M08046

3G/HD/SD Serial Digital Video Cable Equalizer With Dual Outputs

The M08046 is a high-speed, low-power, adaptive co-axial cable equalizer designed to increase the maximum low-jitter transmission distance of serial digital video signals across commonly used bandwidth-limiting 75Ω coaxial cable.

The M08046 is designed for data rates at 2.97 Gb/s, 1.485 Gb/s, and 270 Mb/s to support serial digital video transmission for standard definition (525i and 625i) and high definition (720p, 1080i, and 1080p) component video. The device also supports 8-bit or 10-bit component digital video (RGB or YCbCr 4:4:4 sampled and YCbCr 4:2:2 or 4:2:0 sampled).

This device automatically optimizes the transfer function based on the bit rate and cable length to minimize the inter-symbol interference (ISI) jitter caused by the cable and to remove the DC offset components introduced with the pathological video pattern and AC coupling in systems.

The low-noise, high-gain equalizer allows for low jitter 2.97 Gb/s transmissions up to 100m (Belden 1694A), 1.485 Gb/s transmissions up to a length of 200m (Belden 1694A) and 120m (Belden 8281). At 270 Mb/s, cable lengths up to 400m (Belden 1694A) and 300m (Belden 8281) are supported.

Applications

- Digital Video Recorders (DVR)
- Video Mixers and Switchers
- Surveillance / CCTV Cameras
- Industrial and Professional Cameras
- Digital Image Capture Devices
- Digital Video Displays
- Distribution Amplifiers
- Repeaters
# Features

<table>
<thead>
<tr>
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<th>Benefits</th>
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<tr>
<td>Adaptive cable equalization</td>
<td>Design flexibility and control</td>
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<tr>
<td>Optimized data rates at 270 Mb/s, 1.485 Gb/s, and 2.97 Gb/s</td>
<td>Single Chip Solution for multiple data rates</td>
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<tr>
<td>Allows typical equalized length of up to 100m (Belden 1694A) for transmissions at 2.97 Gb/s</td>
<td>Extend industry standard cable lengths</td>
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<tr>
<td>Allows typical equalized length of up to 200m (Belden 1694A) and 120m (Belden 8281) for transmissions at 1.485 Gb/s</td>
<td>Extend industry standard cable lengths</td>
</tr>
<tr>
<td>Allows typical equalized length of up to 400m (Belden 1694A) and 300m (Belden 8281) for transmissions at 270 Mb/s</td>
<td>Extend industry standard cable lengths</td>
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<tr>
<td>Mute and manual bypass mode</td>
<td>Supports non standard rates</td>
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<tr>
<td>Differential CML outputs (50 Ω on-chip terminations)</td>
<td>Low cost integration</td>
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<tr>
<td>2.5V or 3.3V power supply</td>
<td>Standard voltage supply supported</td>
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<tr>
<td>Small form factor and foot print (5x5 mm², 32-pin QFN package)</td>
<td>Industry standard package</td>
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<tr>
<td>Low power dissipation (175mW at 2.5V, 230mW at 3.3V)</td>
<td>Low power and thermal management costs</td>
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<td>Extended operating temperature range: –10°C to +85 °C</td>
<td>Provides additional margin for various applications</td>
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**M08046 - Cable Equalizer**

- SDI
- SDI
- INPUT BUFFER
- EQUALIZER CORE
- CABLE LENGTH INDICATOR
- CLEN
- EQ_BYP
- THRESH
- SWING_L/H
- MUTE
- CONTROL LOGIC
- OUTPUT BUFFER
- SDO1
- SDO1
- SDO2
- SDO2
- SDO2_EN

**Figure 2 – M08046 Functional Block Diagram**

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**Package (RoHS Compliant)**

- 5x5 mm², 32-pin QFN

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