FM/AM RECEIVE MODULE GUIDE

1、CM102BA--V2.0(SI4730/31/34/35/36)FEATURES:

a: Worldwide FM bands（76-108MHz）and AM bands（520-1710KHz）compatible.
b: Advanced FM/AM seek tuning and digital tuning technology.
c: RDS/RBDS processor and optional digital audio output（SI4731 only）.
d: DSP FM stereo demodulator.
e: Programmable reference clock support.
f: Integrated VCO、AFC、AGC control or LDO regulator（2.7-5.5V supply voltage）.
g: Standby mode, volume、soft mute control or programmable de-emphasis.
h: Adaptive stereo noise cancellation（SNC）function.
I : AM wide range of ferrite loop sticks and air loop antennas support.
J : Universal I^2C 2-wire serial control bus interface.
k: Firmware upgradeable.
l : No manual alignment necessary and EN55020 compliant.

2、ELECTRICAL SPECIFICATIONS：

a、Operation conditions（Maximum ratings）:（Vcc=3.3V Ta＝25℃）

PARAMETER（CONFINE）

DESCRIPTION	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITION
Operation supply voltage	V_{DD}	2.7	3.3	5.5	V	2.7-5.5V（Max）
Operation supply current	$I_{FM/RDS}$	15	20	25	mA	FM/digital/RDS mode
	I_{AM}	15	18	22	mA	AM mode
Power down current	Ipd	—	10	—	uA	Stand-by mode
Interface reference voltage	$V_{I/O}$	1.5	—	3.6	Vpp	-0.5-3.9（Range）
Interface CLOCK frequency		—	32.768	—	KHz	±20ppM
SCLK frequency	f-CLK	—	—	400	KHz	I^2C operation
		—	—	2.5	MHz	3-wire/SPI operation
RF input level		—	0.4	—	Vpk	FMI and AMI pins
Operating temperature	Ta	-20	25	85	℃	-20-85℃（Range）
Storage temperature	Tstg	-55	25	150	℃	

b、FM receive characteristics:（Vcc=2.7-5.5V；Ta=25℃）

SPECIFICATIONS DESCRIPTION		SYMBOL	PARAMETER MIN	PARAMETER TYP	PARAMETER MAX	UNITS	TEST CONDITION	REMARK
FM Input frequency range		F_{-RF}	76	—	108	MHz	Worldwide FM band	
sensitivity	headphone	Fsen	—	2.2	3.5	uV	（S+N）/N=26dB △f=2KHz RDS BLER＜5%	EMF
	50Ω network	Fsen	—	1.1	—	uV		
	RDS/RBDS	Fsen	—	15	—	uV		
Audio output S/N	Mono mode	SNR	55	63	—	dB	Fmon=1KHz;△f=22.5KHz; V_{EMF}=1mV	Analog mode
	Stereo mode	SNR	—	58	—	dB		
Audio output THD		T.H.D	—	0.1	0.5	%	V_{EMF}=1mV；△f=75KHz	
Stereo separation（L-R/R-L）		Ass	25	—	—	dB	V_{EMF}=1mV；△f=75KHz	

Audio output L/R imbalance	V_{AIMB}	-1	0	+1	dB	Vin=-20dBV；L+R	
Audio output voltage range	V-rang	70	80	90	mV	22.5KHz dev	V_{RMS}
audio output loading resistance	R_L	10	—	—	kΩ	Single-ended	
audio output load capacitance	C_L	—	—	50	pF	Single-ended	
Adjacent channel selectivity	ACS_{200}	35	50	—	dB	△f=±200KHz SINAD≥26dB	
Alternate channel selectivity	ACS_{400}	60	70	—	dB	△f=±400KHz SINAD≥26dB	
AM suppression	Asup	40	50	—	dB	m=0.3	
Seek/Tuner time		—	—	80	mS/CH	RCLK=100ppm	
Power-up time		—	—	110	mS	From power-down	

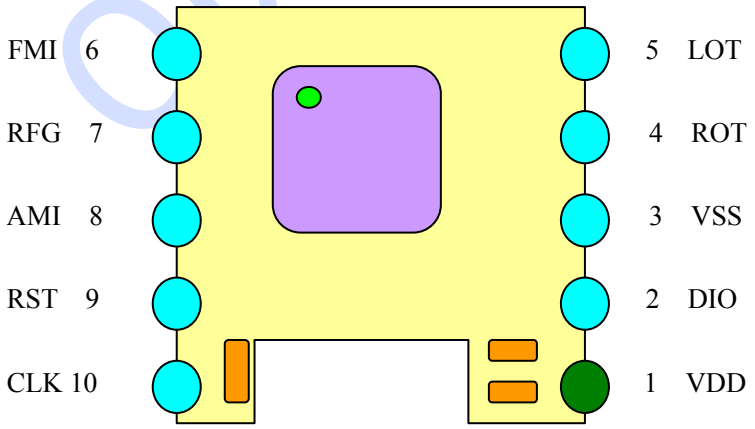
c、AM receive characteristics：（Vcc=2.7-5.5V；Ta=25℃）

SPECIFICATIONS DESCRIPTION	SYMBOL	PARAMETER			UNITS	TEST CONDITION	REMARK
		MIN	TYP	MAX			
AM Input frequency range	F_{-RF}	520	—	1710	KHz	Worldwide AM band	
AM receiver sensitivity	Fsen	—	25	35	uV	（S+N）/N=26dB △f=10KHz; F_{-RF}=1000KHz	EMF
Audio output S/N	SNR	50	56	—	dB	△f=10KHz; F_{-RF}=1000KHz	
Audio output THD	T.H.D	—	0.1	0.5	%	△f=10KHz; F_{-RF}=1000KHz	
Power supply rejection ratio		—	40	—	dB	$\triangle V_{DD}$=100mV; 100Hz	
Audio output voltage range	V-rang	54	60	67	mV		V_{RMS}
AM antenna inductance		180	—	450	uH		
Power-up time		—	—	110	mS	From power-down	

3、APPLICATION DIAGRAM：

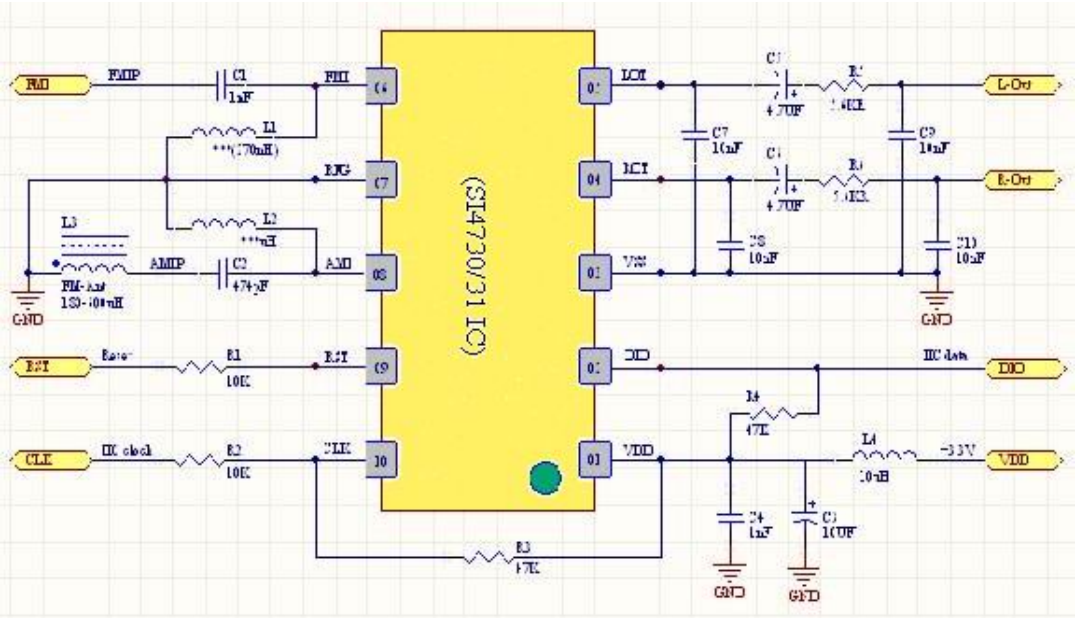
a、PIN function description：

CM102--SV2.0 Module



PIN NO:	PIN function description	PIN NO:	PIN function description
1	VDD（+3.3VDC power supply input）	6	FMI（FM-RF receiving antenna input）
2	DIO（I^2C BUS data input/output）	7	RFG（FM/AM-RF ground）
3	VSS（Communal ground）	8	AMI（AM-RF receiving antenna input）
4	ROT（Right audio output）	9	RST（Device reset input, Active low）
5	LOT（Left audio output）	10	CLK（I^2C BUS serial clock input）

b、Typical application diagram：



Remark：

1、 This is “CM102BA--SV2.0” FM/AM Receive Typical application，Reference above example change electronic component parameter for idiographic applications to design layout.

2、 AM antennas be capable of selection wide range ferrite loop sticks and air loop antennas.

3、 Place AM ferrite loop sticks antennas close to “RFG” pins.

4、 All grounds connect directly to GND plane on PCB.

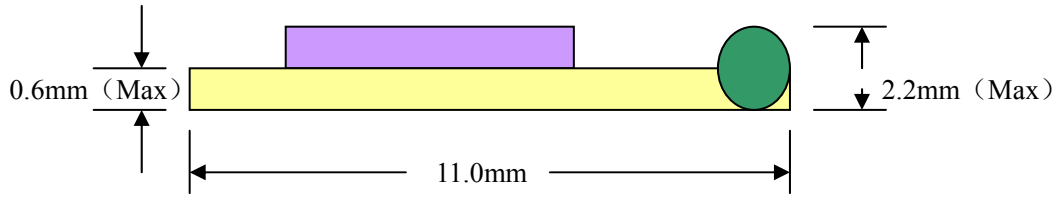
5、 Power supply capacitance filter close to module “Vcc”pins.

6、 Advice add “10-50K” Pull-up resistor to “DAT、CLK” pin for I^2C BUS.

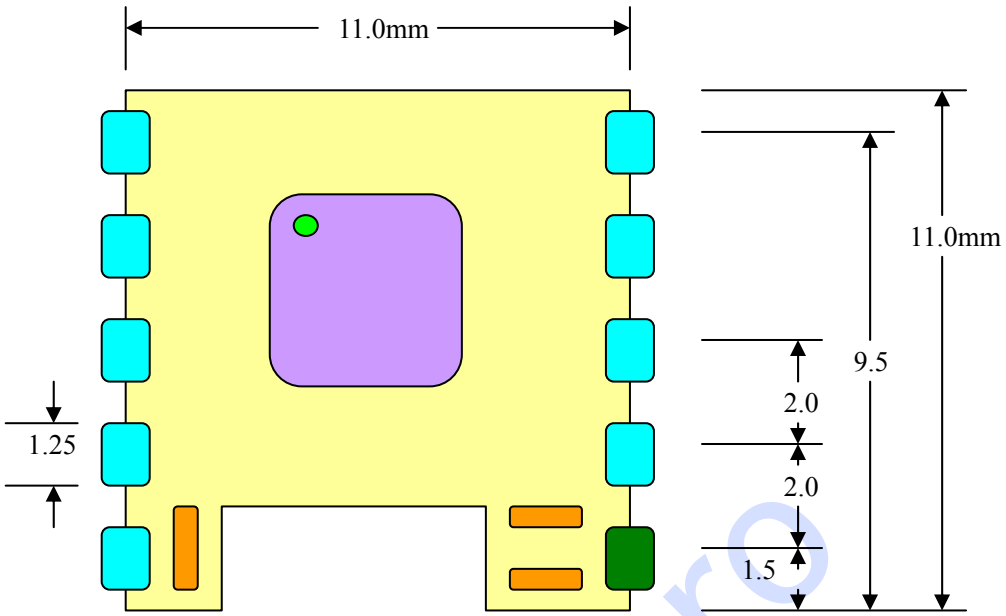
7、 Recommend in advance a “600-1.5KΩ/100MHz” PAD location work in 3-Wire earphone FM-RF antenna mode.

4、EXTERIOR PACKING INFORMATION：

a、module height（Side view）： UNIT：“mm”



b、module exterior size（Top view）： UNIT：“mm”



5、PARKING PRESENTATIONS：

Please reference practical parts packing.（default）