

INTRODUCTION

The EB9035 is an evaluation and reference design platform for the **GENLINX™ II** GS9035 Reclocker and the GS9028 Cable Driver.

CIRCUIT DESCRIPTION

A functional block diagram is shown below and illustrates the primary circuit functions. These include reclocking and driving 75Ω co-axial cables. A complete schematic is also included.

The EB9035 accepts differential serial digital data input signals which go into the GS9035 reclocker. The reclocker then generates clock and retimed data signals. In addition, the complementary serial clock output signals are available at BNC connectors J2 and J3. The GS9035 also drives data rate indication LEDs and a LOCK LED which is provided to visually indicate when the reclocker has locked to the incoming video signal.

The reclocked data signals are then supplied to the GS9028 cable driver which provides two complementary data outputs at BNC connectors J4 and J5. The GS9028 is configured to drive 75Ω co-axial cables with SMPTE defined 800mV levels.

BOARD SET-UP AND TEST

The board is configured in SMPTE, auto-tune mode and supports five data rates: 143Mb/s, 177Mb/s, 270Mb/s,

360Mb/s, and 540Mb/s. LED indicators are used to indicate when the device is LOCKed and the detected data rate as shown below.

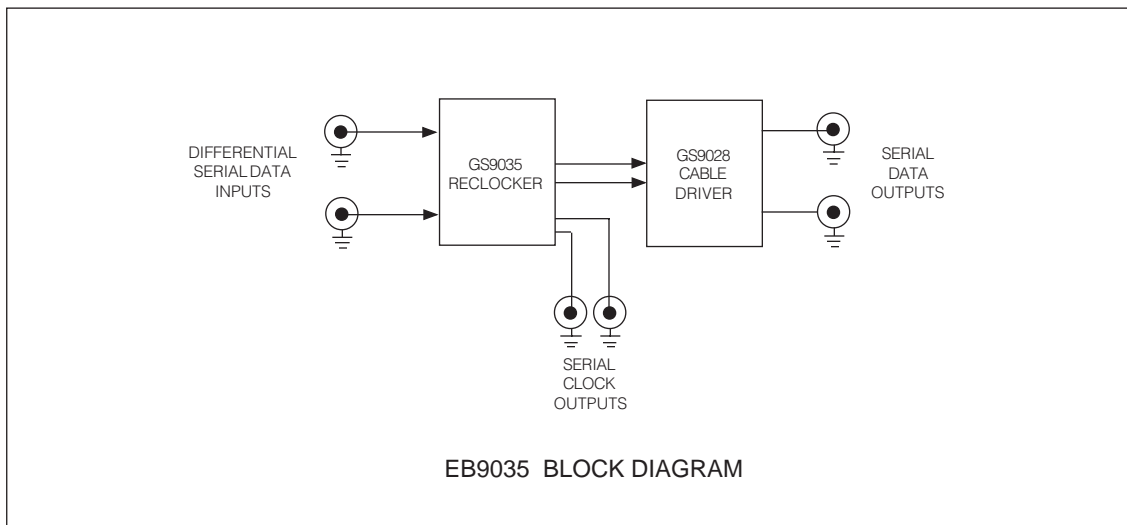
	SS2	SS1	SS0
143Mb/s	0	0	0
177Mb/s	0	0	1
270Mb/s	0	1	0
360Mb/s	0	1	1
540Mb/s	1	0	0

The GS9035 can also be configured for manual mode by first putting the AUTO/MANUAL jumper (JMP1) into the 2-3 position. Then jumpers JMP[7:5] are set accordingly.

Note that whenever the AUTO/MANUAL input of the GS9035 is HIGH (auto mode), jumpers JMP[7:5] should be left floating to avoid bus contention.

To verify operation of the EB9035, a differential source of serial digital video should be applied to the input BNC connectors using 75Ω co-axial cable. A convenient differential source is available from the EB9024 evaluation board. The output data stream is available at the serial output and can be supplied to a D to A converter for verification via a monitor. Note that the jumpers should be set as shown below for an output to be present:

- JMP1: 1-2 (reclocker configured for AUTO mode)
- JMP2: 1-2 (reclocker configured for SMPTE mode)



The power supply requirement for the EB9035 is +5V for VCC at a current rating of 170mA (nominally).

PCB DETAILS

The EB9035 is a four layer printed circuit board constructed of standard FR-4 material and measures approximately 4.5" by 4.5". Ground and power plane layers are internal to the board with signal layers on the top and bottom of the board. Components are mounted both on the top and bottom sides. The silkscreen (top and bottom) and all four layers are shown on the following pages. Note the following special artwork features used to optimize performance:

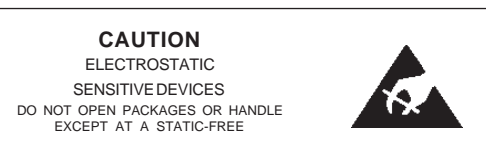
- A continuous ground plane is provided underneath all high speed traces avoiding impedance discontinuities and ensuring maximum signal integrity

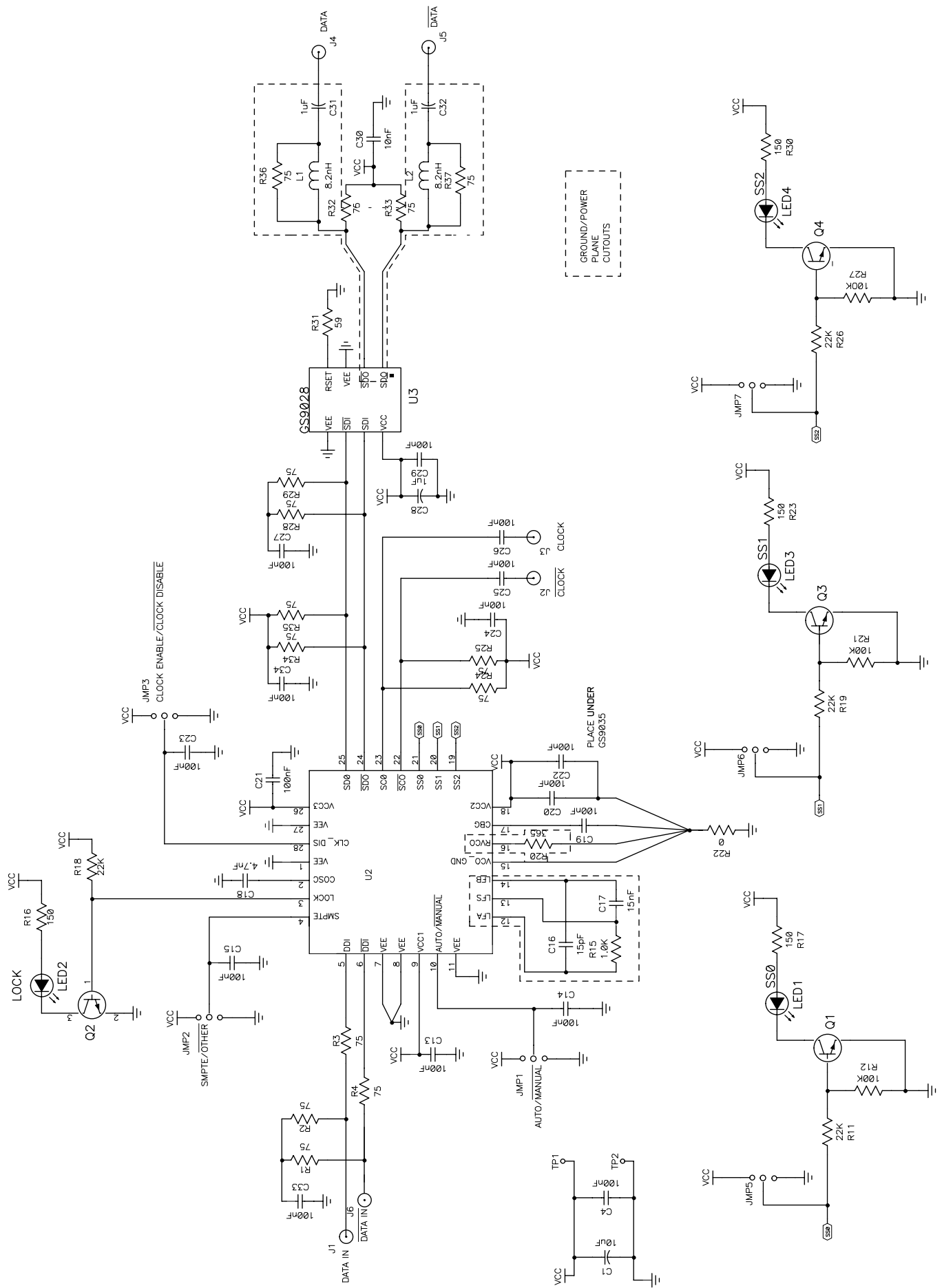
- Copper on the power and ground planes has been removed from the area surrounding the center pin of the output BNC connectors and from underneath the output components of the GS9028 cable driver. The purpose of these cutouts is to reduce the effect of the capacitance added by the connector and the pads of the components.

- Copper on the power and ground planes has been removed from underneath the loop filter and RVCO components of the GS9035. The purpose of these cutouts is to avoid any noise coupling from the planes into the GS9035.

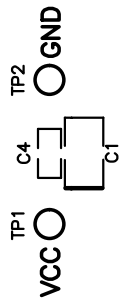
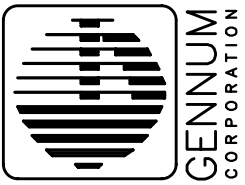
APPLICATIONS

The EB9035 evaluation board is designed to show the characteristics of the GS9035 Reclocker and the GS9028 Cable Driver.



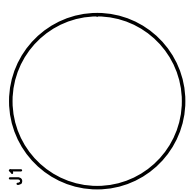
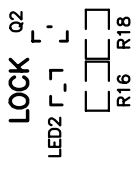


EB9035
GENLINX™ II
RECLOCKER
 REV 1.1

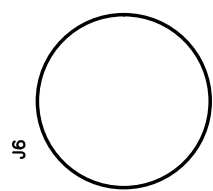


1-2	2-3	
JMP1	AUTO	MANUAL
JMP2	SMIPE	OTHER
JMP3	CLOCK	CLOCK
	ENABLE	DISABLE

JMP3
 JMP2
 JMP1

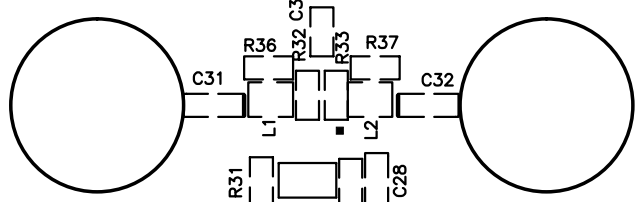


DATA IN

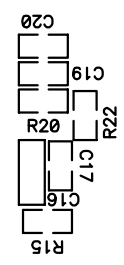
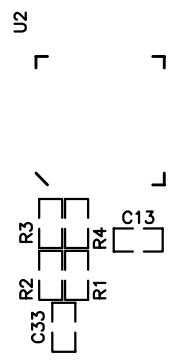
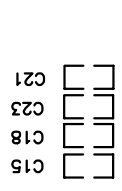


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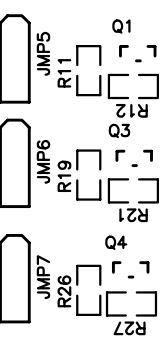
DATA OUT



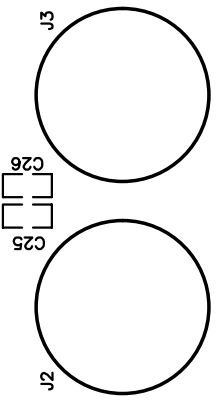
DATA OUT



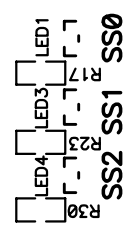
VCC GND VCC GND VCC GND



CLOCK OUT



CLOCK OUT



DATA RATE INDICATION		DATA RATE
SS2	SS1	SS0
0	0	0
0	0	1
0	1	0
0	1	1
1	0	0

