

ON Semiconductor

Is Now

onsemi™

To learn more about onsemi™, please visit our website at
www.onsemi.com

onsemi and **onsemi** and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "**onsemi**" or its affiliates and/or subsidiaries in the United States and/or other countries. **onsemi** owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of **onsemi** product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. **onsemi** reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as-is" and **onsemi** makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does **onsemi** assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using **onsemi** products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by **onsemi**. "Typical" parameters which may be provided in **onsemi** data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. **onsemi** does not convey any license under any of its intellectual property rights nor the rights of others. **onsemi** products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use **onsemi** products for any such unintended or unauthorized application, Buyer shall indemnify and hold **onsemi** and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that **onsemi** was negligent regarding the design or manufacture of the part. **onsemi** is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner. Other names and brands may be claimed as the property of others.



Differences Between 5V and 3.3V Version of CAN LSFT

ON Semiconductor®

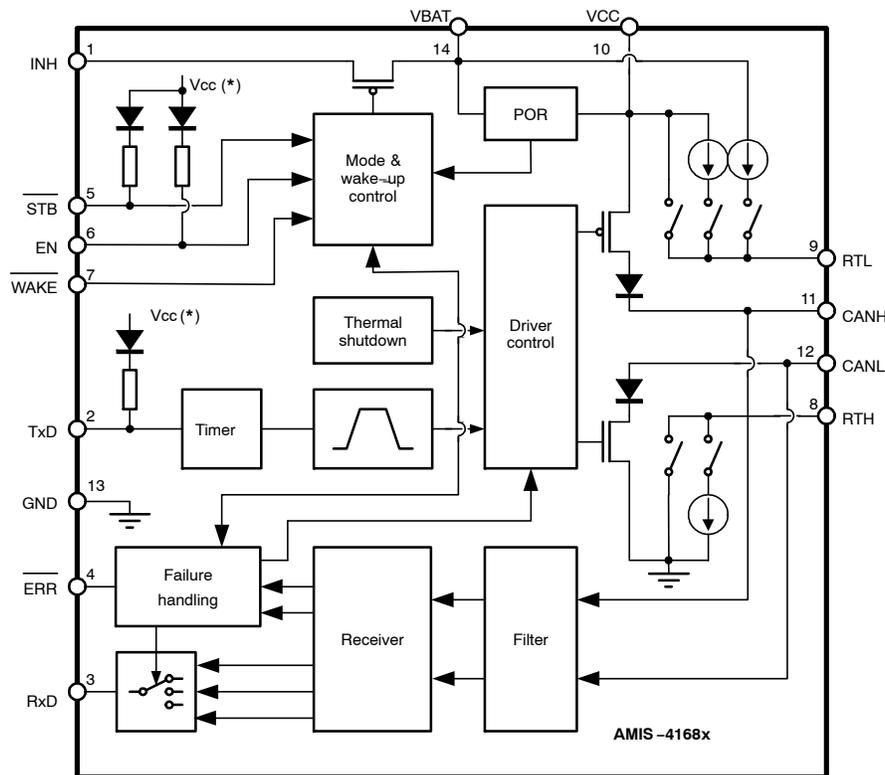
<http://onsemi.com>

APPLICATION NOTE

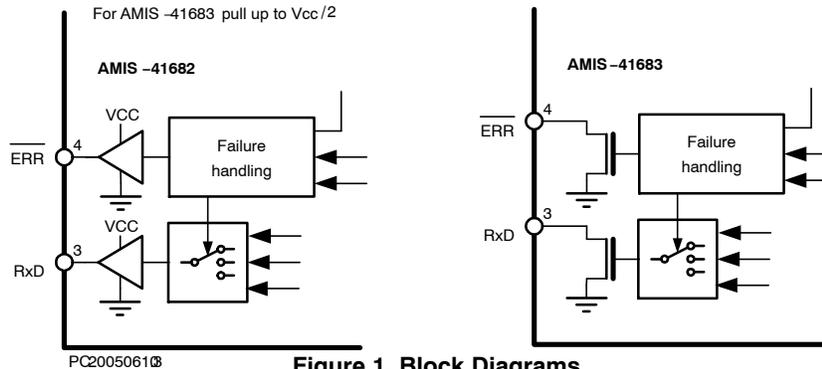
AMIS has two versions of the CAN low speed fault tolerant transceiver, namely:

- AMIS-41682 Full 5 V Version
- AMIS-41683 Version with 3.3 V Interfacing Towards CAN Controller.

Both products are based on the same product specification and IP blocks. A detailed general block diagram applicable for both versions is shown in Figure 1.



(*) For AMIS-41682 pull up to Vcc.
For AMIS-41683 pull up to Vcc/2



PC200506108

Figure 1. Block Diagrams

AND8369/D

More detailed drawings on the difference between these two versions are marked in the drawing below. They are implemented purely by a partial metal-mask change of the same production mask-set. Parts of the silicon other than those drawn in Figure 2 are identical for both products:

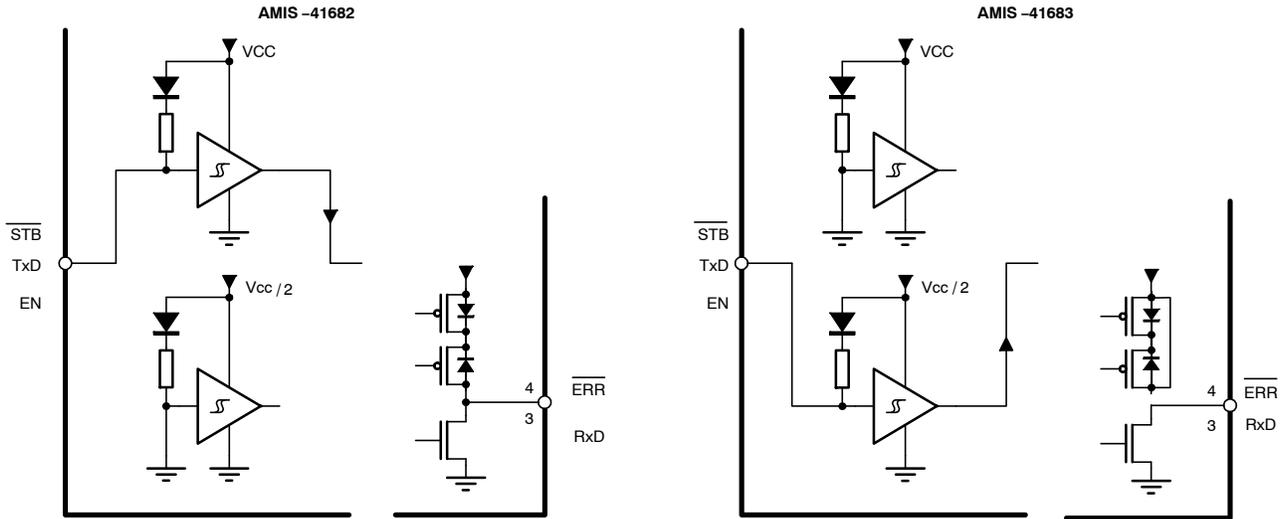


Figure 2. Differences in Digital Input and Output Stage Between AMIS-41682 and AMIS41683

TYPICAL APPLICATION DIAGRAMS

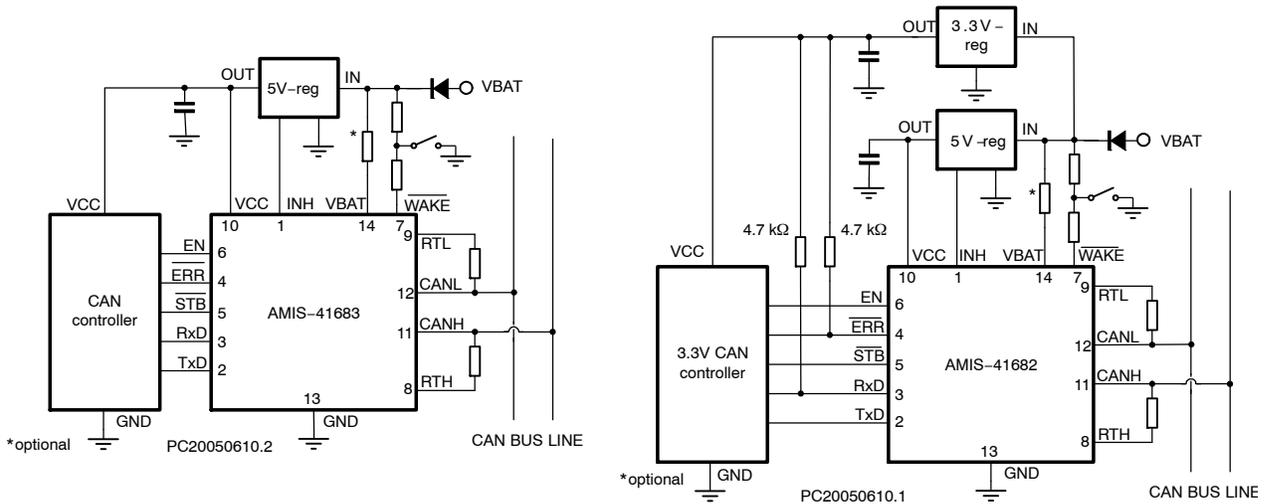


Figure 3. Typical Application Diagrams

Electrical Parameters

The characteristics listed in the following tables are the only ones that are specific for either version of the chip.

AMIS-41682 (5V version)

Table 1. CHARACTERISTICS OF AMIS-41682 (5 V VERSION)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
PINS STB-B, EN AND TXD						
V _{IH}	High-Level Input Voltage		0.7 x V _{CC}		6.0	V
V _{IL}	Low-Level Input Voltage		-0.3		0.3 x V _{CC}	V
I-PU-H	High-Level Input Current Pin TXD	TXD = 0.7 * V _{CC}	-10		-200	μA
I-PU-L	Low-Level Input Current Pin TXD	TXD = 0.3 * V _{CC}	-80		-800	μA
PINS RXD AND ERR-B						
V _{OH}	High-Level Output Voltage	I _{source} = -1 mA	V _{CC} - 0.9		V _{CC}	V
V _{OL}	Low-Level Output Voltage	I _{sink} = 1.6 mA	0		0.4	V
		I _{sink} = 7.5 mA	0		1.5	V

AMIS-41683 (3.3 V VERSION)

Table 2. CHARACTERISTICS OF AMIS-41683 (3.3V VERSION)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
PINS STB-B, EN AND TXD						
V _{IH}	High-Level Input Voltage		2		6.0	V
V _{IL}	Low-Level Input Voltage		-0.3		0.8	V
I-PU-H	High-Level Input Current Pin TXD	TXD = 2 V		-10		μA
PINS RXD AND ERR-B						
V _{OL}	Low-Level Output Voltage Open Drain	I _{sink} = 3.2 mA			0.4	V
I _{leak}	Leakage When Driver is Off	VERR-B = V _{RXD} = 5 V			1	μA

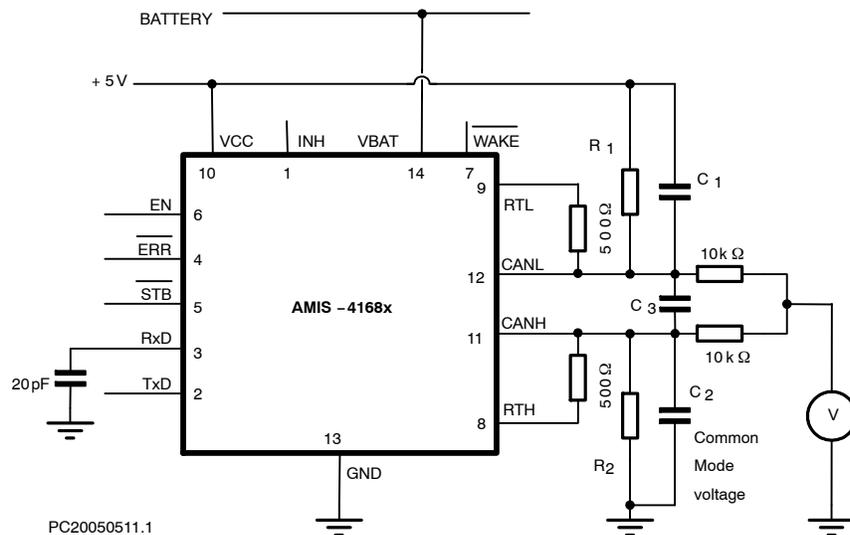


Figure 4. Test Setup

All other characteristics can be found in the datasheet and are identical for both transceivers.

ON Semiconductor and  are registered trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:

Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 USA
Phone: 303-675-2175 or 800-344-3860 Toll Free USA/Canada
Fax: 303-675-2176 or 800-344-3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

N. American Technical Support: 800-282-9855 Toll Free
USA/Canada
Europe, Middle East and Africa Technical Support:
Phone: 421 33 790 2910
Japan Customer Focus Center
Phone: 81-3-5773-3850

ON Semiconductor Website: www.onsemi.com
Order Literature: <http://www.onsemi.com/orderlit>

For additional information, please contact your local Sales Representative