

OKI Semiconductor

ML86V7665

Preliminary

NTSC/PAL/SECAM Digital Video Decoder

GENERAL DESCRIPTION

The ML86V7665 is an LSI that converts NTSC, PAL and SECAM analog video signals into the YCbCr standard digital format defined by ITU-R BT.656 digital data.

The device has one built-in 10-bit A/D converter channels and can accept composite signal as input.

The composite video signal is separated into a luminance signal and chrominance signals by a 2-dimensional Y/C separation filter (adaptive comb filter) and are then converted to a general-purpose video data format.

In addition to the asynchronous sampling that is a special feature of Oki decoders, video signals can also be sampled using digital PLL for line lock clock sampling.

Further, with the built-in pixel position correction circuit and the FIFO for correcting the pixel count, the video jitter that can be a problem with asynchronous sampling is eliminated and jitter-free output data is ensured.

USES AND APPLICATIONS

The ML86V7665 is an IC that can be used as an interface for video signal input of any digital video processing system. The device can be operated with a digital PLL line lock clock for applications where image quality is of utmost importance.

Applications

- Security Video Camera
- Mobile Video equipment
- Video recording equipment
HDD recorders, digital VTRs, digital video cameras, and digital cameras
- Security Monitoring systems
Multi-display equipment, long-playing video recording equipment, and transmission equipment for remote monitoring
- PC peripheral equipment
Video capture boards, video editing equipment, and internet monitoring cameras

FEATURES

Input Section

- Accepts NTSC/PAL/SECAM composite video signals and S-video signals (NTSC/PAL)
- 4 composite inputs with 4 to 1 switch
- Built-in clamp circuits and video amps
- Built-in one 10-bit A/D converters
- Switchable between line lock clock sampling mode and asynchronous sampling mode
- Supported operating modes: Pixel frequency (sampling clock):

NTSC/PAL/SECAM ITU-R BT.601	: 13.5 MHz (27 MHz)
NTSC Square Pixel	: 12.272727 MHz (24.545454 MHz)
PAL Square Pixel	: 14.75MHz(29.5MHz)

Digital Processing Section

- 2-dimensional Y/C separation using an adaptive filter
 - NTSC: Adaptive filter
 - PAL: Adaptive filter
 - SECAM: Trap filter
- Recognition of data in the VBI period (closed caption, CGMS, WSS) and function of reading from I²C-bus (detection possible in all operating modes)
- Copy protection (analog copy protection signal) detection
- Capable of decoding specially standardized signals such as NTSC443, PAL-Nc, M, and 60
Automatic determinations can also be made partially by register settings.
- Built-in AGC/ACC circuits (automatic luminance level control/automatic color level control)
- Automatic NTSC/PAL/SECAM recognition (only in ITU-R BT.601 mode)

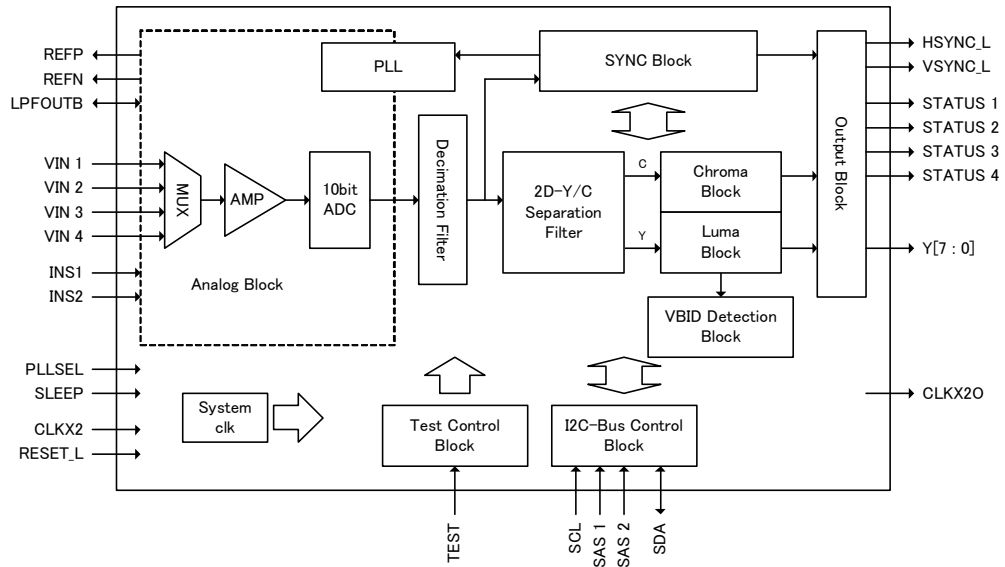
Output Section

- Four selectable output interfaces:
 - ITU-R BT.656-4 (8 bits (Y/CbCr)) : ITU-R BT.656 mode
 - Y/CbCr (8 bits (Y/CbCr) (4:2:2) + Sync.) : 8-bit mode
- Output pixel count correction via internal FIFO
- Sleep mode
- Output pins go to Hi-Z during reset period (excluding SDA, CLKXO, and CLKX2O)
- Polarity inversion of the field signal and vertical sync signal

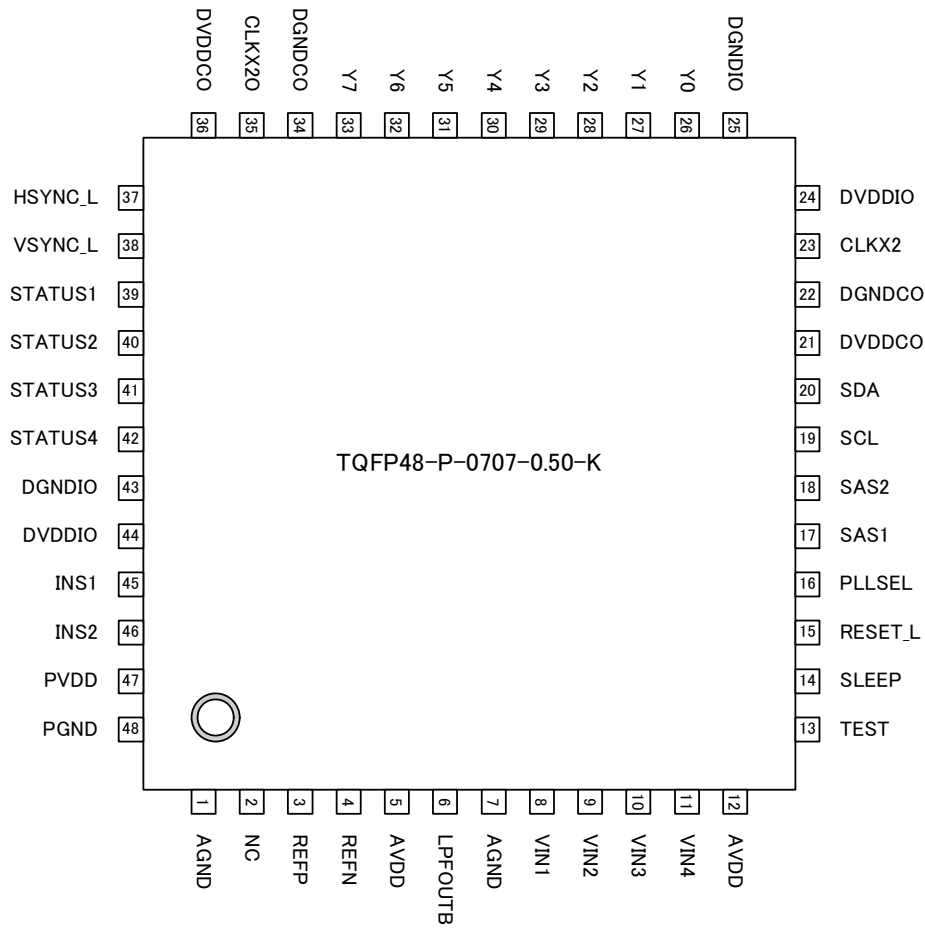
Other Sections

- I²C-bus interface
- I/O: 3.3 V power supply,
Core: 1.5 V power supply
- Low power consumption: 210 mW(Max.)
- Package: 48-pin plastic TQFP (TQFP48-P-0707-0.50-K)

BLOCK DIAGRAM



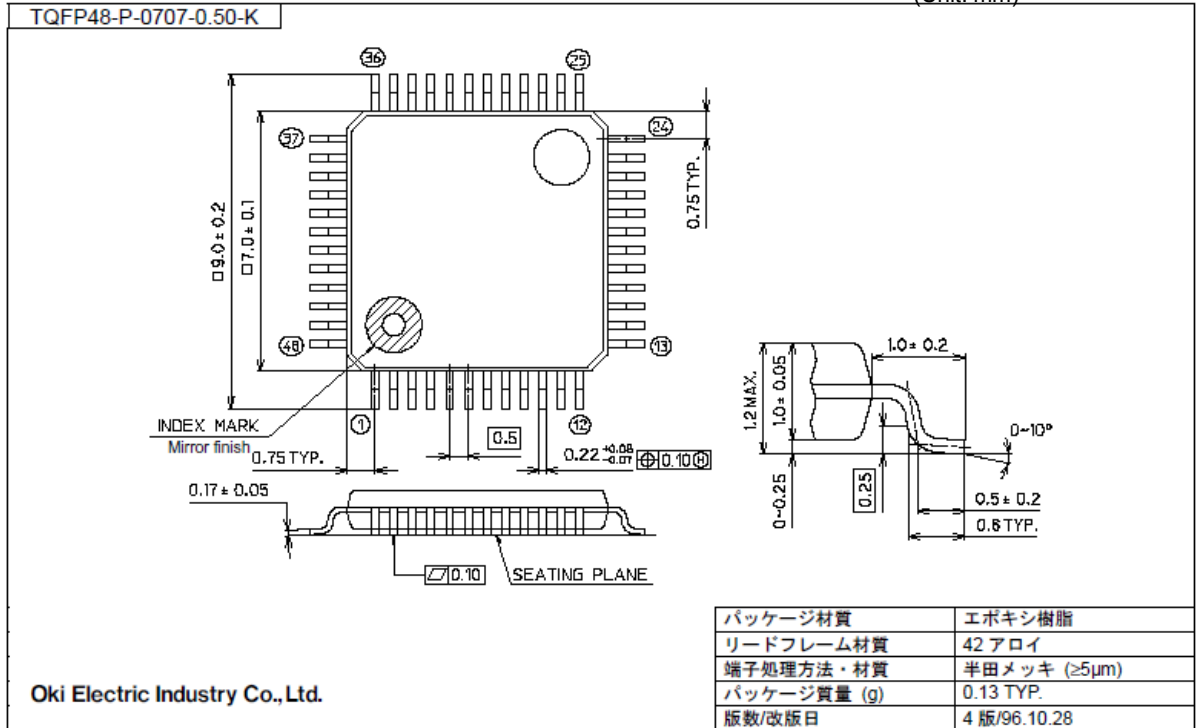
PIN CONFIGURATION (TOP VIEW)



48-Pin Plastic TQFP (TQFP48-P-0707-0.50-K)

PACKAGE DIMENSIONS

(Unit: mm)



Notes for Mounting the Surface Mount Type Package

The surface mount type packages are very susceptible to heat in reflow mounting and humidity absorbed in storage. Therefore, before you perform reflow mounting, contact Oki's responsible sales person for the product name, package name, pin number, package code and desired mounting conditions (reflow method, temperature and times).