GAUGECHANGER™

Features

Versatile EQ

- Dual channel equalization
- Supports line rates up to 28Gbaud
- Equalizes channel response beyond 14GHz
- Wideband equalization handles 64b/66b and 128b/130b coded data

Highly linear

- Works with PAM-4 signals for 56Gb/s
- Allows the receiver EQ to adapt and further equalize the signal
- Fully preserves effects of transmit pre-emphasis adjustments
- Instantly tracks muted periods of line silence
- FEC compatible
- No time needed to adjust for dynamic rate changes

Compact Package

- Compact 2.7mm x 4.2mm 38-ball CSP
- Dual channel package ideal for top/bottom routing on QSFP+, uQSFP, QSFP-DD, OSFP, SFP+, SFP-DD modules

Low Power

- Operates off a single 3.3V power supply
- Each channel has independent equalization settings and standby control
- Consumes <150mW per active data line
- Consumes <3.5mW when both data lines in standby

SPECTRA7®

GC2502 Data Center Cable Processor

Dual Channel 28Gb/s Linear Equalizer IC

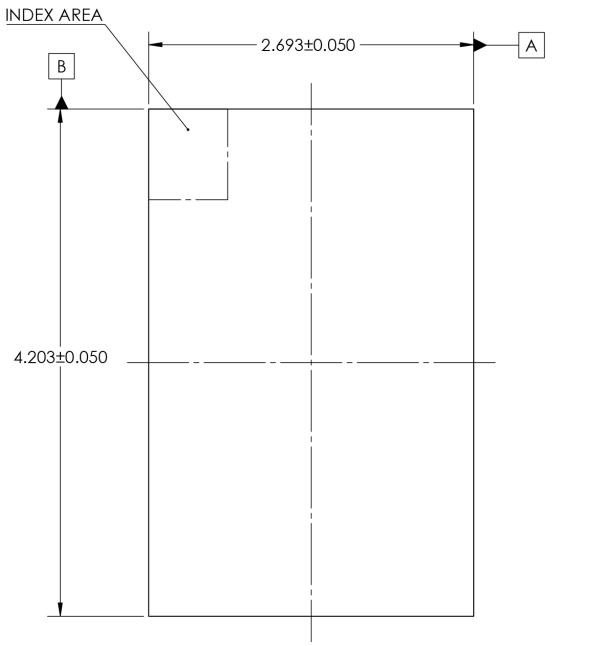
High-performance data centers deploy interconnects running at 25-28Gbaud lines speeds, used by protocols such as 100Gb/s Ethernet and InfiniBand EDR. Eight-lane interconnects are able to achieve 200Gb/s throughput using conventional binary NRZ signaling, and emerging multi-level PAM-4 schemes are able to double this throughput, achieving 400Gb/s. However, these speeds severely stress the signal integrity limits of copper cables carrying such high bandwidth data. Consequently, copper interconnects for these applications have been relegated to very short and thick cables to maintain signal integrity.

The GC2502 provides a new option over the conventional choice between short, bulky copper cables and power-hungry, expensive optical interconnects by enhancing the signal integrity on copper cables while supporting 28GBaud line rates. With dual-channel linear equalization, low input/output return loss, and high common mode rejection, the GC2502 is ideal for 28Gbaud copper interconnects. Furthermore, its small 2.7mm x 4.2mm form factor and sub 150mW per active channel power consumption, make it suitable for active cable applications where it has the additional benefit of dramatically increasing the signal to near-end-crosstalk noise ratio by equalizing and boosting the received signal before it traverses a noisy connector.

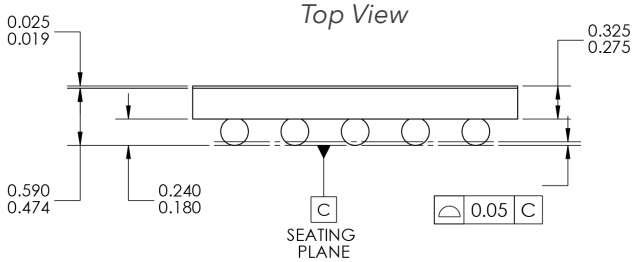
The GC2502 provides 15dB of equalization at 14GHz , with a peak response beyond 14GHz to ensure adequate bandwidth for 28Gbaud signals. While data center transceivers employ advanced equalization schemes, their limits are evident from the tight channel constraints imposed by standards bodies to limit the amount of signal degradation. By employing the GC2502 in an active copper cable, thinner and longer cables can be constructed that meet these stringent requirements. And, because the equalization in the GC2502 is highly linear, dynamics like line rate adjustment, intermittent line silence, transmit pre-emphasis or amplitude adjustment, and receiver adaptivity are fully preserved.

GC2502 Dimensions and PCB

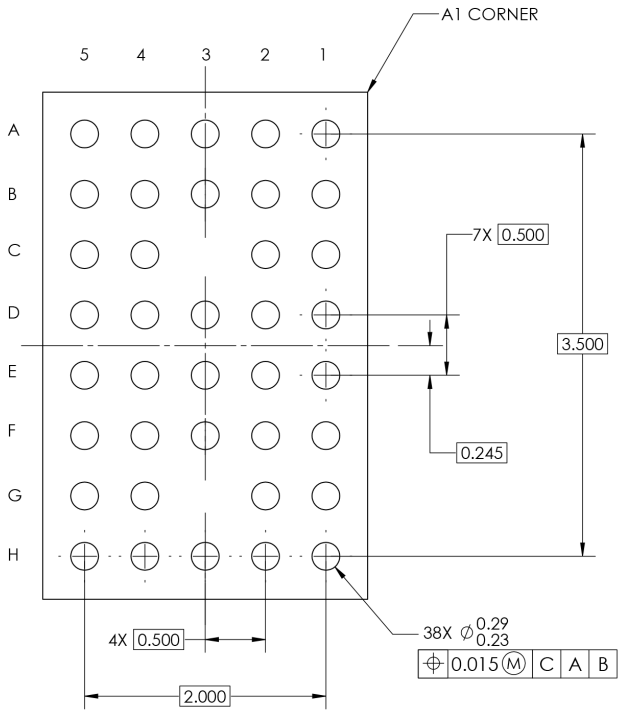
All dimensions in millimeters.



Top View



Side View



Bottom View

Ordering Information

Part Number	Description
GC2502-S-01	Dual Channel 28Gb/s Linear Equalizer IC (B0)

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