



August 2005

FMS6406

Precision S-Video Filter with Summed Composite Output, Sound Trap, and Group Delay Compensation

Features

- 7.6MHz 5th order Y,C filters with composite summer
- 14dB notch at 4.425MHz to 4.6MHz for sound trap capable of handling stereo
- 50dB stopband attenuation at 27MHz on Y, C and CV outputs
- Better than 0.5dB flatness to 4.2MHz on Y, C and CV outputs
- Equalizer and notch filter for driving RF modulator with group delay of -180ns
- No external frequency selection components or clocks
- < 5ns group delay on Y, C and CV outputs
- AC coupled inputs
- AC or DC coupled outputs
- Capable of PAL frequency for Y,C, CV
- Continuous Time Low Pass Filters
- < 1.4% differential gain with 0.7° differential phase on Y, C and CV channels
- Integrated DC restore circuitry with low tilt

Applications

- Cable set-top boxes
- Satellite set-top boxes
- DVD players

Description

The FMS6406 is a dual Y/C 5th order Butterworth lowpass video filter optimized for minimum overshoot and flat group delay. The device also contains a summing circuit to generate filtered composite video, an audio trap and group delay compensation circuit. The audio trap removes video information in the spectral location of the subsequent RF audio carrier. The group delay circuit predistorts the signal to compensate for the inherent receiver IF filter's group delay distortion.

In a typical application, the Y and C input signals from DACs are AC coupled into the filters. Both channels have DC restore circuitry to clamp the DC input levels during video sync. The Y and C channels use separate feedback clamps. The clamp pulse is derived from the Y channel.

All outputs are capable of driving 2V_{pp}, AC or DC coupled, into either a single or dual video load. A single video load consists of a series 75Ω impedance matching resistor connected to a terminated 75Ω line, this presents a total of 150Ω of loading to the part. A dual load would be two of these in parallel which would present a total of 75Ω to the part. The gain of the Y, C and CV signals is 6dB with 1V_{pp} input levels. All video channels are clamped during sync to establish the appropriate output voltage reference levels.

Ordering Information

Model	Part Number	Lead Free	Package	Container	Pack Qty
FMS6406	FMS6406CS	Yes	SOIC-8	Tube	95
FMS6406	FMS6406CSX	Yes	SOIC-8	Tape and Reel	2500

Temperature range for all parts: 0°C to +70°C.

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