

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:	AC to DC Power Supplies
Model:	PFE1000FA-abc (a = 12, 28, 48 b = / or blank, c is T or blank)
Rating:	See Additional Information.
Applicant Name and Address:	TDK-LAMBDA CORP NAGAOKA TECHNICAL CENTER R&D DIV 2704-1 SETTAYA-MACHI NAGAOKA-SHI NIIGATA 940-1195 JAPAN

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.

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Reviewed by: Tetsuo Iwasaki

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

This product is an AC to DC power module converter.

Model Differences

All models are identical except input ratings, output ratings, Transformer (T302, T303), Inductor (L401), and rating of some minor components.

Technical Considerations

- Equipment mobility : for building-in
- Connection to the mains : not directly connected to the mains
- Operating condition : continuous
- Access location : N/A (for building-in)
- Over voltage category (OVC) : OVC II
- Mains supply tolerance (%) or absolute mains supply values : +10%, -10%
- Tested for IT power systems : No
- IT testing, phase-phase voltage (V) : N/A
- Class of equipment : Class I (earthed)
- Considered current rating of protective device as part of the building installation (A) : 20
- Pollution degree (PD) : PD 2
- IP protection class : IP X0
- Altitude of operation (m) : up to 3048 m (10,000 ft)
- Altitude of test laboratory (m) : approximately 10 to 20 m
- Mass of equipment (kg) : 0.418
- The product was submitted and evaluated for use at the maximum ambient temperature (T_{ma}) permitted by the manufacturer's specification of: 85 or 100 °C at Center of Base plate (See Enclosure Id: 7-01)
- The product is intended for use on the following power systems: TN

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 end-product Electric Strength Test is to be based upon a maximum working voltage of:
PFE1000FA-12: 397 Vrms, 932 Vpk, , PFE1000FA-28: 391 Vrms, 888 Vpk, , PFE1000FA-48: 381 Vrms, 904 Vpk,

- The following secondary output circuits are SELV: Output of PFE1000FA-12bc and PFE1000FA-28bc.
- The following secondary output circuits are at hazardous energy levels: Output of all models.
- The maximum investigated branch circuit rating is: 20 A
- The investigated Pollution Degree is: 2
- 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): T302 (Class H), T303 (Class H), T3 (Class F)
- The following end-product enclosures are required: Fire, Electrical
- The products were tested with external fuse, fast-blow type fuse, rated 250 V, 25 A.
- The output of Model PFE1000FA-48 insulated from mains by double or reinforced insulation.
- Base plate shall be connected to ground at the end product.

Additional Information

Input Ratings:

Model PFE1000FA-12: 100-240 VAC, 50-60Hz, 10 A

Model PFE1000FA-28: 100-240 VAC, 50-60Hz, 13 A

Model PFE1000FA-48: 100-240 VAC, 50-60Hz, 13 A

Output Ratings:

Model PFE1000FA-12: 12 Vdc (DC 9.6-14.4V), max. 60 A, max. 720W

Model PFE1000FA-28: 28 Vdc (DC 22.4-33.6V), max. 36 A, max. 1008W

Model PFE1000FA-48: 48 Vdc (DC 38.4-57.6V), max. 21 A, max. 1008W

All models may include suffix /T which indicates no threads in the corner.

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

Special Instructions to UL Representative

N/A