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GS2994 Adaptive Cable Equalizer

Key Features

- SMPTE 424M, SMPTE 292M and SMPTE 259M compliant
- Automatic cable equalization
- Multi-standard operation from 143Mb/s to 2.97Gb/s
- Performance optimized for 270Mb/s, 1.485Gb/s and 2.97Gb/s. Typical equalized length of Belden 1694A cable:
 - ◆ 140m at 2.97Gb/s
 - ◆ 200m at 1.485Gb/s
 - ◆ 400m at 270Mb/s
- Supports DVB-ASI at 270Mb/s
- Manual bypass (useful for low data rates with slow rise/fall times)
- Programmable carrier detect with squelch threshold adjustment
- Automatic power-down on loss of signal
 - ◆ Standby power <30mW (typical)
- Differential outputs support DC-coupling to 1.2V, 2.5V and 3.3V CML logic
- 0/6 dB gain boost selection pin
- Selectable de-emphasis: 2dB, 4dB and 6dB
- Standard EIA/JEDEC logic control and status signal levels
- Single 3.3V power supply operation
- 167mW power consumption (typical)
- Wide operating temperature range of -40°C to +85°C
- Small footprint QFN package (4mm x 4mm)
 - ◆ Footprint compatible with the GS2974 and the GS2984
- Pb-free and RoHS compliant

Applications

- SMPTE 424M, SMPTE 292M and SMPTE 259M coaxial cable serial digital interfaces

Description

The GS2994 is a high-speed BiCMOS integrated circuit designed to equalize and restore signals received over 75Ω coaxial cable.

The device is designed to support SMPTE 424M, SMPTE292M and SMPTE 259M, and is optimized for performance at 270Mb/s, 1.485Gb/s and 2.97Gb/s.

The GS2994 features DC restoration to compensate for the DC content of SMPTE pathological test patterns.

The Carrier Detect output pin (\overline{CD}) indicates whether a valid input signal has been detected. It can be connected directly to the SLEEP pin to enable automatic power-down upon loss of carrier. In the manual sleep mode, a voltage programmable threshold, which can be changed via the SQ_ADJ pin, forces \overline{CD} high when the input signal amplitude falls below the threshold. This allows the GS2994 to distinguish between low-amplitude SDI signals and noise at the input of the device.

The equalizing and DC restore stages are disengaged when the BYPASS pin is HIGH. No equalization occurs in Bypass mode.

The GS2994 includes a gain selection pin (GAIN_SEL) which, when tied HIGH, compensates for 6dB flat attenuation.

The differential outputs can be DC-coupled to Gennum 3.3V cable drivers and reclockers and to industry-standard 1.2V, 2.5V and 3.3V CML logic using the VCC_O pin. In general, DC-coupling to any termination voltage between 1.2V and 3.3V is supported.

The GS2994 also includes programmable de-emphasis with three operating levels in order to support long PCB traces.

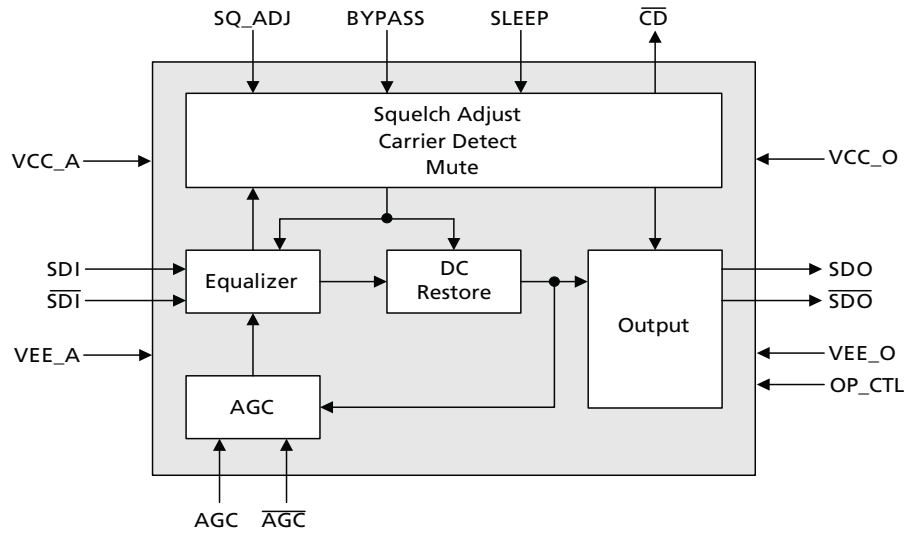
The GS2994 is footprint and drop-in compatible with existing GS2974 and GS2984 designs.

The device is available in a 16-pin, 4mm x 4mm QFN package.

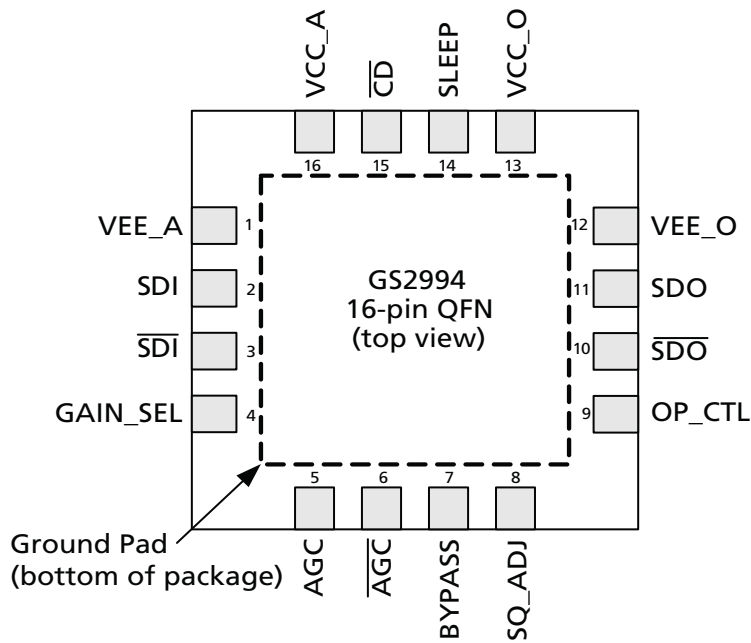
Power consumption of the GS2994 is typically 167mW when DC-coupled at 1.2V.

The GS2994 is Pb-free, and the encapsulation compound does not contain halogenated flame retardant.

This component and all homogeneous subcomponents are RoHS compliant.



GS2994 Functional Block Diagram



GS2994 Pin Out

DOCUMENT IDENTIFICATION
PRODUCT BRIEF

The product is in a development phase and specifications are subject to change without notice. Gennum reserves the right to remove the product at any time. Listing the product does not constitute an offer for sale.

CAUTION

ELECTROSTATIC SENSITIVE DEVICES
DO NOT OPEN PACKAGES OR HANDLE EXCEPT AT A
STATIC-FREE WORKSTATION



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