

AN7463S

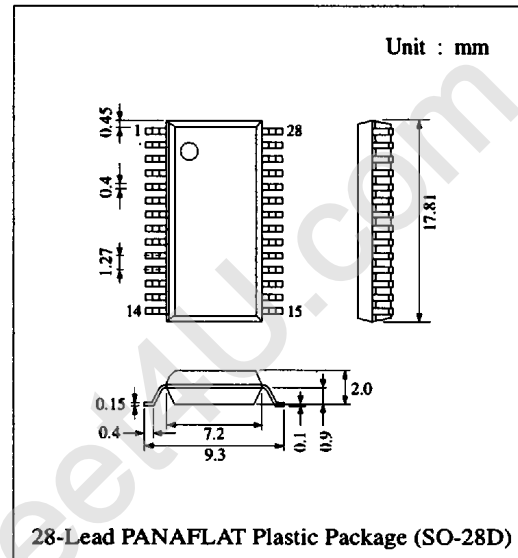
FM Noise Canceller/Stereo Multiplex Demodulator for Car Radio

■ Description

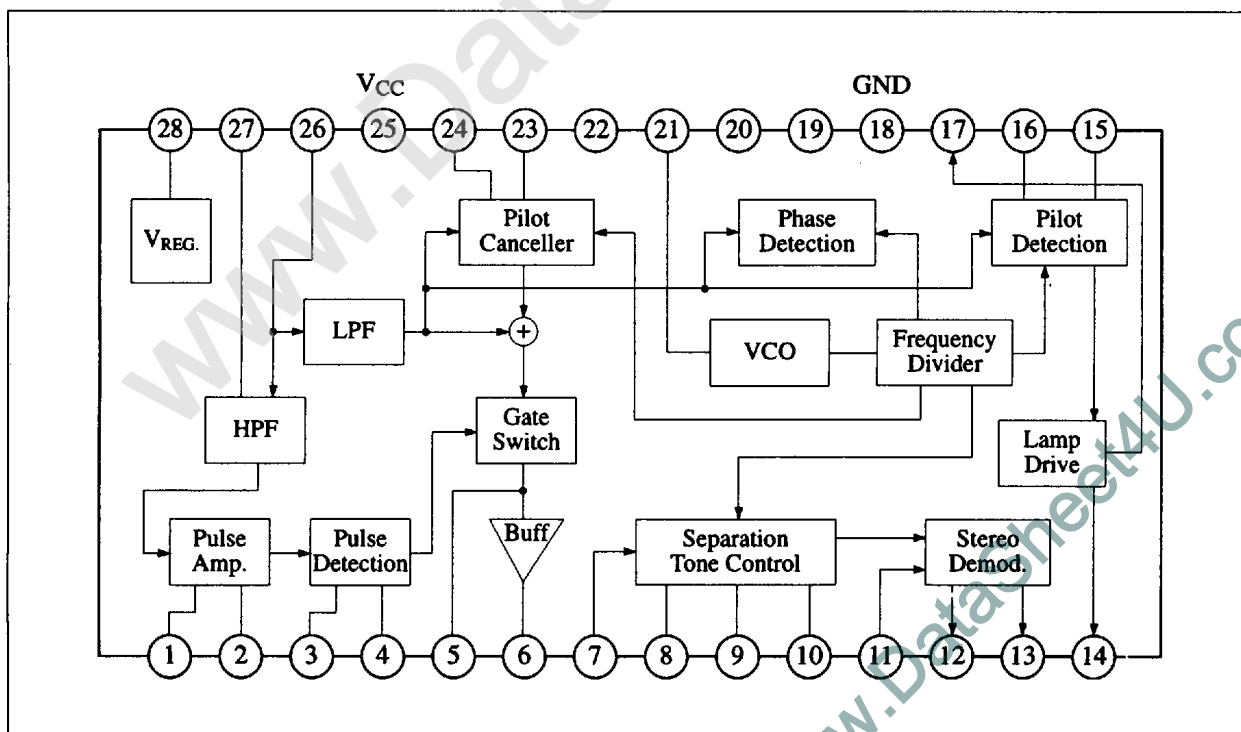
The AN7463S is a monolithic integrated circuit for car stereo configured FM noise canceller and PLL multiplex demodulator in a single chip. It has the same function/performance/pin compatible as the AN7465S except for ASC . ATC characteristics.

■ Features

- HPF/LPF of noise canceller input section built-in
- Good S/N and distortion by using quasi sinewave 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



■ Block Diagram



■ Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Rating	Unit
Supply Voltage	V _{CC}	10	V
Supply Current (Without Lamp)	I _{CC(1)}	25	mA
Supply Current (With lamp)	I _{CC(2)}	30	mA
Power Dissipation	P _D	280	mW
Operating Ambient Temperature	T _{opr}	-30 ~ +85	°C
Storage Temperature	T _{stg}	-55 ~ +125	°C

Operating Supply Voltage Range: V_{CC} = 6.0V ~ 10.0V

■ Electrical Characteristics (Ta=25°C)

Item	Symbol	Condition	min.	typ.	max.	Unit
Total Circuit Current	I _{tot}	V _{in} = 0mV	10	15	20	mA
AGC Voltage (1)	V _{AGC1}	V _{in} = 0mV, R _s = 10kΩ		0.05	0.4	V
AGC Voltage (2)	V _{AGC2}	V _{in} = 2mV, f = 150kHz	1	1.3	1.5	V
Noise Detection Voltage	V _{DET}	V _{in} = 100mV, f = 150kHz		0.05	0.3	V
Gate Pulse Width	PW	V _{in} = 0.3V _{p-p} Pulse, t _w = 1μs, f = 1kHz	20	25	30	μs
Residual Noise Voltage	V _{NR}	V _{in} = 1V _{p-p} Pulse*, t _w = 10μs, f = 1kHz		0.3	0.7	mV
Output Voltage	V _O	V _{in} = 300mV, f = 1kHz	250	290	330	mV
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
Total Harmonic Distortion (Stereo)	THD	V _(L+R) = 270mV, V _p = 30mV, f = 1kHz		0.05	0.3	%
Total Harmonic Distortion (Mono)	THD	V _{in} = 300mV, f = 1kHz		0.05	0.3	%
Residual Pilot Voltage	V _{PC}	V _p = 30mV		2.5	10	mV
Lamp ON Pilot Voltage	V _{p(ON)}	Input only Pilot Signal	11	16	21	mV
Lamp OFF Pilot Voltage	V _{p(OFF)}	Input only Pilot Signal		8		mV
Capture Range	CR	V _p = 30mV	±1.8	±3		%
VCO Stop Voltage	V ₁₄₋₁₈	Pin 14, VCO Stop Voltage	3	3.4	3.8	V
Maximum Input Voltage	V _{in(max)}	f = 1kHz, Input at lamp ON	0.7			V
Input Impedance	Z _{in}	Pin 26		53		kΩ
Output Impedance	Z _O	Pin 12, 13		3.3		kΩ

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

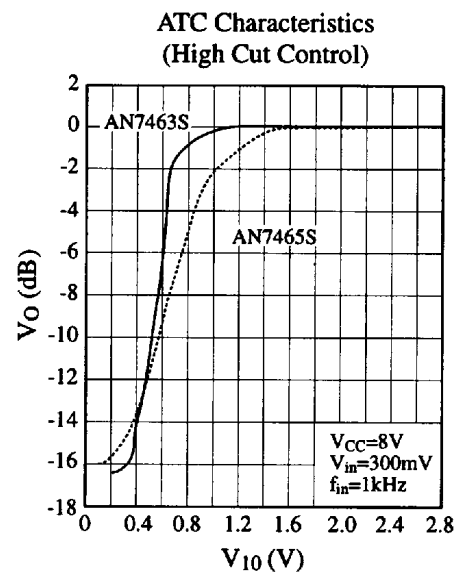
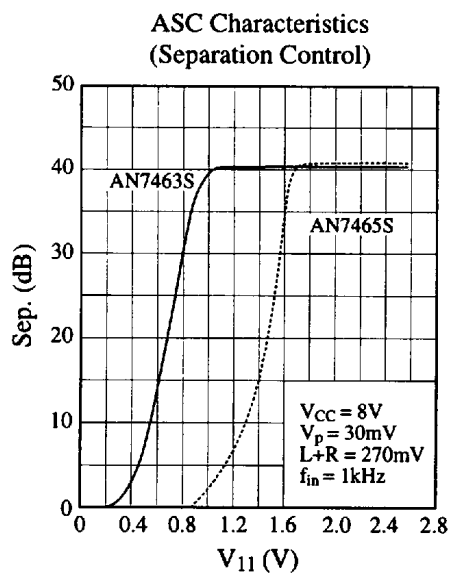
■ Pin

Pin No	Pin Name	Pin No	Pin Name
1	Low Pass Filter for Noise Amplifier	15	Low Pass Filter for Pilot Detection
2	Low Pass Filter for Noise Amplifier	16	Low Pass Filter for Pilot Detection
3	Error Operation Check AGC Sen. Time Const.	17	Stereo Lamp Driver
4	Gate Pulse Width Time Const.	18	GND
5	Signal Holding Capacitor	19	PLL Low Pass Filter
6	Noise Suppression Circuit Signal Output	20	PLL Low Pass Filter
7	Stereo Modulation Signal Input	21	VCO Oscillation Time Const.
8	ATC Low Pass Filter	22	Pilot Cancelling Control Low Pass Filter
9	Separation Adjustment Resistance	23	Pilot Cancelling Control Low Pass Filter
10	Tone Control	24	Pilot Cancelling Signal Generation Capacitor
11	Separation Control	25	V _{CC}
12	Left Signal Output	26	Signal Input
13	Right Signal Output	27	HPF Adjustment Resistance
14	Forced Monaural, VCO Stop Control	28	Reference Voltage

■ 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



■ Supplementary Explanation

● Noise Canceller/MPX IC Series for Car Radio Comparison List

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

Item	Type Name	AN7465K/S	AN7463S
Package		K ... 28-Pin · Shrunk DIL S ... 28-Pin · Flat	28-Pin · Flat
Supply Voltage		6V ~ 10V	6V ~ 10V
Supply Current		15mA	15mA
Noise Canceller		○	○
Pilot Canceller		○	○
ATC (Refer to previous page diagram)		○	○
ASC (Refer to previous page diagram)		○	○
Forced Monaural/VCO STOP		○	○
Noise Canceller HPF Switching		○	○
Multipath Detection Amp.		X	X

● Application circuit please refer to AN7465K/S