



Test Report issued under the responsibility of:



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

Report Number..... : 50059575 002

Date of issue..... : 20.03.2017

Total number of pages : 15

Applicant's name : TDK-Lambda Corp. Nagaoka Technical Center

Address..... : 2704-1 Settaya-machi, Nagaoka-shi, Niigata, 940-1195, JAPAN

Test specification:

Standard..... : IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013

Test procedure : CB Scheme

Non-standard test method : N/A

Test Report Form No. : IEC60950_1F

Test Report Form(s) Originator : SGS Fimko Ltd

Master TRF : Dated 2014-02

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This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

General disclaimer:

The test results presented in this report relate only to the object tested.

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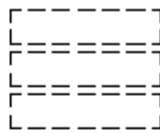
Test item description : Switching Power Supply	
Trade Mark : TDK-Lambda	
Manufacturer : Same as applicant	
Model/Type reference : CUT35-zxxxxxxx; CUT35J-zxxxxxxx (z = 522 or 5FF; xxxxxxx = A, B, L, other alphanumeric character, symbol or blank) Refer to page 8 for definition of variables	
Ratings : AC input: 100-240V, 1.0A, 50-60Hz DC output: See the model list on page 7 for details	
Testing procedure and testing location:	
<input checked="" type="checkbox"/>	CB Testing Laboratory: TÜV Rheinland Shanghai Co., Ltd.
Testing location/ address : No.177, 178, Lane 777 West Guangzhong Road, Jing'an District, Shanghai, China	
<input type="checkbox"/>	Associated CB Testing Laboratory:
Testing location/ address :	
Tested by (name + signature) : Sunny Sun	
Approved by (name + signature) : Roy Chen	
<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) :	
Witnessed by (name + signature) :	
Approved by (name + signature) :	
Supervised by (name + signature) :	

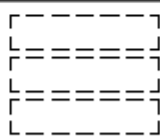
List of Attachments (including a total number of pages in each attachment):	
N/A	
Summary of testing:	
Tests performed (name of test and test clause):	Testing location:
No further test is considered necessary.	TÜV Rheinland Shanghai Co., Ltd. No.177, 178, Lane 777 West Guangzhong Road, Jing'an District, Shanghai, China
Summary of compliance with National Differences	
List of countries addressed:	
EU Group Differences, EU Special National Conditions, AR, AU, AT, BH, BY, BE, BR, BG, CA, CN, CO, HR, CZ, DK, FI, FR, DE, GR, HU, IN, ID, IE, IL, IT, JP, KE, KR, LR, MY, MX, AN, NZ, NG, NO, PK, PL, PT, RU, SA, RS, SG, SK, SI, ZA, ES, SE, CH, TH, TR, UA, AE, GB, US, VN	
Explanation of used codes:	
AR = Argentina**; AU = Australia**; AT = Austria*; BH = Bahrain**; BY = Belarus**; BE = Belgium*/**; BR = Brazil**; BG = Bulgaria*/**; CA = Canada; CN = China**; CO = Colombia**; HR = Croatia**; CZ = Czech** Republic*; DK = Denmark*; FI = Finland*/**; FR = France*/**; DE = Germany*/**; GR = Greece*/**; HU = Hungary*/**; IN = India**; ID = Indonesia**; IE = Ireland*/**; IL = Israel**; IT = Italy*; JP = Japan**; KE = Kenya**; KR = Korea, Republic of**; LR = Libya**; MY = Malaysia**; MX = Mexico**; AN = Netherlands Antilles*/**; NZ = New Zealand**; NG = Nigeria**; NO = Norway*/**; PK = Pakistan**; PL = Poland*/**; PT = Portugal*/**; RU = Russian Federation**; RO = Romania*/**; SA = Saudi Arabia**; RS = Serbia Republic of**; SG = Singapore**; SK = Slovakia*/**; SI = Slovenia*/**; ZA = South Africa**; ES = Spain*/**; SE = Sweden*; CH = Switzerland*/**; TH = Thailand**; TR = Turkey*/**; UA = Ukraine**; AE = United Arab Emirates**; GB = United Kingdom*; US = United States of America; VN = Vietnam**	
Note(s):	
Countries outside the CB Scheme membership may also accept this report.	
* Only applicable for Group Differences (if any). See attachment 2 for details.	
** No National Differences Declared	
Germany, Denmark, Finland, United Kingdom, Israel, Republic of Korea, Sweden and Slovenia National differences to IEC 60950-1:2005 (Second Edition) + Am 1:2009 evaluated.	
Australia, China, Switzerland, Spain, Ireland and Norway National differences to IEC 60950-1:2005 evaluated.	
Japan National differences to IEC 60950-1:2001 evaluated.	
The product fulfils the requirements of	
EN 60950-1:2006+A11+A12+A2, UL 60950-1:2007 R10.14 and CAN/CSA C22.2 No. 60950-1-07+A1:2011+A2:2014.	

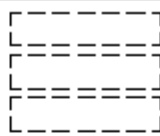
Copy of marking plate

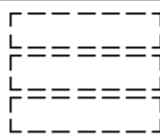
The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

<New Models>

<p>CUT35J-522 INPUT: 100-240VAC ~ 1.0A 50-60Hz OUTPUT: CH1: +5 V = 3.0 A CH2: +12 V = 1.2 A CH3: -12 V = 0.5 A</p>	<p>BAR CODE 5.0mm</p>	
<p>TDK-Lambda MADE IN [CHINA]</p>		

<p>CUT35J-5FF INPUT: 100-240VAC ~ 1.0A 50-60Hz OUTPUT: CH1: +5 V = 3.0 A CH2: +15 V = 1.0 A CH3: -15 V = 0.3 A</p>	<p>BAR CODE 5.0mm</p>	
<p>TDK-Lambda MADE IN [CHINA]</p>		

<p>CUT35J-522/B INPUT: 100-240VAC ~ 1.0A 50-60Hz OUTPUT: CH1: +5 V = 3.0 A CH2: +12 V = 1.2 A CH3: -12 V = 0.5 A</p>	<p>BAR CODE 5.0mm</p>	
<p>TDK-Lambda MADE IN [CHINA]</p>		

<p>CUT35J-5FF/B INPUT: 100-240VAC ~ 1.0A 50-60Hz OUTPUT: CH1: +5 V = 3.0 A CH2: +15 V = 1.0 A CH3: -15 V = 0.3 A</p>	<p>BAR CODE 5.0mm</p>	
<p>TDK-Lambda MADE IN [CHINA]</p>		

CUT35J- 522/L
INPUT: 100-240VAC ~ 1.0A
50-60Hz
OUTPUT: CH1: +5 V= 3.0 A
CH2: +12 V= 1.2 A
CH3: -12 V= 0.5 A

BAR CODE
5.0mm

TDK-Lambda
MADE IN [CHINA]

CUT35J- 5FF/L
INPUT: 100-240VAC ~ 1.0A
50-60Hz
OUTPUT: CH1: +5 V= 3.0 A
CH2: +15 V= 1.0 A
CH3: -15 V= 0.3 A

BAR CODE
5.0mm

TDK-Lambda
MADE IN [CHINA]

CUT35J- 522/A
INPUT: 100-240VAC ~ 1.0A
50-60Hz
OUTPUT: CH1: +5 V= 3.0 A
CH2: +12 V= 1.2 A
CH3: -12 V= 0.5 A

BAR CODE
5.0mm

TDK-Lambda
MADE IN [CHINA]

CUT35J- 5FF/A
INPUT: 100-240VAC ~ 1.0A
50-60Hz
OUTPUT: CH1: +5 V= 3.0 A
CH2: +15 V= 1.0 A
CH3: -15 V= 0.3 A

BAR CODE
5.0mm

TDK-Lambda
MADE IN [CHINA]

Test item particulars	: See below
Equipment mobility	: <input type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> transportable <input type="checkbox"/> stationary <input checked="" type="checkbox"/> for building-in <input type="checkbox"/> direct plug-in
Connection to the mains	: <input checked="" type="checkbox"/> pluggable equipment <input checked="" type="checkbox"/> type A <input type="checkbox"/> type B <input type="checkbox"/> permanent connection <input checked="" type="checkbox"/> detachable power supply cord <input type="checkbox"/> non-detachable power supply cord <input type="checkbox"/> not directly connected to the mains
Operating condition	: <input checked="" type="checkbox"/> continuous <input type="checkbox"/> rated operating / resting time:
Access location	: <input type="checkbox"/> operator accessible <input checked="" type="checkbox"/> restricted access location
Over voltage category (OVC)	: <input type="checkbox"/> OVC I <input checked="" type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input type="checkbox"/> other:
Mains supply tolerance (%) or absolute mains supply values	: ±10%
Tested for IT power systems	: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
IT testing, phase-phase voltage (V)	:
Class of equipment	: <input checked="" type="checkbox"/> Class I <input type="checkbox"/> Class II <input type="checkbox"/> Class III <input type="checkbox"/> Not classified
Considered current rating of protective device as part of the building installation (A)	: 16 (20 for US/CSA)
Pollution degree (PD)	: <input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3
IP protection class	: IPX0
Altitude during operation (m)	: Up to 3000
Altitude of test laboratory (m)	: Approx 50
Mass of equipment (kg)	: ≈0.19kg (with chassis and cover)
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 of receipt of test item	: N/A
Date(s) of performance of tests	: N/A
General remarks:	
"(See Enclosure #)" refers to additional information appended to the report. "(See ATTACHMENT #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report.	
Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.	

Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:

The application for obtaining a CB Test Certificate includes more than one factory location 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..... : **Yes**
 Not applicable

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies) : 1. Wuxi TDK-Lambda Electronics Co., Ltd.
 No. 6 Xing Chuang Er Lu, Wuxi, Jiangsu 214028, P. R. China
 2. Zhangjiagang Hua Yang Electronics Co., Ltd.
 Zhao Feng Industrial Zone, Leyu Town, Zhangjiagang, Jiangsu 215622, P. R. China

General product information:

Refer to report 50059575 001.
 For rating differences between the models see below tables:

Model differences						
Series Model	I/p voltage (Vac)	Freq (Hz)	I/p current (A)	Minimal output	Rated output (typical)	Maximum output
Convection cooling condition						
CUT35-522; CUT35J-522; CUT35-522/A; CUT35J-522/A; CUT35-522/L; CUT35J-522/L	100-240	50-60	1.0	5.0Vdc	5.0Vdc	5.25Vdc
				3.0A	3.0A	2.85A
				12.0Vdc	12.0Vdc	12.0Vdc
				1.2A	1.2A	1.2A
				-12.0Vdc	-12.0Vdc	-12.0Vdc
				0.5A	0.5A	0.85A
Total output power is 35.4VA max. & CH2, CH3 is 20.4VA max.						
CUT35-5FF; CUT35J-5FF; CUT35-5FF/A; CUT35J-5FF/A; CUT35-5FF/L; CUT35J-5FF/L	100-240	50-60	1.0	5.0Vdc	5.0Vdc	5.25Vdc
				3.0A	3.0A	2.85A
				15.0Vdc	15.0Vdc	15.0Vdc
				1.0A	1.0A	1.0A
				-15.0Vdc	-15.0Vdc	-15.0Vdc
				0.3A	0.3A	0.65A
Total output power is 34.5VA max. & CH2, CH3 is 19.5VA max.						
Remark: Operating temp.: Up to 70 °C (operating temperature depending on equipment's load, mounting position, for details refer to instruction manual).						

Description of change(s):

1. Add new model CUT35J-zxxxxxxx
2. Re-new critical components list.

For the above described change(s) the following was considered to be necessary:

Change	Testing	Comments
1	N/A	The new model is identical to CUT35- zxxxxxxx , no further test is considered necessary.
2	N/A	See table 1.5.1 in bold for details.

History of amendments and modifications:

Ref. No. 50059575 001, dated 2016-12-08 (original test report)

Ref. No. 50059575 002, dated 2017-03-20 (1st Modification)Definition of variable(s):CUT35-**zxxxxxxx**; CUT35J-**zxxxxxxx**(z = 522 or 5FF; **xxxxxxx** = A, B, L, other alphanumeric character, symbol or blank)

Variable:	Range of variable:	Content:
z	522 or 5FF	Denotes for different output voltage
xxxxxxx	A	Denotes for cover & chassis
	B	Denotes for Base plate
	L	Denotes for chassis under PWB
	other alphanumeric character, symbol	For market purposes, no construction differences and no safety impact.
	blank	Denotes for JST connector or TE connectivity Connector

Abbreviations used in the report:

-Normal conditions	N.C.	-Single fault conditions	S.F.C
-Functional insulation	OP	-Basic insulation	BI
-Double insulation	DI	-Supplementary insulation	SI
-Between parts of opposite polarity	BOP	-Reinforced insulation	RI
-Short-circuited	s-c	-No component damage	NCD
-Open-circuited	o-c	-Component damage	CD
-Overloaded	o-l	-Test repeated, similar result	RT
-Internal protection operated	IP	-No indication of dielectric breakdown	NB
-Input	i/p	-Cheesecloth remained intact	NC
-Output	o/p	-Tissue paper remained intact	NT
-Constant temperatures were obtained	CT	-The unit can recover auto when removing the abnormal condition	RA

Indicate used abbreviations (if any)

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1	GENERAL		P
1.5	Components	See below	P
1.5.1	General	See below	P
	Comply with IEC 60950-1 or relevant component standard	(see appended tables 1.5.1)	P
1.5.2	Evaluation and testing of components	<p>Components certified to IEC standards and/or their harmonized standards, are used within their ratings and are checked for correct application</p> <p>Non-certified components are checked for correct application, used within their ratings, tested as part of the equipment and subjected to applicable tests of the component standard</p> <p>Components, which no relevant IEC-Standard exists, are used within their ratings and are tested under the conditions occurring in the equipment</p>	P

1.7	Marking and instructions		P
1.7.1	Power rating and identification markings	See below	P
1.7.1.1	Power rating marking	See below	P
	Multiple mains supply connections.....:	Single mains supply connection provided	N/A
	Rated voltage(s) or voltage range(s) (V)	AC 100-240V	P
	Symbol for nature of supply, for d.c. only..... :	Mains from AC source	N/A
	Rated frequency or rated frequency range (Hz) ... :	50-60	P
	Rated current (mA or A)	1.0 A	P
1.7.1.2	Identification markings	See below	P
	Manufacturer's name or trade-mark or identification mark	TDK-Lambda	P
	Model identification or type reference	See copy of marking plate	P
	Symbol for Class II equipment only		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Other markings and symbols	Other markings and symbols do not give rise to misunderstanding	P
1.7.1.3	Use of graphical symbols	No graphical symbols	N/A
1.7.2	Safety instructions and marking	See below	P
1.7.2.1	General	Instructions are available	P

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	TABLE: List of critical components					P
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity ¹⁾	
Chassis or Base plate (Optional)	Interchangeable	Interchangeable	Metallic, Thickness 0.8 mm min. Fix to PCB by screws	IEC/EN/UL 60950-1	Tested in unit	
Cover (Optional)	Interchangeable	Interchangeable	Metallic, Thickness 0.5mm min.	IEC/EN/UL 60950-1	Tested in unit	
Heat-sink for D51	Interchangeable	Interchangeable	Metallic, Thickness 2.0 mm min. Fix to PCB by screws	IEC/EN/UL 60950-1	Tested in unit	
Primary Connector (CN1)	JAPAN SOLDERLESS TERMINAL MFG Co., Ltd.	Series VH	250V, 7A min. 66 Nylon, Min V-1, 105°C	UL 1977 IEC/EN 61984	UL E60389 TÜV R 00075122	
<Alternative>	TYCO ELECTRONICS	Series AMP	250V, 7.5A min. 105°C, Min.V-1	UL 1977	UL E28476	
<Alternative>	TIANLI ELECTRICAL MACHINERY (NINGBO) CO LTD	TL402 Series	AC250V,12A min. 105°C	UL1059 EN60998-1 EN 60998-2-1	UL E206029 VDE 40025612	
PCB Material	Interchangeable	Interchangeable	Min. V-1, 130°C	UL 94, UL 796	UL	
Fuse (F1, F2) F2 optional	EVER ISLAND ELECTRIC CO LTD & WALTER ELECTRIC	2010 series	T2.5A, AC 250V	IEC/EN 60127-1, IEC/EN 60127-3, UL 248	VDE 40018781, UL E220181	
Thermistor (TH1)	Interchangeable	Interchangeable	NTC, rated 10 Ω at 25 °C	IEC/EN/UL 60950-1	Tested in unit	
Line Filter (L1)	Interchangeable	Interchangeable	P1: φ0.35mm,58T P2: φ0.35mm,58T 130°C min.	UL recognized material	Tested in unit	
X-Capacitor (C1, C2)	OKAYA ELECTRIC INDUSTRIES	LE series	AC 250V min., C1=0.22μF max., C2=0.1μF max., 100°C min. X2 type min.	IEC/EN 60384-14 UL 1414, UL 60384-14	UL E47474, SEMKO SE/0142-1	

IEC 60950-1					
Clause	Requirement + Test		Result - Remark		Verdict
<Alternative>	EUROPTRONIC (TAIWAN) INDUSTRIAL CORP (FOR UL) EUROPTRONIC (TAIWAN) IND. CORP. (FOR VDE)	MPX Series	AC 250V min., C1=0.22μF max., C2=0.1μF max., 100°C min. X2 type min.	IEC/EN 60384-14 UL 1414, UL 60384-14	UL E211347, VDE 40018238
<Alternative>	EUROPTRONIC (TAIWAN) INDUSTRIAL CORP (FOR UL) EUROPTRONIC (TAIWAN) IND. CORP. (FOR VDE)	MPX2 series	AC 250V min., C1=0.22μF max., C2=0.1μF max., 100°C min. X2 type min.	IEC/EN 60384-14 UL 1414, UL 60384-14	UL E211347, VDE 40025981
<Alternative>	Panasonic Corporation Automotive & Ind. Systems Company (FOR VDE) PANASONIC CORPORATION, PANASONIC CORPORATION OF NORTH AMERICA (FOR UL)	ECQUL series	AC 250V min., C1=0.22μF max., C2=0.1μF max., 100°C min. X2 type min.	IEC/EN 60384-14 UL 1414, UL 60384-14	VDE 121548, UL E62674
<Alternative>	Panasonic Corporation Automotive & Ind. Systems Company (FOR VDE) PANASONIC CORPORATION, PANASONIC CORPORATION OF NORTH AMERICA (for UL)	ECQUA series	AC 250V min., C1=0.22μF max., C2=0.1μF max., 100°C min. X2 type min.	IEC/EN 60384-14 UL 1414, UL 60384-14	VDE 40031110, UL E62674
<Alternative>	OKAYA ELECTRIC INDUSTRIES	PA series	AC 250V min., C1=0.22μF max., C2=0.1μF max., 100°C min. X2 type min.	IEC/EN 60384-14 UL 1414, UL 60384-14	VDE4000103 6, UL E47474

IEC 60950-1					
Clause	Requirement + Test		Result - Remark		Verdict
<Alternative>	XIAMEN FARATRONIC CO., LTD	C42 Series (MKP62 Series)	AC 250V min., C1=0.22μF max., C2=0.1μF max., 100°C min. X2 type min.	IEC/EN 60384-14 UL 1414, UL 60384-14	VDE 40000358, UL E186600
<Alternative>	CHENG TUNG INDUSTRIAL CO LTD (FOR UL) CHENG TUNG INDUSTRIAL CO., LTD. (FOR VDE)	CTX series	AC 250V min., C1=0.22μF max., C2=0.1μF max., 100°C min. X2 type min.	IEC/EN 60384-14 UL 1414, UL 60384-14	VDE 40022642, UL E193049
<Alternative>	EPCOS (Zhuhai FTZ) Co., Ltd. (FOR VDE) EPCOS ELECTRONIC COMPONENTS S A (FOR UL)	B3292 series, B3293 series	AC 250V min., C1=0.22μF max., C2=0.1μF max., 100°C min. X2 type min.	IEC/EN 60384-14 UL 1414, UL 60384-14	VDE 40028058, VDE 40019254, UL E97863
Bleed resistor (R101, R102, R103)	Interchangeable	Interchangeable	Total 1410KΩ max., 1/4W (three in series, after fuse)	IEC/EN/UL 60950-1	Tested in unit
Y-Capacitor (C3, C4, C5)	MURATA MFG	KX series	AC 250V min., C3=C4=1000pF max., C5=2200pF max., 125°C, Y1 type	IEC/EN 60384-14 UL 1414, UL 60384-14	VDE 40002831, UL E37921
<Alternative>	TDK CORPORATION	CD series	AC 250V min., C3=C4=1000pF max., C5=2200pF max., 125°C, Y1 type	IEC/EN 60384-14 UL 1414, UL 60384-14	VDE 40029780, UL E37861
Bridge Diode (BD101)	Interchangeable	Interchangeable	400V min., 2A min.	IEC/EN/UL 60950-1	Tested in unit
Primary Electrolytic Capacitor (C6)	Interchangeable	Interchangeable	400V min., 120μF, 105°C min.	IEC/EN/UL 60950-1	Tested in unit

IEC 60950-1					
Clause	Requirement + Test		Result - Remark		Verdict
Optocoupler (PC101, PC102, PC103, PC104)	Toshiba Corporation (FOR VDE) TOSHIBA CORP, SEMICONDUCT OR CO DISCRETE SEMICONDUCT OR DIV (FOR UL)	TLP291(GR- TP,SE)	d.t.i.>0.4mm, ext. cr.>5.0mm, thermal cycling tested, 110°C Double protection optical isolated switches,providi ng 3750Vac isolation	EN 60950-1, EN 60065, EN 60747-5-5, UL 1577	VDE 40009347 UL E67349
Insulating Transformer (T1)	TDK-LAMBDA CORP	CA83701x, (the x can be A-Z or blank)	Class F (UL insulation system class F , type NLF2 TABLE I)	IEC/EN 60950-1, UL recognized material	Tested in unit, UL E182446
<Alternative>	ZHANGJIAGANG HUA YANG ELECTRONICS CORPORATION	HYCA83701x, (the x can be A-Z or blank)	Class F (UL insulation system Class F HYF1)	IEC/EN 60950-1, UL recognized material	Tested in unit UL E327745
Insulating Transformer (T2) for CUT35-522; CUT35J-522; CUT35-522/A; CUT35J-522/A; CUT35-522/L; CUT35J-522/L	TDK-LAMBDA CORP	CA83702x, (the x can be A-Z or blank)	Class F (UL insulation system class F , type NLF2 TABLE I)	IEC/EN 60950-1, UL recognized material	Tested in unit, UL E182446
<Alternative>	ZHANGJIAGANG HUA YANG ELECTRONICS CORPORATION	HYCA83702x, (the x can be A-Z or blank)	Class F (UL insulation system Class F HYF1)	IEC/EN 60950-1, UL recognized material	Tested in unit UL E327745
Insulating Transformer (T2) for CUT35-5FF; CUT35J-5FF; CUT35-5FF/A; CUT35J-5FF/A; CUT35-5FF/L; CUT35J-5FF/L	TDK-LAMBDA CORP	CA83703x, (the x can be A-Z or blank)	Class F (UL insulation system class F , type NLF2 TABLE I)	IEC/EN 60950-1, UL recognized material	Tested in unit, UL E182446
<Alternative>	ZHANGJIAGANG HUA YANG ELECTRONICS CORPORATION	HYCA83703x, (the x can be A-Z or blank)	Class F (UL insulation system Class F HYF1)	IEC/EN 60950-1, UL recognized material	Tested in unit UL E327745
Conformal Coating (optional)	Interchangeable	Interchangeable	100 °C min. V-2 min.	UL 746	UL

IEC 60950-1					
Clause	Requirement + Test			Result - Remark	Verdict
Insulating Sheet (suffix "B" models) (Optional)	Interchangeable	Interchangeable	0.15mm min. 105°C min. VTM-2 or V-2 min.	UL 746, UL 94	UL
Supplementary information:					
1) Provided evidence ensures the agreed level of compliance. See OD-CB2039.					

-- End of modification report --



Ref. Certif. No.

JPTUV-077190

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

SYSTEME CEI D'ACCEPTATION MUTUELLE DE CERTIFICATS D ESSAIS DES EQUIPEMENTS ELECTRIQUES (IECEE) METHODE OC

CB TEST CERTIFICATE

CERTIFICAT D'ESSAI OC

Product
Produit

Switching Power Supply

Name and address of the applicant
Nom et adresse du demandeur

TDK-Lambda Corp. Nagaoka Technical Center
2704-1 Settaya-machi
Nagaoka-shi, Niigata, 940-1195 Japan

Name and address of the manufacturer
Nom et adresse du fabricant

TDK-Lambda Corp. Nagaoka Technical Center
2704-1 Settaya-machi
Nagaoka-shi, Niigata, 940-1195 Japan

Name and address of the factory
Nom et adresse de l'usine

See additional page(s)

Ratings and principal characteristics
Valeurs nominales et caractéristiques principales

AC input: 100-240V, 1.0A, 50-60Hz, Class I
DC output: refer to the test report

Trademark (if any)
Marque de fabrique (si elle existe)

TDK-Lambda

Type of Manufacturer's Testing Laboratories used
Type de programme du laboratoire d'essais constructeur

N/A

Model / Type Ref.
Ref. de type

CUT35-zxxxxxxx
(z = 522 or 5FF;
xxxxxxx = A, B, L, other alphanumeric character,
symbol or blank)

Additional information (if necessary may also be reported on page 2)
Les informations complémentaires (si nécessaire, peuvent être indiqués sur la 2^{ème} page)

For model differences, refer to the test report

A sample of the product was tested and found to be in conformity with
Un échantillon de ce produit a été essayé et a été considéré conforme à la

IEC 60950-1:2005 + A1 + A2
See Test Report for National Differences

As shown in the Test Report Ref. No. which forms part of this Certificate
Comme indiqué dans le Rapport d'essais numéro de référence qui constitue partie de ce Certificat

50059575 001

This CB Test Certificate is issued by the National Certification Body
Ce Certificat d'essai OC est établi par l'Organisme National de Certification



TÜV Rheinland Japan Ltd.
Global Technology Assessment Center
4-25-2 Kita-Yamata, Tsuzuki-ku
Yokohama 224-0021 Japan
Phone + 81 45 914-3888
Fax + 81 45 914-3354
Mail: info@jpn.tuv.com
Web: www.tuv.com

Mark Chen

Date: 08.12.2016

Signature:


1. Wuxi TDK-Lambda Electronics
Co., Ltd.
No. 6 Xing Chuang Er Lu
Wuxi Jiangsu 214028
P.R. China
2. Zhangjiagang Hua Yang Electronics
Co., Ltd.
Zhao Feng Industrial Zone, Leyu Town
Zhangjiagang, Jiangsu 215622
P.R. China

Additional information (if necessary)
Information complémentaire (si nécessaire)

Report Ref. No.: 50059575 001

Date: 08.12.2016

Signature:


Mark Chen



Test Report issued under the responsibility of:



TEST REPORT IEC 60950-1 Information technology equipment – Safety – Part 1: General requirements	
Report Number	50059575 001
Date of issue	08.12.2016
Total number of pages	96 (excluding attachments, see page 3)
Applicant's name	TDK-Lambda Corp. Nagaoka Technical Center
Address	2704-1 Settaya-machi, Nagaoka-shi, Niigata, 940-1195, JAPAN
Test specification:	
Standard	IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013
Test procedure	CB Scheme
Non-standard test method	N/A
Test Report Form No.	IEC60950_1F
Test Report Form(s) Originator	SGS Fimko Ltd
Master TRF	Dated 2014-02
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If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed.	
This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.	
General disclaimer:	
The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.	

Test item description		Switching Power Supply	
Trade Mark		TDK <i>Lambda</i>	
Manufacturer		Same as applicant	
Model/Type reference		CUT35-zxxxxxxx (z = 522 or 5FF; xxxxxxx = A, B, L, other alphanumeric character, symbol or blank) Refer to page 12 for definition of variables	
Ratings		AC input: 100-240V, 1.0A, 50-60Hz DC output: See the model list on page 11 for details	
Testing procedure and testing location:			
<input checked="" type="checkbox"/>	CB Testing Laboratory:	TÜV Rheinland (Shanghai) Co., Ltd.	
Testing location/ address		No.177, 178, Lane 777, West Guangzhong Road Zhabei District Shanghai CHINA	
<input type="checkbox"/>	Associated CB Testing Laboratory:		
Testing location/ address			
Tested by (name + signature)		Sunny Sun	
Approved by (name + signature)		Roy Chen	
<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)			
Witnessed by (name + signature)			
Approved by (name + signature)			
Supervised by (name + signature)			

List of Attachments (including a total number of pages in each attachment):

- ATTACHMENT 1 - Technical documentation (26 pages)
- ATTACHMENT 2 - National Differences (57 pages)
- ATTACHMENT 3 - Photo documentation (9 pages)

Summary of testing:

All applicable tests as described in Test Case and Measurement Sections were performed.

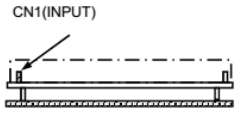
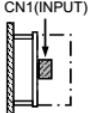
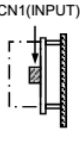
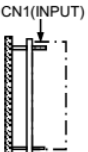
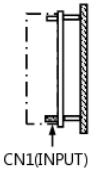
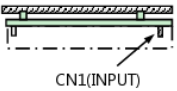
The maximum specified operation ambient temperature is 70°C.

Specified ambient temperature for operation is according to manufacturer's specification.(see chart of convection cooling and forced air cooling on below on below)

Unless otherwise specified, throughout this report, all tests were performed on models CUT35-522/A and CUT35-5FF/A only limited tests perform on models CUT35-522/L and CUT35-522 and perform construction check on models CUT35-522 to represent other similar models.

The load conditions used during testing: Maximum normal load according to sub-clause 1.2.2.1 for this equipment is the operation with the maximum specified DC-load with maximum power condition according to the manufacturer specified.

Mounting position:

(MOUNTING A)	(MOUNTING B) (STANDARD MOUNTING)	(MOUNTING C)	(MOUNTING D)	(MOUNTING E)	(MOUNTING F)
					

Derating Curve:

For CUT35-z/A

***COOLING: CONVECTION COOLING**

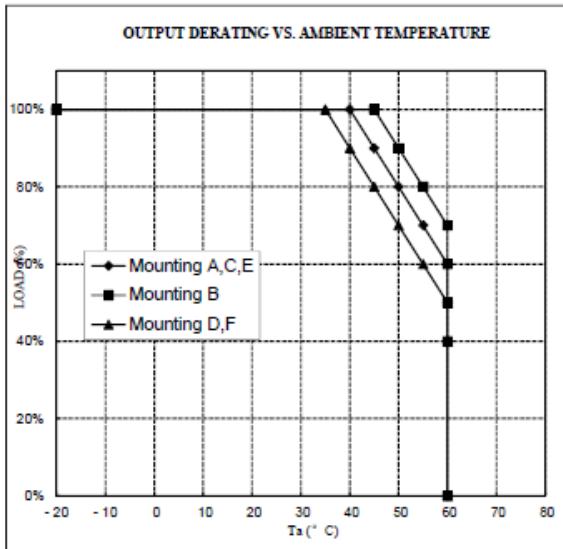
Ta (°C)	LOADING CONDITION(%)		
	Mounting A,C,E	Mounting B	Mounting D,F
-20	100	100	100
35	100	100	100
40	100	100	90
45	90	100	80
50	80	90	70
55	70	80	60
60	60	70	50

***COOLING: FORCED AIR COOLING**

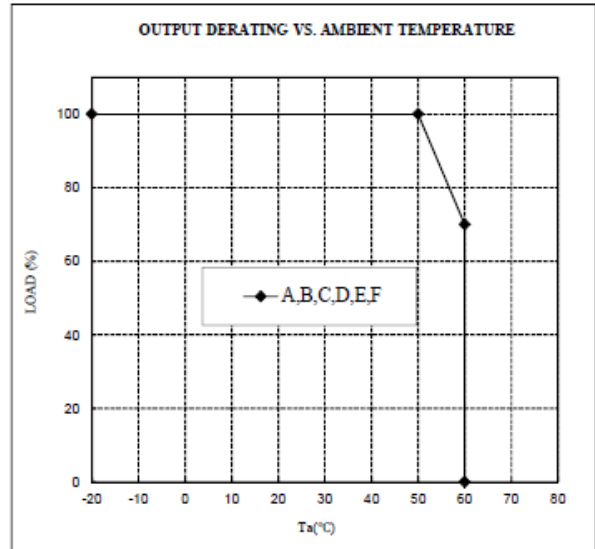
Ta (°C)	LOADING CONDITION(%)
	All Mounting (A,B,C,D,E,F)
-20~50	100
60	70

Air Velocity ≥ 0.7m/s: Air must flow through component side.

***COOLING: CONVECTION COOLING**



***COOLING: FORCED AIR COOLING**



For CUT35-z/L

***COOLING: CONVECTION COOLING**

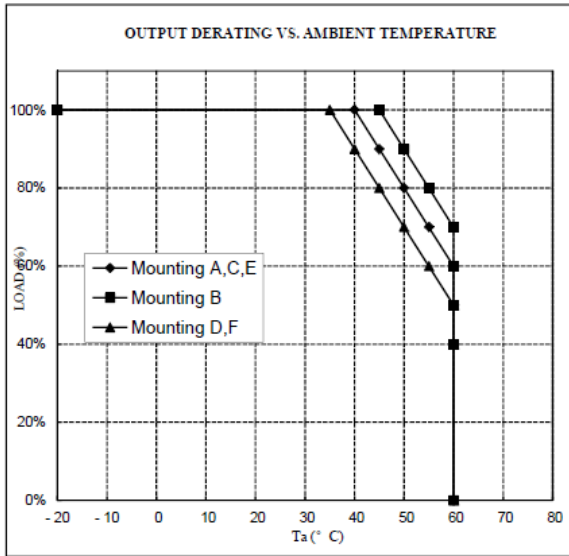
Ta (°C)	LOADING CONDITION(%)		
	Mounting A,C,E	Mounting B	Mounting D,F
-20	100	100	100
35	100	100	100
40	100	100	90
45	90	100	80
50	80	90	70
55	70	80	60
60	60	70	50

***COOLING: FORCED AIR COOLING**

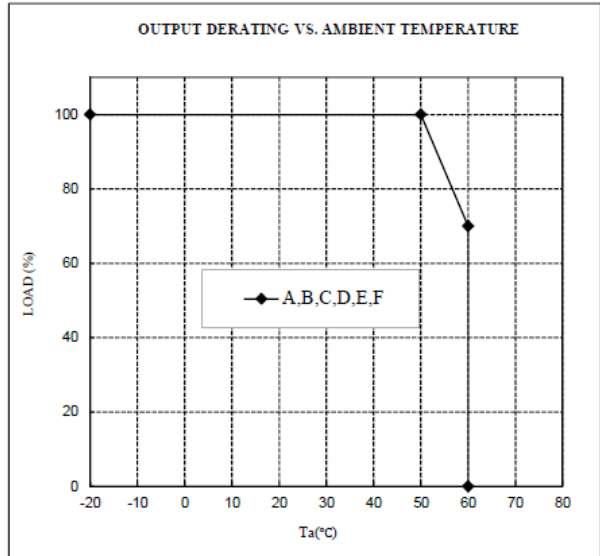
Ta (°C)	LOADING CONDITION(%)
	All Mounting (A,B,C,D,E,F)
-20~50	100
60	70

Air Velocity ≥ 0.7m/s: Air must flow through component side.

*COOLING: CONVECTION COOLING



*COOLING: FORCED AIR COOLING



For CUT35-z

*COOLING: CONVECTION COOLING

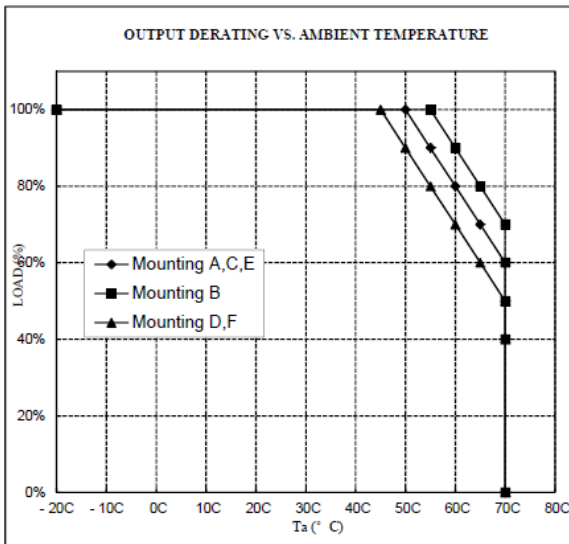
Ta (°C)	LOADING CONDITION(%)		
	Mounting A,C,E	Mounting B	Mounting D,F
-20	100	100	100
45	100	100	100
50	100	100	90
55	90	100	80
60	80	90	70
65	70	80	60
70	60	70	50

*COOLING: FORCED AIR COOLING

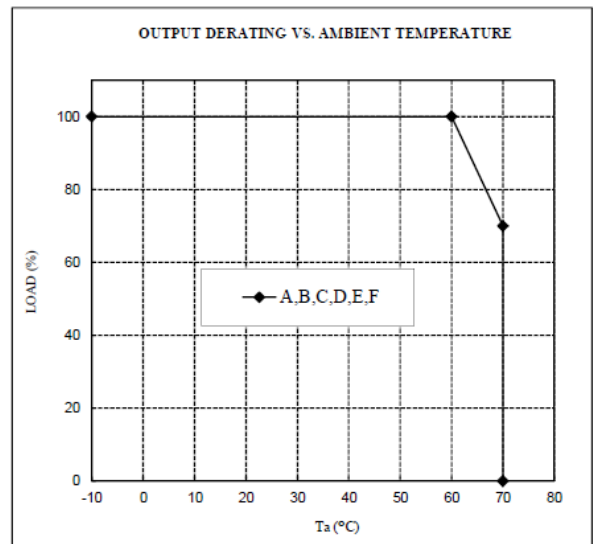
Ta (°C)	LOADING CONDITION(%)
	All Mounting (A,B,C,D,E,F)
-20~60	100
70	70

Air Velocity ≥ 0.7m/s: Air must flow through component side.

*COOLING: CONVECTION COOLING



*COOLING: FORCED AIR COOLING



The equipment is operated up to 3000m above sea level as declared by manufacturer. Clearances have been evaluated according to IEC 60664-1 table A.2 with a multiplication factor of 1.14 throughout this report.

Tests performed (name of test and test clause):		Testing location:
Clause	Test description	
1.6.2	Input Current	TÜV Rheinland (Shanghai) Co., Ltd. No.177, 178, Lane 777, West Guangzhong Road Zhabei District Shanghai CHINA
1.7.11	Durability	
2.1.1.5	Energy Hazards	
2.1.1.7	Discharge of Capacitors in equipment	
2.2.2	Voltages under normal conditions	
2.2.3	Voltages under fault conditions	
2.6.3.4	Resistance of earthing conductors and their terminations	
2.9.2	Humidity Conditioning - Electrical insulation	
2.10.2	Determination of working voltage	
4.2.2	Steady Force Test, 10N	
4.5.2	Temperature tests	
4.5.5	Resistance to abnormal heat	
5.1.6	Test measurements - Touch current and protective conductor current	
5.2	Electric strength	
5.3	Abnormal operating and fault conditions	
Annex C	Transformers	

Engineering samples without series number.

Summary of compliance with National Differences

List of countries addressed:

EU Group Differences, EU Special National Conditions, AR, AU, AT, BH, BY, BE, BR, BG, CA, CN, CO, HR, CZ, DK, FI, FR, DE, GR, HU, IN, ID, IE, IL, IT, JP, KE, KR, LR, MY, MX, AN, NZ, NG, NO, PK, PL, PT, RU, SA, RS, SG, SK, SI, ZA, ES, SE, CH, TH, TR, UA, AE, GB, US, VN

Explanation of used codes:

AR = Argentina**; AU = Australia**; AT = Austria*; BH = Bahrain**; BY = Belarus**;
 BE = Belgium*/**; BR = Brazil**; BG = Bulgaria*/**; CA = Canada; CN = China**;
 CO = Colombia**; HR = Croatia**; CZ = Czech** Republic*; DK = Denmark*; FI = Finland*/**;
 FR = France*/**; DE = Germany*/**; GR = Greece*/**; HU = Hungary*/**; IN = India**;
 ID = Indonesia**; IE = Ireland*/**; IL = Israel**; IT = Italy*; JP = Japan**; KE = Kenya**;
 KR = Korea, Republic of**; LR = Libya**; MY = Malaysia**; MX = Mexico**; AN = Netherlands Antilles*/**;
 NZ = New Zealand**; NG = Nigeria**; NO = Norway*/**; PK = Pakistan**; PL = Poland*/**;
 PT = Portugal*/**; RU = Russian Federation**; RO = Romania*/**; SA = Saudi Arabia**; RS = Serbia
 Republic of**; SG = Singapore**; SK = Slovakia*/**; SI = Slovenia*/**; ZA = South Africa**; ES = Spain*/**;
 SE = Sweden*; CH = Switzerland*/**; TH = Thailand**; TR = Turkey*/**; UA = Ukraine**;
 AE = United Arab Emirates**; GB = United Kingdom*; US = United States of America; VN = Vietnam**

Note(s):

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

* Only applicable for Group Differences (if any). See attachment 2 for details.

** No National Differences Declared

Germany, Denmark, Finland, United Kingdom, Israel, Republic of Korea, Sweden and Slovenia National differences to IEC 60950-1:2005 (Second Edition) + Am 1:2009 evaluated.

Australia, China, Switzerland, Spain, Ireland and Norway National differences to IEC 60950-1:2005 evaluated.

Japan National differences to IEC 60950-1:2001 evaluated.

The product fulfils the requirements of

EN 60950-1:2006+A11+A1+A12+A2,

UL 60950-1:2007 R10.14 and

CAN/CSA C22.2 No. 60950-1-07+A1:2011+A2:2014.

Copy of marking plate

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

<Representative>

CUT35-522
INPUT: 100-240VAC ~ 1.0A
50-60Hz
OUTPUT: CH1: +5 V = 3.0 A
CH2: +12 V = 1.2 A
CH3: -12 V = 0.5 A

BAR CODE
 5.0mm

TDK-Lambda
 MADE IN [CHINA]

CUT35-5FF
INPUT: 100-240VAC ~ 1.0A
50-60Hz
OUTPUT: CH1: +5 V = 3.0 A
CH2: +15 V = 1.0 A
CH3: -15 V = 0.3 A

BAR CODE
 5.0mm

TDK-Lambda
 MADE IN [CHINA]

CUT35-522/B
INPUT: 100-240VAC ~ 1.0A
50-60Hz
OUTPUT: CH1: +5 V = 3.0 A
CH2: +12 V = 1.2 A
CH3: -12 V = 0.5 A

BAR CODE
 5.0mm

TDK-Lambda
 MADE IN [CHINA]

CUT35-5FF/B
INPUT: 100-240VAC ~ 1.0A
50-60Hz
OUTPUT: CH1: +5 V = 3.0 A
CH2: +15 V = 1.0 A
CH3: -15 V = 0.3 A

BAR CODE
 5.0mm

TDK-Lambda
 MADE IN [CHINA]

Cont.

CUT35-522/L
INPUT: 100-240VAC ~ 1.0A
50-60Hz
OUTPUT: CH1: +5 V = 3.0 A
CH2: +12 V = 1.2 A
CH3: -12 V = 0.5 A

BAR CODE
5.0mm

TDK-Lambda
 MADE IN CHINA

CUT35-5FF/L
INPUT: 100-240VAC ~ 1.0A
50-60Hz
OUTPUT: CH1: +5 V = 3.0 A
CH2: +15 V = 1.0 A
CH3: -15 V = 0.3 A

BAR CODE
5.0mm

TDK-Lambda
 MADE IN CHINA

CUT35-522/A
INPUT: 100-240VAC ~ 1.0A
50-60Hz
OUTPUT: CH1: +5 V = 3.0 A
CH2: +12 V = 1.2 A
CH3: -12 V = 0.5 A

BAR CODE
5.0mm

TDK-Lambda
 MADE IN CHINA

CUT35-5FF/A
INPUT: 100-240VAC ~ 1.0A
50-60Hz
OUTPUT: CH1: +5 V = 3.0 A
CH2: +15 V = 1.0 A
CH3: -15 V = 0.3 A

BAR CODE
5.0mm

TDK-Lambda
 MADE IN CHINA

Test item particulars	: See below
Equipment mobility	: <input type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> transportable <input type="checkbox"/> stationary [x] for building-in <input type="checkbox"/> direct plug-in
Connection to the mains	: [x] pluggable equipment [x] type A <input type="checkbox"/> type B <input type="checkbox"/> permanent connection [x] detachable power supply cord <input type="checkbox"/> non-detachable power supply cord <input type="checkbox"/> not directly connected to the mains
Operating condition	: [x] continuous <input type="checkbox"/> rated operating / resting time:
Access location	: <input type="checkbox"/> operator accessible [x] restricted access location
Over voltage category (OVC)	: <input type="checkbox"/> OVC I [x] OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input type="checkbox"/> other:
Mains supply tolerance (%) or absolute mains supply values	: ±10%
Tested for IT power systems	: [x] Yes <input type="checkbox"/> No
IT testing, phase-phase voltage (V)	:
Class of equipment	: [x] Class I <input type="checkbox"/> Class II <input type="checkbox"/> Class III <input type="checkbox"/> Not classified
Considered current rating of protective device as part of the building installation (A)	: 16 (20 for US/CSA)
Pollution degree (PD)	: <input type="checkbox"/> PD 1 [x] PD 2 <input type="checkbox"/> PD 3
IP protection class	: IPX0
Altitude during operation (m)	: Up to 3000
Altitude of test laboratory (m)	: Approx 50
Mass of equipment (kg)	: ≈0.19kg (with chassis and cover)
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 of receipt of test item	: 19.10.2016
Date(s) of performance of tests	: 19.11.2016 to 07.12.2016
General remarks:	
<p>"(See Enclosure #)" refers to additional information appended to the report. "(See ATTACHMENT #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report.</p>	
Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.	

Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:

The application for obtaining a CB Test Certificate includes more than one factory location 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..... : **Yes**
 Not applicable

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies) : 1. Wuxi TDK-Lambda Electronics Co., Ltd.
 No. 6 Xing Chuang Er Lu, Wuxi, Jiangsu 214028, P.R. China
 2. Zhangjiagang Hua Yang Electronics Co., Ltd.
 Zhao Feng Industrial Zone, Leyu Town, Zhangjiagang, Jiangsu 215622, P.R. China

General product information:

The EUT is a component type switching mode power supplies intended for the class I construction of information technology equipment.

The equipment employs PCB: CCB208 (primary, PB and secondary circuits)

All models are identical, except of the optional chassis, cover, turns of Transformer and the rating of some components which results in different output ratings. See Model List below for details.

For rating differences between the models see below tables:

Model differences						
Series Model	I/p voltage (Vac)	Freq (Hz)	I/p current (A)	Minimal output	Rated output (typical)	Maximum output
Convection cooling condition						
CUT35-522 ; CUT35-522/A ; CUT35-522/L	100-240	50-60	1.0	5.0Vdc	5.0Vdc	5.25Vdc
				3.0A	3.0A	2.85A
				12.0Vdc	12.0Vdc	12.0Vdc
				1.2A	1.2A	1.2A
				-12.0Vdc	-12.0Vdc	-12.0Vdc
				0.5A	0.5A	0.85A
Total output power is 35.4VA max. & CH2, CH3 is 20.4VA max.						
CUT35-5FF ; CUT35-5FF/A ; CUT35-5FF/L	100-240	50-60	1.0	5.0Vdc	5.0Vdc	5.25Vdc
				3.0A	3.0A	2.85A
				15.0Vdc	15.0Vdc	15.0Vdc
				1.0A	1.0A	1.0A
				-15.0Vdc	-15.0Vdc	-15.0Vdc
				0.3A	0.3A	0.65A
Total output power is 34.5VA max. & CH2, CH3 is 19.5VA max.						
Remark: Operating temp.: Up to 70 °C (operating temperature depending on equipment's load, mounting position, for details refer to instruction manual).						

Additional Information

- The product is component type S.M.P.S., the overall compliance shall be investigated in the complete information technology equipment, in particular as:
 - Fire enclosure
 - Mechanical enclosure
 - Electrical enclosure
- Some components are **pre-certified**, which have been evaluated according to the relevant requirements of IEC 60950-1, are employed in this product. Their suitability of use has been checked according to subclauses 1.5.1 and 1.5.2.
- The product is a **component** intended for incorporation in information technology equipment, the overall compliance shall be investigated in the complete information technology equipment
- Tests were repeated with each alternative source of components with identical results unless otherwise specified.

Markings and Instructions

- The installation instruction contains instructions for connection to an IT power distribution system. (See subclause 1.7.2.4):
- Fuse Identification (See subclause 1.7.6): F1/F2 : T2.5A 250Vac

The product also marked with:

CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE AND RATING OF FUSE.

Definition of variable(s):

CUT35-zxxxxxxx

(z = 522 or 5FF; xxxxxxx = A, B, L, other alphanumeric character, symbol or blank)

Variable:	Range of variable:	Content:
z	522 or 5FF	Denotes for different output voltage
xxxxxxx	A	Denotes for cover & chassis
	B	Denotes for Base plate
	L	Denotes for chassis under PWB
	other alphanumeric character, symbol	For market purposes, no construction differences and no safety impact.
	blank	Denotes for JST connector or TE connectivity Connector

Abbreviations used in the report:

-Normal conditions	N.C.	-Single fault conditions	S.F.C
-Functional insulation	OP	-Basic insulation	BI
-Double insulation	DI	-Supplementary insulation	SI
-Between parts of opposite polarity	BOP	-Reinforced insulation	RI
-Short-circuited	s-c	-No component damage	NCD
-Open-circuited	o-c	-Component damage	CD
-Overloaded	o-l	-Test repeated, similar result	RT
-Internal protection operated	IP	-No indication of dielectric breakdown	NB
-Input	i/p	-Cheesecloth remained intact	NC
-Output	o/p	-Tissue paper remained intact	NT
-Constant temperatures were obtained	CT	-The unit can recover auto when removing the abnormal condition	RA

Indicate used abbreviations (if any)