



ELECTRONICS, INC.  
 44 FARRAND STREET  
 BLOOMFIELD, NJ 07003  
 (973) 748-5089  
<http://www.nteinc.com>

## NTE7164 Integrated Circuit Double-Balanced Mixer & Oscillator

**Description:**

The NTE7164 is a low-power VHF monolithic double-balanced mixer with input amplifier, on-board oscillator, and voltage regulator in an 8-Lead DIP type package designed for use in high performance, low power communication systems. The gain, intercept performance, low-power and noise characteristics make the NTE7164 a superior choice for high-performance battery operated equipment.

**Features:**

- Low Current Consumption
- Excellent Noise Figure
- High Operating Frequency
- Excellent Gain, Intercept and Sensitivity
- Low External Parts Count; Suitable for Crystal/Ceramic Filters

**Applications:**

- Cellular Radio Mixer/Oscillator
- Portable Radio
- VHF Transceivers
- RF Data Links
- HF/VHF Frequency Conversion
- Instrumentation Frequency Conversion
- Broadband LANs

**Absolute Maximum Ratings:**

Maximum Operating Voltage,  $V_{CC}$  ..... 9V  
 Operating Ambient Temperature Range,  $T_A$  ..... -40° to +85°C  
 Storage Temperature Range,  $T_{stg}$  ..... -65° to +150°C

**Electrical Characteristics:** ( $T_A = +25^\circ C$ ,  $V_{CC} = 6V$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Power Supply Voltage Range	$V_{CC}$		4.5	-	8.0	V
DC Current Drain			-	2.4	2.8	mA
Input Signal Frequency	$f_{IN}$		-	500	-	MHz
Oscillator Frequency	$f_{OSC}$		-	200	-	MHz

**Electrical Characteristics (Cont'd):** ( $T_A = +25^\circ\text{C}$ ,  $V_{CC} = 6\text{V}$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Noise Figure at 45MHz			-	5.0	6.0	dB
Third-Order Intercept Point		$RF_{IN} = -45\text{dBm}$ : $f_1 = 45.0$ , $f_2 = 45.06$	-	-15	-17	dBm
Conversion Gain at 45MHz			14	18	-	dB
RF Input Resistance	$R_{IN}$		1.5	-	-	$k\Omega$
RF Input Capacitance	$C_{IN}$		-	3.0	3.5	pF
Mixer Output Resistance		Pin4 or Pin5	-	1.5	-	$k\Omega$

**Pin Connection Diagram**

