

NTE1761 (Active High) & NTE1762 (Active Low) Integrated Circuit Infrared Remote Control Preamp

Features:

- High Frequency Amplifier with a Control Range of 66dB
- Synchronous Demodulator and Reference Amplifier
- AGC Detector
- Pulse Shaper
- Q-Factor Killing of the Input Selectivity, which is Controlled by the AGC Circuit
- Input Voltage Limiter

Absolute Maximum Ratings:

Supply Voltage (Pin8), V_{CC}	13.2V
Output Current Pulse Shaper (Pin11), I_{11}	10mA
Voltages Between Pins (Note 1)	
Pin2 and Pin15, V_{2-15}	4.5V
Pin4 and Pin13, V_{4-13}	4.5V
Pin5 and Pin6, V_{5-6}	4.5V
Pin7 and pin10, V_{7-10}	4.5V
Pin9 and Pin11, V_{9-11}	4.5V
Operating Ambient Temperature Range, T_A	-25° to +125°C
Storage Temperature Range, T_{stg}	-65° to +150°C

Note 1. All pins except Pin11 are short-circuit protected.

DC Electrical Characteristics: ($T_A = +25^\circ\text{C}$, $V_{CC} = V_g = 5\text{V}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply (Pin8)						
Supply Voltage	V_{CC}		4.65	5.0	5.35	V
Supply Current	$I_{CC} = I_g$		1.2	2.1	3.0	mA
Controlled High Frequency Amplifier (Pin2 and Pin15)						
Minimum Input Signal (Peak-to-Peak)	$V_{2-15(P-P)}$	$f = 36\text{kHz}$, Note 2	—	15	25	μV
		$f = 36\text{kHz}$, Note 3	—	—	5	μV
AGC Control Range (Without Q-Killing)			60	66	—	dB
Input Signal for Correct Operation (Peak-to-Peak)	$V_{2-15(P-P)}$	Note 3	0.02	—	200	mV
Q-Killing Inactive (Peak-to-Peak)	$V_{2-15(P-P)}$	$I_3 = I_{14} < 0.5\mu\text{A}$	—	—	140	μV
Q-Killing Active (Peak-to-Peak)	$V_{2-15(P-P)}$	$I_{14} = I_3 = \text{Max}$	28	—	—	mV

Note 2. For NTE1761, voltage at Pin9 is HIGH ($-I_g = 75\mu\text{A}$).

For NTE1762, voltage at Pin9 is LOW ($I_g = 75\mu\text{A}$).

Note 3. For NTE1761, voltage at Pin9 remains LOW. For NTE1762, voltage at Pin9 remains HIGH.

DC Electrical Characteristics (Cont'd): ($T_A = +25^{\circ}\text{C}$, $V_{CC} = V_8 = 5\text{V}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Inputs						
Pin2 Voltage	V_2		2.25	2.45	2.65	V
Pin15 Voltage	V_{15}		2.25	2.45	2.65	V
Pin2 Resistance	R_{2-15}		10	15	20	$k\Omega$
Pin2 Capacitance	C_{2-15}		—	3	—	pF
Input Limiting, Pin1	V_{1-16}	$I_1 = 3\text{mA}$	—	0.8	0.9	V
Outputs						
Output Voltage HIGH (Pin9)	$-V_{9-8}$	$-I_9 = 75\mu\text{A}$	—	0.1	0.5	V
Output Voltage LOW (Pin9)	V_9	$I_9 = 75\mu\text{A}$	—	0.1	0.5	V
Output Current, Output Voltage HIGH	$-I_9$	$V_9 = 4.5\text{V}$	75	120	—	μA
		$V_9 = 3.0\text{V}$	75	130	—	μA
		$V_9 = 1.0\text{V}$	75	140	—	μA
Output Current, Output Voltage LOW	I_9	$V_9 = 0.5\text{V}$	75	120	—	μA
Output Resistance Between Pin7 and Pin10	R_{7-10}		3.1	4.7	6.2	$k\Omega$
Pulse Shaper (Pin11)						
Trigger Level in Positive Direction	V_{11}	Voltage Pin9 changes from HIGH to LOW	3.75	3.9	4.05	V
Trigger Level in Negative Direction	V_{11}	Voltage Pin9 changes from LOW to HIGH	3.4	3.55	3.7	V
Hysteresis of Trigger Levels	ΔV_{11}		0.25	0.35	0.45	V
AGC Detector (Pin12)						
AGC Capacitor Charge Current	$-I_{12}$		3.3	4.7	6.1	μA
AGC Capacitor Discharge Current	I_{12}		67	100	133	μA
Q-Factor Killer (Pin3 and Pin14)						
Output Current (Pin3)	$-I_3$	$V_{12-16} = 2\text{V}$	2.5	7.5	15	μA
Output Current (Pin14)	$-I_{14}$	$V_{12-16} = 2\text{V}$	2.5	7.5	15	μA

Note 4. Undistorted output pulse with 100% AM input.

Pin Connection Diagram

