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NTE784
Integrated Circuit
Wide–Band Power Amplifier

Description:

The NTE784 is a multistage, multipurpose, wide–band power amplifier on a single monolithic silicon chip. This device employs a highly versitile and stable direct–coupled circuit configuration featuring wide frequency range, high voltage and power gain, and high power output. These features plus inherent stability over a wide temperature range make the NTE784 extremely useful for a wide variety of applications in military, industrial, and commercial equipment.

The NTE784 is particularly suited for service as a class B power amplifier and can provide a maximum power output of 1W from a 12V DC supply with a typical power gain of 75dB.

Features:

- High Power Output
- Wide Frequency Range
- High Power Gain
- Single Power Supply for Class B Operation with Transformer
- Built–In Temperature Tracking Voltage Regulator Provides Stable Operation

Applications:

- AF Power Amplifiers for Portable and Fixed Sound and Communications Systems
- Servo–Control Amplifier
- Wide–Band Linear Mixers
- Video Power Amplifiers
- Transmission–Line Driver Amplifier (Balanced and Unbalanced)
- Fan–In and Fan–Out Amplifiers for Computer Logic Circuits
- Lamp–Control Amplifiers
- Motor–Control Amplifiers
- Power Multivibrators
- Power Switches

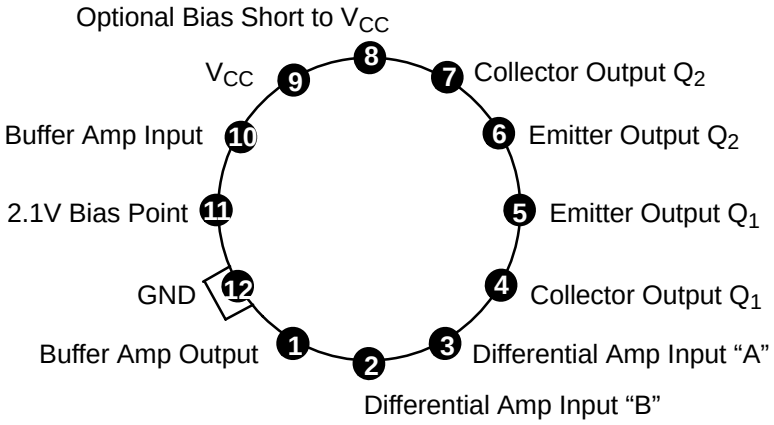
Absolute Maximum Ratings:

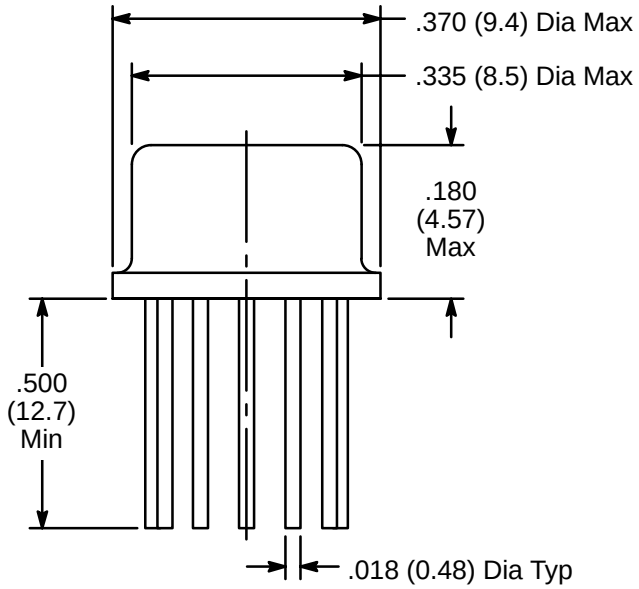
Power Dissipation (Without Heatsink, T_A = +25°C), P_D 1W
Derate Above 25°C . . . . . 6.7mW/°C
Power Dissipation (With Heatsink, T_C = +25°C), P_D 2W
Derate Above 55°C . . . . . 16.7mW/°C
Operating Temperature Range, T_{opr} . . . . . –55° to +125°C
Storage Temperature Range, T_{stg} . . . . . –65° to +150°C
Maximum Thermal Resistance, Junction–to–Case, R_{thJC} . . . . . 60°C/W

Electrical Characteristics: (T_A = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector–Emitter Breakdown Voltage	$V_{(BR)CER}$	(Q_6 & Q_7) I_C = 10mA	25	–	–	V
	$V_{(BR)CEO}$	(Q_1) I_C = 0.1mA	10	–	–	V
Idle Currents	I_4, I_7	(Q_6 & Q_7) V_{CC1} =9V, V_{CC2} = 2V	–	5.5	–	mA
Peak Output Currents	I_4, I_7	(Q_6 & Q_7) V_{CC1} =9V, V_{CC2} = 2V	180	–	–	mA
Cutoff Currents	I_4, I_7	(Q_6 & Q_7) V_{CC1} =9V, V_{CC2} = 2V	–	–	1.0	mA
Differential Amplifier Current Drain	I_{CC1}	V_{CC1} = 9V, V_{CC2} = 9V	6.3	9.4	12.5	mA
Total Current Drain	I_{CC1} + I_{CC2}	V_{CC1} = 9V, V_{CC2} = 9V	14.5	21.5	30.0	mA
Differential Amplifier Input Pin Voltages	V_2, V_3	V_{CC1} = 9V, V_{CC2} = 2V	–	11.1	–	V
Regulator Pin Voltage	V_{11}	V_{CC1} = 9V, V_{CC2} = 2V	–	2.35	–	V
Collector–Emitter Cutoff Current	I_{CEO}	(Q) V_{CC1} = 10V	–	–	100	µA
Emitter–Base Cutoff Current	I_{EBO}	(Q) V_{CC1} = 3V	–	–	0.1	µA
Collector–Base Cutoff Current	I_{CBO}	(Q) V_{CC1} = 3V	–	–	0.1	µA
Forward Current Transfer Ratio	h_{FE1}	(Q_1) I_C = 3mA, V_{CC1} = 6V	30	75	–	
Bandwidth	BW	V_{CC1} = 6V, V_{CC2} = 6V, –3dB	–	8	–	MHz
Maximum Power Output	$P_{O(max)}$	V_{CC1} = 6V, V_{CC2} = 6V, R_{CC} = 130Ω	200	300	–	mW
		V_{CC1} = 9V, V_{CC2} = 9V, R_{CC} = 130Ω	400	550	–	mW
		V_{CC1} = 9V, V_{CC2} = 12V, R_{CC} = 200Ω	800	1000	–	mW
Sensitivity	e_{IN}	V_{CC1} = 9V, V_{CC2} = 12V, P_{OUT} = 800mW, R_{CC} = 200Ω	–	50	100	mV
Input Resistance	R_{IN3}	V_{CC1} = 6V, V_{CC2} = 6V, Pin3 to GND	–	1000	–	Ω

Pin Connection Diagram
(Top View)




.370 (9.4) Dia Max
.335 (8.5) Dia Max
.180
(4.57)
Max
.500
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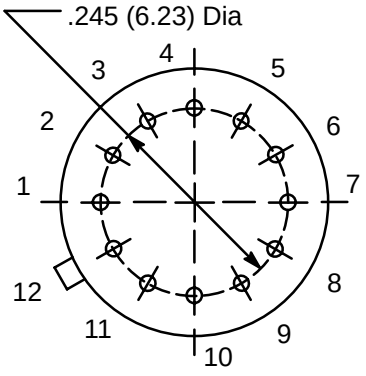
Min
.018 (0.48) Dia Typ


.245 (6.23) Dia
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