Preliminary

T-75-11-17

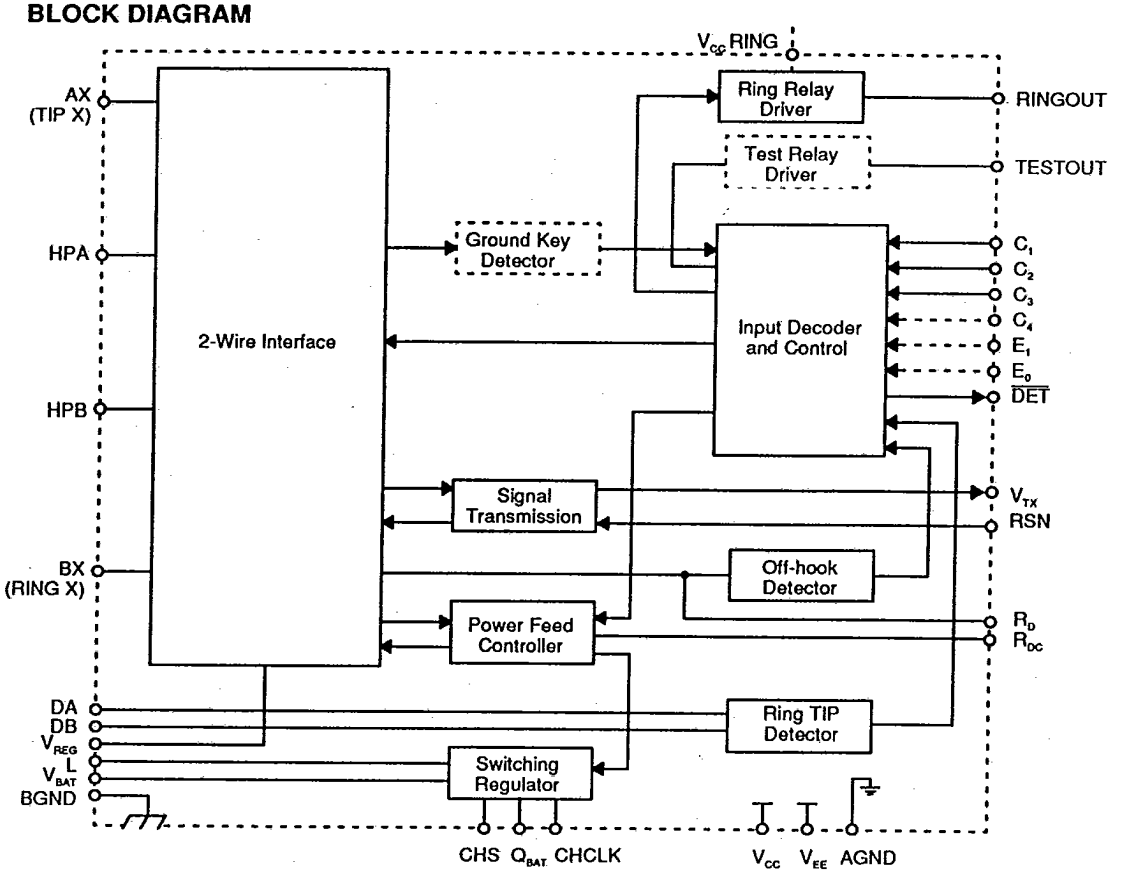
Am7953/Am7957
Am79M53/Am79M57
Subscriber Line Interface Circuit Family (SLIC)

Advanced Micro Devices

DISTINCTIVE CHARACTERISTICS

- Programmable constant current or constant resistance feed versions
- Line feed characteristics independent of battery variations
- Programmable loop detect threshold
- On chip switching regulator for low active power dissipation
- Ground key detect option available
- Low standby power
- Am79M53/M57 versions support 2.2 VRMS metering (12 and 16 kHz)
- Two-wire impedance set by single external impedance
- Performs polarity reversal
- Various Ring and Test relay driver combinations available
- Tip open state for ground start lines

BLOCK DIAGRAM



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GENERAL DESCRIPTION

The Am7953/57 and Am79M53/57 family of Subscriber Line Interface Circuits (SLIC) perform the telephone line interface functions required in both Central Office and PABX environments. The full range of signal transmission, battery feed and loop supervision functions are performed. Signal transmission performance is compatible with North American and CCITT recommendations.

The signal transmission functions include both 2- to 4-wire and 4- to 2-wire conversion. The 2-wire termination impedance is programmable with a single external impedance. The companion AMD SLAC™ (Subscriber Line Audio Processing Circuit) has a digital balancing filter that provides the trans-hybrid loss function. If the SLAC is not used, most codec/filter sets provide an uncommitted op amp for this purpose.

The battery feed architecture makes the DC feed characteristics programmable with external resistors. Furthermore, these characteristics are independent of battery variations. The output amplifiers are powered by an internal, self-adjusting switching regulator to reduce power consumption to a minimum.

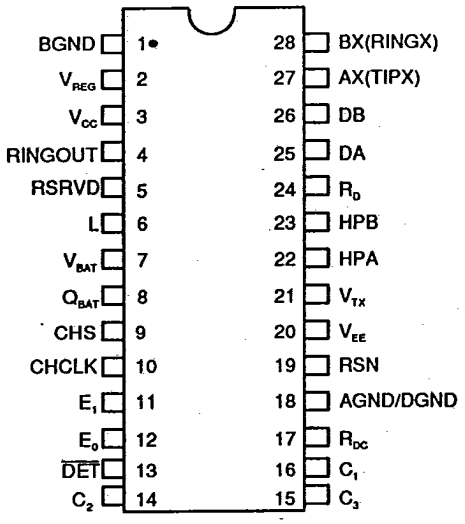
A polarity reversal function is provided which transposes the normal voltage sense of the A(Tip) and B(Ring) leads with a controlled transition time. All transmission functions continue normally following the transition. A disable mode limits loop current and cuts power dissipation while allowing the full complement of supervisory functions to be utilized. T-75-11-17

The supervisory functions of off-hook detection and ring trip detection are read through a single, TTL compatible output. To eliminate noise induced errors, the off-hook detector signal may be filtered. Off-hook detection has a threshold that is adjusted by means of external components. Additional supervisory functions put the A lead into an open circuit or high impedance state suitable for application in ground start systems. Similarly, both the A and B leads may be open circuited to clear relays, recover from line faults, or turn off out-of-service lines. Depending on chip type, up to two relay drivers provide ring and test relay functions. The Am79M53/M57 versions can handle 12 and 16 kHz metering in addition to voice.

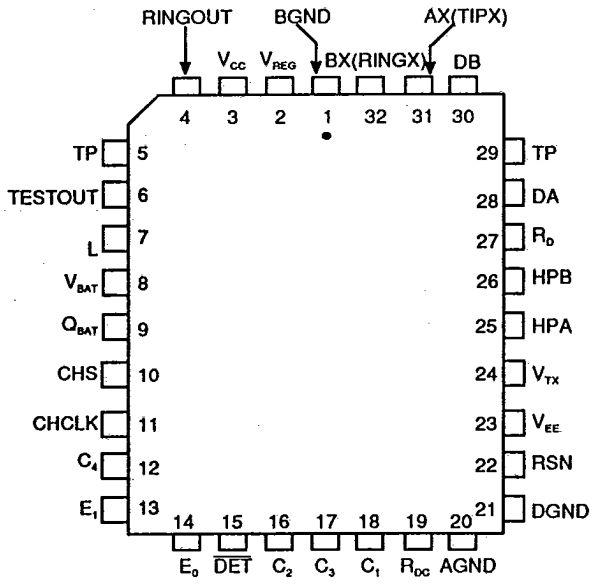
The SLIC's user programmable states are controlled by a TTL compatible code. These control inputs are designed to easily interface to popular single chip microcomputers such as the AMD Am8051 or to latched outputs from a SLAC or other processing circuit.

CONNECTION DIAGRAMS

28-Pin DIP



32-Pin PLCC



Notes: 1. Pin 1 is marked for orientation.
2. TP is a thermal conduction pin tied to substrate.
3. Pinouts will vary depending on bonding option selected. See Data Sheet for details.

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PRODUCT SELECTION GUIDE

SLIC Types

There are four basic types of SLIC:

1. The Am7953 series with constant current feed
2. The Am7957 series with constant resistance feed
3. The Am79M53 series with constant current feed and metering capability
4. The Am79M57 series with constant resistance feed and metering capability

Bond-out Options

The Am7953 and Am7957 series both have four potential bond-out configurations as indicated by a fifth digit (n) in the part number (refer to the selection chart). The metering versions also have these potential bond-out configurations plus an additional configuration indicated by the absence of a fifth digit (not including the "M"). These options are as follows:

- No fifth digit (metering versions only); Am79M53 indicates that E_0 and E_1 functions (DET enable and DET ground key select) are present together with one relay driver (ring) whose collector and emitter are output to pins.
- n = 1; Am79571 indicates that both E_0 and E_1 functions are present together with one relay driver (ring) whose emitter is output to a pin and whose collector is internally sourced from V_{CC}.
- n = 2; Am79532 indicates that the E_1 function (DET ground key select) is present together with two relay drivers (ring and test) whose emitters are output to pins and whose collectors are internally sourced from V_{CC}.
- n = 3; Am79573 indicates that the E_0 function (DET enable) is present together with two relay drivers (ring and test) whose emitters are output to pins and whose collectors are internally sourced from V_{CC}.
- n = 4; Am79534 indicates that both E_0 and E_1 functions are present together with two relay drivers (ring and test) whose emitters are output to a pin and whose collectors are internally sourced from V_{CC}. This version is only available in 32-pin PLCC.

All of these SLIC versions are potentially available but not all are presently in production. Versions that are presently in production are indicated in the following chart. If you are interested in a bond-out configuration that is not indicated to be in production, please contact AMD's Communication Products Division or your local AMD sales office.

Selector Chart

Possible SLIC Products

Notes: 1. n = Bonding option designator
2. x = No designator

	Am7953n			Am7957n			Am79M53n		Am79M57n		
	n			n			n		n		
	1	2	4	1	3	4	1	4	x	1	4
Constant current feed	•	•	•				•	•			
Constant resistance feed				•	•	•			•	•	•
Metering capability							•	•	•	•	•
DET enable bit, E_0	•		•	•	•	•	•	•	•	•	•
DET GND key select bit, E_1	•	•	•	•		•	•	•	•	•	•
Ring relay driver	•	•	•	•	•	•	•	•		•	•
Ring relay driver*									•		
Test relay driver		•	•		•	•		•			•
28-pin dip	•	•		•	•		•		•	•	
32-pin PLCC			•			•		•			•

* Collector and emitter ouput to pins

ORDERING INFORMATION
Standard Products

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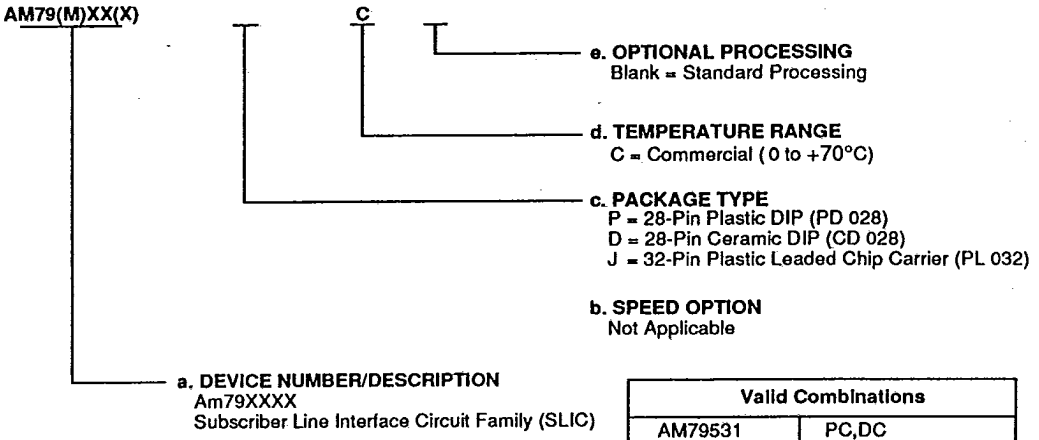
AMD standard products are available in several packages and operating ranges. The ordering number (Valid Combination) is formed by a combination of:

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



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.

Valid Combinations	
AM79531	PC,DC
AM79532	PC,DC
AM79534	JC
AM79571	PC,DC
AM79572	PC,DC
AM79574	JC
AM79M53	PC,DC,JC
AM79M531	PC,DC
AM79M534	JC
AM79M57	PC,DC,JC
AM79M571	PC,DC
AM79M574	JC