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SV5309

Low Power, Triple 5th-order 8MHz filter, Quality Enhanced Standard Definition Video Filter Driver

Revision v1.0

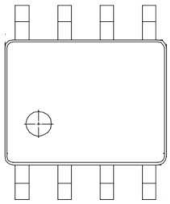
SAVITECH Corporation

SV5309

Low Power, Triple 5th-order 8MHz filter, Quality Enhanced Standard Definition Video Filter Driver

Features

- Low power, low voltage design
- Improved video quality
- Three 5th-order, 8MHz filters integrated
- +6dB-gain, driver design
- Rail-to-Rail output
- Transparent input clamping
- Versatile AC- or DC-coupled configurations at input and outputs
- Operating voltage from +3 to +5.5V
- Green SOP8 package
- -40℃ to +85℃ operating temperature range



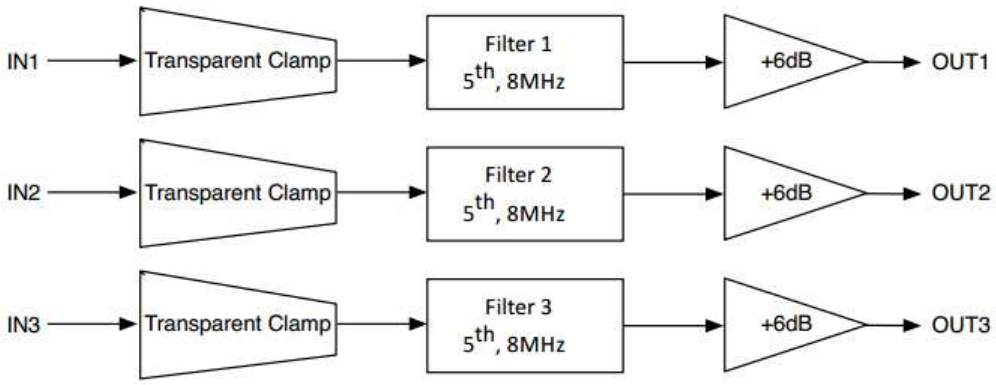
SOP-8L

Description

The SV5309 is a cost-effective, low power, low voltage Standard Definition (SD) Video Driver with enhanced video quality. It features three 5th-order filters and +6dB drivers designed for replacing traditional 2nd ~ 3th-order passive LC filtering solution that improves output video quality and reduces PCB space.

With state-of-art low voltage and low power design, makes it ideal for low power SD video system design. The 8KV ESD protection design also helps to reduce ESD protection cost, but still provides robust ESD protection and reduces any potential system reliability and safety issues from ESD threats.

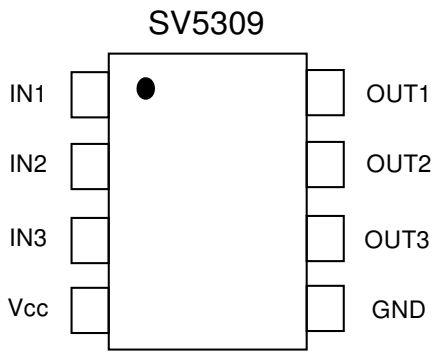
Block diagram



Order codes

Order Code	Operation range	Package	Packing
SV5309-08SP-TR2	-40°C, +85°C	SOP-8	Tape & reel, 2500pcs

Pin configuration (Top view)



Pin description

PIN	NAME	FUNCTION
1	IN1	Video input, channel 1
2	IN2	Video input, channel 2
3	IN3	Video input, channel 3
4	V_{CC}	Power supply
5	GND	Ground
6	OUT3	Filter output, channel 3
7	OUT2	Filter output, channel 2
8	OUT1	Filter output, channel 1

Absolute maximum ratings

Parameter	Value	Unit
V_{cc} to GND, Supply Voltage,	6	V
Input Voltage	GND - 0.3 to (Vcc) +0.3	V
Storage Temperature Range	-65 to +150	°C
Continuous current through V_{DD} or GND	100	mA
ESD Susceptibility: HBM	8000	V
ESD Susceptibility: MM	400	V

Stresses above those listed under Absolute Maximum Ratings may cause permanent damage to the device. This is a stress rating only; functional operation of the device at these or any other conditions above those indicated in the operational section of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

CAUTION

This integrated circuit can be damaged by ESD if you don't pay attention to ESD protection. SAVITECH recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage. ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.

Electrical characteristics

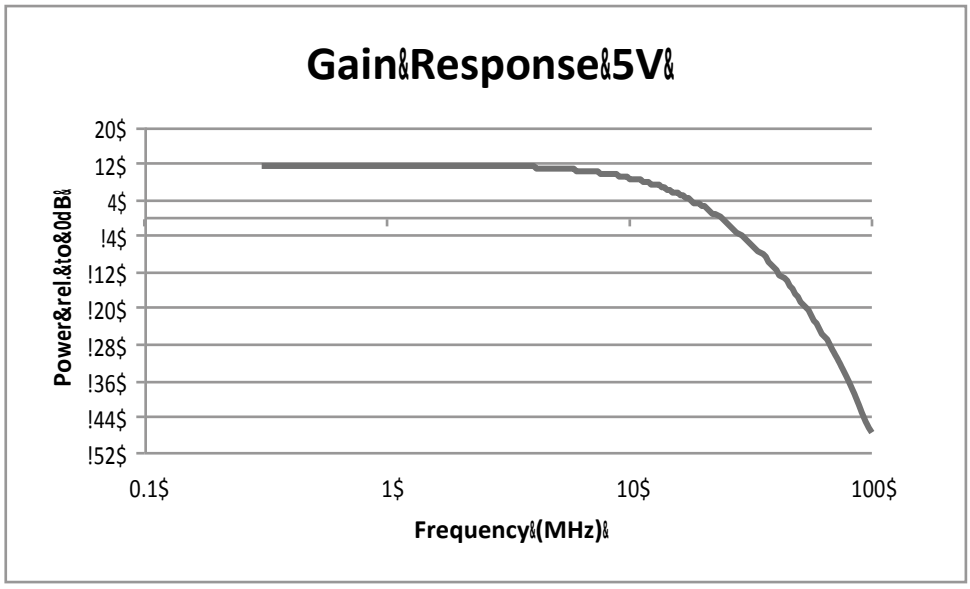
(RL = 150Ω connected to GND, VIN = 1Vpp, and CIN = 0.1µF, all outputs AC coupled with 220µF, referenced to 400kHz, unless otherwise noted.)

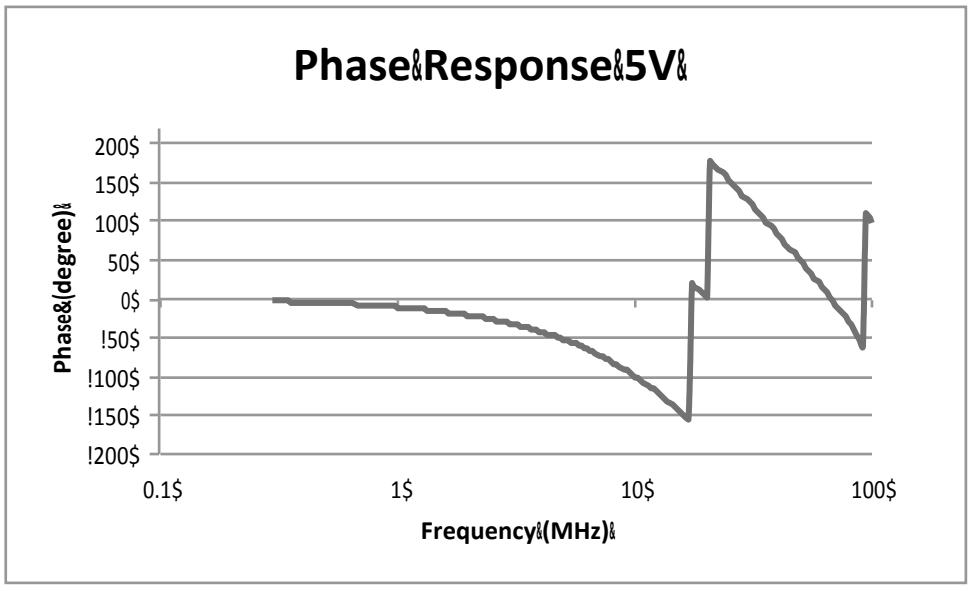
PARAMETER	CONDITIONS	TEMP	MIN	TYP	MAX	UNITS
INPUT CHARACTERISTICS						
Output Level Shift Voltage (V_{OLS})	V_{IN} = 0V, no load	+25°C		386	572	mV
		-40°C to +85°C			670	
Input Voltage Clamp (V_{CLAMP})	I_{IN} = -3.5mA	+25°C	-220	-104		mV
		-40°C to +85°C	-300			
Clamp Charge Current	V_{IN} = VCLAMP -100mV	+25°C		400		uA
		-40°C to +85°C				
Voltage Gain (AV)	R_L = 150 Ω	+25°C	5.7	6	6.4	dB
		-40°C to +85°C	5.4		6.6	
OUTPUT CHARACTERISTICS						
Output Voltage High Swing	V_{IN} = 3V, R_L = 150Ω to GND	+25°C	4.3	4.74		V
		-40°C to +85°C	4.2			
POWER SUPPLY						
Operating Voltage Range		+25°C	3		5.5	V
Power Supply Rejection Ratio (PSRR)	V_{CC} = 3V to 5.0V	+25°C		-52		dB
		-40°C to +85°C		-42		
Quiescent Current (IQ)	V_{IN} = 0V	+25°C		19.5	22	mA
		-40°C to +85°C			27	
AC PERFORMANCE						
-0.1dB Bandwidth	R_L = 150 Ω	+25°C		2		MHz
-3dB Bandwidth	R_L = 150 Ω	+25°C		8		MHz
Filter Response (Normalized Gain)	f_{IN} = 27MHz	+25°C		-30		dB
Slew Rate	2V Output Step, 80% to 20%	+25°C		35		V/√s
Differential Gain (DG)	PAL DC coupled	+25°C		0.06		%
	PAL AC coupled	+25°C		0.09		%
Differential Phase (DP)	PAL DC coupled	+25°C		0.09		°C
	PAL AC coupled	+25°C		0.14		°C
Group Delay Variation (D/DT)	Difference between 400kHz and 6.5MHz	+25°C		3.5		ns
Crosstalk (channel - to - channel)	f = 1MHz	+25°C		-45		dB
Fall Time	2V Output Step, 80% to 20%	+25°C		26		ns
Rise Time	2V Output Step, 80% to 20%	+25°C		20		ns

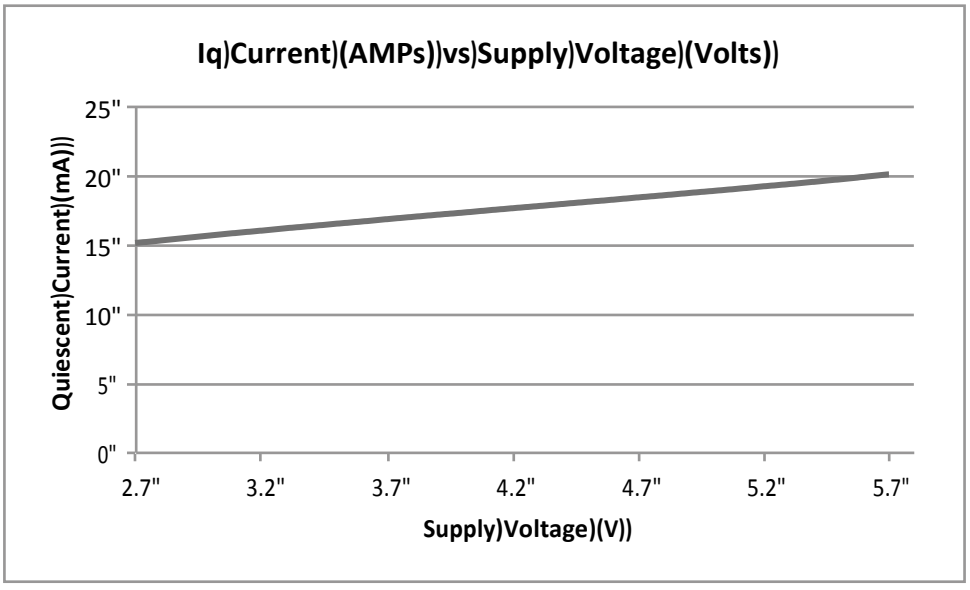
Specifications subject to changes without notice.

Typical performance characteristics

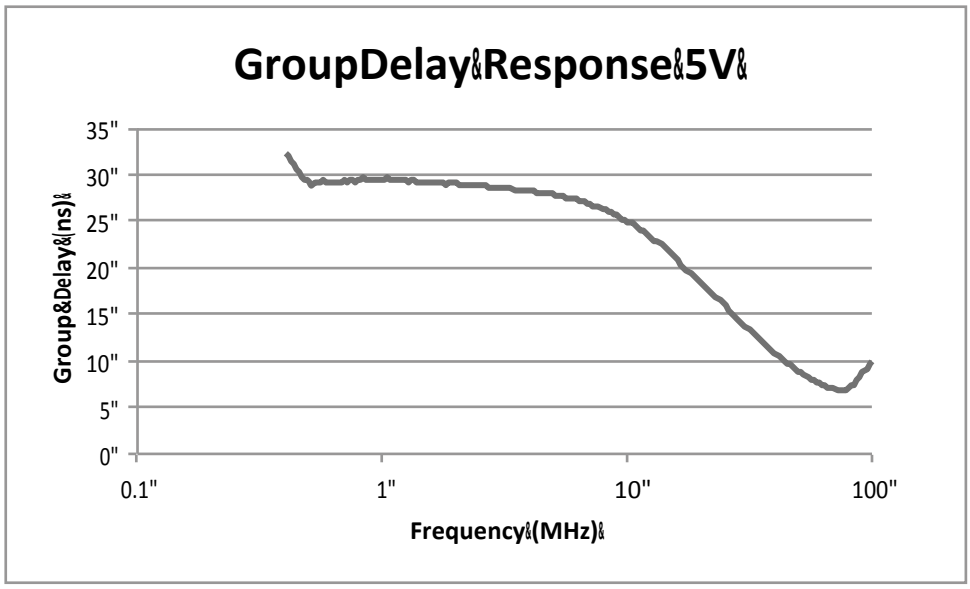
At V_{CC}= 5V, T_A = +25°C, R_L = 150Ω, all outputs AC coupled with 220uF, unless otherwise noted.

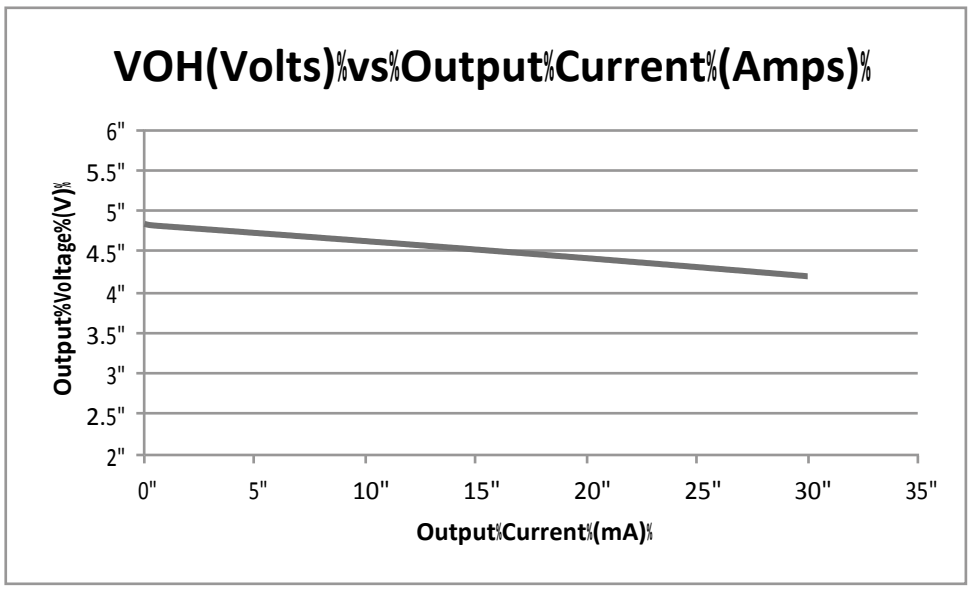


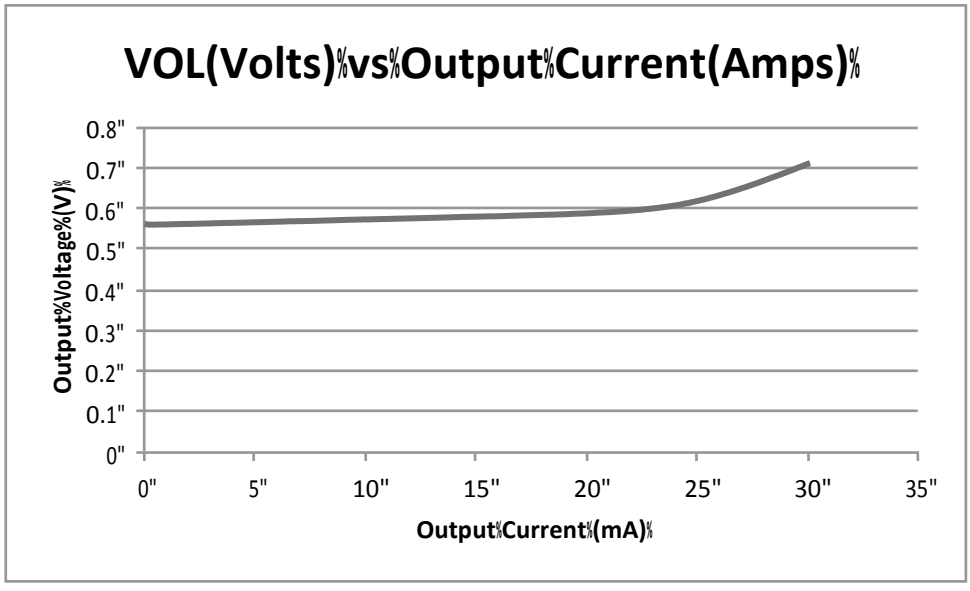




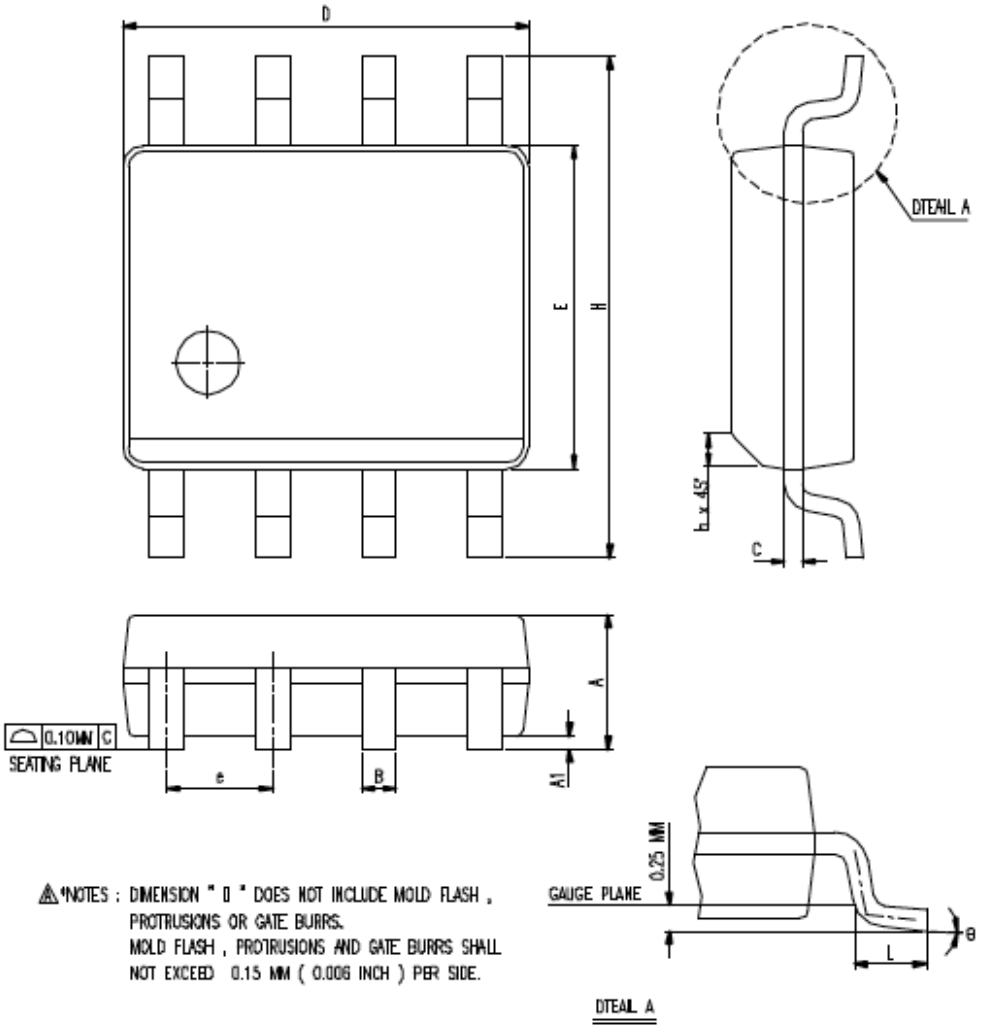
Typical Performance Characteristics







SOP-8 MECHANICAL DATA



⚠*NOTES : DIMENSION " D " DOES NOT INCLUDE MOLD FLASH , PROTRUSIONS OR GATE BURRS.
MOLD FLASH , PROTRUSIONS AND GATE BURRS SHALL NOT EXCEED 0.15 MM (0.006 INCH) PER SIDE.

SYMBOL	DIMENSION IN MM		DIMENSION IN INCH	
	MIN.	MAX.	MIN.	MAX.
A	1.35	1.75	0.0532	0.0688
A1	0.10	0.25	0.0040	0.0098
B	0.33	0.51	0.013	0.020
C	0.19	0.25	0.0075	0.0098
e	1.27 BSC		0.050 BSC	
D	4.80	5.00	0.1890	0.1968
H	5.80	6.20	0.2284	0.2440
E	3.80	4.00	0.1497	0.1574
L	0.40	1.27	0.016	0.050
h	0.25	0.50	0.0099	0.0196
θ	0°	8°	0°	8°
JEDEC	MS-012 (AA)			

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