

True-Color *Chron*DAC[™] with 16-bit Interface

Features

- 16-bit pixel bus interface
- On-chip clock doubler
- Three high speed 8-bit 110/135 MHz DACs
- Three high speed 256 x 6-bit color palette RAMs
- Compatible with ATT20C498 display modes
- MIX-COLOR®: true on-the-fly mode switching
- 16.7M, 64K, 32K, and 256 color modes
- Supports 128/256 pseudo color, HICOLOR[™]2, 64K bypass, 16.7M bypass, XGA[™] mode 2, and MIX-COLOR®
- Internal/external voltage reference or external current reference
- Drives singly or doubly terminated 75 $\boldsymbol{\Omega}$ loads
- ID register for software identification
- Power down features for "Green PC" applications
- Anti-sparkle circuitry
- Dual-programmable 135 MHz PLL clocks
- On-chip loop filters for PLL clocks
- Pin compatible to SGS-Thomson STG1703
- Low power CMOS technology in 68-pin PLCC
- 5V supply

Description

The CH8398A *Chron*DACTM integrates two programmable PLLs, a triple 256 x 6-bit palette RAM, and a triple 8-bit 110/135 MHz video DAC. The video clock PLL provides 16 programmable frequencies, and the memory clock PLL provides 8 programmable frequencies.

The CH8398A pixel bus is 16 bits, twice the bandwidth of an 8-bit LUTDAC. The on-chip clock doubler allows CH8398A to support more colors with higher resolution while maintaining a lower pixel transfer rate.

Upon power up, the video clock is preset to 28.322 MHz and memory clock is preset to 40 MHz. After power up, video BIOS or driver software can initialize the PLL RAM entries to the desired values.

MIX-COLOR® mode provides the simultaneous display of maximum spatial resolution and color depth within a single bitmapped frame, efficiently utilizing memory. True on-the-fly mode switching occurs on a pixel-by-pixel basis, allowing 128/256 pseudo-color mode to be mixed with 64K color 5-6-5 or 32K color 5-5-5 bypass. Mixed mode switching can be controlled by hardware or software, easing design implementation.

CH8398A is fully compatible with VGA, VESA, Super-VGA, XGATM, TARGATM, 8514, and other non-standard frequencies, while providing many other enhanced features.



Figure 1: Block Diagram