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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), $V_{CC1\text{max}}$ .....	8.5V
Maximum Supply Voltage (Pin5, Pin6), $V_{CC2\text{max}}$ .....	16V
Allowable Power Dissipation ( $T_A \leq +50^\circ\text{C}$ , Note 1), $P_{D\text{max}}$ .....	600mW
Operating Temperature Range, $T_{\text{opg}}$ .....	$-20^\circ$ to $+70^\circ\text{C}$
Storage Temperature Range, $T_{\text{stg}}$ .....	$-40^\circ$ to $+125^\circ\text{C}$

Note 1.  $P_{D\text{max}} = 460\text{mW}$  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	$\Delta V_{\text{INOSC}}$		-20	0	20	mV
MIX Input Offset	$\Delta V_{\text{INMIX}}$		-20	0	20	mV
MIX Output Offset	$\Delta I_{\text{OUT MIX}}$		-600	0	600	$\mu\text{A}$
High Level AGC Output	$V_{\text{AGC H}}$	$V_i = 0\text{dBu}$ , $V_{\text{CL}} = 4\text{V}$	7.6	7.9	-	V
Low Level AGC Output	$V_{\text{AGC L}}$	$V_i = 100\text{dB}$ , $V_{\text{CL}} = 4\text{V}$	-	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**

