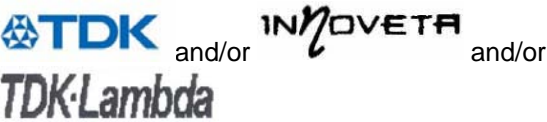




Test Report issued under the responsibility of:



TEST REPORT IEC 60950-1 Information technology equipment – Safety – Part 1: General requirements		
Report Number	207809-CI3-2	CB DE1-49619/A2/B1/M2
Date of issue	2015-03-12	
Total number of pages	124	
Applicant's name	TDK-Lambda Americas Inc.	
Address	3320 Matrix Drive, Richardson, TX, 75082	
Test specification:		
Standard	DIN EN 60950-1 (VDE 0805-1):2014-08 EN 60950-1:2006 +A11:2009 +A1:2010 +A12:2011+A2:2013 IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013	
Test procedure	VDE ÜG, 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. 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 :	Component DC DC Converter for use with IT Equipment
Trade Mark :	
Manufacturer	TDK-Lambda Americas Inc. 3320 Matrix Drive, Richardson, TX, 75082
Model/Type reference	iAH- iAF- iBF- iBH- iCF- iCG- iCH –series (See model matrix page 3)

10004095 Structure of type name:	<p>Model structure &&!!***A%%V-###(-R) eg.iCF05003A006V-###(-R) where: && represents a two letter mechanical form factor and pin out, e.g. CF means 0.5”x 0.5” with a particular terminal pattern. !! represents a two digit input voltage, e.g. “05” means 5Vdc *** represents a three digit current, eg.”003” means 3A %%% represents a three digit voltage, eg.”006” means 0.6V, ### Or xxx represents a three digit combination of numbers and/or letters which indicate the feature set (see below) -R option, designates ROHS compliance</p>
10004560 Type difference:	See model Matrix, page 3

Ratings :	
10003893 Rated voltage.....:	DC 3 – 17 V (SELV) See model Matrix, page 3
10004017 Rated current.....:	Max. 35 A, See model Matrix, page 3
10004112 Rated power.....:	Max. Output Power 150 W, See model Matrix, page 3
10004029 Rated frequency.....:	DC
10003951 Output voltages and currents.....:	DC 0.7 – 5 V, 40 A, 150 W max. (SELV) See model Matrix, page 3
Ambient :	max. 25 °C

Supplementary information:
The above listing was introduced only for internal VDE administration process.

Name	Vin	Iin	Vout (dc)	Iout (A)	Max Power (W)
iCF05003A006V-xxx	2.4-5.5	3.5	0.6-3.63	3	10.9
iCF12003A007V-xxx	4.5-14	3.5	0.7-5.5	3	16.5
iCF12004A025V-xxx	7-14	5	2.5-8.5	4	34
iCF12005A007V-xxx	4.5-14	5	0.7-5.5	4.5	24.75
iCG05006A006V-xxx	2.4-5.5	7	0.6-3.63	6	21.8
iCG12006A007V-xxx	4.5-14	7	0.7-5.5	6	33
iCG12005A007V-xxx	4.5-14	5	0.7-5.5	4.5	24.75
iCG12003A007V-xxx	4.5-14	3.5	0.7-5.5	3	16.5
iBF05012A006V-xxx	2.4-5.5	12	0.6-3.63	12	43.6
iBF12012A007V-xxx	4.5-14	12	0.7-5.5	12	66
iBF12010A025V-xxx	7-14	10	2.5-8.5	10	85
iAF05020A006V-xxx	2.4-5.5	20	0.6-3.63	20	72.6
iAF12020A007V-xxx	4.5-14	20	0.7-5.5	20	110
iAH12040A007V-xxx	3-17	35	0.7-5	40	150
iCH12012A007V-xxx	4.5-14	12	0.7-8.5	10	85
iCH12010A025V-xxx	4.5-14	12	2.5-8.5	10	85
iBH12020A007V-xxx	3-14	21	0.7-5.5	20	110
iBH12012A025V-xxx	3-14	13	2.5-8.5	12.5	106.5

i&&!!***A%%V-###(-R)
eg.iCF05003A006V-###(-R)

where:

&& represents a two letter mechanical form factor and pin out, e.g. CF means 0.5"x 0.5" with a particular terminal pattern.

!! represents a two digit input voltage, e.g. "05" means 5Vdc

*** represents a three digit current, eg."003" means 3A

%%V represents a three digit voltage, eg."006" means 0.6V,

0r xxx represents a three digit combination of numbers and/or letters

which indicate the feature set (see below)

-R option, designates ROHS compliance

- * Maximum input current will be a data sheet parameter telling the customer the maximum current the power module will draw from 0Vin to Vin,max. The typical current draw will be significantly lower. Fuse value for testing shall be as specified in the product data sheet.
- ** The output voltage will be adjustable by the customer over a range of 0.6V to 8.5V.

Testing procedure and testing location:		
<input checked="" type="checkbox"/>	CB Testing Laboratory:	VDE Prüf- und Zertifizierungsinstitut GmbH VDE <i>Testing and Certification Institute</i>
Testing location/ address.....:		Section C13 Merianstrasse 28, D-63069 Offenbach, Germany
<input type="checkbox"/>	Associated CB Testing Laboratory:	
Testing location/ address.....:		
Tested by (name + signature)		(authorization of test report)
Approved by (name + signature)		
<hr/>		
<input type="checkbox"/>	Testing procedure: TMP/CTF Stage 1:	
Testing location/ address.....:		
Tested by (name + signature)		
Approved by (name + signature)		
<hr/>		
<input checked="" type="checkbox"/>	Testing procedure: WMT/CTF Stage 2:	
Testing location/ address.....:		TDK-Lambda Americas Inc. 3320 Matrix Drive, Suite 100, Richardson, Texas 75082, USA WMT/CTF Stage 2 (TDAP, VDE File No. 2520400-9501-0001)
Tested by (name + signature)		Steve McKitrick <i>Steve McKitrick</i>
Witnessed by (name + signature).....:		Günter Straube <i>G. Straube</i>
Approved by (name + signature)		Richard Mallmann <i>R. Mallmann</i>
<hr/>		
<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):		
Appendix No.	Description	Page(s)
1	Photos	124
Summary of testing:		
Tests performed (name of test and test clause):		Testing location:
1.5 Components 1.6 Power interface 1.7 Marking and instructions 2.2 SELV circuits 2.9 Electrical insulation 2.10 Clearances, creepage distances and distances through insulation 3.1 General 4.3 Design and construction 4.4 Protection against hazardous moving parts 4.5 Thermal requirements 4.7 Resistance to fire 5.2 Electric strength 5.3 Abnormal operating and fault conditions See main test report		TDK-Lambda Americas Inc. 3320 Matrix Drive, Suite 100, Richardson, Texas 75082, USA WMT (TDAP under File No. 2520400-9501-0001)

Summary of compliance with National Differences:				
List of countries addressed				
The product has been tested according to standard IEC 60950-1:2005 (2 nd Edition); am1:2009 / EN 60950-1:2006/A11:2009/A1:2010/A12:2011 and those deviations taken into account of				
<input type="checkbox"/> CENELEC common modifications	<input checked="" type="checkbox"/> United Kingdom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Finland	<input checked="" type="checkbox"/> Denmark	<input checked="" type="checkbox"/> Ireland	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Sweden	<input checked="" type="checkbox"/> Germany	<input checked="" type="checkbox"/> Spain	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Norway	<input checked="" type="checkbox"/> Switzerland	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> CB Bull. NATIONAL DIFFERENCES IEC 60950-1:2005 (2nd Edition)				
<input checked="" type="checkbox"/> Switzerland	<input checked="" type="checkbox"/> Finland	<input checked="" type="checkbox"/> Norway	<input checked="" type="checkbox"/> USA	<input type="checkbox"/>
<input checked="" type="checkbox"/> Germany	<input checked="" type="checkbox"/> United Kingdom	<input checked="" type="checkbox"/> Sweden	<input type="checkbox"/> Israel	<input type="checkbox"/>
<input checked="" type="checkbox"/> Denmark	<input checked="" type="checkbox"/> Ireland	<input checked="" type="checkbox"/> Group Differences	<input type="checkbox"/> Australia	<input type="checkbox"/>
<input checked="" type="checkbox"/> Spain	<input type="checkbox"/> Korea	<input checked="" type="checkbox"/> Canada	<input type="checkbox"/> New Zealand	<input type="checkbox"/>
For national and cenelec differences refer to main test report				
<input checked="" type="checkbox"/> The product fulfils the requirements of				
DIN EN 60950-1 (VDE 0805-1):2014-08				
EN 60950-1:2006 +A11:2009 +A1:2010 +A12:2011+A2:2013				
IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013				

Test item particulars.....:	
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 type="checkbox"/> pluggable equipment <input type="checkbox"/> type A <input type="checkbox"/> type B <input type="checkbox"/> permanent connection <input type="checkbox"/> detachable power supply cord <input type="checkbox"/> non-detachable power supply cord <input checked="" 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 type="checkbox"/> restricted access location
Over voltage category (OVC)	<input type="checkbox"/> OVC I <input type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input checked="" type="checkbox"/> other: DC supplied
Mains supply tolerance (%) or absolute mains supply values	
Tested for IT power systems	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
IT testing, phase-phase voltage (V)	
Class of equipment	<input type="checkbox"/> Class I <input type="checkbox"/> Class II <input checked="" type="checkbox"/> Class III <input type="checkbox"/> Not classified
Considered current rating of protective device as part of the building installation (A)	
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)	≤ 2000 m
Altitude of test laboratory (m)	app. 180m
Mass of equipment (kg)	<18kg

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	2015-02-17
Date (s) of performance of tests	2015-02-17 to 2015-03-12
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 <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 IEC 60950-1:			
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 see VDE construction form 131	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> Not applicable (one factory)		
When differences exist; they shall be identified in the General product information section.			
Name and address of factory (ies)	30014661 TDK-Lambda Americas Inc. 3320 Matrix Drive, Suite 100, Richardson, Texas 75082, USA 30017287 TDK-Lambda Malaysia Sdn. Bhd. PLO 33 Kawasan Perindustrian Senai; Locked Bag No. 110; SENAI, JOHOR 81400; Johor; Malaysia		
General product information:			
Product Overview:			
<p>iAH12 power modules perform local voltage conversion from either a 5V or 12V bus. The iAH12040A007V utilizes a low component count that results in both a low cost structure and a high level of performance. The open-frame, compact, surface mountable design features a low profile and weight that allow for extremely flexible and robust manufacturing processes.</p> <p>optional).</p>			
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
Indicate used abbreviations (if any)			

Information to test report reference No. :	
VDE Test- and Certification Institute GmbH Merianstrasse 28 D - 63069 Offenbach	DIN EN 60950-1 (VDE 0805-1):2014-08 EN 60950-1:2006 +A11:2009 +A1:2010 +A12:2011+A2:2013 IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013
Test item description:	Component DC-DC Converters for building-in in IT-equipment
Made by :	TDK-Lambda Americas Inc. 3320 Matrix Drive, Richardson, TX, 75082
Trade mark :	 and/or and/or
Model/type ref. :	iAH- iAF- iBF- iBH- iCF- iCG- iCH –series
Rated :	Input: DC 3 - 17 V, 35 A max, (SELV) See model Matrix, page 3 Output: DC 0.7 – 5 V, 40 A, 150 W max. (SELV) See model Matrix, page 3
Commission received from	Steve.Mc Kitrick
Date:	2015-01-16
Modification on the appliance:	
1.	Testing to: DIN EN 60950-1 (VDE 0805-1):2014-08 EN 60950-1:2006 +A11:2009 +A1:2010 +A12:2011+A2:2013 IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013

Test Report History:			
This report may consist of more than one report and is valid only with additional or previous issued reports: VDE license: 40027869			
Date: (jjjj-mm-dd)	VDE-Certificate: CB-Ref. No.:	Test Report Number	Modifications:
2015-03-12	VDE-Certificate: 40027869 CB DE1- 49619/A2/B1/M2	2520400-3336-0025/207809	Additional Test Report (this Report) Upgrade to: DIN EN 60950-1 (VDE 0805-1):2014-08 EN 60950-1:2006 +A11:2009 +A1:2010 +A12:2011+A2:2013 IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013
2014-10-30	VDE-Certificate: 40027869 CB DE1- 49619/A1/B1/M2	2520400-3336-0025/204318	Additional Test Report add new model: iAH - serie
2014-07-17	VDE-Certificate: 40027869 CB DE1- 49619/A1/B1	2520400-3336-0025/200890	Additional Test Report DE1- 49619/A1/B1, Correction in the CB certificate DE1-49619/B1
2014-06-04	VDE-Certificate: 40027869 CB DE1-49619/B1	2520400-3336-0025/199270	Additional Test Report. Adding of new trademark: TDK-Lambda
2013-05-27	VDE-Certificate: 40027869 CB DE1-49619/M1	2520400-3336-0025/182234	Addition of models: iCH series, iBH series, iCF12004A025V-xxx, iBF12010A025V-xxx, iBH12020A007V-xxx and iBH12012A025V-xxx Company name change from TDK Innoveta Inc. to TDK-Lambda Americas Inc
2012-01-23	VDE-Certificate: 40027869 CB DE1-49619	2520400-3336-0025/158205	Origin Test Report DC / DC converters. iAF series, iBF series, iCF series and iCG series