CSA INTERNATIONAL

Certificate of Compliance

Certificate: 2150496 **Master Contract:** 232873

Project: 2150496 **Date Issued:** 2009/05/08

Issued to: **Silicon Laboratories Inc.**
400 West Cesar Chavez
Austin, TX 78701
USA
Attention: Keith Coffey

The products listed below are eligible to bear the CSA Mark shown with adjacent indicator ▲

Issued by: Martin Buchanan, P. Eng.

Authorized by: George Tranquada, C.E.T.
Product Group Manager

C. D. Tranquada

PRODUCTS

CLASS 9073 30 - ELECTRONIC COMPONENTS - Optoisolators

Component Acceptance of Optoisolator Like Inductive Coupling Devices:

Device	Rating(kV)	Stds/Notices	Internal		External
			Creep(mm)	DistThru(mm)	Creep(mm)
Si8501-C-IS	5.0	CSA CA5A,	-	-	7.6

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Si8502-C-IS	60950-1-07,
Si8503-C-IS	61010-1-04,
Si8511-C-IS	601.1M-90,
Si8512-C-IS	601.1S1-94
Si8513-C-IS	601.1B-98,
Si8517-C-IS	IEC60950-1 2nd Ed.,
Si8518-C-IS	IEC 61010-1 2nd Ed.,
Si8519-C-IS	IEC 601-1 2nd Ed

where suffixes may be used for different data rates.

Notes:

1. Reinforced insulation requirements have been addressed for 250Vrms for CSA 60950-1-07 and IEC 60950-1 2nd Ed.

2. Reinforced insulation requirements have been addressed for 300Vrms for CSA 61010-1-04 and IEC 61010-1 2nd Ed.

3. Reinforced insulation requirements have been addressed for 125Vrms for CSA 601-1M-90, 601-1S-90, 601.1B-94 and IEC 601-1 2nd Ed.

4. Evaluated by thermal cycling and other tests for a temperature rating of 125C for up to 20Arms with correct pcb.

5. Only the wide body SOIC devices are CSA Component Accepted.

APPLICABLE REQUIREMENTS

Component Acceptance Notice 5A (CA 5A) - Announcement of Extension of the Component Acceptance Service for Optocouplers and Related Devices

CAN/CSA-C22.2 No 60950-1-07 - Information Technology Equipment - Safety - Part 1: General Requirements

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(Bi-national Standard, with UL 60950-1)

CSA C22.2 NO 61010-1-04 - Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use — Part 1: General Requirements - Second Edition

CAN/CSA C22.2 601.1-M90 - Medical Electrical Equipment part 1: General requirements for Safety adopted IEC 601-1 2ed (90)

CAN/CSA C22.2 601.1S1-94 - Supplement No 1-94 to CAN/CSA C22.2 601.1-M90

CAN/CSA C22.2 601.1B-98 - Amendment 2 to CAN/CSA C22.2 601.1-M90

IEC 60950-1 2nd Ed. - Information Technology Equipment - Safety - Part 1: General Requirements

IEC 61010-1 2nd Ed. - Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use — Part 1: General Requirements

IEC 601-1 2nd Ed. - Medical Electrical Equipment part 1: General requirements for Safety

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Supplement to Certificate of Compliance

Certificate: 2150496 **Master Contract:** 232873

The products listed, including the latest revision described below, are eligible to be marked in accordance with the referenced Certificate.

Product Certification History

Project	Date	Description
2150496	2009/05/08	Original Component Acceptance

CSA INTERNATIONAL

Descriptive Report and Test Results

MASTER CONTRACT: 232873
REPORT: 2150496
PROJECT: 2150496

Edition 1: May 8, 2009; Project 2150496 – Toronto
Issued by Martin Buchanan, P. Eng.

Contents: Certificate of Compliance – 3 Pages
Supplement to Certificate of Compliance – 1 Page
Description and Tests - Pages 1 to 5
Attachments (CSA Main Files Only)
Att1- Si85xx data sheet (QFN package not included in CSA Component Acceptance)

PRODUCTS

CLASS 9073 30 - OPTOISOLATORS - Component
Component Acceptance of Optoisolator Like Inductive Coupling Devices:

Device	Rating (kV)	Applicable Standards/Notices	Internal		External
			Creepage (mm)	Dist Thru (mm)	Creepage (mm)
Si8501-C-IS Si8502-C-IS Si8503-C-IS Si8511-C-IS Si8512-C-IS Si8513-C-IS Si8517-C-IS Si8518-C-IS Si8519-C-IS	5.0	CSA CA5A, 60950-1-07, 61010-1-04, 601.1M-90, 601.1S1-94, 601.1B-98, IEC 60950-1 2nd Ed., IEC 61010-1 2nd Ed., IEC 601-1 2nd Ed.	-	-	7.6

where suffixes may be used for different shipping packages.

Notes:

1. Reinforced insulation requirements have been addressed for 250Vrms for CSA 60950-1-07 and IEC 60950-1 2nd Ed.
2. Reinforced insulation requirements have been addressed for 300Vrms for CSA 61010-1-04 and IEC 61010-1 2nd Ed.
3. Reinforced insulation requirements have been addressed for 125Vrms for CSA 601-1M-90, 601-1S-90, 601.1B-94 and IEC 601-1 2nd Ed.

4. Evaluated by thermal cycling and other tests for a temperature rating of 125C for up to 20Arms with correct pcb.
5. Only the wide body SOIC devices are CSA Component Accepted.

These devices are Component Accepted as components for use in other Certified equipment where the suitability of the combination shall be determined by investigation in the final application.

APPLICABLE REQUIREMENTS

Component Acceptance Notice 5A (CA 5A)	-	Announcement of Extension of the Component Acceptance Service for Optocouplers and Related Devices
CAN/CSA-C22.2 No 60950-1-07	-	Information Technology Equipment - Safety - Part 1: General Requirements (Bi-national Standard, with UL 60950-1)
CSA C22.2 NO 61010-1-04	-	Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use — Part 1: General Requirements - Second Edition
CAN/CSA C22.2 601.1-M90	-	Medical Electrical Equipment part 1: General requirements for Safety adopted IEC 601-1 2ed (90)
CAN/CSA C22.2 601.1S1-94	-	Supplement No 1-94 to CAN/CSA C22.2 601.1-M90
CAN/CSA C22.2 601.1B-98	-	Amendment 2 to CAN/CSA C22.2 601.1-M90
IEC 60950-1 2nd Ed.	-	Information Technology Equipment - Safety - Part 1: General Requirements
IEC 61010-1 2nd Ed.	-	Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use — Part 1: General Requirements
IEC 601-1 2nd Ed.	-	Medical Electrical Equipment part 1: General requirements for Safety

MARKINGS

The following permanent markings are on each component:

- submittor's identification: Si in the part number
- model designation: Si8512 or as appropriate
- date code: 2 digits for week then 2 digits for year.
- CSA Component Acceptance Mark may also be marked.

The following is marked on smallest quantity package:

- submittor's name and/or CSA Master Contract No "232873".
- model designation: Si8512 or as appropriate
- CSA Component Acceptance Mark.

ALTERATIONS

1. Markings as above.

FACTORY TESTS

The device shall withstand without flash-over or breakdown, for a period of 1 sec, an ac voltage equal to the manufacturer's 1 minute dielectric withstand rating, with a min of 4000V, applied between the short-circuited input and short-circuited output terminals.

Warning: The factory test(s) specified may present a hazard of injury to personnel and/or property and should only be performed by persons knowledgeable of such hazards and under conditions designed to minimize the possibility of injury.

DESCRIPTION

General: The subject models are isolating IC's with current measuring capability. The measuring circuits are isolated from the circuit in which the current is being measured. A 1mohm conductive element is isolated by a 0.2mm glass interposer. Voltage is induced in coils on the isolated die and conditioned for appropriate outputs.

1. Case (Outer Compound):
   Material: Epoxy moulding compound
   Manufacturer: Sumitomo Bakelite Co. Ltd.
   Cat No: SUMIKON EME-G700

3. Lead frame: Solder plated copper alloy.

4. Tie bar spacing to internal parts: 0.8mm for wide body

5. External creepage distance: 7.6mm (measured)

TEST RESULTS

Si8512, wide body SOIC, was tested because it was representative of the other models.

Optoisolator and Similar Devices Tests for Component Acceptance Notice No 5A

Manufacturer: Silicon Labs Inc.
Cat. No.: Si 8512 wide body only

Test Equipment: 36100005/2010/01, 76008654/2009/10, 76008655/2009/09, 49105345/2009/07, 76009389/2009/11

Manufacturers Maximum Ratings:

Supply Voltage V_{DD}	5.75V max
Output Voltage Out1, Out2	6.25V max
Output current Out1, Out2	Not specified
Input Current Iin	20A
Output Current Iout	20A
Temperature	125C
Dielectric strength	5.0kVrms

1. Dielectric test before maximum dissipation test: 4.8kVrms, 60Hz, 60s

Sample
1. Pass.
2. Pass.
3. Pass.
4. Pass.
5. Pass.

2. Maximum Dissipation Test

Measured with maximum input and output current possible with devices with suitable heat dissipating pcb layout.

Supply Voltage V_{DD}	5.75V
Mode, TRS/FAULT, R2 and R3	5.75V
R1 and R4	0V
Output Voltage Out1, Out2	4.75V
Output current Out1, Out2	10mA
Input Current Iin	20A
Output Current Iout	20A
Temperature	125C
Dielectric strength	4.8 kVrms

3. Dielectric test before maximum dissipation test: 4.8kVrms, 60Hz, 60s

Sample
1. Pass.
2. Pass.
3. Pass.
4. Pass.
5. Pass.

Thermal Cycling and Dielectric CSA 60950-1-07 Cl 2.10.9

1 sample was subjected to 10 cycles of the following cycling:

68h at 135C
1h at 25C
2h at 0C
not less than 1h at 25C

After cycling, the sample passed a dielectric test of 4800Vrms (1.6x3000Vrms).

2 more samples were subjected to the cycling above and subsequently the 2 samples were conditioned at 91-95%R.H. at 20-30C for 48h and passed a dielectric test of 4800Vrms.

No voids or cracks were found in the samples after examination.

Defibrulation proof Test (clause 17h) of CSA 601.1-M90)

The table below represents the test results when a 5000Vdc discharge was applied to an Si Labs IC, model Si8512-GS (0842CCL00G). The tests were conducted as per clause 17h) of CSA 601.1-M90.

5kV discharge applied to	Polarity	Voltage measured (mVpk)	Location of measured voltage
Pins 1-10 connected together	+	36	Pins 11-20 connected together
Pins 1-10 connected together	-	22	Pins 11-20 connected together

NOTE: A minimum of 5 positive & 5 negative 5000V discharges were conducted, only the highest measured values were recorded in the table above.

Upon completion of the above tests, the IC was subjected to a 1min, 4000Vrms & 5656Vdc dielectric tests between pins 1-10 connected together and pins 11-20 connected together with satisfactory results.

Ambient = 23.0C
Relative humidity = 32%
Atmospheric Pressure = 992hPa

Conclusion

None of the voltages measured exceeded the 1Vpk limit.