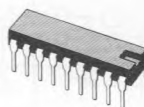


## VIDEO IF AMPLIFIER WITH DEMODULATOR AND AFC

- SYNCHRONOUS DEMODULATORS
- GAIN CONTROLLED AMPLIFIER
- VERY HIGH INPUT SENSITIVITY
- CONSTANT INPUT IMPEDANCE INDEPENDENT OF AGC
- FIXED VIDEO OUTPUT VOLTAGE WITH SMALL TOLERANCE RANGE
- SWITCHABLE AFC
- POSITIVE OR NEGATIVE AGC GATING PULSE
- VERY FEW EXTERNAL COMPONENTS
- OUTPUT VIDEO SIGNAL NO MUCH AFFECTED BY SUPPLY VOLTAGE VARIATIONS
- THE TDA4426 AND TDA4427 GET DIFFERENT AFC CURVES (inverted AFC for TDA4427)

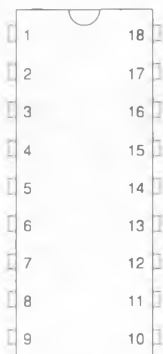


**TDA4426/TDA4427**  
**DIP18**  
(Plastic Package)

### DESCRIPTION

The TDA4426 and TDA4427 are IF amplifier and A.M. demodulator circuits for colour or black and white television receiver using PNP tuner. They are intended for reception of negative or positive modulation CCIR standards.

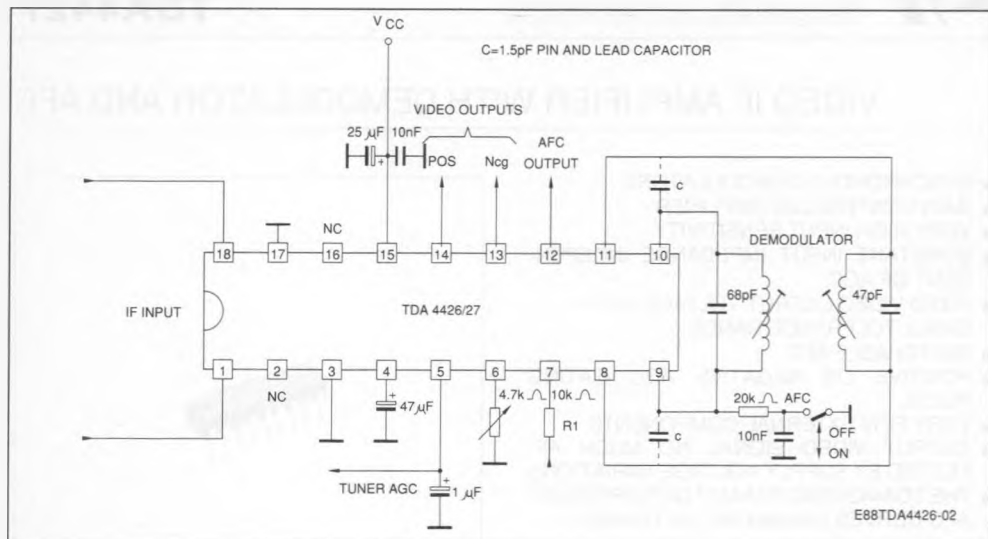
### PIN CONNECTION



- 1 - IF input
- 2 - Not to be connected
- 3 - Ground
- 4 - AGC filter capacitor
- 5 - Tuner AGC output
- 6 - Tuner AGC adjustment
- 7 - Pulse input for AGC gated
- 8 - Carrier tuned circuit output 1
- 9 - AFC tuned circuit output 1
- 10 - AFC tuned circuit output 2
- 11 - Carrier tuned circuit output 2
- 12 - AFC output
- 13 - Negative video output
- 14 - Positive video output
- 15 - Supply voltage
- 16 - Not to be connected
- 17 - Ground
- 18 - IF input

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## APPLICATION CIRCUIT



## ABSOLUTE MAXIMUM RATINGS

| Symbol            | Parameter                                                    | Value         | Unit |
|-------------------|--------------------------------------------------------------|---------------|------|
| $V_{CC}$          | Supply Voltage                                               | 15            | V    |
| $V_5$             | Voltage at pin 5                                             | $V_{CC}$      | V    |
| $V_4$             | Voltage at Pin 4                                             | 5             | V    |
| $I_{13} - I_{14}$ | Output Current to Ground (source Current) Max : 1 s          | 30            | mA   |
| $I_{13} - I_{14}$ | Output Current from Positive Supply (sink current) Max : 1 s | 5             | mA   |
| $T_j$             | Junction Temperature                                         | 125           | °C   |
| $T_{amb}$         | Operating Ambient Temperature                                | 0 to + 70     | °C   |
| $T_{stg}$         | Storage Temperature                                          | - 25 to + 125 | °C   |

## THERMAL DATA

| Symbol        | Parameter                             | Value | Unit |
|---------------|---------------------------------------|-------|------|
| $R_{th(j-a)}$ | Junction - ambient Thermal Resistance | 80    | °C/W |

**ELECTRICAL OPERATING CHARACTERISTICS**

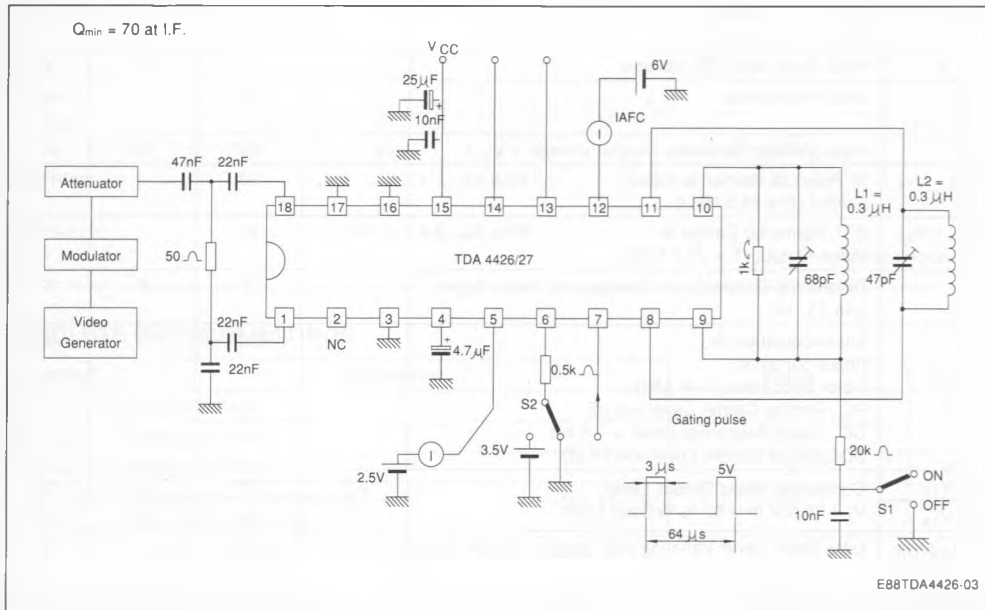
$T_{amb} = +25\text{ }^{\circ}\text{C}$ ,  $V_{CC} = 12\text{ V}$ ,  $F = 38.9\text{ MHz}$ ,  $m = 80\%$  (unless otherwise specified)

| Symbol                                                                 | Parameter                                                                                                                                                                              | Min.       | Typ.       | Max.           | Unit                               |
|------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------|----------------|------------------------------------|
| $V_{CC}$                                                               | Supply Voltage                                                                                                                                                                         | 10         | 12         | 15             | V                                  |
| $I_{CC}$                                                               | Supply Current<br>$V_4 = 3.5\text{ V}$                                                                                                                                                 | 35         |            | 70             | mA                                 |
| $V_{13}$<br>$V_{14}$                                                   | Ultra White Level                                                                                                                                                                      | 4.7        | 5.2<br>1.8 | 5.8            | V<br>V                             |
| $V_{13}$<br>$V_{14}$                                                   | Top Synchro DC Output Voltage                                                                                                                                                          | 1.75       | 1.9<br>5.0 | 2.05           | V<br>V                             |
| $I_{13} - I_{14}$                                                      | Output DC Current<br>( $V_{13} = V_{14} = 7\text{ V}$ )                                                                                                                                |            | 1.5        |                | mA                                 |
| $V_7$                                                                  | AGC Pulse Input DC Voltage                                                                                                                                                             |            | 1.1        |                | V                                  |
| $R_{1-18}$<br>$C_{1-18}$                                               | Input Impedance                                                                                                                                                                        |            | 1.6<br>2   |                | k $\Omega$<br>pF                   |
|                                                                        | Input Voltage Sensitivity (output voltage 3 $V_{pp}$ )                                                                                                                                 |            | 100        | 150            | $\mu\text{V}$                      |
| $V_{13} - V_{14}$                                                      | IF Residual Carrier at Video Output (F = 38.9 MHz) Pins 13 - 14                                                                                                                        |            | 20         |                | mVRMS                              |
| $V_{13} - V_{14}$                                                      | 2 <sup>nd</sup> Harmonic Carrier at Video Output (F = 77.8 MHz) Pins 13 - 14                                                                                                           |            | 40         |                | mVRMS                              |
|                                                                        | Differential Distorsion on Compositive Video Signal (pin 13, 14)                                                                                                                       |            | 3          | 5              | %                                  |
|                                                                        | Intermodulation At (input condition)<br>Color Subcarrier (1.07 MHz)<br>PC : Picture Carrier Level = 0 dB<br>CC : Color Subcarrier Level = - 6 dB<br>SC : Sound Carrier Level = - 24 dB |            | 50         |                | dB                                 |
| $V_{13}$<br>$V_{14}$                                                   | Composite Video Output Level<br>$V_1 = 30\text{ mV}$ $m = 80\%$ Without Load                                                                                                           | 2.7<br>2.7 | 3.0<br>3.0 | 3.3<br>3.3     | V <sub>pp</sub><br>V <sub>pp</sub> |
| $\Delta V_{13}/\Delta V_{CC}$ ,<br>or<br>$\Delta V_{14}/\Delta V_{CC}$ | Ultra Black Level Variation with Supply Voltage ( $V_{CC}$ )                                                                                                                           |            | 0.5        |                | %                                  |
| $\Delta V_{13}/\Delta V_{CC}$ ,<br>or<br>$\Delta V_{14}/\Delta V_{CC}$ | Ultra White Level Variation with Supply Voltage ( $V_{CC}$ )                                                                                                                           |            | 3          |                | %                                  |
| BW                                                                     | Video Bandwidth (- 3 dB) Pins 13 - 14                                                                                                                                                  |            | 6          |                | MHz                                |
|                                                                        | AGC Range                                                                                                                                                                              | 55         | 60         |                | dB                                 |
| $I_{AGCT}$                                                             | Available Turner Control Output Current (input level 10 dB higher than level threshold)                                                                                                | 7          | 10         |                | mA                                 |
|                                                                        | AGC Tuner Range                                                                                                                                                                        |            | 60         |                | dB                                 |
| $I_5$                                                                  | Tuner AGC Output Leakage Current ( $V_5 = 12\text{ V}$ )                                                                                                                               |            |            | 20             | $\mu\text{A}$                      |
| $V_9 - V_{10}$                                                         | AFC Tank Pin DC Voltage Pins 9 - 10                                                                                                                                                    |            | 3          |                | V                                  |
| $V_{AFC}$                                                              | AFC Output Voltage Range (Pin 12)<br>( $\Delta f = 200\text{ kHz}$ )                                                                                                                   | 1.0        |            | $V_{CC} - 1.5$ | V                                  |

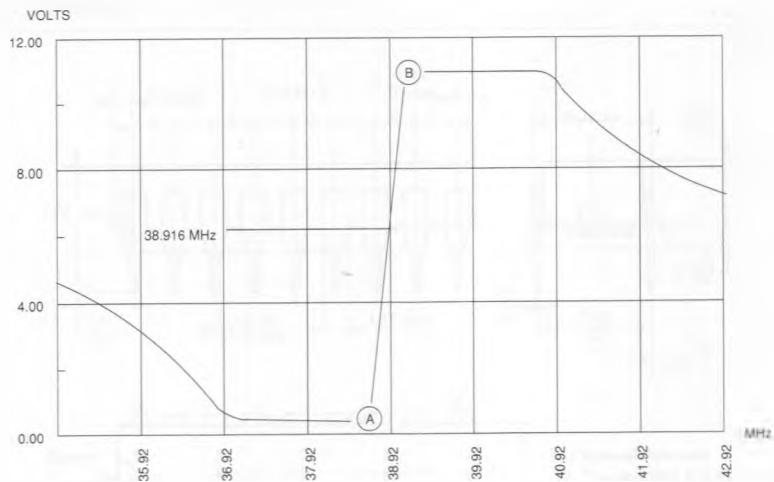
## ELECTRICAL OPERATING CHARACTERISTICS (continued)

| Symbol                                | Parameter                                  | Min. | Typ. | Max. | Unit           |
|---------------------------------------|--------------------------------------------|------|------|------|----------------|
| $\pm I_{AFC}$                         | AFC Output Current Pin 12                  |      | 1.2  |      | mA             |
| $\pm \frac{\Delta I_{AFC}}{\Delta f}$ | AFC Slope                                  |      | 0.2  |      | mA/<br>100 kHz |
|                                       | AFC Output Current (AFC switch off) Pin 12 |      |      | 60   | $\mu$ A        |
|                                       | Switching Current for AFC Pins 9 - 10      | 100  | 150  |      | $\mu$ A        |

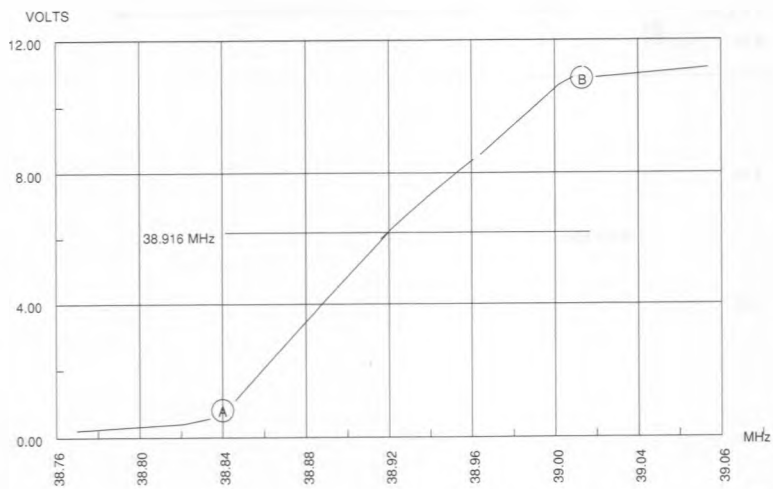
## TEST CIRCUIT



## TDA4426 AFC VOLTAGE VS. INPUT FREQUENCY

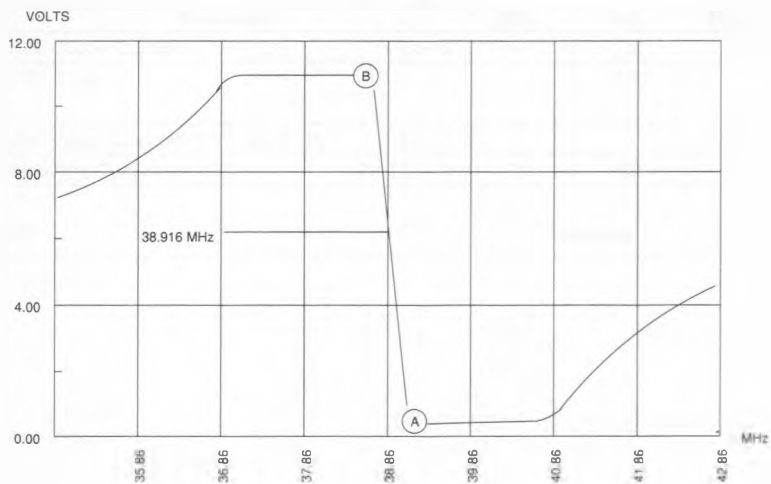


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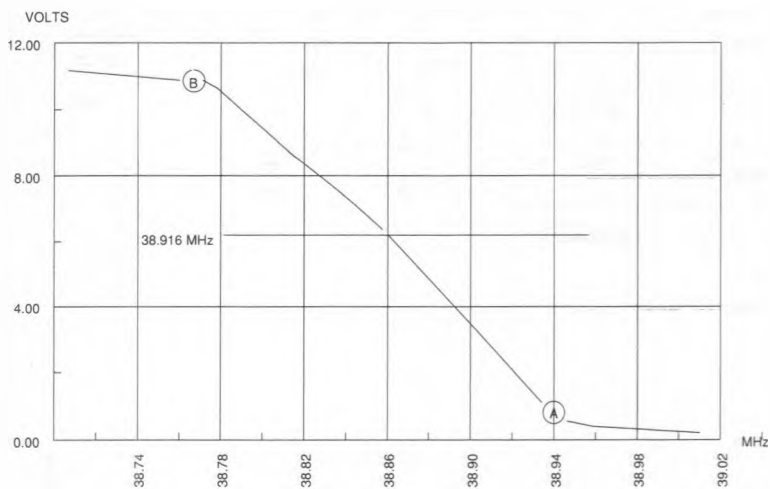


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## TDA4427 AFC VOLTAGE VS. INPUT FREQUENCY



E88TDA4426-01



E88TDA4426-07

## PACKAGE MECHANICAL DATA

18 PINS – PLASTIC DIP

