THIRD DOMAIN
INCORPORATED

TUCSON, AZ

VIDEO SYNC-STRIPPER
RSS-100

NOTE ! See * for improved performance
NOW RSS-100A

DESCRIPTION

The RSS-100 provides DC restoration of the input video signal, separates the sync pulses and provides a composite sync output with TTL and CMOS compatible drive.

The internal DC restorer provides limited tracking of the DC component of the input video signal. The back porch of the input video signal can *be within ±0.2*volt at pin 2 for automatic operation. Greater differen- * ces can be accommodated with external adjustments, see the Applications section.

*Standard video input levels of 1.0*to 1.4 volt Peak-to-Peak, White posi- * tive (Negative going sync pulses) must be applied to the input.

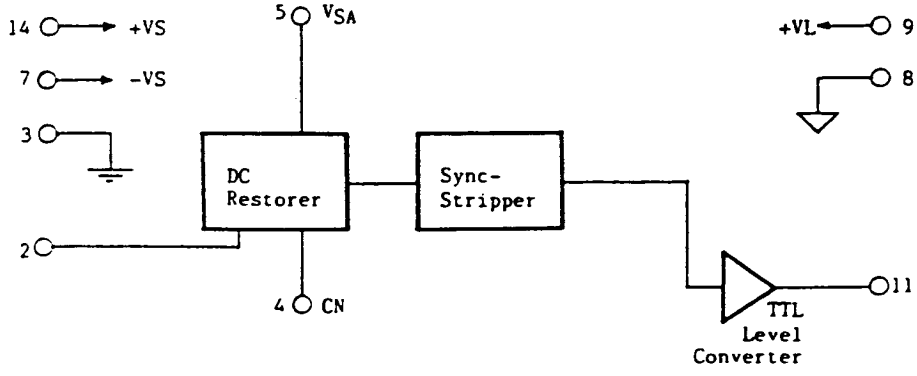
Separate Analog and Digital commons provide common-mode noise rejection to "isolate" digital noise from the analog video signal.

FEATURES

* COMPATIBLE WITH RS-170, RS-330, RS-343, RS-420, PAL AND SIMILAR FORMATS
* PROVIDES INTERNAL DC RESTORATION
* PROVIDES COMPOSITE SYNC
* MAY BE USED WITH ANY SYNC PULSE WIDTHS
* MAY BE USED WITH ANY SCAN RATES

* Backporch now within ±1.0 Volt !
* Video Level now as low as 0.2 V P-P

BLOCK DIAGRAM

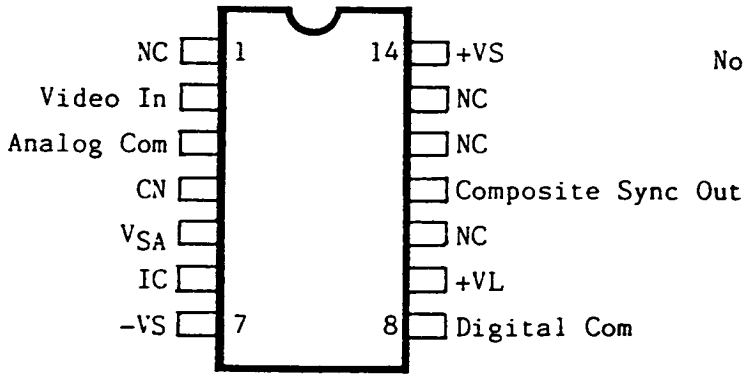


ABSOLUTE MAXIMUM RATINGS

Analog Supply Voltage (Pin 14 to 7)	18 Volts
Digital Supply Voltage (Pin 9 to 8)	7 Volts
Analog-to-Digital Common Differential Voltage (Pin 3 to 8)	±1.0 Volt
Video Input Voltage (Pin 2 to 3)	± VS Volts
Output Current (Pin 11)	50 milliamps
Operating Temperature Range -CD	0°C to 70°C
-MD	-55°C to +125°C
Storage Temperature Range	-65°C to +150°C
Lead Temperature (Soldering, 10 seconds)	+300°C

Note: Absolute maximum ratings are those voltage, current and temperature levels above which permanent damage may result. Consult Specifications and Applications sections of this data sheet for conditions for normal operation.

CONNECTIONS



Note: Refer to the Block Diagram, Circuit Description and Applications sections of this data sheet for exact use of the pin connections.

NC: No Connection

IC: Internal Connection, do not use.

PART NUMBERS

Order:				
RSS-100-CD*	for	0°C to +70°C	operation	* RSS-100A-CD
RSS-100-MD*		-55°C to +125°C		* RSS-100A-MD

Note: Packaging is a 14 pin Ceramic Dual in-line (CERDIP), hermetically sealed.

SPECIFICATIONS

(+VS = +5 Volts, -VS = -5 Volts, +VL = +5 Volts, T_A = +25°C)

PARAMETER	MIN	TYP	MAX	UNITS
VIDEO INPUT				
* Minimum Input Signal Level *		* 0.20 ~~0.50~~	* 0.40 ~~1.00~~	Volts P-P
Nominal Input Signal Level		1.40		Volts P-P
Maximum Input Signal Level	1.80	2.40		Volts P-P
Input Resistance	2.4	3.5		k Ohms
* DC Input Level (Backporch)*	~~±0.1~~ -1.0	*~~±0.2~~	*+1.0	Volts
SYNC OUTPUT [TTL Level]				
High Level Output Voltage	2.5	3.4		Volts
Low Level Output Voltage		0.4	0.5	Volts
High Level Output Current			-0.4	mA
Low Level Output Current			-0.4	mA
Transition Time				
Low-to-High		20	35	nS
High-to-Low		30	50	nS
TIMING				
Composite Sync Output				
Leading Edge Delay		520	750	nS
Trailing Edge Delay		130	200	nS
Timing Jitter		15		nS
POWER				
Analog/Digital Common Voltage			±1.0	Volt
Analog Supply Voltage				
+VS	+4.75	+5.0	+5.5	Volts
-VS	-3.00	-5.0	-6.0	Volts
Digital Supply Voltage	+4.25	+5.0	+6.0	Volts
Analog Supply Current				
+VS		31.0	45.0	mA
-VS		38.0	45.0	mA
Digital Supply Current		23.7	30.0	mA
Total Dissipation		463	600	mW

Specifications are subject to change without notice

* Tracking Range around DC level is determined by an external adjustment, see Applications Section. Nominal adjustment permits normal operation with input video DC level at the backporch of ±1.0 volt and an amplitude range of 0.2 to 1.8 Volts Peak-to-Peak without re-adjustment.

CIRCUIT DESCRIPTION and APPLICATIONS

The RSS-100 performs two basic functions, internal DC restoration of the incoming video and Sync Pulse separation or Stripping.

Input video is tracked with a Sync tip sensing circuit internal to the RSS-100. The voltage level of the input sync tips is stored by an external capacitor, CN. The sensing circuit allows the sync pulse stripping circuit to more accurately separate the sync pulses even when the DC level of the input video is changing.

The amplitude of the input video sync pulses must be compensated with a voltage applied externally. If the input sync pulse amplitude changes, this voltage will have to change.

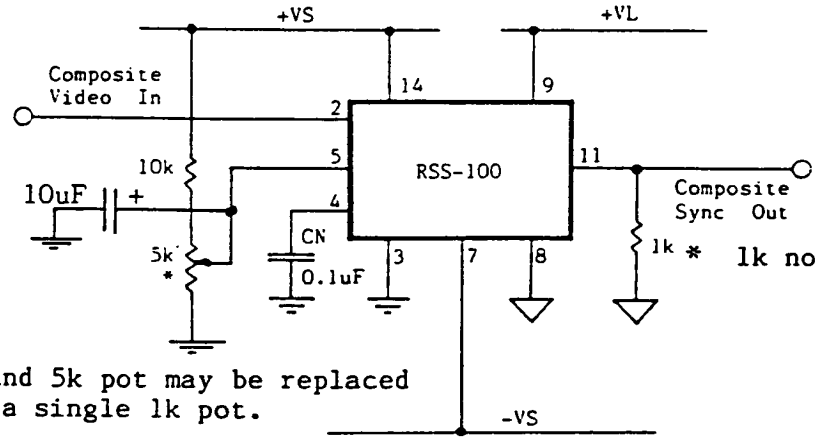
A fixed voltage can be applied by a two-resistor network. This works if the input video is always within ±0.1 volt or so of common, at the back porch. If the video is not always close to common, using an adjustable circuit, as shown below, will increase the acceptable DC input voltage range.

The best setting of the voltage on pin 5 of the RSS-100 is to observe the sync output pulses under the actual changing input video conditions, for accurate sync output.

Sync pulses are internally stripped, detected and level shifted to output TTL level compatible composite sync pulses.

Non-standard scan rates and sync pulse widths can be accommodated by the RSS-100 since there is no timing internal to the circuit.

U. S. Patent No. 4,680,633



NOTE: ⏚ denotes ANALOG common. NOTE: ▽ denotes DIGITAL common

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