

AN7283S

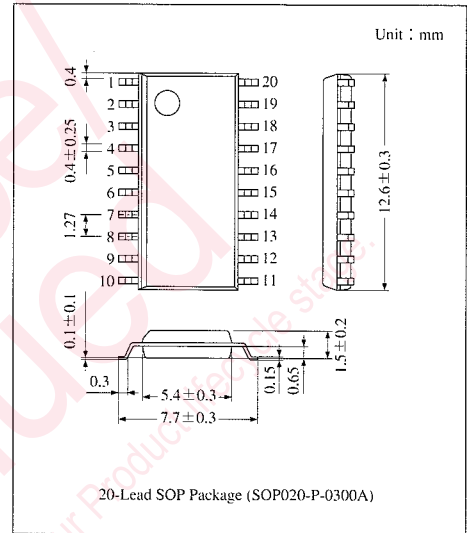
FM Front End IC for Car Radio

Overview

The AN7283S is a FM front end IC designed for car radio, supporting DTSs other than RF amp. It has buffer output of local oscillation frequency and also incorporates 2Loop-AGC and PIN diode driver for antenna damping (ADX).

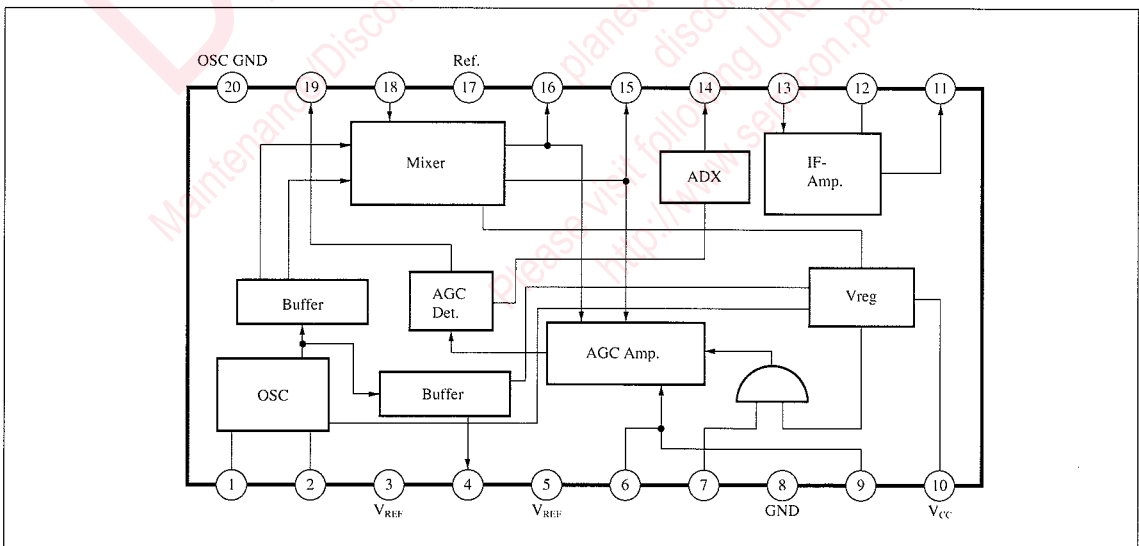
Features

- High sensitivity, high S/N ratio
- Improved IM characteristics at strong input
- 2Loop-AGC supported
- PIN diode driver (ADX) built-in
- Built-in IF amp. with opposite (positive) temperature characteristics to RF amp.
- Difference from AN7280S
 - 1) Without chemical capacitor of level detection output
 - 2) IP6dB improved ($122\text{dB}_{\mu\text{V}}$)
 - 3) Gain of pre-amp. fixed (25dB)
 - 4) S/N improved (+2dB)



ICs for
Tuner

Block Diagram



■ Absolute Maximum Ratings (Ta = 25°C)

Parameter	Symbol	Rating	Unit
Supply Voltage	V _{CC}	9.6	V
Supply Current	I _{CC}	48	mA
Power Dissipation	P _D	230	mW
Operating Ambient Temperature	T _{opr}	-30 ~ +80	°C
Storage Temperature	T _{stg}	-55 ~ +125	°C

■ Recommended Operating Range (Ta = 25°C)

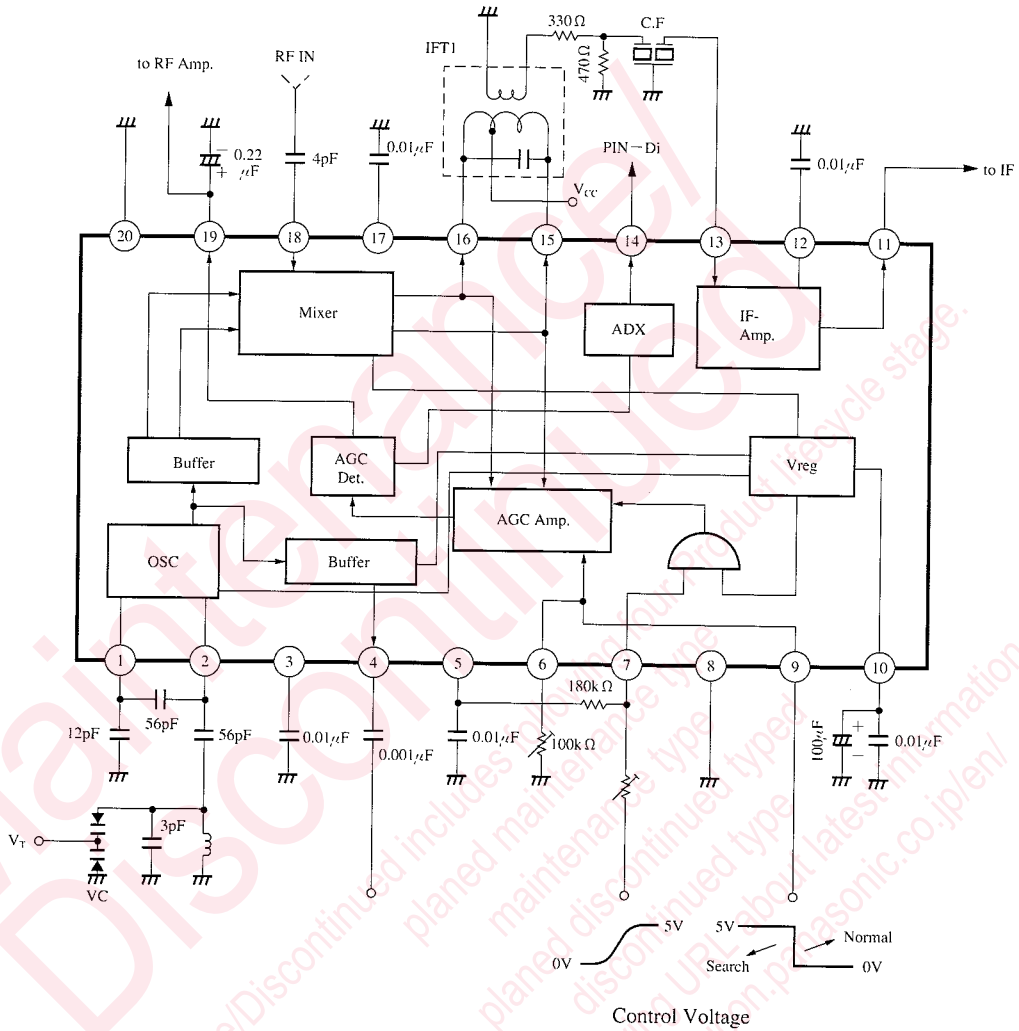
Parameter	Symbol	Range
Operating Supply Voltage Range	V _{CC}	7.2V ~ 9.2V

■ Electrical Characteristics (V_{CC} = 8V, Ta = 25°C ± 2°C)

Parameter	Symbol	Condition	min.	typ.	max.	Unit
S/N Ratio	N _{OUT}	V _{in} = 17dB μ No modulation, however S is output at 400 Hz, 30% modulation	22	30	—	dB
Local Output Level	V _{OSC}	f _{osc} = 108.7MHz, No signal input, Measured at 4 pins	145	180	215	mV
IF Output Level	V _{OUT}	V _{in} = 65dB μ	43	60	85	mV
AGC Max. Sensitivity	S _{AGC1}	Input level for V _{AGG} = 3V	60	63	66	dB μ
AGC Sensitivity Variable Width	W _{AGC}	Difference between input level for V _{AGG} = 3V and S _{AGC1}	37	40	43	dB
AGC Voltage (H)	V _{AGC(H)}	V _{in} = 58dB μ	6.0	6.4	6.8	V
AGC Voltage (L)	V _{AGC(L)}	V _{in} = 68dB μ	—	0.05	0.5	V

Note) For tuning, variable capacitance or f_{in} must be adjusted for maximum IF output level. (f_{in} = 17dB μ)

■ Application Circuit

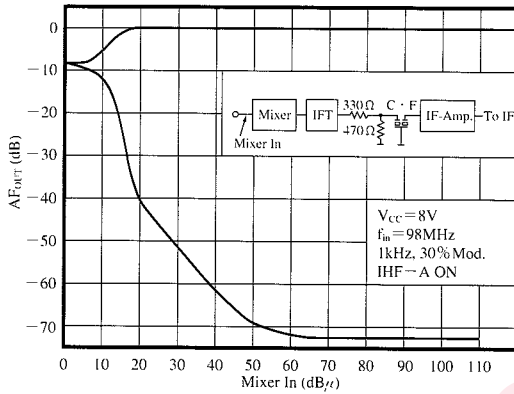


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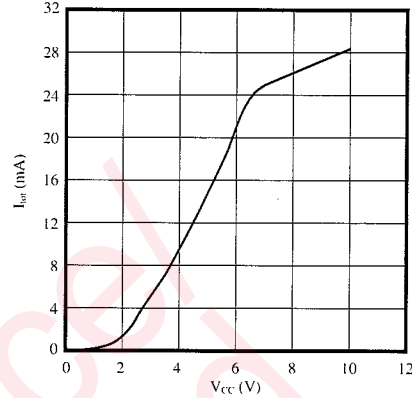
Maintenance/Discontinued includes planned maintenance type planned discontinued type
 Please visit for the latest information.
<http://www.upd.com/panasonic.co.jp/en/>

- (TFT1 : Matsushita 7E7137A
- VC : Toshiba KV1340A-3
- CF : Murata SFE107MS3

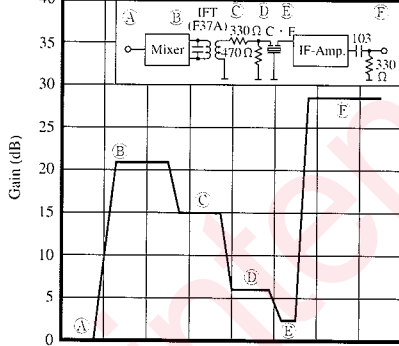
I/O Characteristics



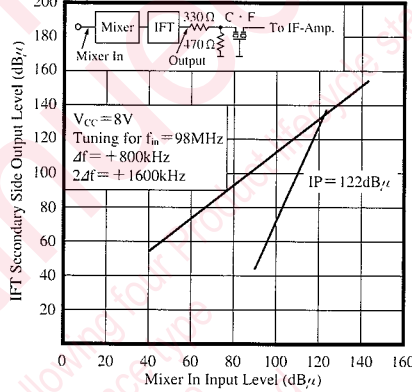
$I_{tot} - V_{CC}$



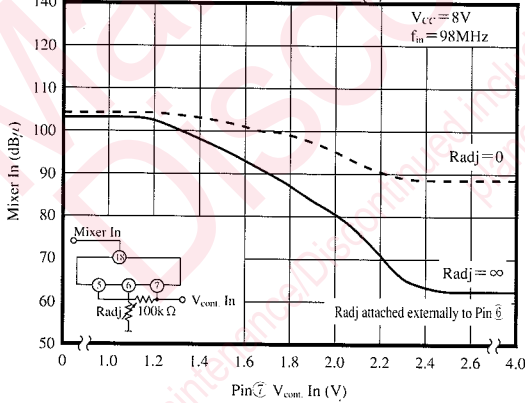
Gain - IFT



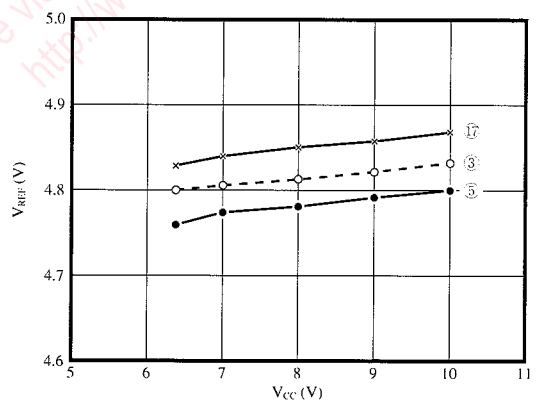
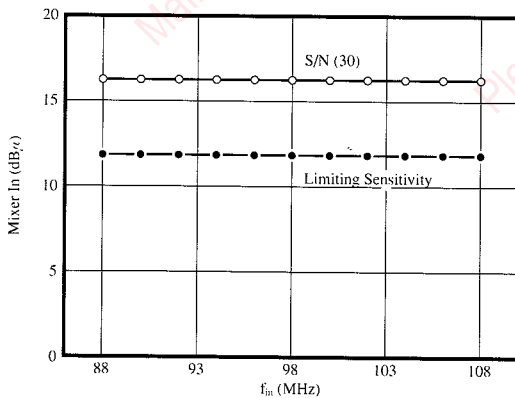
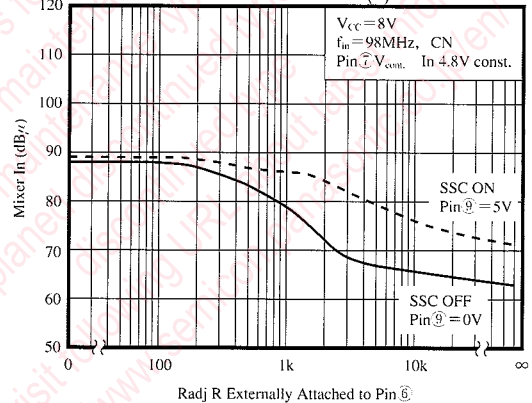
IP Characteristics

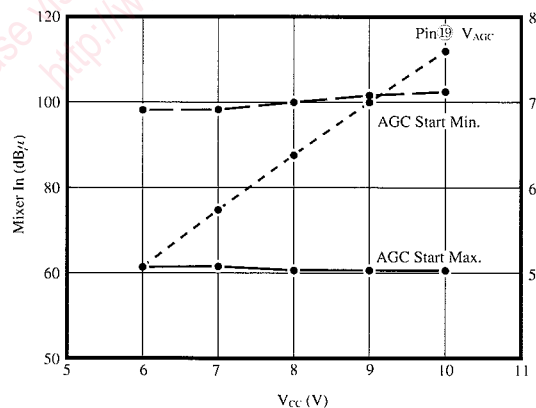
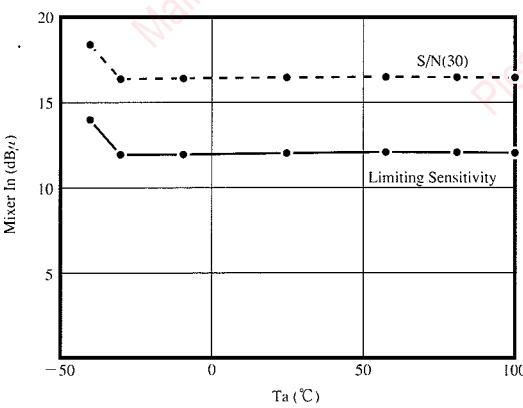
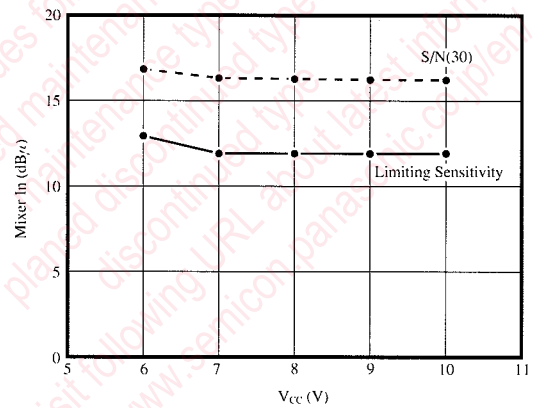
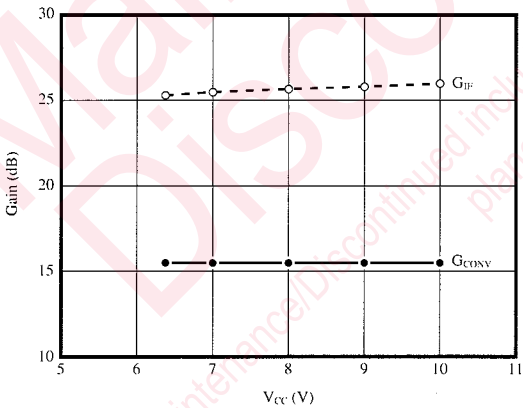
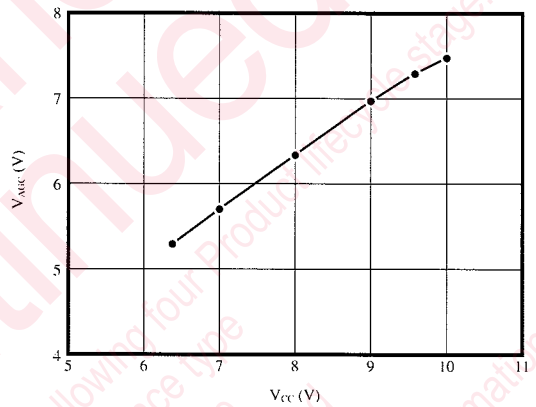
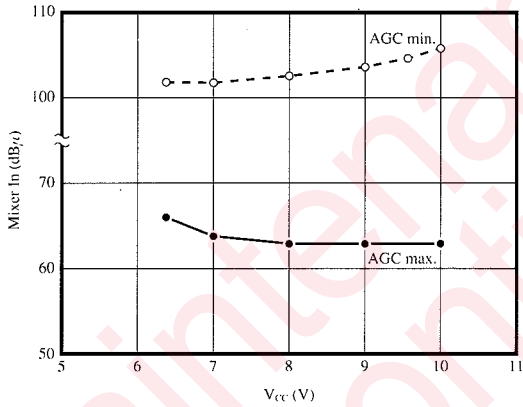
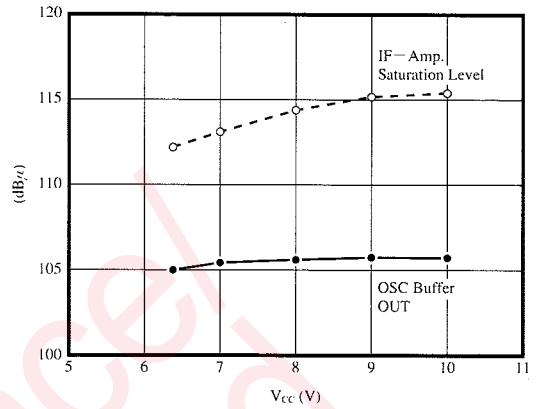
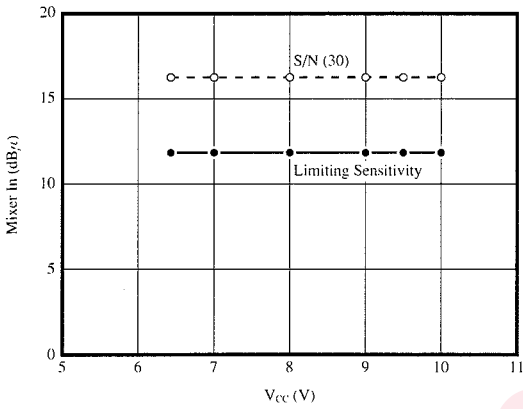


AGC ON LEVEL (1)

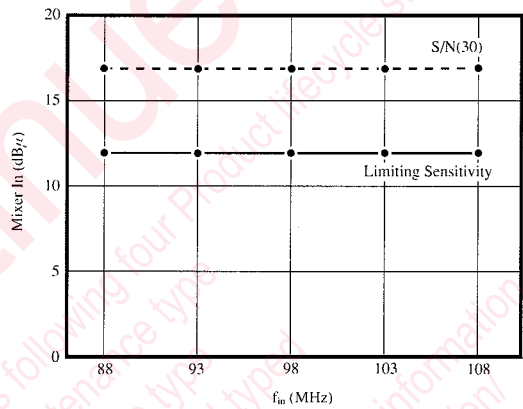
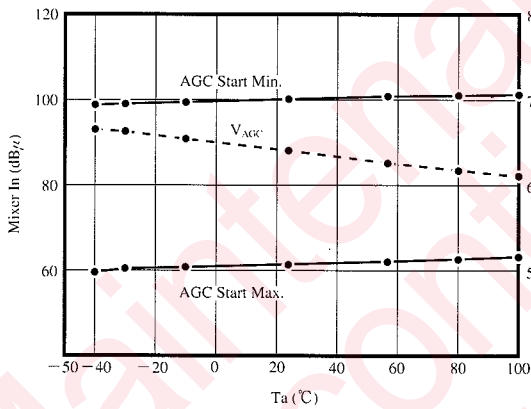
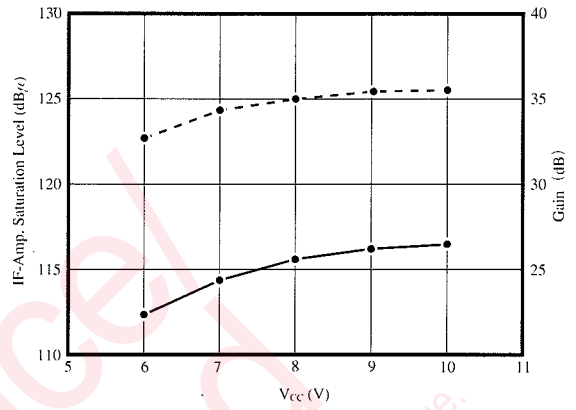
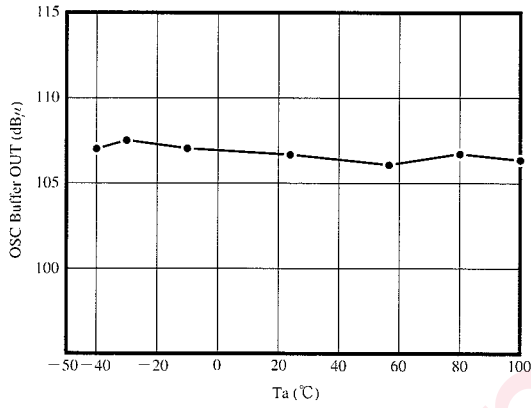


AGC ON LEVEL (2)

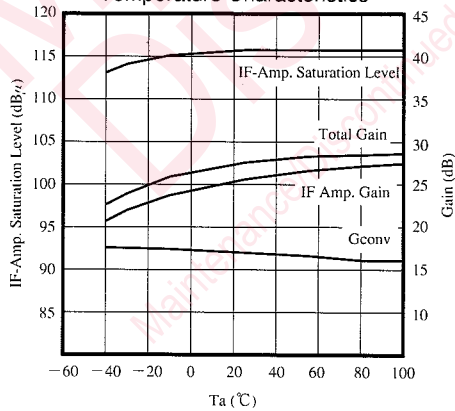




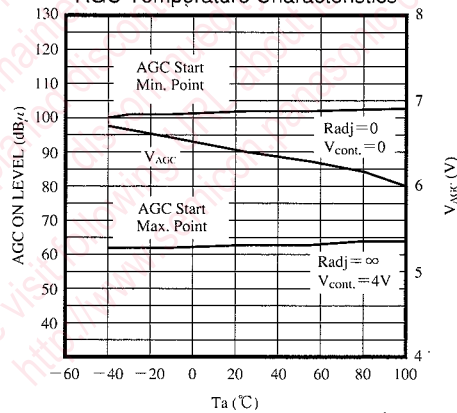
ICs for Tuner



Gain and IF-Amp. Saturation Level Temperature Characteristics



AGC Temperature Characteristics



Pin Description

Pin No.	Pin Name	Pin Description	Internal Equivalent Circuit
1	OSC Emitter	Emitter pin of local oscillation transistor	
2	OSC Base	Base pin of local oscillation transistor	
3 5 17	V _{REF} By-pass	By-pass pin of V _{REF} for mixer, OSC buffer and OSC section	
4	OSC Buffer Output	Pin outputting OSC signal to pre-scaler	
6	AGC-Amp. Gain Adjuster	Pin adjusting gain of AGC-Amp. by external resistor	
7	Control Signal Input	Pin inputting control signals from IF section and adjusting gain of AGC-Amp.	
8	GND		
9	SSC	Pin inputting control signals from microcomputer and adjusting gain of AGC-Amp.	

ICs for Tuner

■ Pin Description (Cont.)

Pin No.	Pin Name	Pin Description	Internal Equivalent Circuit
10	V _{cc}		
11	IF-Amp. Output	IF-Amp. output pin	
12	IF-Amp. By-pass	By-pass pin of IF-Amp.	
13	IF-Amp. Input	Input pin of IF-Amp.	
14	ADX Output	PIN diode driver output pin, determining the max. current to PIN diode by value of resistance externally attached to Pin 14.	
15	Mix. Output	Mixer output pin	
16			
18	Mix. Input	Mixer input pin	
19	Level Detection Output	AGC signal output pin for second gate of RF-Amp.	
20	GND	OSC GND	

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