

AN7223

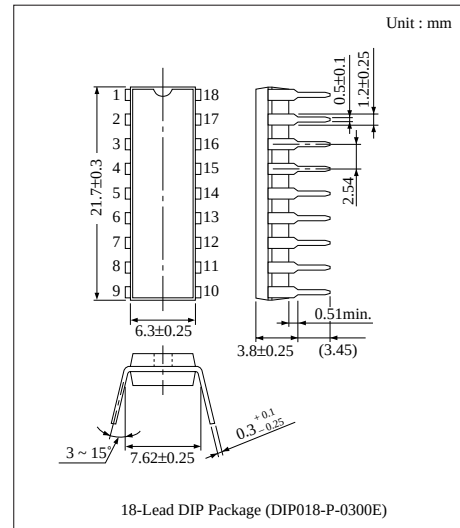
AM Tuner, FM/AM IF Amplifier Circuit for Radio Cassette Recorder

Overview

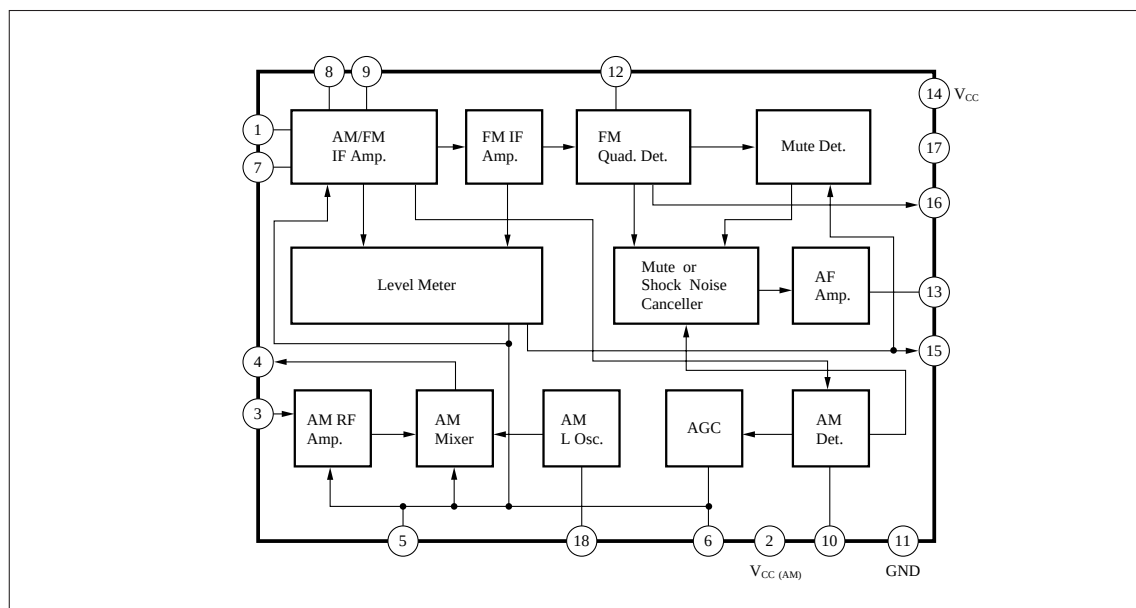
The AN7223 is an IC designed for high-class radio cassette recorder with multifunctioned FM/AM IF system.

Features

- Wide operating supply voltage range : $V_{CC} = 2.8V \sim 12V$
- Incorporating both FM and AM detectors
- Incorporating a level indicator output (FM/AM common use)
- AM : High sensitivity, including RF amplifier
- Low power consumption
- Muting control
- AFC control
- Fewer external parts
- High stability on both AM and FM
- Low shock noise level from function switch operation
- SW band available ($f = 30MHz$)



Block Diagram



■ Pin Descriptions

Pin No.	Pin Name	Pin No.	Pin Name
1	FM IF Amp. Input	10	AM Detection Output
2	V _{CC} (AM)	11	GND
3	AM RF Amp. Input	12	FM Detector Coil
4	AM Mixer Output	13	AF Output
5	AGC Output (2)	14	V _{CC}
6	AGC Output (1)	15	Level Meter Output
7	AM IF Amp. Input	16	AFC Output
8	IF By-pass	17	Reference Voltage
9	IF By-pass	18	Local Oscillation

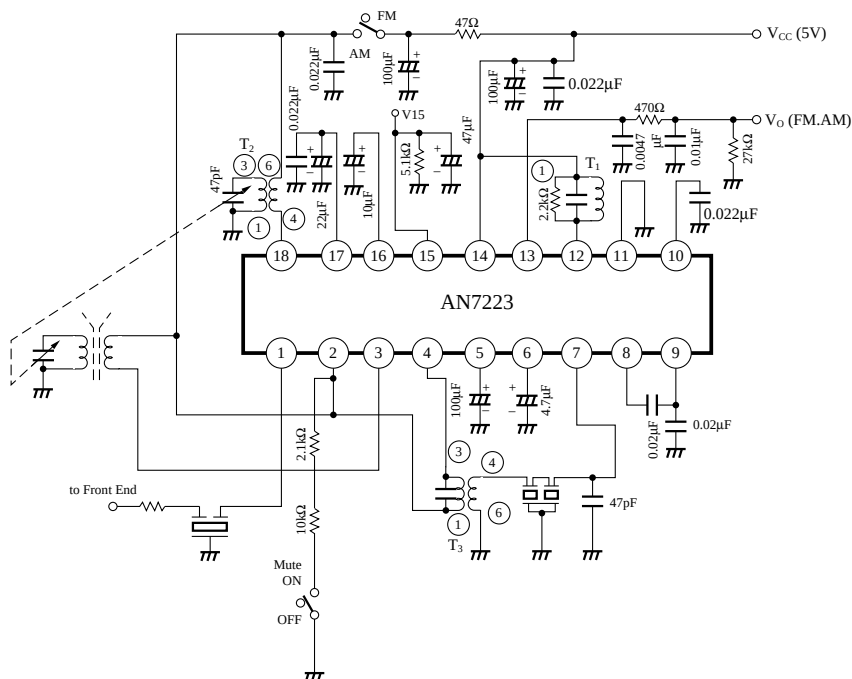
■ Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Supply Voltage	V _{CC}	14.4	V
Power Dissipation	P _D	317	mW
Operating Ambient Temperature	T _{opr}	-20 ~ + 75	°C
Storage Temperature	T _{stg}	-55 ~ + 150	°C

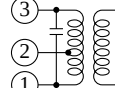
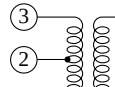
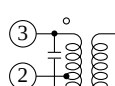
■ Electrical Characteristics (V_{CC}=5V, Ta= 25°C)

	Parameter	Symbol	Condition	min.	typ.	max.	Unit
FM	Total Circuit Current	I _{tot}	(DC measurement)	9	14	20	mA
	Demodulation Output Level	v _{O (FM)}	V _i = 80dBμ, f=10.7MHz, f _{dev.} = 22.5kHz, f _m = 400Hz	75	100	125	mV
	Limiting Sensitivity	V _{i (lim)}	Input at v _O = -3dB	41.5	44.5	47.5	dBμ
	Muting Sensitivity	V _{i (mute)}	Input at v _O = less than -20dB	45	50	59	dBμ
	Signal Meter Driving Output 1	V ₁₅	V _i = 50dBμ, f=10.7MHz, f _{dev.} = 22.5kHz, f _m = 400Hz	120	600	1150	mV
	Signal Meter Driving Output 2	V ₁₅	V _i = 80dBμ, f= 10.7MHz, f _{dev.} = 22.5kHz, f _m = 400Hz	1.14	1.26	1.42	V
AM	Total Circuit Current	I _{tot}	(DC measurement)	8	13	19	mA
	Detection Output Level	v _{O (AM)}	V _i = 80dBμ, f= 1MHz, Mod.= 30%, f _m = 400Hz	60	80	100	mV
	Max.Sensitivity	S _{max.}	Input at v _O = 10mV	4.5	9.5	12.5	dBμ
	Signal Meter Driving Output 1	V ₁₅	V _i = -10dBμ, f= 1MHz, Mod.= 30%, f _m = 400Hz	0	—	130	mV
	Signal Meter Driving Output 2	V ₁₅	V _i = 80dBμ, f= 1MHz, Mod.= 30%, f _m = 400Hz	1.12	1.25	1.38	V

■ Application Circuit



■ Coil Specifications

Symbol	Use, Freq	Type No.	Maker	Connection Diagram	Number of Turns	Tuning Cap.	Unloaded Q
T ₁	FM Quad. Coil 10.7MHz	EIF-7S752A	MATSUSHITA		1 - 2 8T 2 - 3 5T 4 - 6 3T	100pF	90±20%
T ₂	AM MW Osc. Coil	ELL-7S754	MATSUSHITA		1 - 2 4T 2 - 3 125T 4 - 6 7T	—	95±20%
T ₃	AM Mix. Output 455kHz	EIA-7S802A	MATSUSHITA		3 - 2 35T 6 - 4 10T 2 - 1 19T	1500pF	60±30%

■ Ceramic Filter Specification

Symbol	Use	Type No.	Maker	Center Freq.	Band Width	Loss
CF ₁	AM IF	CFM2 – 455B	TOKO	455kHz	7kHz (–6dB)	2.6dB