

**LA1186N**

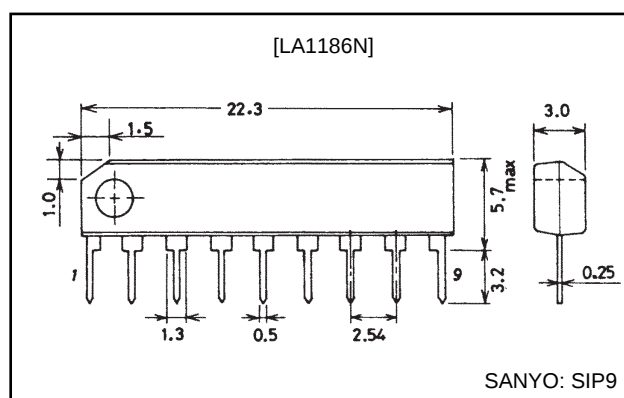
# FM Front End for Radio-Cassette Recorders, Music Centers

## Features and Functions

- Contains RF amplifier, MIX, OSC, AFC diode.
- Operating voltage : 1.8 to 8.0V.
- Improvement in cross modulation characteristic due to the use of double-balanced MIX.
- Improvement in strong input characteristic.
- Minimum number of external parts required.
- Less spurious radiation from local OSC.
- TV (1 to 12 channel) receive capability.

## Package Dimensions

unit: mm

**3017C-SIP9**

## Specifications

**Maximum Ratings** at  $T_a=25^\circ\text{C}$ 

| Parameter                   | Symbol       | Conditions                  | Ratings         | Unit             |
|-----------------------------|--------------|-----------------------------|-----------------|------------------|
| Maximum supply voltage      | $V_{CC}$ max |                             | 8.0             | V                |
| Maximum pin voltage         | V3-5         |                             | 12              | V                |
|                             | V6-5         |                             | $V_{CC}+0.8$    | V                |
| Allowable power dissipation | $P_d$ max    | $T_a \leq 80^\circ\text{C}$ | 150             | mW               |
| Operating temperature       | $T_{opr}$    |                             | $-20$ to $+80$  | $^\circ\text{C}$ |
| Storage temperature         | $T_{stg}$    |                             | $-40$ to $+125$ | $^\circ\text{C}$ |

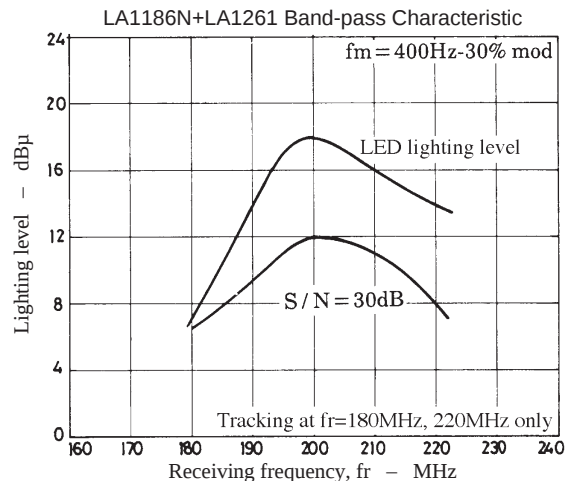
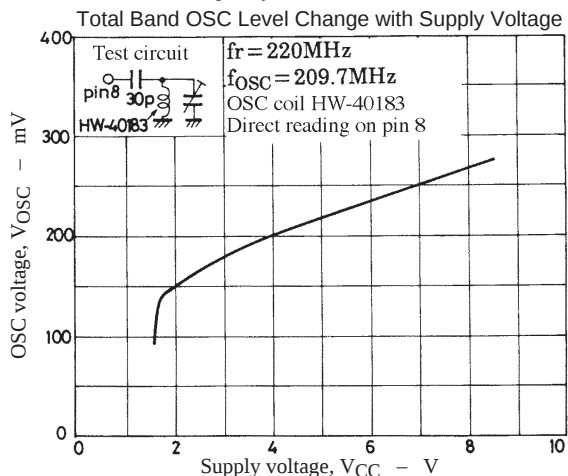
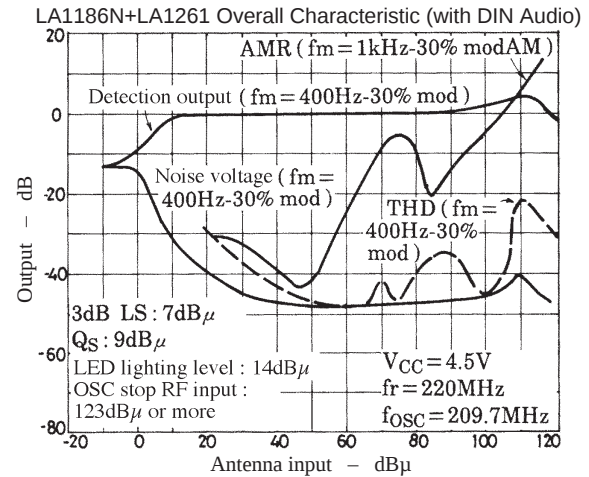
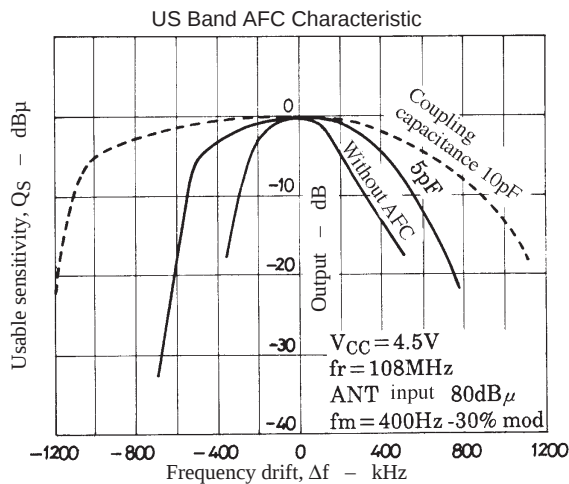
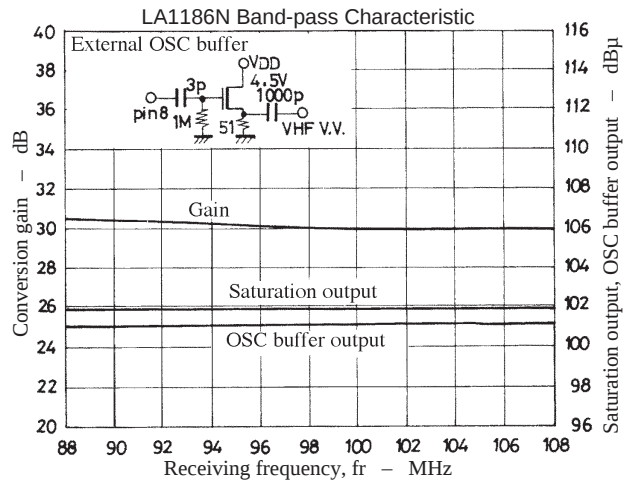
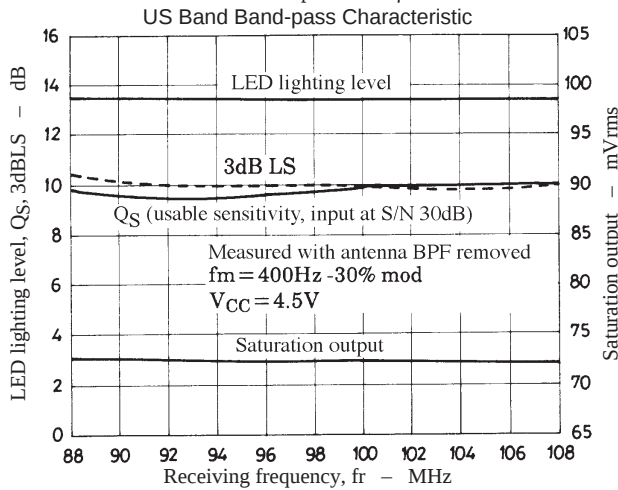
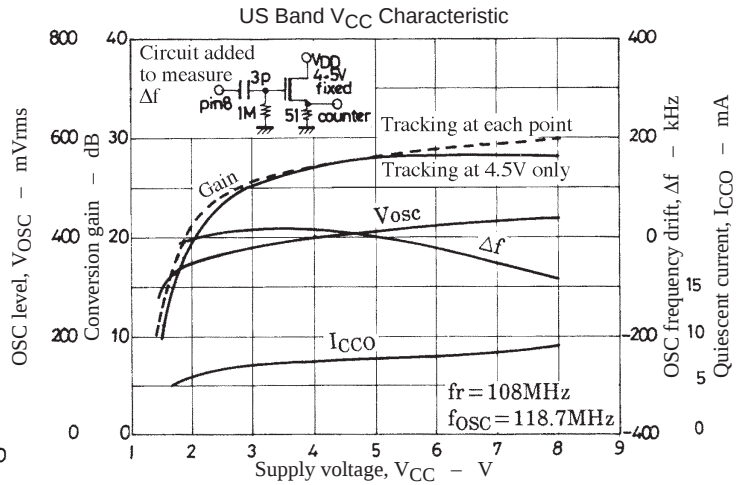
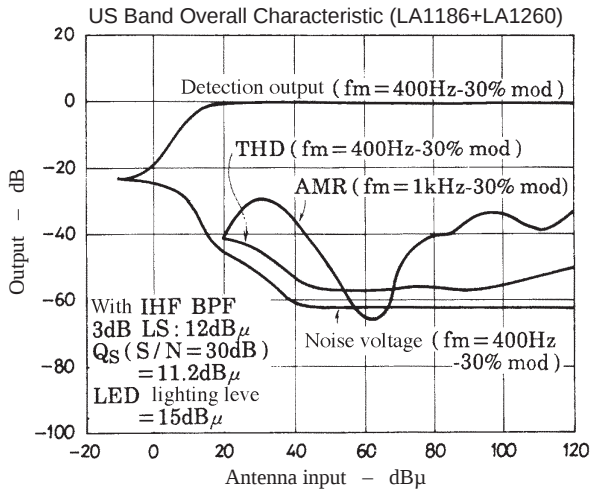
**Operating Conditions** at  $T_a=25^\circ\text{C}$ 

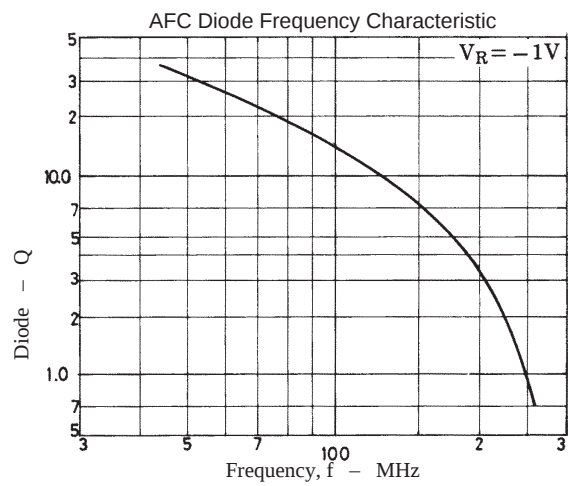
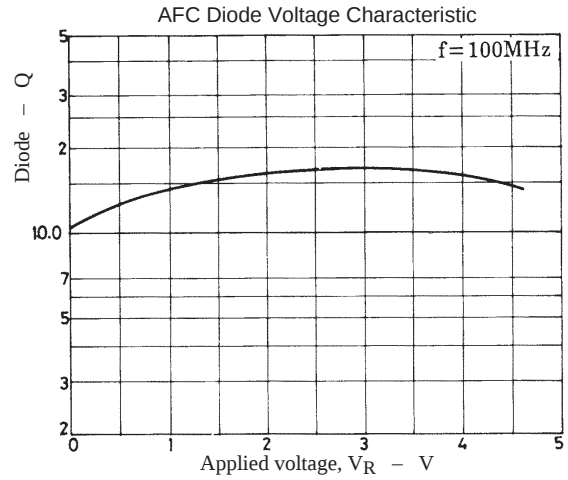
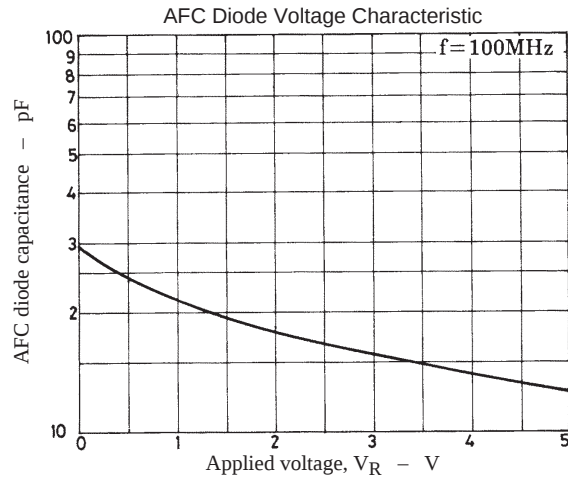
| Parameter                  | Symbol      | Conditions | Ratings    | Unit |
|----------------------------|-------------|------------|------------|------|
| Recommended supply voltage | $V_{CC}$    |            | 4.5        | V    |
| Operating voltage range    | $V_{CC}$ op |            | 1.8 to 7.5 | V    |

**Electrical Characteristics** at  $T_a=25^\circ\text{C}$ ,  $V_{CC}=4.5\text{V}$ ,  $f_r=108\text{MHz}$ ,  $f_{OSC}=118.7\text{MHz}$ , See specified Test Circuit.

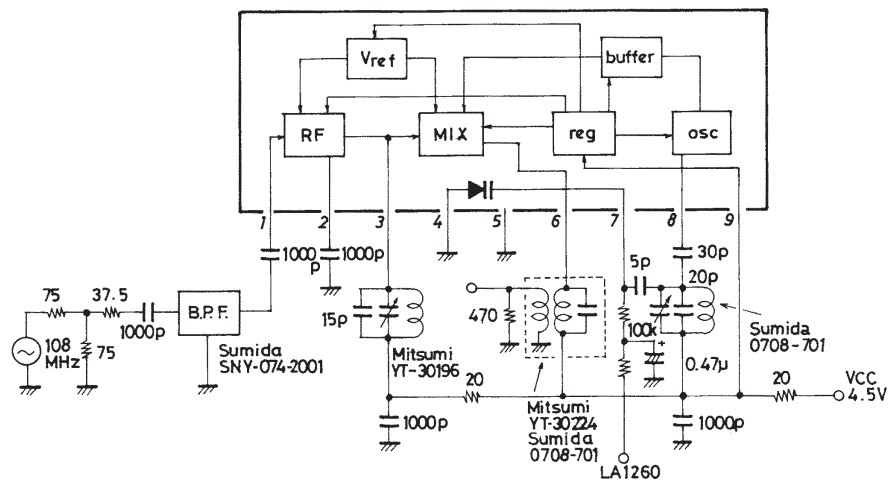
| Parameter                 | Symbol    | Conditions               | Ratings |     |     | Unit  |
|---------------------------|-----------|--------------------------|---------|-----|-----|-------|
|                           |           |                          | min     | typ | max |       |
| Current dissipation       | $I_{CC}$  | Quiescent                |         | 7.0 | 9.5 | mA    |
| Output saturation voltage | $V_o$     | $V_{IN}=100\text{dB}\mu$ | 95      | 115 | 135 | V     |
| Local OSC voltage         | $V_{OSC}$ | $V_{CC}=2\text{V}$       | 200     | 315 |     | mVrms |
| Oscillation stop voltage  |           |                          |         | 1.4 | 1.8 | V     |

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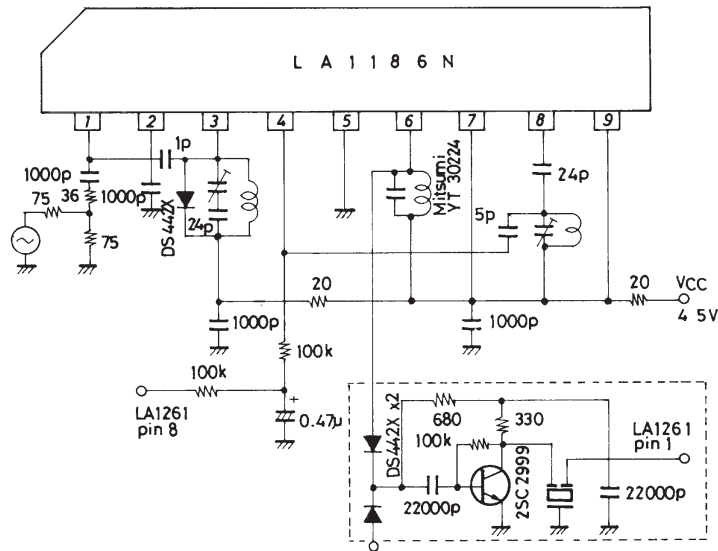


## US Band Test Circuit



Unit (resistance :  $\Omega$ , capacitance : F)

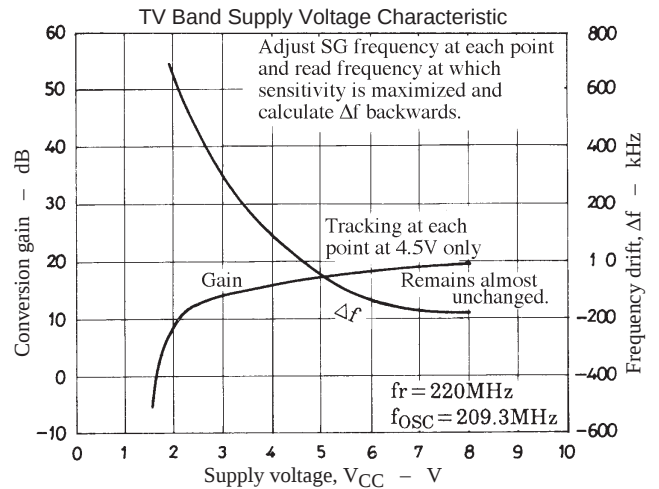
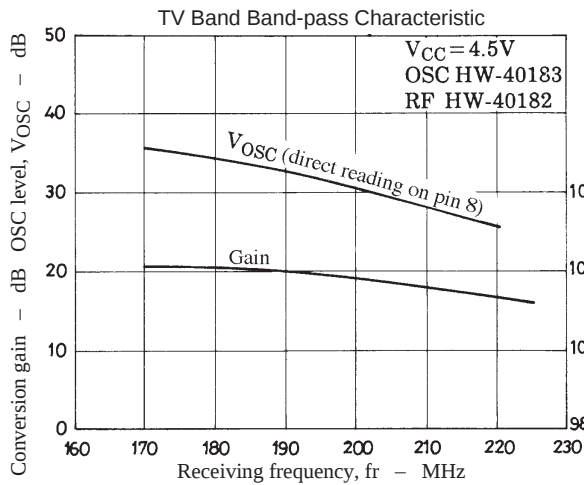
## Sample Application Circuit for TV Band



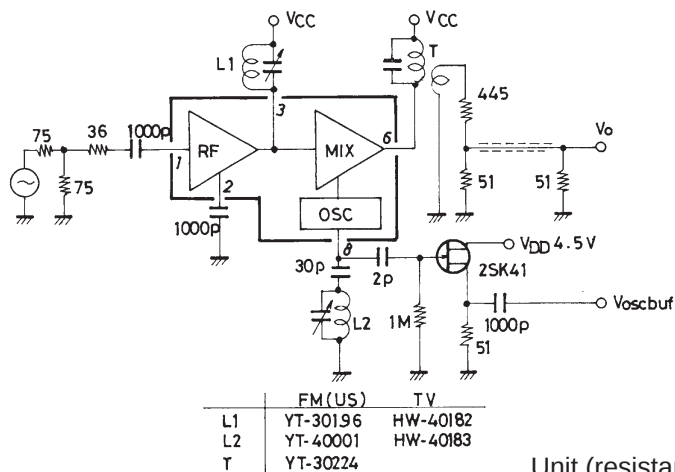
FM band LA1186 MIX output

TV band (4 to 12ch),  
FM band (FM + TV1 to 3ch)  
Select circuit

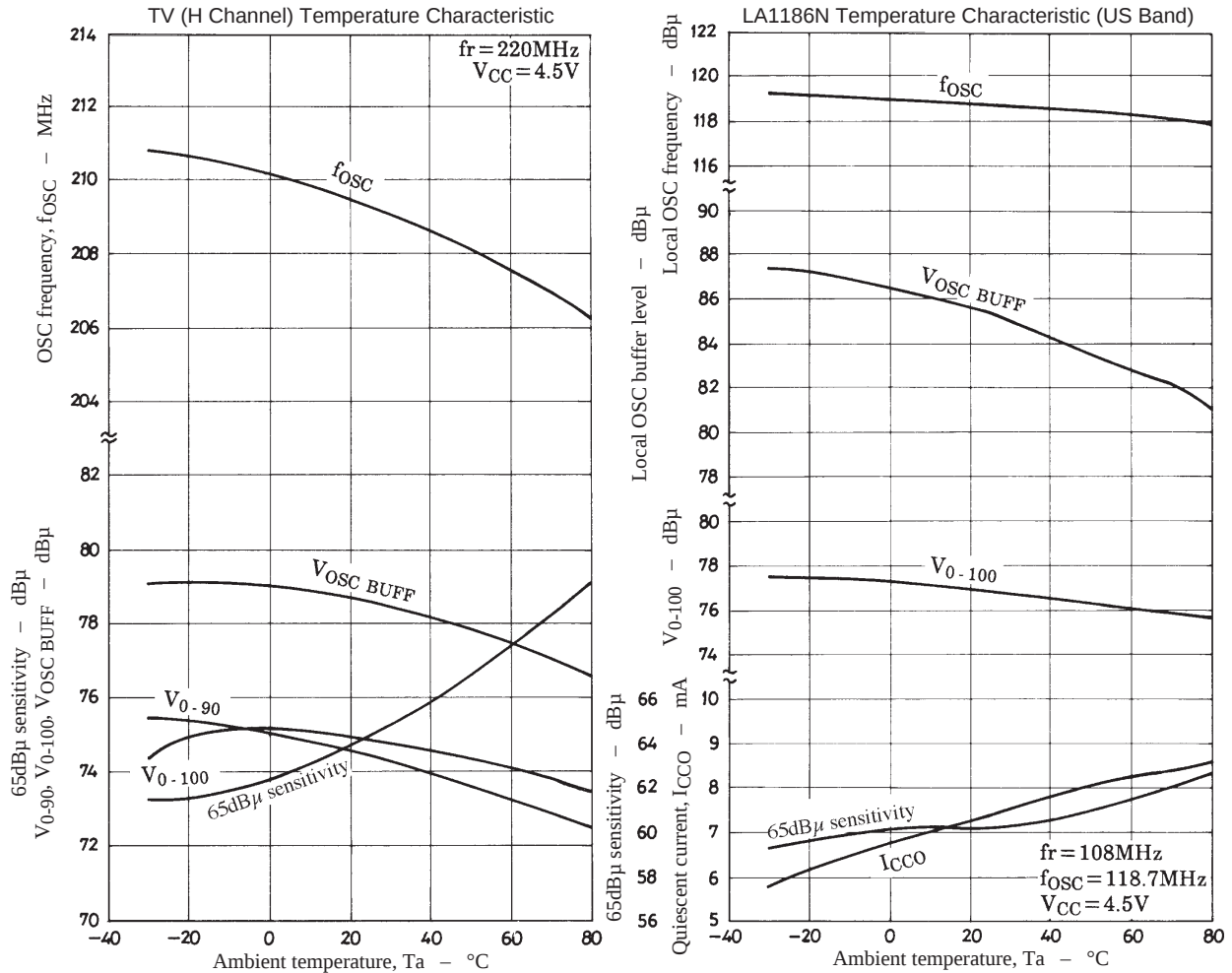
Unit (resistance :  $\Omega$ , capacitance : F)



## LA1186N Temperature Characteristic Test Circuit



Unit (resistance :  $\Omega$ , capacitance : F)



(Note)  $65\text{dB}\mu$  sensitivity : Input at  $65\text{ dB}\mu$  in Temperature Characteristic Test Circuit

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