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NTE1827
Integrated Circuit
VIF & SIF Circuit for TV/VCR

Description:

The NTE1827 is an IC containing the VIF section and SIF section on a single chip in the 20–Lead DIP package. The use of the small–sized package serves to make VCR tuner units smaller.

Functions:

- VIF section: VIF AMP, Video Det, Peak IF AGC, B/W Noise Canceller, RF AGC, AFT, Video Mute.
- SIF section: SIF Limiter Amp, FM Det, SND Mute.

Features:

- High–Gain VIF Amp Requiring No Preamp
- Non–Adjusting can be Attained by using a Ceramic Discriminator because of FM Detection being Quadrature Detection.
- Possible to Mute Video, Sound for VCR.
- Small–Sized Package.
- Minimum Number of External Parts Required.
- Operates from 9V Supply Voltage

Operating Characteristics: (T_A = +25°C, V_{CC} = 12V, f_p = 58.75MHz, fs = 54.25MHz (VIF))

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Total Circuit Current	I_{17}		44	55	73	mA
Maximum RF AGC Voltage	V_{IOH}		8.5	9.0	9.5	V
Minimum RF AGC Voltage	V_{IOL}		–	–	0.5	V
Quiescent Video Output Voltage	V_{11}		4.5	6.5	7.0	V
Input Sensitivity	V_i	fm = 400Hz 40%AM, V_o = 0.8$V_{p–p}$	30	36	42	dBu
AGC Range	GR	fm = 15kHz 78%AM, V_o = ±1dB	60	68	–	dB
Maximum Allowable Input	Vimax	fm =15kHz 78%AM, V_O = ±1dB	100	–	–	mVrms
Video Output Amplitude	$V_{o(16)}$	V_i = 10mV_{rms}, fm = 15kHz 78%AM	1.9	2.2	2.5	V_{pp}
Output S/N	S/N	Vi = 10mV_{rms} CW	47	55	–	dB
Carrier Leakage	CL	Vi = 100mV_{rms}, fm = 15kHz 78% AM	50	57	–	dB
Maximum AFT Voltage	V_{IIH}	V_i = 10mV_{rms} SWEEP	11	11.5	–	V

Operating Characteristics (Cont'd): (T_A = +25°C, V_{CC} = 12V, f_p = 58.75MHz, fs = 54.25MHz (VIF))

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Minimum AFT Voltage	V_{IIL}	V_i = 10mV$_{rms}$ SWEEP	–	0.4	1.0	V
AFT Detection Sensitivity	SF	V_i = 10mV$_{rms}$ SWEEP	50	88	–	mV/kHz
White Noise Threshold Level	V_{WTH}	V_i = 10mV$_{rms}$ SWEEP	6.4	6.8	7.2	V
White Noise Clamp Level	V_{WCL}	V_i = 10mV$_{rms}$ SWEEP	4.2	4.6	5.0	V
Black Noise Threshold Level	V_{BTH}	V_i = 10mV$_{rms}$ SWEEP	1.9	2.2	2.5	V
Black Noise Clamp Level	V_{BCL}	V_i = 10mV$_{rms}$ SWEEP	3.8	4.2	4.6	V
SIF Output Signal Voltage	$V_{OS(16)}$	P/S = 20dB	70	130	210	mV$_{rms}$
Frequency Characteristic	f_c	–3dB	5	7	–	MHz
Differential Gain	DG	Vi =10mV$_{rsm}$ 87.5% VIDEOMOD	–	–	4	%
Differential Phase	DP	V_i = 10mV$_{rms}$ 87.5% VIDEOMOD	–	–	3	deg
Input Resistance	ri		–	1.5	–	kohm
Input Capacitance	ci		–	3.5	–	pF
SIF Limiting Voltage	Vilim	–3dB	–	200	400	µVrms
Detection Output Voltage	$V_{O(3)}$	Vi = 100mV$_{rms}$, fm = 400Hz, Δf = ±25kHz	450	650	850	mV$_{rms}$
Total Harmonic Distortion	THD(3)	Vi = 100mV$_{rms}$, fm = 400Hz, Δf = ±25kHz	–	0.5	1.0	%
AM Rejection	AMR	V_i = 100mV$_{rms}$, fm = 400Hz, Δf = ± 25kHz, 30%AM	50	60	–	dB

Pin Connection Diagram