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NTE1578 Integrated Circuit FM Mixer/IF Amp

Description:

The NTE1578 is an FM front-end integrated circuit in a 16-Lead DIP type package designed for use in car radio and home stereo applications. This device has a built-in AGC driver circuit which improves interference characteristics. It thereby offers advantages such as improved interference characteristics without sacrificing usable sensitivity and the conventional DX-LOCAL change-over switch.

Features:

- Double-Balanced Type MIX (Improved Spurious Characteristic)
- Keyed AGC/Keyed Classical AGC (Improved Intermodulation, Cross Modulation Characteristic)
- Differential IF Amplification (Improved Limiting Characteristic)

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

Maximum Supply Voltage (Pin12, Pin15), V_{CC1max} 8.5V
 Maximum Supply Voltage (Pin5, Pin6), V_{CC2max} 16V
 Allowable Power Dissipation ($T_A \leq +50^\circ\text{C}$, Note 1), P_{Dmax} 600mW
 Operating Temperature Range, T_{opg} -20° to $+70^\circ\text{C}$
 Storage Temperature Range, T_{stg} -40° to $+125^\circ\text{C}$

Note 1. $P_{Dmax} = 460\text{mW}$ at $T_A = +70^\circ\text{C}$

Recommended Operation Condition: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Recommended Supply Voltage (Pin12, Pin15), V_{CC1} 8V
 Recommended Supply Voltage (Pin5, Pin6), V_{CC2} 13V

Electrical Characteristics: ($T_A = +25^\circ\text{C}$, $V_{CC1} = 8\text{V}$, $V_{CC2} = 13\text{V}$ unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|------------------------|----------------------|---|------|-----|-----|---------------|
| Dissipation Current | I_{CC1} | Pin 12, 15 | 17 | 25 | 36 | mA |
| | I_{CC2} | Pin 5, 6 | 5 | 8 | 11 | mA |
| Local OSC Input Offset | ΔV_{INOSC} | | -20 | 0 | 20 | mV |
| MIX Input Offset | ΔV_{INMIX} | | -20 | 0 | 20 | mV |
| MIX Output Offset | $\Delta I_{OUT MIX}$ | | -600 | 0 | 600 | μA |
| High Level AGC Output | $V_{AGC H}$ | $V_i = 0\text{dBu}$, $V_{CL} = 4\text{V}$ | 7.6 | 7.9 | - | V |
| Low Level AGC Output | $V_{AGC L}$ | $V_i = 100\text{dB}$, $V_{CL} = 4\text{V}$ | - | 0.5 | 1 | V |

Electrical Characteristics (Cont'd): ($T_A = +25^\circ\text{C}$, $V_{CC1} = 8\text{V}$, $V_{CC2} = 13\text{V}$ unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---------------------------|-------------------|---|-----|------|-----|----------------|
| AGC Control Input | V_{CL7} | $V_i = 100\text{dBu}$, $V_{AGC} = 7\text{V}$ | – | 0.35 | 0.6 | V |
| | V_{CL2} | $V_i = 100\text{dBu}$, $V_{AGC} = 2\text{V}$ | 1.2 | 1.7 | 2.2 | V |
| IF Input Resistance | R_{IN} | | 230 | 330 | 430 | ohm |
| Voltage Gain | VG | $V_i = 62\text{dBu}$ | 80 | 85 | 90 | $\text{dB}\mu$ |
| Input Limiting Voltage | $V_{i\text{lim}}$ | $V_{AGC} = 2\text{V}$ | 62 | 71 | 80 | $\text{dB}\mu$ |
| AGC Input Voltage | $V_{i\text{AGC}}$ | $V_{AGC} = 2\text{V}$ | 62 | 71 | 80 | $\text{dB}\mu$ |
| Saturation Output Voltage | V_{OUT} | $V_i = 100\text{dB}\mu$ | 91 | 95 | – | $\text{dB}\mu$ |

Pin Connection Diagram

