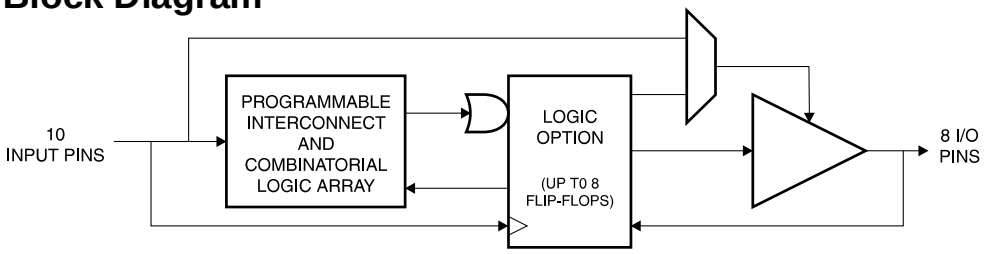
Features

- User-Controlled Power Down Pin
- Low Voltage Equivalent of ATF16V8B
- Operates down to 3.0V
- Edge Sensing Zero Standby Power (10 µA Typical)
- Ideal For Battery Power Systems
  - Emulates Many 20-Pin PALs®
  - Low Cost Easy-to-Use Software Tools
- High Speed Electrically Erasable Programmable Logic Devices
  - 15 ns Maximum Pin-to-Pin Delay
- CMOS and TTL Compatible Inputs and Outputs
  - Latch Feature Holds Outputs to Previous Logic States
- Advanced Flash Technology
  - Reprogrammable
  - 100% Tested
- High Reliability CMOS Process
  - 20 Year Data Retention
  - 100 Erase/Write Cycles
  - 2,000V ESD Protection
  - 200 mA Latchup Immunity
- Commercial, and Industrial Temperature Ranges
- Dual-in-Line and Surface Mount Packages in Standard Pinouts

High Performance Flash PLD

Advance Information

Block Diagram



Description

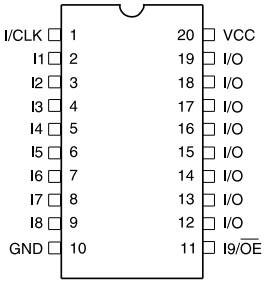
The ATF16LV8CZ is a high performance CMOS (Electrically Erasable) Programmable Logic Devices (PLDs) which utilize Atmel's proven electrically erasable Flash memory technology. Speeds down to 15 ns with zero standby power dissipation are offered. All pins offer low ± 10 µA leakage.

(continued)

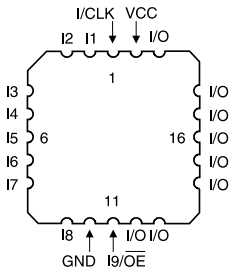
Pin Configurations

Pin Name	Function
CLK	Clock
I	Logic Inputs
I/O	Bidirectional Buffers
$\overline{OE}$	Output Enable
VCC	+3.3V Supply

DIP



PLCC



Top view

0404C

Description (Continued)

The ATF16LV8CZ provides a low voltage and "zero" power CMOS PLD solution with operating voltages down to 3.0V. The ATF16LV8CZ has an edge sensing power down feature, offering "zero" (10 µA typical) standby power. This feature allows the user to manage total system power to meet specific application requirements, enhance reliability, all without sacrificing speed. Pin "keeper" circuits on input and output pins reduce static power consumed by pull-up resistors.

The ATF16LV8CZ incorporates a superset of the generic architectures, which allows direct replacement of the 16R8 family and most 20-pin combinatorial PLDs. Eight outputs are each allocated eight product terms. Three different modes of operation, configured automatically with software, allow highly complex logic functions to be realized.

DC and AC Operating Conditions

	Commercial	Industrial
Operating Temperature (Case)	0°C - 70°C	-40°C - 85°C
V_{CC} Power Supply	3.3V ± 5%	3.3V ± 10%

Functional Description

The ATF16LV8CZ macrocell can be configured in one of three different modes. Each mode makes the ATF16LV8CZ look like a different device. The ATF16LV8CZ can be a registered output, combinatorial I/O, combinatorial output, or dedicated input. Most PLD compilers can choose the right mode automatically. The user can also force the selection by supplying the compiler with a mode selection. The determining factors would be the usage of registered versus combinatorial outputs and dedicated outputs versus outputs with output enable control.

The ATF16LV8CZ is capable of operating at supply voltages down to 3.0V. The ATF16LV8CZ provides edge-sensing "zero" standby power (10 µA typical).

The universal architecture of the ATF16LV8CZ can be programmed to emulate many 20-pin PAL devices. The user can download the subset device JEDEC programming file to the PLD programmer, and the ATF16LV8CZ can be configured to act like the chosen device.

Unused product terms are automatically disabled by the compiler to decrease power consumption. A Security Fuse, when programmed, protects the contents of the ATF16LV8CZ. Eight bytes (64 fuses) of User Signature are accessible to the user for purposes such as storing project name, part number, revision or date. The User Signature is accessible regardless of the state of the Security Fuse.

Compiler Mode Selection

	Registered	Complex	Simple	Auto Select
ABEL, Atmel-ABEL	P16V8R	P16V8C	P16V8AS	P16V8
CUPL	G16V8MS	G16V8MA	G16V8AS	G16V8A
LOG/iC	GAL16V8_R	GAL16V8_C7	GAL16V8_C8	GAL16V8
OrCAD-PLD	"Registered"	"Complex"	"Simple"	GAL16V8A
PLDesigner	P16V8R	P16V8C	P16V8C	P16V8A
Tango-PLD	G16V8R	G16V8C	G16V8AS	G16V8