

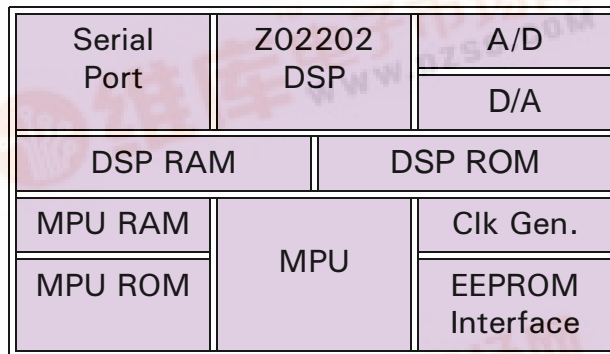


PB001700-MOD0999

# Z02215

## SINGLE CHIP MODEM

### PRODUCT BLOCK DIAGRAM



### FEATURES

- Complete modem Integrated Circuit with integrated controller, data pump and Analog Front End (AFE) with active hybrid
- Includes an AT command set interpreter in the on-chip ROM with no external memory required
- On-chip peripheral, a full-duplex voice band AFE with 12-bit resolution
- Interface to serial EEPROM allows configuration of controller code through the Diplomat™ utility that simplifies country qualifications
- Includes V.14 asynchronous to synchronous conversion

### GENERAL DESCRIPTION

The Z02215 is a synchronous single-chip V.22bis modem capable of 2400 bps full-duplex over dial-up lines. It is a full-featured, self-controlled modem that includes a modem controller, digital signal processing (DSP), and Analog Front End (AFE) functions. This device is specifically designed for use in embedded modem applications where space, performance, and low-power consumption are key requirements. A typical modem can be created by simply adding a phone-line inter-

- Voice answer detection
- Line-In-Use detection before connection
- Pick-up detection during connections
- Data modem throughput to 2400 bps
- ITU V.22bis, V.23, V.22, V.21
- Bell 212A, Bell 103, Bell 202, Bell 202T
- FSK (V.23 1200/75 bps, Bell 202/Bell 202T 1200/150 bps, V.21/Bell 103 300 bps), DPSK (V.22/Bell 212A 1200 bps), or QAM Encoding (V.22bis 2400 bps)
- V.23 with Minitel line reversal
- Fully-programmable call progress detectors for precise call program monitoring, including signal quality detectors, tone detectors, tone generators, and transmit signal levels that aid in rapid country qualifications
- Dynamic power management: power-saving SLEEP modes
- North American Type-I Caller ID
- Small 44-Pin VQFP footprint
- Single +5 VDC power supply
- Minimal external logic
- 0°C to +70°C standard temperature range and -40°C to +85°C extended temperature range

face (DAA), and Data terminal equipment (DTE) interface.

Operating over the Public Switched Telephone Network (PSTN), the Z02215 meets the modem standards for V.22bis, V.22, V.23 (Minitel), V.21, Bell 212A, Bell 202, Bell 202T, and Bell 103.

All modulation, demodulation, filtering, Analog to Digital (A/D), and Digital to Analog (D/A) conversion functions for transmission and reception are





provided on-chip. Automatic compromise equalizers are included to optimize performance over a wide range of line types.

Transmit drivers and receive amplifiers can be connected directly to a Data Access Arrangement (DAA) by adding a transformer, or a silicon DAA, reducing the external circuits to a minimum.

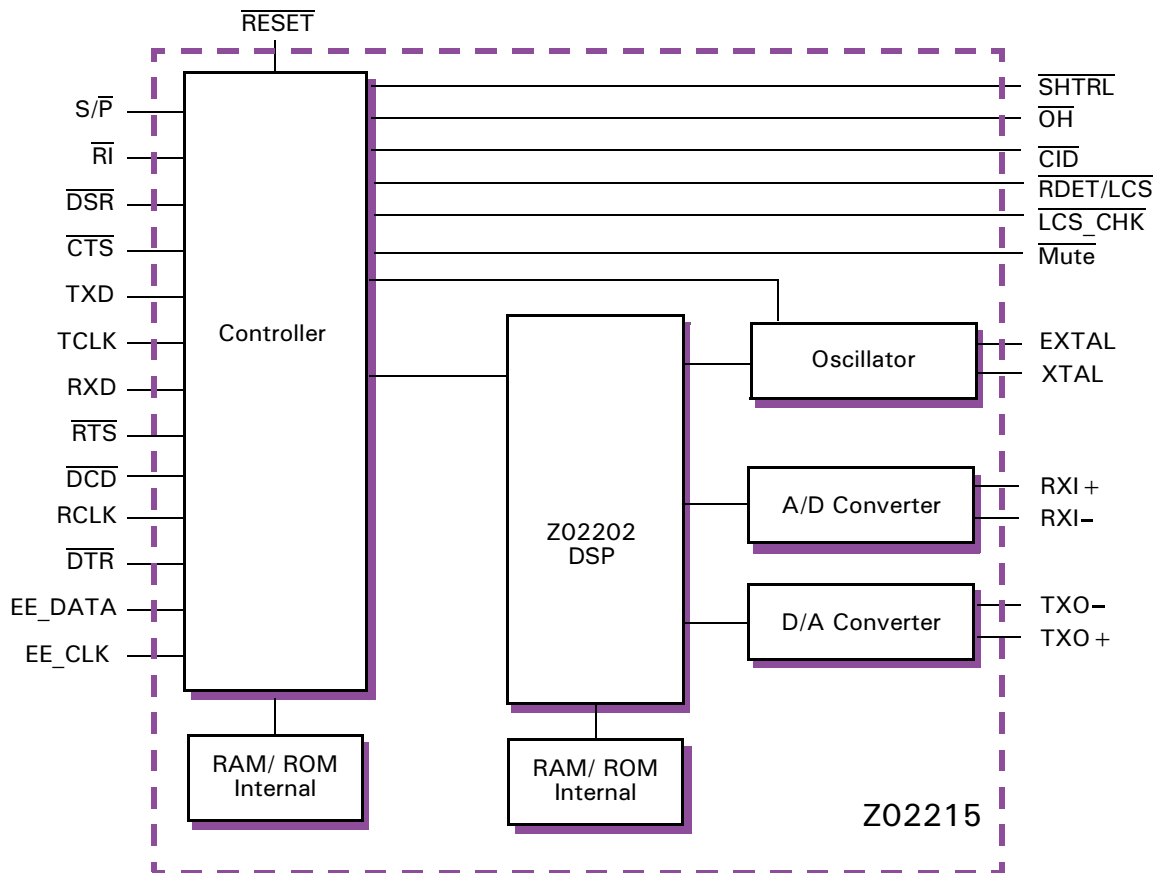
In addition, the Z02215 provides further system-level savings by providing built-in filters for both the transmitter analog output and the receiver

analog Input. This configuration eliminates the need for external filtering components.

The analog front end of the Z02215 includes an active hybrid circuit that improves modem performance and reduces system-level costs by reducing the requirement for external components.

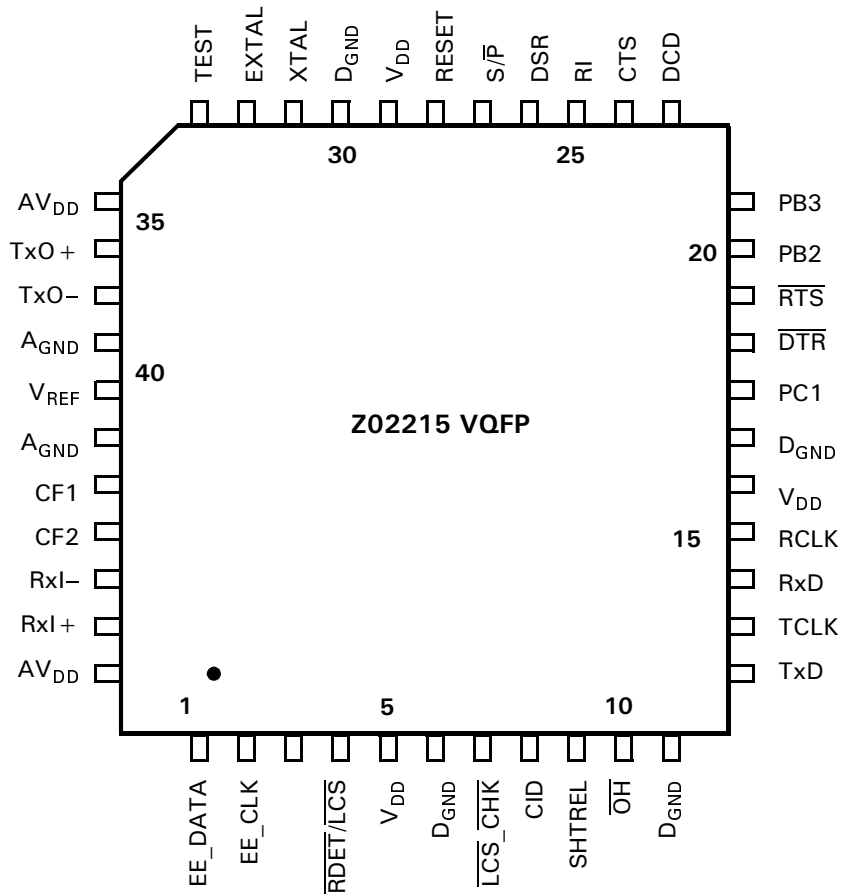
The Z02215 device operates on a single +5 VDC power supply. During periods of no traffic, the modem can be placed into SLEEP mode, reducing power consumption through Dynamic Power Management.

## Z02215 BLOCK DIAGRAM





## Z02215 FAMILY PIN DIAGRAM





## APPLICATIONS AND SUPPORT TOOLS

The following evaluation tools are available for the Z02215 Single Chip Modem:

- Z0221500ZCO Evaluation Kit. Includes evaluation board, power supply, user manual, software.
- Diplomat™ software utility is included in the Z0221500ZCO Evaluation Kit.

## RELATED PRODUCTS

Related products of interest are:

Z02202	2400bps Modem Data Pump + Analog Front End
Z02923	9600bps Modem Data Pump + Analog Front End
Z02205	Modem Controller
CPC5604	LiteLink™ programmable Data Access Arrangement I.C. from CP Clare, Inc.

## ELECTRICAL FEATURES SUMMARY

- 50  $\mu$ A maximum Supply Current
- 4.5V to 5.5V Operating Range
- 0°C to +70°C standard temperature range or -40°C to +85°C extended temperature range

## ORDERING INFORMATION

Part	PSI	Description
Z02215	Z0221524ASCR4508	2400bps Single Chip Modem, Standard Temperature
Z02215	Z0221524AECR4508	2400bps Single Chip Modem, Extended Temperature
Z02915	Z0291524ASCRxxxx	9600bps <sup>1</sup> Single Chip Modem, Standard Temperature
Z02915	Z0291524AECRxxxx	9600bps Single Chip Modem, Extended Temperature

1. 9600bps operation provided from a ZiLOG-proprietary implementation of V.29