ELECTRONICS, INC.
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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°C unless otherwise specified)
Power Dissipation ($T_A \le +85°C$), P_D 450mW
Derate Linearly Above 85°C . . . . . 5mW/°C
Operating Ambient Temperature Range, T_{opr} . . . . . –55° to +125°C
Storage Temperature Range, T_{stg} . . . . . –65° to +150°C
Lead Temperature (During Soldering, 1/16” from case, 10sec max), T_L . . . . . +265°C

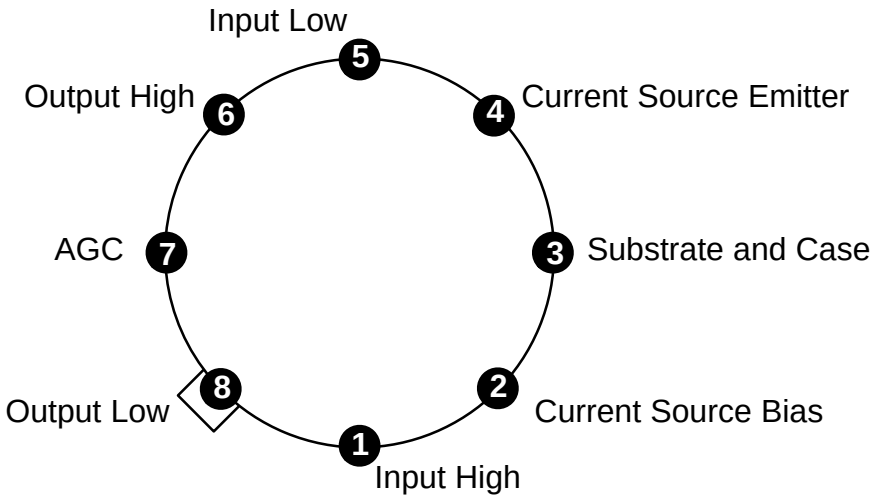
Electrical Characteristics: (T_A = +25°C, V_{CC} = +12V, V_{EE} = –12V unless otherwise specified)

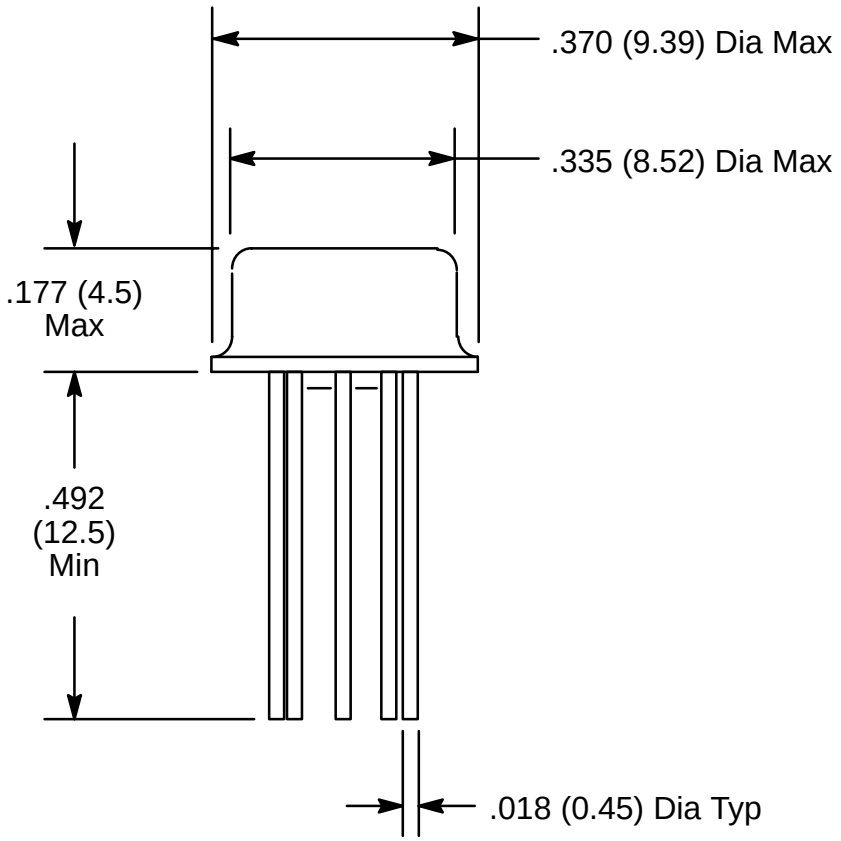
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Bias Current	I_{II}	V_{CC} = +6V, V_{EE} = –6V	–	16.6	70.0	μA
			–	36	106	μA
Quiescent Operating Current	I_6 or I_8	V_{CC} = +6V, V_{EE} = –6V	0.8	1.25	2.0	mA
			2.0	3.3	5.0	mA
AGC Bias Current (Into Constant Current Source Pin7)	I_7	V_{CC} = 12V,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

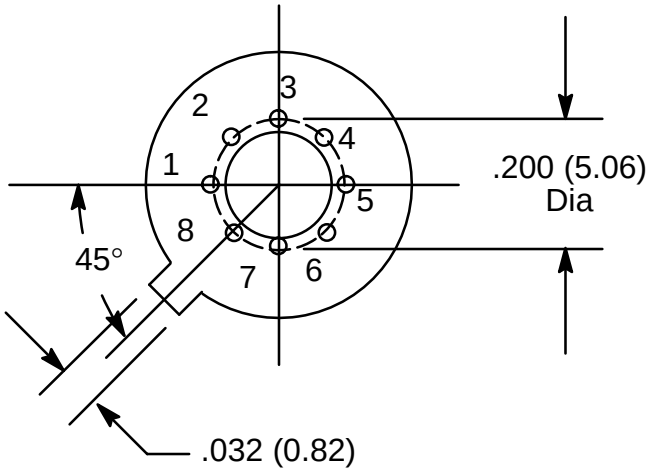
Electrical Characteristics (Cont'd): (T_A = +25°C, V_{CC} = +12V, V_{EE} = –12V unless otherwise specified)

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

Pin Connection Diagram
(Top View)




.370 (9.39) Dia Max
.335 (8.52) Dia Max
.177 (4.5)
Max
.492
(12.5)
Min
.018 (0.45) Dia Typ


1
2
3
4
5
6
7
8
.200 (5.06)
Dia
45°
.032 (0.82)