



## 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.

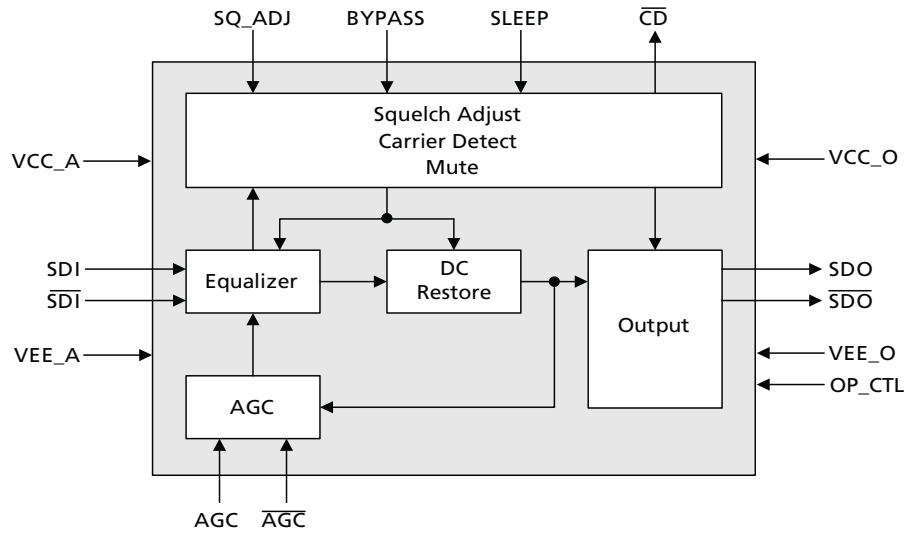
The GS2994 is footprint and drop-in compatible with existing GS2974 and GS2984 designs.

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

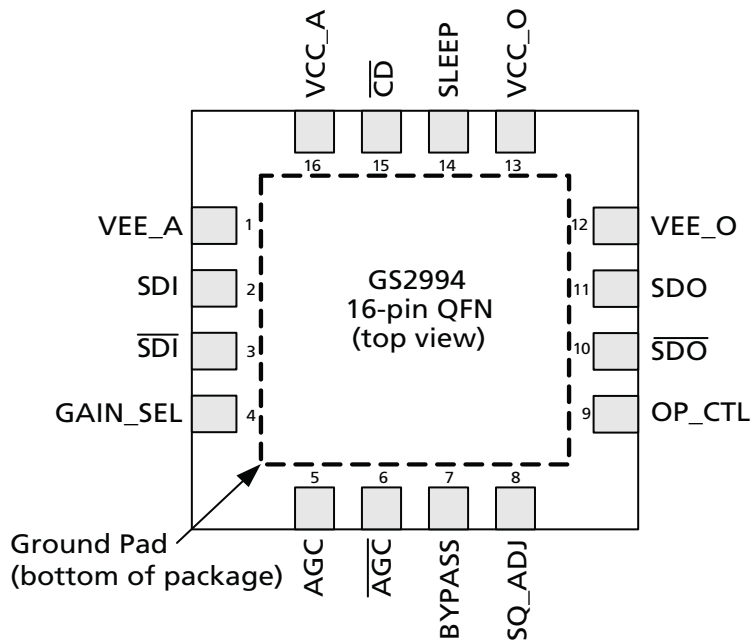
Power consumption of the GS2994 is typically 167mW when DC-coupled at 1.2V.

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

---

**GENNUM CORPORATE HEADQUARTERS**

4281 Harvester Road, Burlington, Ontario L7L 5M4 Canada

Phone: +1 (905) 632-2996

E-mail: [corporate@gennum.com](mailto:corporate@gennum.com)

Fax: +1 (905) 632-2055

[www.gennum.com](http://www.gennum.com)

---

**OTTAWA**232 Herzberg Road, Suite 101  
Kanata, Ontario K2K 2A1  
Canada

Phone: +1 (613) 270-0458

Fax: +1 (613) 270-0429

**CALGARY**3553 - 31st St. N.W., Suite 210  
Calgary, Alberta T2L 2K7  
Canada

Phone: +1 (403) 284-2672

**UNITED KINGDOM**North Building, Walden Court  
Parsonage Lane,  
Bishop's Stortford Hertfordshire, CM23 5DB  
United Kingdom

Phone: +44 1279 714170

Fax: +44 1279 714171

**INDIA**#208(A), Nirmala Plaza,  
Airport Road, Forest Park Square  
Bhubaneswar 751009  
India

Phone: +91 (674) 653-4815

Fax: +91 (674) 259-5733

**SNOWBUSH IP - A DIVISION OF GENNUM**439 University Ave. Suite 1700  
Toronto, Ontario M5G 1Y8  
Canada

Phone: +1 (416) 925-5643

Fax: +1 (416) 925-0581

E-mail: [sales@snowbush.com](mailto:sales@snowbush.com)Web Site: <http://www.snowbush.com>**MEXICO**288-A Paseo de Maravillas  
Jesus Ma., Aguascalientes  
Mexico 20900

Phone: +1 (416) 848-0328

**JAPAN KK**Shinjuku Green Tower Building 27F  
6-14-1, Nishi Shinjuku  
Shinjuku-ku, Tokyo, 160-0023  
Japan

Phone: +81 (03) 3349-5501

Fax: +81 (03) 3349-5505

E-mail: [gennum-japan@gennum.com](mailto:gennum-japan@gennum.com)Web Site: <http://www.gennum.co.jp>**TAIWAN**6F-4, No.51, Sec.2, Keelung Rd.  
Sinyi District, Taipei City 11502  
Taiwan R.O.C.

Phone: (886) 2-8732-8879

Fax: (886) 2-8732-8870

E-mail: [gennum-taiwan@gennum.com](mailto:gennum-taiwan@gennum.com)**GERMANY**Hainbuchenstraße 2  
80935 Muenchen (Munich), Germany

Phone: +49-89-35831696

Fax: +49-89-35804653

E-mail: [gennum-germany@gennum.com](mailto:gennum-germany@gennum.com)**NORTH AMERICA WESTERN REGION**691 South Milpitas Blvd., Suite #200  
Milpitas, CA 95035  
United States

Phone: +1 (408) 934-1301

Fax: +1 (408) 934-1029

E-mail: [naw\\_sales@gennum.com](mailto:naw_sales@gennum.com)**NORTH AMERICA EASTERN REGION**4281 Harvester Road  
Burlington, Ontario L7L 5M4  
Canada

Phone: +1 (905) 632-2996

Fax: +1 (905) 632-2055

E-mail: [nae\\_sales@gennum.com](mailto:nae_sales@gennum.com)**KOREA**8F Jinnex Lakeview Bldg.  
65-2, Bangidong, Songpagu  
Seoul, Korea 138-828

Phone: +82-2-414-2991

Fax: +82-2-414-2998

E-mail: [gennum-korea@gennum.com](mailto:gennum-korea@gennum.com)

---

Gennum Corporation assumes no liability for any errors or omissions in this document, or for the use of the circuits or devices described herein. The sale of the circuit or device described herein does not imply any patent license, and Gennum makes no representation that the circuit or device is free from patent infringement.

All other trademarks mentioned are the properties of their respective owners.

GENNUM and the Gennum logo are registered trademarks of Gennum Corporation.

© Copyright 2009 Gennum Corporation. All rights reserved.

[www.gennum.com](http://www.gennum.com)

## Данный компонент на территории Российской Федерации

### Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

### Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: [info@moschip.ru](mailto:info@moschip.ru)

Skype отдела продаж:

moschip.ru

moschip.ru\_4

moschip.ru\_6

moschip.ru\_9