AN5560

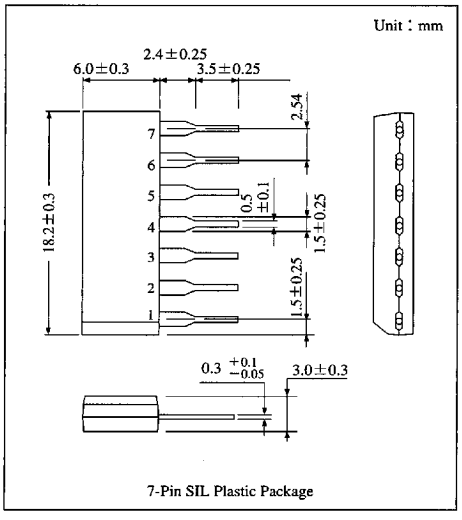
50Hz and 60Hz Detection IC for TV

■ Overview

The AN5560 is an integrated circuit designed for TV-vertical synchronous signal 50Hz/60Hz-detector.

■ Features

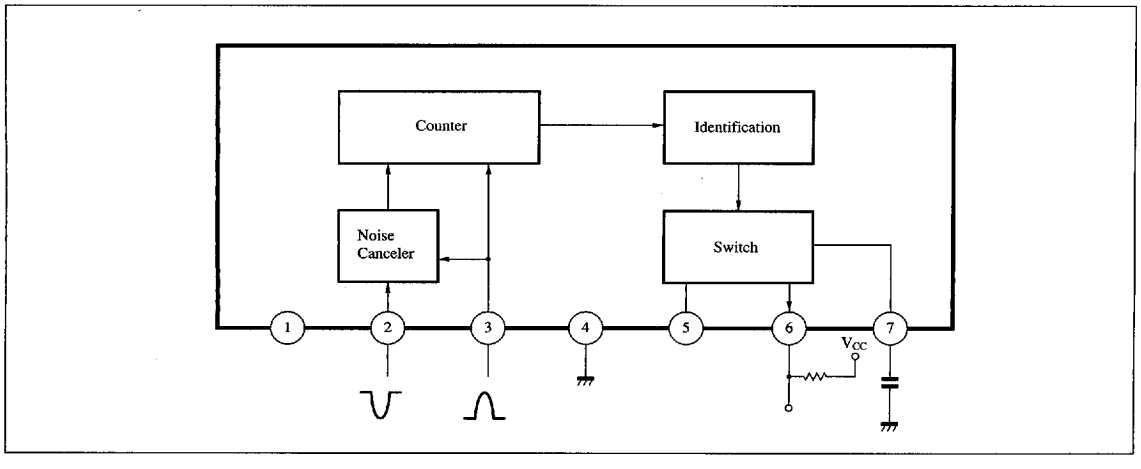
- AN5560 detects whether vertical synchronous signal-identification-frequency is 50Hz or 60Hz by taking in horizontal and vertical synchronous signals
- Detected frequency is indicated by high-, and low-DC voltage
- It is possible to change the identified output-DC levels by manual switch.



■ Pin Descriptions

Pin No.	Pin name
1	V_{CC}
2	Vertical pulse input
3	Horizontal pulse input
4	GND
5	Manual switch
6	50/60Hz identified output
7	Output hold

■ Block Diagram



■ Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating		Unit
Supply voltage	V_{CC}	14.4		V
Circuit voltage	V_{2-4}	0	$V_{1-4}+0.4$	V
	$V_{3,5-4}$	0	V_{1-4}	V
	V_{6-4}	0	24	V
Circuit current	I_2	−0.8	5	mA
	I_6	—	20	mA
Power dissipation (Ta=70℃)	P_D	695		mW
Operating ambient temperature	T_{opr}	−20 to +70		℃
Storage temperature	T_{stg}	−55 to +150		℃

■ Electrical Characteristics (V_{CC}=12V, Ta=25℃)

Parameter	Symbol	Condition	min	typ	max	Unit
Total current	I_{tot}		7.5	10.0	12.5	mA
50/60 identified output auto50	V_{Auto50}	V_{CC}=12V, f=50Hz, Pin⑤=Open	11.9	—	12.0	V
50/60 identified output auto60	V_{Auto60}	V_{CC}=12V, f=60Hz, Pin⑤=Open	—	—	0.3	V
50/60 identified output manual50	$V_{manual50}$	V_{CC}=12V, Pin⑤=GND	11.9	—	12.0	V
50/60 identified output manual60	$V_{manual60}$	V_{CC}=12V, Pin⑤=R10kΩ	—	—	0.3	V
Horizontal frequency input range	f_H		15.6	—	16.0	kHz
Vertical frequency input range 50Hz	f_{V50}		f_H/346	f_H/312	f_H/284	Hz
Vertical frequency input range 60Hz	f_{V60}		f_H/282	f_H/260	f_H/243	Hz
Horizontal pulse input level	v_{fH}	v_{fH} Pin③Open	2	—	5	V
Vertical pulse input level	v_{fv}	v_{fv}	0	—	V_{CC}−3.0	V
Horizontal pulse width	$t_{W(fH)}$		4	—	12	μs
Vertical pulse width	$t_{W(fV)}$		150	—	500	μs

Note) Operating supply voltage range : $V_{CC(opr)}$ =9.6 to 14.4V

■ Application Circuit