

NTE790 Integrated Circuit Dual Chroma Demodulator

Description:

The NTE790 has 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 a fixed relationship of amplitude and phase nominally equal DC voltage levels. The outputs of the NTE790 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.

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

DC Supply Voltage (Pin8 to Pin14)	27V
Reference Input Voltage	5V _{p-p}
Chroma Input Voltage	5V _{p-p}
Total Device Dissipation (Up to $T_A = +70^\circ\text{C}$), P_D	530mW
Derate Above $T_A = +70^\circ\text{C}$	6.7mW/ $^\circ\text{C}$
Operating Ambient Temperature Range, T_{opr}	-40° to $+85^\circ\text{C}$
Storage Temperature range, T_{stg}	-65° to $+150^\circ\text{C}$
Lead Temperature (During Soldering, 1/32" from seating plane, 10sec max), T_L	$+265^\circ\text{C}$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Supply Current With Output Loads	I_T	S_1 Closed	16.5	—	26.5	mA
With No Output Loads		S_1 Open	—	9	—	mA
G-Y, R-Y, B-Y Outputs	V_9, V_{11}, V_{13}	S_1 Closed	13.2	14.7	15.8	V
Chroma Inputs	V_3, V_4	S_1 Open	—	3.3	—	V
Reference Subcarrier	V_6, V_7	S_1 Open	—	6.2	—	V
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}

Electrical Characteristics (Cont'd): ($T_A = +25^\circ\text{C}$ and $V_+ = 24\text{V}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Chroma Input Sensitivity	V_3	Adjust e_c for 5V @ 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_{13} $	$e_c = 0$	–	–	0.6	V
Input Impedance Reference Subcarrier	$r_{i6, 7}$		–	1.7	–	$k\Omega$
Input Capacitance Reference Subcarrier	$C_{i6, 7}$		–	6	–	pF
Input Impedance at Chroma Inputs	$r_{i3, 4}$		–	0.95	–	$k\Omega$
Input Capacitance at Chroma Inputs	$C_{i3, 4}$		–	6	–	pF
Output Resistance	r_o		–	180	–	Ω

Pin Connection Diagram

