

## NTE715 Integrated Circuit TV Chroma IF Amp

**Description:**

The NTE715 is a combined two-stage chroma amplifier and functional control circuit. The input signal is received from the video amplifier and applied to Pin2 of the input amplifier stage. The first amplifier stage is part of the ACC system and is controlled by differential adjustment from the ACC input Pin1 and Pin14. The output of the 1<sup>st</sup> amplifier is directed to Pin6 from where the signal may be applied to the ACC detection system of the NTE714 or an equivalent circuit. The output at Pin6 is also applied to Pin7 which is the input to the 2<sup>nd</sup> amplifier stage. Another output of the 1<sup>st</sup> amplifier at Pin13 is directed to the killer adjustment circuit.

The DC voltage level at Pin13 rises as the ACC differential voltage decreases with a reduction in the burst amplitude. At a pre-set conditions determined by the killer adjustment resistor the killercircuit is activated and causes the 2<sup>nd</sup> chroma amplifier stage to be cut off. The 2<sup>nd</sup> chroma amplifier stage is also gain controlled by the adjustment of DC voltage at Pin10. The output of the 2<sup>nd</sup> chroma amplifier stage is available at Pin9. Both amplifier outputs utilize emitter-followers with short-circuit protection.

**Absolute Maximum Ratings:** (T<sub>A</sub> = +25°C unless otherwise specified)

|  |                |
|--|----------------|
| DC Supply Voltage (Pin8 to Pin4) .....   | 30V            |
| Device Dissipation (Up to T <sub>A</sub> = +70°C), P <sub>D</sub> .....                            | 530mW          |
| Derate Above 70°C .....  | 6.7mW/°C       |
| Operating Ambient Temperature Range, T <sub>opr</sub> .....  | -40° to +85°C  |
| Storage Temperature Range, T <sub>stg</sub> .....  | -65° to +150°C |
| Lead Temperature (During Soldering, 1/32" (3.17mm) from seating plane, 10s max), T <sub>L</sub> .. | +265°C         |

**Electrical Characteristics:** (T<sub>A</sub> = +25°C unless otherwise specified)

| Parameter                                 | Symbol          | Test Conditions                            | Min | Typ  | Max | Unit |
|---|-----------------|--|-----|------|-----|------|
| <b>Static Characteristics</b>             |                 |  |     |      |     |      |
| Voltages Bias Reference Terminal          | V <sub>12</sub> | S <sub>1</sub> Open, S <sub>2</sub> Open   | -   | 17.3 | -   | V    |
| Amplifier No. 1 Chroma Input              | V <sub>2</sub>  | S <sub>1</sub> Open, S <sub>2</sub> Open   | -   | 1.75 | -   | V    |
| Amplifier No. 1 Chroma Output<br>Balanced | V <sub>6</sub>  | S <sub>1</sub> Open, S <sub>2</sub> Open   | -   | 20   | -   | V    |
| Unbalanced                                |                 | S <sub>1</sub> Open, S <sub>2</sub> Closed | -   | 13.5 | -   | V    |
| Amplifier No 2 Chroma Input               | V <sub>7</sub>  | S <sub>1</sub> Open, S <sub>2</sub> Open   | -   | 1.5  | -   | V    |
| Amplifier No 2 Chroma Output              | V <sub>9</sub>  | S <sub>1</sub> Closed, S <sub>2</sub> Open | -   | 20.6 | -   | V    |
| Supply Current                            | I <sub>T</sub>  | S <sub>1</sub> Open, S <sub>2</sub> Open   | 17  | 24.5 | 31  | mA   |

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

| Parameter                                 | Symbol       | Test Conditions  | Min | Typ | Max | Unit                     |
|---|--------------|--|-----|-----|-----|--------------------------|
| <b>Dynamic Characteristics</b>            |              |  |     |     |     |                          |
| Amplifier No. 1 Voltage Gain              | $A_{V1}$     | $E_g = 30\text{mV}_{\text{RMS}}$ Measure $V_6$   | 14  | –   | –   | dB                       |
| Amplifier No. 2 Voltage Gain              | $A_{V2}$     | $V_g = 1.0\text{V}(\text{RMS})$ Measure $V_7$  | –   | 14  | –   | dB                       |
| Maximum Chroma Output Voltage             | $V_9$        |  | –   | 2   | –   | $V_{\text{RMS}}$         |
| 10% Chroma Gain Control Reference Voltage | $V_8-V_{10}$ | $E_g = 50\text{mV}_{\text{rms}}$ , adjust Chroma Gain Control to Change $V_g$ to 10% of Maximum Chroma Output  | 2.1 | 3.8 | 6.8 | V                        |
| Output Voltage, Killer Off                | $V_9$        | $S_1$ in Position 2, $E_g = 50\text{mV}_{\text{RMS}}$ , adjust “Killer Adjust” for an abrupt decrease in $V_g$ | –   | –   | 12  | $\text{mV}_{\text{RMS}}$ |
| Output Voltage, Chroma                    | $V_9$        | $E_g = 50\text{mV}_{\text{RMS}}$ , adjust Chroma control to min. Chroma Output                                 | –   | –   | 12  | $\text{mV}_{\text{RMS}}$ |
| Bandwidth<br>Amplifier No. 1              | BW           |  | –   | 12  | –   | MHz                      |
| Amplifier No. 2                           |              |  | –   | 30  | –   | MHz                      |
| Amplifier No. 1 Input Impedance           | $r_{i1}$     |  | –   | 2   | –   | $\text{k}\Omega$         |
| Amplifier No. 1 Input Capacitance         | $c_{i1}$     |  | –   | 4   | –   | pF                       |
| Amplifier No. 1 Output Impedance          | $r_{o1}$     |  | –   | 85  | –   | $\Omega$                 |
| Ampl. No. 2 Input Impedance               | $r_{i2}$     |  | –   | 2.1 | –   | $\text{k}\Omega$         |
| Ampl. No. 2 Output Impedance              | $r_{o2}$     |  | –   | 85  | –   | $\Omega$                 |

**Pin Connection Diagram**

