

# OKI Semiconductor

**FEDL9620-01**

Issue Date: Aug. 29, 2003

## ML9620

### CAN Controller IC

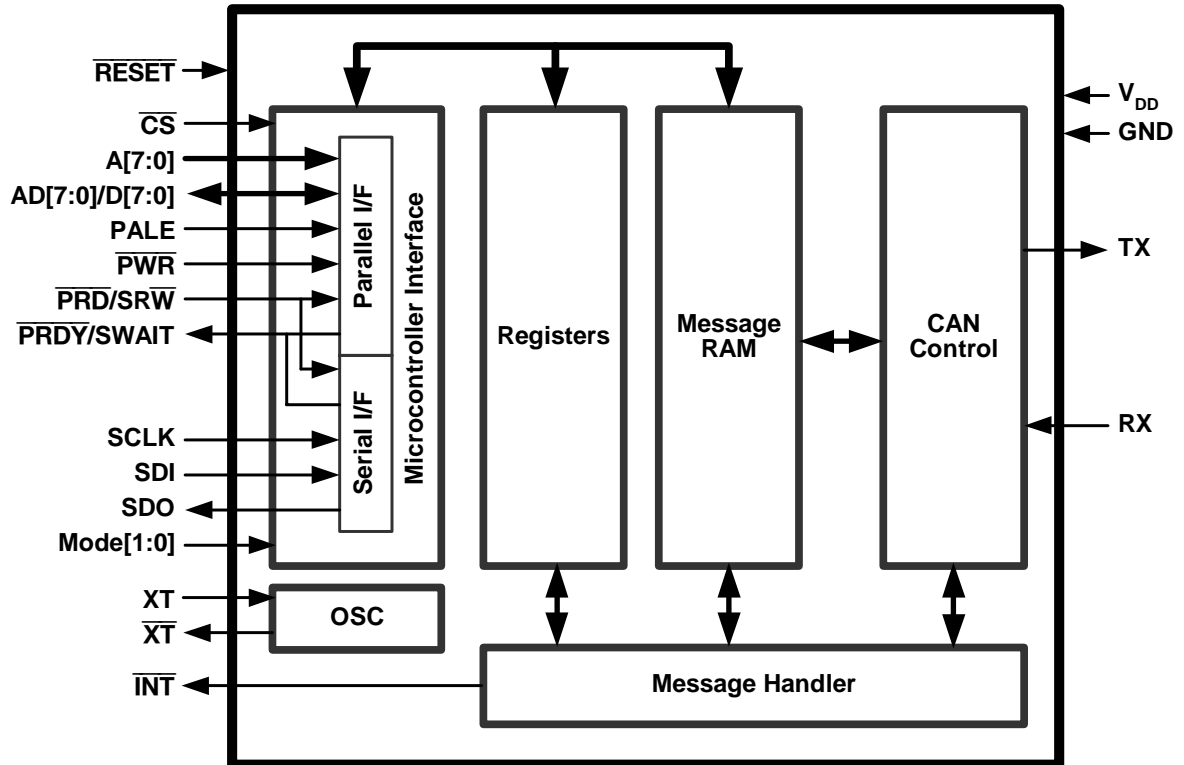
#### GENERAL DESCRIPTION

The ML9620 is a microcontroller peripheral LSI which conforms to the CAN protocol for high-speed LANs in automobiles.

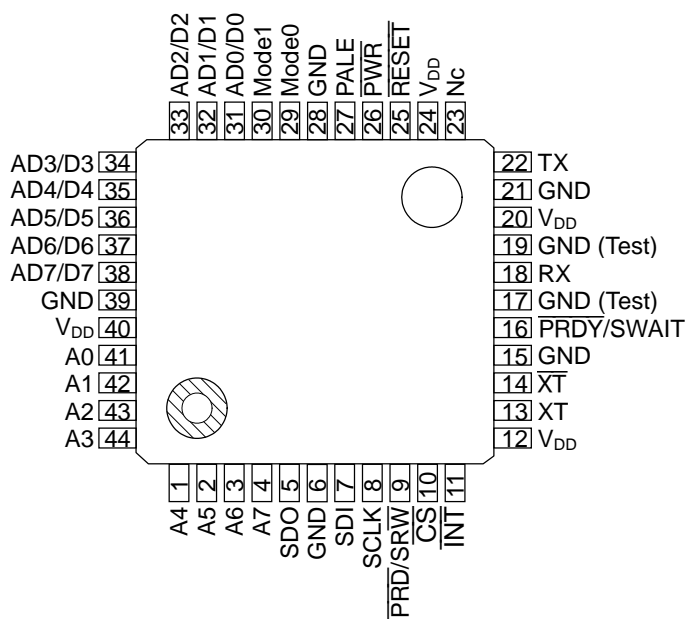
#### FEATURES

- Conforms to CAN protocol specification (Bosch, V2.0 part B/Active)
- Maximum of 1 Mbps bit rate
- Message box:
  - Up to 32 message boxes can be used, and messages up to 8 bytes long can be transmitted or received for each message box
  - Number of received messages can be extended by group message function (Each Message box has its own Identifier Mask)
  - Programmable FIFO mode
- Priority control by message objects number:
  - 2032 types in standard format,  $2032 \times 2^{18}$  types in extended format
- Microcontroller interface:
  - Corresponding to both parallel and serial interface
    - Parallel interface: Separate address/data bus type (with address latch signal / no address latch signal) and multiplexed address/data bus type
    - Serial interface: Synchronous communication type
  - Three interrupt sources: transmission/receive/error
  - Two message interface register buffer
- Error control:
  - Bit error/stuff error/CRC error/form error/acknowledgment error detection functions
  - Retransmission/error status monitoring function when error occurs
  - Bit error flag/stuff error flag/CRC error flag/form error flag/acknowledge error flag are provided
- Communication control by remote data request function
- Sleep and Stop mode function
- Disable Automatic Retransmission mode for Time Triggered CAN applications
  
- Supply voltage: 3.3V, 5V
- Clock frequency: 8MHz@V<sub>DD</sub>=3.3V, 8 to 16MHz@V<sub>DD</sub>=5 V
- Operating temperature: -40 to +85°C (for Industrial)  
-40 to +125°C (for Automobile)
- Package: 44-pin plastic QFP (QFP44-P-910-0.80-2K)

**BLOCK DIAGRAM**



**PIN CONFIGURATION (TOP VIEW)**



**44-Pin Plastic QFP**

**ABSOLUTE MAXIMUM RATINGS**

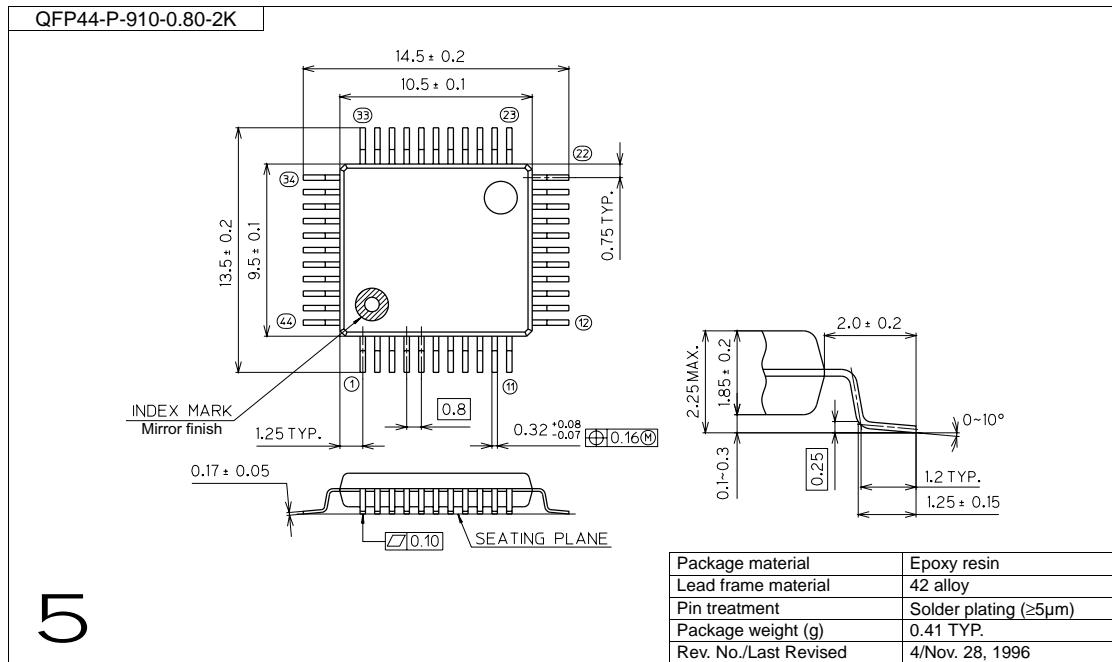
Parameter	Symbol	Condition	Rating	Unit
Power supply voltage	$V_{DD}$	$T_a = 25^\circ\text{C}$	-0.3 to +7.0	V
Input Voltage	$V_{IN}$	$T_a = 25^\circ\text{C}$	-0.3 to $V_{DD} + 0.3$	V
Storage temperature	$T_{STG}$	—	-65 to +150	$^\circ\text{C}$

**RECOMMENDED OPERATING CONDITIONS**

Parameter	Symbol	Condition	Rating	Unit
Power supply voltage	$V_{DD}$	3.3V	3.0 to 3.6	V
		5V	4.5 to 5.5	V
Operating temperature	$T_{OP}$	for Industrial	-40 to +85	$^\circ\text{C}$
		for Automobile	-40 to +125	$^\circ\text{C}$
Master clock frequency	$f_{OSC}$	$V_{DD}=3.3\text{V}$	8	MHz
		$V_{DD}=5\text{V}$	8 to 16	MHz

**PACKAGE DIMENSIONS**

(Unit: mm)



**Notes for Mounting the Surface Mount Type Package**

The surface mount type packages are very susceptible to heat in reflow mounting and humidity absorbed in storage.

Therefore, before you perform reflow mounting, contact Oki's responsible sales person for the product name, package name, pin number, package code and desired mounting conditions (reflow method, temperature and times).

**REVISION HISTORY**

Document No.	Date	Page		Description
		Previous Edition	Current Edition	
FEDL9620-01	Aug. 29, 2003	–	–	First edition

**NOTICE**

1. The information contained herein can change without notice owing to product and/or technical improvements. Before using the product, please make sure that the information being referred to is up-to-date.
2. The outline of action and examples for application circuits described herein have been chosen as an explanation for the standard action and performance of the product. When planning to use the product, please ensure that the external conditions are reflected in the actual circuit, assembly, and program designs.
3. When designing your product, please use our product below the specified maximum ratings and within the specified operating ranges including, but not limited to, operating voltage, power dissipation, and operating temperature.
4. Oki assumes no responsibility or liability whatsoever for any failure or unusual or unexpected operation resulting from misuse, neglect, improper installation, repair, alteration or accident, improper handling, or unusual physical or electrical stress including, but not limited to, exposure to parameters beyond the specified maximum ratings or operation outside the specified operating range.
5. Neither indemnity against nor license of a third party's industrial and intellectual property right, etc. is granted by us in connection with the use of the product and/or the information and drawings contained herein. No responsibility is assumed by us for any infringement of a third party's right which may result from the use thereof.
6. The products listed in this document are intended for use in general electronics equipment for commercial applications (e.g., office automation, communication equipment, measurement equipment, consumer electronics, etc.). These products are not, unless specifically authorized by Oki, authorized for use in any system or application that requires special or enhanced quality and reliability characteristics nor in any system or application where the failure of such system or application may result in the loss or damage of property, or death or injury to humans.  
Such applications include, but are not limited to, traffic and automotive equipment, safety devices, aerospace equipment, nuclear power control, medical equipment, and life-support systems.
7. Certain products in this document may need government approval before they can be exported to particular countries. The purchaser assumes the responsibility of determining the legality of export of these products and will take appropriate and necessary steps at their own expense for these.
8. No part of the contents contained herein may be reprinted or reproduced without our prior permission.

Copyright 2002 Oki Electric Industry Co., Ltd.