Single Chip Interface Circuit

Ericsson Microelectronics' PBM39705/3 single chip Analog Receive/Transmit Interface Circuit (ARTIC) provides the receiving and transmitting, echo cancellation and terminating functions needed for the implementation of an ADSL transceiver.

In response to industry demands for this type of product, power consumption is minimized by the line driver architecture and by a design optimized for ADSL. The design of the device also ensures a compact board with minimum area, component count and wiring.

PBM 39705/3 provides a power performance equivalent to class G, with only two power supplies, to minimize the complexity and expense.

For ease of use and configuration, PBM39705/3 uses a digital series bus interface to set gain (1dB steps), impedances and power modes. This enables adaptive power management, which means that the line driver can be set for minimum power consumption under every operating condition, taking account of various bit rates and loop lengths.

With integrated echo cancellation the device makes fewer demands on the mixed signal and DSP part of an ADSL transceiver. The facility gives an echo cancellation figure of better than 20dB. An intelligent, programmable feedback loop provides optimal line termination.

Supporting bitrates of 8Mbit/s downstream and 800kbit/s upstream, PBM39705/3 contains many of the external components used today, and is manufactured using a standard CMOS process. It is therefore lower cost, yet offers excellent performance in comparison to other solutions.

Designed for applications meeting ITU recommendations, internal power dissipation is typically 0.9W during G.dmt (full rate) CO-operation in a DMT system at 100 Ohm load, and 0.2W when operating in power-down mode. For G.lite or when a reduced PAR-value is used, internal power dissipation is only 0.5W.

The device is available in a 32 pin LQFP package (0&#176C to +85&#176C).

Aimed at telecom organizations providing systems and solutions within the DSL area, the important application areas for PBM39705/3 are DSLAM (Digital Subscriber Line Access Multiplexer), CO (Central Office) and DLC (Digital Loop Carrier).

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