

**STANDARD MICROSYSTEMS  
CORPORATION**

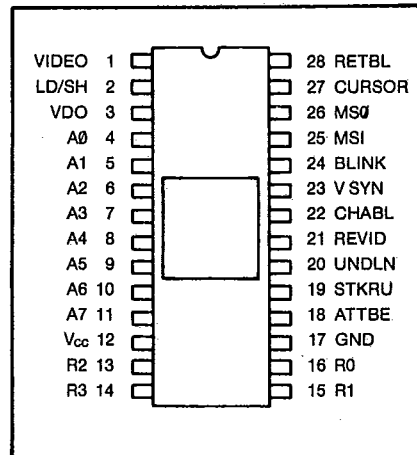
**CRT 8021  
CRT 8021-003**

## CRT Video Attributes Controller Video Generator VAC

### FEATURES

- ON CHIP VIDEO SHIFT REGISTER  
Maximum shift register frequency—20MHz  
Maximum character clock rate—2.5MHz
- ON CHIP HORIZONTAL AND VERTICAL RETRACE  
VIDEO BLANKING
- ON CHIP GRAPHICS GENERATION
- ON CHIP ATTRIBUTE LOGIC-CHARACTER, FIELD  
Reverse video  
Character blank  
Character blink  
Underline  
Strike-thru
- ON CHIP BLINKING CURSOR
- ON CHIP DATA BUFFER
- ON CHIP ATTRIBUTE BUFFER
- +5 VOLT OPERATION
- TTL COMPATIBLE
- MOS N-CHANNEL SILICON-GATE COPLAMOS®  
PROCESS

### PIN CONFIGURATION



- COMPATIBLE WITH CRT 5027/37 VTAC® AND  
CRT 9007 VPAC

### GENERAL DESCRIPTION

The SMC CRT 8021 Video Attributes Controller (VAC) is an n-channel COPLAMOS® MOS/LSI device. It contains wide and thin graphics logic, attributes logic, a data latch, field and character attribute latch, a blinking cursor, and a high speed video shift register. The CRT 8021 VAC is a companion to SMC's CRT 5027/37 VTAC® or CRT 9007 VPAC. The CRT 8021 and a character ROM combined with either a CRT 5027/37 or a CRT 9007 comprises the major circuitry required for the display portion of a CRT video terminal.

The CRT 8021 video output may be connected directly to a CRT monitor video input. The CRT 5027/37 or CRT 9007 blanking output can be connected directly to the CRT 8021 retrace blank input to provide both horizontal and vertical retrace blanking of the video output.

A blinking cursor is available on the CRT 8021. There is a separate cursor blink rate which is twice the character blink rate and has a duty cycle of 50/50.

The CRT 8021 attributes include: reverse video, character blank, blink, underline, and strike-thru. The character blink rate has a duty cycle of 75/25. The underline and

strike-thru are similar but independently controlled functions. These attributes are available in all modes.

The thin graphic mode enables the user to create single line drawings and forms.

In the wide graphic mode the CRT 8021 produces a graphic entity the size of the character block. The graphic entity contains 8 parts, each of which is associated with one bit of a graphic byte, thereby providing 256 unique graphic symbols. Thus, the CRT 8021 can produce either alphanumeric symbols or various graphic entities depending on the mode selected. The mode can be changed on a per character basis.

The CRT 8021 is available in two versions. The CRT 8021 provides an eight-part graphic entity which fills the character block. The CRT 8021 is designed for seven dot wide, nine or eleven dot high characters in nine by twelve or ten by twelve character blocks.

The CRT 8021-003 provides a six part graphic entity for five by seven or five by nine characters in character blocks of up to seven by ten dots.