

## NTE713 Integrated Circuit Chroma Demod

**Description:**

The NTE713 is a monolithic integrated circuit in a 14-Lead DIP type package that contains two sets of synchronous detectors with matrix circuits to achieve the R-Y, G-Y, and B-Y color difference output signals. The chroma input signal is applied to Pin3 and Pin4 while the oscillator injection signal is applied to Pin6 and Pin7. The color difference signals, after matrix, have fixed a relationship of amplitude and phase nominally equal DC voltage levels. The outputs of the NTE713 are suitable for driving high level color difference or R, G, B output amplifiers. Emitter-follower output stages used to drive the high level color amplifiers have short-circuit protection.

**Features:**

- Synchronous Detector with Color Difference Matrix
- Emitter-Follower Output Amplifier with Short-Circuit Protection

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

DC Supply Voltage (Pin8 to Pin14) .....	27V
Reference Input Voltage .....	5V <sub>P-P</sub>
Chroma Input Voltage .....	5V <sub>P-P</sub>
Device Dissipation ( $T_A \leq +70^{\circ}\text{C}$ ) .....	530mW
Derate Linearly Above 70°C .....	6.7mW/°C
Operating Ambient Temperature Range .....	-40° to +85°C
Storage Temperature Range .....	-65° to +150°C
Lead Temperature (During Soldering, 1/32" from seating plane, 10sec max) .....	+265°C

**Electrical Characteristics:** ( $V_+ = 24\text{V}$ ,  $T_A = +25^{\circ}\text{C}$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Static Characteristics</b>						
Supply Current with Output Loads	$I_T$	S <sub>1</sub> Closed	16.5	-	26.5	mA
		With No Output Loads	-	9	-	mA
G-Y, R-Y, B-Y Outputs	$V_9, V_{11}, V_{13}$	S <sub>1</sub> Closed	13.2	14.7	15.8	V
Chroma Inputs	$V_3, V_4$	S <sub>1</sub> Open	-	3.3	-	V
Reference Subcarrier	$V_6, V_7$	S <sub>1</sub> Open	-	6.2	-	V

**Electrical Characteristics (Cont'd):** ( $V_+ = 24V$ ,  $T_A = +25^\circ C$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Dynamic Characteristics</b>						
Demodulator Unbalance	$V_9, V_{11}, V_{13}$	$V_3 = V_4 = 0$	–	–	0.8	$V_{P-P}$
Maximum Color Difference Output Voltage	$V_{13}$	$V_3 = V_4 = 0.6V_{P-P}$	8.0	–	–	$V_{P-P}$
	$V_{11}$		5.5	–	–	$V_{P-P}$
	$V_9$		1.2	–	–	$V_{P-P}$
Chroma Input Sensitivity	$v_3$	Adjust $e_c$ for $5v_{P-P}$ @ Pin13 (B–Y)	–	0.2	0.35	$V_{P-P}$
Relative R–Y Output	$V_{11}$		3.5	–	4.2	$V_{P-P}$
Relative G–Y Output	$v_9$		0.75	–	1.25	$V_{P-P}$
$V_{DC}$ Difference Between Any Two Output Pins	$ V_9  -  V_{11} $ $ V_9  -  V_{13} $ $ V_{11}  -  V_{13} $	$e_c = 0$	–	–	0.6	V
Input Impedance Reference Subcarrier Inputs	$r_{i6, 7}$		–	1.7	–	$k\Omega$
Input Capacitance Reference Subcarrier Inputs	$c_{i6, 7}$		–	6	–	pF
Input Impedance at Chroma Inputs	$r_{i3, 4}$		–	0.95	–	$k\Omega$
Input Capacitance at Chroma Inputs	$c_{i3, 4}$		–	5	–	pF
Output Resistance	$r_{o9}, r_{o11}, r_{o13}$		–	180	–	W

**Pin Connection Diagram**

