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# NTE1814
# Integrated Circuit
# CMOS, Color Processing Circuit for VCR

**Description:**

The NTE1814 is a CMOS LSI integrated circuit in an 18–Lead DIP type package designed for use in VCR color signal processing circuits for VHS system video tape recorders. This device is used in configuration with the NTE1813 for color signal processing in 2, 4, and 6Hr modes in NTSC VCR systems.

**Features:**

- In Recording, a Video Color Signal can be Converted into a Low–Frequency Video Color Signal by AFC and REC APC.
- In Playback, the Low–Frequency Color Signal can be Converted into the Original Video Color Signal on the Color Subcarrier Wave Frequency by PB APC and the Side Lock Detect Circuit.
- The NTE1814 Contains the Following Functions:
  - Rotary Circuit
  - DPLL (Digital Phase Locked Loop) Circuit
  - Side Lock Detect Circuit
  - Field Start Inhibit Pulse Generating Circuit
  - Burst Adjust Pulse Generating Circuit
  - Burst Gate Pulse Generating Circuit
  - Monostable Multivibrator Circuit
  - Phase Comparator
- Can be Miniaturized and Simplified with High Reliability
- Low Power Dissipation: 15mW @ 5V

**Absolute Maximum Ratings:** ($T_A$ = +25°C unless otherwise specified)

Supply Voltage, $V_{DD}$ . . . . . –0.3 to +8.0V
Input Voltage, $V_I$ . . . . . –0.3V to $V_{DD}$+0.3V
Output Votage, $V_O$ . . . . . –0.3V to $V_{DD}$+0.3V
Operating Ambient Temperature Range, $T_{opr}$ . . . . . –10° to +70°C
Storage Temperature Range, $T_{stg}$ . . . . . –55° to + 125°C

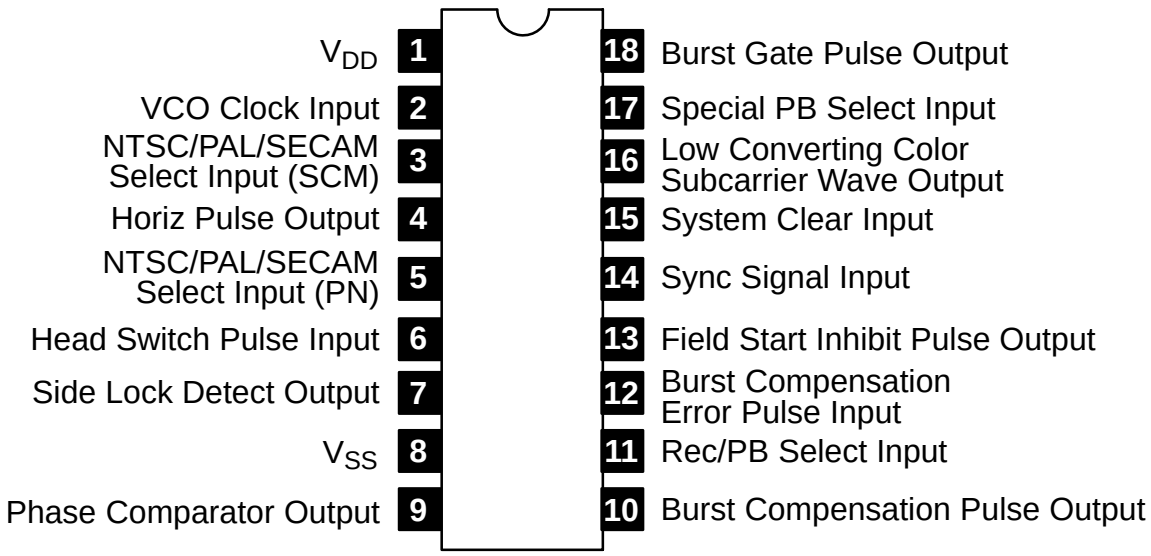
**Recommended Operating Conditions:** ($V_{SS}$ = 0V, $T_A$ = +25°C ±2°C unless otherwise specified)

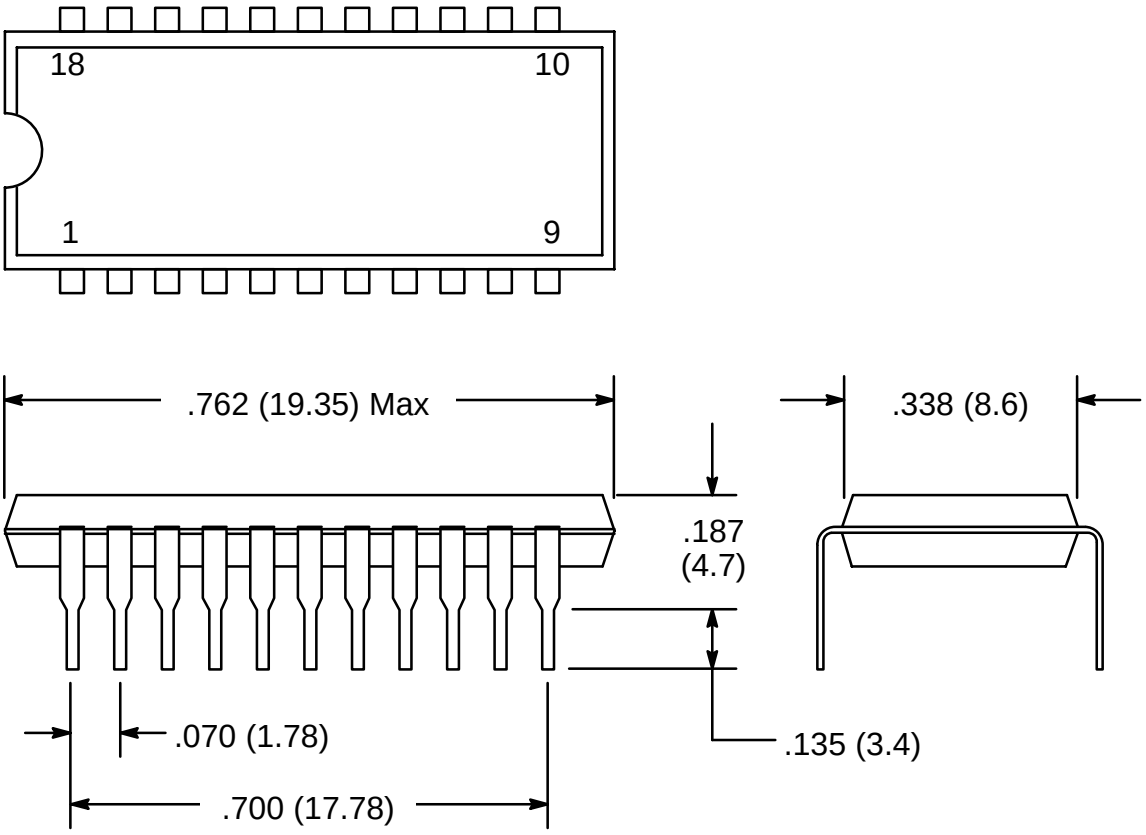
| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Supply Voltage | $V_{DD}$ | | 4.5 | 5.0 | 5.5 | V |
| VCO Input Operating Frequency | $f_{VCO}$ | NTSC | – | 5.03 | – | MHz |
| VCO Input Amplitude | $V_{VCO}$ | C cut (C = 1000pF) Sine Wave Input | 0.3 | 0.5 | – | $V_{P–P}$ |

**DC Electrical Characteristics:** ($V_{DD}$ = 5V, $V_{SS}$ = 0V, $T_A$ = +25°C ±2°C, $f_{VCO}$ = 5.03MHz (NTSC) unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Supply Current | $I_{DD}$ | No Load | – | – | 3 | mA |
| Power Dissipation | $P_{tot}$ | No Load | – | – | 15 | mW |
| Input Terminal 1<br>PGI, SYN | $V_{IH1}$ | | 3.5 | – | $V_{DD}$ | V |
| | $V_{IL1}$ | | $V_{SS}$ | – | 1.5 | V |
| Input Terminal 2<br>SCM, PN, NREC, BERR, TPB<br>(with a Pull–Low Resistance) | $V_{IH2}$ | | 3.5 | – | $V_{DD}$ | V |
| | $V_{IL2}$ | | $V_{SS}$ | – | 1.5 | V |
| | $I_{IH2}$ | $V_I$ = 5V | – | – | 300 | µA |
| Input Terminal 3<br>NCLR<br>(with a Pull–High Resistance) | $V_{IH3}$ | | 3.5 | – | $V_{DD}$ | V |
| | $V_{IL3}$ | | $V_{SS}$ | – | 1.5 | V |
| | $I_{IH3}$ | $V_I$ = 0V | – | – | –300 | µA |
| Output Terminal 1<br>HP, PSSC | $I_{OH1}$ | $V_{OH}$ = 3.5V | –0.5 | – | – | mA |
| | $I_{OL1}$ | $V_{OL}$ = 1.5V | 0.5 | – | – | mA |
| Output Terminal 2<br>LOC, PCO, BADJ, BGP<br>(3–Value Output) | $I_{OH2}$ | $V_{OH}$ = 2.5V | –2.5 | –5.0 | – | mA |
| | $I_{OL2}$ | $V_{OL}$ = 2.5V | 2.5 | 5.0 | – | mA |
| | $I_{Leak2}$ | $V_O$ = 5V, 0V (with a High Impedance) | – | – | ±5 | µA |
| Output Terminal 3 FSI | $I_{OH3}$ | $V_{OH}$ = 4.3V | –0.5 | – | – | mA |
| | $I_{OL3}$ | $V_{OL}$ = 0.7V | 0.5 | – | – | mA |

**Pin Connection Diagram**




18
10
1
9
.762 (19.35) Max
.338 (8.6)
.187
(4.7)
.070 (1.78)
.135 (3.4)
.700 (17.78)