

NTE724 Integrated Circuit Differential/Cascode Amplifier

Description:

The NTE724 is a differential/cascode amplifier in an 8-Lead TO5 type metal can package designed for use in communications and industrial equipment operating at frequencies from dc to 120MHz.

Features:

- Controlled for Input Offset Voltage, Input Offset Current, and Input Bias Current
- Balanced Differential Amplifier Configuration with Controlled Constant-Current Source
- Single and Dual-Ended Operation

Applications:

- RF and IF Amplifiers (Differential or Cascode)
- DC, Audio, and Sense Amplifiers
- Converter in the Commercial FM Band
- Oscillator
- Mixer
- Limiter

Absolute Maximum Ratings: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Power Dissipation ($T_A \leq +85^\circ\text{C}$), P_D 450mW
 Derate Linearly Above 85°C 5mW/ $^\circ\text{C}$
 Operating Ambient Temperature Range, T_{opr} -55° to $+125^\circ\text{C}$
 Storage Temperature Range, T_{stg} -65° to $+150^\circ\text{C}$
 Lead Temperature (During Soldering, 1/16" from case, 10sec max), T_L $+265^\circ\text{C}$

Electrical Characteristics: ($T_A = +25^\circ\text{C}$, $V_{CC} = +12\text{V}$, $V_{EE} = -12\text{V}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Bias Current	I_{II}	$V_{CC} = +6\text{V}$, $V_{EE} = -6\text{V}$	-	16.6	70.0	μA
			-	36	106	μA
Quiescent Operating Current	I_6 or I_8	$V_{CC} = +6\text{V}$, $V_{EE} = -6\text{V}$	0.8	1.25	2.0	mA
			2.0	3.3	5.0	mA
AGC Bias Current (Into Constant Current Source Pin7)	I_7	$V_{CC} = 12\text{V}$, $V_{AGC} = 9\text{V}$	-	1.28	-	mA
		$V_{CC} = 12\text{V}$, $V_{AGC} = 12\text{V}$	-	1.65	-	mA

Electrical Characteristics (Cont'd): ($T_A = +25^\circ\text{C}$, $V_{CC} = +12\text{V}$, $V_{EE} = -12\text{V}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit		
Input Current (Pin7)	I_7	$V_{CC} = +6\text{V}$, $V_{EE} = -6\text{V}$	0.5	0.85	1.0	mA		
			1.0	1.65	2.1	mA		
Device Dissipation	P_T	$V_{CC} = +6\text{V}$, $V_{EE} = -6\text{V}$	24	36	54	mW		
			120	175	260	mW		
Power Gain	G_P	$V_{CC} = 9\text{V}$, $f = 100\text{MHz}$	Cascode	16	20	–	dB	
			Differential Amp	14	17	–	dB	
		$V_{CC} = 9\text{V}$, $f = 10.7\text{MHz}$	Cascode	35	39	–	dB	
			Differential Amp	28	32	–	dB	
Noise Figure	NF	$V_{CC} = 9\text{V}$, $f = 100\text{MHz}$	Cascode	–	7.2	9.0	dB	
			Differential Amp	–	6.7	9.0	dB	
Power Output (Untuned)	P_O	$V_{CC} = 9\text{V}$, $f = 10.7\text{MHz}$	Diff. Amp 50 Ω Input–Output		–	5.7	–	μW
AGC Range	AGC		Differential Amp		–	62	–	dB
Voltage Gain	A	$V_{CC} = 0\text{V}$, $f = 10.7\text{MHz}$ $R_L = 1\text{k}\Omega$	Cascode		–	40	–	dB
			Differential Amp		–	30	–	dB
Peak-to-Peak Output Current	I_{P-P}	$V_{CC} = 9\text{V}$	Differential Amp, $f = 10.7\text{MHz}$, $e_{in} = 400\text{mV}$		2.0	4.0	7.0	mA
		$V_{CC} = 12\text{V}$			3.5	6.0	10.0	mA

Pin Connection Diagram
(Top View)



