

UL TEST REPORT AND PROCEDURE

Standard: UL 60950-1, 2nd Edition, 2007-03-27 (Information Technology Equipment - Safety - Part 1: General Requirements)
CSA C22.2 No. 60950-1-07, 2nd Edition, 2007-03 (Information Technology Equipment - Safety - Part 1: General Requirements)

Certification Type: Power Supplies for Information Technology Equipment Including Electrical Business Equipment

CCN: QQGQ2, QQGQ8

Product: Power Supply, DC-DC converter

Model: Model iFB Series:
iFB48050A120V-xxx;
iFB48042A120V-xxx;
iFB48050A108V-xxx;
iFB48058A096V-xxx;
iFB48055A096V-xxx;
iFB48058A083V-xxx

Rating: Model: iFB48***A%%V-xxx where *** represents rated output current between 40A - 60A, %%% represents rated output voltage between 8V - 12V and xxx represents any alphanumeric characters denoting non safety related features.

iFB48050A120V-xxx:
Input: 36 - 75 VDC (TNV2), 18 A Max
Output: 12V, 50A, 600 W Max

iFB48042A120V-xxx:
Input: 36 - 75 VDC (TNV2), 15 A Max
Output: 12V, 42A, 500 W Max

iFB48050A108V-xxx:
Input: 36 - 75 VDC (TNV2), 16.5 A Max
Output: 10.8V, 50A, 540 W Max

iFB48058A096V-xxx:
Input: 36 - 75 VDC (TNV2), 18.5 A Max
Output: 9.6V, 58A, 557 W Max

iFB48055A096V-xxx:
Input: 36 - 75 VDC (TNV2), 16 A Max
Output: 9.6V, 55A, 528 W Max

iFB48058A083V-xxx:
Input: 36 - 75 VDC (TNV2), 15 A Max
Output: 8.3V, 58A, 481 W Max

Applicant Name and Address:	TDK INNOVETA INC SUITE 100 3320 MATRIX DR RICHARDSON TX 75082 UNITED STATES
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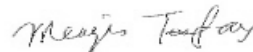
This is to certify that representative samples of the products covered by this Test Report have been investigated in accordance with the above referenced Standards. The products have been found to comply with the requirements covering the category and the products are judged to be eligible for Follow-Up 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 Underwriters Laboratories Inc. ('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.

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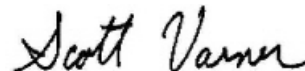
UL authorizes the applicant to reproduce the latest pages of the referenced Test Report consisting of the first page of the Specific Technical Criteria through to the end of the Conditions of Acceptability.

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

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Underwriters Laboratories Inc.



Reviewed by: Scott Varner
Underwriters Laboratories Inc.



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 product is a component type DC/DC power module with a planar type power transformer. The converter is provided with input terminal pins for factory installation onto a printed wiring board with a connection to a dc source of supply and output terminal pins. These models have been evaluated as having Basic insulation from input to output. The product employs a multilayer PWB planar transformer.

Model Differences

All models within the iFB Series employ identical mechanical configuration, using the same PWB, same transformer winding turns ratio, same transformer core set, and inductor core set. The house-keeping transformers used for the bias supply, current sensing, and gate drive purposes are also the same for all models within the series.

Technical Considerations

- Equipment mobility : for building-in
- Connection to the mains : No direct connection
- Operating condition : continuous
- Access location : N/A
- Over voltage category (OVC) : for building-in
- Mains supply tolerance (%) or absolute mains supply values : N/A
- Tested for IT power systems : No

- IT testing, phase-phase voltage (V) : N/A
- Class of equipment : Special Application - TNV-2
- Considered current rating (A) : 20 A
- Pollution degree (PD) : PD 2
- IP protection class : IP X0
- Altitude of operation (m) : up to 2000 m
- Altitude of test laboratory (m) : not more than 2000 m
- Mass of equipment (kg) : less than 1 kg
- The product was submitted and evaluated for use at the maximum ambient temperature (T_{ma}) permitted by the manufacturer's specification of: 25°C
- The means of connection to the mains supply is: For Building in
- The following are available from the Applicant upon request: Installation (Safety) Instructions / Manual

Engineering Conditions of Acceptability

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

- The following secondary output circuits are SELV: All
- The following secondary output circuits are at hazardous energy levels: All
- The power supply terminals and/or connectors are: Suitable for factory wiring only
- The maximum investigated branch circuit rating is: 20 A,
- The investigated Pollution Degree is: 2
- The following end-product enclosures are required: Mechanical, Fire, Electrical

- The following components require special consideration during end-product Thermal (Heating) tests due to the indicated maximum temperature measurements during component-level testing: The PWB is rated 130°C. ,
- The maximum continuous power supply output (Watts) relied on forced air cooling from: wind tunnel. IFB480050A120V-xxx testing was conducted in a wind tunnel with forced air cooling set to 300LFM [and 0 to 600LFM for Overload] with a unit output loaded to max rated Load of 600W max, Fan Distance from Unit: ~65 cm, Fan Location: Above unit, Air-flow Direction: unit is in input left orientation, airflow is flowing upwards in this orientation,
- The power DC Converter is intended to be supplied isolated secondary circuitry in an end-use application.

Additional Information
 - The products may optionally provide a suffix [R] which indicates a non-safety related function.

Markings and instructions	
Clause Title	Marking or Instruction Details
Power rating - Company identification	Listee's or Recognized company's name, Trade Name, Trademark or File Number
Power rating - Model	Model Number
1.7.1 Power rating - Ratings	Optional, (voltage dc, current)

Special Instructions to UL Representative
 N/A