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Differences Between 5V and 3.3V Version of CAN LSFT

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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.

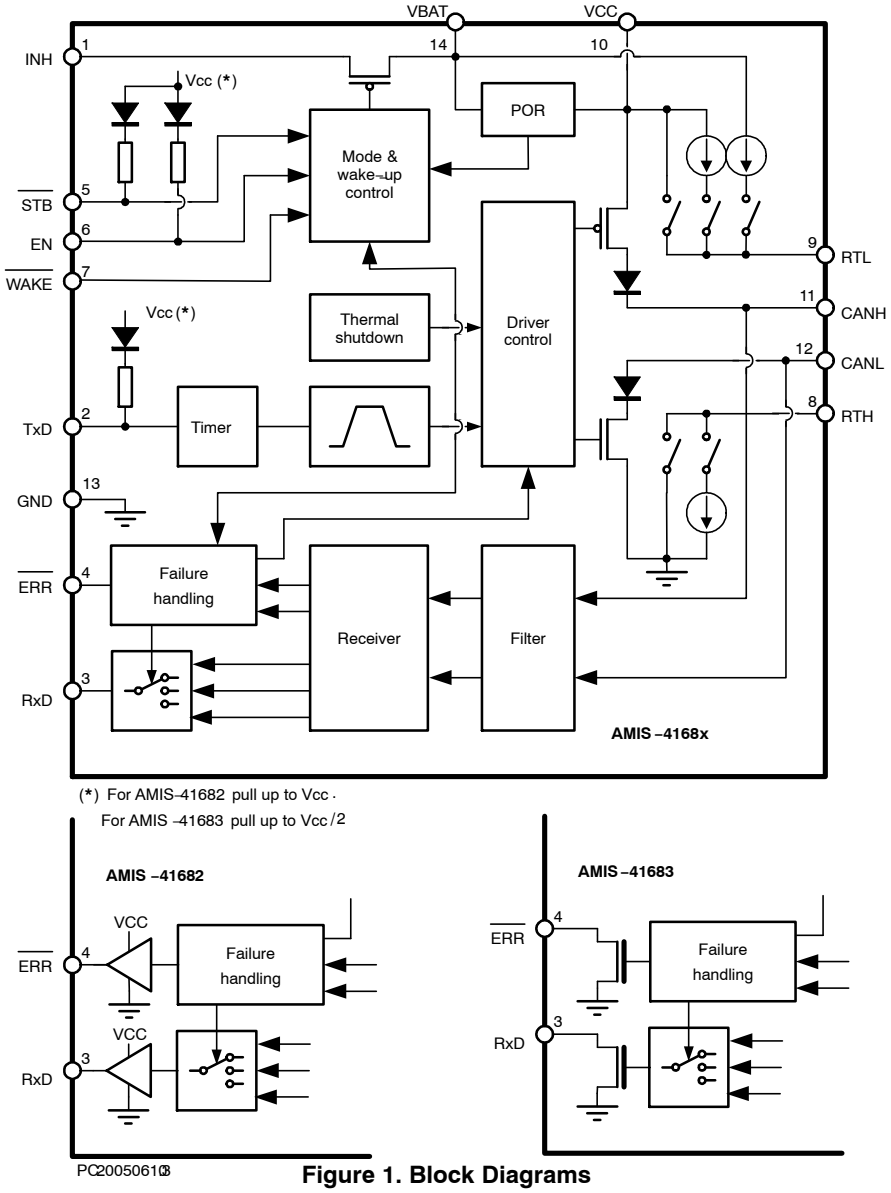

Figure 1. Block Diagrams

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:

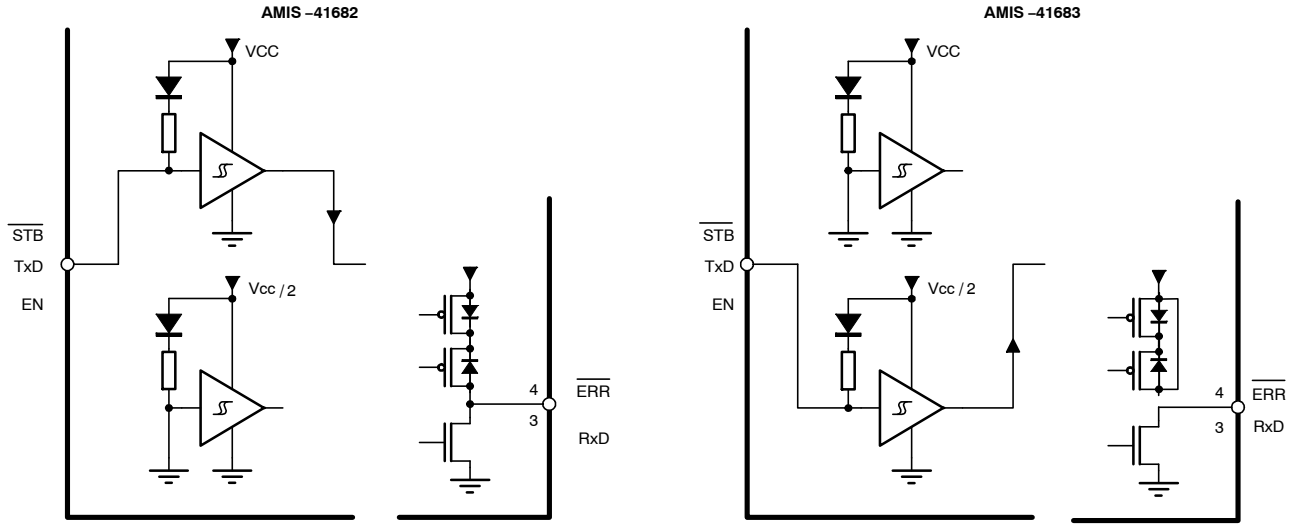

Figure 2. Differences in Digital Input and Output Stage Between AMIS−41682 and AMIS41683

TYPICAL APPLICATION DIAGRAMS

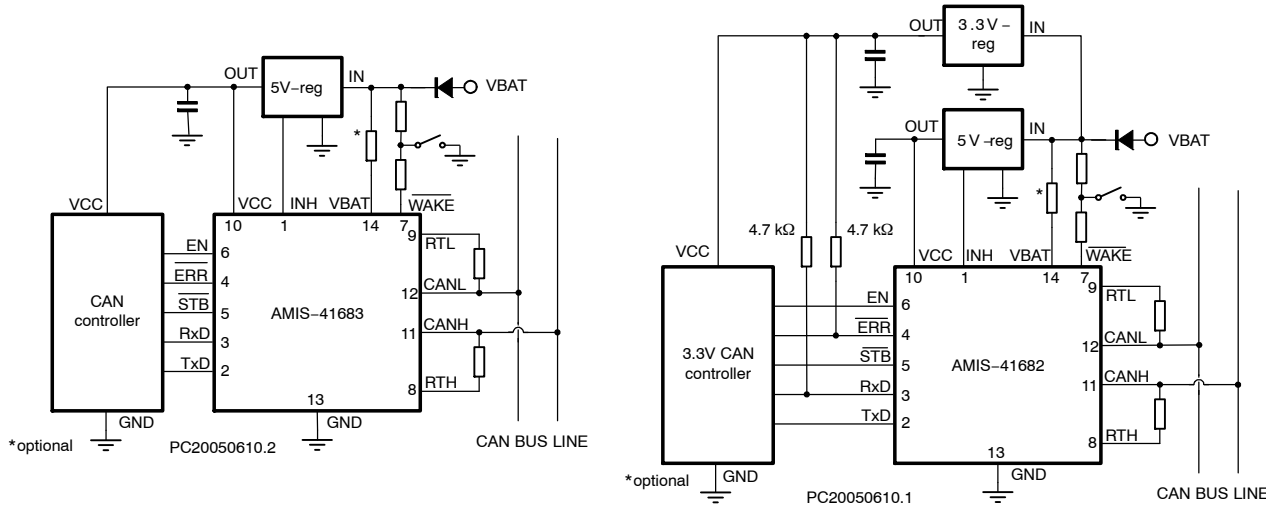

Figure 3. Typical Application Diagrams

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

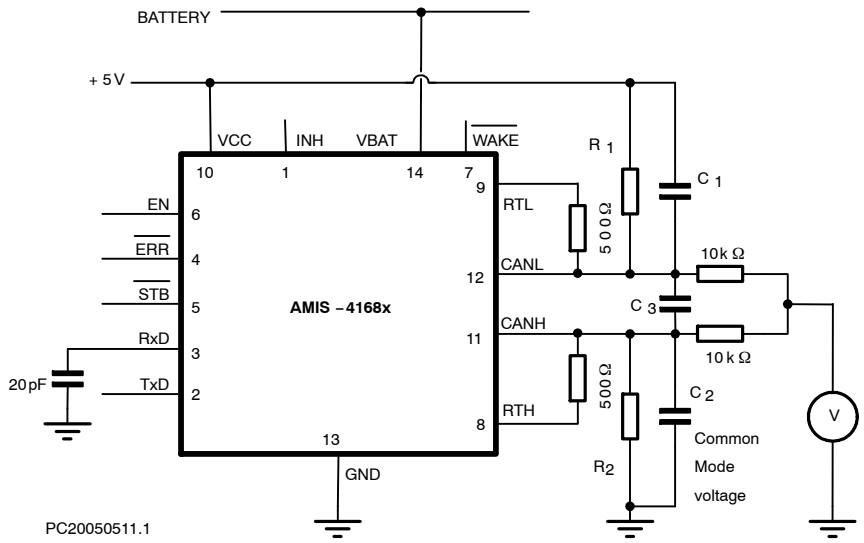

Figure 4. Test Setup

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

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