Application Note 61

TMC22x5y Revision D Silicon Update

The following list of functional anomalies have been found on the TMC22x5y revision D family of digital decoders. These functional anomalies are described in detail and cross references to application notes are provided whenever possible. Functional anomalies that are not detailed have no known workaround.

Functional anomalies

1. *Super Blacks clipped below pedestal*
2. *PAL subcarrier mode nonfunctional*
3. *Black level clamp problem with noisy input sources*
4. *F bit within the embedded TRS words, one line early, in the D1 output*
5. *FID[2:0] pins nonfunctional*
6. *PAL burst lock loop problem*
7. *Spike on the luminance output during the horizontal blanking period*
8. *Luma error x2 gain nonfunctional*
9. *YBAL problem*

Super Blacks clipped below pedestal

The luminance signal below the pedestal level is clipped within the output processor. A possible workaround is described in TMC22x5y_APPS1.

Black level clamp problem with noisy input sources

Systems containing low frequency white noise can produce lsb changes in the internal digital clamp level. A possible workaround is described in TMC22x5y_APPS4.

F bit within the embedded TRS words, one line early, in the D1 output

This causes a one line vertical shift in systems using the embedded F signal to synchronize their vertical state machines. If the V bit, i.e. the vertical blanking, is less important then the VSYNC supplied to the TMC22x5y can be sent one line sooner to offset the F flag.

PAL burst lock loop problem

To overcome this problem simply strobe the SET pin whenever the input is changed, a temporary loss of sync is detected, or just on a regular basis during the vertical sync interval.

YBAL problem

The YBAL register bit forces the chroma channel to zero whenever the luminance signal reaches the maximum or minimum level. Unfortunately, if the msb of the B/Y and R/V outputs have been inverted to produce an offset binary output, e.g. for Cb and Cr, then these outputs are also forced to zero. Therefore the YBAL feature can not be used by the OPCMSB register bit is set HIGH.