

AN7286S

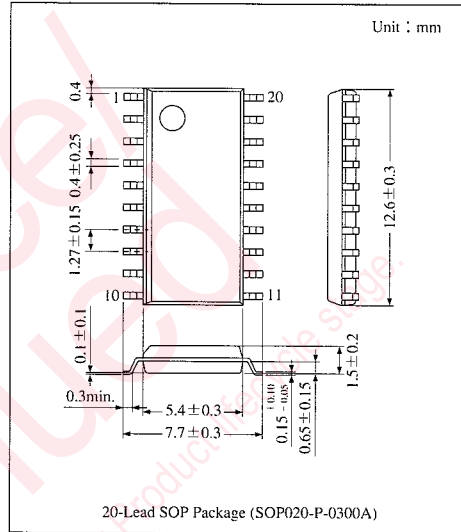
AM Demodulator Circuit for Car Tuner

Overview

The AN7286S is an IC designed for AM radio demodulation. It is best suitable to be mounted in a car. It is superior in auditory sense for weak electric field by employing ATC (Auto Tone Controller) and has realized high performance also for strong electric field.

Features

- ATC function
- Low distortion factor (0.3%)
- High S/N (55dB)
- SEEK sensitivity switching function

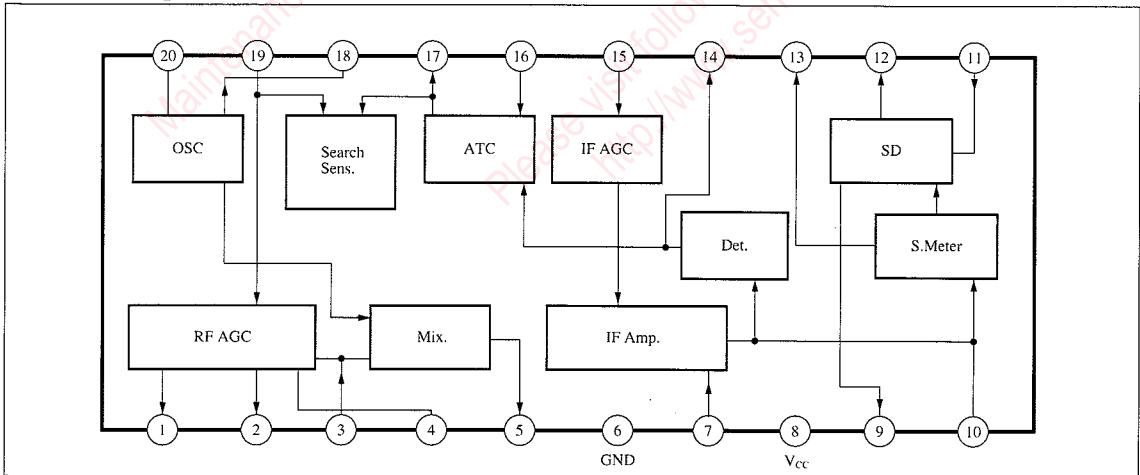


Pin Name

Pin No.	Pin Name	Pin No.	Pin Name
1	Voltage Output for RF Gain Control	11	SSC SW
2	Current Output for PIN Diode Drive	12	IF Count Output & LO/DX Changeover
3	Mix. Input	13	Signal Meter Output
4	RFAGC Time Constant Setting Pin	14	Detector Output
5	Mix. Output	15	IF AGC Level Detection
6	GND	16	ATC Input & ATC sw
7	IF Input	17	AF Output & LO Sensitivity Setting
8	V _{cc}	18	OSC Buffer Output
9	SD Output	19	Wide Frequency Band AGC Level Detection & DX Sensitivity Setting
10	IF Amp. Load Pin	20	OSC Coil Pin

ICs for Tuner

Block Diagram



■ Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Supply Voltage	V _{CC}	9.2	V
Supply Current	I _{CC}	45	mA
Power Dissipation ^{Note 1)}	P _d	207	mW
Operating Ambient Temperature	T _{opr}	-30 ~ +80	°C
Storage Temperature	T _{stg}	-55 ~ +125	°C

Note 1) Value at Ta=80°C, Free air

■ Recommended Operating Range (Ta=25°C)

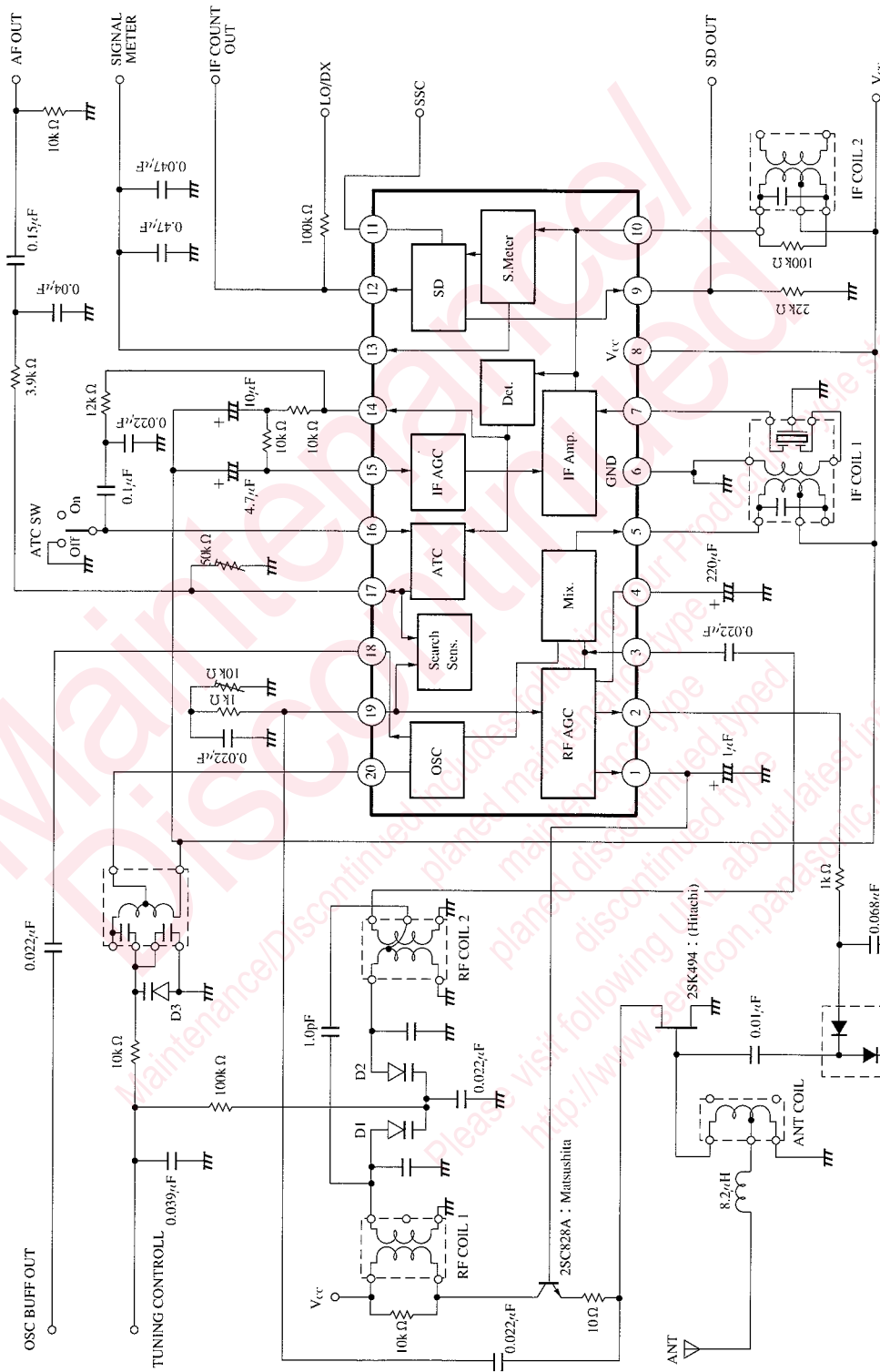
Parameter	Symbol	Range
Operating Supply Voltage Range	V _{CC}	7.2V ~ 9.0V

■ Electrical Characteristics (V_{CC}=8V, f_i=1kHz, Ta=25°C)

Parameter	Symbol	Condition	min.	typ.	max.	Unit
Consumption Current 1	I _{io1}	No input	20	30	35	mA
Consumption Current 2	I _{io2}	V _{in} = 130dB _μ	25	34	40	mA
Detection Output	V _O	V _{in} = 74dB _μ , 400Hz 30%mod.	100	125	155	mV
Signal to Noise Ratio	SN	V _{in} = 74dB _μ , 400Hz 30%mod.	50	54	58	dB
AGC Width	W	74dB _μ 400Hz 30%, Output -10dB Input Width	54	58	62	dB
ATC Operation	4ATC	V _i = 14dB _μ 1kHz 30%mod. (V _O at ATC off) - (V _O at ATC on)	2	4	6	dB
Distortion Factor 1	THD1	V _{in} = 74dB _μ , 400Hz 80%mod.	0.01	0.3	1.0	%
Distortion Factor 2	THD2	V _{in} = 130dB _μ , 400Hz 80%mod.	0.01	0.4	1.0	%
Wide Frequency Band AGCon Input	V _{wa}	No input of desired wave, Interference wave 1.4MHz	82	88	94	dB _μ
Local Osc. Buffer Output	V _{os}	No input	170	210	250	mV
IF Count Output 1	V _{if1}	V _{in} = 40dB _μ 400Hz 30%mod.	145	200	255	mV
IF Count Output 2	V _{if2}	No input	—	—	10	mV
SD Output 1	V _{sd1}	V _{in} = 40dB _μ 400Hz 30%mod.	4.5	4.8	5.0	V
SD Output 2	V _{sd2}	No input	0.0	0.2	0.5	V
Signal Meter Output 1	V _{sm1}	No input	1	10	100	mV
Signal Meter Output 2	V _{sm2}	V _{in} = 30dB _μ 400Hz 30%mod.	0.6	0.85	1.1	V
Signal Meter Output 3	V _{sm2}	V _{in} = 130dB _μ 400Hz 30%mod.	4.0	4.6	4.95	V
Search Sensitivity DX	Sd	Input for f = 450k ± 2kHz (400Hz 30%mod.), IF count output : 120mV or more	24.5	30	35.5	dB _μ
Search Sensitivity LO	SL	Input for f = 450k ± 2kHz (400Hz 30%mod.), IF count output : 120mV or more	44.5	50	55.5	dB _μ

Note) Tuning condition : Adjust the tuning control voltage so that frequency of local Osc. buffer output could be 1450kHz.
No input : V_{in} ≤ -20dB_μ

Application Circuit

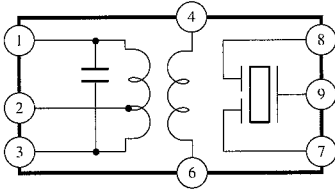


RF COIL 1 : Sumida 2134-397 For ANT COIL, IF COIL 1, refer to the following
 RF COIL 2 : Sumida 2134-398 topic "Parts Specifications."
 OSC COIL : Sumida 2136-022
 IF COIL 2 : Sumida SA-044
 D1, D2, D3 : Tohko KV1235Z

ICs for Tuner

■ Parts Specifications

IF COIL 1



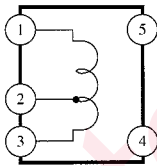
COIL section (Mitsumi products)

No load $Q = 35 \pm 20\%$
 Inside capacitance $= 180\text{pF} \pm 10\%$
 1-2 : 39T
 2-3 : 130T
 4-6 : 27T

Ceramic film section (Equivalents)

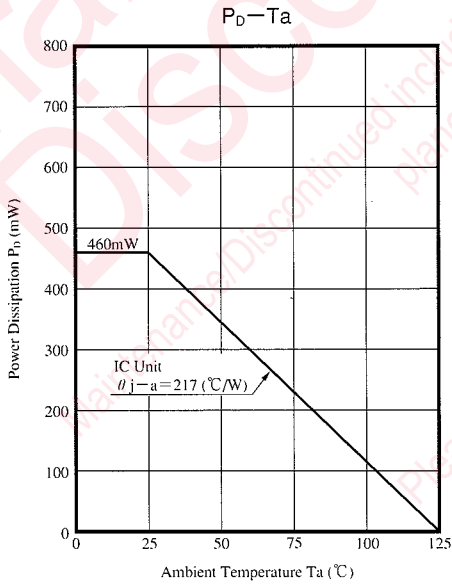
Murata Seisakusho : SFP450H

ANT COIL



No load $Q = 50\text{min.}$ $L = 5, 9\text{mH} \pm 3\%$
 ($f = 252\text{kHz}$)

3-1 : 405T
 3-2 : 197T
 2-1 : 208T



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