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Absolute Maximum RatingsIf Military/Aerospace specified devices are required, please contact the National Semiconductor Sales Office/Distributors for availability and specifications.Power Dissipation (Note 1)1200 mWSupply Voltage16V			Current into Supply Terminal (Pin 3) Operating Temperature Range Storage Temperature Range Lead Temperature (Soldering, 10 sec.)			-65°C	35 mA −25°C to + 85°C −65°C to + 150°C 260°C	
Electrical Characteristics (Figure 1, '   Symbol Parameter		(Figure 1, $I_A = 25^{\circ}C$ Condition	-	s noted) Min	Тур	Max	Units	
I <sub>S</sub>	Supply Current	No RF Input	<i>J</i> 113	12	18	24	mA	
VZ	Internal Zener Voltage			7.0	7.5	8.0	V	

Input Sensitivity	f = 1 MHz, 30% Mod 400 Hz Measure RF Input Level for 10 mV Audio Output with Tuning Peaked	15	35	70	μV
Signal to Noise Ratio	f = 1 MHz, 30% Mod 1 kHz (S + N)/N at Audio Output with 100 $\mu$ V RF Input	22	28	_	dB
Overload Distortion	f = 1 MHz, 90% Mod 1 kHz THD at Audio Output with 30 mV RF Input	_	6	10	%

Note 1: Above  $T_A = 25^{\circ}$ C, derate based on  $T_{J(Max)} = 150^{\circ}$ C and  $\theta_{JA} = 100^{\circ}$ C/W.

## **Typical Applications**



## **Applications Information**

The circuit shown in *Figure 1* is recommended as a starting point for portable radio designs. Loopstick antenna L1 is used in place of L0, and the RF amplifier is used with a resistor load to drive the mixer. A double tuned circuit at the output of the mixer provides selectivity, while the remainder of the gain is provided by the IF section, which is matched to the diode through a unity turns ratio transformer. R<sub>AGC</sub> may be used in place of C<sub>AGC</sub> to bypass the internal AGC detector and provide more recovered audio.

An AM automobile radio design is shown in *Figure 2*. Tuning of both the input and the output of the RF amplifier and the mixer is accomplished with variable inductors. Better selectivity is obtained through the use of double tuned interstage transformers. Input circuits are inductively tuned to prevent microphonics and provide a linear tuning motion to facilitate push-button operation.

Coil specifications for Figure 1 are as follows:







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