UL TEST REPORT AND PROCEDURE

Standard:	UL 60950-1, 2nd Edition, 2011-12-19 (Information Technology Equipment - Safety - Part 1: General Requirements) CAN/CSA C22.2 No. 60950-1-07, 2nd Edition, 2011-12 (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:	MINT1180WXXYYKZZ, MINT1200WXXYYKZZ, CINT1180WXXYYKZZ, CINT1200WXXYYKZZ, Where W is A or B or C, where XX is any number 12 through 48, where YY or ZZ is any number 01 through 99. LB130S56K Where LB is LED Boardmount, 130 is Output Watts, S is Single Output, 56 is Output Volts LB240SxxK Where LB is LED Boardmount, 240 is Output Watts, S is Single Output, xx is 24, 48 or 56 which represent the Output Volts CINT1200A4875K03, LB150S48K Where LB is LED Boardmount, 150 is Output Watts, S is Single Output, 48 is Output Volts
Rating:	Input: 100-240 Vac, 50-60 Hz, 3.0A Output: For MINT1180AXXYYKZZ, MINT1180BXXYYKZZ, CINT1180AXXYYKZZ, CINT1180BXXYYKZZ: (12 Vdc, 15 A) to (48 Vdc, 3.75 A), maximum 180 Watts for convection cooled. For:MINT1200AXXYYKZZ, MINT1200BXXYYKZZ, CINT1200AXXYYKZZ, CINT1200BXXYYKZZ: (12 Vdc, 15 A) to (48Vdc, 3.75 A), maximum 180 Watts for convection cooled (12 Vdc, 16.67 A) to (48 Vdc, 4.17A), maximum 200 Watts with airflow of Min. 16CFM(100LFM). For CINT1180CXXYYKZZ, MINT1180CXXYYKZZ,CINT1200CXXYYKZZ, MINT1200CXXYYKZZ with output range from 24Vdc to 48Vdc (24Vdc, 5.42A) to (48Vdc, 2.71A), maximum 130 Watts with convection cooled

	For CINT1180CXXYYKZZ, MINT1180CXXYYKZZ,CINT1200CXXYYKZZ, MINT1200CXXYYKZZ with output range from 12Vdc to 23.9Vdc (12Vdc, 10.42A) to (23.9Vdc, 5.23A), maximum 125 Watts with convection cooled For CINT1200CXXYYKZZ, MINT1200CXXYYKZZ (12 Vdc, 16.67 A) to (48 Vdc, 4.17A), maximum 200 Watts with airflow of Min. 32CFM (200LFM). For LB130S56K Input: 100-240 Vac, 50-60 Hz, 2.0A Output: 56Vdc, 2.32A No airflow For LB240SxxK: Input: 100-240Vac, 50-60Hz, 3.0A Output: 24Vdc/10A, 48Vdc/5A, 56Vdc/4.29A maximum 240 Watts with 300 LFM airflow. 24Vdc/7.92A, 48Vdc/3.95A, 56Vdc/3.39A maximum 190 Watts with 200 LFM airflow. 24Vdc/5.24A, 48Vdc/2.71A, 56Vdc/2.32A maximum 130 Watts with convection cooled. For CINT1200A4875K03 & LB150S48K Input: 100-277 Vac, 50-60 Hz, 3.0 A Output: 48 Vdc/3.13 A No airflow
Applicant Name and Address:	SL POWER ELECTRONICS CORP BLDG A 6050 KING DR VENTURA CA 93003 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: Takeshi Tokunaga Reviewed by: Walid Beytoughan

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 units are open-frame AC/DC power supplies, designed for building-in to an end-product.

The units were evaluated to operate upto the altitude of 3000m.

Model Differences

The power supplies in the MINT1180WXXYYKZZ are similar to each other except for output ratings and secondary winding of power transformer.

MINT1200WXXYYKZZ and MINT1180WXXYYKZZ are similar to each other in construction except for the output ratings and the additional cooling system required for MINT1200WXXYYKZZ.

MINT1200WXXYYKZZ is identical to CINT1200WXXYYKZZ except for model designation.
MINT1180WXXYYKZZ is identical to CINT1180WXXYYKZZ except for model designation.

The Model number nomenclature explains construction as below:
where W is A or B or C, A is for Class I construction, B is for Class II construction,C is for Class I construction with additional cover & chassis and insulator between product and cover & chassis , where XX is any number 12 through 48, represents the output voltage, where YY or ZZ is any number 01 through 99, designates additional configurations indicating non-safety related options, K is an Alpha character that represents input options.

LB130S56K is similar to the CINT1180 series approved earlier. The main difference is in the Main Transformer, Heatsinks, minor component changes and the addition of C120 and C121 (1000pF, Y1 Type). The LB130S56K is Class 1 only.

Model LB240SxxK is similar to Model LB130S56K, except for the rating of Fuse F100; the removal and jumper of F101; and PFC Inductor (L103, L104). The LB240SxxK is Class 1 only.

Models CINT1200A4875K03 & LB150S48K are identical except for model designation. These models are similar to Model CINT1200A4875K02 and differs in the input rating, which is rated 100-277 Vac without the +6 % tolerance, and the output rating derated from 180 W to 150 W, convection cooled at 50 C ambient. Safety critical components (Fuse F100, X cap C10, Y caps C118 & C119, and Varistor R100) were replaced due to the 277 Vac input rating exceeding the rating of the parts, minor changes to components values, and fuse F101 is omitted and replaced with a jumper wire.
Enclosure 13-07 marking plate represents both Models CINT1200A4875K03 and LB150S48K.

Technical Considerations

- Equipment mobility : for building-in
- Connection to the mains : To be determined
- Operating condition : continuous
- Access location : To be determined
- 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 (earthed) or Class II (double insulated)
- Considered current rating of protective device as part of the building installation (A) : 16A (20A for north America)
- Pollution degree (PD) : PD 2
- IP protection class : IP X0
- Altitude of operation (m) : no more than 3000m
- Altitude of test laboratory (m) : no more than 2000m
- Mass of equipment (kg) : 0.34 without chassis, 0.506 with chassis
- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 40°C for units where transformer T200 uses Class B insulation system; or 50°C and 70°C for units where transformer T200 uses Class F insulation system.
- The means of connection to the mains supply is: Determined in end-product
- The product is intended for use on the following power systems: IT, TN and TT
- The equipment disconnect device is considered to be: Determined in end product
- The product was investigated to the following additional standards: EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 (which includes all European national differences, including those specified in this test report).
- The following accessible locations (with circuit/schematic designation) are within a limited current circuit: For Class II unit: C218 load side.
- 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 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
- The end-product Electric Strength Test is to be based upon a maximum working voltage of: Primary-SELV: 289 Vrms, 460 Vpk, Primary-Earth: 240 Vrms, 378 Vpk
- The following secondary output circuits are SELV: All outputs
- The following secondary output circuits are at hazardous energy levels: All output
- The following secondary output circuits are Limited Current Circuits: For Class II unit: C218 load

side.

- The power supply terminals and/or connectors are: Not investigated for field wiring
- The maximum investigated branch circuit rating is: 20 A
- 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 for MINT1180CXXYYKZZ, MINT1200CXXYYKZZ, CINT1180CXXYYKZZ, CINT1200CXXYYKZZ series, LB130S56K.
- The following input terminals/connectors must be connected to the end-product supply neutral: N pin of input connector
- 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): T200 (Class B) and T200 (Class F)
- The following end-product enclosures are required: Fire, Electrical
- The maximum continuous power supply output (Watts) relied on forced air cooling from: - For Models MINT1200AXXYYKZZ and CINT1200AXXYYKZZ, MINT1200BXXYYKZZ and CINT1200BXXYYKZZ: One cooling fan with 16CFM (100LFM) applied to front the unit. , - For Models MINT1200CXXYYKZZ and CINT1200CXXYYKZZ: One cooling fan with 32CFM (200LFM) applied to front the unit. , - For Model LB240SxxK: With maximum 240W one cooling fan 300LFM applied to front the unit. With maximum 190W one cooling fan 200LFM applied to front the unit. With maximum 130W one convection cooled applied to front the unit., Refer to enclosure 7-02 for test condition.
- The equipment is suitable for direct connection to: AC mains supply
- Dual fuses used in this product, Clause 2.7.6 shall be reconsidered in end use.
- C106 will hold a charge for up to 30 minutes. This notice is only for reminding the service personnel.
- Model LB130S56K does not require airflow.

Additional Information

This report includes licenses for components that are more than 3 years old. Recognizing NCBs may challenge certification documents more than three years old. Additional documentation, testing, and evaluation may be required when submitting this product to a National Certification Body (NCB) for obtaining certification at national level.

Additional Standards

The product fulfills the requirements of: EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011

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

Power rating - Class II symbol	Symbol for Class II construction  (60417-2-IEC-5172)
Fuses - Rating	Rated current and voltage and type located on or adjacent to fuse or fuseholder.

Special Instructions to UL Representative

Inspect the transformer(s) listed in table "Electric Strength Test Special Constructions" per BD1.1:
When the tests are conducted at other location, inspect test record and specification sheet provided by the component manufacturer. Verify the specification sheet indicates 100% routine test specified in the table be conducted at the component manufacturer.

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
All models	Transformer T200	--	T200 Primary to Secondary	min. 3000	min. 4242	1s

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

All 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:

N/A

Sample and Test Specifics for Follow-Up Tests at UL

Model	Component	Material	Test	Sample(s)	Test Specifics
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