

Am79C12

Dialer Modem Peripheral (DMP)

PRELIMINARY

DISTINCTIVE CHARACTERISTICS

- 1200/300 bps full duplex — Bell 212A compatible
 - Single-chip Digital Signal Processor
 - Coherent Differential Quaternary Phase Shift Keying/Frequency Shift Keying (DQPSK/FSK) demodulator
- Parallel Microprocessor Interface
 - Register-controlled modem operation
 - Integral UART for parallel data transfer
- Serial RS-232C type handshake interface
 - Selectable serial data transfer
- Auto-dial support
 - Dual-Tone Multi-Frequency (DTMF) tone generation
 - Pulse dial-through support
 - Call Progress tone detection
 - Answerback tone detection
- Single +5-volt CMOS technology
 - Low-power standby operation
- Integral 4- to 2-wire hybrid
 - External Analog Input

GENERAL DESCRIPTION

The Am79C12 DMP is a single-chip 1200/300 bps full-duplex voiceband modem that operates over the switched telephone network. It is compatible with the Bell 212A (1200 bps) and Bell 103/113 (300 bps) modem specifications. All modulation, demodulation, filtering, analog-to-digital, and digital-to-analog conversion functions for both the transmitter and receiver are provided on-chip.

Using the features described below, an intelligent autocall, autoanswer modem may be implemented with only an Am79C12 single chip, under the control of a host microprocessor and a Protective Phone Line Interface (PPLI) circuit.

The Am79C12 DMP contains a standard microprocessor interface to connect directly to the host processor or controller. An on-chip UART also provides such functions as parallel data transfer, parity generation and checking, as well as overrun and framing error detections. The "break" signal is both generated and detected by circuitry inside the modem chip.

At 1200 bps the modem can operate in either bit-synchronous or character-asynchronous transmission and reception formats; 300 bps operation is always asynchronous.

The modem may be selected for parallel or serial data transmission under software control. The serial interface

supports the standard RS-232C-type handshake signals. The modem analog interface provides both an internal hybrid and an external analog input to allow phone-line access for a telephone handset or another modem.

Auxiliary functions performed within the Am79C12 include:

- Modem training
- Remote-modem speed indication
- Autocalling support, DTMF generation, and Call Progress Tone Detection (CPTD)
- Autoanswer support
- Parallel control of serial and parallel data interfaces
- Remote digital loopback support
- Analog-loopback support

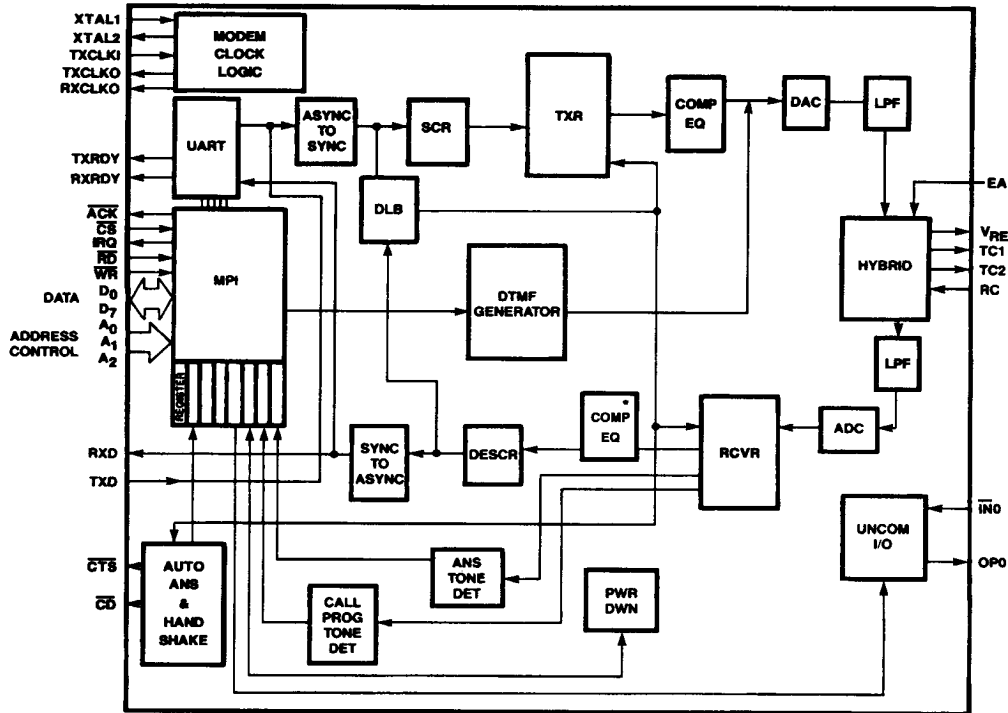
One interrupt input and one programmable output are provided on-chip for controlling user-definable functions such as ON/OFF-HOOK, analog loopback, and ring detection from a PPLI.

The modem utilizes CMOS technology and is housed in 44-pin plastic leaded chip carrier and 40-pin plastic dual-in-line packages. All signal processing is performed digitally to ensure high stability and reproducibility over a comprehensive set of transmission test conditions (see block diagram on following page for functional blocks of the Am79C12).

Connection to the telephone network may be via a PPLI or an acoustic coupler. All digital I/O signals are TTL-compatible and the circuit operates from a single +5-volt supply.

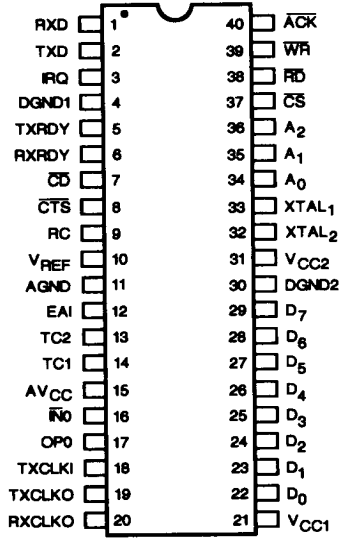
BLOCK DIAGRAM

Am79C12

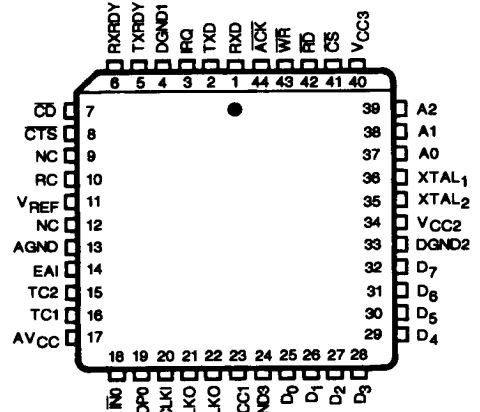


BD0057

CONNECTION DIAGRAMS



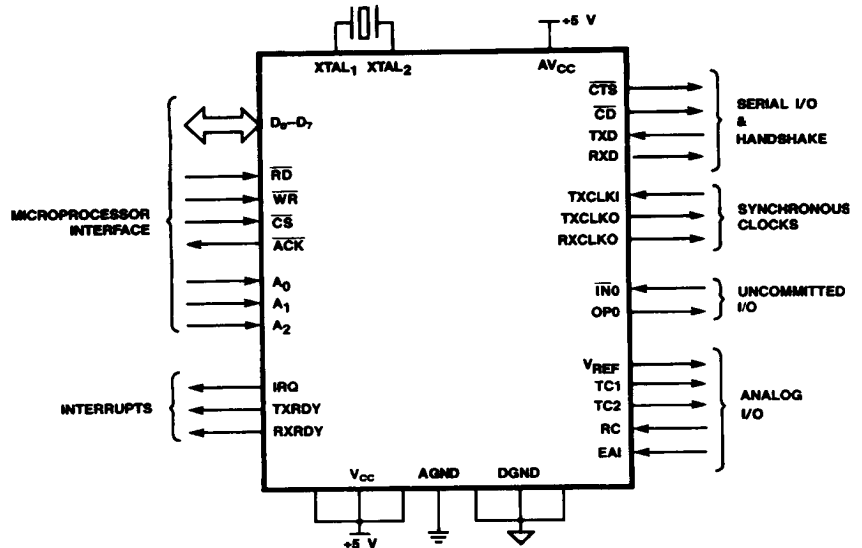
CD009850



CD009840

Note: Pin 1 is marked for orientation.

LOGIC SYMBOL



LS002031

ORDERING INFORMATION

Standard Products

AMD standard products are available in several packages and operating ranges. The order number (Valid Combination) is formed by a combination of:

- a. Device Number
- b. Speed Option (if applicable)
- c. Package Type
- d. Temperature Range
- e. Optional Processing

AM79C12

P

C

B

e. **OPTIONAL PROCESSING**
Blank = Standard processing
B = Burn-in

d. **TEMPERATURE RANGE**
C = Commercial (0 to +70°C)
I = Industrial (-40°C to +85°C)

c. **PACKAGE TYPE**
P = 40-Pin Plastic DIP (PD 040)
J = 44-Pin Plastic Leaded Chip Carrier (PL 044)

b. **SPEED OPTION**
Not Applicable

a. **DEVICE NUMBER/DESCRIPTION**
Am79C12
Dialer Modem Peripheral

Valid Combinations

Valid Combinations	
AM79C12	PC, PCB, JC, JCB

Valid Combinations

Valid Combinations list configurations planned to be supported in volume for this device. Consult the local AMD sales office to confirm availability of specific valid combinations, to check on newly released combinations, and to obtain additional data on AMD's standard military grade products.