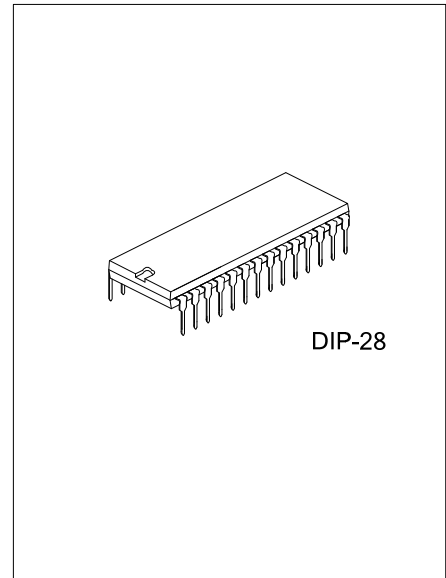




AN5151

LINEAR INTEGRATED CIRCUIT

TV VIF & SIF & DEFLECTION SYSTEM (FOR TV LARGE INTEGRATION)



DESCRIPTION

The UTC AN5151 is a monolithic integrated circuit containing all stage for the VIF,SIF and deflection of television receivers.

FEATURES

*Hight integrated technology makes it possible the integration of video IF circuit tuner AFC circuit sound. IF circuit and deflection.-jungle circuit on one single chip.

*supply voltage range:8V to 12V

FUNCTIONS

*IF Amplifier, IF AGC

*Video Amplifier, Video Detector

*Noise Canceller, Forward RF AGC

*Tuner AFT,SIF Amplifier

*Sound Detector, sync separation

*Vertical oscillation trigger and driver

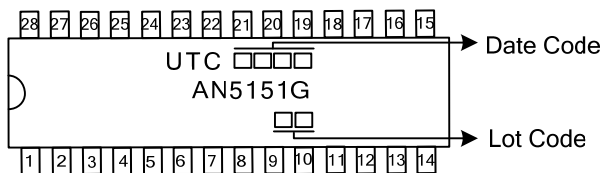
*Horizontal oscillation driver and AFC

ORDERING INFORMATION

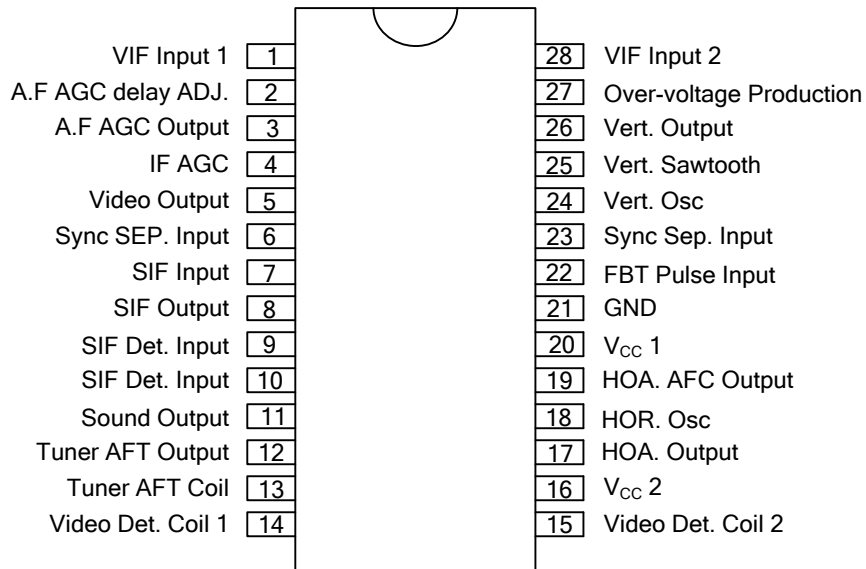
Ordering Number	Package	Packing
AN5151G-D28-T	DIP-28	Tube

<p>AN5151G-D28-T</p> <p>(1)Packing Type (2)Package Type (3)Green Package</p>	<p>(1) T: Tube (2) D28: DIP-28 (3) G: Halogen Free and Lead Free</p>
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MARKING INFORMATION



■ PIN CONFIGURATION



■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V _{CC1}	12	V
Supply Current	I ₂₀	85	mA
	I ₁₆	15	mA
Circuit Voltage	V _{2,3,4,24}	0	V
	V ₈	5.5 ~ 0	V
	V ₁₃	4.2 ~ 0	V
	V ₁₇	0	V
Circuit Current	I _{5,6,11,23,26}	+0.3 ~ -10	mA _{p-p}
	I ₁₉	+0.6 ~ -0.6	mA _{p-p}
	I ₂₅	+10 ~ 0	mA _{p-p}
	I ₁₇	+10 ~ -4	mA _{p-p}
Power Dissipation	P _D	1100	mW
Operating Temperature	T _{OPR}	-20 to +70	°C
Storage Temperature	T _{STG}	-40 to 125	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

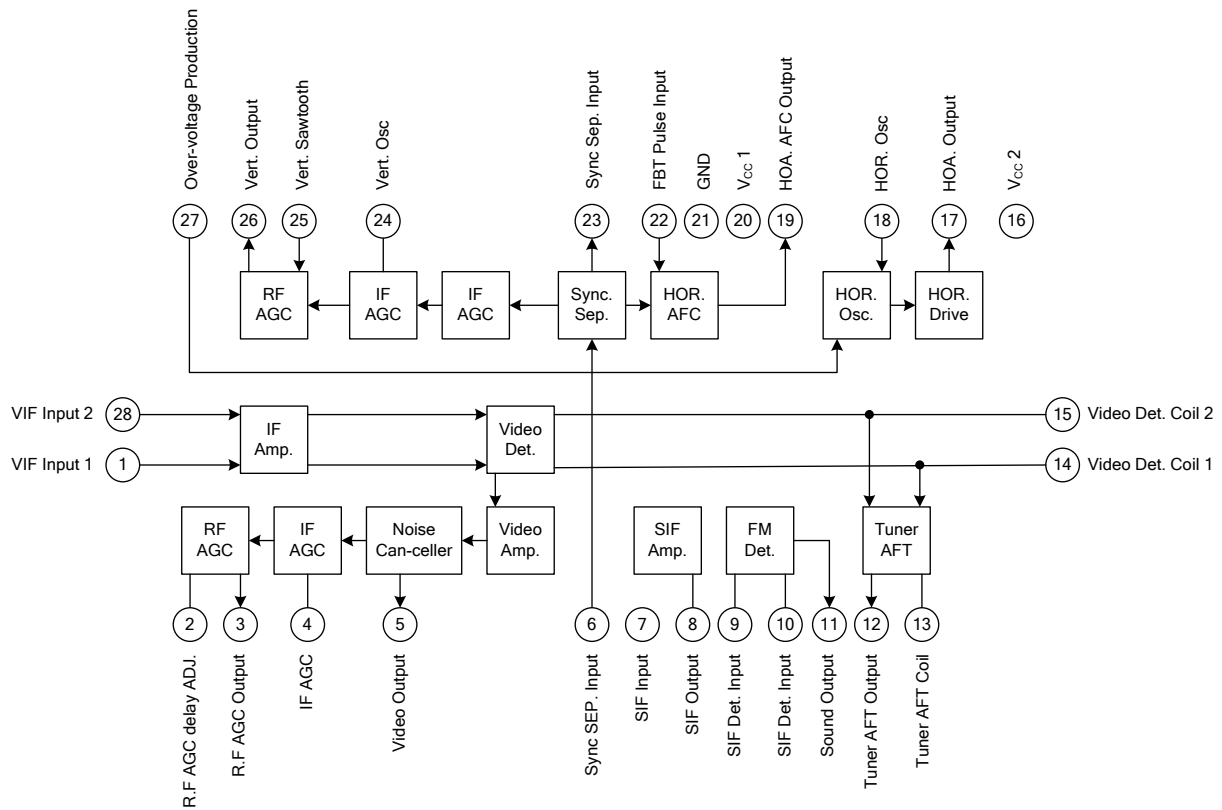
■ ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
VIDEO SECTION						
Video Det. Output	V _O	m = 87.5%	2.0	2.3	2.6	V _{p-p}
Input Sensitivity	S _{VI}	V _O = -3dB		50	55	dB _μ
Maximum Input	V _{max}	V _O > +0dB	105	110		dB
S/N Ratio	S/N	V _I = 80dB _μ	51	56		dB
Differential Gain	DG	m = 87.5%		4	8	%
Differential Phase	DP	m = 87.5%		3	6	°C
Video frequency Characteristics	G _{vf}	V _O = -3dB	4.5	6.0	8.0	MHz
Sync. Peak Voltage	V _P		1.9	2.3	2.7	V
Noise inverter output level	V _{NT}		1.0	1.4	1.8	V
Noise inverter capture level	V _{NI}		3.0	4.0	5.0	V
Sound IF Output	V _{sif}	P/S=20dB	100	104	107	dB _μ
Input Resistor	R _{IN}	f = 45.75MHz	0.8	1.0	1.2	kΩ
Input Capacitor	C _{IN}	f = 45.75MHz	3.0	3.4	3.8	pF
Output Resistor	R _O (pin 5)	f = 500kHz	30	50	150	Ω
RF AGC Gain	G _{RF} (AGC)	f = 10kHz, V ₄ = 5mV	36	42	48	dB
RF AGC Maximum Voltage	V _{3 max}		8.2	8.8	9.4	V
RF AGC Minimum Voltage	V _{3 min}		3.6	4.2	4.8	V
AFT Center Voltage	V ₂		4.0	5.4	6.0	V
AFT SW Operating Voltage	V _{AFT} (SW)	R _S =10kΩ	0.5	2.6	3.0	V
AFT Maximum Output Voltage	V _{12 max}		8.5	9.6	10.0	V
AFT Minimum Output Voltage	V _{12 min}		0	0.7	1.2	V
Selection Sensitivity		R _L = 68kΩ / 82kΩ	30	50	90	mV/kHz

■ ELECTRICAL CHARACTERISTICS (Cont.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
SOUND SECTION						
Sound Det. Output	V_O	$f_o = 4.5\text{MHz}$, $f_m = 400\text{Hz}$, $\Delta f = \pm 25\text{kHz}$, $V_i = 100\text{mVrms}$	200	300	440	mVrms
Input Limit Voltage	V_{i_lim}	$f_o = 4.5\text{MHz}$, $f_m = 400\text{Hz}$, $\Delta f = \pm 25\text{kHz}$		280	450	μVrms
Total Harmonic distortion	THD	$f_o = 4.5\text{MHz}$, $f_m = 400\text{Hz}$, $\Delta f = \pm 25\text{kHz}$, $V_i = 100\text{mVrms}$		0.6	1.0	%
AM Rejection ratio	AMR	$f_o = 4.5\text{MHz}$, $f_m = 400\text{Hz}$, $\Delta f = \pm 25\text{kHz}$, $V_i = 100\text{mVrms}$	43	55		dB
Input Impedance	R17	$f = 4.5\text{MHz}$	6	20	100	k Ω
	C17		1.3	4.3	7.3	pF
Detector input impedance	R9	$f = 4.5\text{MHz}$	2.0	3.0	4.0	k Ω
	C9		2.1	5.1	8.1	pF
	R10		50	200		k Ω
	C10		2.9	3.4	3.9	pF
DEFLECTION SECTION						
Sync separation horizontal pulse width 1	tsYNC1	Video input 2.5Vp-p APL=50%, $V_{CC1}=10\text{V}$	4.8	5.1	5.4	μs
Sync separation horizontal pulse width 2	tsYNC2	Video input 1.0Vp-p APL=50%, $V_{CC1}=10\text{V}$	4.9	5.2	5.5	μs
Horizontal AFC Horizontal pulse width 1	tsYNC3	Video input 2.5Vp-p APL=50%, $V_{CC1}=10\text{V}$	4.8	5.1	5.4	μs
Horizontal AFC Horizontal pulse width 2	tsYNC4	Video input 1.0Vp-p APL=50%, $V_{CC1}=10\text{V}$	4.9	5.2	5.5	μs
Vertical Osc, start supply voltage	Vvos	$f_{vo}=50\sim 70\text{Hz}$, Output=0.7Vp-p			6	V
Vertical free runing frequency	fvo	$R_{osc}=31.5\text{k}\Omega$	57	60	63	Hz
Vertical Osc. Pulse width	tvo	$R_{osc}=31.5\text{k}\Omega$	470	650	830	μs
Vertical full in Range	fv(pull)	$V_{CC1}=12\text{V}, 8\text{V}$ $\Delta f_{vo}/V_{CC} = f_{vo}(12\text{V}) - f_{vo}(8\text{V})$	0	1.0	1.3	Hz
Horizontal OSC. Start supply voltage	Vhos	$f_{ho}=10\sim 20\text{kHz}$, output=1Vp-p pin 16 Voltage			5	V
Horizontal Osc. Frequency	fho	$R_{osc}=21\text{k}\Omega$	15.0	15.75	16.25	kHz
Horizontal Osc. Pulse width	tho	$R_{osc}=21\text{k}\Omega$	23	25	29	μs
Horizontal OSC Control Sensitivity		$\Delta I_1 = \pm 100\mu\text{A}$ input Variable Osc. Frequency Variable	73	81	89	Hz/ μA
Phase Det. Sensitivity	μP	TV input 2Vp-p, $R(u)=31.4\text{k}\Omega$, $\mu=V_{19}\times 10$	13.5	16.5	19.5	$\mu\text{A}/\mu\text{S}$
X-ray protector operation voltage	V27		0.81	0.87	0.93	V
X-ray protector input resistor	R27		16	19	22.5	k Ω

■ TYPICAL APPLICATION CIRCUIT



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