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REPORT

on

COMPONENT - POWER SUPPLIES, INFORMATION TECHNOLOGY EQUIPMENT
INCLUDING ELECTRICAL BUSINESS EQUIPMENT

Astec International Ltd.
Hung Hom, Kowloon, Hong Kong

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DESCRIPTIONPRODUCT COVERED:

Component - Switching Power Supply, Models LPT22, LPT23, LPT24, LPT25, LPT42, LPT43, LPT44, LPT45, LPT46, LPT47 and LPT48 for Use in Information Technology Equipment, Including Electrical Business Equipment.

ELECTRICAL RATINGS:

<u>Model</u>	<u>Input</u>	<u>Output</u>
LPT45	100-250 V ac 1.6 A 50/60/440 Hz or 120-300 V dc 1 A	+5 V, 5 A +15 V, 2.5 A -15 V, 0.7 A
LPT42	100-250 V ac 1.6 A 50/60/440 Hz or 120-300 V dc 1 A	+5 V, 5 A +12 V, 2.5 A -12 V, 0.7 A
LPT43	100-250 V ac 1.6 A 50/60/440 Hz or 120-300 V dc 1 A	+5 V, 8 A +12 V, 0.7 A -12 V, 0.7 A
LPT44	100-250 V ac 1.6 A 50/60/440 Hz or 120-300 V dc 1 A	+5 V, 5 A +12 V, 2.5 A -5 V, 0.7 A
LPT46	100-250 V ac 1.6 A 50/60/440 Hz or 120-300 V dc 1 A	+5 V, 5 A +24 V, 1.5 A +12 V, 0.7 A
LPT47	100-250 V ac 1.6 A 50/60/440 Hz or 120-300 V dc 1 A	+5 V, 5 A +24 V, 1.5 A -12 V, 0.7 A
LPT48	100-250 V ac 1.6 A 50/60/440 Hz or 120-300 V dc 1 A	+5 V, 5 A +24 V, 1.5 A -5 V, 0.7 A

Maximum output power: 40 W convection **cooling**, 55 W with 30 CFM forced air

Model	Input	Output
LPT22	100-250 V ac 1.2 A 50/60/440 Hz or 120-300 V dc 0.8 A	+5 V 4 A +12 V 2 A -12 V 0.7 A
LPT23	100-250 V ac 1.2 A 50/60/440 Hz or 120-300 V dc 0.8 A	+5 V 5 A +12 V 0.7 A -12 V 0.7 A
LPT24	100-250 V ac 1.2 A 50/60/440 Hz or 120-300 V dc 0.8 A	+5 V 4 A +12 V 2 A -5 V 0.7 A
LPT25	100-250 V ac 1.2 A 50/60/440 Hz or 120-300 V dc 0.8 A	+5 V 4 A +15 V 2 A -15 V 0.7 A

Maximum output power: 25 W convention **cooling**, 40 W with 30 CFM forced air

TECHNICAL CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE'S USE):

General - For use only in complete equipment where the acceptability of the combination is determined by Underwriters Laboratories Inc.

Conditions of Acceptability - When installed in the end-use equipment, the following are the considerations to be made:

- *1. These components have been judged on the basis of the required creepages and clearances in the Second Edition of the Standard for Information Technology Equipment Including Electrical Business Equipment, UL 60950-1, Second Edition, dated **October 14, 2014** and CAN/CSA C22.2 No. 60950-1-07, **Second Edition**, dated **October, 2014**, Subclause 2.10, which covers the end-use product for which the component was designed. Operational insulations have been evaluated by conducting component failure tests per Subclause 5.3.4(c) of UL 60950-1, Second Edition, dated **October 14, 2014** and CAN/CSA C22.2 No. 60950-1-07, **Second Edition**, dated **October, 2014**.
2. A suitable enclosure shall be provided.
3. These power supplies have only been evaluated for use in pollution degree 2 environment.
4. The secondary output connectors have not been evaluated for field connections.
5. The secondary outputs of these power supplies are unearthed SELV and nonenergy hazard. Method 1 of Subclause 2.2 is used to maintain the insulations of SELV from other circuits.
- *6. These power supplies have been evaluated for use in Class I equipment as defined in UL 60950-1, Second Edition, dated **October 14, 2014** and CAN/CSA C22.2 No. 60950-1-07, **Second Edition**, dated **October, 2014**. An additional evaluation shall be made if the power supply is intended for use in other than Class I equipment.
7. These power supplies are not directly connected to earth ground of the branch circuit, they shall be properly bonded to earth ground in the end-use product.
- *8. These power supplies were evaluated under the assumption that the power source is a TN-S system as defined by UL 60950-1, Second Edition, dated **October 14, 2014** and CAN/CSA C22.2 No. 60950-1-07, dated **October, 2014**.
9. These power supplies have been evaluated for use in a 25°C and 50°C ambient.
10. Transformer T1 and common mode choke L3 employ a Class B electrical insulation system.
11. The power supplies were evaluated for operating altitude up to 3050 m above sea level.

CONSTRUCTION DETAILS:

Spacing - The following spacings are maintained in the power supplies, Models LPT22, LPT23, LPT24, LPT25, LPT42, LPT43, LPT44, LPT45, LPT46, LPT47 and LPT48. See ILL. 1 for details.

- A. Minimum 6.4 mm creepage distance and minimum **4.9** mm clearance distance between primary and secondary circuits.
- B. Minimum 3.2 mm creepage distance and minimum **2.5** mm clearance distance between primary circuits and earthed.

Section General - The following construction items are described in the Section General.

Corrosion Protection	Printed Wiring Boards
Internal Wiring	Wiring Connections
Segregation	Tubing and Sleeving
Wiring Positioning Devices	Earthing/Bonding
Marking Methods	Capacitors
Markings	Earthing Symbol
Internal Polymeric Materials	

ILLUSTRATIONS:

ILL. 1 - Printed wiring board trace layout for LPT22, LPT23, LPT24, LPT25, LPT42, LPT43, LPT44, LPT45, LPT46, LPT47, LLPT48.

MODEL DIFFERENCE:

Models LPT42, LPT43 and LPT44 are similar to LPT45 except that the Transformer (T1) and the output ratings differ from LPT45. See electrical ratings and transformer P/N for reference.

Model LPT22 is similar to LPT45 except for input power rating; some primary and secondary components.

Model LPT23, LPT24 and LPT25 are similar to LPT22 except for output ratings, power transformers and some secondary components.

Models LPT46, LPT47, LPT48 are similar to LPT45 except that the Transformer (T1) and the output ratings differ from LPT45. See electrical ratings and transformer P/N for reference.

MODEL LPT45 - FIG. 1

General - Also represents Models LPT22, LPT23, LPT24, LPT25, LPT42, LPT43, LPT44, LPT46, LPT47 and LPT48 except where specifically described.

1. Main Printed Wiring Board - See Construction Details. See ILL. 1 for trace layout. Overall 127 by 76 by 1.6 mm thick. Provided with one circular hole at each corner for mounting purpose.
2. Transformer (T1) - Astec/**ARTESYN** P/N 852-61001440, Rev. 1 for LPT45 or LPT25.
 - Astec/**ARTESYN** P/N 852-61001430, for LPT44 or LPT24.
 - Astec/**ARTESYN** P/N 852-61001420, for LPT43.
 - Astec/**ARTESYN** P/N 852-61001380, for LPT42, LPT22 or LPT23.
 - Astec/**ARTESYN** P/N 852-66000510, for LPT46.
 - Astec/**ARTESYN** P/N 852-66000520, for LPT47.
 - Astec/**ARTESYN** P/N 852-66000530, for LPT48.

3. Insulator - R/C plastics (QMFZ2), Sabic Innovative Plastics US LLC (E121562), Lexan, Type FR700, rated 94V-0, minimum 0.25 mm thick. One is secured between Heat Sink (Item 4) and Transformer (Item 2). Another is secured between Input Connector (Item 7) and Electrolytic Capacitor (Item 5).

Alternate - Same as above except for insulator(QMFZ2), Sabic Innovative Plastics China Co Ltd (E205960), Type FR700, rated V-0, minimum 0.23mm thick.

4. Heat Sink - (Heat sink is live). Metal, two provided minimum 2 mm thick. Overall maximum 2.5 by 7.6 by 4.9 cm. Secured to PWB, Item 1, by solder pins.
5. Electrolytic Capacitor (C6) - With integral pressure relief, rated 180 uF, minimum 400 V, minimum 85°C. Rated 150 uF for Models LPT22, LPT23, LPT24 and LPT25.
6. Input Connector - Recognized Component - Receptacles for Attachment Plugs and Plugs (RTRT2), Molex Inc., 5414 series (Part No. 39-26-3030).

Alternate - Same as above except for terminal block (XCFR2), Weco Wester Ebbinghaus GMBH & Co KG, Type A396-T-DS.

Alternate - Same as above except for terminal block (ECBT2), Alex Connector Co Ltd (E114003), Type 8673 Series.

Alternate - Same as above except for terminal block (ECBT2), Land Win Electronic Corp (E159426), Type 3061P Series.

7. Fuse (F1) - Recognized Component - Fuses (JDYX2), cartridge type, Littelfuse, Type 21602.5 or Schurter AG, Type SP, 0001.1008, rated 2.5 A, 250 V ac. Secured in fuse clip. Fuse rating permanently marked on printed wiring board, Item 1, adjacent to fuse clip.
8. Bridge Rectifier (DB1) - Rated minimum 3 A, minimum 600 V ac.
9. Capacitors (C2, C3) - (Line-To-Ground). See Sec. Gen. for manufacturer and catalog number. Rated maximum 3300 pF, minimum 125 V ac.

10. Inductors (L1, L2) - Astec/**ARTESYN** Part No. 852-61001570. Coil of enamelled wire No. 23 AWG is wound on the ferrite core of 17 mm OD. Reference Sec. Gen. for sleeving.
11. Capacitor (C1) - (Across-The-Line) - See Sec. Gen. for manufacturer and catalog number. Rated maximum 0.22 uF, minimum 250 V ac.
12. Resistors (R1, R2) - (Not shown). Each rated maximum 150K hms, minimum 1/6 W.
13. Common Mode Choke (L3) - Astec/**ARTESYN** Part No. 852-61001240, for Models LPT4X Series and Astec/**ARTESYN** Part No. 852-00016160, for Models LPT22, LPT23, LPT24 and LPT25.
14. Transistor (Q1) - Rated minimum 6.0 A, 600 V, secured to heat sink, Item 4, by screw and nut.
15. Optical Isolator (IC1) - Recognized Component - Optical isolator (FPQU2), Quality Technologies Corp. Type CNX82A or Vishay Infrared Component Inc (E52744), Type System J (CNY17F-2) or Toshiba, Type TLP734F, rated minimum 3000 V ac dielectric withst