

### FEATURES

- Automatic gain control
- DC Restorer for immunity to SDI pathological bit patterns
- Supports SDI data rates from 143Mb/s to 1.485Gb/s
- Signal strength indicator
- Internal 50 ohm output termination resistors
- Minimal external components
- Seamless output interface to other HD-LINX devices
- Single +5V or -5V power supply

### APPLICATIONS

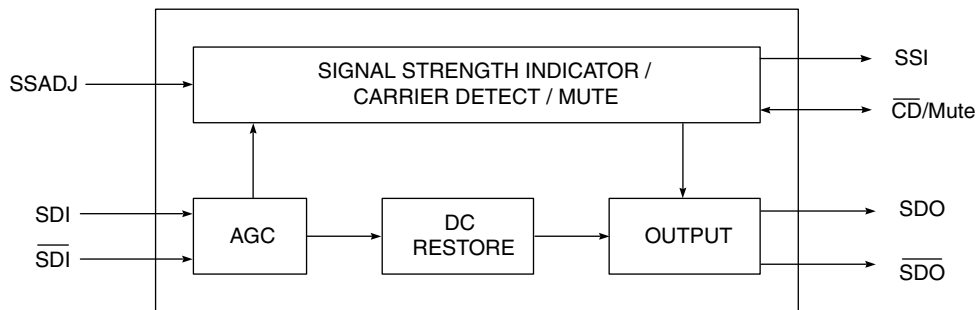
- SMPTE 292M Fibre-Optic Serial Digital Interfaces

### DESCRIPTION

The GS1514 is an AGC & DC Restorer circuit to be used in conjunction with an optical receiver. It will automatically amplify input signals in addition to restoring DC content to signals which have been AC coupled. This device also incorporates a signal strength indicator signal which is an indication of the received input swing (which equates to the received optical power). When the lower input limit is reached, the output is muted (latched to the last state) and the situation is indicated by the MUTE pin. This mute condition can be overridden and the output can be forced to either an active or a mute situation.

### ORDERING INFORMATION

PART NUMBER	PACKAGE	TEMPERATURE
GS1514-CKD	16 pin narrow SOIC	0°C to 70°C
GS1514-CTD	16 pin Tape and Reel	0°C to 70°C



**GS1514 FUNCTIONAL BLOCK DIAGRAM**

**ABSOLUTE MAXIMUM RATINGS**

PARAMETER	VALUE
Supply Voltage	0.5V <sub>DC</sub> to +5.5 V <sub>DC</sub>
Input ESD Voltage	TBD
Storage Temperature Range	-50°C < T <sub>s</sub> < 125°C
Lead Temperature (soldering 10 seconds)	260°C

**DC ELECTRICAL CHARACTERISTICS**V<sub>DD</sub> = 5V, T<sub>A</sub> = 0°C to 70°C, unless otherwise shown

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS	NOTES
Positive Supply Voltage	-	+4.75	+5.00	+5.25	V	
Power Consumption	-	-	260	-	mW	
Supply Current	-	-	52	-	mA	
Input DC Voltage	-	-	2.7	-	V	
Output CM Voltage	-	-	4	-	V	
SSI DC Voltage	Max Input Swing	-	3.5	-	V	
	Min Input Swing	-	1.5	-	V	
Mute DC Voltage	Below Min Input Swing	-	1.8	-	V	

**AC ELECTRICAL CHARACTERISTICS**V<sub>DD</sub> = 5V, T<sub>A</sub> = 0°C to 70°C, unless otherwise shown

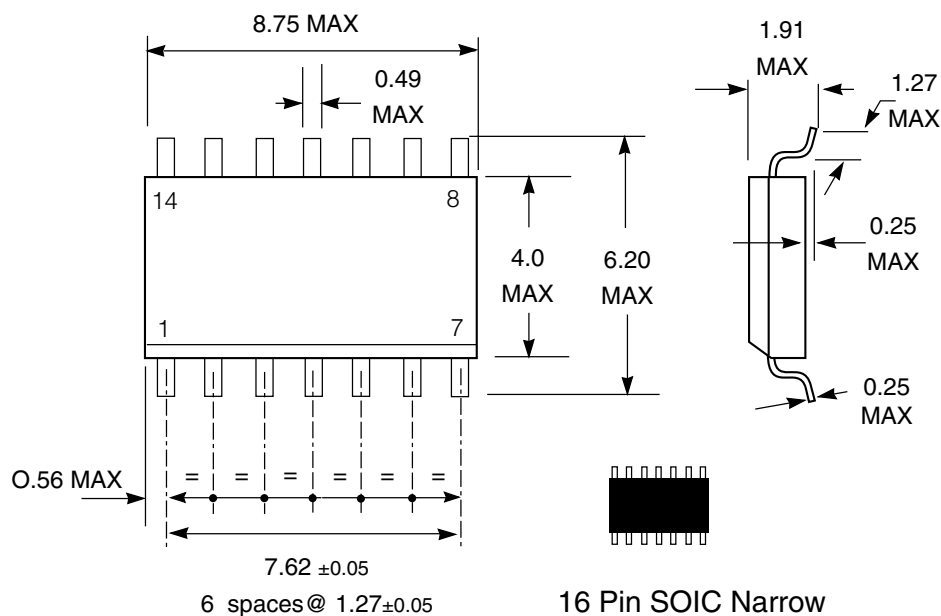
PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS	NOTES
Jitter	1.5Gb/s, 800mV input, Pathological & PRN		150	-	ps	p-p
	1.5Gb/s, 20mV input, Pathological & PRN		250	-	ps	p-p
Data Rate	-	143	-	1485	Mb/s	
Output Rise/Fall Time	-	-	-	270	ps	20% to 80%
Input Resistance	-	-	2.8	-	kΩ	Single-ended
Output Resistance	-	-	50	-	Ω	Single-ended
Output Signal Swing	50Ω Loads	-	0.4	-	V	p-p (same as GS1504)
SSI Range	-	-	2	-	V	Ranges ~ 3.5V to 1.5V, max. to min. input swing
Force Output Mute	Applied to Mute	-	4.2	-	V	Min. to Mute

## PIN DESCRIPTIONS

PIN	NAME	LEVEL	I/O	DESCRIPTION
1	SSI	Analog	Output	Signal Strength Indicator. Provides a linear voltage representation of the received signal swing.
2,15	V <sub>cc</sub>		Input	Most positive supply voltage
3, 6,11,14	V <sub>ee</sub>		Input	Most negative supply voltage.
4,5	SDI, $\overline{\text{SDI}}$	Analog	Input	Serial Data Input. Differential input pins. Output of optical receive module should be AC coupled to these pins.
7	SSADJ	Analog	Input	Signal Strength Adjust. Adjusts the minimum input signal strength which be restored. To set no minimum limit, this pin should be left open.
8, 9,10	NC			No Connect. Do not connect these pins to supply or ground
12,13	SDO, $\overline{\text{SDO}}$	PECL	Output	Serial Data Output. Differential serial output pins with 50 $\Omega$ output impedance.
16	$\overline{\text{CD}}$ /Mute		Output/Input	<p>Carrier Detect/Mute indicator/control. When the CD/Mute output is low, the carrier is present and the data output is active. When the CD/Mute output is high, the carrier is not present and the data output is muted (latched to the last state). This indicates that the minimum input signal as set by SSADJ has been reached.</p> <p>The above default <math>\overline{\text{CD}}</math>/Mute function can be overwritten as follows: if the CD/Mute pin is tied to ground, the data output will not mute and the SSADJ setting is overwritten. If the mute pin is tied high, the data output will always mute and the SSADJ setting is overwritten</p>

## PACKAGE DIMENSIONS

Dimensions in millimeters



GS1514

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



### DOCUMENT IDENTIFICATION

#### ADVANCE INFORMATION NOTE

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.

### REVISION NOTES:

Update to AC and DC tables.  
Watermark Removed

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