



## TV ENCODER

### GENERAL DESCRIPTION

The W9953F/ W9954F is a high performance digital video encoder which converts a 4:2:2 ITU-R 601/656 digital video stream into a standard analog base band composite video and Y/C video signals, which compatible with worldwide standards.

The W9953F/ W9954F can operate in either master or slave mode and interlaced or non-interlaced mode. The on-chip 2X over sampling eases the analog post-filtering. Three 10-bit resolution D/A converters provide Y,C and CVBS signals, all in standard video-level at doubly terminated 75  $\Omega$  loads.

The chips provide Closed-Caption, WSS/ CGMS and teletext functions.

The W9953F also provides Macrovision 7.01 copy protection, but W9954F doesn't provide this function.

### FEATURES

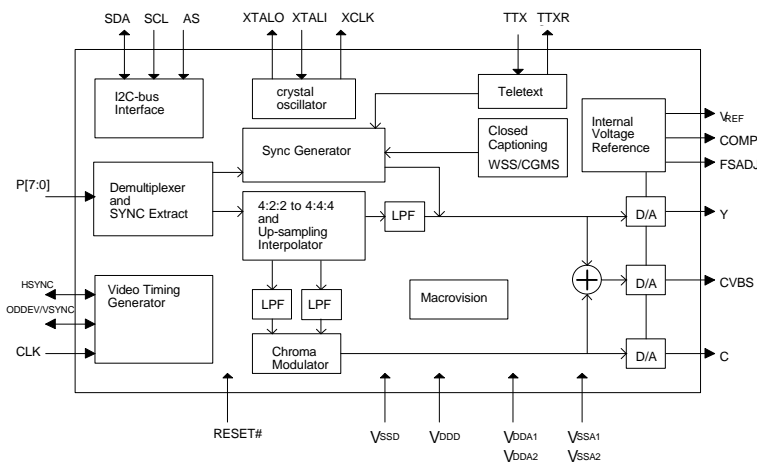
- Full multi-standard digital encoder supports NTSC-M, PAL-B, D, G, H, I, N and M encoding
- Accepts ITU-R 601/ 656 8-bit YCbCr (4:2:2) input format
- Three 10-bit DACs, run at 2X pixel rate, provide Y,C and CVBS outputs.

- Master or slave operation modes
- Programmable sync polarity and horizontal phase
- Programmable Y/C delay relationship
- Sync extraction from digital input data
- Interlaced or non-interlaced operation
- Closed captioning and WSS/CGMS encoding
- PAL-WST Teletext encoding
- Fast I<sup>2</sup>C-bus control port
- Macrovision Rev 7.01 copy protection process (W9953F only)
- On chip color-bar generator
- Internal voltage reference
- Power down mode
- Monolithic CMOS 3.3V (5V) device
- 44-pin QFP package

### APPLICATIONS

W9953F/ W9954F is designed for digital video applications, such as DVD (Digital Versatile Disc), players STBs (Set-Top Box), Multimedia PCs and other video equipment.

### FUNCTIONAL BLOCK



Note,

The difference between W9953F and W9954F is W9953F provides Macro-vision 7.01 copy protection, but W9954F doesn't provide this function.

The W9953F may be purchased by Macrovision Authorized Buyers only.

This device is protected by U.S. Patent numbers 4,631,603, 4,577,216 and 4,819,098, and other intellectual property rights. The use of Macro-vision's copy protection technology in this device must be authorized by Macrovision and is intended for home and other limited pay-per-view uses only, unless otherwise authorized in writing by Macrovision. Reverse engineering or disassembly is prohibited.

**Winbond Corporate Headquarters**  
Tel : 886-3-5790666  
Fax : 886-3-5796139

**Taipei Sales Office**  
Tel : 886-2-27190505  
Fax : 886-2-27197502

**Winbond Electronics North America Corp.**  
Tel : 1-408-943666  
Fax : 1-408-9436668

**Winbond Electronics H.K. Ltd.**  
Tel : 852-27513100  
Fax : 852-27552064