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NTE723 Integrated Circuit FM Sound System

Description:

The NTE723 is a monolithic integrated circuit FM detector/limiter and audio preamplifier that requires a minimum of external components for operation. It includes three stages of IF limiting and a differential-peak-detection circuit.

Features:

- Simple detector alignment: one coil
- Sensitivity: 3dB limiting voltage 250µV typical at 10.7MHz
- Low harmonic distortion
- Excellent AM rejection 55dB typ. at 10.7MHz
- Internal audio preamplifier

Absolute Maximum Ratings:

| | |
|---|----------------|
| Power Supply Current (Pin5) | 30mA |
| Supply Voltage (Pin5) | 12.5V |
| Power Dissipation (Note 1), P _D | 715mW |
| Operating Temperature Range, T _{opr} | -40° to +85°C |
| Storage Temperature Range, T _{stg} | -65° to +150°C |
| Lead Temperature (During Soldering , 10sec), T _L | +300°C |

Note 1. For operation in ambient temperatures above 25°C, the device must be derated based on a 150°C maximum junction temperature and a thermal resistance of 175°C/W junction to ambient.

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

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|-------------------------------|-----------------|-------------------------|-----|------|-----|------|
| Static Characteristics | | | | | | |
| Supply Current | I ₅ | V _{CC} = 8.5V | 8.5 | 15 | - | mA |
| | | V _{CC} = 11.2V | - | 17.5 | - | mA |
| | | V _{CC} = 12.5V | - | 19 | 29 | mA |
| Detector Output Level, High | V ₇ | | - | 6.1 | - | V |
| Detector Output Level, Low | V ₈ | V _{CC} = 11.2 | - | 5.4 | - | V |
| Audio Amplifier Output | V ₁₂ | | - | 5.2 | - | V |

Electrical Characteristics (Cont'd): ($T_A = +25^\circ\text{C}$ unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---------------|--|-----|-----|-----|---------------|
| Dynamic Characteristics ($V_+ = 11.2\text{V}$, $f_o = 10.7\text{MHz}$, $\Delta f = \pm 75\text{kHz}$, $f_m = 400\text{Hz}$) | | | | | | |
| Input Limiting Threshold | $V_{IN(LIM)}$ | | - | 250 | 600 | μV |
| AM Rejection | AMR | AM: 1kHz @ 30%, $V_{IN} = 100\text{mV}$ | - | 55 | - | dB |
| Recovered AF Voltage (At Pin12) | $V_{O(AF)}$ | | - | 1.5 | - | V |
| Total Harmonic Distortion | THD | | - | 1 | 2 | % |
| Audio Preamplifier | | | | | | |
| Voltage Gain | $A_{V(AF)}$ | $V_{IN} = 100\text{mV}$, $f = 400\text{Hz}$ | - | 21 | - | dB |
| Total Harmonic Distortion | THD | $V_{OUT} = 2\text{V}$, $f = 400\text{Hz}$ | - | 1.5 | 5.0 | % |

Pin Connection Diagram

