

# KA2297

# AM/FM TUNER

## INTRODUCTION

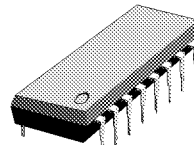
The KA2297 is a monolithic integrated circuit which consist of FM F/E + AM/FM IF and DET AMP.

The KA2297 is no adjustment AM/FM IF, DET coil

## FEATURES

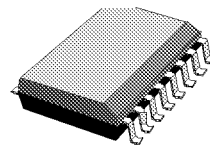
- Not need AM/FM IF, FM DET DOIL
- Built-in FM Front End
- Minimum number of external parts required
- Operating voltage :  $V_{CC} = 1.8V \sim 7V$

16-DIP-300A



#1

16SOP-BD300-SG



#1

## ORDERING INFORMATION

| Device  | Package     | Operating Temperature |
|---------|-------------|-----------------------|
| KA2297  | 16-DIP-300A | -20 ~ +70°C           |
| KA2297D | 16-SOP-375  |                       |

## BLOCK DIAGRAM

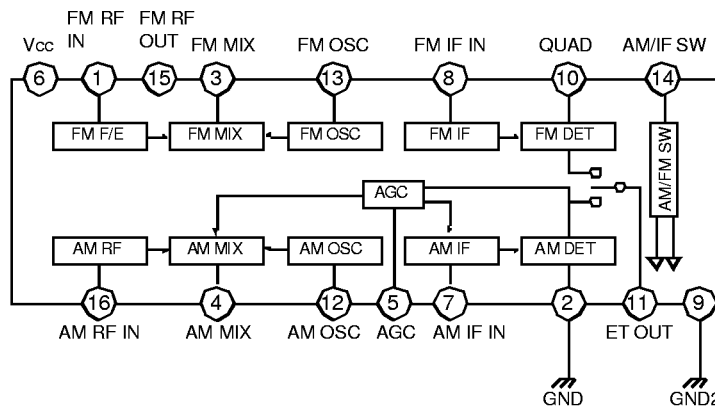


Fig. 1

**KA2297****AM/FM TUNER****ABSOLUTE MAXIMUM RATINGS** (Ta = 25°C)

| Characteristic         | Symbol           | Value      | Unit |
|------------------------|------------------|------------|------|
| Maximum Supply Voltage | V <sub>CC</sub>  | 8          | V    |
| Power Dissipation      | P <sub>D</sub>   | 250        | mW   |
| Operating Temperature  | T <sub>OPR</sub> | -20 ~ +75  | °C   |
| Storage Temperature    | T <sub>STG</sub> | -55 ~ +125 | °C   |

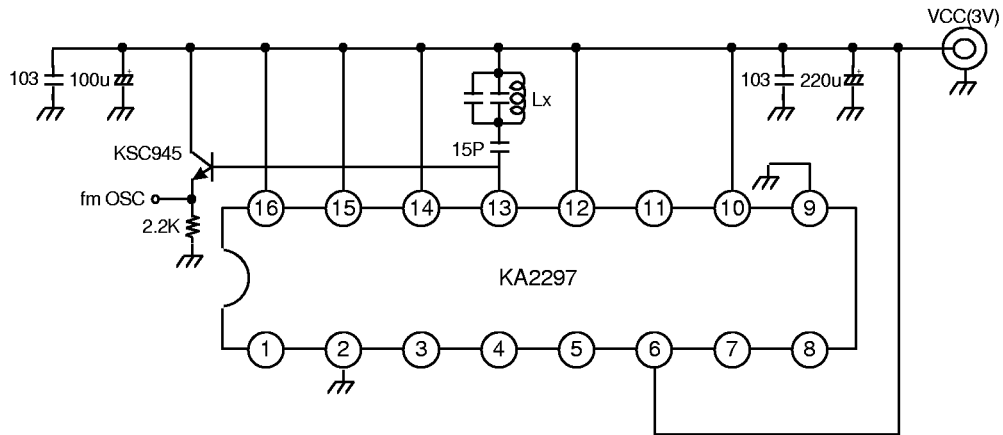
**ELECTRICAL CHARACTERISTICS**(FM F/E : f = 98MHz, FM IF : 10.7MHz, AM : f = 1Khz, Δf = 30%, V<sub>CC</sub> = 3V)

| Characteristic            |                           | Symbol               | Test Condition              | Min | Typ  | Max  | Unit  |
|---------------------------|---------------------------|----------------------|-----------------------------|-----|------|------|-------|
| Quiescent Circuit Current |                           | I <sub>CCQ1</sub>    | FM, V <sub>I</sub> = 0      | 6.0 | 10.0 | 14.0 | mA    |
|                           |                           | I <sub>CCQ2</sub>    | AM, V <sub>I</sub> = 0      | 3.0 | 5.0  | 8.0  | mA    |
| FM<br>F/E                 | -3dB Limiting             | V <sub>(LIM)1</sub>  | V <sub>O</sub> = -3dB Point |     | 12   | 22   | dBμ   |
| FM<br>IF                  | -3dB Limiting Sensitivity | V <sub>(LIM)2</sub>  | V <sub>O</sub> = -3dB Point | 42  | 47   | 52   | dBμ   |
|                           | Detector Output Voltage   | V <sub>O(DET)1</sub> | V <sub>I</sub> = 80dBμ      | 55  | 70   | 85   | mVrms |
|                           | Total Harmonic Distortion | THD <sub>1</sub>     | V <sub>I</sub> = 80dBμ      |     | 0.4  | 1    | %     |
|                           | Signal to Noise Ratio     | S/N <sub>1</sub>     | V <sub>I</sub> = 80dBμ      | 56  | 62   |      | dB    |
|                           | AM Rejection Ratio        | AMR                  | V <sub>I</sub> = 80dBμ      | 32  | 38   |      | dB    |
| AM                        | Voltage Gain              | G <sub>V1</sub>      | V <sub>I</sub> = 30dBμ      | 28  | 50   | 72   | mVrms |
|                           | Detector Output Voltage   | V <sub>O(DET)2</sub> | V <sub>I</sub> = 60dBμ      | 40  | 60   | 82   | mVrms |
|                           | Total Harmonic Distortion | THD <sub>2</sub>     | V <sub>I</sub> = 60dBμ      |     | 1.0  | 2.0  | %     |
|                           | Signal to Noise Ratio     | S/N <sub>2</sub>     | V <sub>I</sub> = 60dBμ      | 37  | 43   |      | dB    |

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## AM/FM TUNER

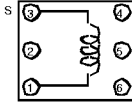
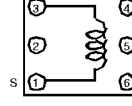
### TEST CIRCUIT 1



**KA2297**

**AM/FM TUNER**

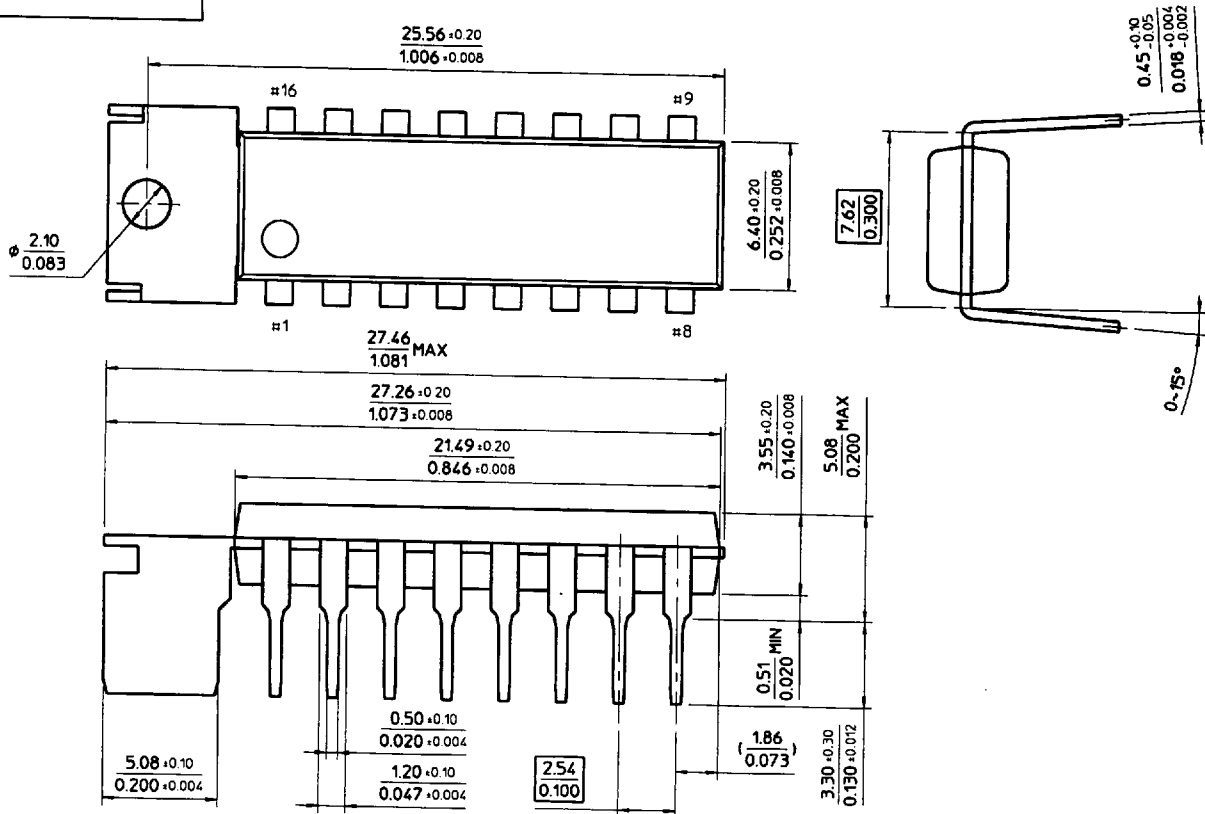
**COIL SPEC**

| SEAL NAME                   | L1                                                                                |       | L2                                                                                |       | L3                                                                                  |     |
|-----------------------------|-----------------------------------------------------------------------------------|-------|-----------------------------------------------------------------------------------|-------|-------------------------------------------------------------------------------------|-----|
| TURNS                       | 3-1                                                                               | 2 2/8 | 1-3                                                                               | 2 6/8 | 1-2                                                                                 | 12T |
|                             |                                                                                   |       |                                                                                   |       | 2-3                                                                                 | 73T |
| WIRE(mmΦ)                   | 0.5 UEW                                                                           |       | 0.5 UEW                                                                           |       | 0.08 UEW                                                                            |     |
| CONNECTION<br>(BOTTOM VIEW) |  |       |  |       |  |     |
| FREQUENCY                   | 100MHz                                                                            |       | 100MHz                                                                            |       | 79KHz                                                                               |     |
| TUNNG<br>CAPACITY           |                                                                                   |       |                                                                                   |       |                                                                                     |     |
| INDUCTANCE                  |                                                                                   |       |                                                                                   |       | 268uH<br>±8%min                                                                     |     |
| UNLOADED Q                  |                                                                                   |       |                                                                                   |       | 70min                                                                               |     |

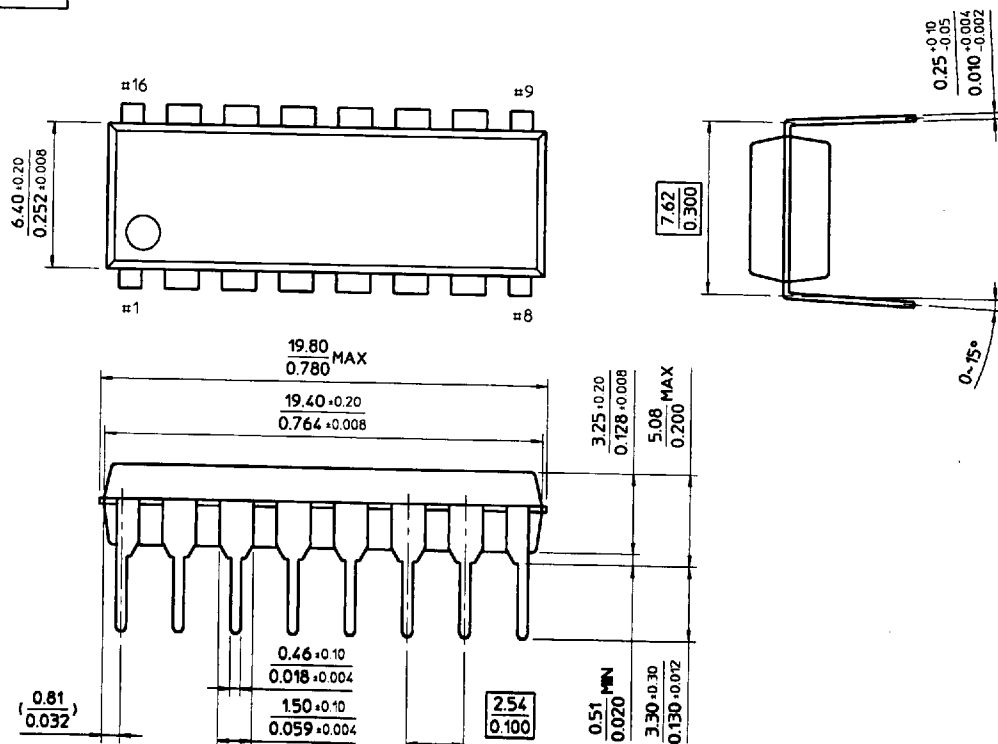
**APPLICATION CIRCUIT**

Fig. 4

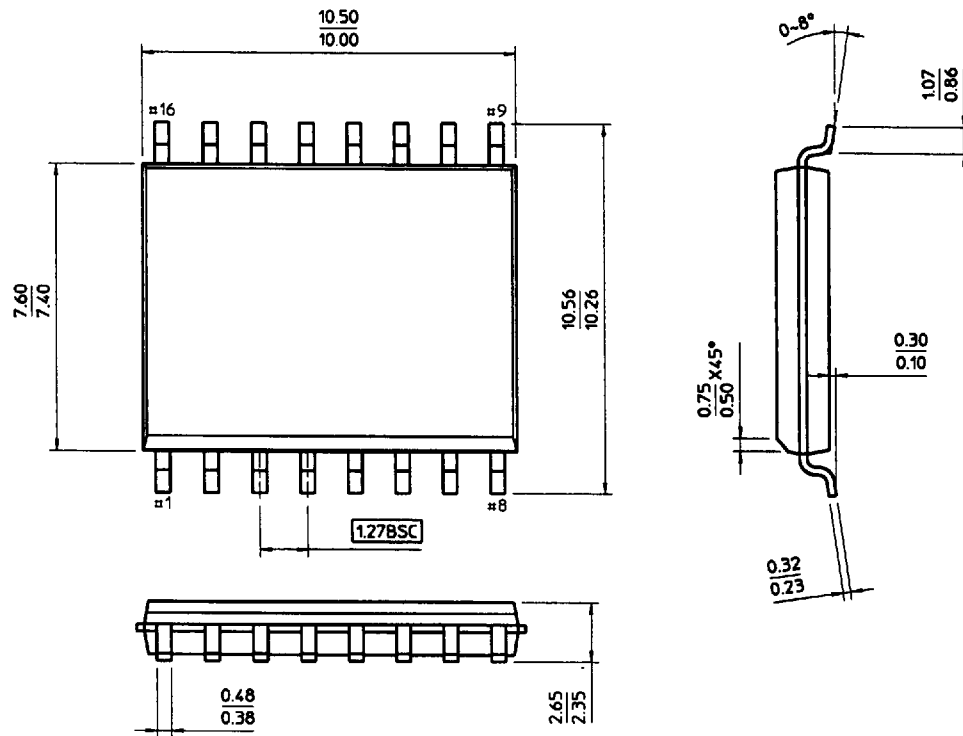
16-DIPH-300



16-DIP-300A



16-SOP-BD300-SG



20-SOP-BD300-SG

