

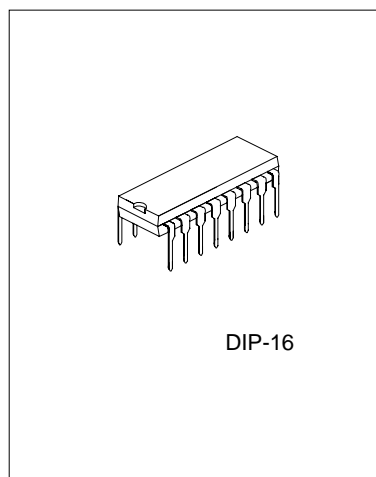
AM/FM RADIO IC**DESCRIPTION**

SA2132 is AM/FM radio IC (FM F/E+AM/FM IF) which is designed for AM/FM radios.

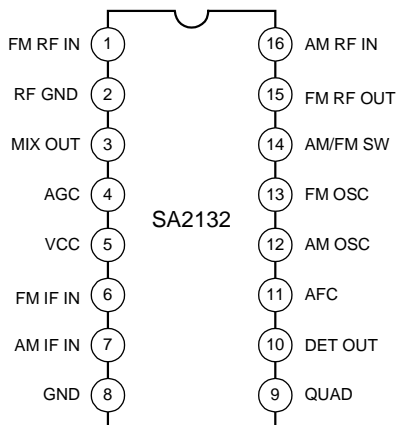
FM local oscillation voltage is set up low relatively, for NEW FCC.

FEATURES

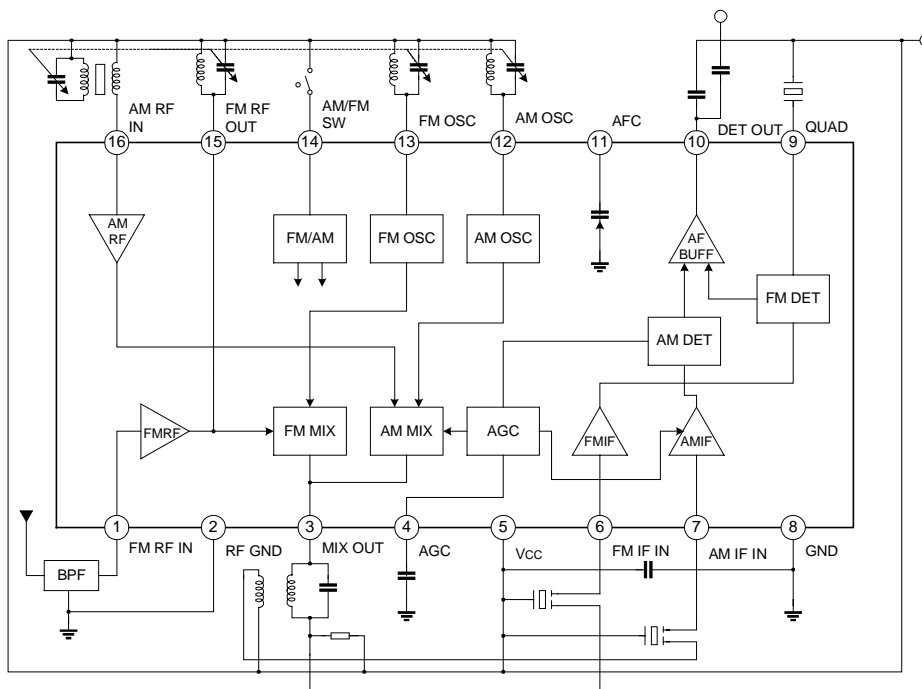
- For NEW FCC
- AM detector coil, FM IFT, IF coupling condenser are not needed.
- For adopting ceramic discriminator, it is not necessary to adjust the FM quad detector circuit.
- Built in varactor diode for AFC
- Low supply current: (VCC=3V, TA=25°C)
ICCq (FM)=7.3mA (typ.)
ICCq (AM)=3.6mA (typ.)
- Operating supply voltage range: VCC=1.8~7V (TA=25°C)

**ORDERING INFORMATION**

Device	Package
SA2132	DIP-16-300-2.54

PIN CONFIGURATION

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Characteristic	Symbol	Value	Unit
Supply Voltage	VCC	8	V
Power Dissipation	PD (Note 1)	750	mW
Operating Temperature	Topr	-25~75	°C
Storage Temperature	Tstg	-55~150	°C

Note 1: Detected above Ta = 25°C in the proportion of 6mW/°C for SA2132.

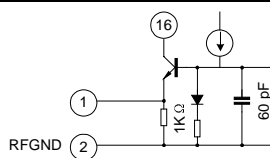
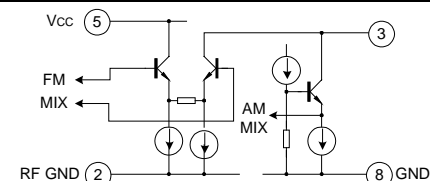
ELECTRICAL CHARACTERISTICS (Unless otherwise specified, Ta=25°C, VCC=3 V,

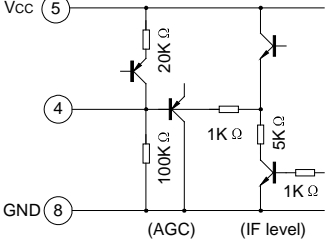
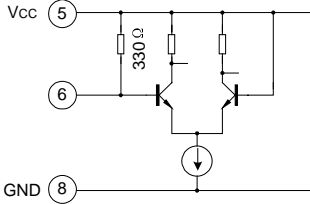
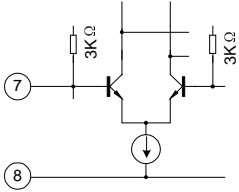
F/E : f=98 MHz, fm=1 kHz FM IF : f=10.7 MHz, Δf =±75 kHz, fm= 1 kHz AM : f=1 MHz, MOD=30%, fm=1 kHz)

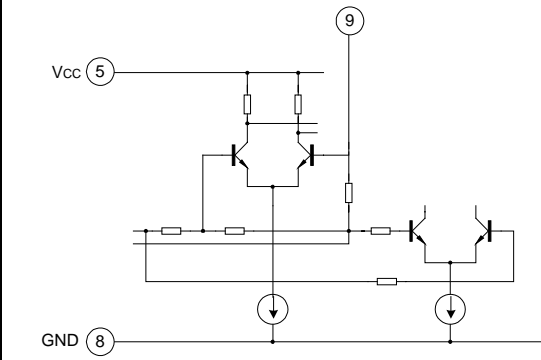
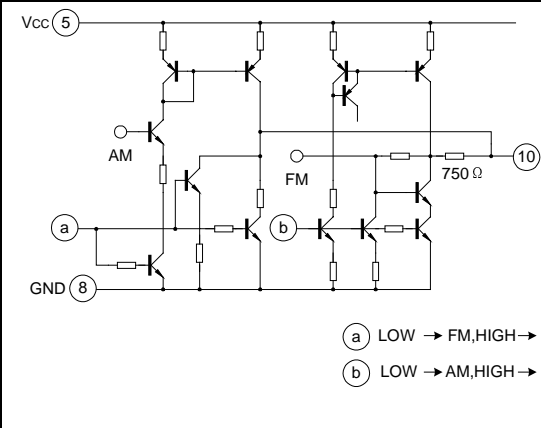
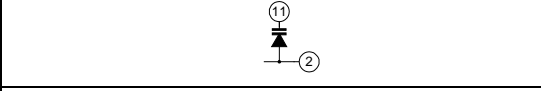
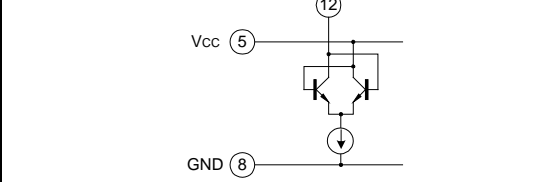
Characteristic		Symbol	Test Condition	Min.	Typ.	Max.	Unit
Supply Current		ICC (FM)	FM mode, Vin=0	--	7.3	11.0	mA
		ICC (AM)	AM mode, Vin=0	--	3.6	7.0	
F/E	Input Limiting Voltage	Vin(lim)	-3dB limiting point	--	10	--	dBμV EMF
	Quiescent Sensitivity	QS	S/N=40dB	--	15	--	dBμV EMF
	Local OSC Voltage	VOSC ^{note}	fOSC =108 MHz	--	130	--	mVrms
FM IF	Input Limiting Voltage	Vin(lim) IF	-3dB limiting point	38	43	48	dBμV EMF
	Recovered Output Voltage	VOD	Vin = 80dBμV EMF	180	240	300	mVrms
	Signal to Noise Ratio	S/N	Vin = 80dBμV EMF	--	72	--	dB
	Total Harmonic Distortion	THD	Vin = 80dBμV EMF	--	0.5	--	%
	AM Rejection Ratio	AMR	Vin = 80dBμV EMF	--	60	--	dB
AM	Voltage Gain	GV	Vin = 28dBμV EMF	20	38	75	mVrms
	Recovered Output Voltage	VOD	Vin = 60dBμV EMF	55	80	110	mVrms
	Signal to Noise Ratio	S/N	Vin = 60dBμV EMF	--	41	--	dB
	Total Harmonic Distortion	THD	Vin = 60dBμV EMF	--	1.0	--	%

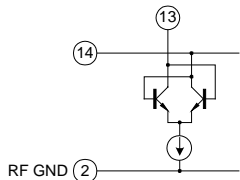
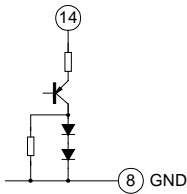
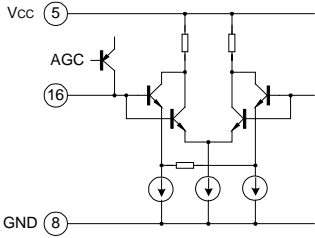
Note: This characteristics measure in test circuit 2, others measure in test circuit 1.

PIN DESCRIPTION

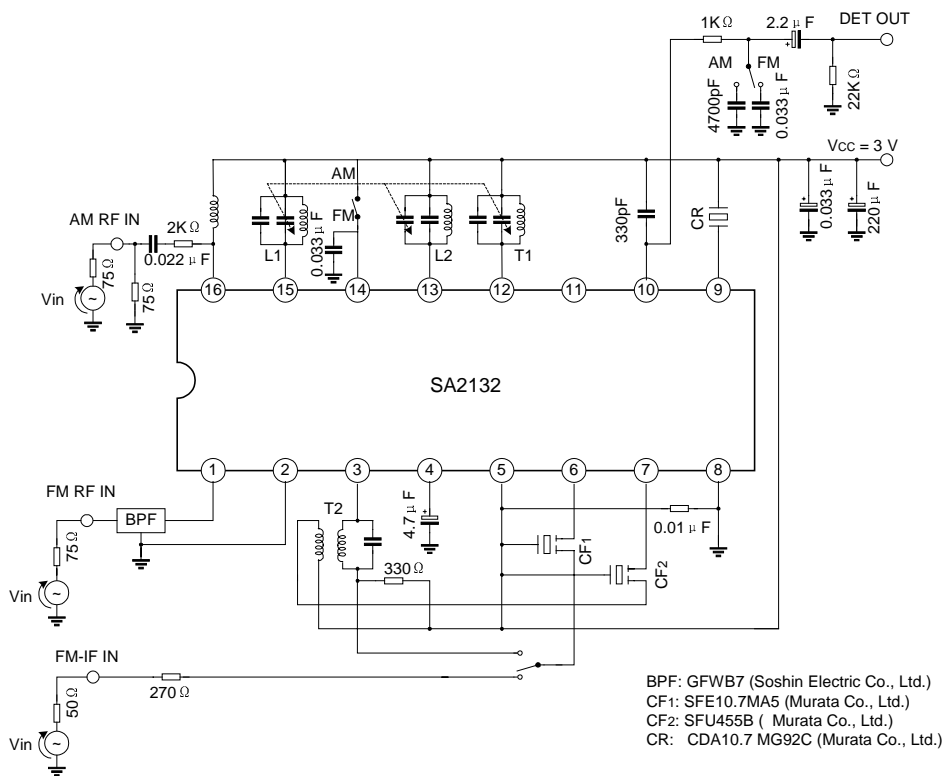
Pin No	Symbol	Internal Circuit	DC Voltage (V)	
			AM	FM
1	FM RF IN		0	0.8
2	RF GND (GND for FM RF, FM OSC stage)	-	0	0
3	MIX OUT		3.0	2.9

Pin No	Symbol	Internal Circuit	DC Voltage (V)	
			AM	FM
4	AGC (FM IF level output)		0	0
5	VCC (VCC for AM, FM IF stage)	-	3.0	3.0
6	FM IF IN		3.0	3.0
7	AM IF IN		2.3	2.6
8	GND (GND for AM, FM IF stage)	-	0	0

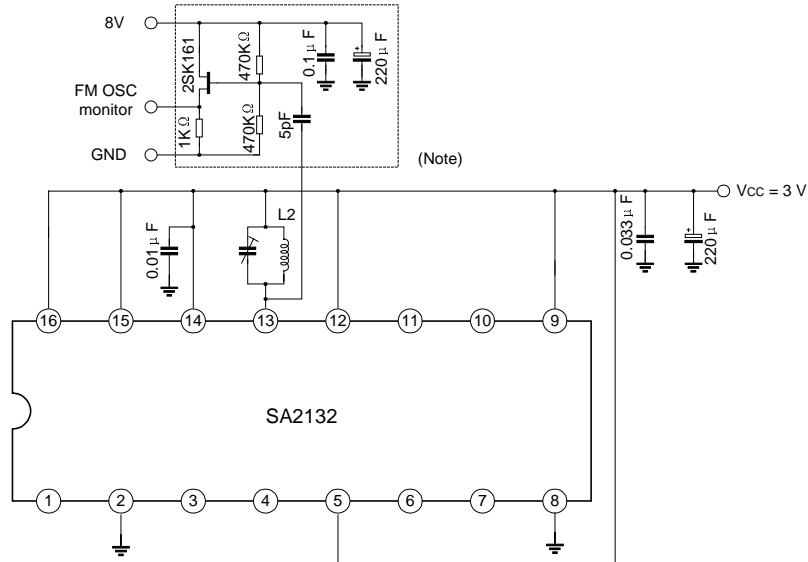
Pin No	Symbol	Internal Circuit	DC Voltage (V)	
			AM	FM
9	QUAD		2.5	2.2
10	DET OUT	 <p> (a) LOW → FM, HIGH → AM (b) LOW → AM, HIGH → FM </p>	1.0	0.9
11	AFC		--	--
12	AM OSC		3.0	3.0

Pin No	Symbol	Internal Circuit	DC Voltage (V)	
			AM	FM
13	FM OSC		3.0	3.0
14	AM/FM SW <ul style="list-style-type: none"> • SW condition • V14=VCC→FM • V14=OPEN→AM • VCC for FM RF, FM OSC stage 		--	3.0
15	FM RF OUT	Cf -Pin 1	3.0	3.0
16	AM RF IN		3.0	3.0

TEST CIRCUIT1



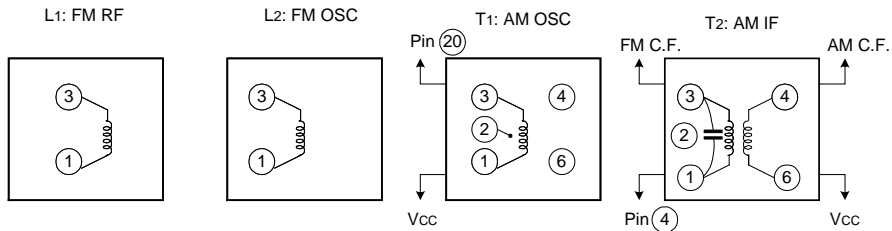
TEST CIRCUIT2



Note : FET buff voltage gain \approx 0dB

COIL DATA

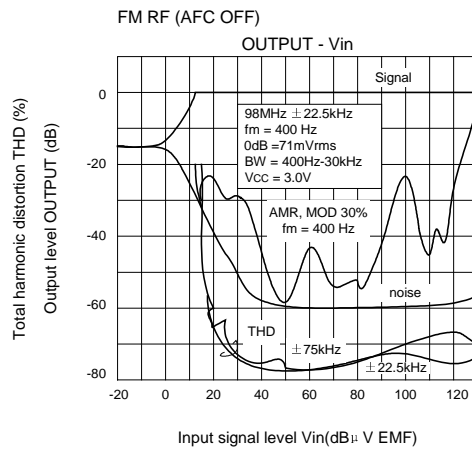
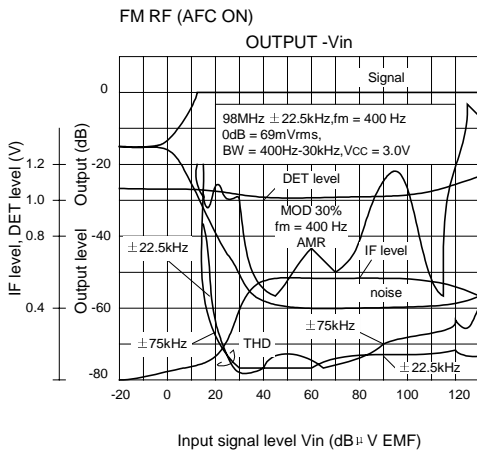
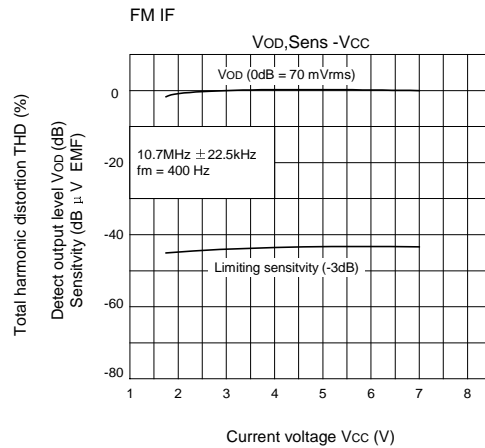
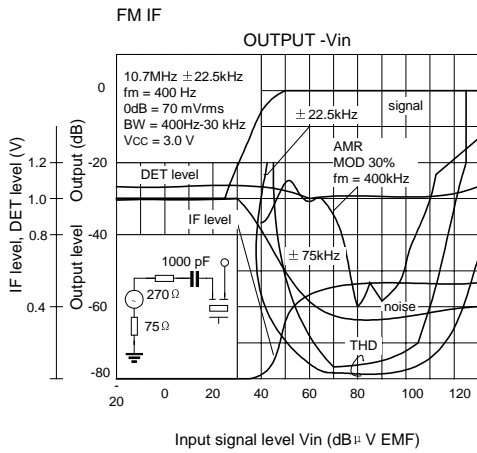
Coil No.	Test Freq.	L (μ H)	Co (pF)	Qo	Turns					Wire (mm)	Reference
					1-2	2-3	1-3	1-4	4-6		
L1 FM RF	100MHz	--	--	79	--	--	--	$2 \frac{1}{2}$	--	0.16UEW	Toko Co., Ltd. 666SNF-305NK
L2 FM OSC	100MHz	--	--	76	--	--	--	2	--	0.16UEW	Toko Co., Ltd. 666SNF-306NK
T1 AM OSC	796kHz	268	--	65	19	95	--	--	--	0.05UEW	Toko Co., Ltd. 5PNR-5146Y
T2 AM IFT	455kHz	--	470	60	--	--	109	--	7	0.05UEW	Toko Co., Ltd. 5PLG-5147X

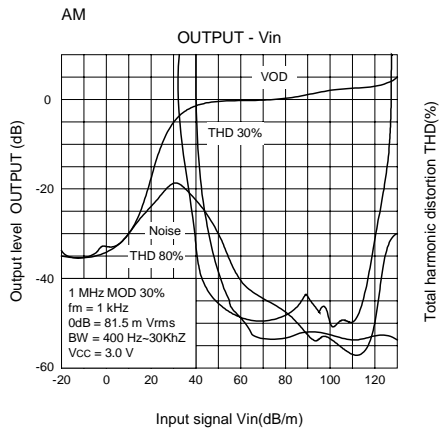
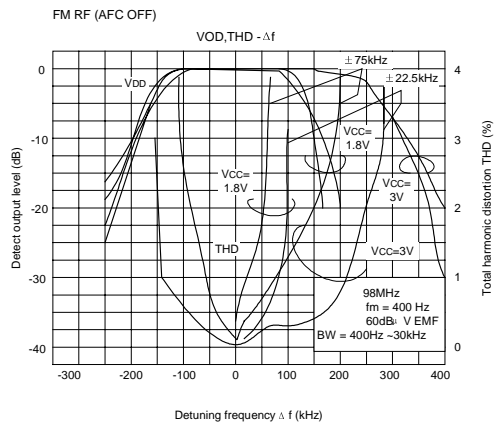
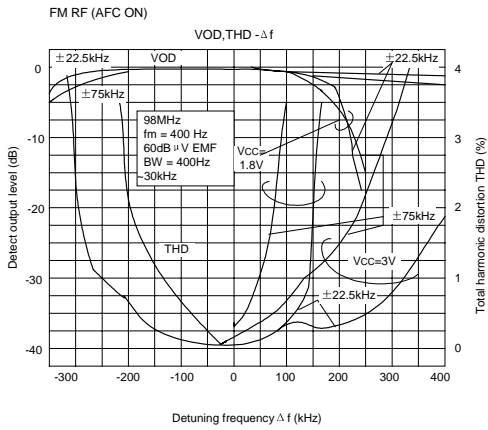


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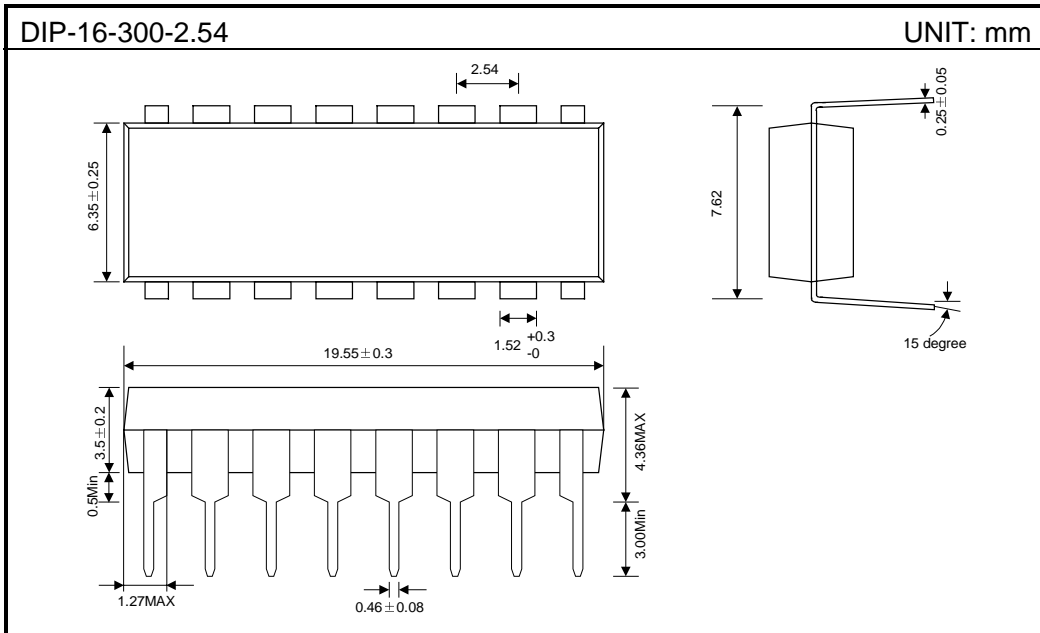
Rev: 2.1 2001.12.03.

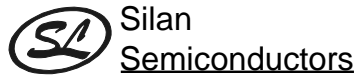
ELECTRICAL CHARACTERISTICS CURVES





PACKAGE OUTLINE





SA2132

Attach

Revision History

Data	REV	Description	Page
2001.12.25	1.0	Original	
2002.05.21	2.0	Modify the "SA2132" to "SA1032"	
2002.12.03	2.1	Modify the "SA1032" to "SA2132"	

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Rev: 2.1 2001.12.03.