GAUGECHANGER™

Features

Versatile EQ

- Dual channel with typical 18dB of equalization at Nyquist
- Supports line rates up to 112Gbps PAM-4 (56Gbaud)
- Wideband equalization handles 64b/66b and 128b/130b coded data

Highly linear

- Works with PAM-4 (112Gb/s) signals
- Allows the receiver EQ to adapt and further equalize the signal
- Preserves effects of transmit pre-emphasis adjustments
- FEC compatible
- No time needed to adjust for dynamic rate changes

Compact Package

- Compact 2.68mm x 4.18mm 41-ball CSP, 0.4mm pitch
- Dual channel package ideal for top/bottom routing on SFP, SFP-DD, DSFP, QSFP, QSFP-DD, OSFP, OSFP-XD modules

Low Power

- Operates off a single 3.3V power supply
- Each channel has independent 4 equalization controls and standby control
- Low active and standby power

GC1122

Dual Channel 112Gb/s PAM-4 Linear Equalizer

High performance data centers are developing equipment for 112Gbps PAM-4. They will be deploying interconnects running at 56Gbaud line speeds, used by protocols such as 802.ck and InfiniBand XDR. Eight-lane interconnects are able to achieve 800Gb/s throughput using multi-level PAM-4 scheme. However, these speeds severely stress the signal integrity limits of copper cables carrying such high bandwidth data. Consequently, copper interconnects for these applications expect to be relegated to very short and thick cables to maintain signal integrity.

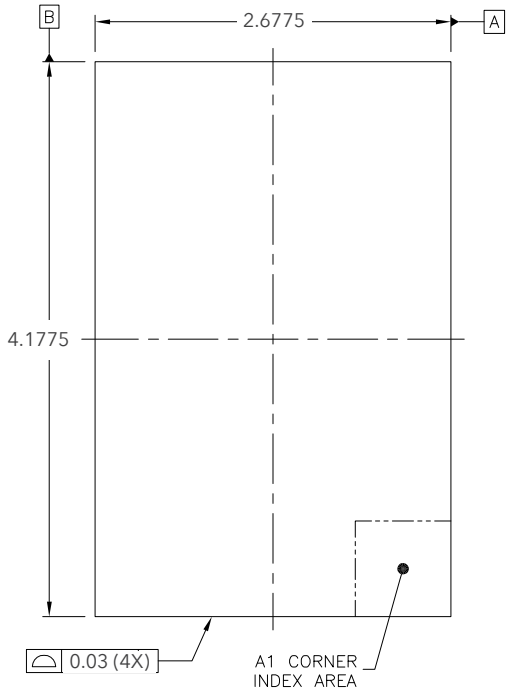
The GC1122 provides a new option over the conventional choice between short, bulky copper cables and power-hungry, expensive optical interconnects by enhancing the signal integrity on copper cables while supporting 112Gbps PAM-4 signals. With dual-channel linear equalization, the GC1122 is ideal for 112Gbps PAM-4 copper interconnects. Furthermore, its small form factor and typical 180mW per channel consumption, make it suitable for active cable applications to fit in the existing metal shells of various form factors (e.g. QSFP, QSFP-DD, OSFP-XD) without the need of an additional heat sink.

The GC1122 can provide typical 18dB of equalization at Nyquist with a peak response beyond 35GHz for 112Gbps PAM-4 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 GC1122 in an active copper cable, thinner and longer cables can be constructed that meet these stringent requirements. And, because the equalization in the GC1122 is highly linear, dynamics like line rate adjustment, transmit pre-emphasis or amplitude adjustment, and receiver adaptivity will be preserved.

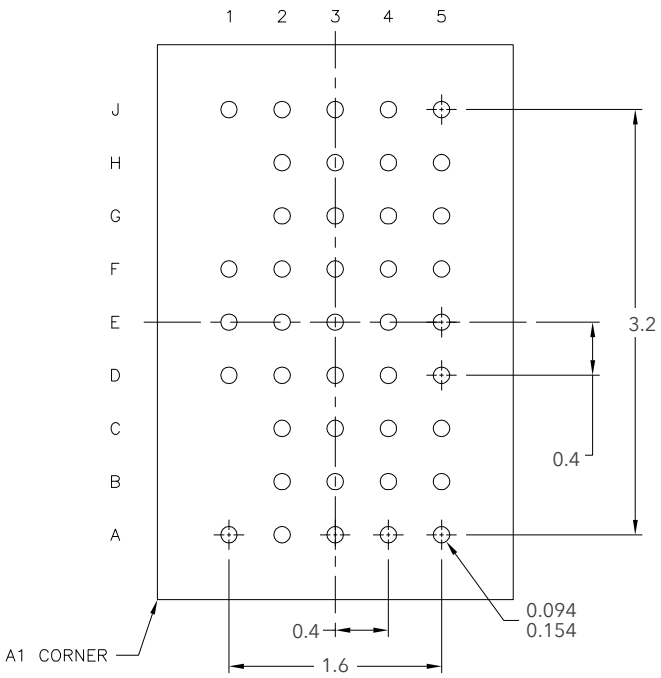
SPECTRA7®

GC1122 Package Dimensions (Preliminary)

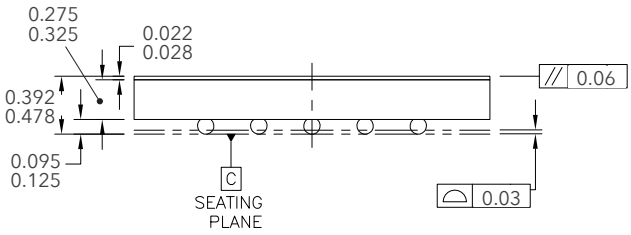
All dimensions in millimeters.



Top View



Bottom View



Side View

Revision History

Revision	Date	Description
Rev 1.0	5/15/24	Initial Release

Ordering Information

Part Number	Description
GC1122B0-C-R	Dual Channel 112Gbps PAM-4 Linear Equalizer (B0)

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