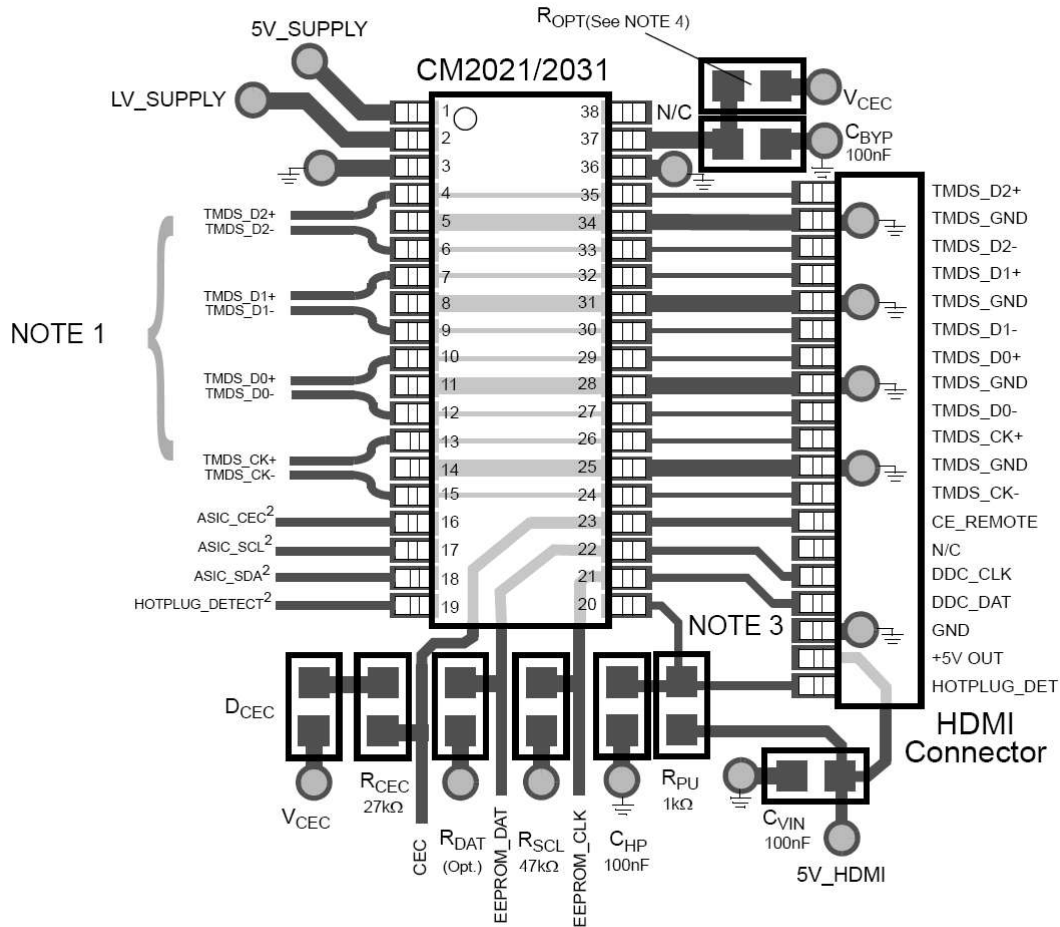


## LAYOUT NOTES

- <sup>1</sup> Differential TMDS Pairs should be designed as normal 100Ω HDMI Microstrip. *Single Ended (decoupled) TMDS traces underneath MediaGuard™, and traces between MediaGuard™ and Connector should be tuned to match chip/connector IBIS parasitics. (See MediaGuard™ Layout Application Notes.)*
- <sup>2</sup> Level Shifter signals should be biased with a weak pullup to the desired local LV\_SUPPLY. If the local ASIC includes sufficient pullups to register a logic high, then external pullups may not be needed.
- <sup>3</sup> Place MediaGuard™ as close to the connector as possible, and as with any controlled impedance line always avoid placing any silkscreen printing over TMDS traces.
- <sup>4</sup> CM2020/CM2030 footprint compatibility. For the CM2030, Pin 37 becomes the V\_CEC power supply pin for the slew-rate limiting circuitry. This can be supplied by a 0Ω jumper to V\_CEC which should be depopulated to utilize the CM2020. The 100nF C\_BYP is recommended for all applications.
- <sup>5</sup> CEC pullup isolation. The 27k R\_CEC and a Schottky D\_CEC provide required isolation for the CEC pullup.



## LAYOUT NOTES

<sup>1</sup> Differential TMDS Pairs should be designed as normal 100Ω HDMI Microstrip. *Single Ended (decoupled) TMDS traces underneath MediaGuard™, and traces between MediaGuard™ and Connector should be tuned to match chip/connector IBIS parasitics. (See MediaGuard™ Layout Application Notes.)*

<sup>2</sup> Level Shifter signals should be biased with a weak pullup to the desired local LV\_SUPPLY. If the local ASIC includes sufficient pullups to register a logic high, then external pullups may not be needed.

<sup>3</sup> Place MediaGuard™ as close to the connector as possible, and as with any controlled impedance line always avoid placing any silkscreen printing over TMDS traces.

<sup>4</sup> CM2021/CM2031 footprint compatibility. For the CM2031, Pin 37 becomes the V<sub>CEC</sub> power supply pin for the slew-rate limiting circuitry. This can be supplied by a 0Ω jumper to V<sub>CEC</sub> which should be depopulated to utilize the CM2021. The 100nF C<sub>BYN</sub> is recommended for all applications.

<sup>5</sup> CEC pullup isolation. The 27k R<sub>CEC</sub> and a Schottky D<sub>CEC</sub> provide required isolation for the CEC pullup.

PLEASE REVIEW ALL OF THE CURRENT HDMI DESIGN GUIDELINES AVAILABLE AT

<http://www.calmicro.com/applications/customer/downloads/current-cmd-mediaguard-design-guidelines.zip>

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