



Test Report issued under
the responsibility of:



TEST REPORT
IEC 60950-1
Information technology equipment - Safety -
Part 1: General requirements

Report Reference No : E141988-A34-CB-5

Date of issue : 2016-06-30

Total number of pages : 63

CB Testing Laboratory : UL Japan, Inc.

Address : 4383-326 Asama-cho, Ise-shi, Mie, 516-0021, Japan

Applicant's name : KAGA COMPONENTS CO LTD
20 KANDAMATSUNAGACHO

Address : CHIYODA-KU
TOKYO 101-0023 JAPAN

Test specification:

Standard : IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013

Test procedure : CB Scheme

Non-standard test method : N/A

Test Report Form No. : IEC60950_1F

Test Report Form originator : SGS Fimko Ltd

Master TRF : Dated 2014-02

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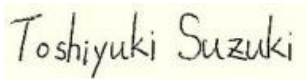

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Test item description	Component - Switching Power Supply
Trade Mark	TRACO POWER
Manufacturer	TRACO ELECTRONIC AG SIHLBRUGGSTRASSE 111 CH-6340 BAAR SWITZERLAND
Model/Type reference	TMS10105, TMS10112, TMS10115, TMS10124, TMS10212, TMS10215, TMS10105F, TMS10112F, TMS10115F, TMS10124F, TMS10212F, TMS10215F
Ratings	Input: 115-230 Vac, 50/60 Hz, 0.18-0.12 A Output for Models TMS10105 and TMS10105F: 5 Vdc, 2.0 A Output for Models TMS10112 and TMS10112F: 12 Vdc, 0.9 A Output for Models TMS10115 and TMS10115F: 15 Vdc, 0.7 A Output for Models TMS10124 and TMS10124F: 24 Vdc, 0.45 A Output for Models TMS10212 and TMS10212F: ± 12 Vdc, 0.45 A Output for Models TMS10215 and TMS10215F: ± 15 Vdc, 0.35 A

Testing procedure and testing location:	
<input checked="" type="checkbox"/> CB Testing Laboratory	Testing location / address: UL Japan, Inc. 4383-326 Asama-cho, Ise-shi, Mie, 516-0021, Japan
<input type="checkbox"/> Associated CB Test Laboratory	Testing location / address:
	Tested by (name + signature): Toshiyuki Suzuki, Project Handler 
	Approved by (name + signature).....: Masatomo Takiyama, Reviewer 
<input type="checkbox"/> Testing Procedure: TMP/CTF Stage 1	
	Testing location / address:
	Tested by (name + signature): _____
	Approved by (name + signature).....: _____
<input type="checkbox"/> Testing Procedure: WMT/CTF Stage 2	
	Testing location / address:
	Tested by (name + signature): _____
	Witnessed by (name + signature) ..: _____
	Approved by (name + signature).....: _____
<input type="checkbox"/> Testing Procedure: SMT/CTF Stage 3 or 4	
	Testing location / address:
	Tested by (name + signature): _____
	Approved by (name + signature).....: _____
	Supervised by (name + signature) ..: _____
<input type="checkbox"/> Testing Procedure: RMT	
	Testing location / address:
	Tested by (name + signature): _____
	Approved by (name + signature).....: _____
	Supervised by (name + signature) ..: _____

List of Attachments

National Differences (27 pages)

Enclosures (60 pages)

Summary Of Testing

Unless otherwise indicated, all tests were conducted at UL Japan, Inc. 4383-326 Asama-cho, Ise-shi, Mie, 516-0021, Japan.

Tests performed (name of test and test clause)	Testing location / Comments
Input: Single-Phase (1.6.2)	

Durability of Marking (1.7.11)
Energy Hazard Measurements (2.1.1.5, 2.1.2, 1.2.8.10)
SELV Reliability Test Including Hazardous Voltage
Measurements (2.2.2, 2.2.3, 2.2.4, Part 22 6.1)
Humidity (2.9.1, 2.9.2, 5.2.2)
Determination of Working Voltage; Working Voltage
Measurement (2.10.2)
Transformer and Wire /Insulation Electric Strength
(2.10.5.13)
Heating (4.5.1, 1.4.12, 1.4.13)
Ball Pressure (4.5.5, 4.5)
Touch Current (Single-Phase; TN/TT System) (5.1, Annex
D)
Electric Strength (5.2.2)
Component Failure (5.3.1, 5.3.4, 5.3.7)
Transformer Abnormal Operation (5.3.3, 5.3.7b, Annex
C.1)
Power Supply Output Short-Circuit/Overload (5.3.7)

Summary of Compliance with National Differences:

Countries outside the CB Scheme membership may also accept this report.

List of countries addressed: CA, DE, DK, EU, FI, GB, KR, SE, SI, US

The product fulfills the requirements of: EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011 +A2:2013

Copy of Marking Plate - Refer to Enclosure titled Marking Plate for copy.

Test item particulars :

Equipment mobility: for building-in
 Connection to the mains: for building-in
 Operating condition: continuous
 Access location: operator accessible
 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 2000
 Altitude of test laboratory (m): Approx. 10 to 20
 Mass of equipment (kg): < 0.5 kg

Possible test case verdicts:

- test case does not apply to the test object: N / A
 - test object does meet the requirement: P(Pass)
 - test object does not meet the requirement: F(Fail)

Testing:

Date(s) of receipt of test item: 2006-10-19, 2006-11-06, 2006-11-21, 2006-11-22, 2006-12-24, 2007-02-05
 Date(s) of Performance of tests: 2006-11-13 to 2007-02-21

General remarks:

"(see Enclosure #)" refers to additional information appended to the report.
 "(see appended table)" refers to a table appended to the report.

Throughout this report a point is used as the decimal separator.

Manufacturer's Declaration per Sub Clause 4.2.5 of IEC 60950-1:

Yes

The application for obtaining a CB Test Certificate includes more than one factory and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided

When differences exist, they shall be identified in the General Product Information section.

Name and address of Factory(ies): KAGA COMPONENTS CO LTD
 NIIGATA PLANT
 1194-3 MOKKOSHIN-MACHI
 HIGASHI-KU NIIGATA-SHI
 NIIGATA-KEN 950-0807

JAPAN

DONGGUAN POWERTEK ELECTRONICS CO LTD
CHILING INDUSTRIAL ESTATE HOUJIE ZHEN DONGGUAN
CITY GUANGDONG CHINA

GENERAL PRODUCT INFORMATION:**Report Summary**

All applicable tests according to the referenced standard(s) have been carried out.

Product Description

These models covered in this report were component-type power supply intended for use in Information Technology Equipment.

Model Differences

There are two different input/output terminal types. Those with "F" suffix have flat tab terminals extending above enclosure. Those without "F" suffix have terminal pins protruding below enclosure.

Models TMS101xx and TMS101xxF are single (+) output DC power supply unit.

Models TMS102xx and TMS102xxF are dual (\pm) output DC power supply unit.

24V output models are identical to $\pm 12V$ output models, except for output terminal. The circuit of 24V output models was the same as $\pm 12V$ output models.

The "xx" in model designation indicate output voltage of power supply unit.

Each model is identical, except for output ratings, minor differences in the secondary circuit components and the number of turns of secondary winding in the Transformer (T1).

Additional Information

Maximum normal load: Maximum normal load is rated output load.

[CB Only]

This report is a reissue of CBTR Ref. No. E141988-A34-CB-4, CB Test Certificate Ref. Nos. JP-10722-UL and JP-10723-UL due to the following modifications:

1. Upgrade of standard from IEC 60950-1, 2nd edition + Amendment 1 to IEC 60950/IEC60950-1, 2nd edition + Amendment 1 + Amendment 2.
2. Deletion of Models KB10-05S, KB10-12S, KB10-15S, KB10-24S, KB10-122D, KB10-153D, KB10F-05S, KB10F-12S, KB10F-15S, KB10F-24S, KB10F-122D and KB10F-153D.
3. Deletion of Manufacturer "KAGA COMPONENTS CO LTD".
4. Update of address of Applicant and Manufacturer.
5. Change of Manufacturer of Thermistor (TH1), from "Ishizuka Electronics Corp" to "SEMITEC Corp".
6. Change of Manufacturer of Control IC (IC1), from "Semiconductor Co., Panasonic Corp." to "Panasonic Semiconductor Solutions Co., Ltd.".

Based on the previously conducted testing and the review of product technical documentation including photos, schematics, wiring diagrams and similar, it has been determined that the product continues to comply with the standard.

National difference of Japan (J60950-1(H22)) has been evaluated (see Enclosure - Miscellaneous #7-10).

National difference of China (GB4943.1-2011) has been evaluated (see Enclosure - Miscellaneous #7-11).

Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 40 °C
- The product is intended for use on the following power systems: TN
- The product was investigated to the following additional standards: EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013 (which includes all European national differences, including those specified in this test report).

Engineering Conditions of Acceptability

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: (Model TMS10105 series) Primary-Earthed Dead Metal: 246 Vrms, 524 Vpk, Primary-SELV: 246 Vrms, 524 Vpk, (Model TMS10112 series) Primary-Earthed Dead Metal: 249 Vrms, 512 Vpk, Primary-SELV: 249 Vrms, 512 Vpk, (Model TMS10115 series) Primary-Earthed Dead Metal: 248 Vrms, 524 Vpk, Primary-SELV: 247 Vrms, 524 Vpk, (Model TMS10212 series, TMS10124 series) Primary-Earthed Dead Metal: 248 Vrms, 508 Vpk, Primary-SELV: 259 Vrms, 524 Vpk, (Model TMS10215 series) Primary-Earthed Dead Metal: 251 Vrms, 524 Vpk, Primary-SELV: 266 Vrms, 532 Vpk
- A suitable disconnect device shall be provided in the end product. --
- A suitable protective device (overcurrent protection) shall be provided in the end product. --
- The evaluation of connection to IT power systems shall be conducted in the end product. --
- The following secondary output circuits are SELV: All model's output circuits --
- The following secondary output circuits are at non-hazardous energy levels: All model's output circuits --
- 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 --
- Proper bonding to the end-product main protective earthing termination is: Required --
- An investigation of the protective bonding terminals has: Not been conducted --
- The following magnetic devices (e.g. transformers or inductor) are provided with an OBJ2 insulation system with the indicated rating greater than Class A (105°C): T1 (Class B) --
- The following end-product enclosures are required: Fire, Electrical --

Abbreviations used in the report:

- normal condition	N.C.	- single fault condition	S.F.C
- operational insulation	OP	- basic insulation	BI
- basic insulation between parts of opposite polarity:	BOP	- supplementary insulation	SI
- double insulation	DI	- reinforced insulation	RI

Indicate used abbreviations (if any)