



**ELECTRONICS, INC.**  
 44 FARRAND STREET  
 BLOOMFIELD, NJ 07003  
 (973) 748-5089

## NTE1408 Integrated Circuit CMOS, Color Signal Processor for VCR

**Description:**

The NTE1408 is a CMOS circuit in a 16-Lead DIP type package designed for use in VTR color signal processing circuitry for the VHS system video tape recorders. This device provides 4 color control signals, each having 90-degree phase shift.

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

Supply Voltage, $V_{DD}$ .....	-0.3V to +8V
Input Voltage, $V_I$ .....	-0.3V to $V_{DD} + 0.3V$
Output Voltage, $V_O$ .....	-0.3V to $V_{DD} + 0.3V$
Operating Temperature Range, $T_{opr}$ .....	-10° to +70°C
Storage Temperature Range, $T_{stg}$ .....	-40° to +100°C

**Electrical Characteristics:** ( $f_{i(FCI)} = 2.52\text{MHz}$ ,  $V_{CC} = 6.2V$ ,  $V_{SS} = 0V$ ,  $T_A = +25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply Current	$I_{DD}$	No Load, $V_I = 1.0V_{P-P}$	-	-	1.2	mA
Power Dissipation	$P_{tot}$		-	-	7.44	mW
Input Terminal FCI Input Voltage	$V_I$		1.0	-	-	$V_{P-P}$
Pulse Width Duty Ratio	$t_w$ (duty)		40	50	60	%
Input Terminal SYNC High Level Input Voltage	$V_{IH(1)}$		4.6	-	6.2	V
Low Level Input Voltage	$V_{IL(1)}$		0	-	1.6	V
Output Leakage Current	$I_{Leak(1)}$	$V_I = 0V$	-	-	-30	$\mu A$
Input Terminal PGI, HDI, IDI, DOC High Level Input Voltage	$V_{IH(2)}$		4.6	-	6.2	V
Low Level Input Voltage	$V_{IL(2)}$		0	-	1.6	V
Output Leakage Current	$I_{Leak(2)}$	$V_I = 0V, 6.2V$	-	-	$\pm 30$	$\mu A$
Input Terminal MMI High level Input Voltage	$V_{IH(3)}$		4.6	-	6.2	V
Low Level Input Voltage	$V_{IL(3)}$		-	-	1.6	V
Output Leakage Current	$I_{Leak(3)}$	$V_I = 1.5V, \text{MMO} = \text{"H"}$	-	-	$\pm 10$	$\mu A$
Low Level Input Current	$I_{IL}$	$V_I = 1.5V, \text{MMO} = \text{"L"}$	0.6	1.0	-	mA

**Electrical Characteristics (Cont'd):** ( $f_{i(FCI)} = 2.52\text{MHz}$ ,  $V_{CC} = 6.2\text{V}$ ,  $V_{SS} = 0\text{V}$ ,  $T_A = +25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Terminal FSO High Level Output Current	$I_{OH(1)}$	$V_O = 4.7\text{V}$	-1.0	-1.5	-	mA
Low Level Output Current	$I_{OL(1)}$	$V_O = 1.5\text{V}$	1.0	1.5	-	mA
Output Leakage Current	$I_{Leak(4)}$	$V_O = 0, 6.2\text{V}$	-	-	$\pm 30$	$\mu\text{A}$
Output Terminal HSS High Level Output Current	$I_{OH(2)}$	$V_O = 4.7\text{V}$	1.0	-1.5	-	mA
Low Level Output Current	$I_{OL(2)}$	$V_O = 1.5\text{V}$	1.0	1.5	-	mA
Output Leakage Current	$I_{Leak(5)}$	$V_O = 0\text{V}, 6.2\text{V}$	-	-	$\pm 30$	$\mu\text{A}$
Delay Time	$t_{pd(1)}$	With Respect to SYNC	-	-	500	ns
Output Terminal HDO Low level Output Current	$I_{OL(3)}$	$V_O = 1.5\text{V}$	2	3	-	mA
Output Leakage Current	$I_{Leak(6)}$	$V_O = 12\text{V}$	-	-	30	$\mu\text{A}$
Delay Time	$t_{pd(2)}$	With Respect to SYNC	-	-	500	ns
Output Terminal FH0, FH7, MMO High Level Output Current	$I_{OH(3)}$	$V_O = 4.7\text{V}$	-0.5	-0.75	-	mA
Low Level Output Current	$I_{OL(4)}$	$V_O = 1.5\text{V}$	0.5	0.75	-	mA
Output Leakage Current	$I_{Leak(7)}$	$V_O = 0\text{V}, 6.2\text{V}$	-	-	$\pm 30$	$\mu\text{A}$

**Pin Connection Diagram**

