

Integrated Single Video Amplifier And Video Coaxial Control Decoder

-----MS7332M

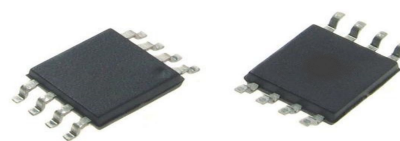
PRODUCT DESCRIPTION

The MS7332M integrated Single video amplifier and video coaxial control decoder. The video amplifier integrates Single rail-to-rail output driver with 6dB Gain and 10th output reconstruction filter, it has 35MHz -3dB bandwidth. The video coaxial control decoder integrated a high-speed processor, effective separation for mixed-signal. Operating from single supplies ranging from +2.7V to +5V and sinking an ultra-low 25mA quiescent current, the MS7332M is ideally suited for battery powered applications.

The MS7332M has lead MSOP-8 package, and ESD (HBM) reaches over 3KV.

FEATURES

- Tenth-order 35MHz (HD) Filter
- Transparent input clamping
- 6dB output driver Gain and drive dual video load
- Rail-to-Rail Output
- Input Voltage Range Includes Ground
- AC or DC Coupled Inputs
- AC or DC Coupled Outputs
- Operates from 2.7V to 5V Single power supply
- Low Power 25mA Supply Current
- Lead MSOP-8 package

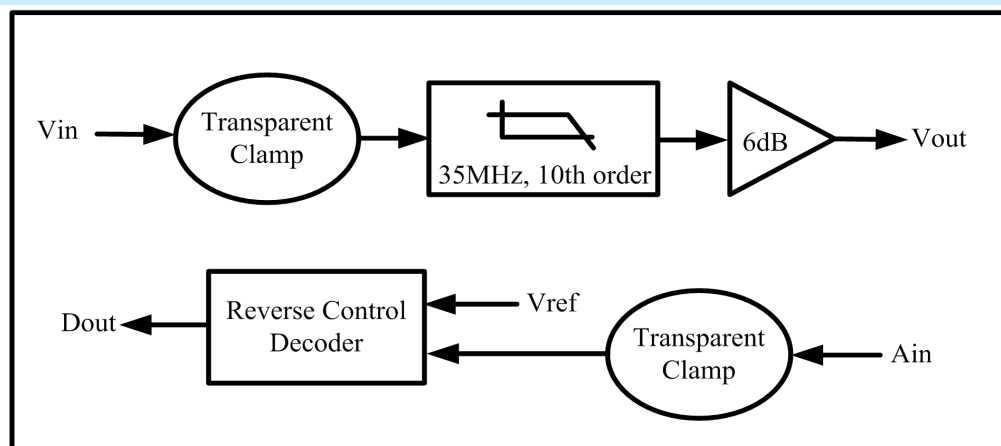


MSOP-8

APPLICATIONS

- Video On Demand (VOD)
- Communications device
- Portable and handheld product
- AHD/TVI/CVI video driver and reverse control decoder

BLOCK DIAGRAM



PIN CONFIGURATIONS

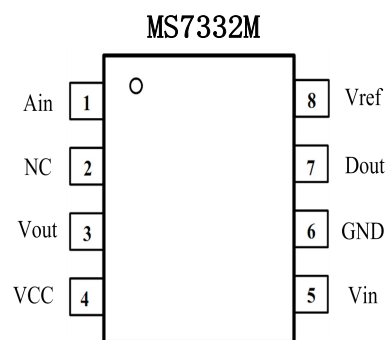


Figure1.MSOP-8

Pin Description of Fig1

Pin	Name	Function Description
1	Ain	Comparator input
2	NC	Unused
3	Vout	Video output
4	VCC	Power supply
5	Vin	Video input
6	GND	Ground
7	Dout	Reverse control output
8	Vref	Internal reference

PACKAGE/ORDERING INFORMATION

Part Number	Package	Marking
MS7332M	MSOP-8	MS7332M

ABSOLUTE MAXIMUM RATINGS

Stresses below 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 below 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.

PARAMETER	MAXIMUM
Supply Voltage, V+ to V-	7.5V
Input Voltage	GND-0.3V to (+VS)+0.3V
Storage Temperature Range	-65°C to +150°C
Junction Temperature	160°C
Operating Temperature Range	-40°C to +125°C
Power Dissipation, PD @ TA = 25°C	0.8W
Package Thermal Resistance, θ_{JA}	128°C/W
Lead Temperature Range (Soldering 10 sec)	260°C
ESD Susceptibility (HBM)	>3000V
MM	>300V

ELECTRICAL CHARACTERISTICS

(At $R_L = 150\Omega$ connected to GND, $V_{in}=1V_{pp}$, and $C_{IN} = 0.1\mu F$, all outputs AC coupled with $220\mu F$, unless otherwise noted).

PARAMETER	CONDITION	TYP	MIN	MAX	UNITS
DYNAMIC PERFORMANCE: Amplifier channel					
-1dB Bandwidth	$R_L=150\Omega$	29			MHz
-3dB Bandwidth	$R_L=150\Omega$	35			MHz
Gain		6			dB
Slew Rate	$V_{in}=1V$ step, 20%--80%	90			V/us
Differential Gain (DG)	NTSC & PAL DC	0.02			%
	NTSC & PAL AC	0.3			%
Differential Phase (DP)	NTSC & PAL DC	0.02			
	NTSC & PAL AC	0.36			
Group Delay Variation (D/DT)	$f = 400KHz, 26.5MHz$	1.2			ns
Crosstalk (channel to channel)	at 1MHz	-64			dB
Rise Time	2.0V step, 80%--20%	8.5			ns
Fall Time	2.0V step, 80%--20%	8.7			ns
Control decoding channel					
Propagation Delay	$R_L = 5.1k\Omega, C_L = 50p$			40	ns
Output Swing High	$I=2mA$	$V_{DD}-0.1$			V
Output Swing Low	$I=2mA$	100			mV
Input Offset Current				50	pA
INPUT CHARACTERISTICS: Amplifier channel					
Output Level Shift Voltage (VOLS)	$V_{in}=0V$, no load	235	230	370	mv
Input Voltage Clamp (VCLAMP)	$I_{in} = -1mA$	-4.5	-4	-22	mV
Clamp Charge Current	$V_{in}=V_{clp}-100mV$	-5		-7.2	mA
Voltage Gain (A_v)	$R_L=150$	2	1.90	2.1	V/V

OUTPUT CHARACTERISTICS: Amplifier channel					
Output Voltage High Swing	Vin=3V, RL=150 Ω	4.5	4.2	4.5	V
Output Short-Circuit Current (ISC)	Vin=0.1V, out short to VDD through 10 Ω	37		45	mA
POWER SUPPLY					
Operating Voltage Range			2.7	5	V
Quiescent Current	no load	13		15	mA
Operating Current	Vin=500mV	25		27	mA

CAUTION

This integrated circuit can be damaged by Static electricity if you don't pay attention to ESD protection. 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.

APPLICATIONS INFORMATION

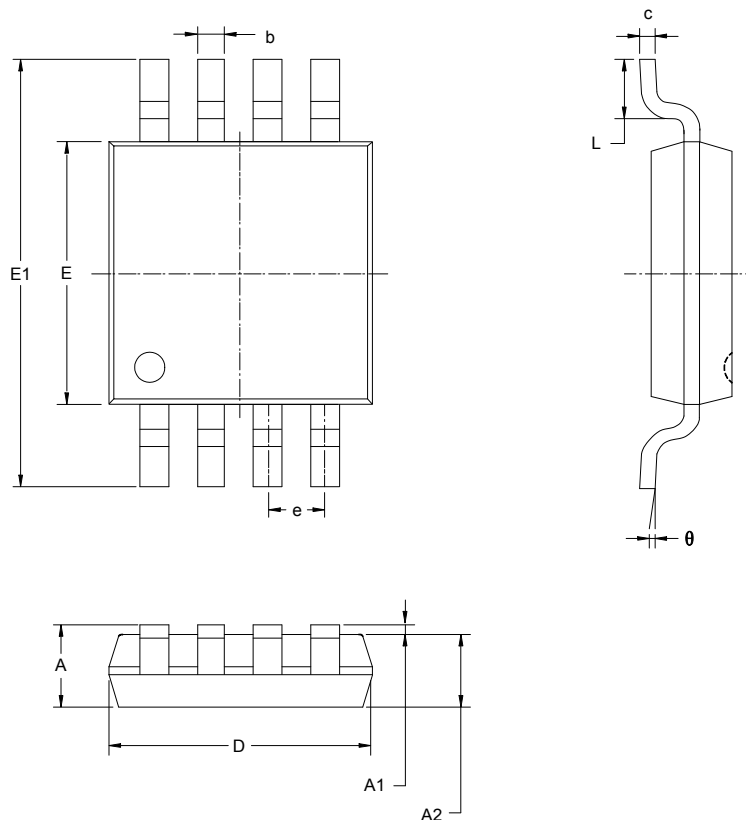
Functional Description

MS7332M operates from a single +2.7V to +5V supply. In application, MS7332M is a fully integrated solution for filtering and buffering HDTV signals in front of video decoder or behind video encoder, and reverse control decoder. MS7332M's solution can help you save PCB size and production cost, it also improves video signal performance comparing with traditional design using discrete components. MS7332M features a DC-coupled input buffer, 10th low-pass filter to eliminate out-of-band noise of video encoder, and a gain of +6dB in the output amplifier to drive 75Ω load. The AC or DC-coupled input buffer eliminates sync crush, droop, and field tilt. The output of MS7332M also can be DC-coupled or AC-coupled.

Power-Supply Bypassing and Layout

Correct power supply bypassing is very important for optimizing video performance in design. both 0.1μF ceramic and 10μF electrolytic capacitors are always used to Bypass VCC pin of MS7332M, please place these two capacitors as close to the MS7332M output pin as possible, a large ground plane is also needed to ensure optimum performance. The input and output termination resistors should be placed as close to the related pin of MS7332M as possible to avoid performance degradation. The PCB traces at the output side should have 75Ω characteristic impedance in order to match the 75Ω characteristic impedance cable connecting external load. In design, please keep the board trace at the inputs and outputs of the MS7332M as short as possible to minimize the parasitic stray capacitance and noise pickup.

0.1μF capacitor is used to stabilize Vref pin of MS7332M.

PACKAGE OUTLINE DIMENSIONS
MSOP-8


Symbol	Dimensions In Millimeters		Dimensions in Inches	
	MIN	MAX	MIN	MAX
A	0.820	1.100	0.032	0.043
A1	0.020	0.150	0.001	0.006
A2	0.750	0.950	0.030	0.037
b	0.250	0.380	0.010	0.015
c	0.090	0.230	0.004	0.009
D	2.900	3.100	0.114	0.122
E	2.900	3.100	0.114	0.122
E1	4.750	5.050	0.187	0.199
e	0.650BSC		0.026BSC	
L	0.400	0.800	0.016	0.031
θ	0°	6°	0°	6°