

#### Description

The E8404A has a Driver and Window Comparator receiver and commutating Load Circuit for each channel with performance settings to save power or maximize bandwidth.

All level's DACs for the Driver, Receiver and Load are on-chip and are programmed via a high speed serial bus. Each of the level's DACs have offset and gain registers for on-chip calibrations.

The Driver circuit is capable of forcing two levels to the DUT (DVH and DVL) as well as a third voltage for a termination level (DVT) to terminate high-speed DUT signals to the Comparator receivers into a high quality 50Ω load. The Driver can also be configured to a high impedance (HiZ) state for an open termination of DUT signals.

Waveform clamps are also available to clip the input signals from a DUT when not using the Driver as a termination. The clamps prevent reflections from returning to the DUT transmission line which can create timing errors and false triggering.

All of the on-chip DAC levels and configuration registers for each channel may be programmed via SET commands. This PinCast method of programming allows all channels in a system to be programmed concurrently with a simple set command whereby any pin channel that had been assigned to that set will respond.

The two driver circuits may be placed into a differential drive mode. This reduces driver-to-driver skews to levels difficult to achieve by external deskewing. The two window comparators may also be placed into a differential receive mode. These features enable higher quality testing of differential signals to/from the DUT.

#### Applications

- Logic Testers
- Mixed-Signal Test Equipment
- Memory Testers
- Flash Memory Testers
- ASIC Verifiers

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#### Features

- Two Fully Integrated Pin Channels including:
  - 16-bit DACs for each level
  - Tri-level Driver
  - Window Receiver
  - 4mA/40mA Ranged Active Commutating Load
  - Waveform Clamps
- Driver, Comparator and Load maximum 8V span over -2 to +7V range
- Configurable Output Protection
- 50MHz Serial Bus Programming
  - SPI™/QSPI™/ MICROWIRE™
  - Daisy-chainable
- Power Dissipation
  - ~0.9W/Channel (quiescent, Low Perf, I/O mode)
  - ~1.0W/Channel (quiescent, High Perf, I/O mode)
- Pin and Software Compatible to E8400, E8405, E8410, E8415
- Digitally Programmable Performance/Power
- Differential Drive and Receive Functionality
- Optimal Small Swing Performance
- Small 11mm x 11mm Package

#### Functional Block Diagram

