3 Volt BiCMOS Versatile PAL

P3Q22V10-7

DESCRIPTION

The P3Q22V10-7 is a V-type GAL device designed to operate over the 3.0 to 3.6 volt range. This versatile device is fabricated using the BiCMOS process which produces superior performance, low noise and reduced ground bounce. The reduction from 5V to 3.3V also dramatically reduces the power consumption to less than 100mA (worst case).

This industry standard device is ideal for high performance systems which have been designed to operate with 3.3V ± 0.3V power supplies, as well as systems which are operating with dual supplies (5.0V and 3.3V). The P3Q22V10-7 can accept both 3.3 and 5.0V input levels without the need for level translators. Both the inputs and I/O have high state reverse current flow protection to insure that the outputs are not damaged if the 3V P3Q22V10 is interfaced with 5V devices.

The P3Q22V10-7 is designed with metastable hardened flip-flops so that the outputs can never display a metastable state due to set up or hold time violations. If set up or hold times are violated, the outputs will not glitch or display a metastable state (propagation delays may however extend).
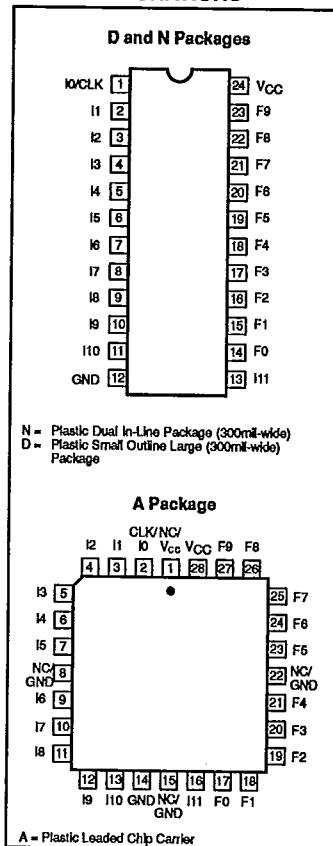
The P3Q22V10's flexible architecture supports a wide variety of high performance applications: counters, shift registers, address decoders, state machines multiplexers and random logic collection.

The P3Q22V10-7 is identical, in function and fuse map to other industry standard EEPROM and EPROM 22V10 devices. Development and programming support are offered by Philips and other third party manufacturers.

FEATURES

- Advanced low voltage BiCMOS process technology
- Ultra high performance over the 3.0 to 3.6 voltage range
  - 7.5ns T_{PD}
  - 5.5ns T_{IS}
  - 5.5ns T_{CKO}
  - 105 MHz F_{MAX} (internal feedback)
  - 143 MHz clock rate
- Low power consumption
  - 100mA (worst case)
- 5V compatible inputs and I/O
- Exceptional noise immunity and low ground bounce
- Metastable hardened Flip-Flops
- Wide package availability; DIP, PLCC, SOL
- Architectural Flexibility
  - Up to 22 inputs and 10 outputs
  - Variable product term distribution for greater logic flexibility
  - Synchronous preset; asynchronous clear
  - Independently programmable output polarity and output enable
  - Register preload and power up reset of all registers
  - Register Preload and Power Up reset of all registers
- Development and programming support
  - Third party software and programmers
  - Philips SNAP development software

PIN CONFIGURATIONS

D and N Packages

N = Plastic Dual In-Line Package (300mil-wide)
D = Plastic Small Outline Large (300mil-wide) Package

A Package

A = Plastic Leaded Chip Carrier

PIN LABEL DESCRIPTIONS

I1 – I11	Dedicated Input
NC	Not Connected
F0 – F9	Macro Cell Input/Output
CLK/IO	Clock Input/Dedicated Input
V_{CC}	Supply Voltage
GND	Ground

ORDERING INFORMATION

DESCRIPTION	ORDER CODE	DRAWING NUMBER
24-Pin Plastic Dual In-Line Package	P3Q22V10-7N	0410D
24-Pin Leaded Chip Carrier	P3Q22V10-7A	0401F
24-Pin Plastic Small Outline Large Package	P3Q22V10-7D	0173D

Philips Semiconductors Low Voltage Products

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LOGIC DIAGRAM

NOTE:
▓▓ Programmable connection.