# AN7463S

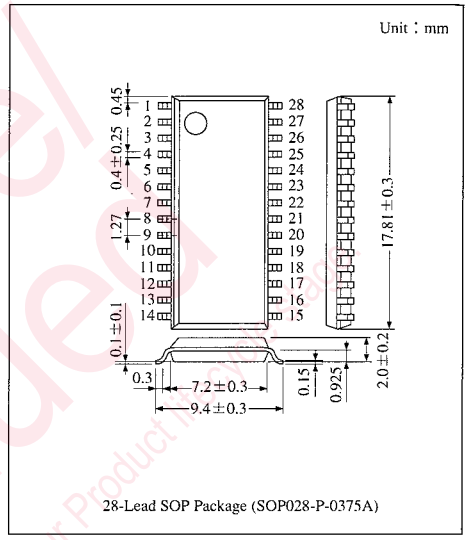
## FM Noise Canceller/Stereo Multiplex Demodulator for Car Radio

### ■ Overview

The AN7463S is an integrated circuit for car stereo configured FM noise canceller and PLL multiplex demodulator in a single chip. It is the same function/performance/pin compatible as the AN7465S except for ASC · ATC characteristics.

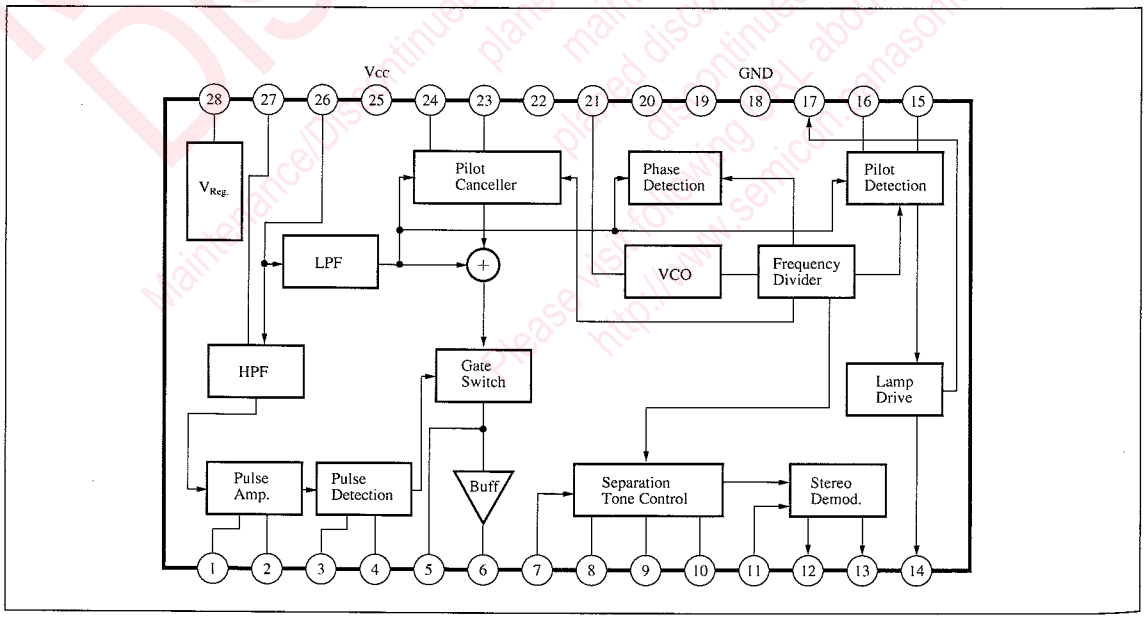
### ■ Features

- HPF/LPF of noise canceller input section built-in.
- Good S/N and distortion by using quasi sine wave as pilot canceller negative wave.
- HPF band width auto switching by monaural and stereo.
- With ASC · ATC functions reducing noise at weak electric field smoothly.
- With forced monaural and VCO stop functions




28-Lead SOP Package (SOP028-P-0375A)

### ■ Block Diagram



## ■ Absolute Maximum Ratings (Ta=25℃)

| Parameter | | Symbol | Rating | Unit |
|---|---|---|---|---|
| Supply Voltage | | $V_{CC}$ | 10 | V |
| Supply Current | Without Lamp Current | $I_{CC(1)}$ | 25 | mA |
| | With Lamp Current | $I_{CC(2)}$ | 30 | mA |
| Power Dissipation | | $P_D$ | 280 | mW |
| Operating Ambient Temperature | | $T_{opr}$ | −30～+75 | ℃ |
| Storage Temperature | | $T_{stg}$ | −55～+125 | ℃ |

## ■ Recommended Operating Range (Ta=25℃)

| Parameter | Symbol | Range |
|---|---|---|
| Operating Supply Voltage Range | $V_{CC}$ | 6V～10V |

## ■ Electrical Characteristics (Ta=25℃)

| Parameter | Symbol | Condition | min. | typ. | max. | Unit |
|---|---|---|---|---|---|---|
| Total Circuit Current | $I_{tot}$ | $V_{in}$=0mVrms | 10 | 15 | 20 | mA |
| AGC Voltage (1) | $V_{AGC1}$ | $V_{in}$=0mVrms, $R_S$=10kΩ | — | 0.05 | 0.4 | V |
| AGC Voltage (2) | $V_{AGC2}$ | $V_{in}$=2mVrms, f=150kHz | 1 | 1.3 | 1.5 | V |
| Noise Detection Voltage | $V_{Det.}$ | $V_{in}$=100mVrms, f=150kHz | — | 0.05 | 0.3 | V |
| Gate Pulse Width | PW | $V_{in}$=0.3$V_{P-P}$ Pulse , $t_W$=1μs, f=1kHz | 20 | 25 | 30 | μs |
| Residual Noise Voltage | $V_{NR}$ | $V_{in}$=1$V_{P-P}$ Pulse *, $t_W$=10μs, f=1kHz | — | 0.3 | 0.7 | mVrms |
| Output Voltage | $V_O$ | $V_{in}$=300mV, f=1kHz | 250 | 290 | 330 | mVrms |
| Channel Balance | CB | $V_{in}$=300mV, f=1kHz | — | 0 | 1 | dB |
| Separation (1) (R⑨=820Ω fixed) | Sep.1 | $V_{L+R}$=270mV, $V_P$=30mV, f=1kHz | 22 | 32 | — | dB |
| Separation (2) (at R⑨ adjustment) | Sep.2 | At $V_{L+R}$=270mV, $V_P$=30mV, f=1kHz adjustment | — | 40 | — | dB |
| THD (L+R) | THD | $V_{L+R}$=270mV, $V_P$=30mV, f=1kHz | — | 0.05 | 0.3 | % |
| THD (Monaural) | THD | $V_{in}$=300mV, f=1kHz | — | 0.05 | 0.3 | % |
| Residual Pilot Voltage | $V_{PC}$ | $V_P$=30mV | — | 2.5 | 10 | mVrms |
| Lamp ON Pilot Voltage | $V_{P(ON)}$ | Input only Pilot Signal | 11 | 16 | 21 | mVrms |
| Lamp OFF Pilot Voltage | $V_{P(OFF)}$ | Input only Pilot Signal | — | 8 | — | mVrms |
| Capture Range | CR | $V_P$=30mV | ±1.8 | ±3 | — | % |
| VCO Stop Voltage | $V_{14-18}$ | Pin⑭, VCO Stop Voltage | 3 | 3.4 | 3.8 | V |
| Maximum Iuput Voltage | $V_{i(max.)}$ | f=1kHz, Input at lamp ON | 0.7 | — | — | Vrms |
| Input Impedance | $Z_{in}$ | Pin㉖ | — | 53 | — | kΩ |
| Output Impedance | $Z_o$ | Pin⑫, ⑬ | — | 3.3 | — | kΩ |

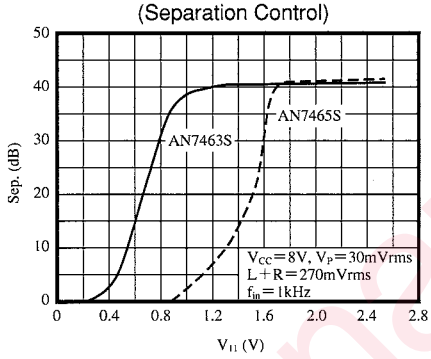
* Input through LPF of R=150Ω, C=0.033μF.

## ■ Difference between AN7463S and AN7465S

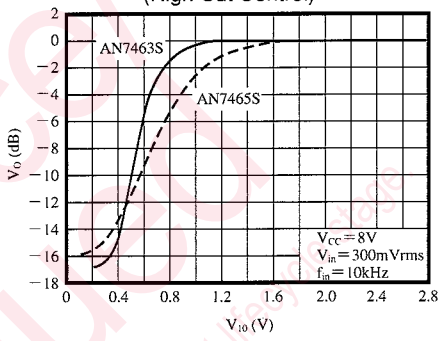
The AN7463S is all the same as the AN7465S except for ASC/ATC control characteristics. Refer to the AN7465S for electrical characteristics and application circuit.

• ASC, ATC Characteristics Comparison

ASC Characteristics
(Separation Control)




ATC Characteristics
(High Cut Control)




## ■ Supplementary Explanation

### •Noise Canceller/MPX IC Series for Car Radio Comparison List

Noise canceller/MPX IC series for car radio is integrated noise canceller for FM radio and FM stereo MPX circuit on a single chip in Pin㉘～㉜, which is most suitable series for cost down of high performance car radio.

| Item \ Type Name | AN7465S/K | AN7464S | AN7463S |
|---|---|---|---|
| Package | K…Pin㉘ · Shrunk DIL<br>S …Pin㉘ · Flat | Pin㉜ · Flat | Pin㉘ · Flat |
| Supply Voltage | 6V～10V | 6V～10V | 6V～10V |
| Supply Current | 15mA | 16mA | 15mA |
| Noise Canceller | ○ | ○ | ○ |
| Pilot Canceller | ○ | ○ | ○ |
| ATC (Refer to above diagram) | ○ | ○ | ○ |
| ASC (Refer to above diagram) | ○ | ○ | ○ |
| Forced Manaural/VCOSTOP | ○ | ○ | ○ |
| Noise Canceller HPF Switching | ○ | ○ | ○ |
| Multipath Detection Amp. | × | ○ | × |

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