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NTE1728
Integrated Circuit
VIF & SIF Circuit for VCR

Description:

The NTE1728 is an integrated circuit in a 30–Lead DIP type package containing the VIF section and SIF on a single chip. Since this device is capable of performing video detection and sound detection independently or simultaneously, it can be applied to various sets from popular type to high–grade type according to the designer's policy.

Features:

- High–Gain VIF Amp Requiring No Preamp
- High AGC Speed
- Provides Wide–Band Detection Characteristics and Meets Sound MPX Demodulation Requirements because of FM Detection being Quadrature Detection.
- Possible to use Sound REC Pin (Pin2), AUX Pin (Pin3)
- Possible to Mute Video, Sound for VCR
- Pin7 GND: Muting of both Video and Sound
- Pin29 GND: Muting of Sound Only

Functions:

- VIF Section: VIF Amp Video Det, Peak IF AGC, B/W Noise–Canceller, RF AGC, AFT, SIF DET
- SIF Section: SIF Limiter Amp, FM Det, DC ATT, AF Driver

Operating Characteristics: (T_A = +25°C, V_{CC} = 12V, f_p = 58.75MHz, f_s = 54.25MHz (VIF), f_o = 4.5MHz (SIF) unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
VIH Section						
Total Circuit Current	$I_{23} + I_{24}$	DC	59	74	98	mA
Maximum RF AGC Voltage	VH_{13H}	DC	8.5	8.9	9.2	V
Minimum RF AGC Voltage	V_{13L}	DC	–	0	0.5	V
Quiescent Video Output Voltage	V_{22}	DC	5.6	6.1	6.6	V
Quiescent AFT Output	V_{17}	DC	4.5	6.5	7.5	V
Input Sensitivity	V_i	f_m = 400Hz 40% AM, V_O = 0.8V_{pp}	30	36	42	dBμ
AGC Range	GR	f_m = 15kHz 78% AM, V_O = ±1dB	60	74	–	dB

Operating Characteristics (Cont'd): (T_A = +25°C, V_{CC} = 12V, f_p = 58.75MHz, f_s = 54.25MHz (VIF), f_o = 4.5MHz (SIF) unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
VIH Section (Cont'd)						
Maximum Allowable Input	V_{imax}	f_m = 15kHz 78% AM, V_O = ± 1dB				
Video Output Amplitude	$V_{O(22)}$	V_i = 10mV_{rms}, fm = 15kHz 78% AM	1.9	2.2	2.5	V_{pp}
Output S/N	S/N	V_i = 10mV_{rms}, CW	48	54	–	dB
Carrier Leakage	CL	V_i = 100mV_{rms}, fm = 15kHz 78% AM	50	57	–	dB
Maximum AFT Voltage	V_{17H}	V_i = 10mV_{rms}, SWEEP	11.0	11.5	12.0	V
Minimum AFT Voltage	V_{17L}	V_i = 10mV_{rms}, SWEEP	0	0.4	1.0	V
AFT Detection Sensitivity	Sf	V_i = 10mV_{rms}, SWEEP	70	100	140	mV/kHz
White Noise Threshold Level	V_{WTH}	V_i = 10mV_{rms}, SWEEP	6.4	6.8	7.2	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	$V_{O(25)}$	P/S = 20dB	40	60	100	mV_{rms}
Frequency Characteristic	f_o	–3dB	6	8	–	MHz
Differential Gain	DG	V_i = 10mV_{rms} 87.5, VIDEOMOD	–	4	10	%
Differential Phase	DP	V_i + 10mV_{rms} 87.5%, VIDEOMOD	–	3	6	deg
Input Resistance	R_i	V_i = 10mV_{rms} 87.5,%, VIDEOMOD	1.0	1.5	2.0	kΩ
Input Capacitance	C_i		–	3.5	7.0	pF
SIF Section						
SIF Limiting Voltage	V_{ilim}	–3dB	–	200	400	μV_{rms}
Detection Output Voltage	$V_{O(2)}$	V_i = 100mV_{rms}, f_m = 400Hz, f = ±25kHz	450	680	850	mV_{rms}
Distortion	THD(2)	V_i = 100mV_{rms}, f_m = 400Hz, f = ±25kHz	–	0.5	1.0	%
AM Rejection	AMR	V_i = 100mV_{rms}, f_m = 400Hz, f = ±25kHz 30%	50	60	–	dB
DCVR Maximum Attenuation	ATT	V_i = 200mV_{rms}, f = 400Hz	70	80	–	dB
AF Amp Gain	G_{AF}	V_i = 100mV_{rms}, f = 400Hz	18	20	22	dB
AF Amp Output Voltage	$V_{O(5)}$	$V_{O(5)}$ THD = 10%, f = 400Hz	3	4	–	V_{rms}

Pin Connection Diagram



