SL1451

WIDEBAND PLL FM DETECTOR FOR SATELLITE TV

The SL1451 is a phase locked loop demodulator for use in wideband FM systems. It is intended for use with an IF input frequency from 300MHz to 700MHz in satellite receivers. It consists of an input RF amplifier, signal level detector, UHF phase detector UHF oscillator and video/loop amplifier. Both positive and negative going video outputs are available.

FEATURES

- Complete PLL System for Wideband FM Demodulator
- Noise Threshold Performance: 8dB (Typ.)
- Low External Component Count
- Positive and Negative going Video Output
- Demodulates FM Signals with up to 28MHz p-p Deviation

APPLICATIONS

- DBS Receivers
- Wideband Data Communications Demodulation

ORDERING INFORMATION

SL1451 NA DP (16-lead plastic DIL package)

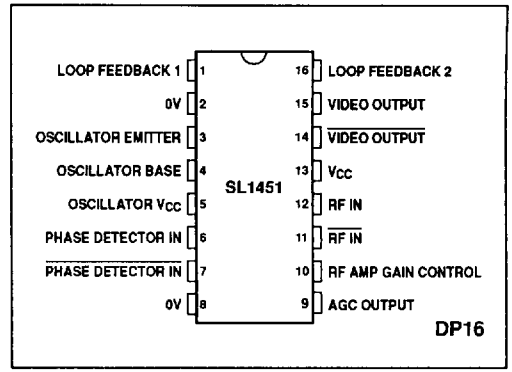

Fig. 1 Pin connections - top view

ABSOLUTE MAXIMUM RATINGS

Operating temperature range	−10°C to +80°C
Supply voltage, V_{CC}	11V
Storage temperature	−55°C to +150°C
Junction temperature	+175°C

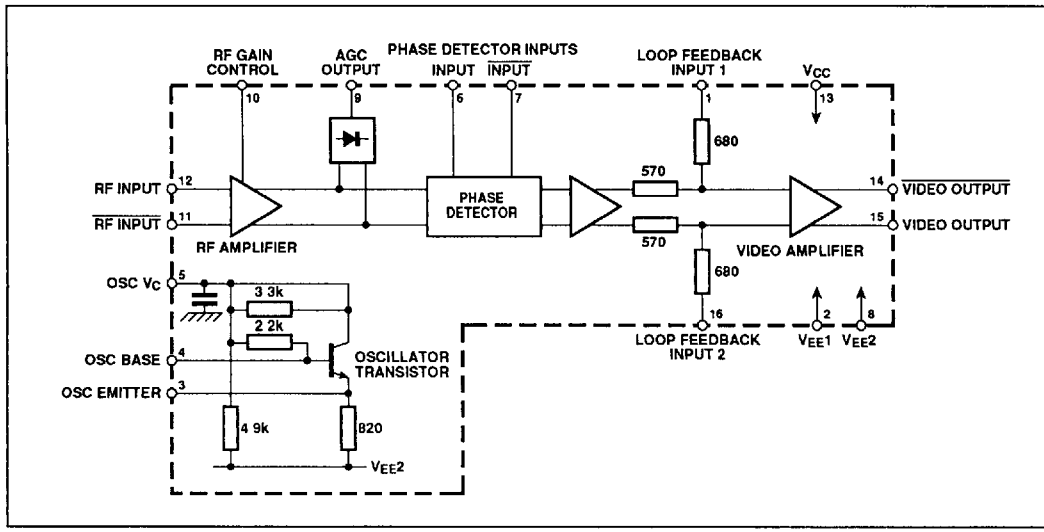

Fig. 2 Block diagram

ELECTRICAL CHARACTERISTICS

These characteristics are guaranteed over the following conditions (unless otherwise stated):

T_{AMB} = +25°C, V_{CC} = 7·4V to 9V

Characteristic	Pin	Value			Units	Conditions
		Min.	Typ.	Max.		
Supply current	13,5	40	55	70	mA	
Supply voltage	13,5	7·4	8·2	9	V	
Minimum oscillator frequency			300		MHz	
Maximum oscillator frequency			700		MHz	
Phase detector input level from oscillator	6,7	400	70	100	mV	
RF input level	11,12	12·5	40	125	mV	
Phase detector gain			0·5		V/Radian	
AGC output	9		300		µA	No input signal
			140		µA	−20dBm input signal
Oscillator lock range			50		MHz	See note 1
VCO slope			14		MHz/V	
Video output voltage	14,15		1·5		V p-p	21·4MHz p-p deviation
Intermodulation products			−40		dBm	See note 2
Video bandwidth			18		MHz	

NOTES

1 All characteristics from Oscillator Lock Range to Video Bandwidth are measured using the application circuit Fig 3.

2 Signal 1: 4·433MHz, deviation = 21·4MHz p-p
Signal 2 6MHz, deviation = 3MHz p-p

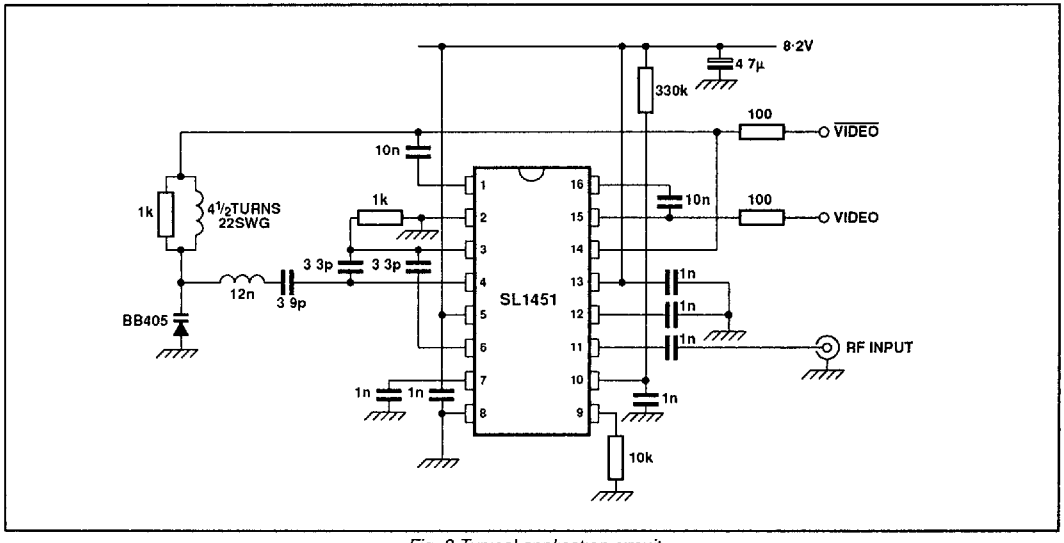

Fig. 3 Typical application circuit