

# AN7283S

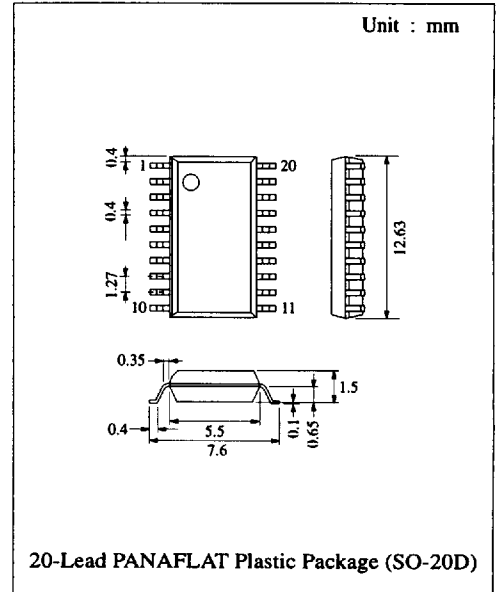
## FM Front-end IC for Car Radio

### ■ Description

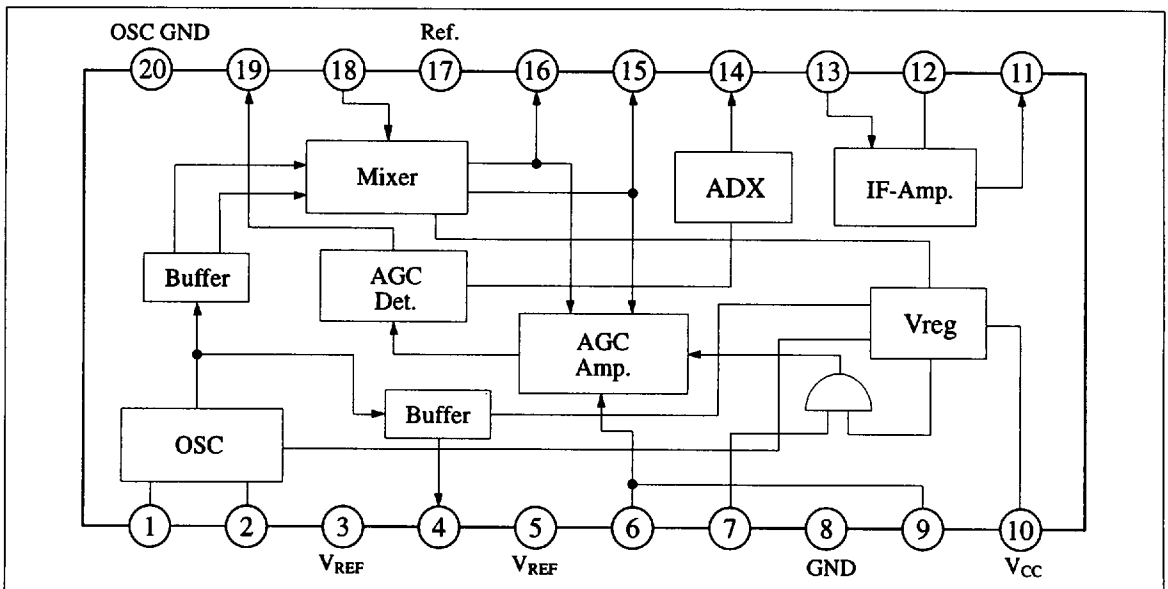
The AN7283S is a monolithic integrated circuit designed for car radio, supporting DTSs other than RF amp. It has buffer output of local oscillation frequency and also incorporates 2 Loop-AGC and PIN diode driver for antenna damping (ADX).

### ■ Features

- High sensitivity, high S/N ratio
- Improved IM characteristics at strong input
- 2 Loop-AGC supported
- PIN diode driver (ADX) built-in
- Built-in IF amp. with opposite (positive) temperature characteristics to RF amp.
- Difference from AN7280S
  - 1) One capacitor less at detection output
  - 2) IP6dB improved (122dB $\mu$ )
  - 3) Gain of pre-amp. fixed (25dB)
  - 4) S/N improved (+2dB)



### ■ Block Diagram



## ■ Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Rating	Unit
Supply Voltage	V <sub>CC</sub>	9.6	V
Supply Current	I <sub>CC</sub>	48	mA
Power Dissipation Ta = 75°C	P <sub>D</sub>	230	mW
Operating Ambient Temperature	Topr	-30 ~ +80	°C
Storage Temperature	Tstg	-55 ~ +125	°C

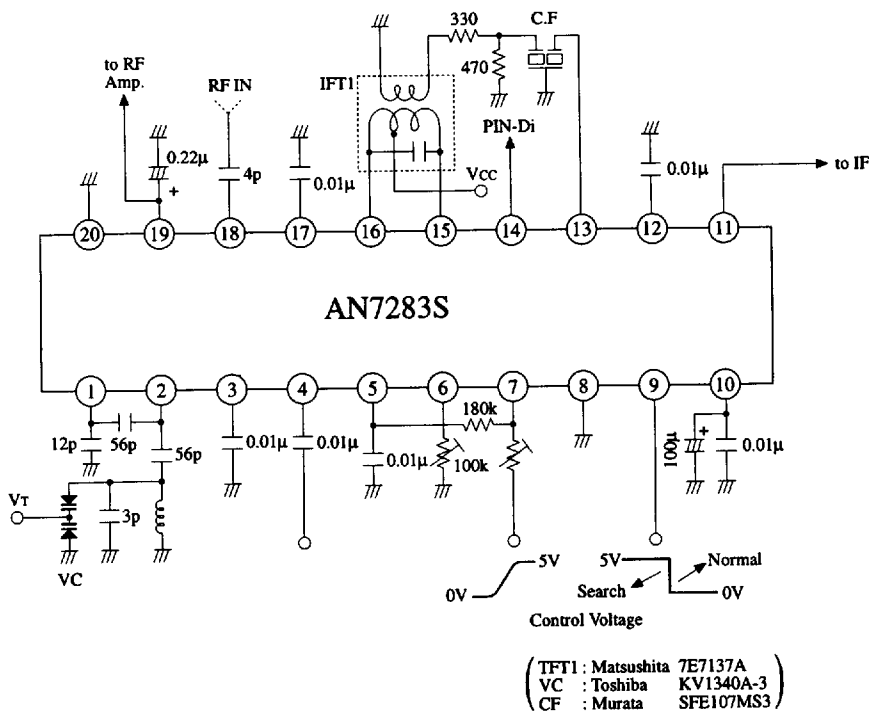
Operating Supply Voltage Range: V<sub>CC</sub> = 7.2V ~ 9.2V

## ■ Electrical Characteristics (V<sub>CC</sub>=8V, Ta=25°C)

Item	Symbol	Condition	min.	typ.	max.	Unit
S/N Ratio	N <sub>OUT</sub>	V <sub>IN</sub> =17dBμ no modulation, however S is output at 400Hz, 30% modulation	22	30		dB
Local Oscillation Output Level	V <sub>Osc</sub>	f <sub>osc</sub> =108.7MHz No signal input, measure at Pin 4	145	180	215	mV
IF Output Level	V <sub>OUT</sub>	V <sub>IN</sub> =65dBμ	43	60	85	mV
AGC Maximum Sensitivity	S <sub>AGC1</sub>	Input level for V <sub>AGC</sub> =3V	60	63	66	dBμ
AGC Sensitivity Variable Width	W <sub>AGC</sub>	Difference bet. input level for V <sub>AGC</sub> =3V and S <sub>AGC1</sub> .	37	40	43	dB
AGC Voltage (H)	V <sub>AGC(H)</sub>	V <sub>IN</sub> =58dBμ	6.0	6.4	6.8	V
AGC Voltage (L)	V <sub>AGC(L)</sub>	V <sub>IN</sub> =68dBμ		0.05	0.5	V

Note) For tuning, variable capacitance or f<sub>in</sub> must be adjusted for maximum IF output level. (f<sub>in</sub>=17dBμ)

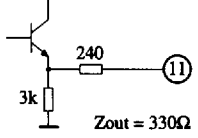
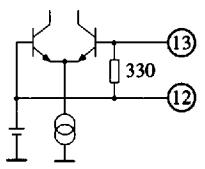
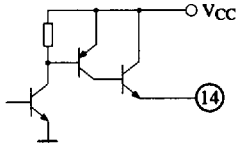
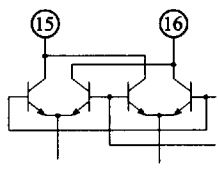
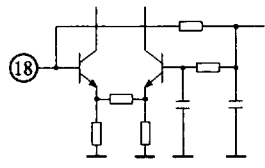
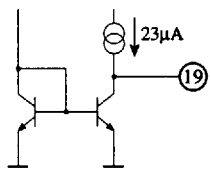
## ■ Application Circuit



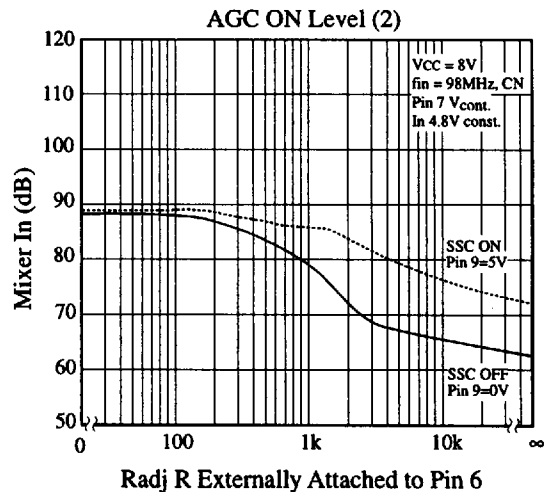
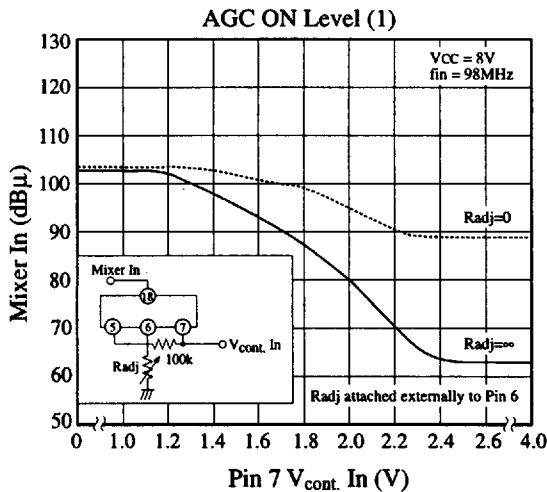
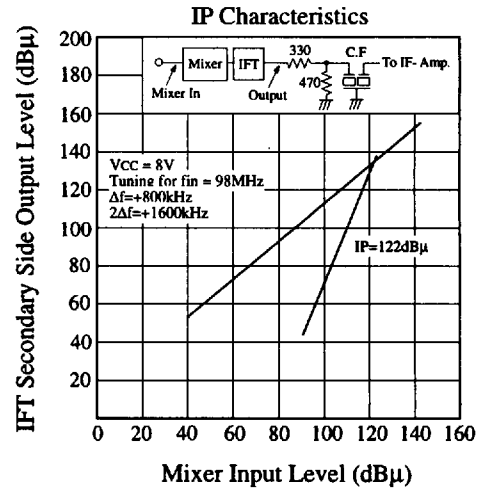
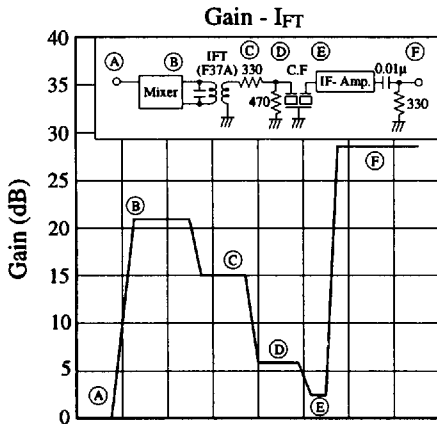
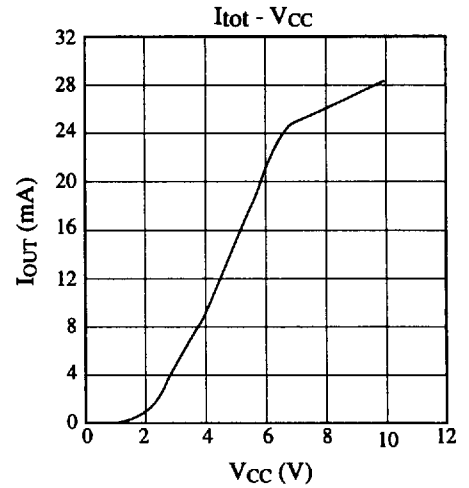
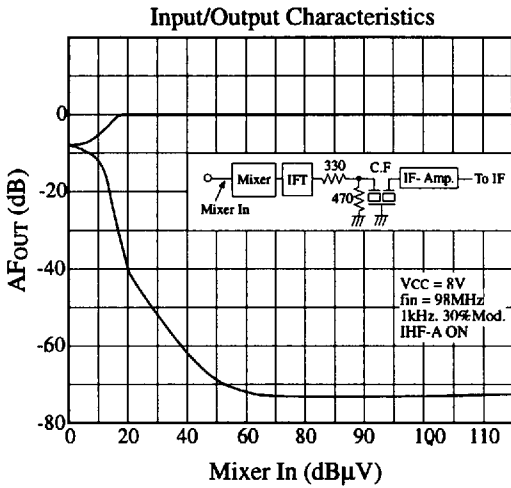
■ Pin Descriptions

Pin No.	Pin Name	Equivalent Circuit	Description
1	OSC Emitter		Local oscillation transistor emitter pin.
2	OSC Base		Local oscillation transistor base pin.
3 5 17	VREF By-pass		VREF by-pass pin for mixer, OSC. buffer and OSC. section.
4	OSC Buffer Output		Pin for output OSC signal to pre-scaler.
6	AGC-Amp. Gain Adjuster		Pin for adjusting AGC Amp. gain by external resistor.
7	Control Signal Input		Pin for adjusting AGC Amp. gain through input of control signal from IF section.
8	GND		
9	SSC		Pin for adjusting AGC-Amp. gain through input of control signal from microcomputer.

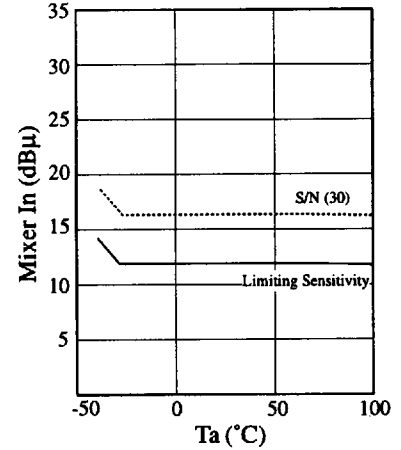
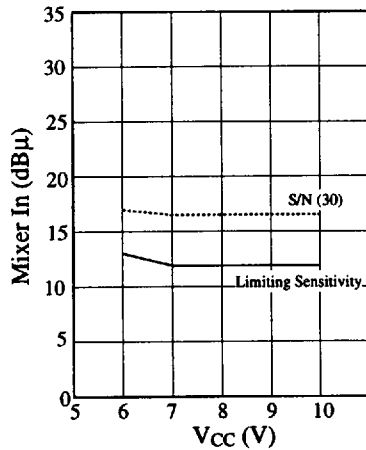
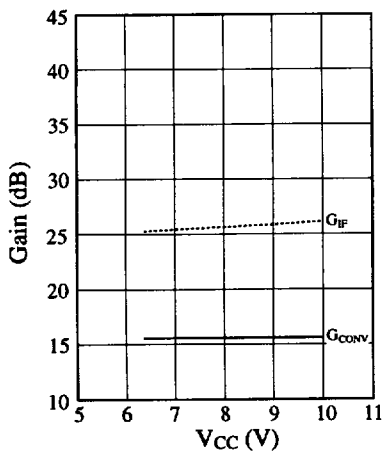
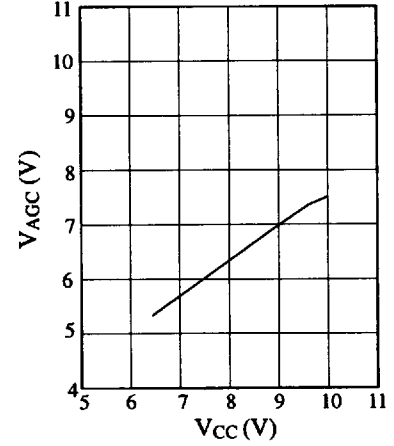
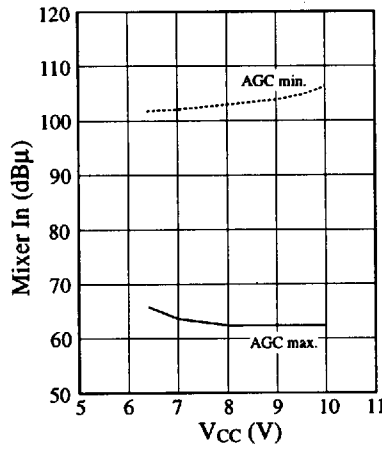
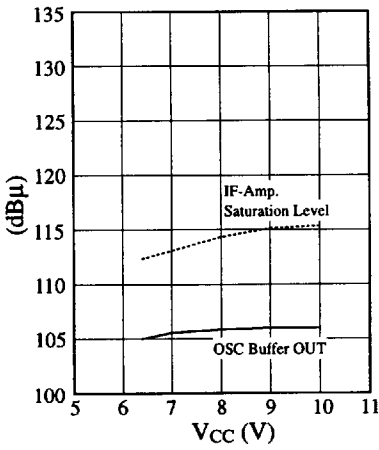
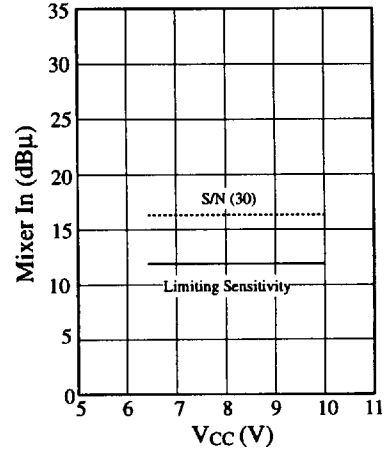
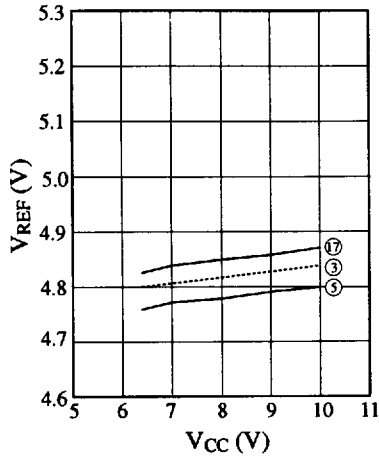
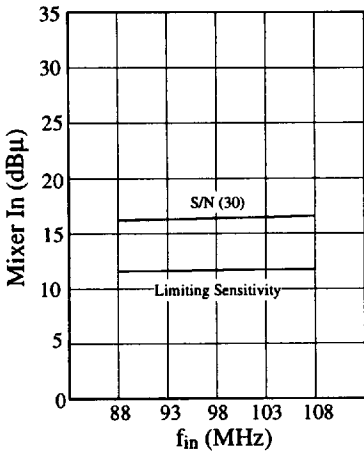
## Pin Descriptions (Continue)

Pin No.	Pin Name	Equivalent Circuit	Description
10	V <sub>CC</sub>		
11	IF-Amp. Output		IF Amp Output pin.
12	IF-Amp. By-pass		IF-Amp. by-pass pin.
13	IF-Amp. Input		IF-Amp. input pin.
14	ADX Output		PIN diode driver output pin. Determine maximum current to PIN diode by pin 14 external resistance value.
15	Mixer Output		Mixer output pin.
16			
18	Mixer Input		Mixer input pin.
19	Level Detection Output		AGC signal output pin for second gate of RF Amp.
20	GND		OSC GND.

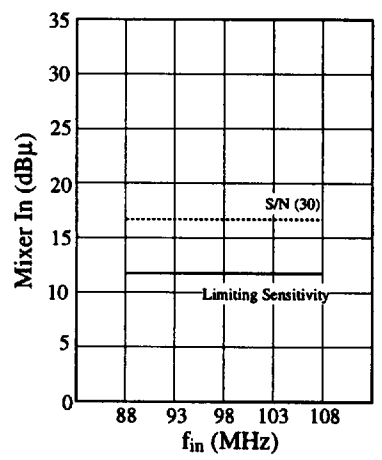
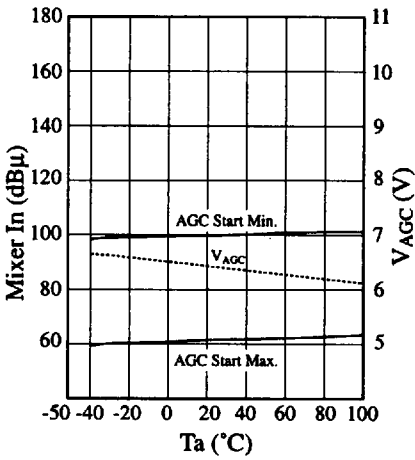
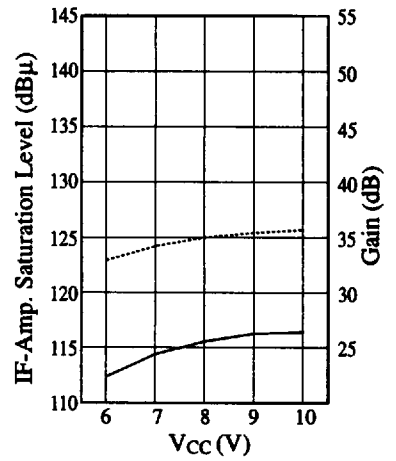
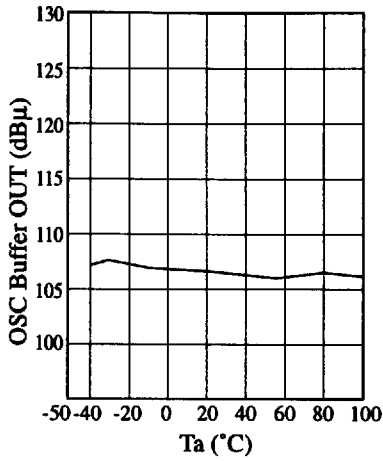
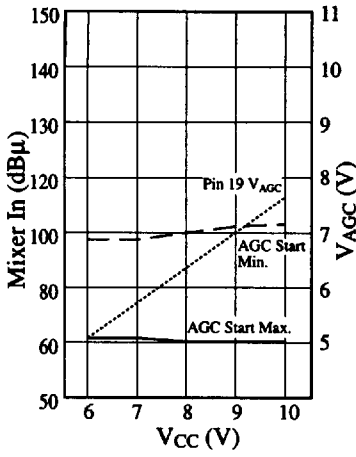
■ Characteristics Curve



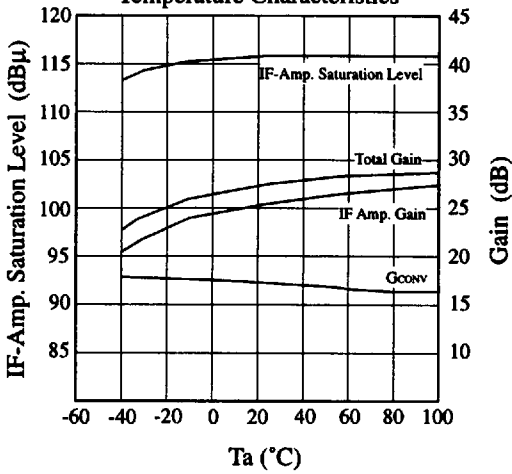
■ Characteristics Curve (Continue)



■ Characteristics Curve (Continue)



Gain and IF-Amp. Saturation Level Temperature Characteristics



AGC Temperature Characteristics

