

## UL TEST REPORT AND PROCEDURE

<b>Standard:</b>	UL 62368-1, 2nd Ed, 2014-12-01 (Audio/video, information and communication technology equipment Part 1: Safety requirements) CAN/CSA C22.2 No. 62368-1-14, 2nd Ed-(Audio/video, information and communication technology equipment Part 1: Safety requirements)
<b>Certification Type:</b>	Component Recognition
<b>CCN:</b>	QQJQ2, QQJQ8 (Power Supplies for Use in Audio/Video, Information and Communication Technology Equipment)
<b>Complementary CCN:</b>	N/A
<b>Product:</b>	Switching Power Supply
<b>Model:</b>	<p>JCA0205S03 JCA0205S05 JCA0205S12 JCA0205S15 JCA0205D01 JCA0205D02 JCA0205D03 JCA0305S03 JCA0305S05 JCA0305S12 JCA0305S15 JCA0305D01 JCA0305D02 JCA0305D03</p> <p>***</p> <p>JCA0212S03 JCA0212S05 JCA0212S12 JCA0212S15 JCA0212D01 JCA0212D02 JCA0212D03 JCA0312S03 JCA0312S05 JCA0312S12 JCA0312S15 JCA0312D01 JCA0312D02</p>

JCA0312D03

\*\*\*

JCA0224S03

JCA0224S05

JCA0224S12

JCA0224S15

JCA0224D01

JCA0224D02

JCA0224D03

JCA0324S03

JCA0324S05

JCA0324S12

JCA0324S15

JCA0324D01

JCA0324D02

JCA0324D03

\*\*\*

JCA0248S03

JCA0248S05

JCA0248S12

JCA0248S15

JCA0248D01

JCA0248D02

JCA0248D03

JCA0348S03

JCA0348S05

JCA0348S12

JCA0348S15

JCA0348D01

JCA0348D02

JCA0348D03

JCA0205S03:

Input: 4.5 - 9.0 VDC (5.0 Vdc Nominal)

Output: 3.3V dc 600 mA

**Rating:**

JCA0205S05:

Input: 4.5 - 9.0 VDC (5.0 Vdc Nominal)

Output: 5V dc 400 mA

JCA0205S12:

Input: 4.5 - 9.0 VDC (5.0 Vdc Nominal)  
Output: 12V dc 170 mA

JCA0205S15:

Input: 4.5 - 9.0 VDC (5.0 Vdc Nominal)  
Output: 15V dc 140 mA

JCA0205D01:

Input: 4.5 - 9.0 VDC (5.0 Vdc Nominal)  
Output:  $\pm 5$ V dc 200 mA

JCA0205D02:

Input: 4.5 - 9.0 VDC (5.0 Vdc Nominal)  
Output:  $\pm 12$ V dc 85 mA

JCA0205D03:

Input: 4.5 - 9.0 VDC (5.0 Vdc Nominal)  
Output:  $\pm 15$ V dc 70 mA

JCA0305S03:

Input: 4.5 - 9.0 VDC (5.0 Vdc Nominal)  
Output: 3.3V dc 910 mA

JCA0305S05:

Input: 4.5 - 9.0 VDC (5.0 Vdc Nominal)  
Output: 5V dc 600 mA

JCA0305S12:

Input: 4.5 - 9.0 VDC (5.0 Vdc Nominal)  
Output: 12V dc 260 mA

JCA0305S15:

Input: 4.5 - 9.0 VDC (5.0 Vdc Nominal)  
Output: 15V dc 200 mA

JCA0305D01:

Input: 4.5 - 9.0 VDC (5.0 Vdc Nominal)  
Output:  $\pm 5$ V dc 300 mA

JCA0305D02:

Input: 4.5 - 9.0 VDC (5.0 Vdc Nominal)  
Output:  $\pm 12$ V dc 130 mA

JCA0305D03:

Input: 4.5 - 9.0 VDC (5.0 Vdc Nominal)

Output:  $\pm 15$ V dc 100 mA

\*\*\*

JCA0212S03:

Input: 9.0 - 18 VDC (12 Vdc Nominal)

Output: 3.3V dc 600 mA

JCA0212S05:

Input: 9.0 - 18 VDC (12 Vdc Nominal)

Output: 5V dc 400 mA

JCA0212S12:

Input: 9.0 - 18 VDC (12 Vdc Nominal)

Output: 12V dc 170 mA

JCA0212S15:

Input: 9.0 - 18 VDC (12 Vdc Nominal)

Output: 15V dc 140 mA

JCA0212D01:

Input: 9.0 - 18 VDC (12 Vdc Nominal)

Output:  $\pm 5$ V dc 200 mA

JCA0212D02:

Input: 9.0 - 18 VDC (12 Vdc Nominal)

Output:  $\pm 12$ V dc 85 mA

JCA0212D03:

Input: 9.0 - 18 VDC (12 Vdc Nominal)

Output:  $\pm 15$ V dc 70 mA

JCA0312S03:

Input: 9.0 - 18 VDC (12 Vdc Nominal)

Output: 3.3V dc 910 mA

JCA0312S05:

Input: 9.0 - 18 VDC (12 Vdc Nominal)

Output: 5V dc 600 mA

JCA0312S12:

Input: 9.0 - 18 VDC (12 Vdc Nominal)

Output: 12V dc 260 mA

JCA0312S15:  
Input: 9.0 - 18 VDC (12 Vdc Nominal)  
Output: 15V dc 200 mA

JCA0312D01:  
Input: 9.0 - 18 VDC (12 Vdc Nominal)  
Output:  $\pm 5$ V dc 300 mA

JCA0312D02:  
Input: 9.0 - 18 VDC (12 Vdc Nominal)  
Output:  $\pm 12$ V dc 130 mA

JCA0312D03:  
Input: 9.0 - 18 VDC (12 Vdc Nominal)  
Output:  $\pm 15$ V dc 100 mA

\*\*\*

JCA0224S03:  
Input: 18 - 36 VDC (24 Vdc Nominal)  
Output: 3.3V dc 600 mA

JCA0224S05:  
Input: 18 - 36 VDC (24 Vdc Nominal)  
Output: 5V dc 400 mA

JCA0224S12:  
Input: 18 - 36 VDC (24 Vdc Nominal)  
Output: 12V dc 170 mA

JCA0224S15:  
Input: 18 - 36 VDC (24 Vdc Nominal)  
Output: 15V dc 140 mA

JCA0224D01:  
Input: 18 - 36 VDC (24 Vdc Nominal)  
Output:  $\pm 5$ V dc 200 mA

JCA0224D02:  
Input: 18 - 36 VDC (24 Vdc Nominal)  
Output:  $\pm 12$ V dc 85 mA

JCA0224D03:

Input: 18 - 36 VDC (24 Vdc Nominal)  
Output:  $\pm 15$ V dc 70 mA

JCA0324S03:  
Input: 18 - 36 VDC (24 Vdc Nominal)  
Output: 3.3V dc 910 mA

JCA0324S05:  
Input: 18 - 36 VDC (24 Vdc Nominal)  
Output: 5V dc 600 mA

JCA0324S12:  
Input: 18 - 36 VDC (24 Vdc Nominal)  
Output: 12V dc 260 mA

JCA0324S15:  
Input: 18 - 36 VDC (24 Vdc Nominal)  
Output: 15V dc 200 mA

JCA0324D01:  
Input: 18 - 36 VDC (24 Vdc Nominal)  
Output:  $\pm 5$ V dc 300 mA

JCA0324D02:  
Input: 18 - 36 VDC (24 Vdc Nominal)  
Output:  $\pm 12$ V dc 130 mA

JCA0324D03:  
Input: 18 - 36 VDC (24 Vdc Nominal)  
Output:  $\pm 15$ V dc 100 mA

\*\*\*

JCA0248S03:  
Input: 36 - 75 VDC (48 Vdc Nominal)  
Output: 3.3V dc 600 mA

JCA0248S05:  
Input: 36 - 75 VDC (48 Vdc Nominal)  
Output: 5V dc 400 mA

JCA0248S12:  
Input: 36 - 75 VDC (48 Vdc Nominal)  
Output: 12V dc 170 mA

JCA0248S15:

Input: 36 - 75 VDC (48 Vdc Nominal)

Output: 15V dc 140 mA

JCA0248D01:

Input: 36 - 75 VDC (48 Vdc Nominal)

Output:  $\pm 5$ V dc 200 mA

JCA0248D02:

Input: 36 - 75 VDC (48 Vdc Nominal)

Output:  $\pm 12$ V dc 85 mA

JCA0248D03:

Input: 36 - 75 VDC (48 Vdc Nominal)

Output:  $\pm 15$ V dc 70 mA

JCA0348S03:

Input: 36 - 75 VDC (48 Vdc Nominal)

Output: 3.3V dc 910 mA

JCA0348S05:

Input: 36 - 75 VDC (48 Vdc Nominal)

Output: 5V dc 600 mA

JCA0348S12:

Input: 36 - 75 VDC (48 Vdc Nominal)

Output: 12V dc 260 mA

JCA0348S15:

Input: 36 - 75 VDC (48 Vdc Nominal)

Output: 15V dc 200 mA

JCA0348D01:

Input: 36 - 75 VDC (48 Vdc Nominal)

Output:  $\pm 5$ V dc 300 mA

JCA0348D02:

Input: 36 - 75 VDC (48 Vdc Nominal)

Output:  $\pm 12$ V dc 130 mA

JCA0348D03:

Input: 36 - 75 VDC (48 Vdc Nominal)

Output:  $\pm 15$ V dc 100 mA

**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: Adam Tangocci / Project Handler    Reviewed By: Gregory Ray / Reviewer



### 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 products covered by this report are single and dual output, DC-DC converters. They are provided with input and output connectors (pins) for connection to a source of supply and to the load. All components are mounted on a printed wiring board.

### Model Differences

Model numbers are in the form JCA-----.

Position 4/5 is 02 or 03, which is a specific model identifier.

Position 6/7 is 05, 12, 24, or 48, which represents nominal input voltage.

Position 8 is S or D, representing single or dual output, respectively. Dual output models provide two outputs that are identical except for polarity.

Position 9/10 is 01, 02, 03, 05, 12, or 15, which is a specific model identifier.

All models within the JCA02 and JCA03 Series are identical with exception to number of transformer windings, transformer winding ratio, and minor secondary differences to accommodate different output voltages.

### Test Item Particulars

Classification of use by	Ordinary person
Supply Connection	External Circuit - not Mains connected ES2
Supply % Tolerance	None
Supply Connection – Type	For building-in
Considered current rating of protective device as part of building or equipment installation	20 A; building;
Equipment mobility	for building-in
Over voltage category (OVC)	OVC II
Class of equipment	Not classified
Access location	N/A
Pollution degree (PD)	PD 2
Manufacturer's specified maximum operating ambient (°C)	75
IP protection class	IPX0
Power Systems	N/A

Altitude during operation (m)	5000 m
Altitude of test laboratory (m)	2000 m or less
Mass of equipment (kg)	0.02

**Technical Considerations**

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer’s specification of : 75°C
- The equipment disconnect device is considered to be : To be determined in the end product.
- The product was investigated to the following additional standards : UL/CSA 62368-1 2nd Edition, EN 62368-1:2014 + A11:2017
- Required clearances have been adjusted by multiplying the clearance at sea level by a factor of 1.48 for operating at an altitude of 5000 meters. If the calculated clearance exceeded the creepage, the creepage was adjusted to the value of clearance.

**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 product-line tests are conducted for this product : Electric Strength
- The following output circuits are at ES1 energy levels : All Outputs
- The following output circuits are at PS3 energy levels : All Outputs
- The maximum investigated branch circuit rating is : 20 A
- The investigated Pollution Degree is : 2
- The following end-product enclosures are required : Electrical, Fire, Mechanical
- 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 (Class B, 130°C)
- The power supply was evaluated to be used at altitudes up to : "5000 m"
- The power supplies in this report have not been subjected to the capacitor discharge test of Clause 5.5.2.2. This shall be evaluated in the end product.
- Consideration to performing the touch current test of Clauses 5.7.1 to 5.7.4 should be given in the end product evaluation.
- Consideration to monitoring the temperature of parts of this equipment during normal, abnormal, and fault operating conditions should be given in the end product evaluation.
- When installed in the end product, the power supply shall be mounted in a manner that provides the minimum required creepage and clearance between applicable parts of the power supply, accessible conductive parts, and secondary circuits of the end product.
- When installed in the end product, the input of the power supply shall be isolated from primary circuits by double or reinforced insulation.

**Additional Information**

This report is based on previously conducted testing and the review of product construction of original CBTR reference number E317867-A29-CB-1, dated 2015-09-28, CBTC reference number US-26085-UL, issued 2015-09-30, issued by UL. Refer to the “Summary of testing” section which covers the tests accepted and the additional testing performed as part of this evaluation.

**Additional Standards**

The product fulfills the requirements of: UL/CSA 62368-1 2nd Edition, EN 62368-1:2014 + A11:2017

**Markings and Instructions**

Clause Title	Marking or Instruction Details
--------------	--------------------------------

Equipment identification marking – Manufacturer identification	Listees or Recognized companys name, Trade Name, Trademark or File Number
Equipment identification marking – model identification	Model Number
Equipment rating marking – ratings	"Input Ratings (voltage, frequency/dc, current/power)", "Output Ratings (voltage, frequency/dc, current/power)"
<b>Special Instructions to UL Representative</b> --	