INNER ART (LAYER 2)

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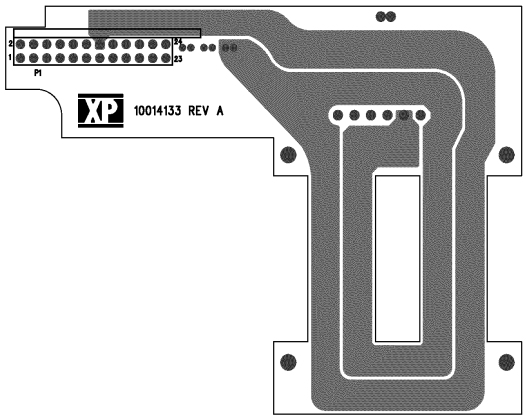

SILKSCREEN TOP (1)
TOP SIDE ART (LAYER 1)
INT2 INNER ART (LAYER 3)

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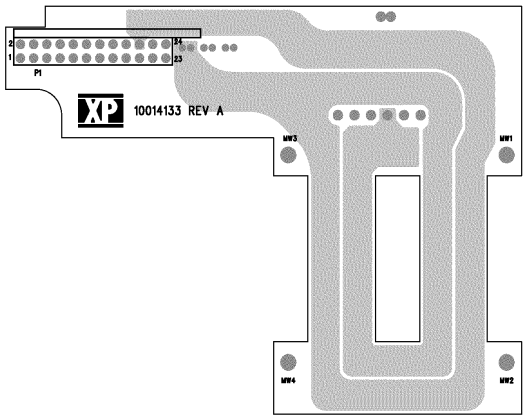

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TOP SIDE ART (LAYER 1)
INT3 INNER ART (LAYER 4)

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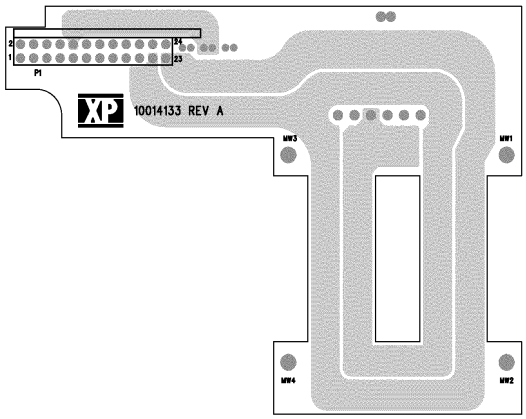

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TOP SIDE ART (LAYER 1)
INT4 INNER ART (LAYER 5)

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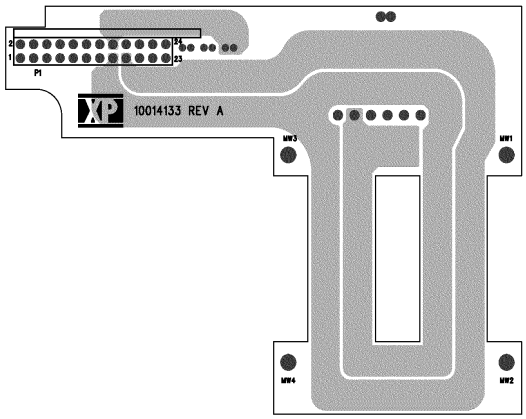

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TOP SIDE ART (LAYER 1)
INT5 INNER ART (LAYER 6)

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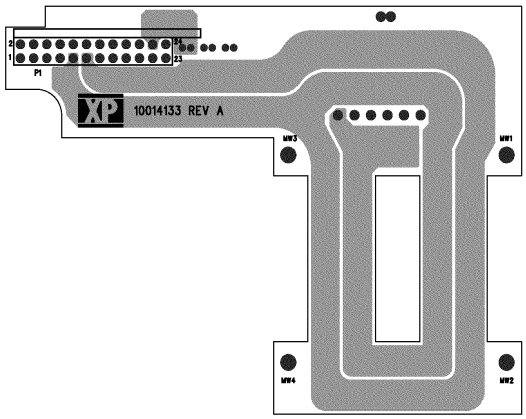

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TOP SIDE ART (LAYER 1)
INT6 INNER ART (LAYER 7)

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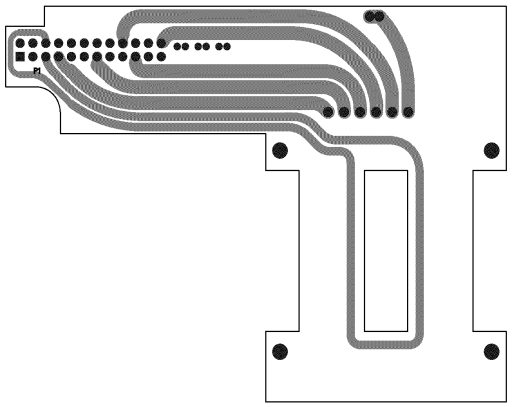

TOP SIDE ART (LAYER 1)
BOTTOM SIDE ART (LAYER 8)
BOT SIDE ART(LAYER 8)

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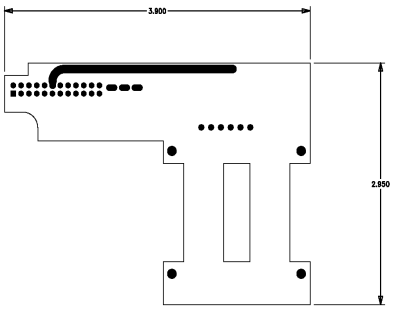


DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS		
DRAWN	KPH	DATE 10/21/13
CHECKED	-	DATE -
APPROVED	-	DATE -

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE XX .01 XXX .005

CAD FILE NAME: 10014139A0.PCB

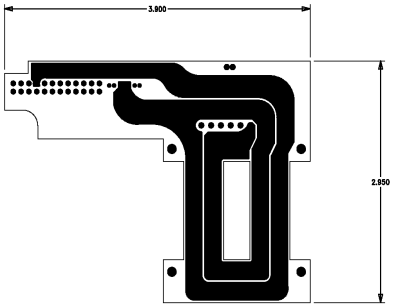
XP Power LLC
1241 E. DYER ROAD, SUITE 150
SANTA ANA, CA 92705

LAYER: TOP SIDE ART (LAYER 1)

TITLE: PWB XFR WIND-SEC 4

PART No. 10014133 REV A

art0118.pho – Wed Oct 28 10:19:17 2015



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS		
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CHECKED	-	DATE -
APPROVED	-	DATE -

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE XX .01 XXX .005

CAD FILE NAME: 10014139A0.PCB

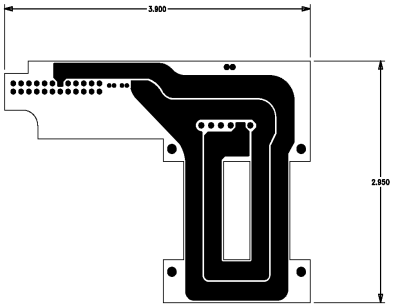
XP Power LLC
1241 E. DYER ROAD, SUITE 150
SANTA ANA, CA 92705

LAYER: INT1 INNER ART (LAYER 2)

TITLE: PWB XFR WIND-SEC 4

PART No. 10014133 REV A

art0218.pho – Wed Oct 28 10:19:18 2015



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS		
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CHECKED	-	DATE -
APPROVED	-	DATE -

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE XX .01 XXX .005

CAD FILE NAME: 10014139A0.PCB

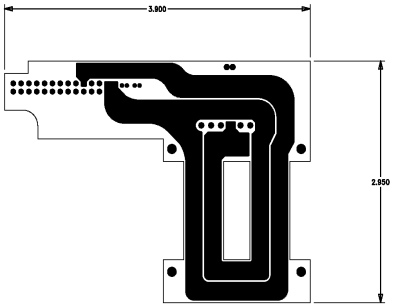
XP Power LLC
1241 E. DYER ROAD, SUITE 150
SANTA ANA, CA 92705

LAYER: INT2 INNER ART (LAYER 3)

TITLE: PWB XFR WIND-SEC 4

PART No. 10014133 REV A

art0318.pho – Wed Oct 28 10:19:19 2015



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS		
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CHECKED	-	DATE -
APPROVED	-	DATE -

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE XX .01 XXX .005

CAD FILE NAME: 10014139A0.PCB

XP Power LLC
1241 E. DYER ROAD, SUITE 150
SANTA ANA, CA 92705

LAYER: INT3 INNER ART (LAYER 4)

TITLE: PWB XFR WIND-SEC 4

PART No. 10014133 REV A

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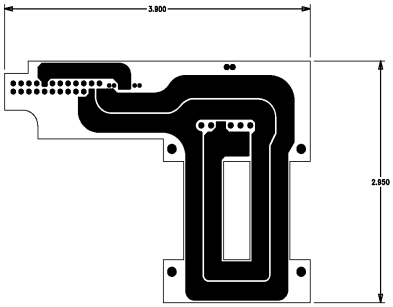

DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS		
DRAWN	KPH	DATE 10/21/13
CHECKED	-	DATE -
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UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE XX .01 XXX .005

CAD FILE NAME: 10014139A0.PCB

XP Power LLC
1241 E. DYER ROAD, SUITE 150
SANTA ANA, CA 92705

LAYER: INT4 INNER ART (LAYER 5)

TITLE: PWB XFR WIND-SEC 4

PART No. 10014133 REV A

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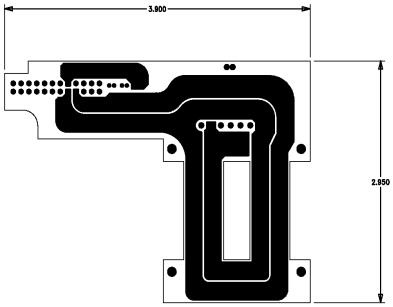

DO NOT SCALE DRAWING

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APPROVED	-	DATE -

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE XX .01 XXX .005

CAD FILE NAME: 10014139A0.PCB

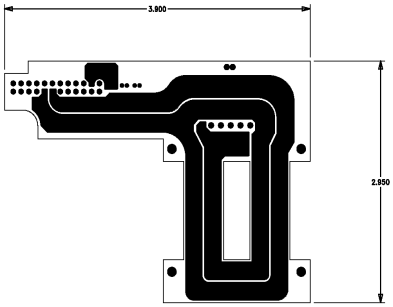
XP Power LLC
1241 E. DYER ROAD, SUITE 150
SANTA ANA, CA 92705

LAYER: INT5 INNER ART (LAYER 6)

TITLE: PWB XFR WIND-SEC 4

PART No. 10014133 REV A

art006.pho – Wed Oct 28 10:19:22 2015



DO NOT SCALE DRAWING

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UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE XX .01 XXX .005

CAD FILE NAME 10014139A0.PCB

XP Power LLC
1241 E. DYER ROAD, SUITE 150
SANTA ANA, CA 92705

LAYER: INT6 INNER ART (LAYER 7)

TITLE: PWB XFR WIND-SEC 4

PART No. 10014133 REV A

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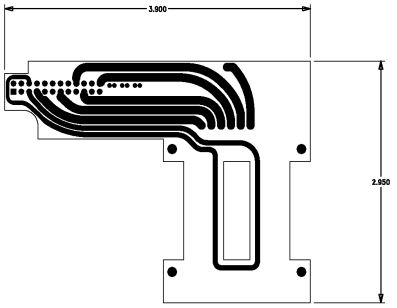

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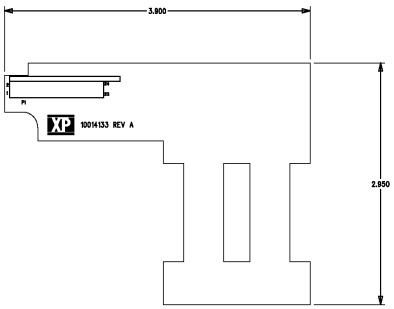
	DRAWN KPH	DATE 10/21/13	
	CHECKED -	DATE -	LAYER: BOTTOM SIDE ART (LAYER 8)
	APPROVED -	DATE -	
DO NOT SCALE DRAWING	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		
	DIMENSIONAL TOLERANCE XX .01 XXX .005		TITLE PWB XFR WIND-SEC 4
NEXT ASSY / USED ON	CAD FILE NAME 10014139A0.PCB		PART No. 10014133 / REV A

art008.pho – Wed Oct 28 10:19:24 2015



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS		
DRAWN	KPH	DATE 10/21/13
CHECKED	-	DATE -
APPROVED	-	DATE -

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE XX .01 XXX .005

CAD FILE NAME: 10014139A0.PCB

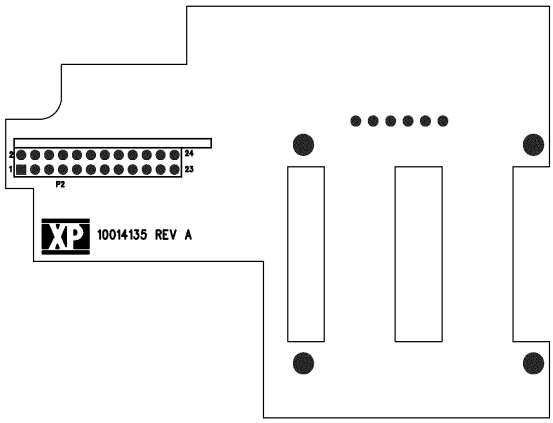
XP Power LLC
1241 E. DYER ROAD, SUITE 150
SANTA ANA, CA 92705

LAYER: SILKSCREEN TOP (1)

TITLE: PWB XFR WIND-SEC 4

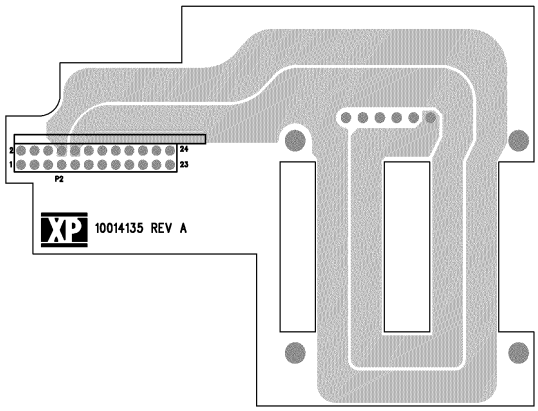
PART No. 10014133 REV A

sst0118.pho – Wed Oct 28 10:19:25 2015



SILKSCREEN TOP (1)
TOP SIDE ART (LAYER 1)

10014135A0.pcb – Wed Oct 28 10:22:49 2015



SILKSCREEN TOP (1)
TOP SIDE ART (LAYER 1)
INT1 INNER ART (LAYER 2)

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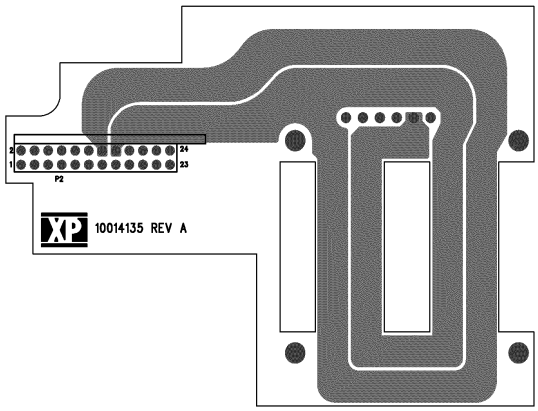

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TOP SIDE ART (LAYER 1)
INT2 INNER ART (LAYER 3)

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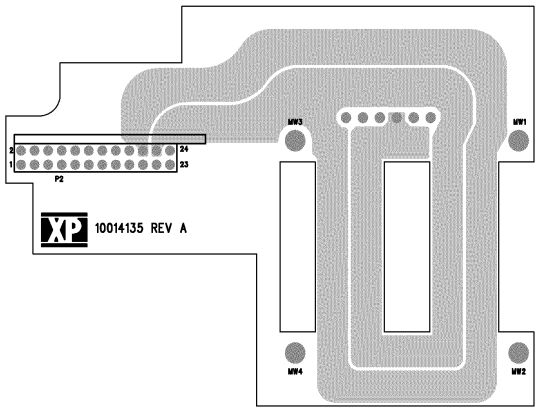

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INT3 INNER ART (LAYER 4)

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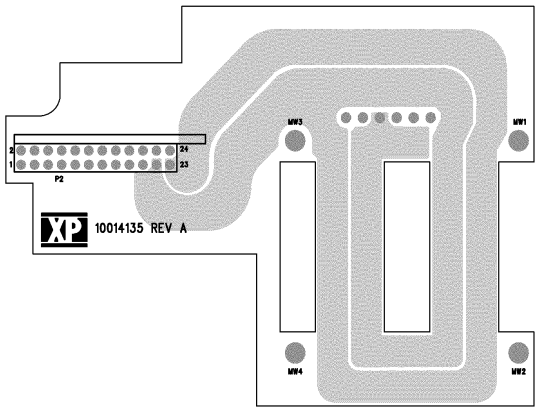
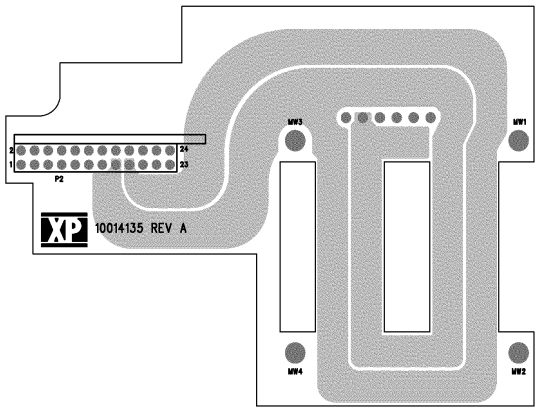


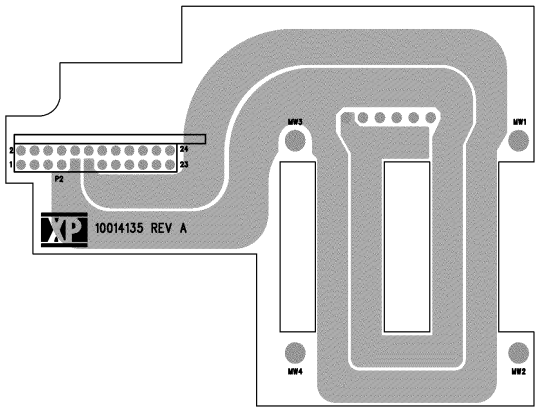
SILKSCREEN TOP (1)
TOP SIDE ART (LAYER 1)
INT4 INNER ART (LAYER 5)

10014135A0.pcb – Wed Oct 28 10:22:50 2015



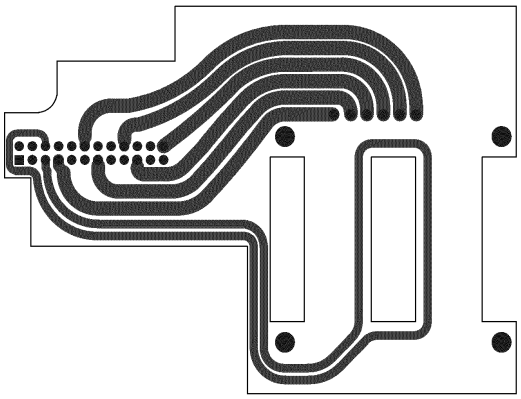
SILKSCREEN TOP (1)
TOP SIDE ART (LAYER 1)
INT5 INNER ART (LAYER 6)

10014135A0.pcb – Wed Oct 28 10:22:51 2015



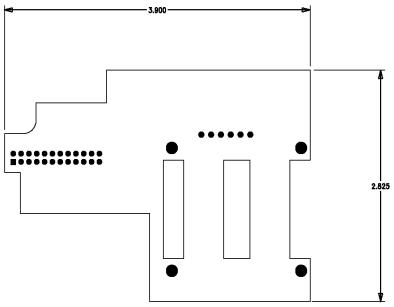
SILKSCREEN TOP (1)
TOP SIDE ART (LAYER 1)
INT6 INNER ART (LAYER 7)

10014135A0.pcb – Wed Oct 28 10:22:51 2015



TOP SIDE ART (LAYER 1)
BOTTOM SIDE ART (LAYER 8)

10014135A0.pcb – Wed Oct 28 10:22:52 2015



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS	
DRAWN KPH	DATE 10/19/13
CHECKED -	DATE -
APPROVED -	DATE -

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE XX .01 XXX .005

CAD FILE NAME 10014135A0.PCB

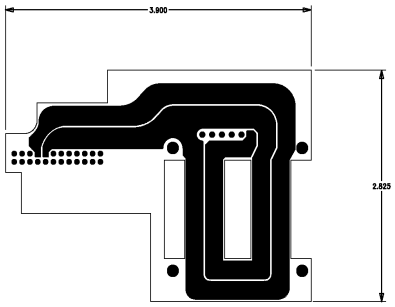
XP Power LLC
1241 E. DYER ROAD, SUITE 150
SANTA ANA, CA 92705

LAYER: TOP SIDE ART (LAYER 1)

TITLE PWB XFR WIND-SEC3

PART No. 10014135 REV A

art0118.pho – Wed Oct 28 10:23:15 2015



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS	
DRAWN KPH	DATE 10/19/13
CHECKED -	DATE -
APPROVED -	DATE -

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE XX .01 XXX .005

CAD FILE NAME: 10014135A0.PCB

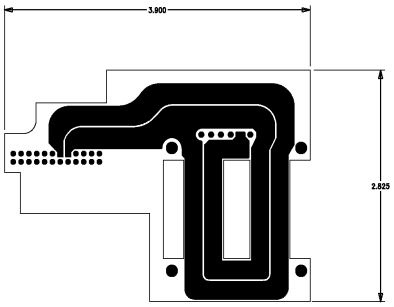
XP Power LLC
1241 E. DYER ROAD, SUITE 150
SANTA ANA, CA 92705

LAYER: INT1 INNER ART (LAYER 2)

TITLE: PWB XFR WIND-SEC3

PART No. 10014135 REV A

art0218.pho – Wed Oct 28 10:23:16 2015



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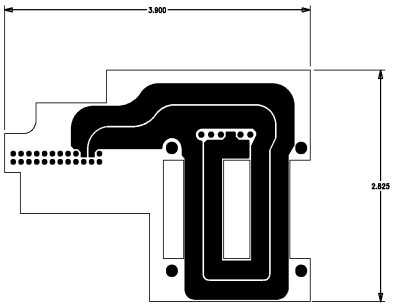
	DRAWN KPH	DATE 10/19/13	
	CHECKED -	DATE -	LAYER: INT2 INNER ART (LAYER 3)
	APPROVED -	DATE -	
DO NOT SCALE DRAWING	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		
	DIMENSIONAL TOLERANCE XX .01 XXX .005		TITLE: PWB XFR WIND-SEC3
NEXT ASSY / USED ON	CAD FILE NAME: 10014135A0.PCB		PART No. 10014135 REV A

art0318.pho – Wed Oct 28 10:23:17 2015



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS	
DRAWN KPH	DATE 10/19/13
CHECKED -	DATE -
APPROVED -	DATE -

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE XX .01 XXX .005

CAD FILE NAME 10014135A0.PCB

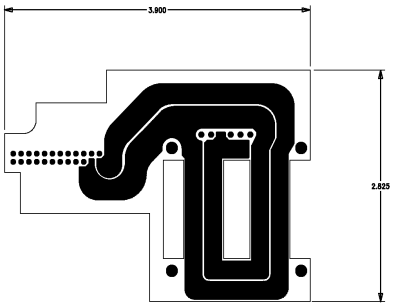
XP Power LLC
1241 E. DYER ROAD, SUITE 150
SANTA ANA, CA 92705

LAYER: INT3 INNER ART (LAYER 4)

TITLE: PWB XFR WIND-SEC3

PART No. 10014135 REV A

art004.pho – Wed Oct 28 10:23:18 2015



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS	
DRAWN KPH	DATE 10/19/13
CHECKED -	DATE -
APPROVED -	DATE -

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE XX .01 XXX .005

CAD FILE NAME 10014135A0.PCB

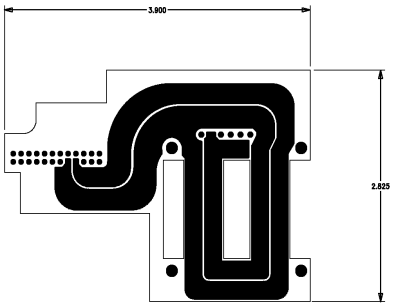
XP Power LLC
1241 E. DYER ROAD, SUITE 150
SANTA ANA, CA 92705

LAYER: INT4 INNER ART (LAYER 5)

TITLE: PWB XFR WIND-SEC3

PART No. 10014135 REV A

art005.pho – Wed Oct 28 10:23:19 2015



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS	
DRAWN KPH	DATE 10/19/13
CHECKED -	DATE -
APPROVED -	DATE -

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE XX .01 XXX .005

CAD FILE NAME 10014135A0.PCB

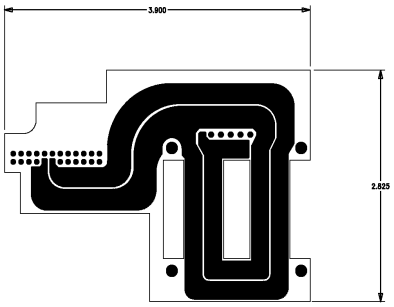
XP Power LLC
1241 E. DYER ROAD, SUITE 150
SANTA ANA, CA 92705

LAYER: INT5 INNER ART (LAYER 6)

TITLE: PWB XFR WIND-SEC3

PART No. 10014135 REV A

art006.pho – Wed Oct 28 10:23:20 2015



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS	
DRAWN KPH	DATE 10/19/13
CHECKED -	DATE -
APPROVED -	DATE -

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE XX .01 XXX .005

CAD FILE NAME 10014135A0.PCB

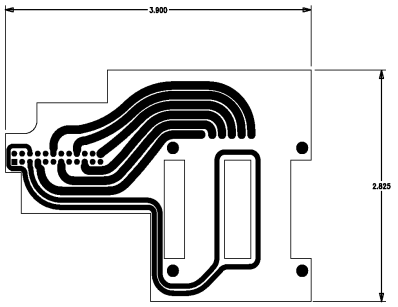
XP Power LLC
1241 E. DYER ROAD, SUITE 150
SANTA ANA, CA 92705

LAYER: INT6 INNER ART (LAYER 7)

TITLE: PWB XFR WIND-SEC3

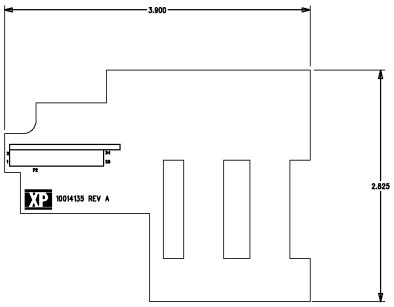
PART No. 10014135 REV A

art007.pho – Wed Oct 28 10:23:21 2015



	APPROVALS		XP Power LLC 1241 E. DYER ROAD, SUITE 150 SANTA ANA, CA 92705
	DRAWN KPH	DATE 10/19/13	
	CHECKED .	DATE .	LAYER: BOTTOM SIDE ART (LAYER 8) BOT SIDE ART(LAYER 8)
	APPROVED .	DATE .	
DO NOT SCALE DRAWING	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		TITLE PWB XFR WIND-SEC3
	DIMENSIONAL TOLERANCE XX .01 XXX .005		PART No. 10014135 REV A
NEXT ASSY / USED ON	CAD FILE NAME 10014135A0.PCB		

art008.pho – Wed Oct 28 10:23:22 2015



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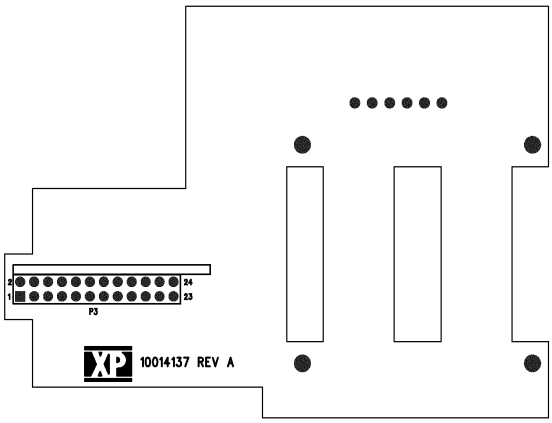
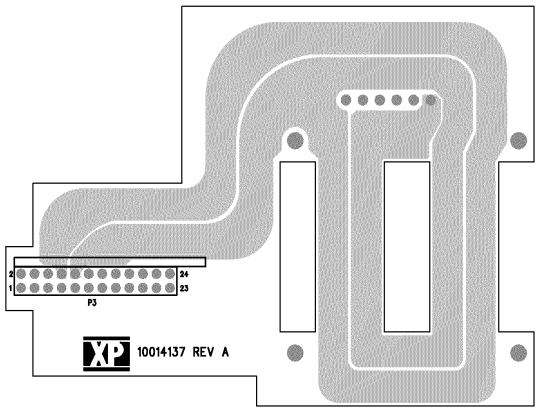
	DRAWN KPH	DATE 10/19/13	LAYER: SILKSCREEN TOP (1)
	CHECKED -	DATE -	
	APPROVED -	DATE -	
DO NOT SCALE DRAWING	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		TITLE PWB XFR WIND-SEC3
	DIMENSIONAL TOLERANCE XX .01 XXX .005		PART No. 10014135 REV A
NEXT ASSY / USED ON	CAD FILE NAME 10014135A0.PCB		

sst0118.pho – Wed Oct 28 10:23:25 2015



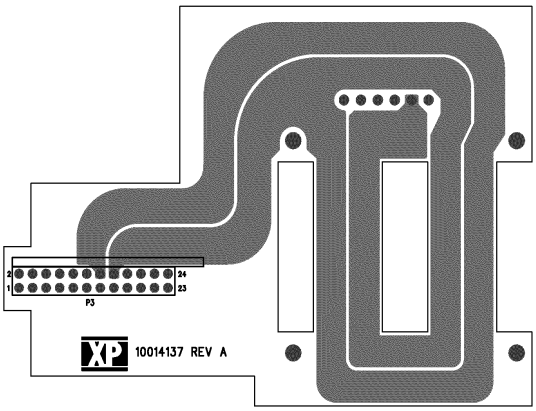
SILKSCREEN TOP (1)
TOP SIDE ART (LAYER 1)

10014137A0.pcb – Wed Oct 28 10:27:23 2015



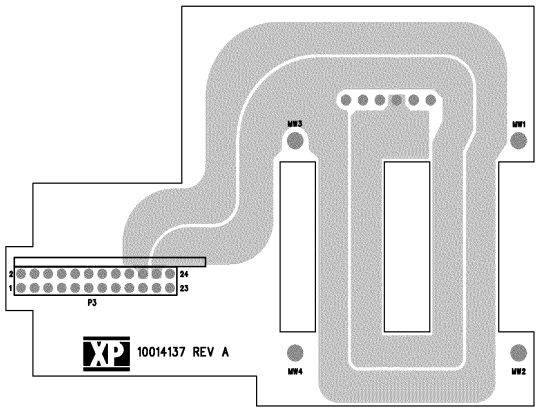
SILKSCREEN TOP (1)
TOP SIDE ART (LAYER 1)
INT1 INNER ART (LAYER 2)

10014137A0.pcb – Wed Oct 28 10:27:23 2015



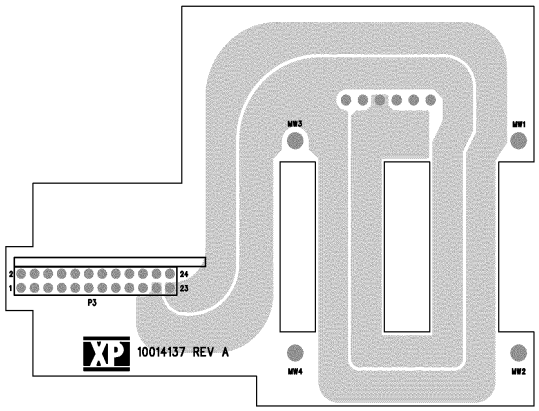
SILKSCREEN TOP (1)
TOP SIDE ART (LAYER 1)
INT2 INNER ART (LAYER 3)

10014137A0.pcb – Wed Oct 28 10:27:24 2015



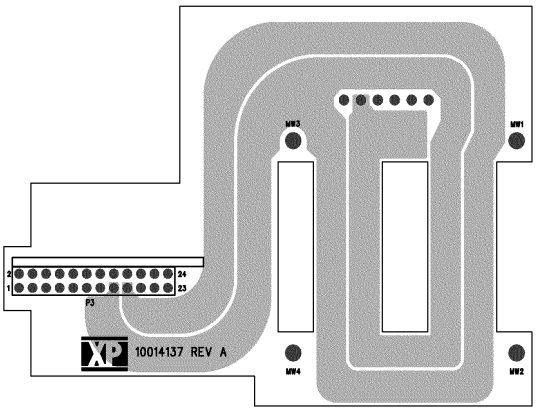
SILKSCREEN TOP (1)
TOP SIDE ART (LAYER 1)
INT3 INNER ART (LAYER 4)

10014137A0.pcb – Wed Oct 28 10:27:24 2015



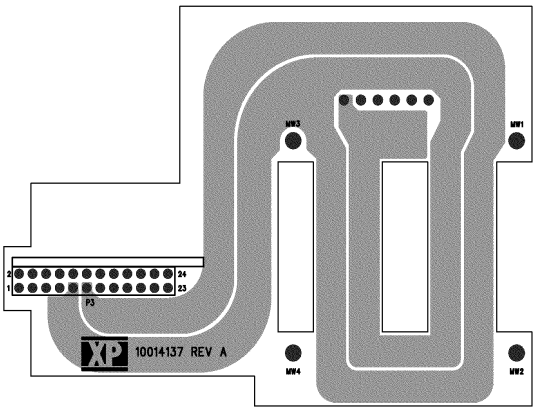
SILKSCREEN TOP (1)
TOP SIDE ART (LAYER 1)
INT4 INNER ART (LAYER 5)

10014137A0.pcb – Wed Oct 28 10:27:25 2015



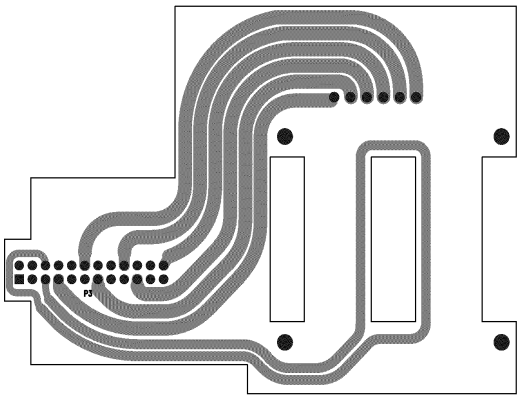
SILKSCREEN TOP (1)
TOP SIDE ART (LAYER 1)
INT5 INNER ART (LAYER 6)

10014137A0.pcb – Wed Oct 28 10:27:25 2015



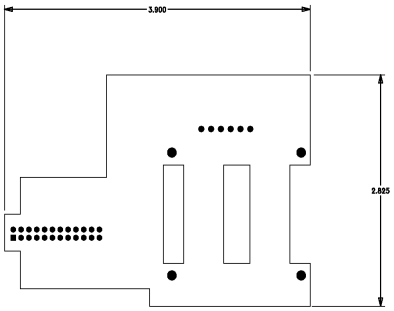
SILKSCREEN TOP (1)
TOP SIDE ART (LAYER 1)
INT6 INNER ART (LAYER 7)

10014137A0.pcb – Wed Oct 28 10:27:25 2015



TOP SIDE ART (LAYER 1)
BOTTOM SIDE ART (LAYER 8)
(8 REYAL)TRA EDIS TOB

10014137A0.pcb – Wed Oct 28 10:27:26 2015



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NEXT ASSY	USED ON

APPROVALS		
DRAWN	KPH	DATE 10/19/13
CHECKED	.	DATE .
APPROVED	.	DATE .

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE XX .01 XXX .005

CAD FILE NAME 10014137A0.PCB

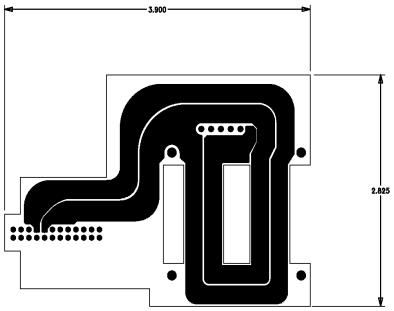
XP Power LLC
1241 E. DYER ROAD, SUITE 150
SANTA ANA, CA 92705

LAYER: TOP SIDE ART (LAYER 1)

TITLE: PWB XFR WIND-SEC2

PART No. 10014137 REV A

art0118.pho – Wed Oct 28 10:27:38 2015



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS		
DRAWN	KPH	DATE 10/19/13
CHECKED	.	DATE .
APPROVED	.	DATE .

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE XX .01 XXX .005

CAD FILE NAME 10014137A0.PCB

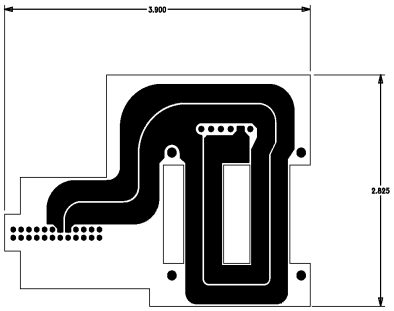
XP Power LLC
1241 E. DYER ROAD, SUITE 150
SANTA ANA, CA 92705

LAYER: INT1 INNER ART (LAYER 2)

TITLE: PWB XFR WIND-SEC2

PART No. 10014137 REV A

art0218.pho – Wed Oct 28 10:27:38 2015



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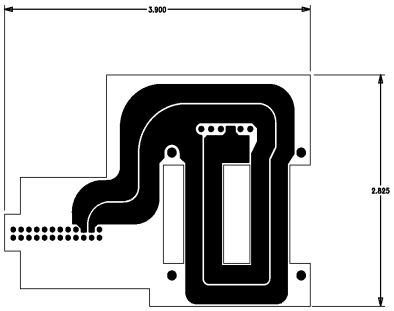
	DRAWN KPH	DATE 10/19/13	
	CHECKED -	DATE -	LAYER: INT2 INNER ART (LAYER 3)
	APPROVED -	DATE -	
DO NOT SCALE DRAWING	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		TITLE PWB XFR WIND-SEC2
	DIMENSIONAL TOLERANCE XX .01 XXX .005		PART No. 10014137 REV A
NEXT ASSY / USED ON	CAD FILE NAME 10014137A0.PCB		

art0318.pho – Wed Oct 28 10:27:39 2015



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS		
DRAWN	KPH	DATE 10/19/13
CHECKED	.	DATE .
APPROVED	.	DATE .

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE XX .01 XXX .005

CAD FILE NAME 10014137A0.PCB

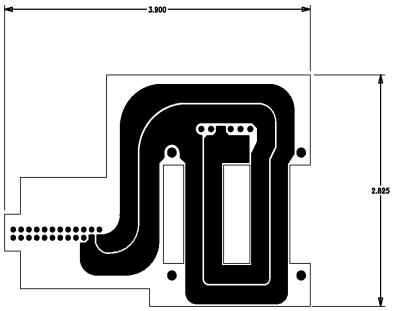
XP Power LLC
1241 E. DYER ROAD, SUITE 150
SANTA ANA, CA 92705

LAYER: INT3 INNER ART (LAYER 4)

TITLE: PWB XFR WIND-SEC2

PART No. 10014137 REV A

art004.pho – Wed Oct 28 10:27:40 2015



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS		
DRAWN	KPH	DATE 10/19/13
CHECKED	.	DATE .
APPROVED	.	DATE .

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE XX .01 XXX .005

CAD FILE NAME 10014137A0.PCB

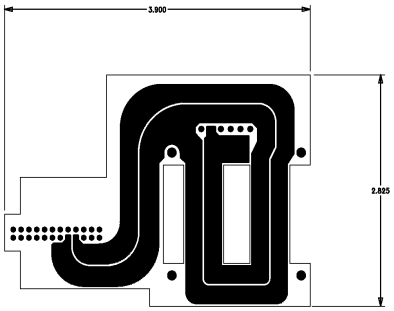
XP Power LLC
1241 E. DYER ROAD, SUITE 150
SANTA ANA, CA 92705

LAYER: INT4 INNER ART (LAYER 5)

TITLE: PWB XFR WIND-SEC2

PART No. 10014137 REV A

art005.pho – Wed Oct 28 10:27:41 2015



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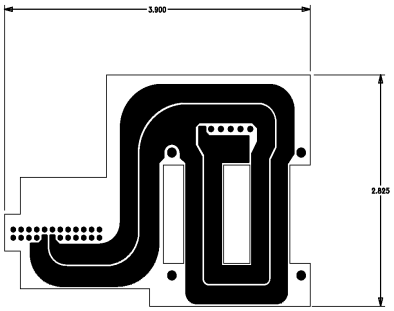
	DRAWN KPH	DATE 10/19/13	
	CHECKED .	DATE .	LAYER: INT5 INNER ART (LAYER 6)
	APPROVED .	DATE .	
DO NOT SCALE DRAWING	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		TITLE PWB XFR WIND-SEC2
	DIMENSIONAL TOLERANCE XX .01 XXX .005		PART No. 10014137 REV A
NEXT ASSY / USED ON	CAD FILE NAME 10014137A0.PCB		

art006.pho – Wed Oct 28 10:27:42 2015



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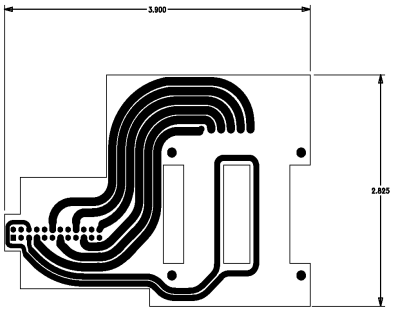
	DRAWN KPH	DATE 10/19/13	
	CHECKED -	DATE -	LAYER: INT6 INNER ART (LAYER 7)
	APPROVED -	DATE -	
DO NOT SCALE DRAWING	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		TITLE PWB XFR WIND-SEC2
	DIMENSIONAL TOLERANCE XX .01 XXX .005		PART No. 10014137 REV A
NEXT ASSY / USED ON	CAD FILE NAME 10014137A0.PCB		

art007.pho – Wed Oct 28 10:27:43 2015



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS		
DRAWN	KPH	DATE 10/19/13
CHECKED	.	DATE .
APPROVED	.	DATE .

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE
XX .01 XXX .005

CAD FILE NAME
10014137A0.PCB

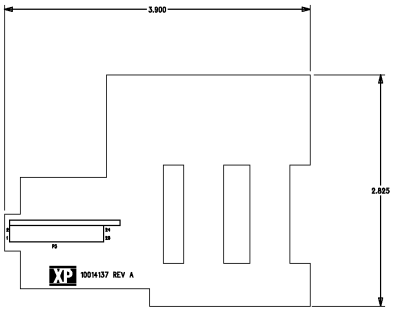
XP Power LLC
1241 E. DYER ROAD, SUITE 150
SANTA ANA, CA 92705

LAYER:
BOTTOM SIDE ART (LAYER 8)
(8 REYAL) TRA EDIS TOB

TITLE
PWB XFR WIND-SEC2

PART No.	REV
10014137	A

art008.pho – Wed Oct 28 10:27:43 2015



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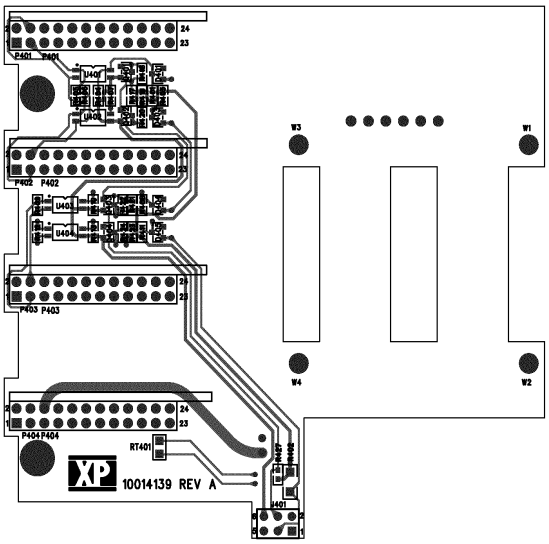
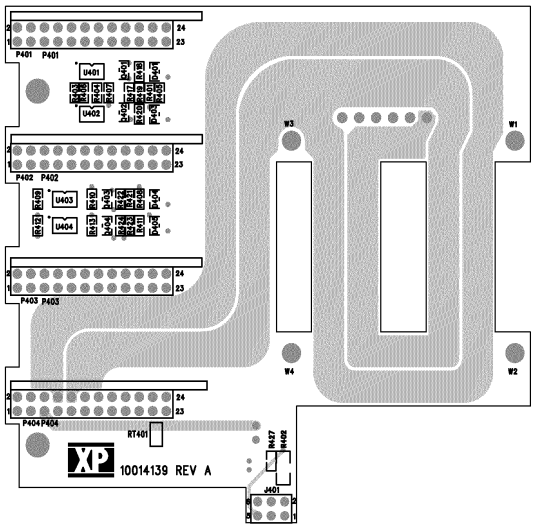
	DRAWN KPH	DATE 10/19/13	
	CHECKED .	DATE .	LAYER: SILKSCREEN TOP (1)
	APPROVED .	DATE .	
DO NOT SCALE DRAWING	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		
	DIMENSIONAL TOLERANCE XX .01 XXX .005		TITLE PWB XFR WIND-SEC2
NEXT ASSY / USED ON	CAD FILE NAME 10014137A0.PCB		PART No. 10014137 REV A

sst0118.pho – Wed Oct 28 10:27:44 2015



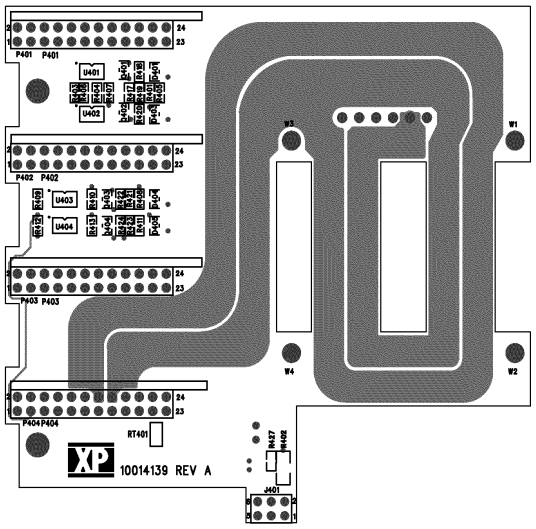
SILKSCREEN TOP (1)
TOP SIDE ART (LAYER 1)

10014139A0.pcb – Wed Oct 28 10:31:50 2015



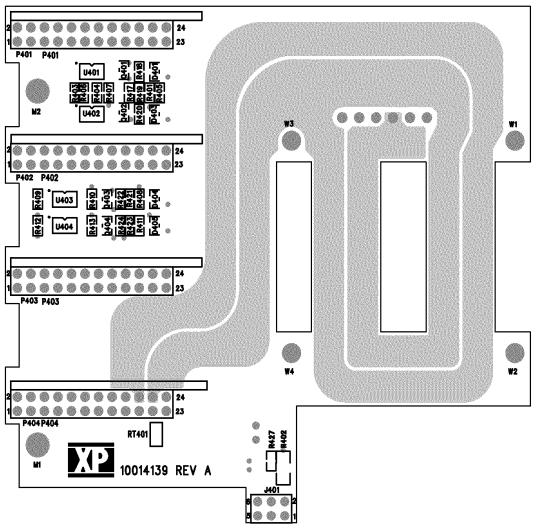
SILKSCREEN TOP (1)
TOP SIDE ART (LAYER 1)
INT1 INNER ART (LAYER 2)

10014139A0.pcb – Wed Oct 28 10:31:50 2015



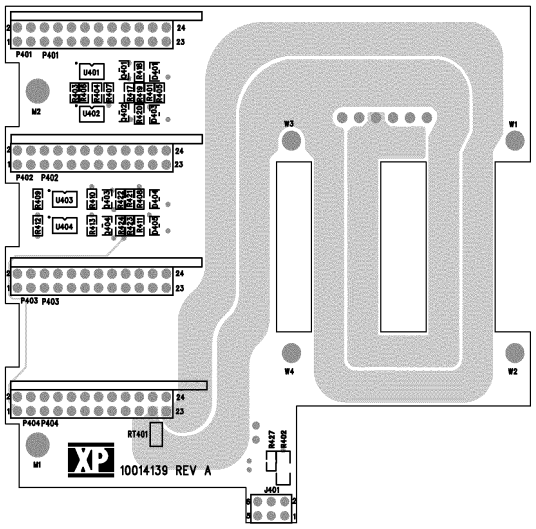
SILKSCREEN TOP (1)
TOP SIDE ART (LAYER 1)
INT2 INNER ART (LAYER 3)

10014139A0.pcb – Wed Oct 28 10:31:50 2015



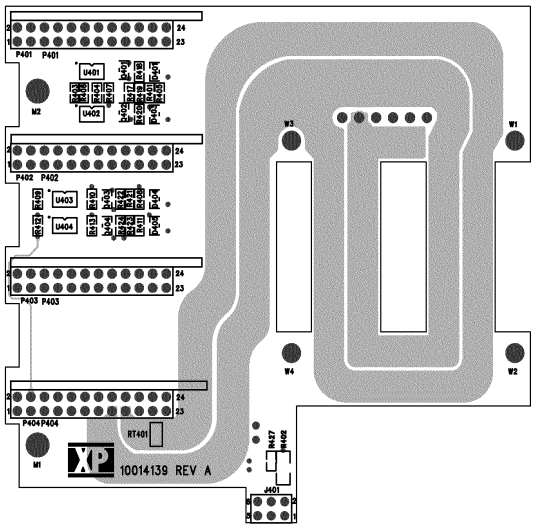
SILKSCREEN TOP (1)
TOP SIDE ART (LAYER 1)
INT3 INNER ART (LAYER 4)

10014139A0.pcb – Wed Oct 28 10:31:51 2015



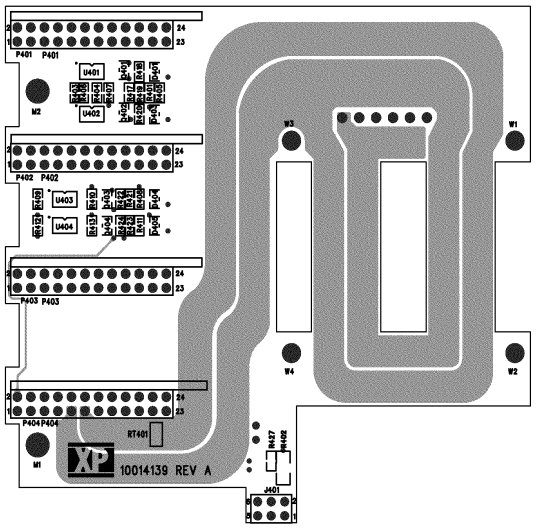
SILKSCREEN TOP (1)
TOP SIDE ART (LAYER 1)
INT4 INNER ART (LAYER 5)

10014139A0.pcb – Wed Oct 28 10:31:51 2015



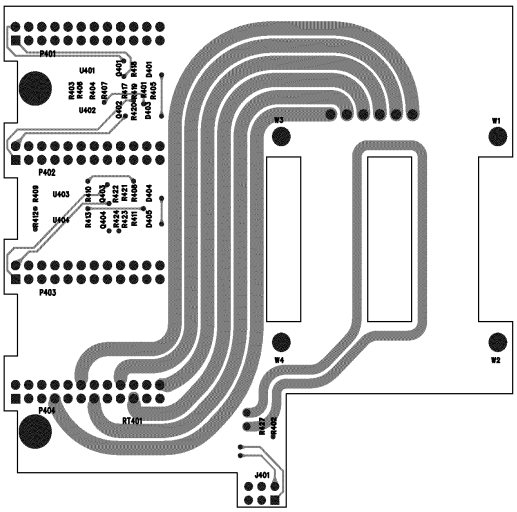
SILKSCREEN TOP (1)
TOP SIDE ART (LAYER 1)
INT5 INNER ART (LAYER 6)

10014139A0.pcb – Wed Oct 28 10:31:52 2015



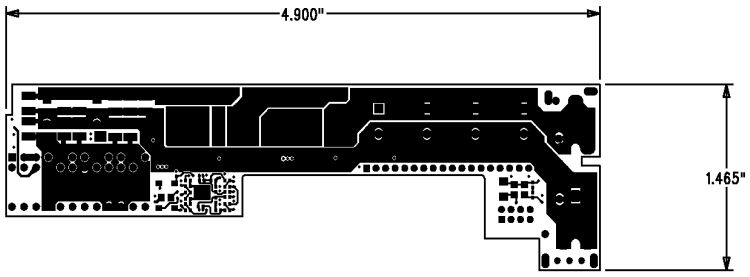
SILKSCREEN TOP (1)
TOP SIDE ART (LAYER 1)
INT6 INNER ART (LAYER 7)

10014139A0.pcb – Wed Oct 28 10:31:52 2015



TOP SIDE ART (LAYER 1)
BOTTOM SIDE ART (LAYER 8)
BOT SIDE ART(LAYER 8)

10014139A0.pcb – Wed Oct 28 10:31:53 2015



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS

DRAWN	KEH	DATE 03/11/14
CHECKED	.	DATE .
APPROVED	.	DATE .

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE XX .01 XXX .005

CAD FILE NAME 10014865E0.PCB

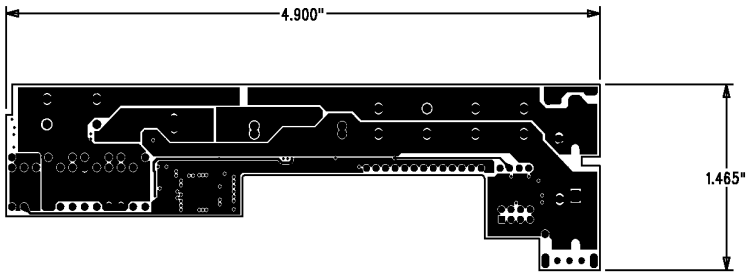
XP Power LLC
15841 RED HILL AVE, SUITE 100, CA 92780
SANTA ANA, CA 92705

LAYER: TOP SIDE ART (LAYER 1)

TITLE PWB NANOFLEX 12V module

PART No. 10014865 REV E

art001.pho – Tue Nov 10 16:58:50 2015



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS

DRAWN	KEH	DATE 03/11/14
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APPROVED	.	DATE .

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE XX .01 XXX .005

CAD FILE NAME 10014865E0.PCB

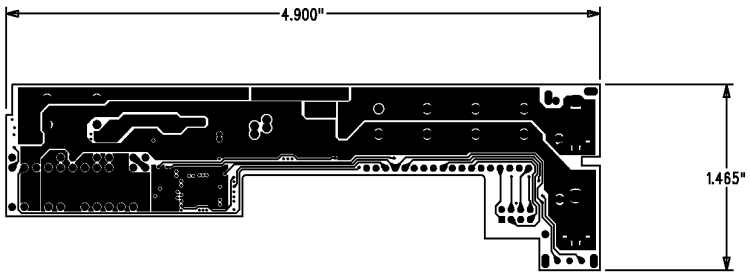
XP Power LLC
15641 RED HILL AVE, SUITE 100, CA 92780
SANTA ANA, CA 92705

LAYER: INT1 INNER ART (LAYER 2)

TITLE PWB NANOFLEX 12V module

PART No. 10014865 REV E

art002.pho – Tue Nov 10 16:58:51 2015



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS

DRAWN	KEH	DATE 03/11/14
CHECKED	.	DATE .
APPROVED	.	DATE .

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE XX .01 XXX .005

CAD FILE NAME 10014865E0.PCB

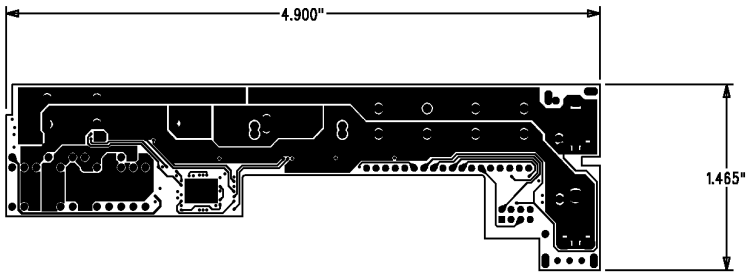
XP Power LLC
15641 RED HILL AVE, SUITE 100, CA 92780
SANTA ANA, CA 92705

LAYER: INT2 INNER ART (LAYER 3)

TITLE PWB NANOFLEX 12V module

PART No. 10014865 REV E

art003.pho – Tue Nov 10 16:58:52 2015



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS

DRAWN	KEH	DATE 03/11/14
CHECKED	.	DATE .
APPROVED	.	DATE .

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE XX .01 XXX .005

CAD FILE NAME 10014865E0.PCB

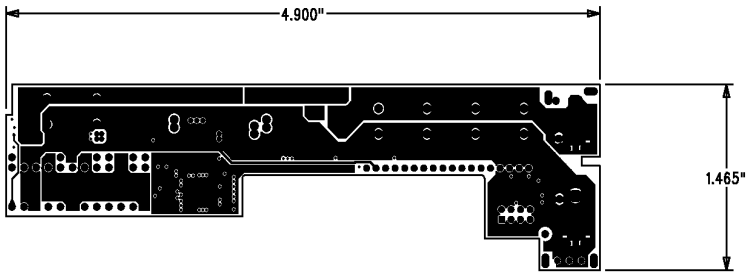
XP Power LLC
15641 RED HILL AVE, SUITE 100, CA 92780
SANTA ANA, CA 92705

LAYER: INT3 INNER ART (LAYER 4)

TITLE PWB NANOFLEX 12V module

PART No. 10014865 REV E

art004.pho – Tue Nov 10 16:58:53 2015



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS

DRAWN	KEH	DATE 03/11/14
CHECKED	.	DATE .
APPROVED	.	DATE .

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE XX .01 XXX .005

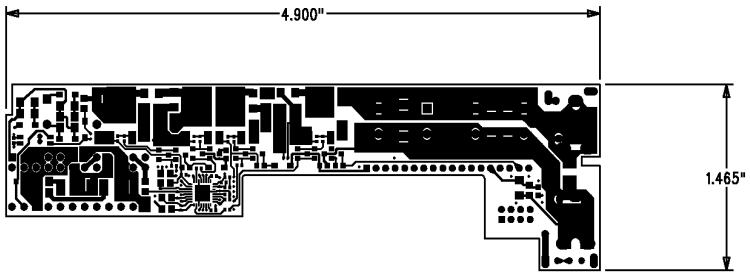
CAD FILE NAME 10014865E0.PCB

XP Power LLC
15841 RED HILL AVE, SUITE 100, CA 92780
SANTA ANA, CA 92705

LAYER: INT4 INNER ART (LAYER 5)

TITLE PWB NANOFLEX 12V module

PART No. 10014865 REV E



DO NOT SCALE DRAWING

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APPROVALS

DRAWN	KEH	DATE 03/11/14
CHECKED	.	DATE .
APPROVED	.	DATE .

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE XX .01 XXX .005

CAD FILE NAME 10014865E0.PCB

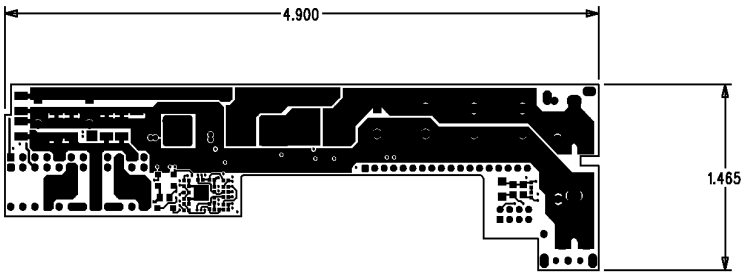
XP Power LLC
15841 RED HILL AVE, SUITE 100, CA 92780
SANTA ANA, CA 92705

LAYER: BOTTOM SIDE ART (LAYER 6)

BOT SIDE ART(LAYER 6)

TITLE PWB NANOFLEX 12V module

PART No. 10014865 REV E



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS		
DRAWN	KEH	DATE 07/16/15
CHECKED	.	DATE .
APPROVED	.	DATE .

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE
XX .01 XXX .005

CAD FILE NAME
10015558C0.PCB

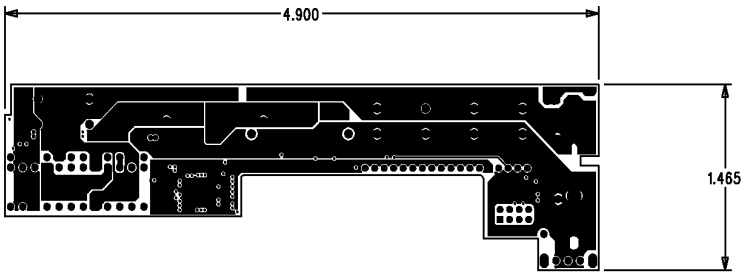
XP Power LLC
15641 RED HILL AVE, SUITE 100
TUSTIN, CA 92780

LAYER:
TOP SIDE ART (LAYER 1)

TITLE
PWB nanoflex 24V Module

PART No.	REV
10015558	C

art001.pho – Tue Nov 10 16:49:54 2015



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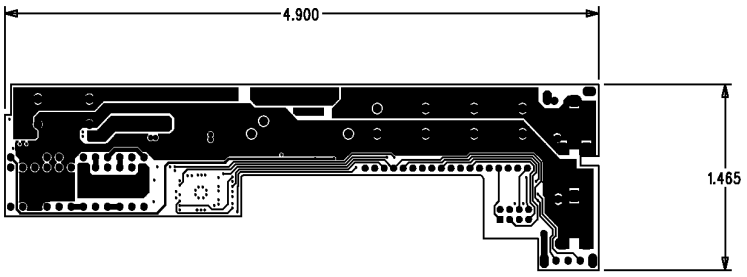
	DRAWN: KEH	DATE: 07/16/15	LAYER: INT1 INNER ART (LAYER 2)
	CHECKED: .	DATE: .	
	APPROVED: .	DATE: .	
DO NOT SCALE DRAWING	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		TITLE: PWB nanoflex 24V Module
	DIMENSIONAL TOLERANCE XX .01 XXX .005		PART No.: 10015558 REV: C
NEXT ASSY / USED ON	CAD FILE NAME: 10015558C0.PCB		

art002.pho – Tue Nov 10 16:49:55 2015



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS		
DRAWN	KEH	DATE 07/16/15
CHECKED	.	DATE .
APPROVED	.	DATE .

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE
XX .01 XXX .005

CAD FILE NAME
10015558C0.PCB

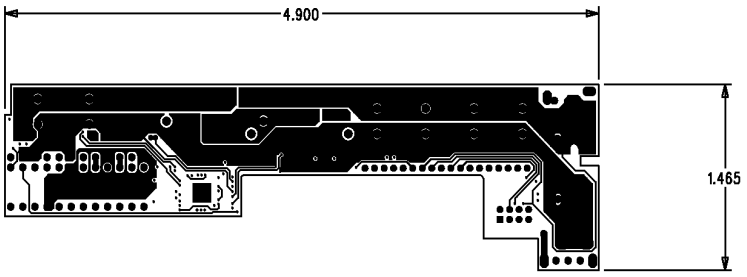
XP Power LLC
15641 RED HILL AVE, SUITE 100
TUSTIN, CA 92780

LAYER:
INT2 INNER ART (LAYER 3)

TITLE
PWB nanoflex 24V Module

PART No.	REV
10015558	C

art003.pho – Tue Nov 10 16:49:57 2015



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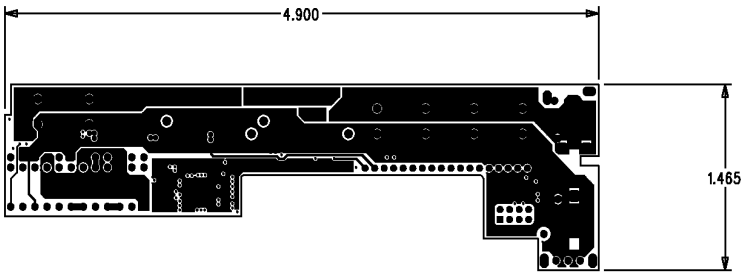
	DRAWN: KEH	DATE: 07/16/15	LAYER: INT3 INNER ART (LAYER 4)
	CHECKED: .	DATE: .	
	APPROVED: .	DATE: .	
DO NOT SCALE DRAWING	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		TITLE: PWB nanoflex 24V Module
	DIMENSIONAL TOLERANCE XX .01 XXX .005		PART No.: 10015558 REV: C
NEXT ASSY / USED ON	CAD FILE NAME: 10015558C0.PCB		

art004.pho – Tue Nov 10 16:49:58 2015



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS

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CHECKED	.	DATE .
APPROVED	.	DATE .

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DIMENSIONAL TOLERANCE
XX .01 XXX .005

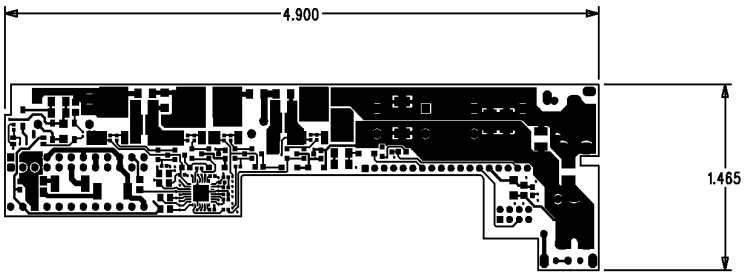
CAD FILE NAME
10015558C0.PCB

XP Power LLC
15641 RED HILL AVE, SUITE 100
TUSTIN, CA 92780

LAYER:
INT4 INNER ART (LAYER 5)

TITLE
PWB nanoflex 24V Module

PART No.	REV
10015558	C



DO NOT SCALE DRAWING

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APPROVALS		
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CHECKED	.	DATE .
APPROVED	.	DATE .

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE
XX .01 XXX .005

CAD FILE NAME
10015558C0.PCB

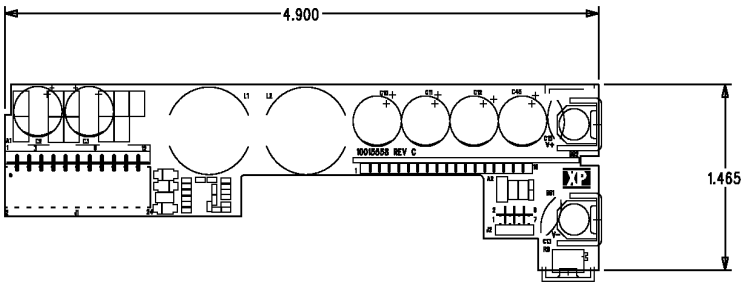
XP Power LLC
15641 RED HILL AVE, SUITE 100
TUSTIN, CA 92780

LAYER:
BOTTOM SIDE ART (LAYER 6)

BOT SIDE ART(LAYER 6)

TITLE
PWB nanoflex 24V Module

PART No.	REV
10015558	C



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS

DRAWN	KEH	DATE 07/16/15
CHECKED	.	DATE .
APPROVED	.	DATE .

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE XX .01 XXX .005

CAD FILE NAME 10015558C0.PCB

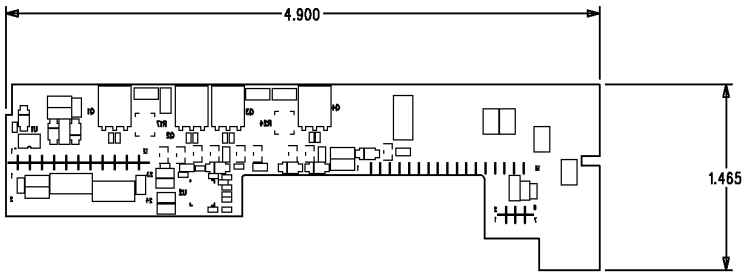
XP Power LLC
15641 RED HILL AVE, SUITE 100
TUSTIN, CA 92780

LAYER: SILKSCREEN TOP (1)

TITLE PWB nanoflex 24V Module

PART No. 10015558 REV C

sst001026.pho – Tue Nov 10 16:50:01 2015



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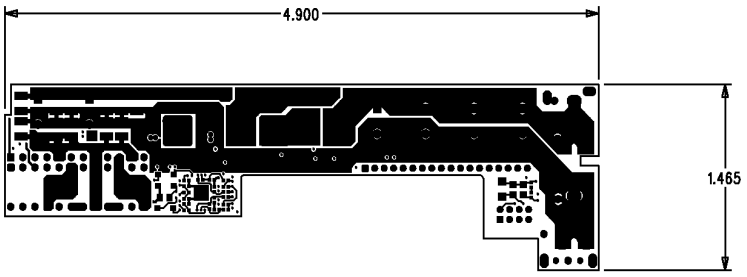
	DRAWN: KEH	DATE: 07/16/15	LAYER: SILKSCREEN BOTTOM (6)
	CHECKED: .	DATE: .	
	APPROVED: .	DATE: .	(a) MOTTOM NEEN2KLIS
DO NOT SCALE DRAWING	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		TITLE: PWB nanoflex 24V Module
	DIMENSIONAL TOLERANCE XX .01 XXX .005		PART No.: 10015558 REV: C
NEXT ASSY / USED ON	CAD FILE NAME: 10015558C0.PCB		

ssb006029.pho – Tue Nov 10 16:50:01 2015



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS		
DRAWN	KEH	DATE 07/16/15
CHECKED	.	DATE .
APPROVED	.	DATE .

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE
XX .01 XXX .005

CAD FILE NAME
10015558C0.PCB

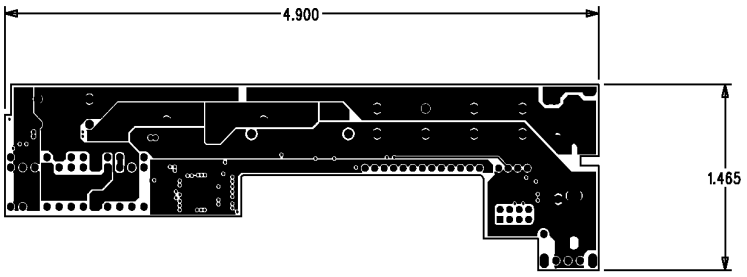
XP Power LLC
15641 RED HILL AVE, SUITE 100
TUSTIN, CA 92780

LAYER:
TOP SIDE ART (LAYER 1)

TITLE
PWB nanoflex 24V Module

PART No.	REV
10015558	C

art001.pho – Tue Nov 10 16:49:54 2015



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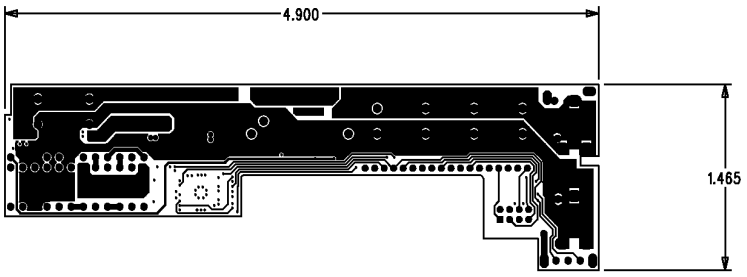
	DRAWN: KEH	DATE: 07/16/15	LAYER: INT1 INNER ART (LAYER 2)
	CHECKED: .	DATE: .	
	APPROVED: .	DATE: .	
DO NOT SCALE DRAWING	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		TITLE: PWB nanoflex 24V Module
	DIMENSIONAL TOLERANCE XX .01 XXX .005		PART No.: 10015558 REV: C
NEXT ASSY / USED ON	CAD FILE NAME: 10015558C0.PCB		

art002.pho – Tue Nov 10 16:49:55 2015



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS		
DRAWN	KEH	DATE 07/16/15
CHECKED	.	DATE .
APPROVED	.	DATE .

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE
XX .01 XXX .005

CAD FILE NAME
10015558C0.PCB

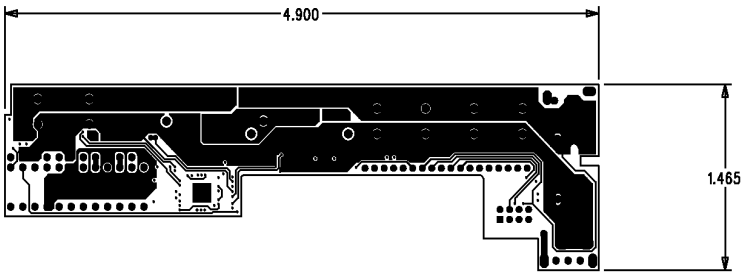
XP Power LLC
15641 RED HILL AVE, SUITE 100
TUSTIN, CA 92780

LAYER:
INT2 INNER ART (LAYER 3)

TITLE
PWB nanoflex 24V Module

PART No.	REV
10015558	C

art003.pho – Tue Nov 10 16:49:57 2015



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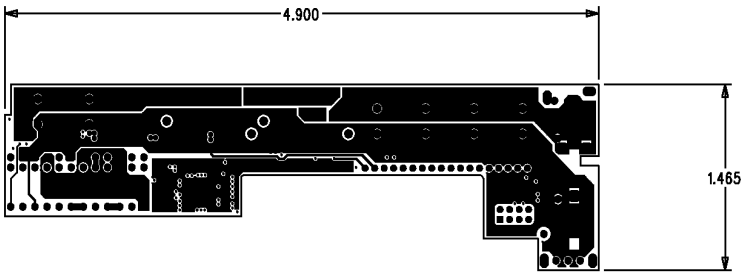
	DRAWN: KEH	DATE: 07/16/15	LAYER: INT3 INNER ART (LAYER 4)
	CHECKED: .	DATE: .	
	APPROVED: .	DATE: .	
DO NOT SCALE DRAWING	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		TITLE: PWB nanoflex 24V Module
	DIMENSIONAL TOLERANCE XX .01 XXX .005		PART No.: 10015558 REV: C
NEXT ASSY / USED ON	CAD FILE NAME: 10015558C0.PCB		

art004.pho – Tue Nov 10 16:49:58 2015



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS

DRAWN	KEH	DATE 07/16/15
CHECKED	.	DATE .
APPROVED	.	DATE .

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE
XX .01 XXX .005

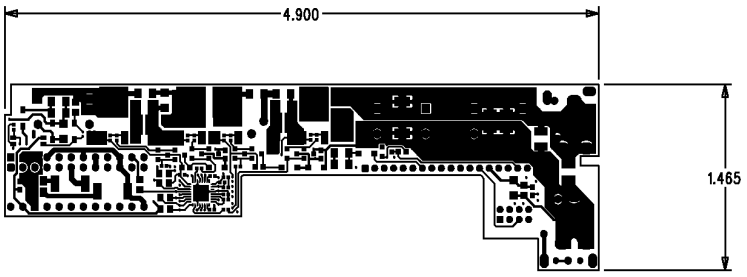
CAD FILE NAME
10015558C0.PCB

XP Power LLC
15641 RED HILL AVE, SUITE 100
TUSTIN, CA 92780

LAYER:
INT4 INNER ART (LAYER 5)

TITLE
PWB nanoflex 24V Module

PART No.	REV
10015558	C



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS

DRAWN	KEH	DATE 07/16/15
CHECKED	.	DATE .
APPROVED	.	DATE .

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE
XX .01 XXX .005

CAD FILE NAME
10015558C0.PCB

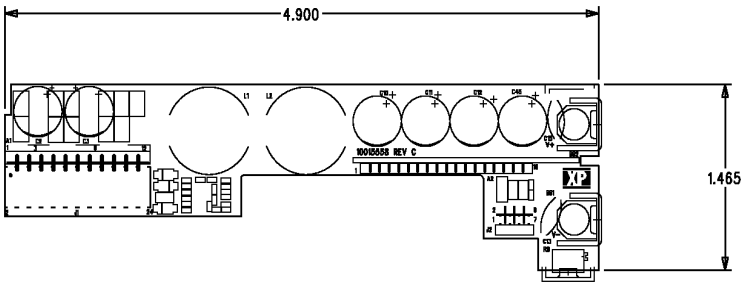
XP Power LLC
15641 RED HILL AVE, SUITE 100
TUSTIN, CA 92780

LAYER:
BOTTOM SIDE ART (LAYER 6)

BOT SIDE ART(LAYER 6)

TITLE
PWB nanoflex 24V Module

PART No.	REV
10015558	C



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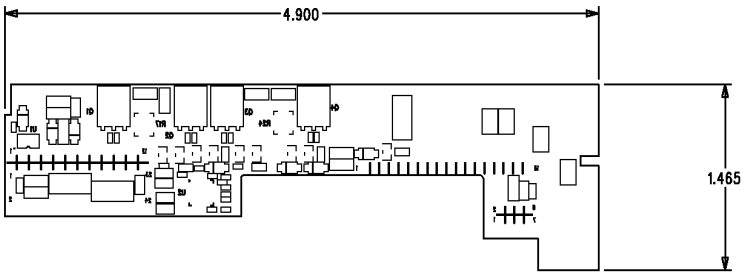
	DRAWN: KEH	DATE: 07/16/15	LAYER: SILKSCREEN TOP (1)
	CHECKED: .	DATE: .	
	APPROVED: .	DATE: .	
DO NOT SCALE DRAWING	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		TITLE: PWB nanoflex 24V Module
	DIMENSIONAL TOLERANCE XX .01 XXX .005		PART No.: 10015558 REV: C
NEXT ASSY / USED ON	CAD FILE NAME: 10015558C0.PCB		

sst001026.pho – Tue Nov 10 16:50:01 2015



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS

DRAWN KEH	DATE 07/16/15
CHECKED .	DATE .
APPROVED .	DATE .

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE XX .01 XXX .005

CAD FILE NAME 10015558C0.PCB

XP Power LLC
15641 RED HILL AVE, SUITE 100
TUSTIN, CA 92780

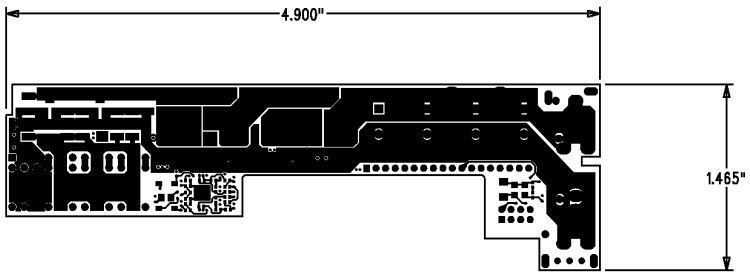
LAYER: SILKSCREEN BOTTOM (6)

(a) MOTTOB NEEN2KLIS

TITLE PWB nanoflex 24V Module

PART No. 10015558 REV C

ssb006029.pho – Tue Nov 10 16:50:01 2015



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS		
DRAWN	KEH	DATE 03/11/14
CHECKED	.	DATE .
APPROVED	.	DATE .

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE XX .01 XXX .005

CAD FILE NAME 10015653E0.PCB

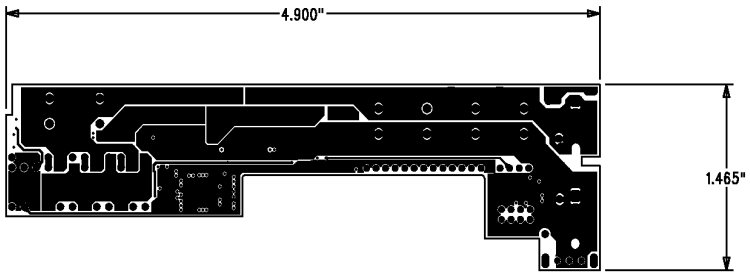
XP Power LLC
15641 RED HILL AVENUE, #100
TUSTIN, CA 92780

LAYER: TOP SIDE ART (LAYER 1)

TITLE PWB NanoFlex 5V module

PART No. 10015653 REV E

art001.pho – Thu Nov 12 11:03:49 2015



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS		
DRAWN	KEH	DATE 03/11/14
CHECKED	.	DATE .
APPROVED	.	DATE .

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE XX .01 XXX .005

CAD FILE NAME 10015653E0.PCB

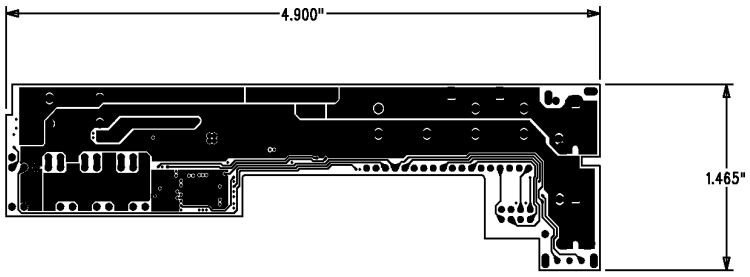
XP Power LLC
15641 RED HILL AVENUE, #100
TUSTIN, CA 92780

LAYER: INT1 INNER ART (LAYER 2)

TITLE PWB NanoFlex 5V module

PART No. 10015653 REV E

art002.pho – Thu Nov 12 11:03:50 2015



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS

DRAWN	KEH	DATE 03/11/14
CHECKED	.	DATE .
APPROVED	.	DATE .

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE XX .01 XXX .005

CAD FILE NAME 10015653E0.PCB

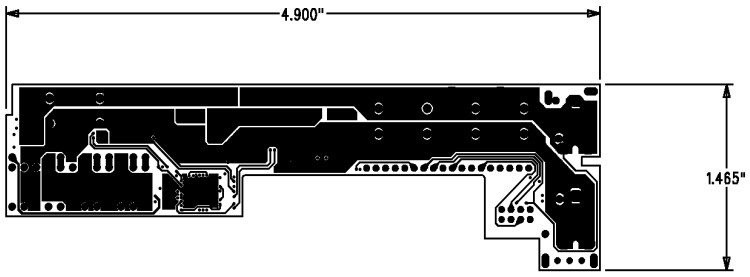
XP Power LLC
15641 RED HILL AVENUE, #100
TUSTIN, CA 92780

LAYER: INT2 INNER ART (LAYER 3)

TITLE PWB NanoFlex 5V module

PART No. 10015653 REV E

art003.pho – Thu Nov 12 11:03:51 2015



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS		
DRAWN	KEH	DATE 03/11/14
CHECKED	.	DATE .
APPROVED	.	DATE .

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE XX .01 XXX .005

CAD FILE NAME 10015653E0.PCB

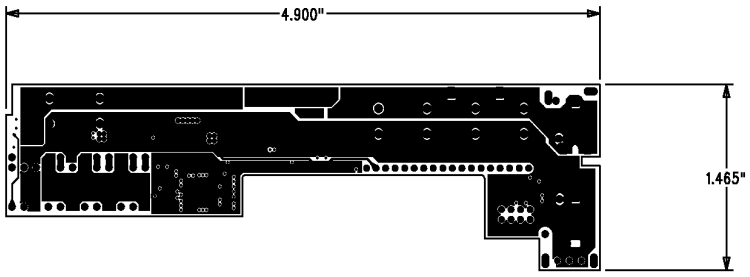
XP Power LLC
15641 RED HILL AVENUE, #100
TUSTIN, CA 92780

LAYER: INT3 INNER ART (LAYER 4)

TITLE PWB NanoFlex 5V module

PART No. 10015653 REV E

art004.pho – Thu Nov 12 11:03:52 2015



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS

DRAWN	KEH	DATE 03/11/14
CHECKED	.	DATE .
APPROVED	.	DATE .

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE XX .01 XXX .005

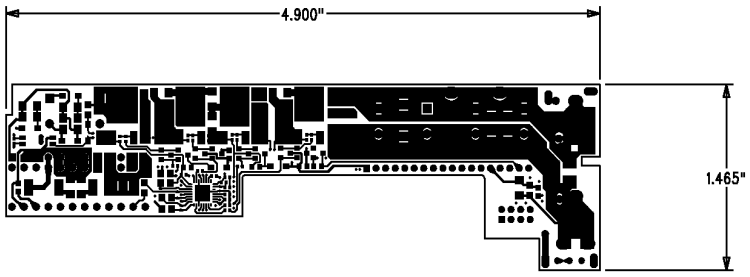
CAD FILE NAME 10015653E0.PCB

XP Power LLC
15641 RED HILL AVENUE, #100
TUSTIN, CA 92780

LAYER: INT4 INNER ART (LAYER 5)

TITLE PWB NanoFlex 5V module

PART No. 10015653 REV E



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS

DRAWN	KEH	DATE 03/11/14
CHECKED	.	DATE .
APPROVED	.	DATE .

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE XX .01 XXX .005

CAD FILE NAME 10015653E0.PCB

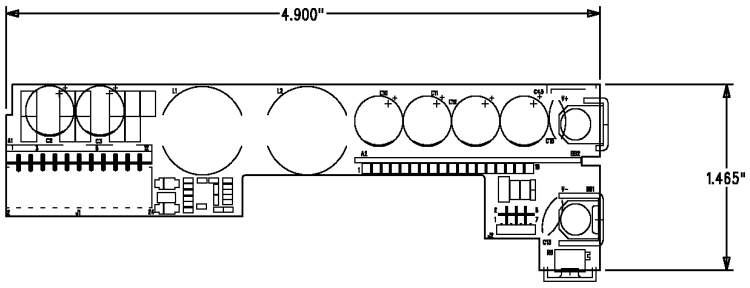
XP Power LLC
15641 RED HILL AVENUE, #100
TUSTIN, CA 92780

LAYER: BOTTOM SIDE ART (LAYER 6)

BOT SIDE ART(LAYER 6)

TITLE PWB NanoFlex 5V module

PART No. 10015653 REV E



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS		
DRAWN	KEH	DATE 03/11/14
CHECKED	.	DATE .
APPROVED	.	DATE .

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE XX .01 XXX .005

CAD FILE NAME 10015653E0.PCB

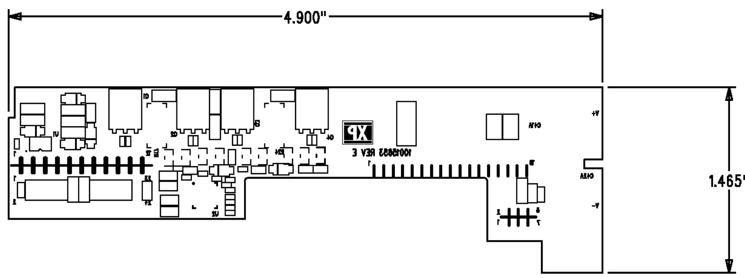
XP Power LLC
15641 RED HILL AVENUE, #100
TUSTIN, CA 92780

LAYER: SILKSCREEN TOP (1)

TITLE PWB NanoFlex 5V module

PART No.	REV
10015653	E

sst001026.pho – Thu Nov 12 11:03:55 2015



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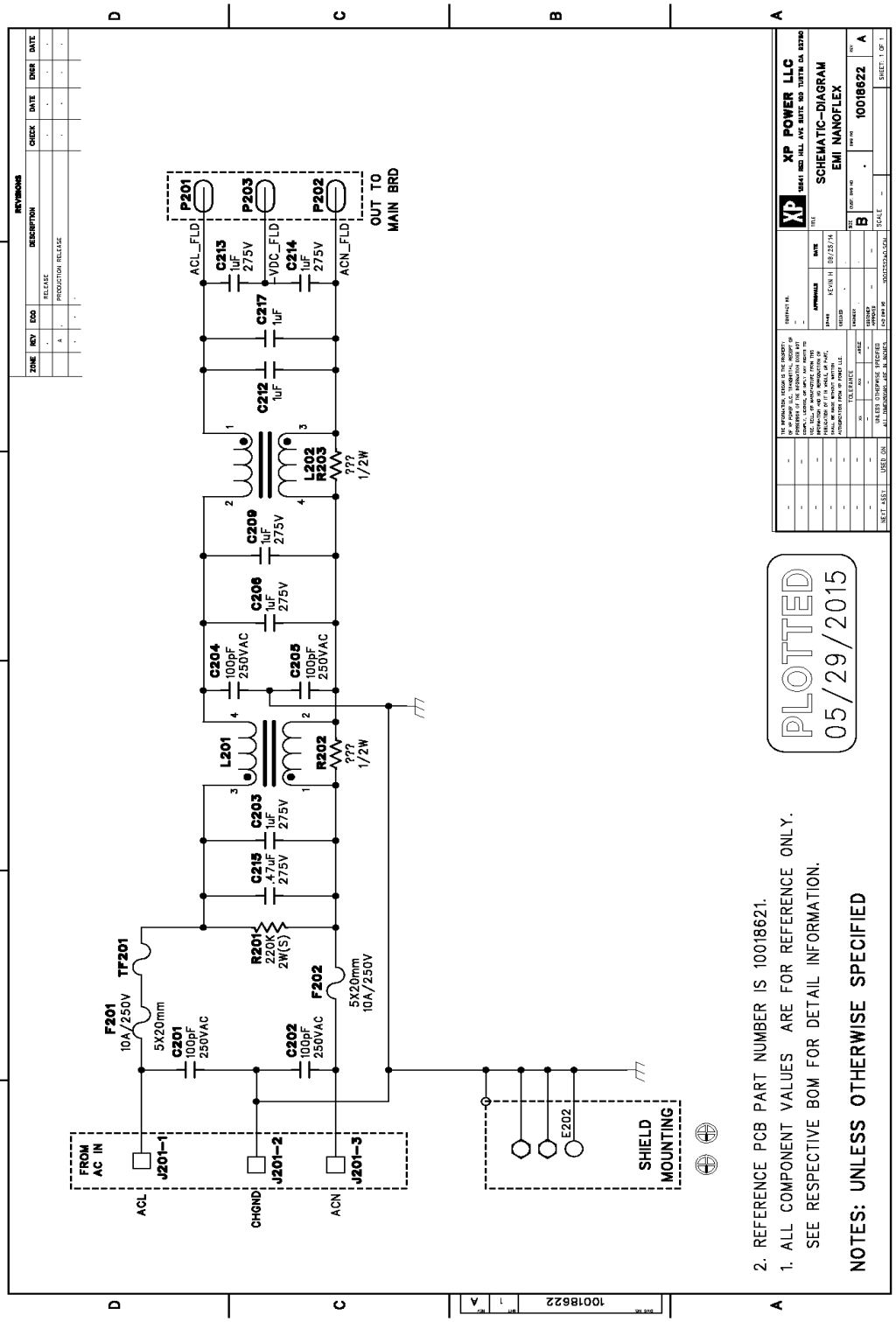
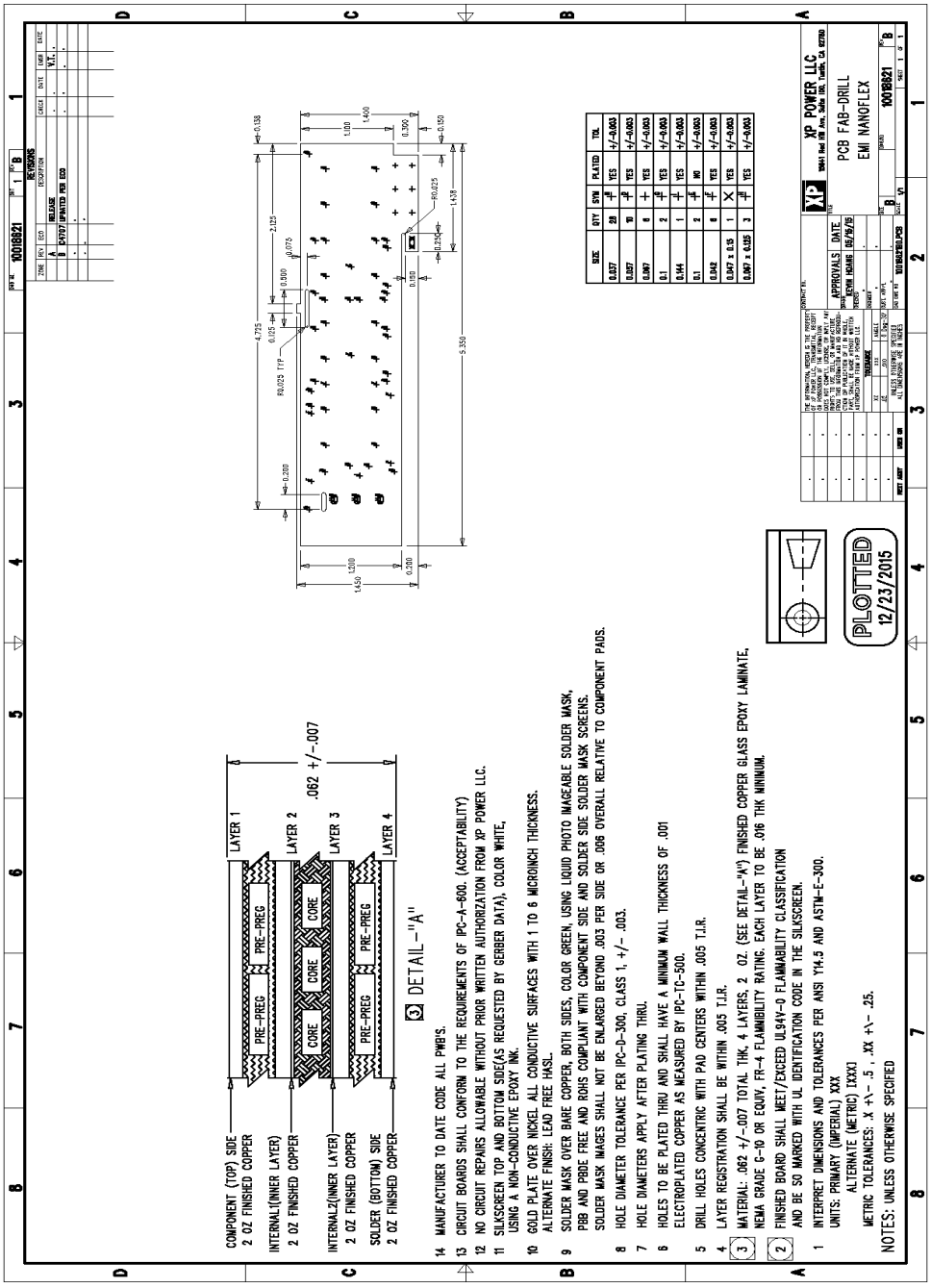
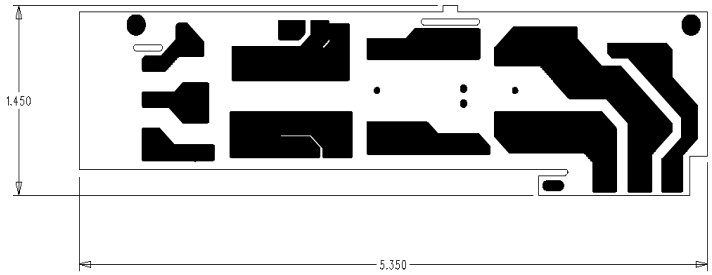
		DRAWN KEH	DATE 03/11/14		
		CHECKED .	DATE .	LAYER: SILKSCREEN BOTTOM (6)	
		APPROVED .	DATE .		
DO NOT SCALE DRAWING		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		SILKSCREEN BOTTOM (6)	
		DIMENSIONAL TOLERANCE XX .01 XXX .005		TITLE PWB NanoFlex 5V module	
NEXT ASSY	USED ON	CAD FILE NAME 10015653E0.PCB		PART No. 10015653	REV E

ssb006029.pho - Thu Nov 12 11:03:56 2015


REVISIONS
ZONE REV ECO DESCRIPTION CHECK DATE ENGR DATE
RELEASE
PRODUCTION RELEASE
FROM AC IN
J201-1
J201-2
J201-3
ACL
CHGND
ACN
F201 10A/250V 5X20mm
TF201
C201 100pF 250VAC
C202 100pF 250VAC
R201 220K 2W(S)
F202 5X20mm 10A/250V
C215 4.7uF 275V
C203 1uF 275V
L201
R202 ??? 1/2W
C204 100pF 250VAC
C205 100pF 250VAC
C206 1uF 275V
C209 1uF 275V
L202
R203 ??? 1/2W
C212 1uF
C217 1uF
C213 1uF 275V
C214 1uF 275V
P201
P203
P202
ACL_FLD
VDC_FLD
ACN_FLD
OUT TO MAIN BRD
E202
SHIELD MOUNTING
PLOTTED 05/29/2015
XP POWER LLC
SCHEMATIC-DIAGRAM
EMI NANOFLEX
10018622
NOTES: UNLESS OTHERWISE SPECIFIED
1. ALL COMPONENT VALUES ARE FOR REFERENCE ONLY. SEE RESPECTIVE BOM FOR DETAIL INFORMATION.
2. REFERENCE PCB PART NUMBER IS 10018621.


COMPONENT (TOP) SIDE
2 OZ FINISHED COPPER
PRE-PREG
INTERNAL1(INNER LAYER)
2 OZ FINISHED COPPER
CORE
INTERNAL2(INNER LAYER)
2 OZ FINISHED COPPER
PRE-PREG
SOLDER (BOTTOM) SIDE
2 OZ FINISHED COPPER
LAYER 1
LAYER 2
LAYER 3
LAYER 4
.062 +/-.007
3 DETAIL-"A"
PLOTTED
12/23/2015
XP POWER LLC
PCB FAB-DRILL
EMI NANOFLEX



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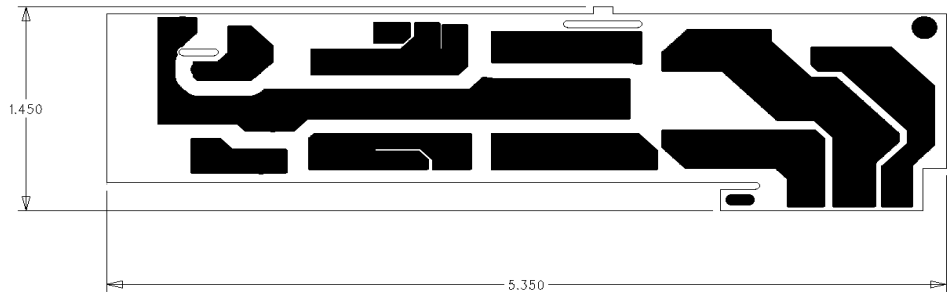
		DRAWN KEVIN HOANG / DATE 05/15/15	
		CHECKED / DATE	LAYER: TOP SIDE ART (LAYER 1)
DO NOT SCALE DRAWING		APPROVED / DATE	TITLE: EMI NANOFLEX
		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	PART No. 10018621 / REV B
NEXT ASSY	USED ON	DIMENSIONAL TOLERANCE XX .01 XXX .005	CAD FILE NAME 10018621B0.PCB

art0118.pho – Wed Dec 23 11:07:32 2015



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS		
DRAWN	KEVIN HOANG	DATE 05/15/15
CHECKED	•	DATE •
APPROVED	•	DATE •

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE
XX .01 XXX .005

XP POWER LLC
15641 Red Hill Ave, #100
Tustin, CA 92780

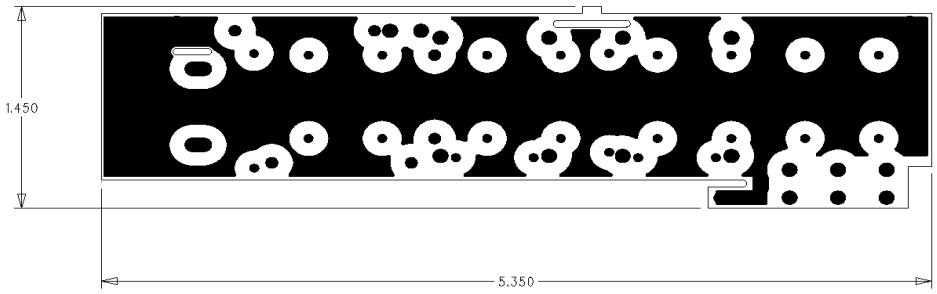
LAYER: INT1 INNER ART (LAYER 2)

TITLE: EMI NANOFLEX

PART No. 10018621 REV B

CAD FILE NAME 10018621B0.PCB

art0218.pho – Thu Jan 21 16:48:41 2016



DO NOT SCALE DRAWING

NEXT ASSY	USED ON

APPROVALS		
DRAWN	KEVIN HOANG	DATE 05/15/15
CHECKED	.	DATE .
APPROVED	.	DATE .

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DIMENSIONAL TOLERANCE XX .01 XXX .005

XP POWER LLC
15641 Red Hill Ave, #100
Tustin, CA 92780

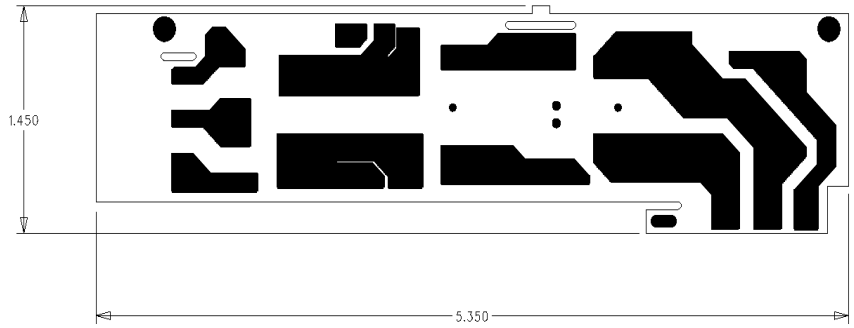
LAYER: INT2 INNER ART (LAYER 3)

TITLE: EMI NANOFLEX

PART No. 10018621 REV B

CAD FILE NAME 10018621B0.PCB

art0318.pho – Thu Jan 21 16:47:00 2016



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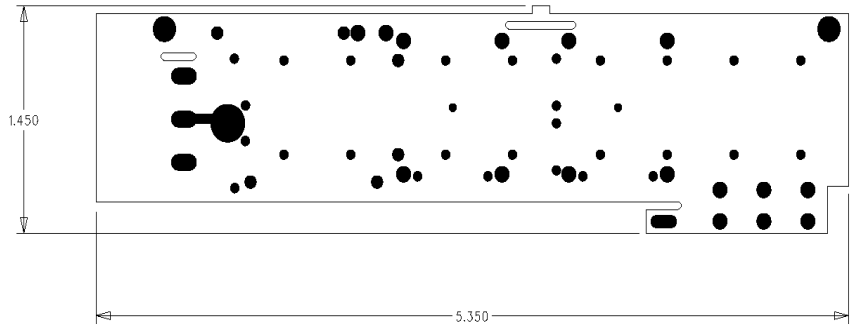
	DRAWN KEVIN HOANG	DATE 05/15/15	LAYER: BOTTOM SIDE (LAYER 4)
	CHECKED .	DATE .	
DO NOT SCALE DRAWING	APPROVED .	DATE .	TITLE EMI NANOFLEX
	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		PART No. 10018621 REV B
NEXT ASSY / USED ON	DIMENSIONAL TOLERANCE XX .01 XXX .005		CAD FILE NAME 10018621B0.PCB

art0418.pho – Wed Dec 23 11:07:35 2015

File E139109 Vol. X1 Sec. A160 SCH-09(Page 6)Issued: 2016-02-23



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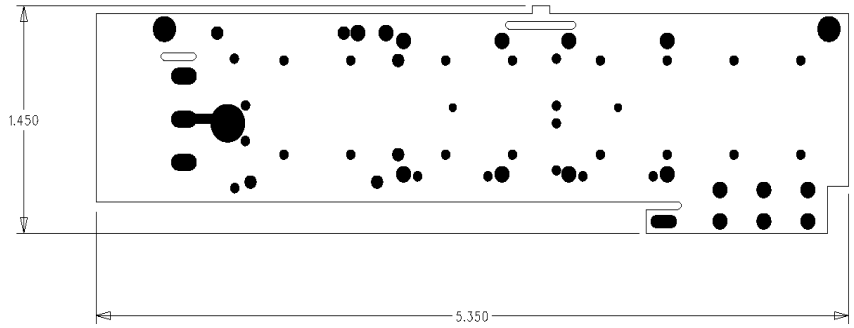
	DRAWN KEVIN HOANG	DATE 05/15/15	LAYER: SOLDER MASK TOP (1)
DO NOT SCALE DRAWING	CHECKED .	DATE .	
	APPROVED .	DATE .	TITLE EMI NANOFLEX
	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		PART No. 10018621 REV B
NEXT ASSY / USED ON	DIMENSIONAL TOLERANCE XX .01 XXX .005		CAD FILE NAME 10018621B0.PCB

sm0118.pho – Wed Dec 23 11:07:36 2015



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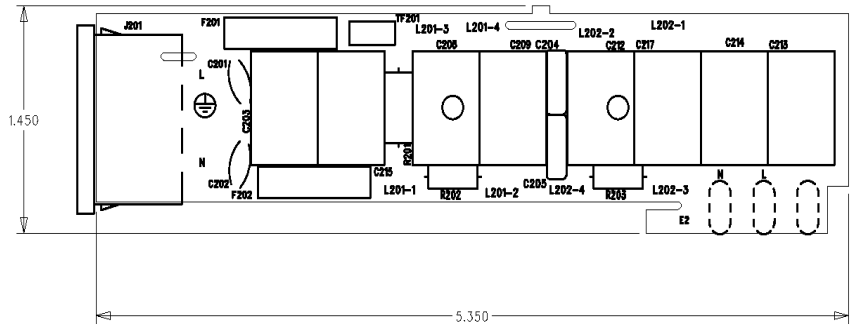
	DRAWN KEVIN HOANG	DATE 05/15/15	LAYER (4) SOLDER MASK BOTTOM SOLDER MASK BOTTOM (4)
	CHECKED .	DATE .	
DO NOT SCALE DRAWING	APPROVED .	DATE .	TITLE EMI NANOFLEX
	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		PART No. 10018621 REV B
NEXT ASSY / USED ON	DIMENSIONAL TOLERANCE XX .01 XXX .005		CAD FILE NAME 10018621B0.PCB



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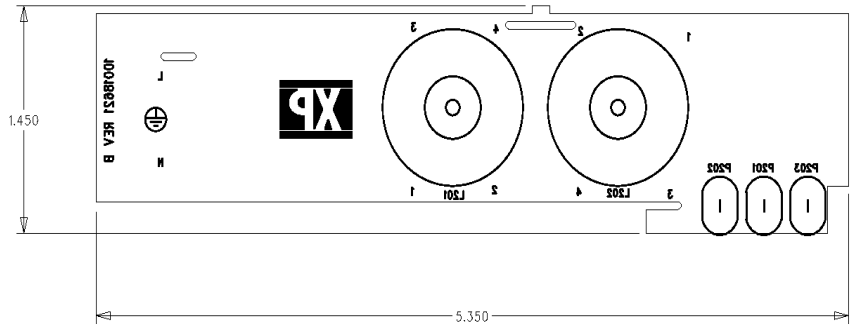
	DRAWN KEVIN HOANG	DATE 05/15/15	LAYER: SILKSCREEN TOP (1)
	CHECKED .	DATE .	
DO NOT SCALE DRAWING	APPROVED .	DATE .	TITLE EMI NANOFLEX
	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		PART No. 10018621 REV B
NEXT ASSY / USED ON	DIMENSIONAL TOLERANCE XX .01 XXX .005		CAD FILE NAME 10018621B0.PCB

sst0118.pho – Wed Dec 23 11:07:38 2015



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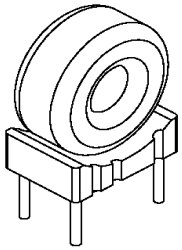
	DRAWN KEVIN HOANG	DATE 05/15/15	LAYER: SILKSCREEN BOTTOM (4) (4) BOTTOM SILKSCREEN
DO NOT SCALE DRAWING	CHECKED .	DATE .	TITLE EMI NANOFLEX
	APPROVED .	DATE .	PART No. 10018621 REV B
	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		
NEXT ASSY / USED ON	DIMENSIONAL TOLERANCE XX .01 XXX .005		CAD FILE NAME 10018621B0.PCB

ssb0418.pho – Wed Dec 23 11:07:38 2015

REVISIONS						
REV	ECO	DESCRIPTION	CHECK	DATE	ENGR	DATE
01	.	PROTOTYPE RELEASE	.	.	.	.
A	C4408	PRODUCTION RELEASE	KH	12/05/14	VT	12/05/14



NOTES: UNLESS OTHERWISE SPECIFIED

THIRD ANGLE PROJ. PLOTTED

.	.
.	.
.	.
.	.
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.	.
.	.
NEXT ASSY	USED ON

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TOLERANCE		
XX	XXX	ANGLE
.02	.010	0°30'

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN INCHES

CONTRACT NO. .

APPROVALS	DATE
DRAWN JAYESH	09/08/14
CHECKED ALDRIN	09/08/14
ENGINEER V.TONG	09/08/14
CUST. APPV'L .	.
CAD DWG NO	

XP POWER LLC
1241 E. DYER RD, SUITE 150, SANTA ANA, CA 92705

TITLE
TRANSFORMER ASSY, CURRENT NANOFLEX

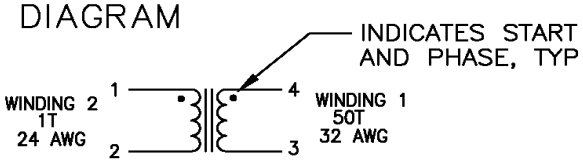
SIZE	DWG.NO	REV
A	10017558	A

SCALE: NONE SHT 1 OF 3

REVISIONS

REVISIONS–SEE SHEET ONE

SCHEMATIC DIAGRAM



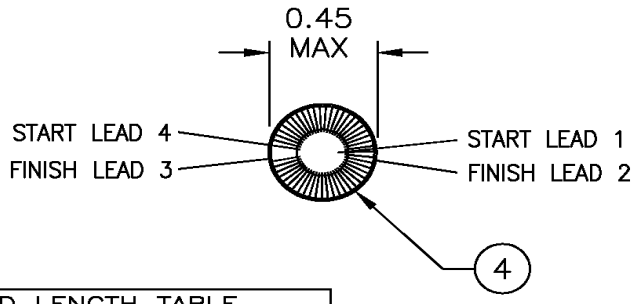
NOTES

1. MATERIAL: SEE SEPARATE BILL OF MATERIALS.
2. WINDING TABLE:

WDG NO.	WIRE	TURNS	START	FINISH	NOTES
1	32 AWG ITEM 2	50	4	3	
2	24 AWG ITEM 3	1	1	2	

3. INDUCTANCE AT 10KHz 1V: (WINDING NO. 1): 9.0 mH ±1.5 mH.
4. IDENTIFY, BY BAG AND TAG, WITH PART NUMBER AND LATEST REVISION.
5. CLASS F INSULATION SYSTEM.
6. FINISH WRAP 1 TURN TAPE ITEM 4.

WINDING DETAIL



LEAD LENGTH TABLE		
MEASURED FROM EDGE OF INDUCTOR		
LEAD NO	CUT LENGTH	TIN LENGTH
1,2	.7±.1	.35±.05
5,6	.85±.1	.5±.05

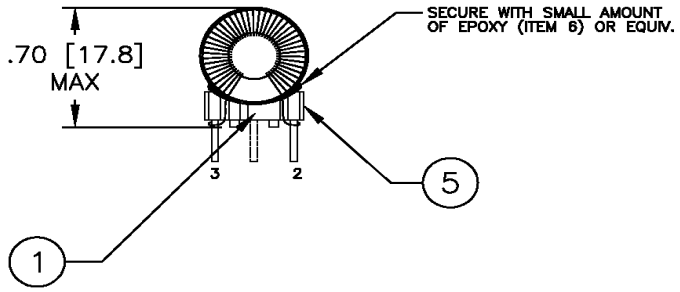
PLOTTED

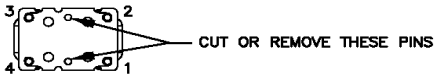
SIZE	DWG.NO	REV
A	10017558	A
SCALE:NONE		SHT 2 OF 3

REVISIONS

REVISIONS–SEE SHEET ONE

ASSEMBLY DETAIL

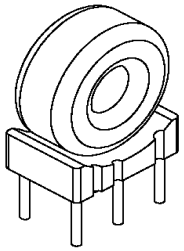




PLOTTED

SIZE	DWG.NO	REV
A	10017558	A
SCALE:NONE		SHT 3 OF 3

REVISIONS						
REV	ECO	DESCRIPTION	CHECK	DATE	ENGR	DATE
01	.	PROTOTYPE RELEASE	.	.	.	.
A	C4408	PRODUCTION RELEASE	KH	12/05/14	VT	12/05/14



NOTES: UNLESS OTHERWISE SPECIFIED

THIRD ANGLE PROJ. PLOTTED

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NEXT ASSY	USED ON

TOLERANCE		
XX	XXX	ANGLE
.02	.010	0°30'

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN INCHES

CONTRACT NO. .

APPROVALS	DATE
DRAWN JAYESH	09/08/14
CHECKED ALDRIN	09/08/14
ENGINEER V.TONG	09/08/14
CUST. APPV'L .	.
CAD DWG NO	

XP POWER LLC
1241 E. DYER RD, SUITE 150, SANTA ANA, CA 92705

TITLE
TRANSFORMER ASSY, DRIVE NANOFLEX

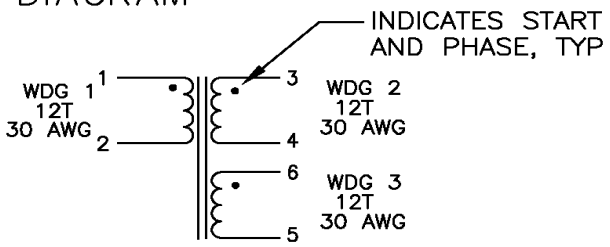
SIZE	DWG.NO	REV
A	10017557	A

SCALE: NONE SHT 1 OF 3

REVISIONS

REVISIONS–SEE SHEET ONE

SCHEMATIC DIAGRAM



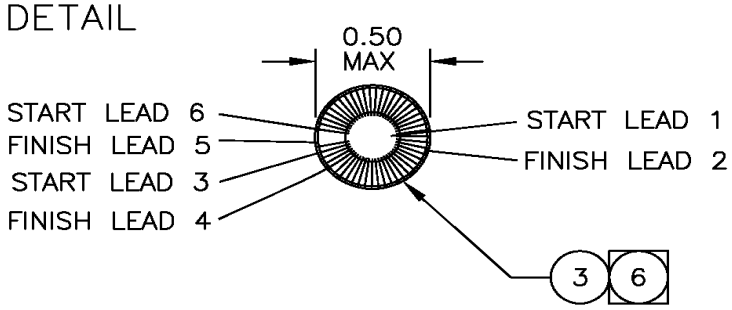
NOTES

1. MATERIAL: SEE SEPARATE BILL OF MATERIALS.
2. WINDING TABLE:

WDG NO.	WIRE	TURNS	START	FINISH	NOTES
1	30 AWG ITEM 2	12	1	2	TRIFILAR WIND EVENLY AROUND CORE
2	30 AWG ITEM 2	12	3	4	
3	30 AWG ITEM 2	12	6	5	

3. TEST:
   A. VERIFY TURNS RATIO.
   B. INDUCTANCE AT 10KHz 1V: (LEAD 1 TO LEAD 2): 525 uH ±100 uH.
   C. HIPOT: 4800VAC 1mA 3 SEC FROM LEADS 1,2 TO 3,4,5,6.
   600VAC 1mA 3 SEC FROM LEADS 3,4 TO 5,6.
4. IDENTIFY, BY BAG AND TAG, WITH PART NUMBER AND LATEST REVISION.
5. CLASS F INSULATION SYSTEM.
6. FINISH WRAP 2 LAYERS OF TAPE ITEM 3.
7. BREAKOUT AND TINNING ALL LEADS AS SHOWN IN LEAD LENGTH TABLE.

WINDING DETAIL



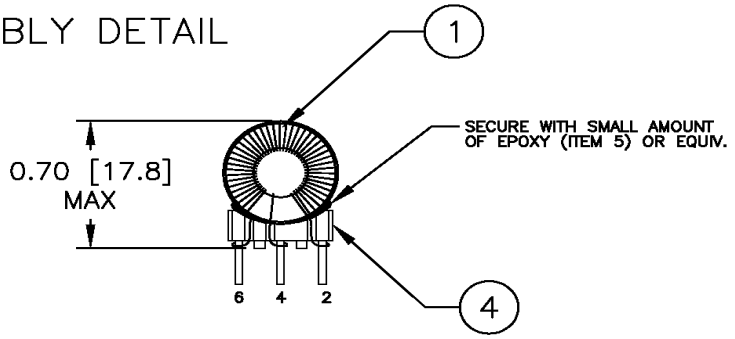
PLOTTED

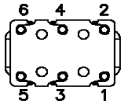
SIZE	DWG.NO	REV
A	10017557	A
SCALE: 1/1		SHT 2 OF 3

REVISIONS

REVISIONS–SEE SHEET ONE

ASSEMBLY DETAIL





PLOTTED

SIZE	DWG.NO	REV
A	10017557	A
SCALE:NONE		SHT 3 OF 3

REVISIONS						
REV	ECO	DESCRIPTION	CHECK	DATE	ENGR	DATE
01		PROTOTYPE RELEASE				.
02		PROTOTYPE CHANGES				
A		PRODUCTION RELEASE	AP	10/21/13	VT	10/21/13

DWG.NO. 10015003 SH 1 REV A

NOTES: UNLESS OTHERWISE SPECIFIED

THIRD ANGLE PROJ.

PLOTTED

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NEXT ASSY	USED ON

TOLERANCE		
XX	XXX	ANGLE
.02	.010	0°30'

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN INCHES

CONTRACT NO. .

APPROVALS	DATE
DRAWN BEHNAM	02-06-13
CHECKED A.P	02-06-13
ENGINEER V.T.	02-06-13
CUST. APPV'L .	.
CAD DWG NO	

XP POWER LLC
1241 E. DYER RD, SUITE 150, SANTA ANA, CA 92705

TITLE
TRANSFORMER ASSY,
BIAS
NEXT GEN

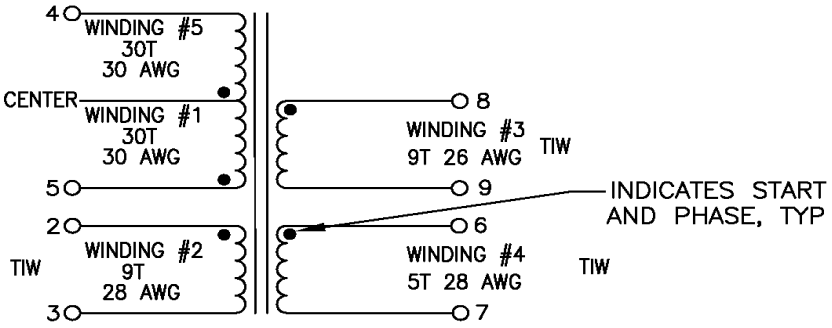
SIZE	DWG.NO	REV
A	10015003	A

SCALE NONE SHT 1 OF 3

REVISIONS
REVISIONS–SEE SHEET ONE

DWG.NO. 10015003 SHT 2 REV A

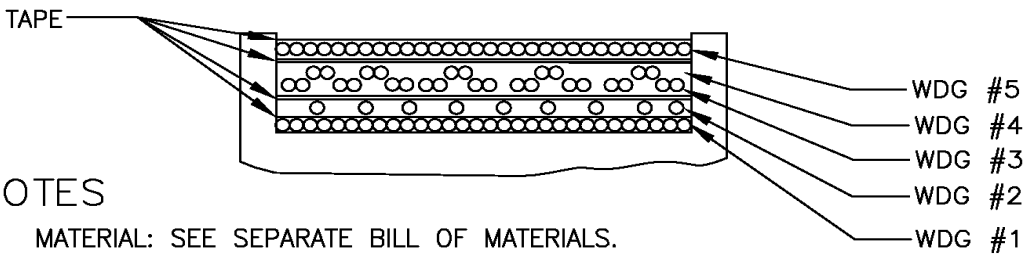
SCHEMATIC DIAGRAM



WINDING TABLE:

WDG NO.	WIRE	TURNS	START PIN	FINISH PIN	INSULATION	NOTES
1	30 AWG ITEM 7	30T	5	CENTER	1 LAYER ITEM 4	EVENLY WIND AND DISTRIBUTE OVER BOBBIN LENGTH
2	28 AWG ITEM 8	9T	2	3	2 LAYER ITEM 4	EVENLY WIND AND DISTRIBUTE OVER BOBBIN LENGTH
3	2X 26 AWG ITEM 3	9T	8	9	–	EVENLY WIND AND DISTRIBUTE OVER BOBBIN LENGTH
4	2X 28 AWG ITEM 8	5T	6	7	2 LAYER ITEM 4	EVENLY WIND AND DISTRIBUTE OVER BOBBIN LENGTH
5	30 AWG ITEM 7	30T	CENTER	4	1 LAYER ITEM 4	EVENLY WIND AND DISTRIBUTE OVER BOBBIN LENGTH

TRANSFORMER CROSS SECTION



NOTES

1. MATERIAL: SEE SEPARATE BILL OF MATERIALS.
2. WRAP THE BOTTOM CORE SIDES, ALL AROUND, WITH TAPE, ITEM 6, AND FOLD OVER CORE BOTTOM SURFACE.

PLOTTED

SIZE	DWG.NO	REV
A	10015003	A
SCALE: NONE		SHT 2 OF 3

REVISIONS

REVISIONS–SEE SHEET ONE

DWG.NO. 10015003 SHT 3 REV A

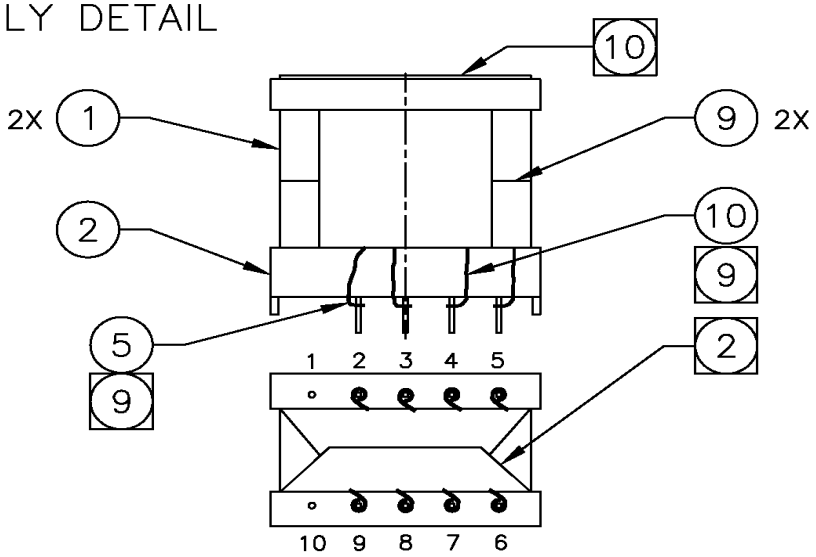
NOTES CONTINUED

3. REMOVE PIN 1 AND 10 OF BOBBIN ITEM 2.
4. APPLY GAP MATERIAL, ITEM 9, BETWEEN EACH CORE SIDE. SECURE THE CORES TIGHTLY TOGETHER WITH 3 TURNS OF TAPE, ITEM 6. GAP MATERIAL IS NOT REQUIRED ON CORE WITH CENTER POST GAPPED.
5. TOTAL BUILD UP ON BOBBIN FOR FINISHED ASSY MUST NOT EXCEED THE BOBBIN WIDTH ON SIDES OF BOBBIN.
6. VARNISH IMPREGNATE TRANSFORMER ASSEMBLY. CLEAN VARNISH OFF PINS.
7. TEST:
   A. VERIFY TURNS RATIO
   B. INDUCTANCE AT 10 KHz 1V: WINDING #1(PIN 5 TO 4) = 640uH ± 150 uH.
   C. HIPOT: 4250 VAC 1mA 3 SEC FROM PINS 5 TO 8, 5 TO 6, 2 TO 8 & 2 TO 7.
8. CLASS F INSULATION SYSTEM.

(9) SLEEVE WINDING NO. 1, AND 5 LEADS WITH SLEEVING, ITEM 10.
SLEEVE WINDING NO 2 LEADS WITH SLEEVING ITEM 5 (22 AWG).

(10) IDENTIFY, BY INK STAMPING, WITH PART NUMBER & LATEST REV ON CORE TOP.

ASSEMBLY DETAIL



BOTTOM VIEW

PLOTTED

SIZE	DWG.NO	REV
A	10015003	A
SCALE: NONE		SHT 3 OF 3

REVISIONS						
REV	ECO	DESCRIPTION	CHECK	DATE	ENGR	DATE
O1		PROTOTYPE DESIGN				
A	—	PRODUCTION RELEASE	AP	10/17/13	VP	10/17/13
B	C4154	CHANGE TURNS IS: 27 WAS: 25	AP	12/17/13	VP	12/17/13
C	C4408	ADDED WINDING DETAIL PAGE 3	KH	12/04/14	VP	12/04/14

THIRD ANGLE PROJ.

PLOTTED

NOTES: UNLESS OTHERWISE SPECIFIED

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NEXT ASSY	USED ON

TOLERANCE		
XX	XXX	ANGLE
.02	.010	0°30'

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN INCHES

CONTRACT NO. –

APPROVALS	DATE
DRAWN JP	10/17/13
CHECKED AP	10/17/13
ENGINEER VT	10/17/13
CUST. APPVL	

CAD DWG NO.

XP POWER LLC
1241 E. DYER RD, SUITE 150, SANTA ANA, CA 92705

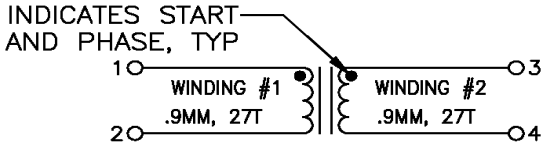
TITLE
INDUCTOR ASSY,
EMI NEXT GEN

SIZE	DWG.NO	REV
A	10015247	C

SCALE NONE SHT 1 OF 4

REVISIONS
REVISIONS—SEE SHEET ONE

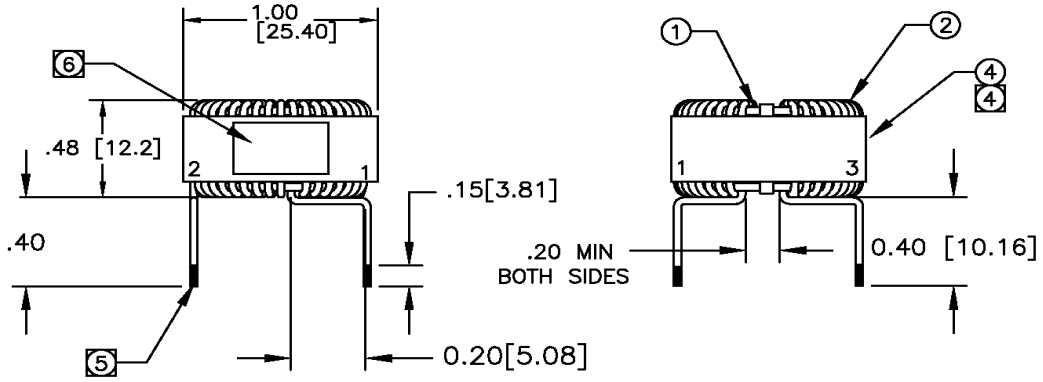
SCHEMATIC DIAGRAM



NOTES

1. MATERIAL: SEE SEPARATE BILL OF MATERIALS.
2. WINDING 1—2: 27T .9MM ITEM 2 . SEE WINDING DETAIL PAGE 3.
   WINDING 3—4: 27T .9MM ITEM 2 . SEE WINDING DETAIL PAGE 3.
3. INDUCTANCE: WINDING 1—2 AND 3—4: 3.50 mH TO 7.60 mH. @ 10KHz, 0.1V
   THE DIFFERENCE BETWEEN THE 2 WINDINGS SHALL BE NO MORE THAN 0.30mH.
4. FINISH WRAP, 2 LAYERS ITEM 4.
5. LEAVE LEADS 0.60" FOR PIN 1 & 3 AND 0.40" FOR PIN 2 & 4 LONG AND TIN ALL LEADS AS SHOWN.
6. IDENTIFY BY INK STAMPING, WITH XP PART NUMBER AND LATEST REVISION LEVEL.
7. INSTALL 2 TIE WRAPS ITEM 5 TO SEPERATE WDG 1 AND 2.

ASSEMBLY



PLOTTED

SIZE	DWG.NO	REV
A	10015247	C

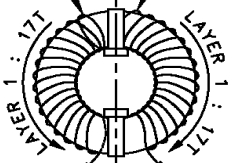
SCALE: NONE SHT 2 OF 4

REVISIONS
REVISIONS—SEE SHEET ONE

WINDING DETAIL 2

SECTION B | SECTION A

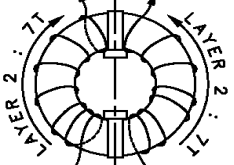
START LEAD 3 — START LEAD 1



DETAIL 1

FINISH LAYER 1, LEAD3 — FINISH LAYER 1, LEAD1

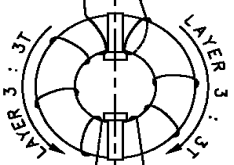
FINISH LAYER 2, LEAD3 — FINISH LAYER 2, LEAD1



DETAIL 2

START LAYER 2, LEAD3 — START LAYER 2, LEAD1

START LAYER 3, LEAD3 — START LAYER 3, LEAD1



DETAIL 3

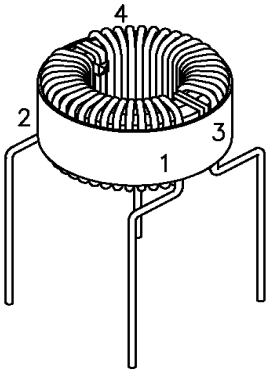
4 2

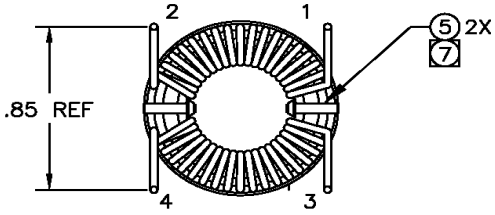
PLOTTED

SIZE	DWG.NO	REV
A	10015247	C

SCALE: NONE SHT 3 OF 4

REVISIONS
REVISIONS—SEE SHEET ONE



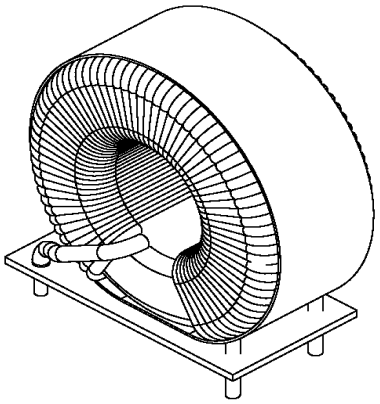


PLOTTED

SIZE	DWG.NO	REV
A	10015247	C

SCALE: NONE SHT 4 OF 4

REVISIONS						
REV	ECO	DESCRIPTION	CHECK	DATE	ENGR	DATE
01	.	PROTOTYPE RELEASE	.	.	.	.
A	C4408	PRODUCTION RELEASE	KH	12/05/14	VT	12/05/14



NOTES: UNLESS OTHERWISE SPECIFIED

THIRD ANGLE PROJ. PLOTTED

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NEXT ASSY	USED ON

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TOLERANCE		
XX	XXX	ANGLE
—	—	0°30'

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN INCHES

CONTRACT NO. .

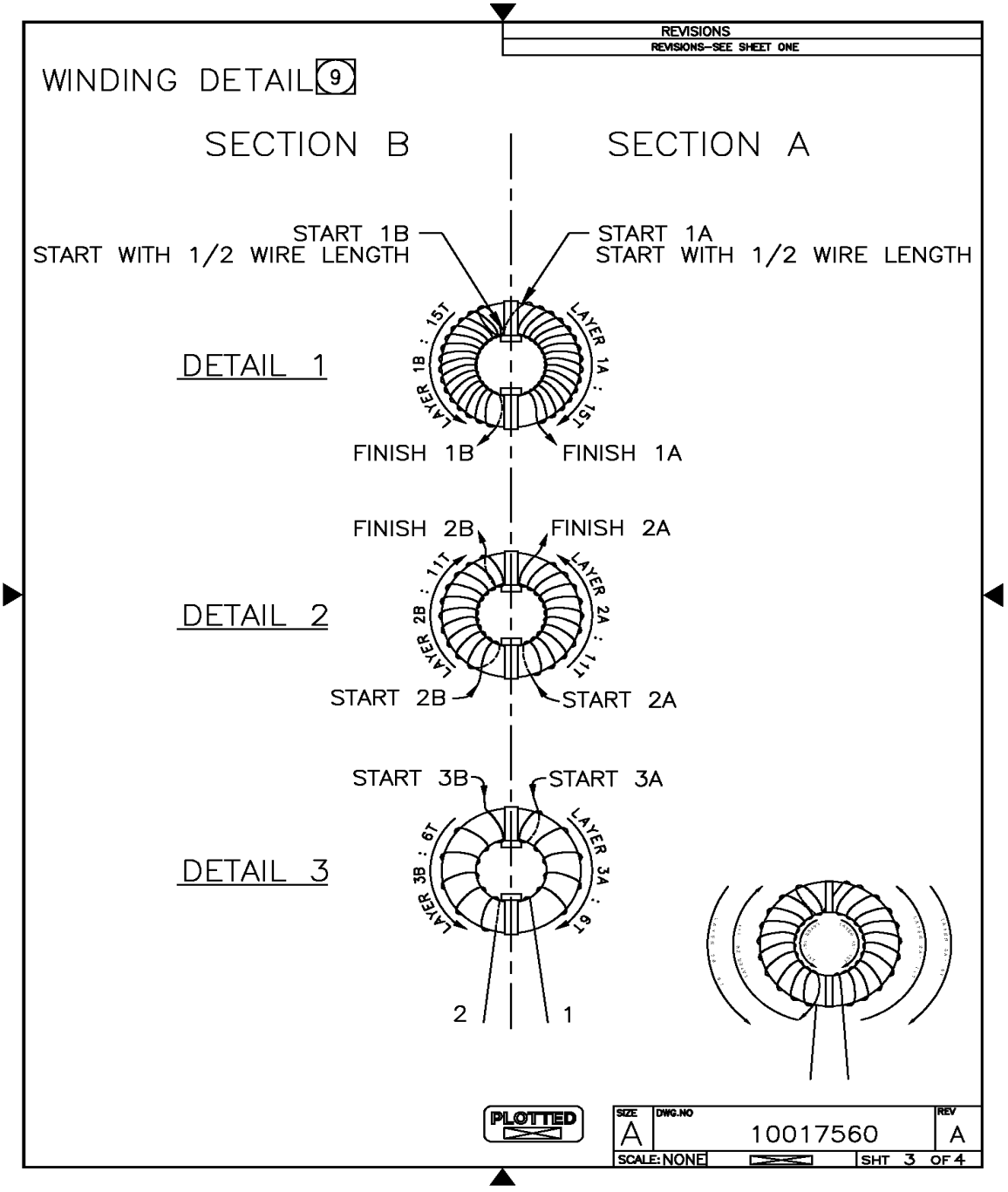
APPROVALS	DATE
DRAWN JAYESH	09/17/14
CHECKED ALDRIN	09/17/14
ENGINEER V.TONG	09/17/14
CUST. APPV'L .	.
CAD DWG NO	

XP POWER LLC
1241 E. DYER RD, SUITE 150, SANTA ANA, CA 92705

TITLE
INDUCTOR, PFC
NANOFLEX N12
.

SIZE	DWG.NO	REV
A	10017560	A

SCALE NONE SHT 1 OF 4


REVISIONS
REVISIONS--SEE SHEET ONE
WINDING DETAIL 9
SECTION B
SECTION A
START 1B
START WITH 1/2 WIRE LENGTH
START 1A
START WITH 1/2 WIRE LENGTH
DETAIL 1
LAYER 1B : 15T
LAYER 1A : 15T
FINISH 1B
FINISH 1A
FINISH 2B
FINISH 2A
DETAIL 2
LAYER 2B : 11T
LAYER 2A : 11T
START 2B
START 2A
START 3B
START 3A
DETAIL 3
LAYER 3B : 6T
LAYER 3A : 6T
2
1
PLOTTED
SIZE A
DWG.NO 10017560
REV A
SCALE: NONE
SHT 3 OF 4

REVISIONS
REVISIONS--SEE SHEET ONE

SCHEMATIC DIAGRAM

WINDING NO. 1
64T
2X 0.6MM

WINDING TABLE

WDG NO.	WIRE	TURNS	LAYER	SECTION	NOTES
1	2X 0.6MM	15	1	A	CLOCKWISE (HALF WIRE LENGTH) DETAIL 1
		15	1	B	COUNTERCLOCKWISE (HALF WIRE LENGTH) DETAIL 1
		11	2	A	COUNTERCLOCKWISE DETAIL 2
		11	2	B	CLOCKWISE DETAIL 2
		6	3	A	CLOCKWISE DETAIL 3
		6	3	B	COUNTERCLOCKWISE DETAIL 3

NOTES

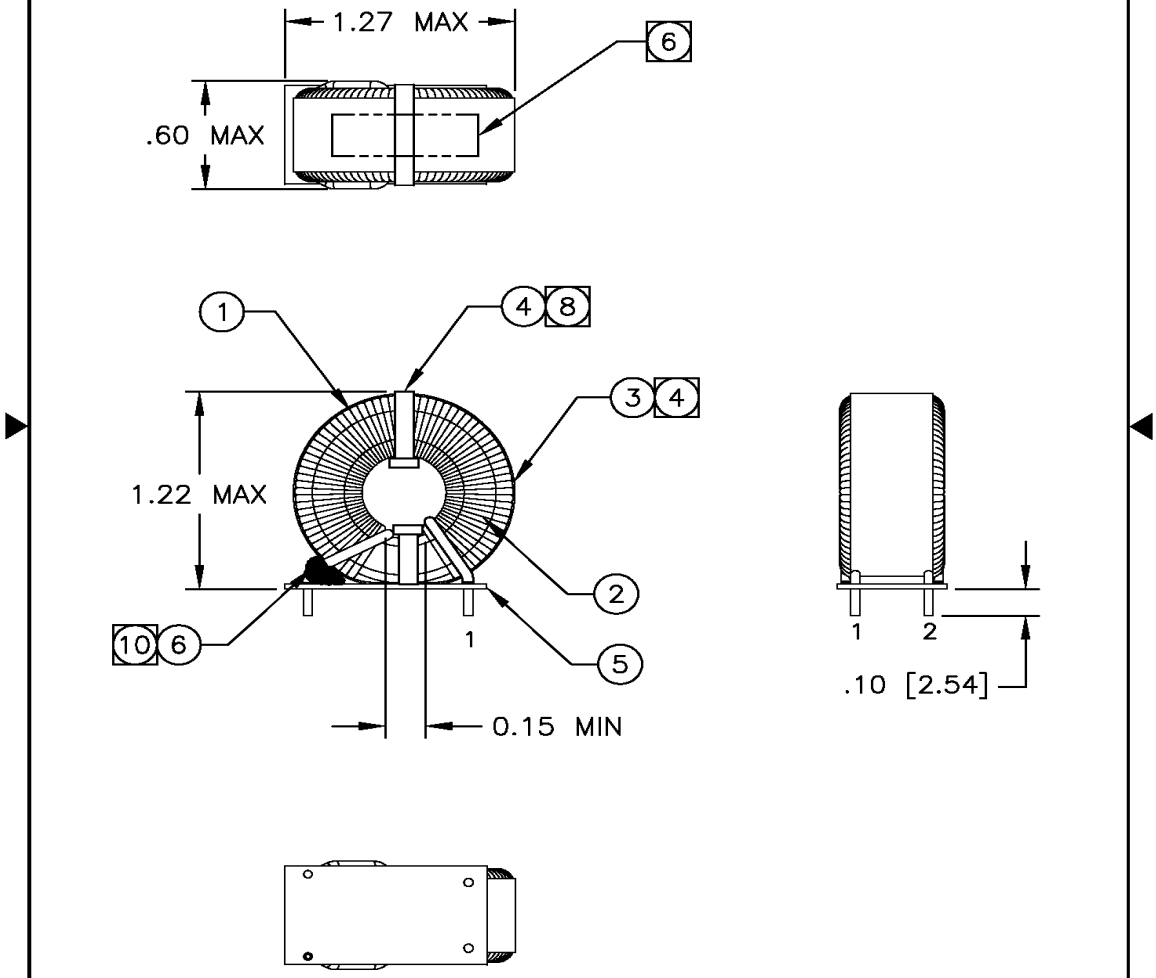
1. MATERIAL: SEE SEPARATE BILL OF MATERIAL.
2. WINDING NO. 1: 64 TOTAL TURNS, 2X 0.6MM MAGNET WIRE, ITEM 2.
3. FORM BREAKOUTS AS SHOWN.
4. FINISH WRAP WITH 2 TURNS OF TAPE, ITEM 3.
5. INDUCTANCE AT 10KHz 1V: (WINDING NO.1): 275 uh TO 340 uh.
6. MARK WITH PART NUMBER AND LATEST REVISION, WHERE SHOWN, USING PERMANENT INK.
7. CLASS F INSULATION SYSTEM.
8. INSTALL TWO TIE WRAPS, ITEM 4 AS SHOWN.
9. WINDING IS BIFILAR. SINGLE WIRE SHOWN FOR CLARITY.
10. INSTALL BUS WIRE ITEM 6 AND SECURE WITH BASE ITEM 5 USING ADHESIVE EPOXY OR EQUIV.

PLOTTED

SIZE	DWG.NO	REV
A	10017560	A
SCALE: NONE		SHT 2 OF 4

REVISIONS
REVISIONS–SEE SHEET ONE

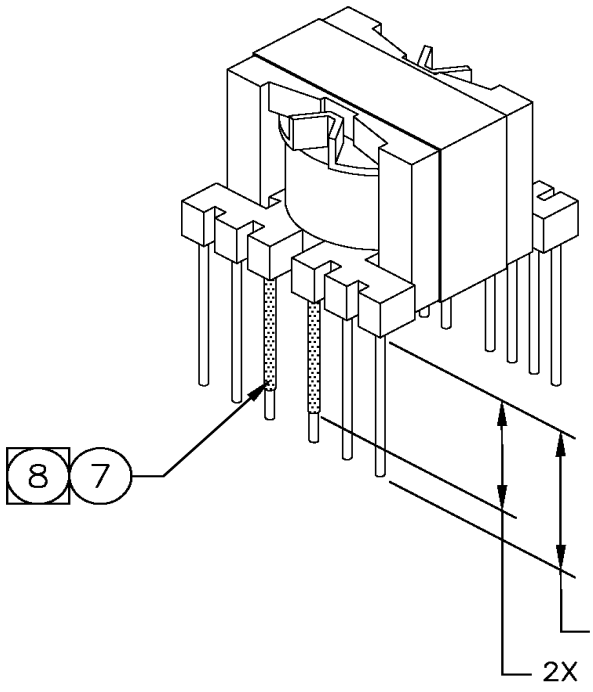
FABRICATION DETAIL



PLOTTED

SIZE	DWG.NO	REV
A	10017560	A
SCALE: NONE		SHT 4 OF 4

REVISIONS						
REV	ECO	DESCRIPTION	CHECK	DATE	ENGR	DATE
A	C4408	PRODUCTION RELEASE	KH	12/05/14	VT	12/05/14



THIRD ANGLE PROJ.

PLOTTED

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NEXT ASSY	USED ON

TOLERANCE		
XX	XXX	ANGLE
.02	.010	0°30'

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN INCHES

CONTRACT NO. .

APPROVALS	DATE
DRAWN JAYESH	09/16/14
CHECKED H. HOANG	11/14/14
ENGINEER V. TONG	11/14/14
CUST. APPV'L	
CAD DWG NO	

XP POWER LLC
1241 E. DYER RD, SUITE 150, SANTA ANA, CA 92705

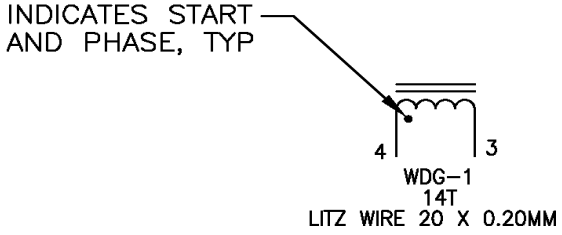
TITLE
INDUCTOR
RESONANT NANOFLEX N12

SIZE	DWG.NO	REV
A	10017559	A

SCALE NONE SHT 1 OF 3

REVISIONS
REVISIONS–SEE SHEET ONE

SCHEMATIC DIAGRAM



NOTES: UNLESS OTHERWISE SPECIFIED

1. MATERIAL: SEE SEPARATE BILL OF MATERIALS.
2. WINDING TABLE:

WDG NO.	WIRE	TURNS	START PIN	FINISH PIN	INSULATION	NOTES
1	0.20mm X 20 LITZ WIRE ITEM 3	14	4	3	1T ITEM 8	WIND EVENLY ACROSS COIL

NOTE: THE TRIPLE COATED KAPTON INSULATION MUST BE REMOVED FROM THE WIRES PRIOR TO WRAPPING THE WIRE TO THE PINS AND SOLDERING. INSULATION MUST BE .03–.06 FROM SOLDER TERMINATION ON BOBBIN PIN.

3. FORM BREAKOUT AS SHOWN.

(4) APPLY GAP MATERIAL ITEM 4 (WITH PIECES PRECUT) BETWEEN EACH LEG (15 MIL/EACH). INSTALL CORES AROUND BOBBIN AND SECURE TIGHTLY TOGETHER WITH 3 TURNS OF TAPE ITEM 5.

5. INDUCTANCE AT 10KHz 1V: L(4–3) = 13.0uH – 16.0uH

6. IDENTIFY, BY INK STAMPING, ON TAPE ON TOP OF CORE, WITH PART NUMBER AND LATEST REVISION.

7. CLASS F INSULATION.

(8) INSERT HEAT SHRINK TUBING ITEM 7 ON EACH LEADS. ENSURE SLEEVE MUST START FROM BOTTOM OF BOBBIN.

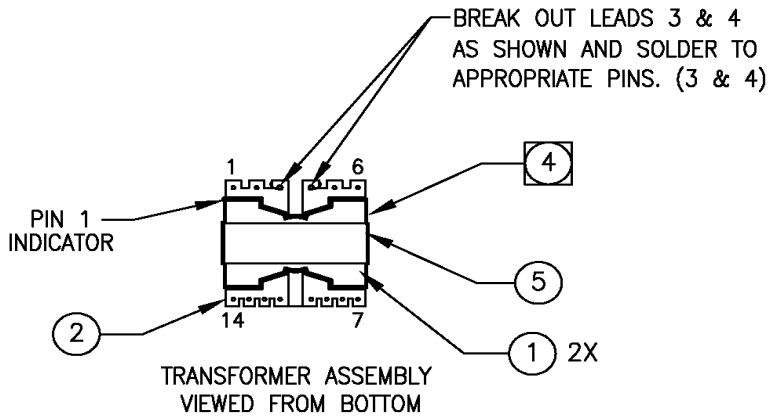
PLOTTED

SIZE	DWG.NO	REV
A	10017559	A
SCALE: NONE		SHT 2 OF 3

REVISIONS

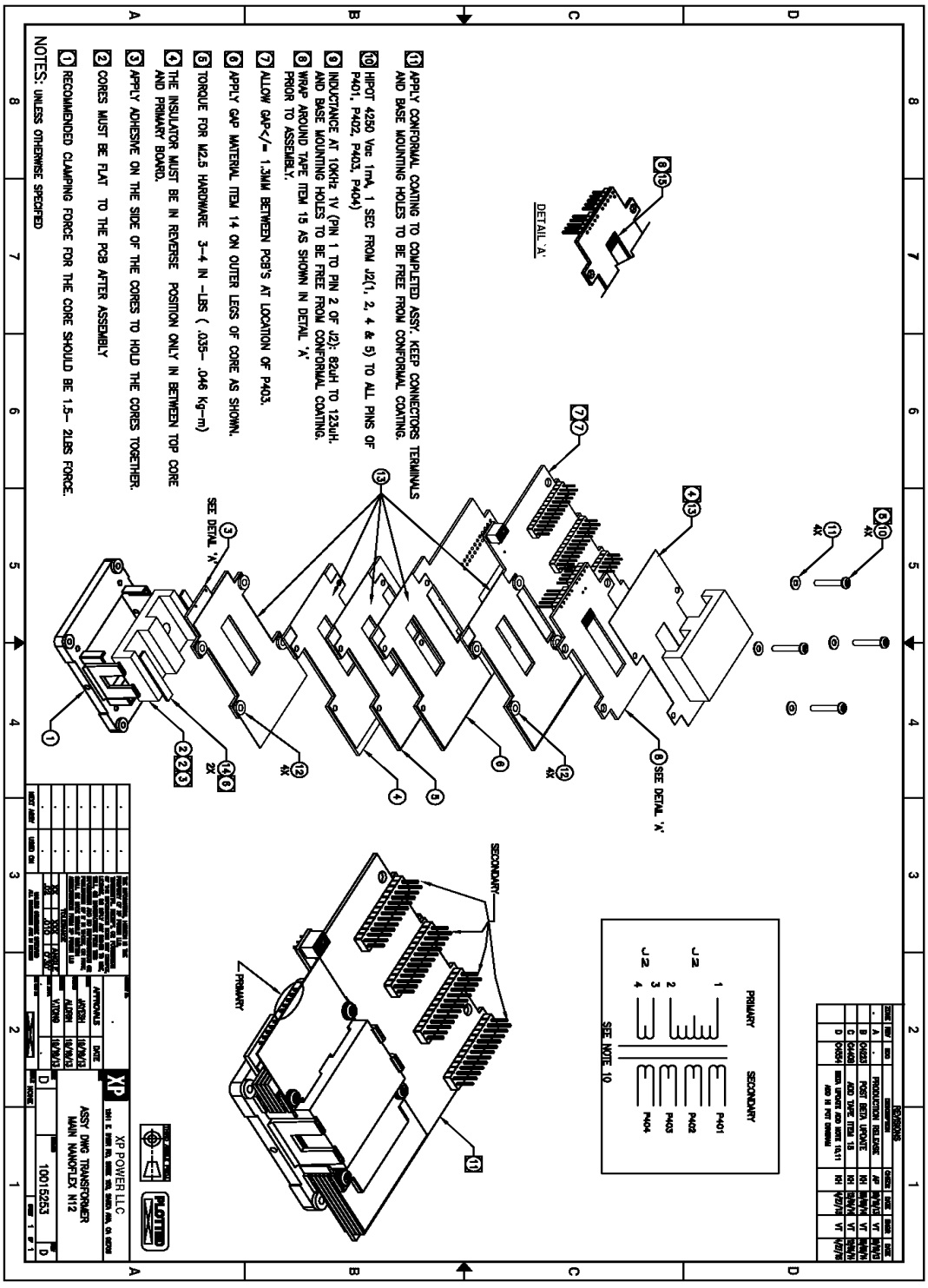
REVISIONS—SEE SHEET ONE

ASSEMBLY DETAIL



PLOTTED

SIZE	DWG.NO	REV
A	10017559	A
SCALE: NONE		SHT 3 OF 3



10) APPLY CONFORMAL COATING TO COMPLETED ASSY. KEEP CONNECTORS TERMINALS AND BASE MOUNTING HOLES TO BE FREE FROM CONFORMAL COATING.

9) HIPOT 4250 Vac 1mA, 1 SEC FROM J2(1, 2, 4 & 5) TO ALL PINS OF P401, P402, P403, P404)

8) INDUCTANCE AT 10KHz 1V (PIN 1 TO PIN 2 OF J2): 82uH TO 123uH. AND BASE MOUNTING HOLES TO BE FREE FROM CONFORMAL COATING.

7) WRAP AROUND TAPE ITEM 15 AS SHOWN IN DETAIL 'A' PRIOR TO ASSEMBLY.

6) ALLOW GAP</= 1.3MM BETWEEN PCB'S AT LOCATION OF P403.

5) APPLY GAP MATERIAL ITEM 14 ON OUTER LEGS OF CORE AS SHOWN.

4) TORQUE FOR M2.5 HARDWARE 3-4 IN -LBS (.035- .046 Kg-m)

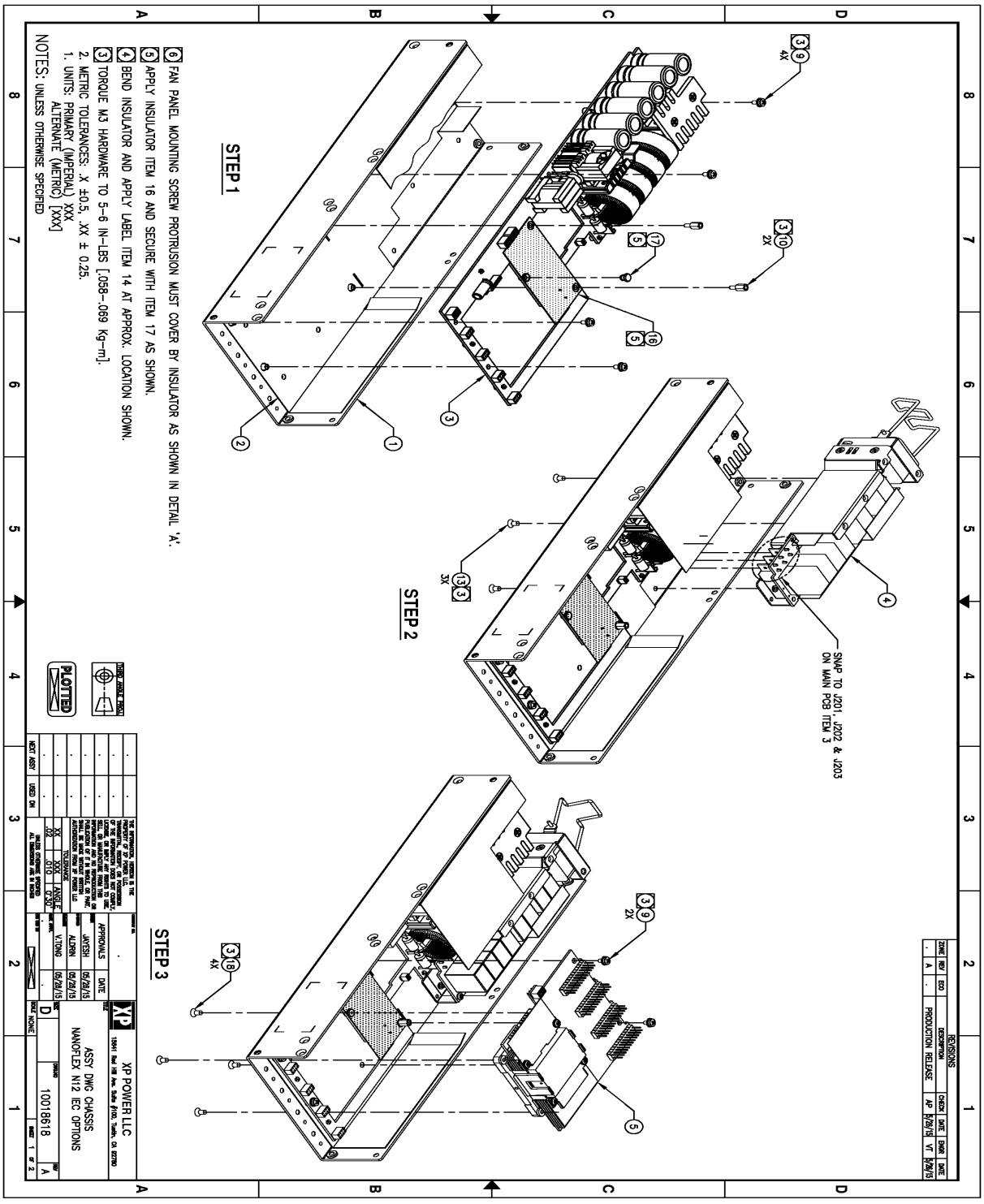
3) THE INSULATOR MUST BE IN REVERSE POSITION ONLY IN BETWEEN TOP CORE AND PRIMARY BOARD.

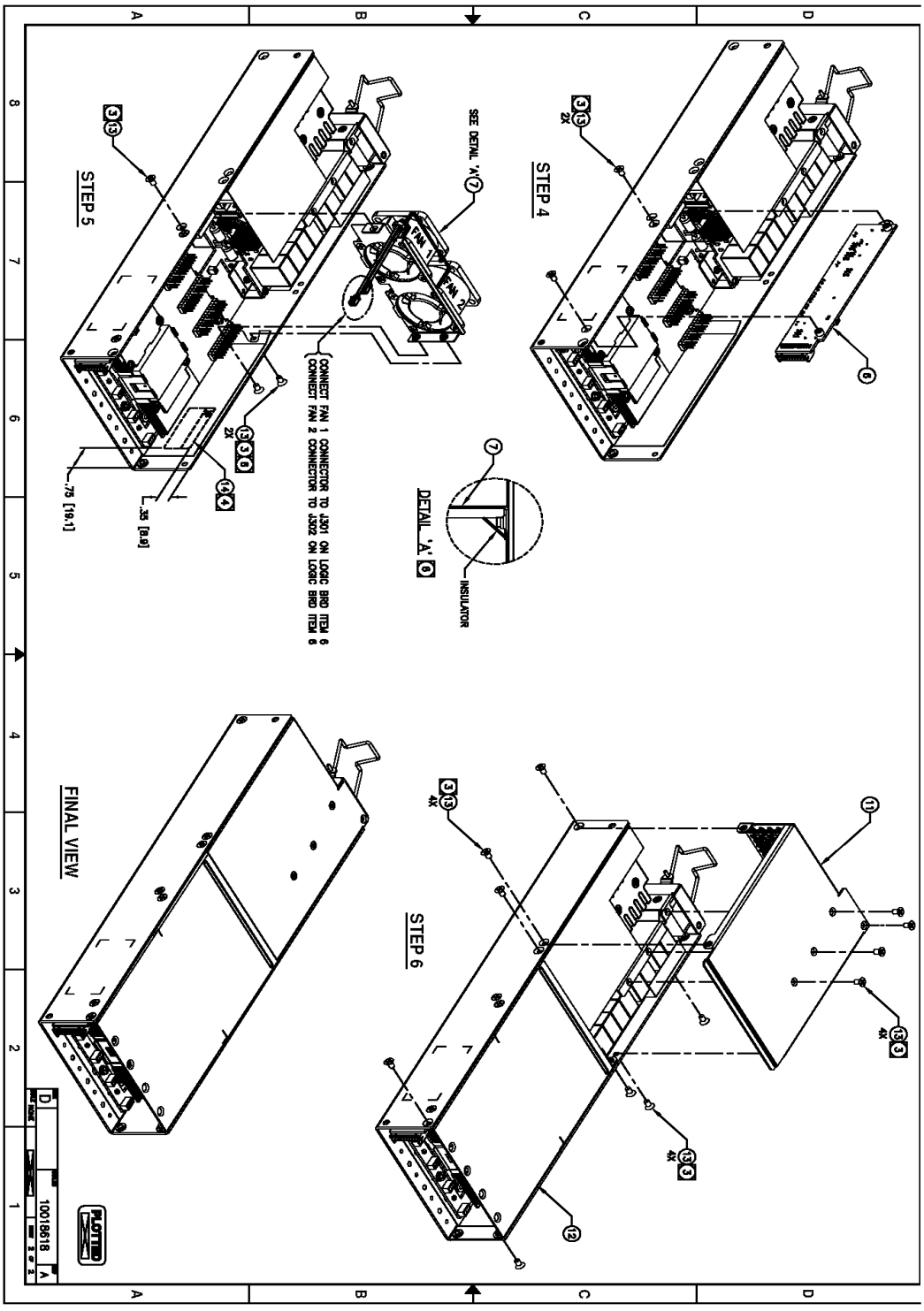
2) APPLY ADHESIVE ON THE SIDE OF THE CORES TO HOLD THE CORES TOGETHER.

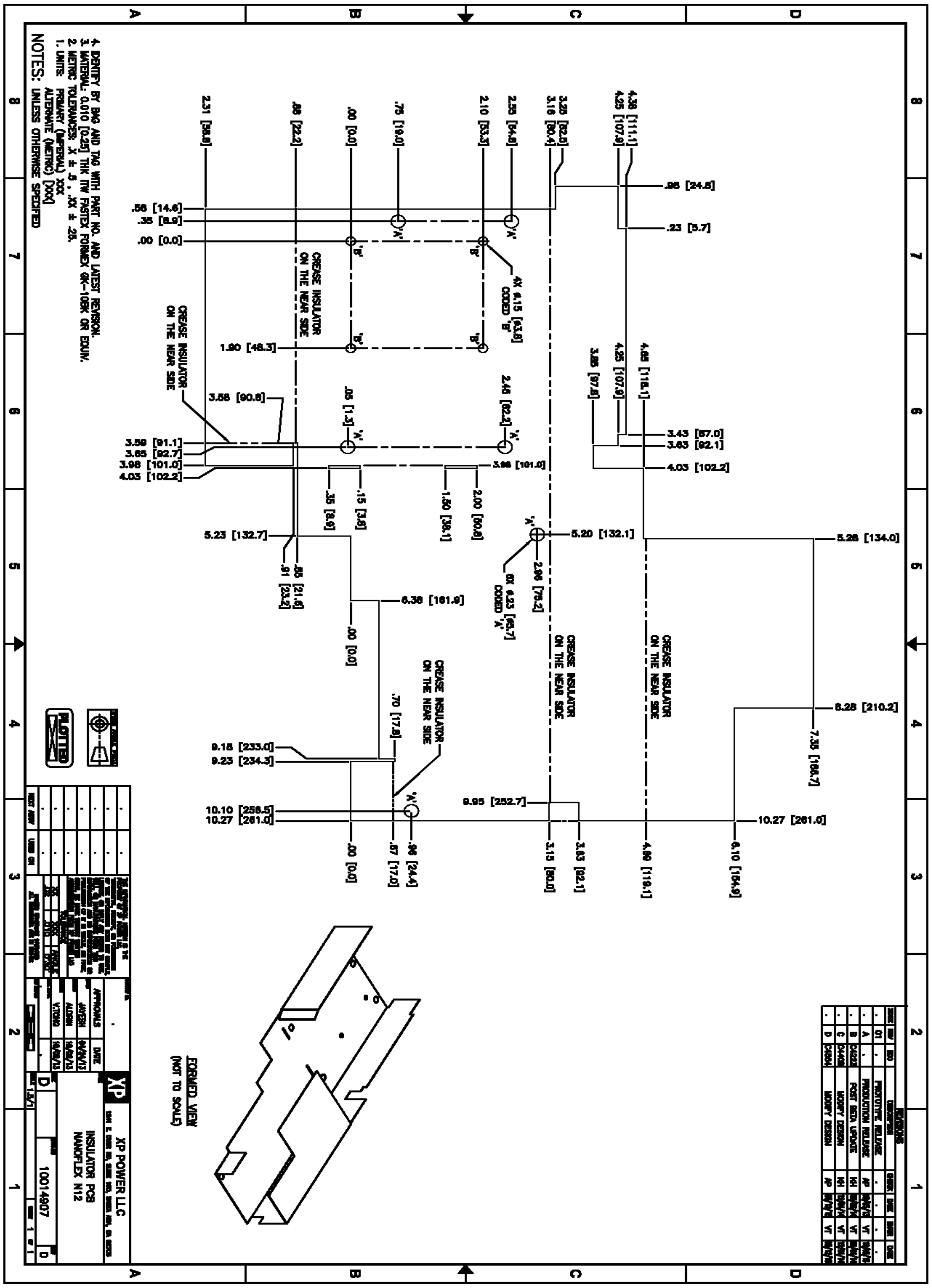
1) CORES MUST BE FLAT TO THE PCB AFTER ASSEMBLY

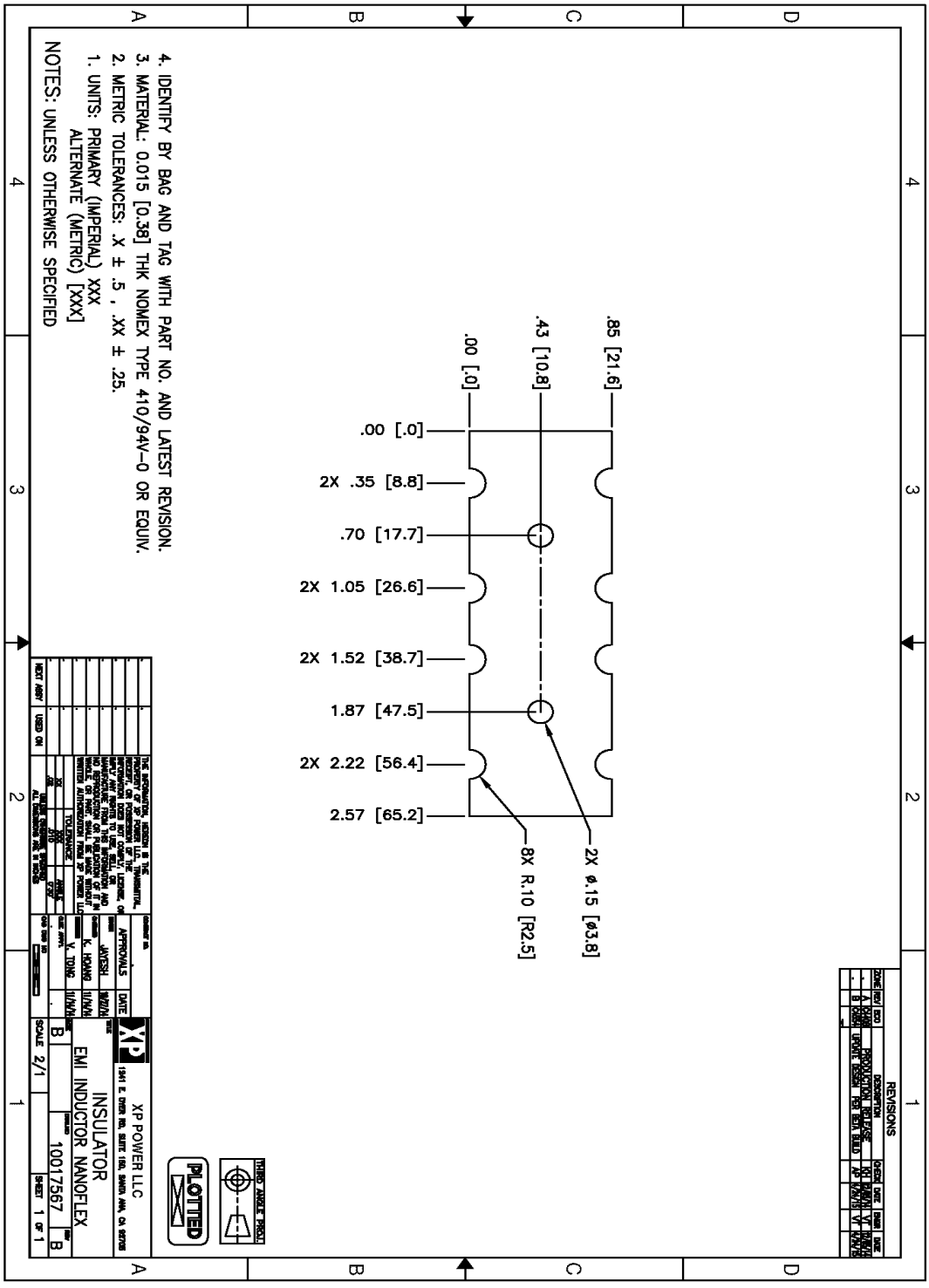
NOTES: UNLESS OTHERWISE SPECIFIED

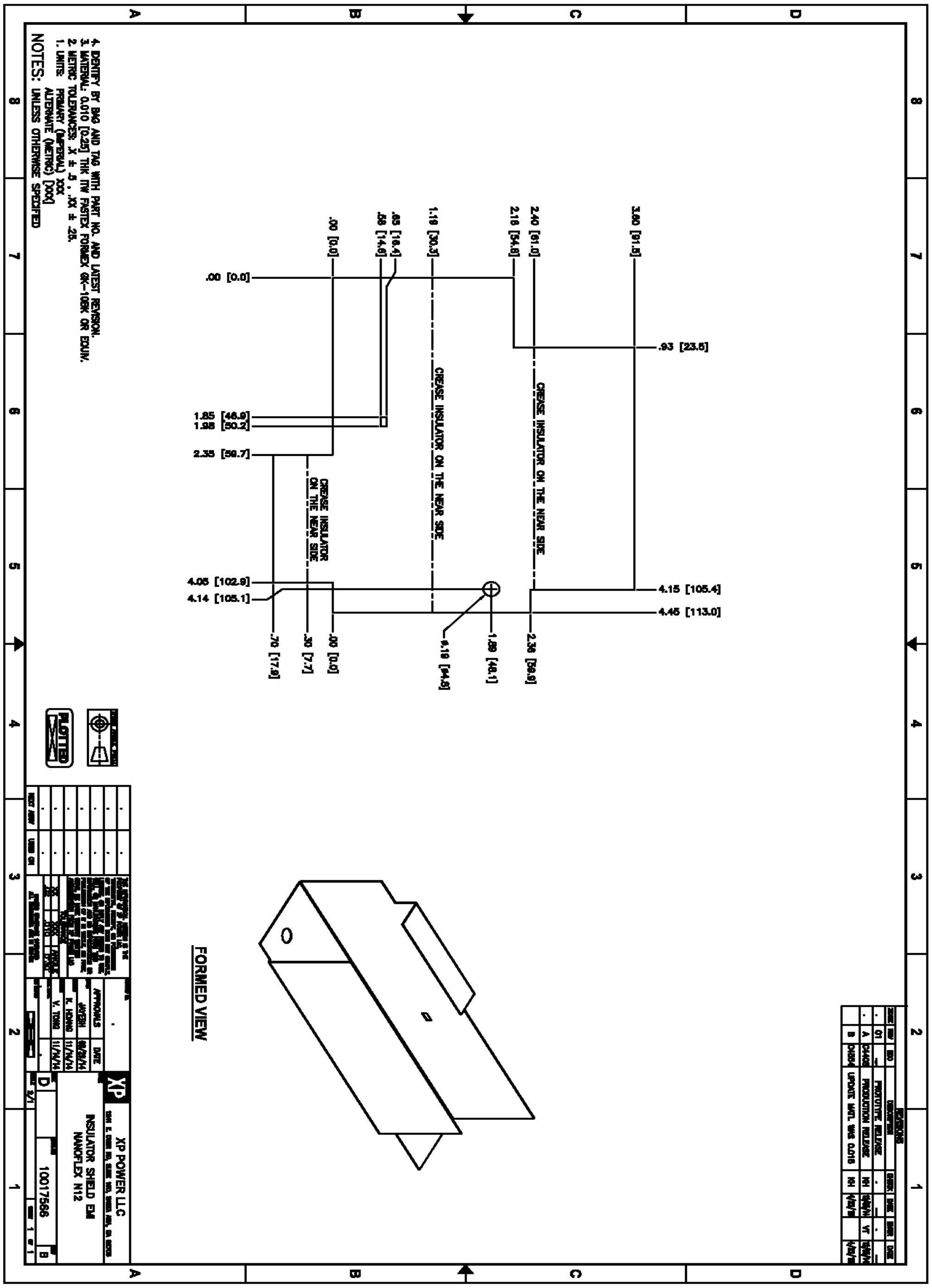
1) RECOMMENDED CLAMPING FORCE FOR THE CORE SHOULD BE 1.5- 2LBS FORCE.

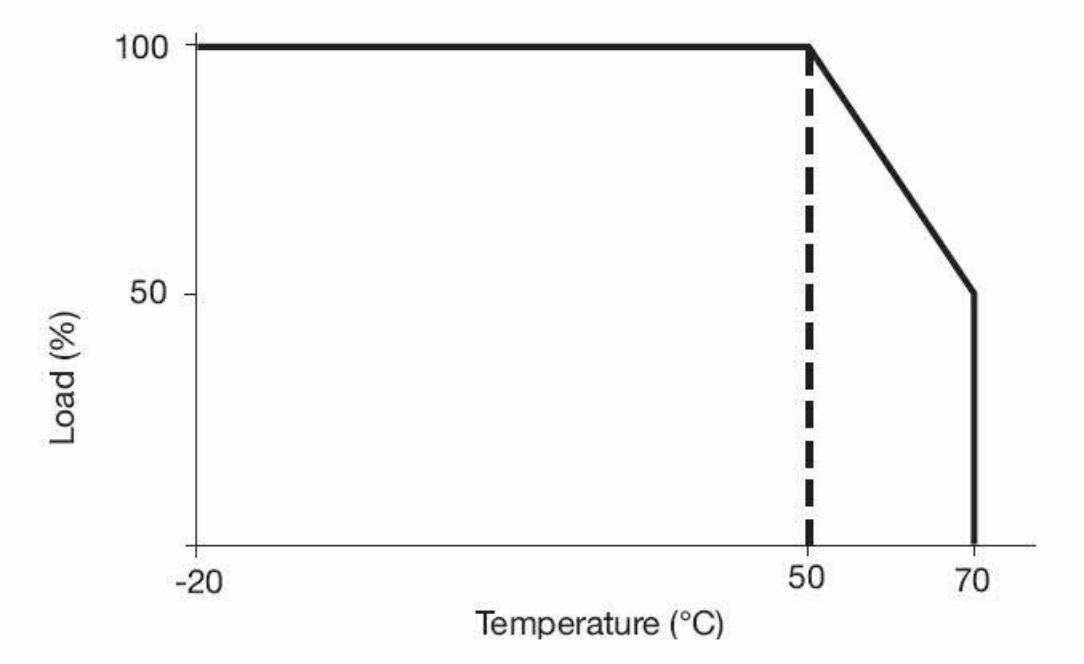

STEP 1
STEP 2
STEP 3
SNAP TO J201, J202 & J203 ON MAIN PCB ITEM 3
NOTES: UNLESS OTHERWISE SPECIFIED
1. UNITS: PRIMARY (IMPERIAL) XXX
ALTERNATE (METRIC) [XXX]
2. METRIC TOLERANCES: X ±0.5, .XX ± 0.25.
3 TORQUE M3 HARDWARE TO 5-6 IN-LBS [.058-.069 Kg-m].
4 BEND INSULATOR AND APPLY LABEL ITEM 14 AT APPROX. LOCATION SHOWN.
5 APPLY INSULATOR ITEM 16 AND SECURE WITH ITEM 17 AS SHOWN.
6 FAN PANEL MOUNTING SCREW PROTRUSION MUST COVER BY INSULATOR AS SHOWN IN DETAIL 'A'.
REVISIONS
PRODUCTION RELEASE
XP POWER LLC
ASSY DWG CHASSIS
NANOFLEX N12 ECO OPTIONS
10018618
PLOTTED


STEP 4
STEP 5
STEP 6
FINAL VIEW
DETAIL 'A'
SEE DETAIL 'A'
CONNECT FAN 1 CONNECTOR TO J301 ON LOGIC BRD ITEM 6
CONNECT FAN 2 CONNECTOR TO J302 ON LOGIC BRD ITEM 6
INSULATOR
.75 [19.1]
.35 [8.9]
FAN 1
FAN 2
PLOTTED
10018618


XP POWER LLC
INSULATOR PCB
NANOFLEX N12
10014907
FORMED VIEW
(NOT TO SCALE)
CREASE INSULATOR ON THE NEAR SIDE


.85 [21.6]
.43 [10.8]
.00 [.0]
.00 [.0]
2X .35 [8.8]
.70 [17.7]
2X 1.05 [26.6]
2X 1.52 [38.7]
1.87 [47.5]
2X 2.22 [56.4]
2.57 [65.2]
2X ø.15 [ø3.8]
8X R.10 [R2.5]
REVISIONS
DESCRIPTION
PRODUCTION RELEASE
THIRD ANGLE PROJ.
PLOTTED
XP POWER LLC
INSULATOR
EMI INDUCTOR NANOFLEX
10017567
SCALE 2/1
SHEET 1 OF 1
4. IDENTIFY BY BAG AND TAG WITH PART NO. AND LATEST REVISION.
3. MATERIAL: 0.015 [0.38] THK NOMEX TYPE 410/94V-0 OR EQUIV.
2. METRIC TOLERANCES: X ± .5 , .XX ± .25.
1. UNITS: PRIMARY (IMPERIAL) XXX
ALTERNATE (METRIC) [XXX]
NOTES: UNLESS OTHERWISE SPECIFIED


REVISIONS
. 01 — PROTOTYPE RELEASE
. A D4405 PRODUCTION RELEASE KH VT
B D4554 UPDATE MAT'L WAS 0.015 KH
CREASE INSULATOR ON THE NEAR SIDE
CREASE INSULATOR ON THE NEAR SIDE
CREASE INSULATOR ON THE NEAR SIDE
3.60 [91.5]
2.40 [61.0]
2.16 [54.8]
1.19 [30.3]
.65 [16.4]
.58 [14.6]
.00 [0.0]
.93 [23.5]
4.15 [105.4]
4.45 [113.0]
2.36 [59.9]
1.89 [48.1]
⌀.19 [4.8]
.00 [0.0]
.30 [7.7]
.70 [17.9]
.00 [0.0]
1.85 [46.9]
1.98 [50.2]
2.35 [59.7]
4.05 [102.9]
4.14 [105.1]
FORMED VIEW
4. IDENTIFY BY BAG AND TAG WITH PART NO. AND LATEST REVISION.
3. MATERIAL: 0.010 [0.25] THK ITW FASTEX FORMEX GK-10BK OR EQUIV.
2. METRIC TOLERANCES: .X ± .5 , .XX ± .25.
1. UNITS: PRIMARY (IMPERIAL) XXX
ALTERNATE (METRIC) [XXX]
NOTES: UNLESS OTHERWISE SPECIFIED
PLOTTED
APPROVALS DATE
JAYESH
K. HOANG 11/14/14
V. TONG 11/14/14
XP POWER LLC
INSULATOR SHIELD EMI
NANOFLEX N12
D 10017566 B
NEXT ASSY USED ON


100
50
Load (%)
-20
50
70
Temperature (°C)

THE XPERTS IN POWER

XP Power LLC, 15641 Red Hill Avenue, Suite 100, Tustin, CA 92780
USA Tel: (714) 597-7100 Fax: (714) 597-7143 Website:
www.xppower.com

June 18, 2014
Underwriters Laboratories LLC.
2929 E Imperial Hwy Suite 100
Brea, CA 92821

Attn: Mr. Nathan Escalante

Email: Nathan.Escalante@ul.com

Subject: National Differences

Dear Mr. Escalante,

This document confirms that XP Power LLC will provide the following items needed to the accepting National Certification Bodies (NCBs) along with the CB test report.

Markings and Safety Instructions – Safety instructions and markings in the language suitable for the countries listed in the attached reports will be provided at the same time the CB test report is submitted to the NCB.

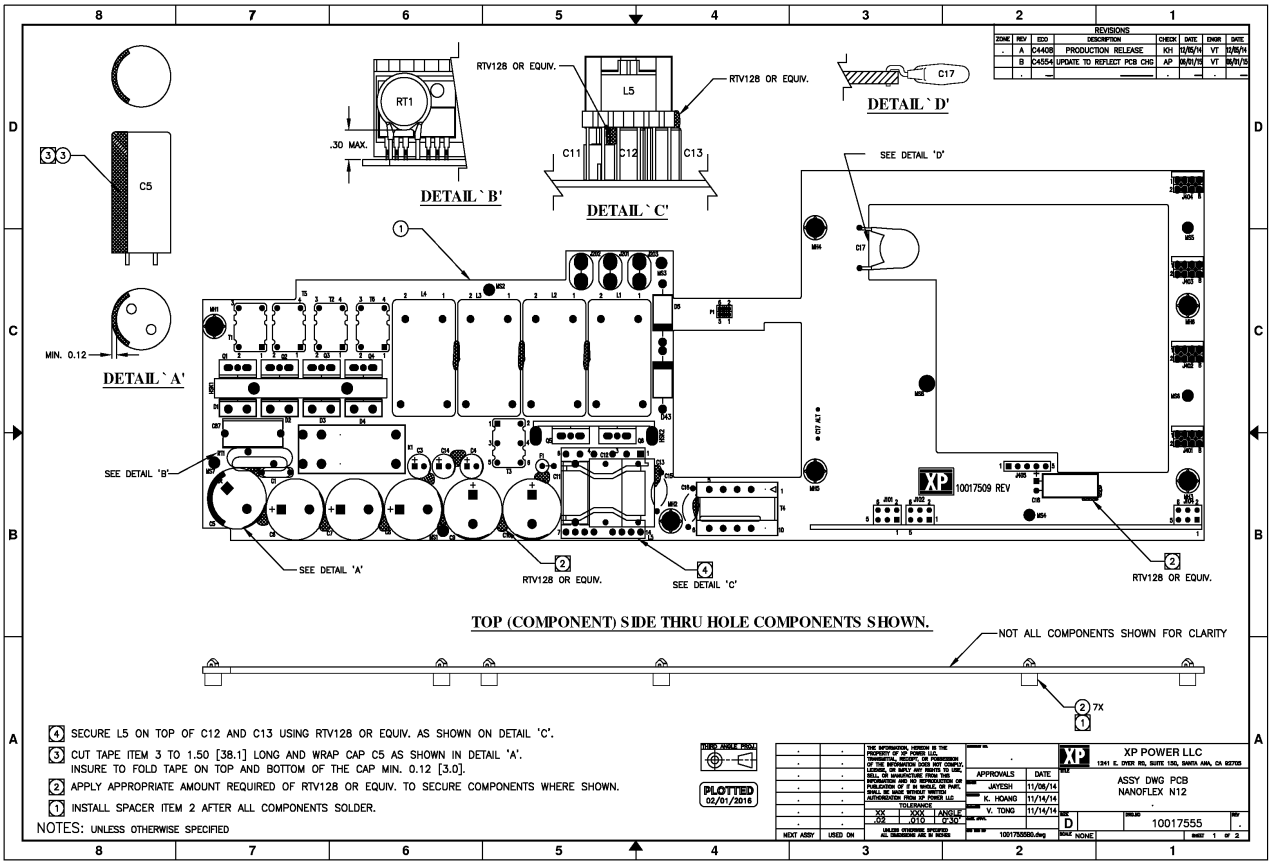
EMC Test Report – Where detailed in the National Differences, an EMC test report or Declaration of Conformity will accompany this product when sent to countries that require EMC test results as part of their certification process.

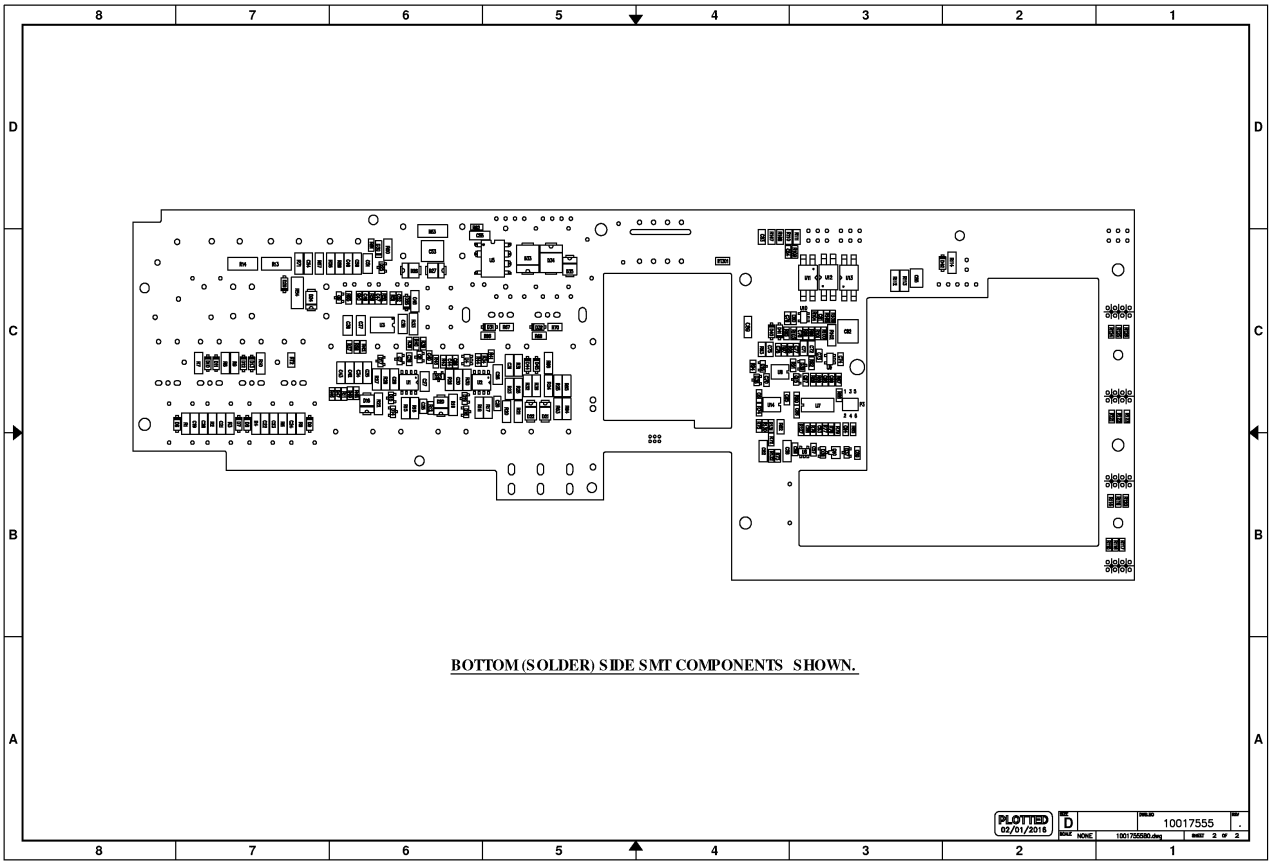
RoHS - Restriction of the use of certain hazardous substances in electrical and electronic equipment. The substances to which the RoHS directive applies are: Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls, Polybrominates diphenyl ethers.

Power Supply Cords and Plugs – All power cords and plug assemblies provided with the unit will be certified and suitable for use in the countries listed in the attached CB test report.

Multiple Factories - This confirms that samples submitted for certification are representative of the products from each factory. The factories are as noted in this CB Test Report.

Tac Pham
International Regulatory Compliance Manager
XP Power LLC


REVISIONS
ZONE REV ECO DESCRIPTION CHECK DATE ENGR DATE
A C4408 PRODUCTION RELEASE KH 10/05/14 VT 10/05/14
B C4554 UPDATE TO REFLECT PCB CHG AP 10/01/15 VT 10/01/15
RT1
.30 MAX.
RTV128 OR EQUIV.
L5
C11 C12 C13
C17
C5
MIN. 0.12
DETAIL `A'
DETAIL `B'
DETAIL `C'
DETAIL `D'
SEE DETAIL 'A'
SEE DETAIL 'B'
SEE DETAIL 'C'
SEE DETAIL 'D'
XP 10017509 REV
TOP (COMPONENT) SIDE THRU HOLE COMPONENTS SHOWN.
NOT ALL COMPONENTS SHOWN FOR CLARITY
7X
4 SECURE L5 ON TOP OF C12 AND C13 USING RTV128 OR EQUIV. AS SHOWN ON DETAIL 'C'.
3 CUT TAPE ITEM 3 TO 1.50 [38.1] LONG AND WRAP CAP C5 AS SHOWN IN DETAIL 'A'. INSURE TO FOLD TAPE ON TOP AND BOTTOM OF THE CAP MIN. 0.12 [3.0].
2 APPLY APPROPRIATE AMOUNT REQUIRED OF RTV128 OR EQUIV. TO SECURE COMPONENTS WHERE SHOWN.
1 INSTALL SPACER ITEM 2 AFTER ALL COMPONENTS SOLDER.
NOTES: UNLESS OTHERWISE SPECIFIED
THIRD ANGLE PROJ.
PLOTTED 02/01/2016
APPROVALS DATE
JAYESH 11/06/14
K. HOANG 11/14/14
V. TONG 11/14/14
XP POWER LLC
ASSY DWG PCB
NANOFLEX N12
10017555
SCALE NONE
SHEET 1 OF 2



BOTTOM (SOLDER) SIDE SMT COMPONENTS SHOWN.