



Amendment to Test Report	
This Amendment is valid only together with the main Test Report	
Report No	: 271889
Main Report No	: 257636
Date of issue	: Nov. 10, 2014
Total number of pages	: 10 pages and refer to page 3
Applicant's Name	: ON Semiconductor
Address	: 5005 East McDowell Rd, Phoenix, AZ, 85008, U.S.A.
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
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Test item description	: AC/DC Controller
Trade Mark	: 
Manufacturer	: Same as applicant
Model/Type reference	: 1) NCP1244; NCP1246; NCP1247; NCP1248; NCP1240; SCY99126; SCY99157; SCY99194; DAP041; SCY99146; DAP028; 2) SCY99158; DAP027; NCP1615
Ratings	: 1) HV pin: 11mA / 500 VDC , VCC pin: 28V 2) HV pin: 700 VDC , VCC pin: 28V (Applicable for use to mains supply 100-240Vac 60-50Hz)

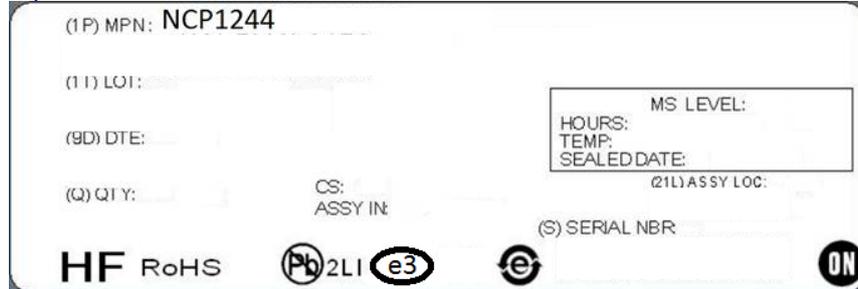
Testing procedure and testing location:		
<input checked="" type="checkbox"/>	CB Testing Laboratory:	Nemko Taiwan
Testing location/ address :		5 Fl., No. 409, Sec.2, Tiding Blvd., Neihu, Taipei 114, Taiwan
<input type="checkbox"/>	Associated CB Laboratory:	
Testing location/ address :		
	Tested by (name + signature) :	Jason Chu 
	Approved by (name + signature) .. :	Roger Liou 
<input type="checkbox"/>	Testing procedure: TMP	
Testing location/ address :		
	Tested by (name + signature) :	
	Approved by (name + signature) .. :	
<input type="checkbox"/>	Testing procedure: WMT	
Testing location/ address :		
	Tested by (name + signature) :	
	Witnessed by (name + signature) :	
	Approved by (name + signature) .. :	
<input type="checkbox"/>	Testing procedure: SMT	
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):	

Summary of testing:	
<p>Tests performed (name of test and test clause):</p> <p>2.1 Protection from electric shock and energy hazards</p> <p>2.9 Electrical insulation</p> <p>Test based on CTL decision sheet, DSH 1080</p> <p><u>Operation condition:</u> Normal Load: The IC was connected to 110% of rated input voltage based on CTL decision sheet, DSH 1080.</p>	<p>Testing location:</p> <p>See page 2</p>
<p>Summary of compliance with National Differences</p> <p>The sample(s) tested compliance with the requirements of IEC 60950-1: 2005 (2nd Edition); Am1: 2009; Am2: 2013 and all CENELEC members as listed in EN 60950-1: 2006 +A11: 2009+A1: 2010 + A12:2011 + A2: 2013.</p> <p>At the time of issuing this test report, not all countries are listed for IEC 60950-1:2005 (2nd Edition); Am1: 2009+Am2:2013. Therefore the main test report includes national differences for IEC 60950-1: 2001 1st Edition and IEC 60950-1: 2005 2ed Edition.</p> <p>All national differences listed in the IECEE Online CB Bulletin are covered by the Common Modifications, Special National Conditions, National Deviations, and the National Requirements noted above except for the countries which are documented in main test report.</p> <p>“The update concern is not effecting to national difference which listed in main test report.”</p>	
<p>List of Attachments (including a total number of pages in each attachment):</p> <p>1. Photos (1 page)</p> <p>2. Unit datasheet (83 pages)</p>	

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.

The following marking is located on IC carton that are the same except model name, list one model to represent others.



The following marking is located on IC body. Due to letter limited, only part code name located in the IC body, for example as below.

SCY99194, DAP041:

SCY99146:

SCY99158, DAP027:

MARKING DIAGRAM

SOIC-7 CASE 751U

DAP041Xff = Specific Device Code
 X = A or B
 ff = 65, 10
 A = Assembly Location
 L = Wafer Lot
 Y = Year
 W = Work Week
 • = Pb-Free Package

MARKING DIAGRAM

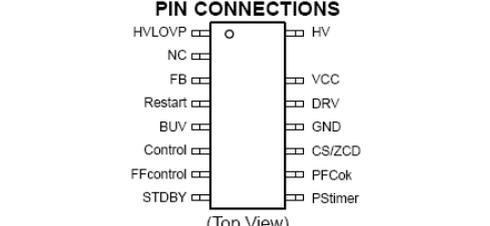
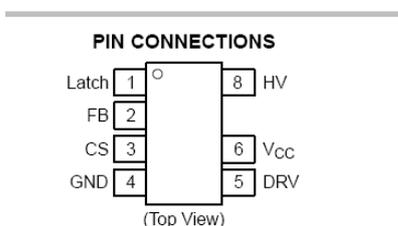
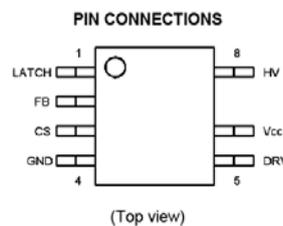
SOIC-7 CASE 751U

46XXffff = Specific Device Code
 XX = AL or BL
 ffff = 065 or 100
 A = Assembly Location
 L = Wafer Lot
 Y = Year
 W = Work Week
 • = Pb-Free Package

MARKING DIAGRAM

SOIC-16 NB CASE 752AC

DAP027X = Specific Device Code
 X = A, A1, B or B1
 A = Assembly Location
 WL = Wafer Lot
 Y = Year
 WW = Work Week
 G = Pb-Free Package



NCP1615:

DAP028:

SOIC-16 NB CASE 752AC

SOIC-14 NB CASE 751AN

MARKING DIAGRAM

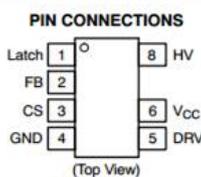
SOIC-7 CASE 751U

DPA028Xff = Specific Device Code
 X = A or B
 ff = 65 or 10
 A = Assembly Location
 L = Wafer Lot
 Y = Year
 W = Work Week
 • = Pb-Free Package

MARKING DIAGRAMS

NCP1615XG
AWLYWW

NCP1615X = Specific Device Code
 X = A, B, C, C2, D or D2
 A = Assembly Location
 WL = Wafer Lot
 Y = Year
 WW = Work Week
 G = Pb-Free Package



Possible test case verdicts:

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

Testing..... :**Date of receipt of test item :** Oct., 2014**Date(s) of performance of tests :** Oct. to Nov., 2014**General remarks:**

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 testing laboratory.

"(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 comma / 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 Yes
includes more than one factory location and a Not applicable
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)..... :

ON Semiconductor

5005 East McDowell Rd, Phoenix, AZ, 85008, U.S.A.

General product information:

This Amendment shall always be enclosed with main Test Report, report/order no: 257636.

The changes concern the following:

- Correct Test item description from AC/DC Flyback Controller to AC/DC Controller.
- Evaluate of adding resistor with the smallest resistance (1kΩ) or the resistor with the largest resistance (10kΩ) in the ICX.
- Add seven models SCY99194, DAP041, SCY99146, DAP028, SCY99158, DAP027 and NCP1615 which are identical to original ones except different model name and the models SCY99158, DAP027, NCP1615 are with PFC function.

Requirements:

The ICX and it associated components critical to the discharge function of a capacitor to an accessible part (such as the mains capacitor) are not fault tested if the following condition is met:

The ICX with the associated circuitry as provided in the equipment complies with the tests below. Any impulse attenuating components (such as varistors and GDT's) that attenuate the impulse to the ICX and the associated circuitry are disconnected.

If discharge components external to the ICX are necessary, they shall not fail during the tests

Tests:

Where the ICX is tested by itself, the test set up shall be as recommended by the ICX manufacturer.

- humidity treatment for 120 hrs at a temperature of (85±2, based on client request)°C and a relative humidity of (93±3)%.
- 100 positive impulses and 100 negative impulses between line and neutral using a capacitor with the largest capacitance and a resistor with the smallest resistance specified by the manufacturer of the ICX; and repeated with a capacitor with the smallest capacitance and the resistor with the largest resistance. The time between any two impulses shall not be less than 1 s. The impulse shall be as specified in circuit 2 of Table N.1 (60950-1) / 1.2/50 μs with Uc equal to the transient voltage.
- Application of an a.c. voltage that is 110 % of the rated voltage for 2.5 minutes.
- 10 000 cycles of power on and off using a capacitor with the smallest capacitance and a resistor with the largest resistance as specified by the manufacturer of ICX. The power on and off cycles time shall not be less than 1 s.

All tests were conducted with model NCP1244 and NCP1615 for represent others, if nothing else mentioned.

Project history:		
Nemko Report/ Order No.:	Modification to the appliances:	Changes/ Modifications in clause(s):
257636	Main test report.	--
271889	- Correct Test item description from AC/DC Flyback Controller to AC/DC Controller. - Evaluate of adding resistor with the smallest resistance (1kΩ) or the resistor with the largest resistance (10kΩ) in the ICX. - Add seven models SCY99194, DAP041, SCY99146, DAP028, SCY99158, DAP027 and NCP1615 which are identical to original ones except different model name and the models SCY99158, DAP027, NCP1615 are with PFC function.	1.5, 1.7, 2.1 and 2.9

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

1.5	Components		P
1.5.1	General	See below.	P
	Comply with IEC 60950-1 or relevant component standard	(see appended table 1.5.1)	P

1.7	Marking and instructions		P
1.7.1	Power rating and identification markings	Refer to copy of marking plate.	P
1.7.1.1	Power rating marking	See below.	P
	Multiple mains supply connections.....:	The equipment is an integrated circuit (IC) including a capacitor discharge function for building-in, must be considered when installed in the end product.	—
	Rated voltage(s) or voltage range(s) (V)	The equipment is an integrated circuit (IC) without the marking of rated voltage, it must be considered in end of product.	—
	Symbol for nature of supply, for d.c. only	The equipment is for a.c. supply.	N/A
	Rated frequency or rated frequency range (Hz) ...:	The equipment is an integrated circuit (IC) without the marking of rated frequency range, it must be considered in end of product.	—
	Rated current (mA or A)	The equipment is an integrated circuit (IC) without the marking of rated frequency range, it must be considered in end of product.	—
1.7.1.2	Identification markings	Refer to below:	P
	Manufacturer's name or trade-mark or identification mark	See page 1	—
	Model identification or type reference	See copy of marking plate for details.	—
	Symbol for Class II equipment only	The equipment is an integrated circuit (IC) including a capacitor discharge function for building-in, must be considered when installed in the end product.	—
	Other markings and symbols	The additional marking does not give rise to misunderstandings.	P

2.1	Protection from electric shock and energy hazards		P
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IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.1.1.7	Discharge of capacitors in equipment	The measurements were performed after treameant of humidity based on CTL decision sheet, DSH 1080 and following conditions.	P
	Measured voltage (V); time-constant (s)..... :	<p>- humidity treatment for 120h at temperature of 42°C and a relative humidity of 95%, then</p> <p>- 100 positive impulses and 100 negative impulses between line and neutral with $U_c=2500V$ using a capacitor with the largest capacitance (4.7μF) and a resistor with the smallest resistance (1kΩ) specified by the manufacturer of the ICX; and repeated with a capacitor with the smallest capacitance (0.001μF) and the resistor with the largest resistance (10kΩ), then</p> <p>- Application of an a.c. voltage 264V (110% of the rated voltage) for 2.5 minutes, then</p> <p>- 10000 cycles of power on and off using a capacitor with the smallest capacitance (0.001μF) and and a resistor with the largest resistance (10kΩ) as specified by the manufacturer of ICX.</p> <p>- Condition is: no load, and with following conditions: <u>Model NCP1244:</u> 1. Time constant were measured to: (measured 390 Vpeak, 37% Vpeak= 144.3V, total capacitance= 4.7μF, resistance= 1kΩ) For set 1: 252 ms ; For set 2: 252 ms; For set 3: 250 ms. 2. Time constant were measured to: (measured 372 Vpeak, 37% Vpeak= 137.6V, total capacitance= 0.001μF, resistance= 10kΩ) For set 1: 5.8 ms ; For set 2: 7.0 ms; For set 3: 8.4 ms.</p>	—

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

	Measured voltage (V); time-constant (s).....:	<p><u>Model NCP1615:</u> 1. Time constant were measured to: (measured 372 Vpeak, 37% Vpeak= 137.6V, total capacitance= 4.7µF, resistance= 1kΩ) For set 1: 105 ms ; For set 2: 104 ms; For set 3: 105 ms. 2. Time constant were measured to: (measured 376 Vpeak, 37% Vpeak= 139.1V, total capacitance= 0.001µF, resistance= 10kΩ) For set 1: 13.6 ms ; For set 2: 12.6 ms; For set 3: 13.6 ms.</p>	—
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2.9	Electrical insulation		P
2.9.1	Properties of insulating materials	Neither natural rubber, materials containing asbestos nor hygroscopic materials are used as insulation. No driving belts or couplings used.	N/A
2.9.2	Humidity conditioning	Humidity treatment performed for 120hrs.	P
	Relative humidity (%), temperature (°C)	95%, 42°C.	—
2.9.3	Grade of insulation	The equipment is an integrated circuit (IC) including a capacitor discharge function for building-in, must be considered when installed in the end product.	—
2.9.4	Separation from hazardous voltages	The equipment is an integrated circuit (IC) including a capacitor discharge function for building-in, must be considered when installed in the end product.	—
	Method(s) used		—

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⁾	
Resistors	Interchangeable	Interchangeable	1/4W, total resistance: 1kΩ - 10kΩ	--	Tested in the equipment	
Supplementary information: ¹⁾ Provided evidence ensures the agreed level of compliance. See OD-2039.						