14 MHz Video Lowpass Filter
Data Sheet

Description

The MSVL14 provides a fourth-order video Lowpass Butterworth response filter with a corner at 14 MHz for use in Luminance filtering in HDTV or other higher resolution video systems. The MSVL14 is a continuous time filter with greater than 3% accuracy.

Unlike digital filters or other sample data filters, the MSVL14 does not use a sampling clock. The filter's corner frequency is set by internal capacitors and resistors. Only decoupling capacitors on the supplies and a bias resistor to set the operating current are needed to operate the MSVL14.

The elimination of clocking reduces noise generated by the clock as well as reduces distortion.

The MSVL14 is available in a 16-Pin 150 mil SOIC.

Features

Provides Lowpass filter at 14 MHz
Better than 3% accuracy
Continuous Time Lowpass FIlters: No Clock Noise
Operates from 4.5 to 5.5 VDC
Low distortion
No Clock Required

Fourth Order Butterworth Response

Applications

Video Filter
HDTV to Analog Converter boxes for older TVs
Non-Standard Communications
Radar
Luminance Filtering
High resolution video filtering

Absolute Maximum Ratings

Power Supply Voltage	6 V
Storage Temperature	-60 to +150 deg. C
Operating Temperature	-20 to +85 deg. C

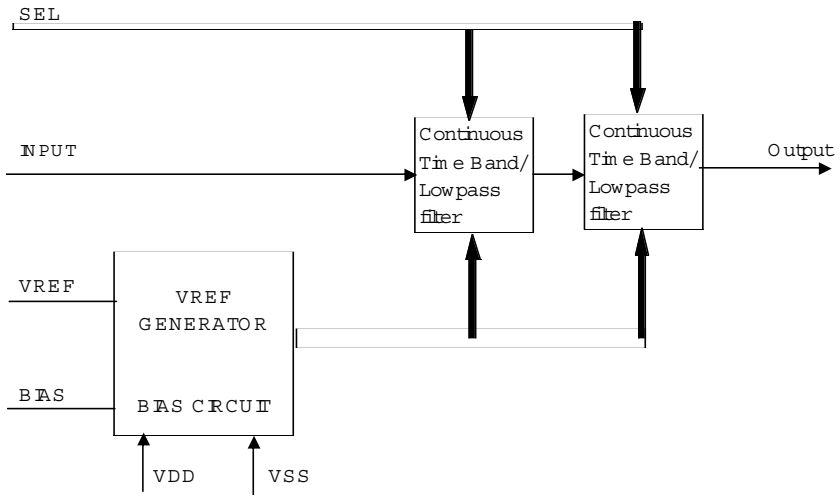

Figure 1 Block Diagram

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Electrical Characteristics

(VDD = +5V, T = 25 C)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
DC Specifications						
Operating Voltage	VDD		4.5	5.0	5.5	V
Supply Current	IDD	Rbias=10 kohms		30		mA
Power Down Current	IDD_{PD}				500	uA
Analog Ref. Voltage	VREF			0.5*VDD		V
DC Output Drive	I_O			100		uA
Output Impedance	Z_O			600		Ohms
Output Offset	V_{OS}			50		mV
AC Specifications						
Gain	A_V			0		dB
Output Swing			4.0	4.5		Vp-p
Input Impedance	Z_{IN}			10		kohm
Corner/Center Frequency	F_O			14		MHz
Corner Frequency Accuracy			-3		+3	%

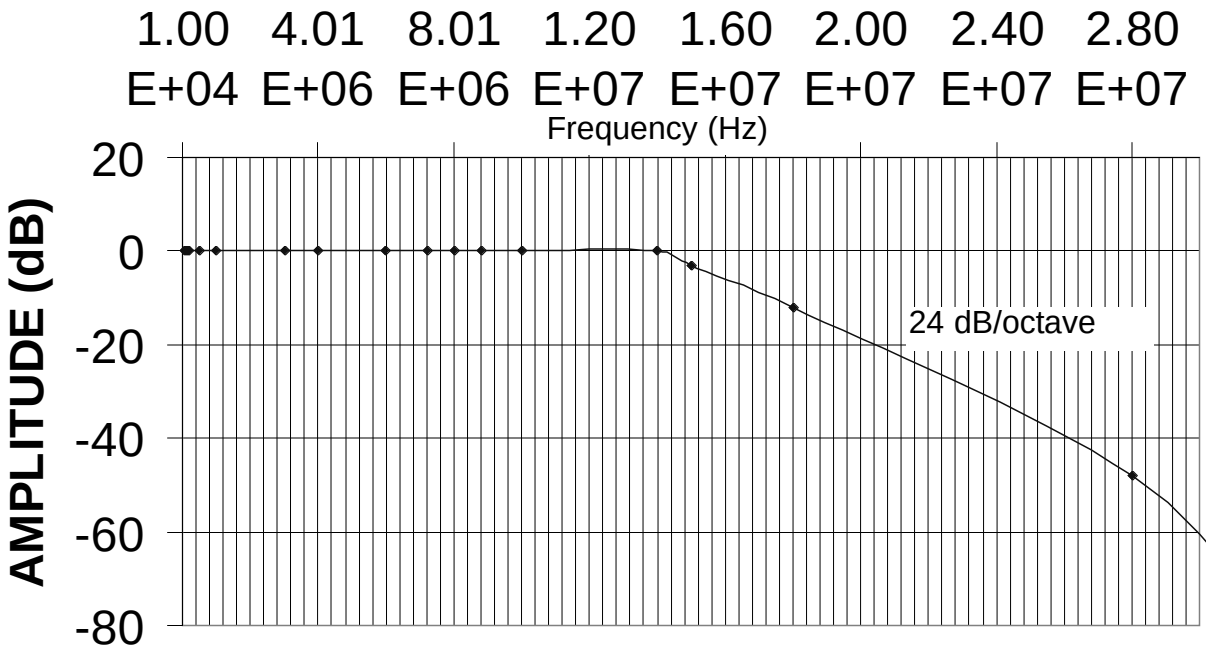

Figure 2 14 MHz Filter Response

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Pin Description

Pin		Description
1	VREF	Internally Generated Ground Reference; Nominally 2.5VDC
2	IN	Filter Input
3	T1	Do Not Connect; Test Only
4	NC	No Internal Connection
5	T2	Do Not Connect; Test Only
6	SEL	Selects Lowpass or Bandpass; Lowpass is selected at 0V
7	OUT	Filter Output
8	NC	No Internal Connection
9	T3	Do Not Connect; Test Only
10	PD	Power Down Control; HI for PD
11	BIAS	Resistors from Bias Pin to VDD controls IDD and maximum frequency response.
12	NC	No Internal Connection
13	T4	Do Not Connect; Test Only
14	VDD	Positive Power Supply; Typically 5.0VDC
15	VSS	Negative Power Supply; Typically 0VDC
16	V20	Connect to 5.0 VDC

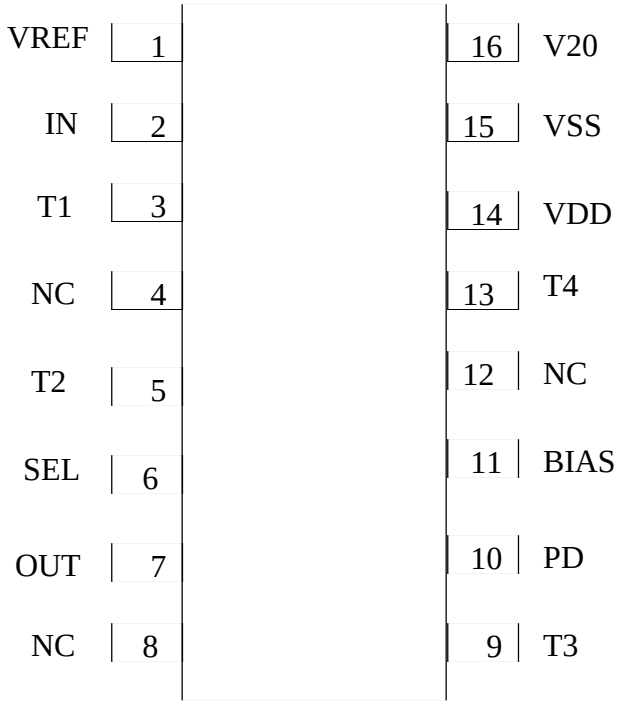

Figure 3 Pin Configuration

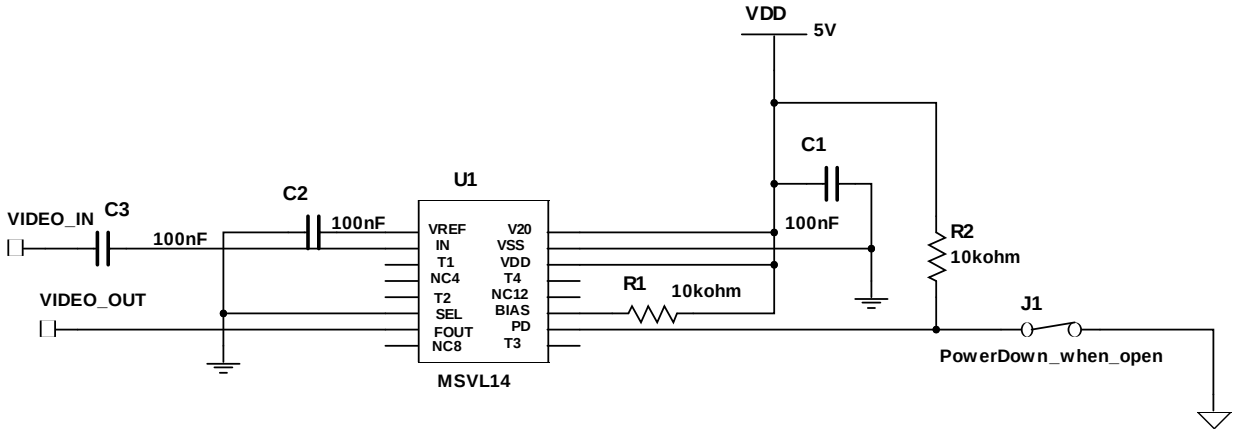

Figure 4 Typical Application Schematic of MSVL14

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STANDARD PRODUCTS

MSGEQ5A	Five Band Graphic Equalizer
MSGEQ7	Seven Band Graphic Equalizer
MSHFS1-6	Selectable High Frequency LP/BP Filter
MSFS1-6	Selectable Lowpass/Bandpass Filter
MSCAHF	Selectable High Frequency Active Lowpass/Bandpass Filter
MSU1F1-4, MSU2F1	Resistor Programmable Universal Active Filter
MSU1HF1-4, MSU2HF1	High Frequency Resistor Programmable Universal Active Filter
MSELP	Switched Capacitor Elliptic Lowpass Filter with Op Amps
MSNBLP	Switched Capacitor Butterworth Lowpass Filter
MSLE/B/C5L/M	Switched Capacitor General Purpose Lowpass Filter
MS2LFS	Dual Selectable Low Voltage Lowpass/Bandpass Filter
MSLFS	Selectable Low Voltage Lowpass/Bandpass Filter
MSHN1-6	Selectable High Pass/Notch Filter
MSRAAF	Resistor Programmable Active Audio Filter
MSRAHF	Resistor Programmable Active High Frequency Filter
MSDET	Tone Detector
MSEPAF	Electrically Programmable Active Filter
MSCBT	Communications Baseband Transceiver
MSLV14	14 MHz Video Lowpass Filter

Mixed Signal Integration
2157-50 O'Toole Avenue
San Jose, California 95131-1332
Phone: (408)-434-6305
Fax: (408)-434-6417

In Mississippi, Alabama, Georgia South Carolina, North Carolina, and Tennessee contact:

Adeptronics
9694 Madison Boulevard Suite A-14
Madison, Alabama 35758
Telephone: 256-772-1922
Facsimile: 256-772-0323

In Arizona, Utah, Colorado, Montana, Wyoming, Idaho, New Mexico and southern Nevada contact:

Nelco Electronix
6970 S. Holly Circle #205
Centennial, CO 80112
Telephone: 720-493-9630
Facsimile: 720-493-9631

In Indiana, Kentucky, Ohio, Michigan, and western Pennsylvania contact:

CCR Electronics, Inc.
825 Woodfield Crossing Blvd
Indianapolis, Indiana 46240-2495
Telephone: 317-469-4855

In Taiwan contact:

Maxtek Technology Co., Ltd.

5F, No. 13-20, Sec. 6,
Min Chian E Road, Nei Hu
Taipei, 114 R.O.C.
Telephone: 886-2-2794-6060
Facsimile: 886-2-2879-8922

In Hong Kong and the People's Republic of China contact:

Alphatron

2L, Cooke Street/F
G/F, Hung Hom
Kowloon Bay, Hong Kong
Telephone: 852-2303-1290
Facsimile: 852-2900-3616

In Korea contact:

H. B. Corp.

#1409, Seocho World Officetel,
1355-3, Seocho-Dong, Seocho-Ku,
Seoul, Korea 137-070
Telephone: (02)3472-3450
Facsimile: (02)3472-3458

In Singapore, Indonesia and Malaysia:

EXER Technologies (S) PTE LTD
45 Kaki Bukit Industrial Terrace
Singapore 416125
Telephone: (65)-6-747-9669
Facsimile: (65)-6-749-9669

In Israel contact:

Phoenix Technologies Ltd.
3 Gavish St.
Kfar-Saba, 44424
Isreal
Telephone: 09-764-4800
Facsimile: 09-764-4801

In the United Kingdom contact:

Electronics 2000 Ltd.
Grafton House
Grafton Street
High Wycombe
Bucks HP12 3AJ
Telephone:00-44-1494-444044
Facsimile: 00-44-1494-470499

Catch our web site at "http://www.mix-sig.com"

Send us e-mail at "info@mix-sig.com"

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