Fully integrated manual adjustment pointerFM/LW/MW/SWRadio chip

Radio-on-a-Chip™

KT0936M（B9）

Features

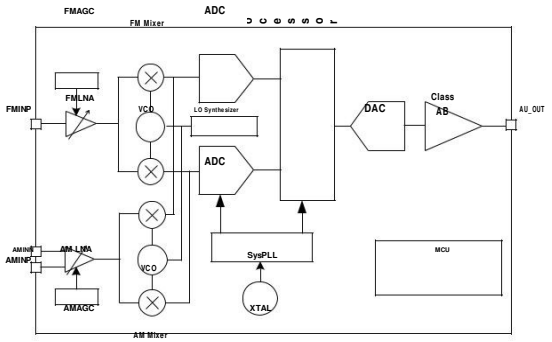
Single-chip full-band solution
Built-inMCU

Support mechanical knob tuning

Supports global band range

FM—— 32MHz-110MHz
LW—— 150KHz-520KHz

MW——500KHz -1750KHz
SW—— 1.75MHz - 32MHz High sensitivity
FM——1.6uVEMF
LW——16uVEMF
MW——16uVEMF
SW——13uVEMF



KT0936MInternal Block Diagram

High reliability

Signal-to-noise ratio (FM/AM): 58dB/55dB(No external filter required)
Total harmonic distortion:0.3%
Low power consumption

The typical working current is29mA

Integrated tuning indicator function

Sensitivity and hysteresis thresholds can be customized

Automatic mute

Automatically reduces volume when reception deteriorates

Low operating voltage
2.1V ~3.6V, using two sectionsAAABattery operation

Built-in crystal oscillator circuit

support32.768KHzand38KHzCrystal

Supports flexible reference clock

The reference clock is from30KHzarrive40MHzuse1HzStepping

support

SOP16LEncapsulation

conform toRoHSstandard

Application Areas

Portable radio, clock radio, mini stereo, campus radio and other manual radio applications

Overall Description

KT0936MIt is the third generation of independent intellectual property products of Quantum Microelectronics. It is a fully integratedFM/LW/MW/SWThe product can support mechanical knob tuning. Its main feature is that the tuning feel has been improved and can be compared withPVCThe solutions are comparable.KT0936MIt also has a channel tuning indication function, which improvesEMI/EMCcharacteristics, and the flatness of its sensitivity has been greatly improved. Finally, due to the improved anti-interference ability,LWand MW The placement of antennas can also be more flexible.

Due to the use of advanced architecture,KT0936MIt can provide high-quality user experience, including high sensitivity, high signal-to-noise ratio, low distortion and high anti-interference ability.

KT0936MOnly simple peripheral circuits are needed to realize manual mechanical knob adjustment, without externalMCUIn useKT0936MNo need to useEEPROMWorks at the same timeKT0936MAlso supports additional EEPROMTo meet customers' personalized applications.

Table of contents

1.Electrical Characteristics

Working conditions

parameter	symbol	Test conditions	Minimum	Typical Value	Maximum	unit
Supply voltage	AVDD	To analog ground	2.1	3.3	3.6	V
Digital supply voltage	DVDD	To analog ground	2.1	3.3	3.6	V
Ambient temperature	Ta		- 30	25	70	℃

Maximum ratedarameters

parameter	symbol	Typical Value	unit
Supply voltage	AVDD	– 0.5 to 3.9	V
numberI/OSupply voltage	DVDD	– 0.5 to 3.9	V
Input Current	IIN	10	mA
Input voltage	VIN	– 0.3 to (VIO+ 0.3)	V
RF input level		0.7	VPK

Note:
1.Exceeding the above maximum ratings may cause damage to the device.
2.Functional operating limits should be as specified in the data sheet; exceeding operating conditions for extended periods may affect device reliability.
3. SPANPin.

DC characteristics

(Unless otherwise stated,Ta = -30~70℃,AVDD = DVDD = 2.1V to 3.6V)

parameter		symbol	Test conditions	Minimum	Typical Value	Maximum	unit
Working current	FMmodel	IFM		-	30	-	mA
	MWmodel	IMW			29		mA
	SWmodel	ISW			29		mA

:FMReceiving characteristics

(Unless otherwise stated,Ta = -30~70℃,AVDD = DVDD = 2.1V to 3.6V)

parameter	symbol	Test conditions	Minimum	Typical Value	Maximum	unit
FMFrequency range	Frx		32		110	MHz
Sensitivity1,2,3	Sen	(S+N)/N=26dB		1.6	2	uV
Input third-order intermodulation4,5	IIP3			85		dBuVEMF
Adjacent channel selectivity		±200KHz	40		51	dB
Secondary Adjacent Channel Selectivity		±400KHz	50		70	dB
Image rejection				43		dB
AMinhibition				50		dB
Reference Clock			30	32.768	40,000	KHz
Reference clock accuracy8			- 100		100	ppm
Audio output amplitude1,2,4,6,7		32ohmload	-	345	-	mVRMS
Frequency Response1,2,4		±3dB	30		15k	Hz
Mono signal-to-noise ratio1,2,3,4		Without filter	55	58		dB
Total Harmonic Distortion1,2,4,6				0.3		%
De-emphasis time constant		DE=0		75		μs
		DE=1		50		μs
Audio common mode voltage			0.85	1.35	1.6	V
Audio output load	**R_L**	Single-ended		**32**		**Ω**
Power-on time			200		600	ms
Note: 1. FMOD=1KHz, 75usDe-emphasis						

2. MONO=1
3.△F=22.5KHz
VEMF=1mV, Frx=32MHz~110MHz
RFAGCD=1
6.△F=75KHz
7. VOLUME<4:0>=11111
8.The reference clock is discontinuous. Please refer to the application instructions for details.
9.△F=75KHz

MW Receiving characteristics

(Unless otherwise stated,Ta = -30~70℃,AVDD = DVDD = 2.1V to 3.6V)

parameter	symbol	Test conditions	Minimum	Typical Value	Maximum	unit
MWFrequency range	Frx		500		1750	KHz
Sensitivity1,2	Sen	(S+N)/N=20dB		16		uV
Audio output voltage1,3,4,5		32ohmload		360		mVRMS
Mono signal-to-noise ratio1,2,3,4		Without filter		55	62	dB
Total Harmonic Distortion1,2,4				0.3	0.6	%
Antenna tuning inductor	L		360	-	620	u

Note:

1. FMOD=1KHz

2.The modulation depth is30%

VEMF=1mV, Frx=500KHz~1750KHz

VOLUME<4:0>=11111

5.The modulation depth is80%

LW Receiving characteristics

(Unless otherwise stated,Ta = -30~70℃,AVDD = DVDD = 2.1V to 3.6V)

parameter	symbol	Test conditions	Minimum	Typical Value	Maximum	unit
LWFrequency range	Frx		150		520	KHz
Sensitivity1,2	Sen	(S+N)/N=20dB		16		uV
Audio output voltage1,3,4,5		32ohmload		360		mVRMS
Mono signal-to-noise ratio1,2,3,4		Without filter		55	62	dB
Total Harmonic Distortion1,2,4				0.3	0.6	%
Antenna tuning inductor	L		4.1	-	7	mh

Note:

6. FMOD=1KHz

7.The modulation depth is30%

VEMF=1mV, Frx=150KHz~520KHz

VOLUME<4:0>=11111

10.The modulation depth is80%

SW Receiving characteristics

(Unless otherwise stated,Ta = -30~70℃,AVDD = DVDD = 2.1V to 3.6V)

parameter	symbol	Test conditions	Minimum	Typical Value	Maximum	unit
SWFrequency range	Frx		1.75		32	MHz
Sensitivity1,2,3	Sen	(S+N)/N=20dB		13		uV
Output voltage2,4,5,6		32ohmload		360		mVRMS
Mono signal-to-noise ratio2,3,4,5		Without filter		55	62	dB
Total Harmonic Distortion,3,4,5				0.3	0.6	%

Note:

1.PlusLNA

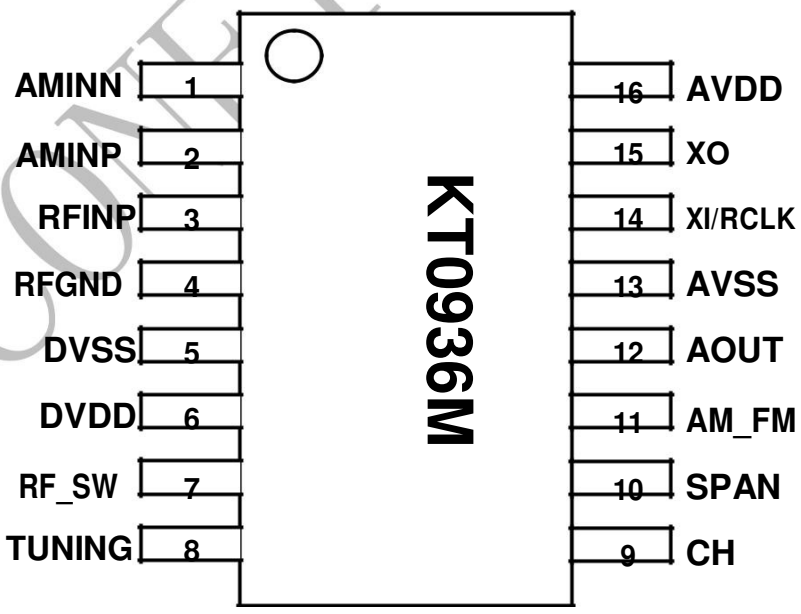
2. FMOD=1KHz
3.Modulation Depth 30%

4. VEMF=1mV
5. VOLUME<4:0>11111
6.The modulation index is 80%

2.Pin Description

Pin Description

Pin Order	Pin Name	I/Otype	describe
1	AMINN	simulation	MWandLWAntenna negative input
2	AMINP	simulation	MWandLWAntenna positive input
3	RFINP	RFenter	RF Input
4	RFGND	RFland	RF Ground
5	DVSS	Digitally	Digitally
6	DVDD	Digital Power	power supply
7	RF_SW	numberI/O	Function1: RF circuit switch control pin. Function2: Access externalEEPROMWhen used as a data pin (integrated 47Kohmpull-up resistor).
8	TUNING	Digital Output	Valid station indication
9	CH	Analog Input	Frequency control pin
10	SPAN	Analog Input	Band switching control
11	AM_FM	numberI/O	default47KohmPull-up resistor. Function1: Used to switchsoftmuteEffect. Function 2: Used to switch bands by pressing keys. Function3: Used for switching bands with a wave switch. Function4: Access externalEEPROMAs a clock pin.
12	AOUT	Analog Output	Audio Output
13	AVSS	Analog Ground	Analog Ground
14	XI/RCLK	simulationI/O	Crystal
15	XO	simulationI/O	Crystal
16	AVDD	Analog Power Supply	power supply



picture1:KT0936MPinout (top view)

3.Functional Description

3.1.Overview

KT0936MIt is a single-chip full-band rangeFM/LW/MW/SWThe radio solution greatly simplifies the peripheral circuit and can provide a variety of different configurations to achieve personalized design.

3.2.FMReceiver

KT0936MofFMThe receiver is based onKT MicroThe third generation radio chip has been put into mass production. KT0936MNo external filters or frequency adjustment circuits are required. The architecture includes a fully integrated low noise amplifier, automatic gain control (AGC), a series of high performanceADC, high performance analog and digital filters and an on-chip low noise automatic tuningVCO.at the same time,KT0936MHigh stability is also built in Class-ABOperational amplifier, no need to add an audio amplifier outside the chip.

3.3 AMReceiver

KT0936MofAMReceiver supportLW,MW,SWband range.

forLW, the receiver supports150KHzarrive520KHzFrequency range1Any configurable band and1FixedLWBand. LWThe receiver can be150KHzarrive520KHzThe antenna provides accurate and automatic antenna tuning over a wide frequency range, without the need for manual adjustments. The value of the ferrite antenna can be taken from4.1mH arrive7mHbetween.

forMW, the receiver supports500KHzarrive1750KHzFrequency range between2Any configurable band and2 FixedMWBand.MWThe receiver can be500KHzarrive1750KHzThe antenna provides accurate and automatic antenna tuning over a wide frequency range, without the need for manual adjustments. The value of the ferrite antenna can be taken from360uHarrive620uHbetween.

forSW, the receiver supports1.75MHzarrive32MHzFrequency range14Any configurable band and36FixedSWBand.

AMThe receiver wide filter can be set by registerFLT_SEL<2:0>Set to

1.2KHzarrive6KHzTo meet the different needs of customers.

3.4.Working band

KT0936Msupport4indivualFMBand,4indivualMWBand,2indivualLWBand and50indivualSW Band. FMThe receiver covers a frequency range from32MHzarrive110MHz.FM1andFM2The frequency range of the band can be set by registerFMi_LOW_CHAN<11:0>andFMi_CHAN_NUM<11:0>Set up, wherei=1or2. FMi_LOW_CHAN<11:0>Used to set the starting frequency of the band. FMi_CHAN_NUM<11:0>Used to set the number of radio stations in the band (the value of this register is the total number of radio stations minus1).KT0936Msupport3DifferentFMChannel Step,50KHz,100KHzand200KHz. Can be configured via separate registersFMi_SPACE<1:0>Implementation, (wherei=1or2).FM3and FM4For fixed frequency range and step, it cannot beEEPROMConfiguration.

MWThe frequency range of the band can be set by registerMWi_LOW_CHAN<10:0> and MWi_CHAN_NUM<11:0>To set up,MWThe channel stepping of the band can be controlled by separate registersMWi_SPACE<1:0>To set1KHz,9KHzor10KHz(ini=1or2).

MWi_LOW_CHAN<10:0>Used to set the starting frequency of the band.MWi_CHAN_NUM<11:0> Used to set the number of radio stations in the band (the value of this register is the total number of radio stations minus1). MW3 and MW4 For fixed frequency range and step, it cannot beEEPROMConfiguration.
LW Band LW2 The frequency range can be set by registerMW2_LOW_CHAN<10:0>
And MW2_CHAN_NUM<11:0>To set up, LW2 The channel stepping can be done through separate registers MW2_SPACE<1:0>To set 1KHz, 9KHz or 10KHz. Note that MW2_LOW_CHAN<10:0> and MW2_CHAN_NUM<11:0> Configured as LW Band range, you must avoid using MW2 Band.

SW Band SW1-SW14 The frequency range can be set by register SWi_LOW_CHAN <14:0> and SWi_CHAN_NUM<11:0> (ini=1,2,……14) And the channel stepping can be configured by registerSW_SPACE<1:0>Set to 1KHz, 5KHz, 9KHz or 10KHz .andSW15-SW50 For a fixed frequency range, it cannot be EEPROM Configuration.

Default band configuration list

	noneEEPROM					
	Original Noise Reduction (AM_FMis high)			**New noise reduction (AM_FMis low)**		
	Start frequency	**Stop frequency**	**Stepping**	**Start frequency**	**Stop frequency**	**Stepping**
FM1	87MHz	108.5MHz	50KHz	87MHz	108.5MHz	50KHz
FM2	75.5MHz	108.5MHz	100KHz	75.5MHz	108.5MHz	100KHz
FM3	63.5MHz	108.5MHz	100KHz	63.5MHz	108.5MHz	100KHz
FM4	69.5MHz	108.5MHz	100KHz	69.5MHz	108.5MHz	100KHz
MW1	513KHz	1629KHz	1KHz	513KHz	1629KHz	9KHz
MW2	513KHz	1719KHz	1KHz	513KHz	1719KHz	9KHz
MW3	510KHz	1630KHz	10KHz	510KHz	1630KHz	10KHz
MW4	510KHz	1720KHz	10KHz	510KHz	1720KHz	10KHz
LW1	150KHz	282KHz	1KHz	150KHz	282KHz	1KHz
LW2	150KHz	516KHz	1KHz	150KHz	516KHz	1KHz
SW1	2.95MHz	13.05MHz	5KHz	2.95MHz	13.05MHz	5KHz
SW2	12.95MHz	23.05MHz	5KHz	12.95MHz	23.05MHz	5KHz
SW3	7.95MHz	18.05MHz	5KHz	7.95MHz	18.05MHz	5KHz
SW4	2.2MHz	3.5MHz	5KHz	2.2MHz	3.5MHz	5KHz
SW5	3.5MHz	4.25MHz	5KHz	3.5MHz	4.25MHz	5KHz
SW6	4.3MHz	5.6MHz	5KHz	4.3MHz	5.6MHz	5KHz
SW7	5.55MHz	6.6MHz	5KHz	5.55MHz	6.6MHz	5KHz
SW8	6.78MHz	7.8MHz	5KHz	6.78MHz	7.8MHz	5KHz
SW9	9.15MHz	10.3MHz	5KHz	9.15MHz	10.3MHz	5KHz
SW10	11.1MHz	12.4MHz	5KHz	11.1MHz	12.4MHz	5KHz
SW11	13MHz	14.3MHz	5KHz	13MHz	14.3MHz	5KHz
SW12	14.85MHz	16MHz	5KHz	14.85MHz	16MHz	5KHz
SW13	17.05MHz	18.3MHz	5KHz	17.05MHz	18.3MHz	5KHz
SW14	21.15MHz	22.3MHz	5KHz	21.15MHz	22.3MHz	5KHz
SW15	2.25MHz	10.05MHz	5KHz	2.25MHz	10.05MHz	5KHz
SW16	2.3MHz	2.49MHz	5KHz	2.3MHz	2.49MHz	5KHz
SW17	3.2MHz	7.6MHz	5KHz	3.2MHz	7.6MHz	5KHz
SW18	3.2MHz	3.4MHz	5KHz	3.2MHz	3.4MHz	5KHz
SW19	3.15MHz	10.05MHz	5KHz	3.15MHz	10.05MHz	5KHz

SW20	3.9MHz	4MHz	5KHz	3.9MHz	4MHz	5KHz
SW21	3.65MHz	12.55MHz	5KHz	3.65MHz	12.55MHz	5KHz
SW22	4.75MHz	5.06MHz	5KHz	4.75MHz	5.06MHz	5KHz
SW23	3.9MHz	7.5MHz	5KHz	3.9MHz	7.5MHz	5KHz
SW24	5.6MHz	6.4MHz	5KHz	5.6MHz	6.4MHz	5KHz
SW25	5.55MHz	22.05MHz	5KHz	5.55MHz	22.05MHz	5KHz
SW26	5.95MHz	6.2MHz	5KHz	5.95MHz	6.2MHz	5KHz
SW27	5.75MHz	12.15MHz	5KHz	5.75MHz	12.15MHz	5KHz
SW28	6.8MHz	7.6MHz	5KHz	6.8MHz	7.6MHz	5KHz
SW29	5.9MHz	9.5MHz	5KHz	5.9MHz	9.5MHz	5KHz
SW30	7.1MHz	7.6MHz	5KHz	7.1MHz	7.6MHz	5KHz
SW31	5.85MHz	18.05MHz	5KHz	5.85MHz	18.05MHz	5KHz
SW32	9.2MHz	10MHz	5KHz	9.2MHz	10MHz	5KHz
SW33	6.95MHz	16.05MHz	5KHz	6.95MHz	16.05MHz	5KHz
SW34	11.45MHz	12.25MHz	5KHz	11.45MHz	12.25MHz	5KHz
SW35	6.95MHz	23.05MHz	5KHz	6.95MHz	23.05MHz	5KHz
SW36	11.6MHz	12.2MHz	5KHz	11.6MHz	12.2MHz	5KHz
SW37	8.95MHz	16.05MHz	5KHz	8.95MHz	16.05MHz	5KHz
SW38	13.4MHz	14.2MHz	5KHz	13.4MHz	14.2MHz	5KHz
SW39	8.95MHz	22.05MHz	5KHz	8.95MHz	22.05MHz	5KHz
SW40	13.57MHz	13.87MHz	5KHz	13.57MHz	13.87MHz	5KHz
SW41	9.45MHz	18.05MHz	5KHz	9.45MHz	18.05MHz	5KHz
SW42	15MHz	15.9MHz	5KHz	15MHz	15.9MHz	5KHz
SW43	9.95MHz	16.05MHz	5KHz	9.95MHz	16.05MHz	5KHz
SW44	17.1MHz	18MHz	5KHz	17.1MHz	18MHz	5KHz
SW45	9.95MHz	22.05MHz	5KHz	9.95MHz	22.05MHz	5KHz
SW46	17.48MHz	17.9MHz	5KHz	17.48MHz	17.9MHz	5KHz
SW47	12.95MHz	18.05MHz	5KHz	12.95MHz	18.05MHz	5KHz
SW48	21.2MHz	22MHz	5KHz	21.2MHz	22MHz	5KHz
SW49	17.95MHz	28.55MHz	5KHz	17.95MHz	28.55MHz	5KHz
SW50	21.45MHz	21.85MHz	5KHz	21.45MHz	21.85MHz	5KHz

EEPROMList of configurable bands

	haveEEPROM(Note3)		
	Start frequency	Stop frequency	Stepping
FM1	Available	Available	Available
FM2	Available	Available	Available
FM3	63.5MHz	108.5MHz	100KHz
FM4	69.5MHz	108.5MHz	100KHz
MW1	4. Available	5. Available	6. Available
MW2	Available	Available	Available
MW3	510KHz	1630KHz	10KHz
MW4	510KHz	1720KHz	10KHz
LW1	150KHz	282KHz	1KHz
LW2	Available (Note1)	Available (Note1)	Available (Note1)
SW1	Available	Available	Available
SW2	Available	Available	Available

SW3	Available	Available	Available
SW4	Available	Available	Available
SW5	Available	Available	Available
SW6	Available	Available	Available
SW7	Available	Available	Available
SW8	Available	Available	Available
SW9	Available	Available	Available
SW10	Available	Available	Available
SW11	Available	Available	Available
SW12	Available	Available	Available
SW13	Available	Available	Available
SW14	Available	Available	Available
SW15	2.25MHz	10.05MHz	Available (Note2)
SW16	2.3MHz	2.49MHz	Available (Note2)
SW17	3.2MHz	7.6MHz	Available (Note2)
SW18	3.2MHz	3.4MHz	Available (Note2)
SW19	3.15MHz	10.05MHz	Available (Note2)
SW20	3.9MHz	4MHz	Available (Note2)
SW21	3.65MHz	12.55MHz	Available (Note2)
SW22	4.75MHz	5.06MHz	Available (Note2)
SW23	3.9MHz	7.5MHz	Available (Note2)
SW24	5.6MHz	6.4MHz	Available (Note2)
SW25	5.55MHz	22.05MHz	Available (Note2)
SW26	5.95MHz	6.2MHz	Available (Note2)
SW27	5.75MHz	12.15MHz	Available (Note2)
SW28	6.8MHz	7.6MHz	Available (Note2)
SW29	5.9MHz	9.5MHz	Available (Note2)
SW30	7.1MHz	7.6MHz	Available (Note2)
SW31	5.85MHz	18.05MHz	Available (Note2)
SW32	9.2MHz	10MHz	Available (Note2)
SW33	6.95MHz	16.05MHz	Available (Note2)
SW34	11.45MHz	12.25MHz	Available (Note2)
SW35	6.95MHz	23.05MHz	Available (Note2)
SW36	11.6MHz	12.2MHz	Available (Note2)
SW37	8.95MHz	16.05MHz	Available (Note2)
SW38	13.4MHz	14.2MHz	Available (Note2)
SW39	8.95MHz	22.05MHz	Available (Note2)
SW40	13.57MHz	13.87MHz	Available (Note2)
SW41	9.45MHz	18.05MHz	Available (Note2)
SW42	15MHz	15.9MHz	Available (Note2)
SW43	9.95MHz	16.05MHz	Available (Note2)
SW44	17.1MHz	18MHz	Available (Note2)
SW45	9.95MHz	22.05MHz	Available (Note2)
SW46	17.48MHz	17.9MHz	Available (Note2)
SW47	12.95MHz	18.05MHz	Available (Note2)
SW48	21.2MHz	22MHz	Available (Note2)
SW49	17.95MHz	28.55MHz	Available (Note2)

SW50	21.45MHz	21.85MHz	Available (Note2)

Note1: LW2 The band range is MW2 The relevant registers are determined by LW2 and MW2 need 2 select1
Note2: SW The band is EEPROM You can rewrite (50 Shortwave bands common Using a band step), if rewritten as non 5KHz Step by step SW15-SW50 The band end frequencies will change (the total number remains unchanged).
Note 3: When the external EEPROM is not used and the AM_FM pin is connected to a low level, it is the new noise reduction effect; when the AM_FM pin is connected to a high level, it is the original noise reduction effect. When the external EEPROM is used, the noise reduction effect is determined by the register configuration.

6.1.Crystal Oscillator and Reference Clock

KT0936M Integrates a low-frequency crystal oscillator circuit to support 32.768KHz or 38KHz By placing the register RCLK_EN Set to1 And set the register according to the frequency of the external reference clock FPFD<19:0>, KT0936M You can use COMMS The external reference clock level. FPFD<19:0>The unit is 1/16Hz To clearly illustrate how these bits are used, Table11 Error! Reference source not found. Some examples are given.

Examples of using different crystals or reference clocks

	RCLK_EN	FPFD<19:16>	FPFD<15:0>	DIVIDERP<10:0>	DIVIDERN<10:0>
32768Hz Crystal	0	0x08	0x0000	0x0001	0x029C
38KHzCrystal	0	0x09	0x4700	0x0001	0x0240
32.768KHz Reference Clock	1	0x08	0x0000	0x0001	0x029C
75KHz Reference Clock	1	0x09	0x27C0	0x0002	0x0247
4.2336 MHz Reference Clock	1	0x07	0x5499	0x008D	0x02D9
12MHz Reference Clock	1	0x07	0xD000	0x0177	0x02AC
24MHz Reference Clock	1	0x07	0xD000	0x02EE	0x02AC
40MHz Reference Clock	1	0x07	0xD000	0x04E2	0x02AC

6.2.Use the rotary knob mode as channel control and band control

KT0936MSupports unique knob mode, its application circuit diagram4shown.

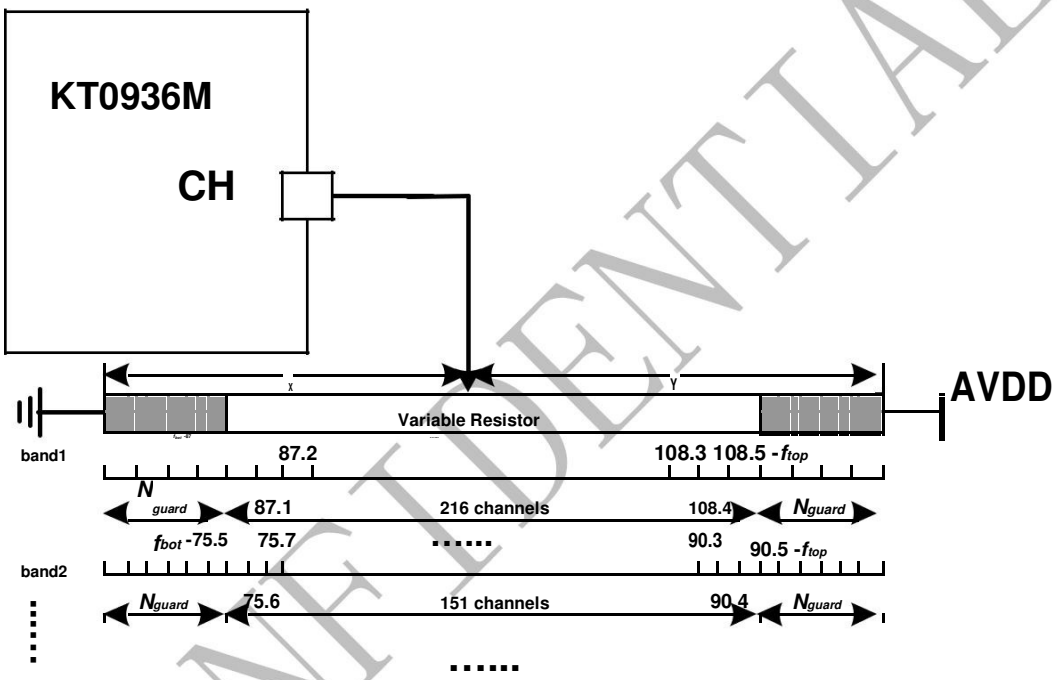
KT0936MThe knob function is realized by connecting the sliding contact of the variable resistor to the pin of the chip. KT0936MBuilt-inADCThe ratio of the resistance values on both sides of the variable resistor contacts can be measured and the result can be mapped to the control parameter to adjust the channel frequency and band.

By setting the registerCH_PIN<1:0>Place2b'10, the channel controller enters the knob mode, the schematic circuit is shown in the figure2If the sliding contact of the variable resistor is located in the white area, the frequency of the received channel can be calculated according to the following formula:

$$f_{tune} = \frac{X}{X-Y}(f_{top}-f_{bot}-2-N_{guard}-f_{step}) - N_{guard}-f_{step}-f_{bot}$$

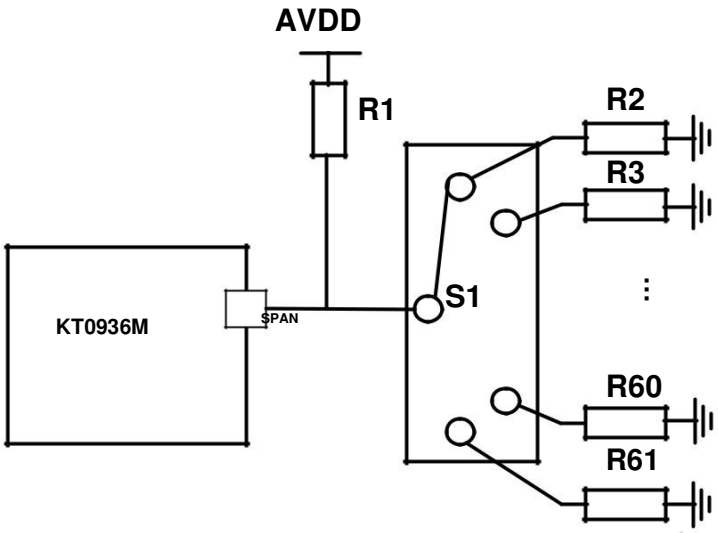
in f_{step} is the channel stepping, which can be controlled by registerFM1_SPACE<1:0>,FM2_SPACE<1:0>,MW1_SPACE<1:0>,MW2_SPACE<1:0>andSW_SPACE<1:0>to set it up.

f_{top} is the upper frequency limit of the band, f_{bot} is the lower frequency limit of the band, N_{guard} is used to avoid potentiometer Protection parameters set due to inability to receive some radio stations due to mechanical reasons that make it impossible to adjust to both end points. N_{guard} Each band Parameters can be set individually by setting the following registers:FM1_GUARD<7:0>,FM2_GUARD<7:0>,MW1_GUARD<7:0>,MW2_GUARD<7:0>as well asSW_GUARD <7:0>When the sliding contact is adjusted to the gray area, the receiving frequency will be kept at the upper or lower frequency limit.MW3,MW4,SW15-50,LW1ofGUARDAll fixed to5, not adjustable.LW2ofGUARDDepend onMW2_GUARD<7:0>Decide.



picture2:CHPin configuration for manual knob tuning

KT0936MThe band can be set by register in knob modeSPAN_PIN<1:0>for 2b'10To achieve band switching, the application circuit is shown in the figure3The selection of band resistors is shown in the table12shown.



picture3:SPANPin configuration for band switching function

RecommendedKT0936M(B9)Band resistanceR1use10KohmAccuracy1%,resistanceR2~R61 The values are shown in the table12shown.

Band resistor list

Band	Resistors (Accuracy1%)
FM1	63.4 ohm
FM2	237 ohm
FM3	412 ohm
FM4	604 ohm
MW1	787 ohm
MW2	1 Kohm
MW3	1.18 Kohm
MW4	1.4 Kohm
LW1	1.62Kohm
LW2	1.87Kohm
SW1	2.1Kohm
SW2	2.37Kohm
SW3	2.61Kohm
SW4	2.87Kohm
SW5	3.16Kohm
SW6	3.48Kohm
SW7	3.74Kohm
SW8	4.12Kohm
SW9	4.42Kohm
SW10	4.75Kohm
SW11	5.23Kohm
SW12	5.62Kohm
SW13	6.04Kohm
SW14	6.49Kohm
SW15	6.81Kohm
SW16	7.32Kohm
SW17	7.87Kohm
SW18	8.45Kohm
SW19	9.09Kohm
SW20	9.76Kohm
SW21	10.2Kohm
SW22	11Kohm
SW23	11.8Kohm
SW24	12.7Kohm
SW25	13.7Kohm

SW26	14.7Kohm
SW27	15.4Kohm
SW28	16.9Kohm
SW29	17.8Kohm
SW30	19.1Kohm
SW31	21Kohm
SW32	22.6Kohm
SW33	24.3Kohm
SW34	26.7Kohm
SW35	28.7Kohm
SW36	31.6Kohm
SW37	34.8Kohm
SW38	38.3Kohm
SW39	42.2Kohm
SW40	47.5Kohm
SW41	53.6Kohm
SW42	61.9Kohm
SW43	71.5Kohm
SW44	84.5Kohm
SW45	102Kohm
SW46	127Kohm
W47	169Kohm
SW48	243Kohm
SW49	422Kohm
SW50	1000Kohm

6.3. AM_FM Pinout

KT0936MofAM_FM have 4 Function, can be used to switch soft mute effects, for switching bands with keys or wave switches, and for accessing external EEPROM.

Function1: If not external EEPROM, this pin is used for soft mute Effect switching. AM_FM The pin is high level (the chip has built-in 47 Kohm Pull-up resistor) KT0936M Works in original noise reduction (softmute) effect, working at low level in the new noise reduction (softmute) Effect.

Function2: Will AM_FM_PIN<2:0> The register is set to 1 hour, AM_FM The pin needs to be connected to an external button for band switching. Each negative pulse chip is FM1 Band and full band (by SPAN The initial value at the first power-on is determined by the voltage pin of the ONLY_FM1_DIS When using the key mode to switch bands, KT0936M Will write the current band status back to EEPROM In ONLY_FM1_DIS register.

Function3: AM_FM_PIN<2:0> The register is set to 2 hour, AM_FM The pin needs to be connected to an external toggle switch for band switching. FM1 Band, when connected to high level SPAN The voltage on the pin determines the band (can make all60any one of the bands).

Function4: Add EEPROM When used as a clock pin, this mode does not require configuration. The chip automatically switches to this mode when powered on. EEPROM Automatically switch back to AM_FM_PIN<2:0>Register setting mode. If write back is required EEPROM Save the current working state.

KT0936MIt will also automatically switch to EEPROM The clock pin function of the operation will automatically switch back to AM_FM_PIN<2:0>Register setting mode. If the external EEPROM, without modifying AM_FM_PIN<2:0>The register (this is the default function) is 3 In case, softmute Effect according to EEPROM The configuration takes effect. This pin is only used as an external EEPROM of SCL Pins used.

6.4. RF_SWPinout

Function1: RF circuit switch control pin. This pin outputs low level in shortwave mode and high level in other modes. Users can control the antenna switching of the external RF circuit according to the state of this pin.

Function2: Add EEPROM When used as a data pin, this mode does not require configuration. The chip automatically switches to this mode when powered on.EEPROM Automatically switch back to function after data1If you need to write back EEPROM Save the current working state.KT0936M It will also automatically switch to EEPROM The data pin function of the operation will automatically switch back to the function after completion1.

6.5.Chip settings

KT0936M Integrated 2-wire masterInterface, can read the pre-stored external EEPROM Content in (for example:24C02). After power on, KT0936M Store the reads in EEPROM All data in the memory is written into the internal registers.24C02 and KT0936M The register bit correspondence can be seen in the table13 Query. Users need to EEPROM The device address is set to8b'1010 000x（R/W bit). KT0936M of RF_SWPins and EEPROM of SDA Pins connected, AM_FM Pins and EEPROM of SCL Pins connected.

When using key mode to switch bands, KT0936M Will write the current band status back to EEPROM In ONLY_FM1_DIS register to save the state of this button.

24C02 and KT0936M Register mapping table

24LC02		KT0936M	
address	bits	address	bits
0x00	D7:D0	0x00	D7:D0
0x01	D7:D0	0x01	D7:D0
0x02	D7:D0	0x02	D7:D0
0x03	D7:D0	0x03	D7:D0
…	…	…	…
…	…		…
0xFE	D7:D0	0xFE	D7:D0
0xFF	D7:D0	0xFF	D7:D0

6.6.Register Table

6.6.1. PLLCFG0 (Address 0x04)

Bit	name	Read and write mode	default value	Functional Description
7:3	Reserved bits	R	0000_0	Reserved bits
2:0	DIVIDERP<10:8>	R W	000	PLLCrossoverPConfiguration

6.6.2. PLLCFG1 (Address 0x05)

Bit	name	Read and write mode	default value	Functional Description
7:0	DIVIDERP<7:0>	R W	0x01	PLLCrossoverPConfiguration

6.6.3. PLLCFG2 (Address 0x06)

Bit	name	Read and write mode	default value	Functional Description
7:3	Reserved bits	R W	0000_0	Reserved bits
2:0	DIVIDERN<10:8>	R W	010	PLLCrossoverNConfiguration

6.6.4. PLLCFG3 (Address 0x07)

Bit	name	Read and write mode	default value	Functional Description
7:0	DIVIDERN<7:0>	R W	0x9C	PLLCrossoverNConfiguration

6.6.5. SYSCLK_CFG0 (Address 0x08)

Bit	name	Read and write mode	default value	Functional Description
7:4	Reserved bits	R W	0000	Reserved bits
3:0	FPFD<19:16>	R W	1000	Phase detection frequency: FPFD<19:0> =Crystal frequency orRCLK frequency/DIVIDERP*16

6.6.6. SYSCLK_CFG1 (Address 0x09)

Bit	name	Read and write mode	default value	Functional Description
7:0	FPFD<15:8>	R W	0x00	Phase detection frequency: FPFD<19:0> =Crystal frequency orRCLK frequency/DIVIDERP*16P

6.6.7. SYSCLK_CFG2 (Address 0x0A)

Bit	name	Read and write mode	default value	Functional Description
7:0	FPFD<7:0>	R W	0x00	Phase detection frequency: FPFD<19:0> =Crystal frequency orRCLK frequency/DIVIDERP*16

6.6.8. XTALCFG (Address 0x0D)

Bit	name	Read and write mode	default value	Functional Description
7:5	Reserved bits	R W	110	Reserved bits

Bit	name	Read and write mode	default value	Functional Description
4	RCLK_EN	R W	0	Reference clock enable bit: 0 =Crystal 1 =External reference clock
3:0	Reserved bits	R W	0011	Reserved bits

6.6.9. RXCFG1 (Address 0x000F)

Bit	name	Read and write mode	default value	Functional Description
7:5	Reserved bits	R	000	Reserved bits
4:0	VOLUME<4:0>	R W	1_1111	Volume control bit: B'11111 = 0dB B'11110 = -2dB/ B'11101 = -4dB … B'00010 = -58dB B'00001 = -60dB B'00000 = mute

6.6.10. BANDCFG2 (Address 0x18)

Bit	name	Read and write mode	default value	Functional Description
7:6	FM2_SPACE<1:0>	R W	01	FMBand2Step selection bit: B'00 = 200 kHz (USA, Europe) B'01 = 100KHz (Europe, Japan) B'10 = 50KHz B'11 = 50KHz
5:4	FM1_SPACE<1:0>	R W	10	FMBand1Step selection bit: B'00 = 200 kHz (USA, Europe) B'01 = 100KHz (Europe, Japan) B'10 = 50KHz B'11 = 50KHz
3:2	MW2_SPACE<1:0>	R W	00	MWBand2andLWBand2Step selection Bit: B'00 = 1kHz B'01 = 9kHz B'10 = 10kHz B'11 = 10kHz
1:0	MW1_SPACE<1:0>	R W	00	MWBand1Step selection bit: B'00 = 1kHz B'01 = 9kHz B'10 = 10kHz B'11 = 10kHz

6.6.11. BANDCFG3 (Address 0x19)

Bit	name	Read and write mode	default value	Functional Description
7:2	Reserved bits	R W	0010_11	Reserved bits
1:0	SW_SPACE<1:0>	R W	01	SWBand step selection bit: B'00 = 1kHz B'01 = 5kHz B'10 = 9kHz B'11 = 10kHz

6.6.12. SOUNDCFG (Address 0x28)

Bit	name	Read and write mode	default value	Functional Description
7:6	Reserved bits	R	00	Reserved bits
5:4	BASS<1:0>	R W	00	Subwoofer gain selection: B'00 = Bypass B'01 = 9.4 dB@70Hz B'10 = 13.3dB@70Hz B'11 = 18.2dB@70Hz
3:0	Reserved bits	R W	0001	Reserved bits

6.6.13. DSPCFG0 (Address 0x2A)

Bit	name	Read and write mode	default value	Functional Description
7	Reserved bits	R W	1	Reserved bits
6:4	FM_GAIN<2:0>	R W	100	FMAudio gain control: B'000 = 0dB B'001 = 3.5dB B'010 = 6dB B'011 = 9.5dB B'100 = -2.5dB B'101 = -3.66dB B'110 = -6dB B'111 = -8.5dB
3	Reserved bits	R W	0000	Reserved bits

6.6.14. DSPCFG6 (Address 0x30)

Bit	name	Read and write mode	default value	Functional Description
7:5	Reserved bits	R W	101	Reserved bits
4:0	FM_RSSI_BIAS<4:0> >	R W	0_0000	FM RSSIBias: B'10000 = -16dB B'10001 = -15dB … B'11110 = -2dB B'11111 = -1dB B'00000 = 0dB B'00001 = 1dB … B'01111 = 15dB

6.6.15. SW_CFG0 (Address 0x38)

Bit	name	Read and write mode	default value	Functional Description
7:4	Reserved bits	R W	0101	Reserved bits
3:0	SW_GAIN<2:0>	R W	0100	Shortwave Audio Gain Control: B'0000 = 6dB B'0001 = 3dB B'0010 = 0dB B'0011 = -3dB B'0100 = -6dB B'0101 = -9dB

Bit	name	Read and write mode	default value	Functional Description
				B'0110 = -12dB B'0111 = -15dB B'1000 = -18dB

6.6.16. AMDSP7 (Address 0x39)

Bit	name	Read and write mode	default value	Functional Description
7:4	Reserved bits	R W	0000	Reserved bits
3:0	SW_VOLUME<3:0>	R W	1010	Short wave volume control position: 4'b1111 = 0dB 4'b1110=-0.5dB 4'b1101=-1.0dB 4'b1100 = -1.5dB 4'b1011 = -2.0dB 4'b1010 = -2.5dB 4'b1001 = -3.0dB 4'b1000 = -3.5dB 4'b0111=-4.0dB 4'b0110 = -4.5dB 4'b0101 = -5.0dB 4'b0100 = -5.5dB 4'b0011 = -6.0dB 4'b0010=-6.5dB 4'b0001=-7.0dB 4'b0000 = -7.5dB

6.6.17. ANACFG (Address 0x4E)

Bit	name	Read and write mode	default value	Functional Description
7:6	Reserved bits	R W	00	Reserved bits
5:4	DEPOP_TC<1:0>	R W	11	Time constant for removing power-on noise: B'00 = 250ms B'01 = 500ms B'10 = 750ms B'11 = 1s
3	Reserved bits	R W	0	Reserved bits
2:0	AUDV_DCLVL<2:0 >	R W	010	Audio output common mode voltage control: B'000=0.85v B'001=0.91v B'010 = 1.05v B'011 = 1.15v B'100 = 1.20v B'101 = 1.35v B'110=1.50v B'111 = 1.60v

6.6.18. GPIOCFG0 (Address 0x4F)

Bit	name	Read and write mode	default value	Functional Description
7	Reserved bits	R W	1	Reserved bits
6:4	AM_FM_PIN<2:0>	R W	011	AM_FMPin function control: B'000 = Reserved B'001 =Key control band selection

Bit	name	Read and write mode	default value	Functional Description
				B'010 =Switch control band selection B'011 = softmuteSwitch (if using EEPROM, even if this register isB'011, softmuteThe effect is also according toEEPROMThe configuration takes effect) Other =Reserved
3:0	Reserved bits	R	1010	Reserved bits

6.6.19. GPIOCFG2 (Address 0x51)

Bit	name	Read and write mode	default value	Functional Description
7:6	Reserved bits	R W	00	Reserved bits
5:4	SPAN_PIN<1:0>	R W	10	SPANPin function control: B'00 = Reserved B'01 = Reserved B'10=Voltage control band selection B'11 = Reserved
3:2	Reserved bits	R W	00	Reserved bits
1:0	CH_PIN<1:0>	R W	10	CHPin function control: B'00 = high Z B'01 = Reserved B'10 =Rheostat Control Frequency B'11 = Reserved

6.6.20. AMDSP0 (Address 0x62)

Bit	name	Read and write mode	default value	Functional Description
7:4	MW_GAIN<3:0>	R W	0100	MWandLWAudio gain control: B'0000 = 6dB B'0001 = 3dB B'0010 = 0dB B'0011 = -3dB B'0100 = -6dB B'0101 = -9dB B'0110 = -12dB B'0111 = -15dB B'1000 = -18dB
3	Reserved bits	R	0	Reserved bits
2:0	FLT_SEL<2:0>	R W	001	AMFilter bandwidth selection: B'000=1.2KHz B'001=2.4KHz B'010=3.6KHz B'011=4.8KHz B'100=6.0KHz

6.6.21. AMDSP1 (Address 0x63)

Bit	name	Read and write mode	default value	Functional Description
7:5	Reserved bits	R	000	Reserved bits
4:0	AM_RSSI_BIAS<4:0>	R W	0_0000	AM RSSIBias:

Bit	name	Read and write mode	default value	Functional Description
				B'10000 = -16dB B'10001 = -15dB … B'11110 = -2dB B'11111 = -1dB B'00000 = 0dB B'00001 = 1dB … B'01111 = 15dB

6.6.22. AMDSP7 (Address 0x69)

Bit	name	Read and write mode	default value	Functional Description
7:4	Reserved bits	R W	1000	Reserved bits
3:0	MW_VOLUME<3:0> >	R W	1010	MWandLWVolume control bit: 4'b1111 = 0dB 4'b1110=-0.5dB 4'b1101=-1.0dB 4'b1100 = -1.5dB 4'b1011 = -2.0dB 4'b1010 = -2.5dB 4'b1001 = -3.0dB 4'b1000 = -3.5dB 4'b0111=-4.0dB 4'b0110 = -4.5dB 4'b0101 = -5.0dB 4'b0100 = -5.5dB 4'b0011 = -6.0dB 4'b0010=-6.5dB 4'b0001=-7.0dB 4'b0000 = -7.5dB

6.6.23. GUARD0 (Address 0x6F)

Bit	name	Read and write mode	default value	Functional Description
7:4	Reserved bits	R	0000	Reserved bits
3:0	SPAN_GUARD<3:0> >	R W	0000	SPANVaristor protection range selection.

6.6.24. GUARD0 (Address 0x70)

Bit	name	Read and write mode	default value	Functional Description
7:0	SW_GUARD<3:0>	R W	0000_1010	SWSelection of the protection range of the variable resistor of the tuning station.

6.6.25. FMCHAN0 (Address 0x88)

Bit	name	Read and write mode	default value	Functional Description
7	Reserved bits	R W	0	Reserved bits
6	ONLY_FM1_DIS	R W	0	AM_FMPin works in key switching band Mode (Function2), asFM1Band or full band selection bit: 0 = FM1 Band

Bit	name	Read and write mode	default value	Functional Description
				1 =Full Band (SPANPin determination)
5:0	Reserved bits	R W	00_0110	Reserved bits

6.6.26. FM1_LOW_CHAN0 (Address 0x90)

Bit	name	Read and write mode	default value	Functional Description
7:4	Reserved bits	R	0000	Reserved bits
3:0	FM1_LOW_CHAN< 11:8>	R W	0110	FMBand1The minimum frequency in 50KHz, the default value is87MHz （ 0x06CC). The value of this register should be 32MHz (0x280)arrive110MHz (0x898) within the range.

6.6.27. FM1_LOW_CHAN1 (Address 0x91)

Bit	name	Read and write mode	default value	Functional Description
7:0	FM1_LOW_CHAN< 7:0>	R W	0xCC	FMBand1The minimum frequency in 50KHz, the default value is87MHz （ 0x06CC). The value of this register should be 32MHz (0x280)arrive110MHz (0x898) within the range.

6.6.28. FM1_CHAN_NUM0 (Address 0x92)

Bit	name	Read and write mode	default value	Functional Description
7:4	Reserved bits	R	0000	Reserved bits
3:0	FM1_CHAN_NUM< 11:8>	R W	0001	FMBand1The number of frequency points is FM1_CHAN_NUM<11:0> + 1.if FM1_CHAN_NUM<11:0>is set to0, indicating that this band has only one frequency point.

6.6.29. FM1_CHAN_NUM1 (Address 0x93)

Bit	name	Read and write mode	default value	Functional Description
7:0	FM1_CHAN_NUM< 7:0>	R W	0xAE	FMBand1The number of frequency points is FM1_CHAN_NUM<11:0> + 1.if FM1_CHAN_NUM<11:0>is set to0, indicating that this band has only one frequency point.

6.6.30. FM2_LOW_CHAN0 (Address 0x94)

Bit	name	Read and write mode	default value	Functional Description
7:4	Reserved bits	R	0000	Reserved bits
3:0	FM2_LOW_CHAN< 11:8>	R W	0101	FMBand2The minimum frequency in 50KHz , the default value is75.5MHz （0x05E6). The value of this register should be 32MHz (0x280)arrive110MHz (0x898) within the range.

6.6.31. FM2_LOW_CHAN1 (Address 0x95)

Bit	name	Read and write mode	default value	Functional Description
7:0	FM2_LOW_CHAN<7:0>	R W	0xE6	FMBand2The minimum frequency in 50KHz, the default value is75.5MHz （0x05E6). The value of this register should be 32MHz (0x280)arrive110MHz (0x898) within the range.

6.6.32. FM2_CHAN_NUM0 (Address 0x96)

Bit	name	Read and write mode	default value	Functional Description
7:4	Reserved bits	R	B'0000	Reserved bits
3:0	FM2_CHAN_NUM<11:8>	R W	B'0001	FMBand2The number of frequency points is FM2_CHAN_NUM<11:0> + 1.if FM2_CHAN_NUM<11:0>is set to0, indicating that this band has only one frequency point.

6.6.33. FM2_CHAN_NUM1 (Address 0x97)

Bit	name	Read and write mode	default value	Functional Description
7:0	FM2_CHAN_NUM<7:0>	R W	0x4A	FMBand2The number of frequency points is FM2_CHAN_NUM<11:0> + 1.if FM2_CHAN_NUM<11:0>is set to0, indicating that this band has only one frequency point.

6.6.34. MW1_LOW_CHAN0 (Address 0x98)

Bit	name	Read and write mode	default value	Functional Description
7:3	Reserved bits	R	0000_0	Reserved bits
2:0	MW1_LOW_CHAN<10:8>	R W	010	MWBand1The minimum frequency in 1KHz, the default value is513KHz （0x0201). The value of this register should be 500KHz (0x1F4)arrive1750KHz (0x6D6) within the range.

6.6.35. MW1_LOW_CHAN1 (Address 0x99)

Bit	name	Read and write mode	default value	Functional Description
7:0	MW1_LOW_CHAN<7:0>	R W	0x01	MWBand1The minimum frequency in 1KHz, the default value is513KHz （0x0201). The value of this register should be 500KHz (0x1F4)arrive 1750KHz (0x6D6)within the range.

6.6.36. MW1_CHAN_NUM0 (Address 0x9A)

Bit	name	Read and write mode	default value	Functional Description
7:3	Reserved bits	R	0000_0	Reserved bits
2:0	MW1_CHAN_NUM	R W	100	MWBand1The number of frequency points is

Bit	name	Read and write mode	default value	Functional Description
	<10:8>			MW1_CHAN_NUM<10:0> + 1.if MW1_CHAN_NUM<10:0>is set to0, indicating that this band has only one frequency point.

6.6.37. MW1_CHAN_NUM1 (Address 0x9B)

Bit	name	Read and write mode	default value	Functional Description
7:0	MW1_CHAN_NUM <7:0>	R W	0x5C	MWBand1The number of frequency points is MW1_CHAN_NUM<10:0> + 1.if MW1_CHAN_NUM<10:0>is set to0, indicating that this band has only one frequency point.

6.6.38. MW2_LOW_CHAN0 (Address 0x9C)

Bit	name	Read and write mode	default value	Functional Description
7:3	Reserved bits	R	0000_0	Reserved bits
2:0	MW2_LOW_CHAN <10:8>	R W	010	MWBand2andLWBand2The minimum frequency in1KHz, the default value is 513KHz（0x0201). The value of this register should be500KHz (0x1F4)arrive1750KHz (0x6D6)within the range.

6.6.39. MW2_LOW_CHAN1 (Address 0x9D)

Bit	name	Read and write mode	default value	Functional Description
7:0	MW2_LOW_CHAN <7:0>	R W	0x01	MWBand2andLWBand2The minimum frequency in1KHz, the default value is 513KHz（0x0201). The value of this register should be500KHz (0x1F4)arrive1750KHz (0x6D6)within the range.

6.6.40. MW2_CHAN_NUM0 (Address 0x9E)

Bit	name	Read and write mode	default value	Functional Description
7:3	Reserved bits	R	0000_0	Reserved bits
2:0	MW2_CHAN_NUM <10:8>	R W	100	MWBand2andLWBand2The number of frequency points isMW2_CHAN_NUM<10:0> + 1.ifMW2_CHAN_NUM<10:0> is set to0, indicating that this band has only one Frequency.

6.6.41. MW2_CHAN_NUM1 (Address 0x9F)

Bit	name	Read and write mode	default value	Functional Description
7:0	MW2_CHAN_NUM <7:0>	R W	0xB6	MWBand2andLWBand2The number of frequency points isMW2_CHAN_NUM<10:0> + 1.ifMW2_CHAN_NUM<10:0> is set to0, indicating that this band has only one

Bit	name	Read and write mode	default value	Functional Description
				Frequency.

6.6.42. GUARD2 (Address 0xA0)

Bit	name	Read and write mode	default value	Functional Description
7:0	FM1_GUARD<7:0>	R W	0x00	FMBand1Selection of protection range of variable resistor for station adjustment

6.6.43. GUARD3 (Address 0xA1)

Bit	name	Read and write mode	default value	Functional Description
7:0	FM2_GUARD<7:0>	R W	0x00	FMBand2Selection of the protection range of the variable resistor of the tuning station.

6.6.44. GUARD4 (Address 0xA2)

Bit	name	Read and write mode	default value	Functional Description
7:0	MW1_GUARD<7:0 >	R W	0x00	MWBand1Selection of the protection range of the variable resistor of the tuning station.

6.6.45. GUARD5 (Address 0xA3)

Bit	name	Read and write mode	default value	Functional Description
7:0	MW2_GUARD<7:0 >	R W	0x00	MWBand2andLWBand2Selection of the protection range of the variable resistor of the tuning station.

6.6.46. SW1_LOW_CHAN0 (Address 0xA4)

Bit	name	Read and write mode	default value	Functional Description
7	Reserved bits	R	B'0	Reserved bits
6:0	SW1_LOW_CHAN< 14:8>	R W	B'000_1011	SWBand1The minimum frequency in 1KHz, the default value is2.95MHz （0x0BB8). The value of this register should be 1.75MHz (0x06D6)arrive 32MHz (0x7D00)within the range.

6.6.47. SW1_LOW_CHAN1 (Address 0xA5)

Bit	name	Read and write mode	default value	Functional Description
7:0	SW1_LOW_CHAN< 7:0>	R W	0x86	SWBand1The minimum frequency in 1KHz, the default value is2.95MHz （0x0BB8). The value of this register should be 1.75MHz (0x06D6)arrive 32MHz (0x7D00)within the range.

6.6.48. SW2_LOW_CHAN0 (Address 0xA6)

Bit	name	Read and write mode	default value	Functional Description
7	Reserved bits	R	B'0	Reserved bits
6:0	SW2_LOW_CHAN< 14:8>	R W	B'011_0010	SWBand2The minimum frequency in

Bit	name	Read and write mode	default value	Functional Description
				1KHz, the default value is12.95MHz （0x32C8). The value of this register should be 1.75MHz (0x06D6) arrive1.75MHz (0x7D00)within the range.

6.6.49. SW2_LOW_CHAN1 (Address 0xA7)

Bit	name	Read and write mode	default value	Functional Description
7:0	SW2_LOW_CHAN<7:0>	R W	0x96	SWBand2The minimum frequency in 1KHz, the default value is12.95MHz （0x32C8). The value of this register should be 1.75MHz (0x06D6) arrive1.75MHz (0x7D00)within the range.

6.6.50. SW3_LOW_CHAN0 (Address 0xA8)

Bit	name	Read and write mode	default value	Functional Description
7	Reserved bits	R	B'0	Reserved bits
6:0	SW3_LOW_CHAN<14:8>	R W	B'001_1111	SWBand3The minimum frequency in 1KHz, the default value is7.95MHz （0x1F40). The value of this register should be 1.75MHz (0x06D6)arrive 32MHz (0x7D00)within the range.

6.6.51. SW3_LOW_CHAN1 (Address 0xA9)

Bit	name	Read and write mode	default value	Functional Description
7:0	SW3_LOW_CHAN<7:0>	R W	0x0E	SWBand3The minimum frequency in 1KHz, the default value is7.95MHz （0x1F40). The value of this register should be 1.75MHz (0x06D6)arrive 32MHz (0x7D00)within the range.

6.6.52. SW4_LOW_CHAN0 (Address 0xAA)

Bit	name	Read and write mode	default value	Functional Description
7	Reserved bits	R	B'0	Reserved bits
6:0	SW4_LOW_CHAN<14:8>	R W	B'000_1000	SWBand4The minimum frequency in 1KHz, the default value is2.2MHz （0x0898). The value of this register should be 1.75MHz (0x06D6)arrive 32MHz (0x7D00)within the range.

6.6.53. SW4_LOW_CHAN1 (Address 0xAB)

Bit	name	Read and write mode	default value	Functional Description
7:0	SW4_LOW_CHAN<7:0>	R W	0x98	SWBand4The minimum frequency in 1KHz, the default value is2.2MHz （0x0898). The value of this register should be 1.75MHz (0x06D6)arrive 32MHz

				(0x7D00)within the range.

6.6.54. SW5_LOW_CHAN0 (Address 0xAC)

Bit	name	Read and write mode	default value	Functional Description
7	Reserved bits	R	B'0	Reserved bits
6:0	SW5_LOW_CHAN<14:8>	R W	B'000_1011	SWBand5The minimum frequency in 1KHz, the default value is3.5MHz （0x0DAC). The value of this register should be 1.75MHz (0x06D6)arrive32MHz (0x7D00)within the range.

6.6.55. SW5_LOW_CHAN1 (Address 0xAD)

Bit	name	Read and write mode	default value	Functional Description
7:0	SW5_LOW_CHAN<7:0>	R W	0xAC	SWBand5The minimum frequency in 1KHz, the default value is3.5MHz （0x0DAC). The value of this register should be 1.75MHz (0x06D6)arrive 32MHz (0x7D00)within the range.

6.6.56. SW6_LOW_CHAN0 (Address 0xAE)

Bit	name	Read and write mode	default value	Functional Description
7	Reserved bits	R	B'0	Reserved bits
6:0	SW6_LOW_CHAN<14:8>	R W	B'001_0000	SWBand6The minimum frequency in 1KHz, the default value is4.3MHz （0x10CC). The value of this register should be 1.75MHz (0x06D6)arrive 32MHz (0x7D00)within the range.

6.6.57. SW6_LOW_CHAN1 (Address 0xAF)

Bit	name	Read and write mode	default value	Functional Description
7:0	SW6_LOW_CHAN<7:0>	R W	0xCC	SWBand6The minimum frequency in 1KHz, the default value is4.3MHz （0x10CC). The value of this register should be 1.75MHz (0x06D6)arrive 32MHz (0x7D00)within the range.

6.6.58. SW7_LOW_CHAN0 (Address 0xB0)

Bit	name	Read and write mode	default value	Functional Description
7	Reserved bits	R	B'0	Reserved bits
6:0	SW7_LOW_CHAN<14:8>	R W	B'001_0101	SWBand7The minimum frequency in 1KHz, the default value is5.55MHz （0x15AE). The value of this register should be 1.75MHz (0x06D6)arrive 32MHz (0x7D00)within the range.

6.6.59. SW7_LOW_CHAN1 (Address 0xB1)

Bit	name	Read and write mode	default value	Functional Description
7:0	SW7_LOW_CHAN<7:0>	R W	0xAE	SWBand7The minimum frequency in 1KHz, the default value is5.55MHz （0x15AE). The value of this register should be 1.75MHz (0x06D6)arrive 32MHz (0x7D00)within the range.

6.6.60. SW8_LOW_CHAN0 (Address 0xB2)

Bit	name	Read and write mode	default value	Functional Description
7	Reserved bits	R	B'0	Reserved bits
6:0	SW8_LOW_CHAN<14:8>	R W	B'001_1010	SWBand8The minimum frequency in 1KHz, the default value is6.78MHz （0x1A7C). The value of this register should be 1.75MHz (0x06D6)arrive 32MHz (0x7D00)within the range.

6.6.61. SW8_LOW_CHAN1 (Address 0xB3)

Bit	name	Read and write mode	default value	Functional Description
7:0	SW8_LOW_CHAN<7:0>	R W	0x7C	SWBand8The minimum frequency in 1KHz, the default value is6.78MHz （0x1A7C). The value of this register should be 1.75MHz (0x06D6)arrive 32MHz (0x7D00)within the range.

6.6.62. SW9_LOW_CHAN0 (Address 0xB4)

Bit	name	Read and write mode	default value	Functional Description
7	Reserved bits	R	B'0	Reserved bits
6:0	SW9_LOW_CHAN<14:8>	R W	B'010_0011	SWBand9The minimum frequency in 1KHz, the default value is9.15MHz （0x23BE). The value of this register should be 1.75MHz (0x06D6)arrive 32MHz (0x7D00)within the range.

6.6.63. SW9_LOW_CHAN1 (Address 0xB5)

Bit	name	Read and write mode	default value	Functional Description
7:0	SW9_LOW_CHAN<7:0>	R W	0xBE	SWBand9The minimum frequency in 1KHz, the default value is9.15MHz （0x23BE). The value of this register should be 1.75MHz (0x06D6)arrive 32MHz (0x7D00)within the range.

6.6.64. SW10_LOW_CHAN0 (Address 0xB6)

Bit	name	Read and write mode	default value	Functional Description
7	Reserved bits	R	B'0	Reserved bits

Bit	name	Read and write mode	default value	Functional Description
6:0	SW10_LOW_CHAN<14:8>	R W	B'010_1011	SWBand10The minimum frequency in 1KHz, the default value is11.1MHz （0x2B5C). The value of this register should be 1.75MHz (0x06D6)arrive 32MHz (0x7D00)within the range.

6.6.65. SW10_LOW_CHAN1 (Address 0xB7)

Bit	name	Read and write mode	default value	Functional Description
7:0	SW10_LOW_CHAN<7:0>	R W	0x5C	SWBand10The minimum frequency in 1KHz, the default value is11.1MHz （0x2B5C). The value of this register should be 1.75MHz (0x06D6)arrive 32MHz (0x7D00)within the range.

6.6.66. SW11_LOW_CHAN0 (Address 0xB8)

Bit	name	Read and write mode	default value	Functional Description
7	Reserved bits	R	B'0	Reserved bits
6:0	SW11_LOW_CHAN<14:8>	R W	B'011_0010	SWBand11The minimum frequency in 1KHz, the default value is13MHz （0x32C8). The value of this register should be 1.75MHz (0x06D6)arrive 32MHz (0x7D00)within the range.

6.6.67. SW11_LOW_CHAN1 (Address 0xB9)

Bit	name	Read and write mode	default value	Functional Description
7:0	SW11_LOW_CHAN<7:0>	R W	0xC8	SWBand11The minimum frequency in 1KHz, the default value is13MHz （0x32C8). The value of this register should be 1.75MHz (0x06D6)arrive 32MHz (0x7D00)within the range.

6.6.68. SW12_LOW_CHAN0 (Address 0xBA)

Bit	name	Read and write mode	default value	Functional Description
7	Reserved bits	R	B'0	Reserved bits
6:0	SW12_LOW_CHAN<14:8>	R W	B'011_1010	SWBand12The minimum frequency in 1KHz, the default value is14.85MHz （0x3A02). The value of this register should be 1.75MHz (0x06D6)arrive 32MHz (0x7D00)within the range.

6.6.69. SW12_LOW_CHAN1 (Address 0xBB)

Bit	name	Read and write mode	default value	Functional Description
7:0	SW12_LOW_CHAN<7:0>	R W	0x02	SWBand12The minimum frequency in 1KHz, the default value is14.85MHz （0x3A02). The value of this register should be

				1.75MHz (0x06D6)arrive 32MHz (0x7D00)within the range.

6.6.70. SW13_LOW_CHAN0 (Address 0xBC)

Bit	name	Read and write mode	default value	Functional Description
7	Reserved bits	R	B'0	Reserved bits
6:0	SW13_LOW_CHAN <14:8>	R W	B'100_0010	SWBand13The minimum frequency in 1KHz, the default value is17.05MHz （0x429A). The value of this register should be 1.75MHz (0x06D6)arrive 32MHz (0x7D00)within the range.

6.6.71. SW13_LOW_CHAN1 (Address 0xBD)

Bit	name	Read and write mode	default value	Functional Description
7:0	SW13_LOW_CHAN <7:0>	R W	0x9A	SWBand13The minimum frequency in 1KHz, the default value is17.05MHz （0x429A). The value of this register should be 1.75MHz (0x06D6)arrive 32MHz (0x7D00)within the range.

6.6.72. SW14_LOW_CHAN0 (Address 0xBE)

Bit	name	Read and write mode	default value	Functional Description
7	Reserved bits	R	B'0	Reserved bits
6:0	SW14_LOW_CHAN <14:8>	R W	B'101_0010	SWBand14The minimum frequency in 1KHz, the default value is21.15MHz （0x529E). The value of this register should be 1.75MHz (0x06D6)arrive 32MHz (0x7D00)within the range.

6.6.73. SW14_LOW_CHAN1 (Address 0xBF)

Bit	name	Read and write mode	default value	Functional Description
7:0	SW14_LOW_CHAN <7:0>	R W	0x9E	SWBand14The minimum frequency in 1KHz, the default value is21.15MHz （0x529E). The value of this register should be 1.75MHz (0x06D6)arrive 32MHz (0x7D00)within the range.

6.6.74. SW1_CHAN_NUM0 (Address 0xC0)

Bit	name	Read and write mode	default value	Functional Description
7:4	Reserved bits	R	0000	Reserved bits
3:0	SW1_CHAN_NUM< 11:8>	R W	0111	SWBand1The number of frequency points is SW1_CHAN_NUM<11:0>+ 1. SW1_CHAN_NUM<11:0> Set as 0, indicating that the sub-band has only one frequency point.

6.6.75. SW1_CHAN_NUM1 (Address 0xC1)

Bit	name	Read and write mode	default value	Functional Description
7:0	SW1_CHAN_NUM<7:0>	R W	0xD0	SWBand1The number of frequency points is SW1_CHAN_NUM<11:0> + 1. SW1_CHAN_NUM<11:0>is set to 0, indicating that this band has only one frequency point.

6.6.76. SW2_CHAN_NUM0 (Address 0xC2)

Bit	name	Read and write mode	default value	Functional Description
7:4	Reserved bits	R	0000	Reserved bits
3:0	SW2_CHAN_NUM<11:8>	R W	0111	SWBand2The number of frequency points is SW2_CHAN_NUM<11:0> + 1. SW2_CHAN_NUM<11:0>is set to 0, indicating that this band has only one frequency point.

6.6.77. SW2_CHAN_NUM1 (Address 0xC3)

Bit	name	Read and write mode	default value	Functional Description
7:0	SW2_CHAN_NUM<7:0>	R W	0xD0	SWBand2The number of frequency points is SW2_CHAN_NUM<11:0> + 1. SW2_CHAN_NUM<11:0>is set to 0, indicating that this band has only one frequency point.

6.6.78. SW3_CHAN_NUM0 (Address 0xC4)

Bit	name	Read and write mode	default value	Functional Description
7:4	Reserved bits	R	0000	Reserved bits
3:0	SW3_CHAN_NUM<11:8>	R W	0111	SWBand3The number of frequency points is SW3_CHAN_NUM<11:0> + 1. SW3_CHAN_NUM<11:0>is set to 0, indicating that this band has only one frequency point.

6.6.79. SW3_CHAN_NUM1 (Address 0xC5)

Bit	name	Read and write mode	default value	Functional Description
7:0	SW3_CHAN_NUM<7:0>	R W	0xD0	SWBand3The number of frequency points is SW3_CHAN_NUM<11:0> + 1. SW3_CHAN_NUM<11:0>is set to 0, indicating that this band has only one frequency point.

6.6.80. SW4_CHAN_NUM0 (Address 0xC6)

Bit	name	Read and write mode	default value	Functional Description
7:4	Reserved bits	R	0000	Reserved bits
3:0	SW4_CHAN_NUM<11:8>	R W	0001	SWBand4The number of frequency points is SW4_CHAN_NUM<11:0> + 1. SW4_CHAN_NUM<11:0>is set to 0, indicating that this band has only one frequency point.

6.6.81. SW4_CHAN_NUM1 (Address 0xC7)

Bit	name	Read and write mode	default value	Functional Description
7:0	SW4_CHAN_NUM<7:0>	R W	0x04	SWBand4The number of frequency points is SW4_CHAN_NUM<11:0> + 1. SW4_CHAN_NUM<11:0>is set to 0, indicating that this band has only one frequency point.

6.6.82. SW5_CHAN_NUM0 (Address 0xC8)

Bit	name	Read and write mode	default value	Functional Description
7:4	Reserved bits	R	0000	Reserved bits
3:0	SW5_CHAN_NUM<11:8>	R W	0000	SWBand5The number of frequency points is SW5_CHAN_NUM<11:0> + 1. SW5_CHAN_NUM<11:0>is set to 0, indicating that this band has only one frequency point.

6.6.83. SW5_CHAN_NUM1 (Address 0xC9)

Bit	name	Read and write mode	default value	Functional Description
7:0	SW5_CHAN_NUM<7:0>	R W	0x96	SWBand5The number of frequency points is SW5_CHAN_NUM<11:0> + 1. SW5_CHAN_NUM<11:0>is set to 0, indicating that this band has only one frequency point.

6.6.84. SW6_CHAN_NUM0 (Address 0xCA)

Bit	name	Read and write mode	default value	Functional Description
7:4	Reserved bits	R	0000	Reserved bits
3:0	SW6_CHAN_NUM<11:8>	R W	0001	SWBand6The number of frequency points is SW6_CHAN_NUM<11:0> + 1. SW6_CHAN_NUM<11:0>is set to 0, indicating that this band has only one frequency point.

6.6.85. SW6_CHAN_NUM1 (Address 0xCB)

Bit	name	Read and write mode	default value	Functional Description
7:0	SW6_CHAN_NUM<7:0>	R W	0x04	SWBand6The number of frequency points is SW6_CHAN_NUM<11:0> + 1. SW6_CHAN_NUM<11:0>is set to 0, indicating that this band has only one frequency point.

6.6.86. SW7_CHAN_NUM0 (Address 0xCC)

Bit	name	Read and write mode	default value	Functional Description
7:4	Reserved bits	R	0000	Reserved bits
3:0	SW7_CHAN_NUM<11:8>	R W	0000	SWBand7The number of frequency points is SW7_CHAN_NUM<11:0> + 1. SW7_CHAN_NUM<11:0>is set to 0, indicating that this band has only one frequency point.

6.6.87. SW7_CHAN_NUM1 (Address 0xCD)

Bit	name	Read and write mode	default value	Functional Description
7:0	SW7_CHAN_NUM<7:0>	R W	0xD2	SWBand7The number of frequency points is SW7_CHAN_NUM<11:0> + 1. SW7_CHAN_NUM<11:0>is set to 0, indicating that this band has only one frequency point.

6.6.88. SW8_CHAN_NUM0 (Address 0xCE)

Bit	name	Read and write mode	default value	Functional Description
7:4	Reserved bits	R	0000	Reserved bits
3:0	SW8_CHAN_NUM<11:8>	R W	0000	SWBand8The number of frequency points is SW8_CHAN_NUM<11:0> + 1. SW8_CHAN_NUM<11:0>is set to 0, indicating that this band has only one frequency point

6.6.89. SW8_CHAN_NUM1 (Address 0xCF)

Bit	name	Read and write mode	default value	Functional Description
7:0	SW8_CHAN_NUM<7:0>	R W	0xCC	SWBand8The number of frequency points is SW8_CHAN_NUM<11:0> + 1. SW8_CHAN_NUM<11:0>is set to 0, indicating that this band has only one frequency point.

6.6.90. SW9_CHAN_NUM0 (Address 0xD0)

Bit	name	Read and write mode	default value	Functional Description
7:4	Reserved bits	R	0000	Reserved bits
3:0	SW9_CHAN_NUM<11:8>	R W	0000	SWBand9The number of frequency points is SW9_CHAN_NUM<11:0> + 1. SW9_CHAN_NUM<11:0>is set to 0, indicating that this band has only one frequency point.

6.6.91. SW9_CHAN_NUM1 (Address 0xD1)

Bit	name	Read and write mode	default value	Functional Description
7:0	SW9_CHAN_NUM<7:0>	R W	0xE6	SWBand9The number of frequency points is SW9_CHAN_NUM<11:0> + 1. SW9_CHAN_NUM<11:0>is set to 0, indicating that this band has only one frequency point.

6.6.92. SW10_CHAN_NUM0 (Address 0xD2)

Bit	name	Read and write mode	default value	Functional Description
7:4	Reserved bits	R	0000	Reserved bits
3:0	SW10_CHAN_NUM<11:8>	R W	0001	SWBand10The number of frequency points is SW10_CHAN_NUM<11:0> + 1. SW10_CHAN_NUM<11:0> Set for0, indicating that this band has only one frequency point.

6.6.93. SW10_CHAN_NUM1 (Address 0xD3)

Bit	name	Read and write mode	default value	Functional Description
7:0	SW10_CHAN_NUM<7:0>	R W	0x04	SWBand10The number of frequency points is SW10_CHAN_NUM<11:0> + 1. SW10_CHAN_NUM<11:0> Set for0, indicating that this band has only one frequency point.

6.6.94. SW11_CHAN_NUM0 (Address 0xD4)

Bit	name	Read and write mode	default value	Functional Description
7:4	Reserved bits	R	0000	Reserved bits
3:0	SW11_CHAN_NUM<11:8>	R W	0001	SWBand11The number of frequency points is SW11_CHAN_NUM<11:0> + 1. SW11_CHAN_NUM<11:0> Set for0, indicating that this band has only one frequency point.

6.6.95. SW11_CHAN_NUM1 (Address 0xD5)

Bit	name	Read and write mode	default value	Functional Description
7:0	SW11_CHAN_NUM<7:0>	R W	0x04	SWBand11The number of frequency points is SW11_CHAN_NUM<11:0> + 1. SW11_CHAN_NUM<11:0> Set for0, indicating that this band has only one frequency point.

6.6.96. SW12_CHAN_NUM0 (Address 0xD6)

Bit	name	Read and write mode	default value	Functional Description
7:4	Reserved bits	R	0000	Reserved bits
3:0	SW12_CHAN_NUM<11:8>	R W	0000	SWBand12The number of frequency points is SW12_CHAN_NUM<11:0> + 1. SW12_CHAN_NUM<11:0> Set for0, indicating that this band has only one frequency point.

6.6.97. SW12_CHAN_NUM1 (Address 0xD7)

Bit	name	Read and write mode	default value	Functional Description
7:0	SW12_CHAN_NUM<7:0>	R W	0xE6	SWBand12The number of frequency points is SW12_CHAN_NUM<11:0> + 1. SW12_CHAN_NUM<11:0>is set to 0, indicating that this band has only one frequency point

6.6.98. SW13_CHAN_NUM0 (Address 0xD8)

Bit	name	Read and write mode	default value	Functional Description
7:4	Reserved bits	R	0000	Reserved bits
3:0	SW13_CHAN_NUM<11:8>	R W	0000	SWBand13The number of frequency points is SW13_CHAN_NUM<11:0> + 1. SW13_CHAN_NUM<11:0>is set to 0, indicating that this band has only one frequency point.

6.6.99. SW13_CHAN_NUM1 (Address 0xD9)

Bit	name	Read and write mode	default value	Functional Description
7:0	SW13_CHAN_NUM<7:0>	R W	0xFA	SWBand13The number of frequency points is SW13_CHAN_NUM<11:0> + 1. SW13_CHAN_NUM<11:0> Set for0, indicating that this band has only one frequency point.

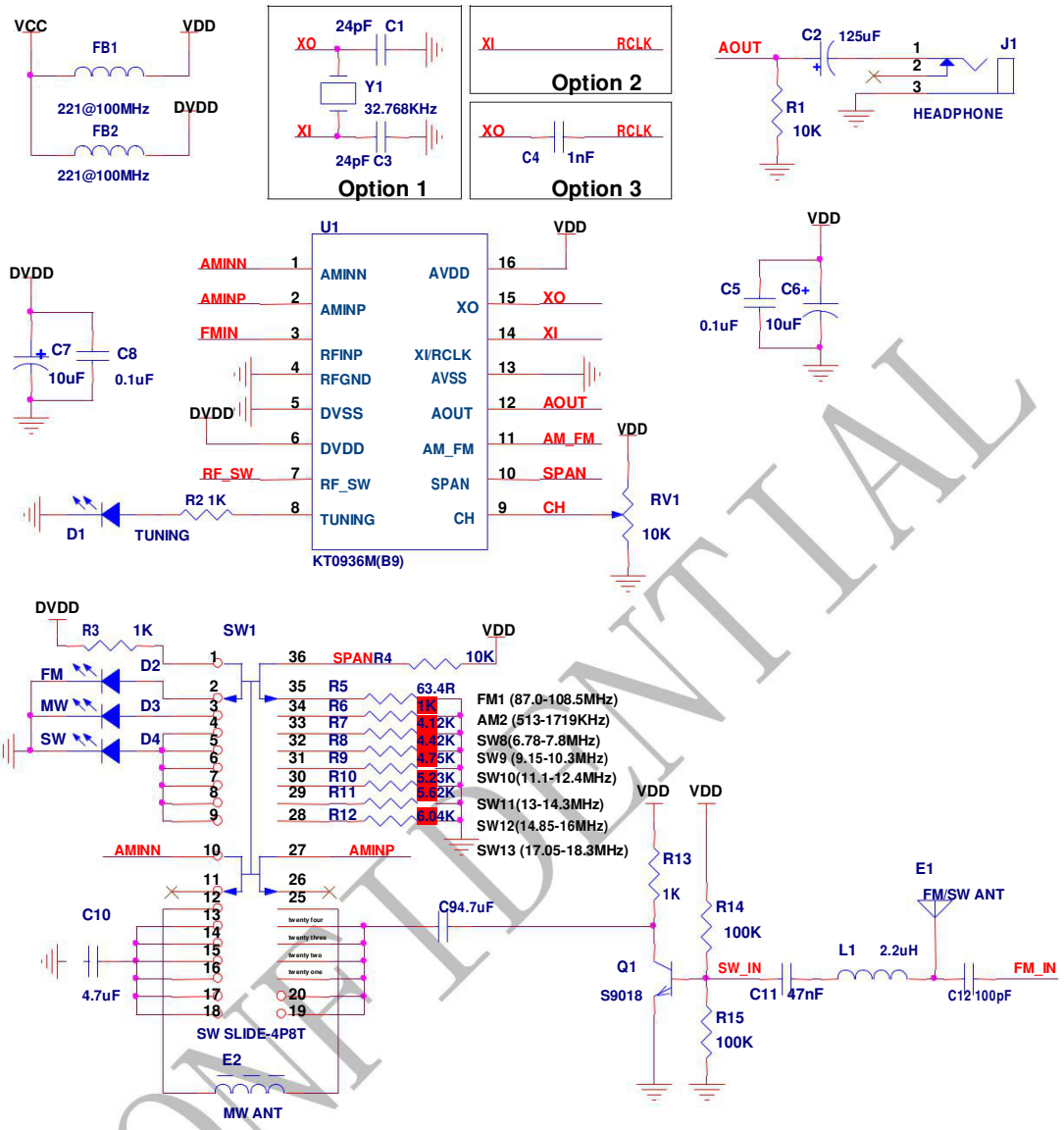
6.6.100. SW14_CHAN_NUM0 (Address 0xDA)

Bit	name	Read and write mode	default value	Functional Description
7:4	Reserved bits	R	0000	Reserved bits
3:0	SW14_CHAN_NUM<11:8>	R W	0000	SWBand14The number of frequency points is SW14_CHAN_NUM<11:0> + 1. SW14_CHAN_NUM<11:0>is set to 0, indicating that this band has only one frequency point.

6.6.101. SW14_CHAN_NUM1 (Address 0xDB)

Bit	name	Read and write mode	default value	Functional Description
7:0	SW14_CHAN_NUM<7:0>	R W	0xE6	SWBand14The number of frequency points is SW14_CHAN_NUM<11:0> + 1. SW14_CHAN_NUM<11:0> Set for0, indicating that this band has only one frequency point.

7.References

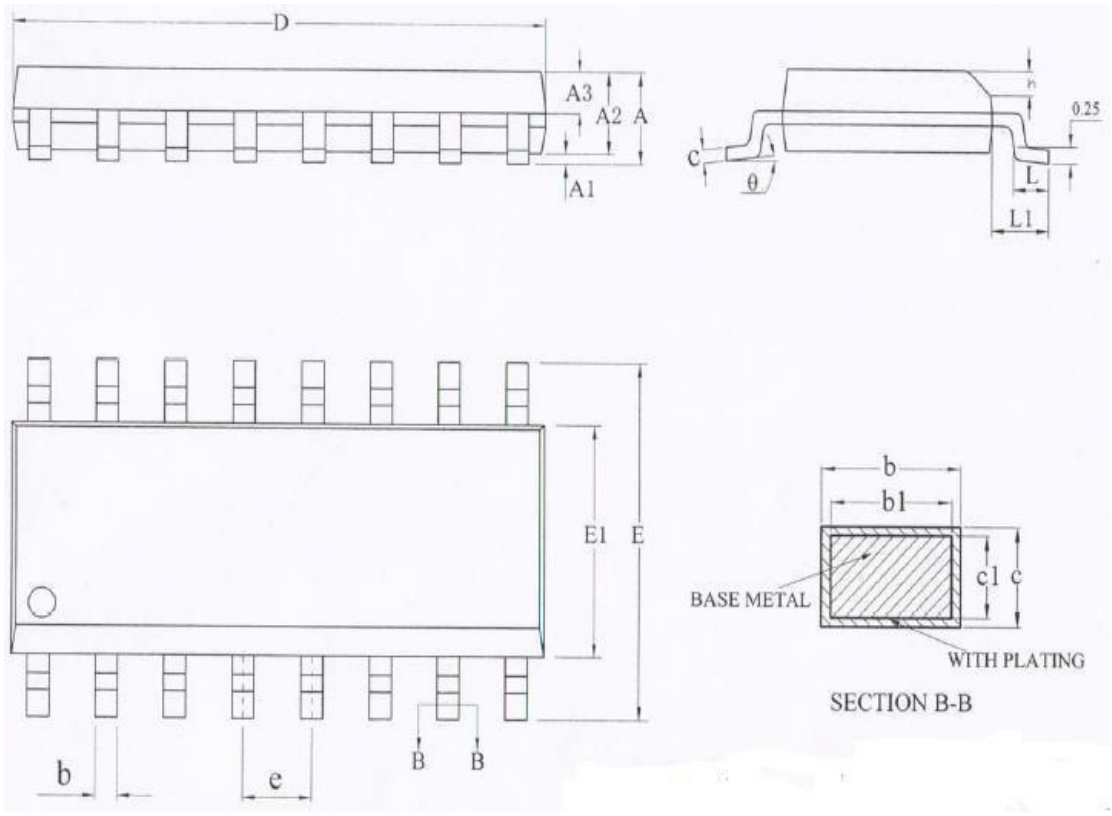


picture4:Typical application circuit

Components	describe	Parameter Value
C1,C4	Crystal oscillator capacitor	24pF
C2,C7	Decoupling capacitors	0.1uF
C3,C6	Decoupling capacitors	10uF
C5	AC coupling capacitor	125uF
C8,C9	AC coupling capacitor	4.7uF
C10	SWInput filter	47nF
C11	AC coupling capacitor	100F
D1	Channel indicator light	led
D2	FMIndicator Lights	led
D3	MWIndicator Lights	led
D4	SWIndicator Lights	led
E1	FM/SWantenna	FM/SWantenna
E2	MWFerrite Rod Antenna	420uH
F1,FB2	Magnetic beads	221@100MHz
J1	Headphone jack	

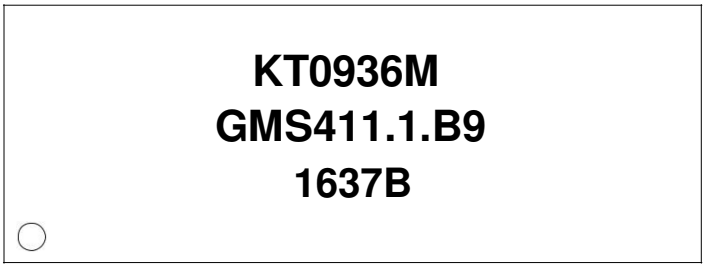
L1	SWInput filter	2.2uH
Q1	SWLow Noise Amplifier	S9018
RV1	Variable resistor	1Kohm
RV2	Variable resistor	10Kohm
R1	Resistors	10Kohm
R2,R3,R13	Resistors	1Kohm
R4	Resistors for switching bands	10Kohm (1%)
R5	Resistors for switching bands	63.4ohm (1%)
R6	Resistors for switching bands	1Kohm (1%)
R7	Resistors for switching bands	4.12Kohm (1%)
R8	Resistors for switching bands	4.42Kohm (1%)
R9	Resistors for switching bands	4.75Kohm (1%)
R10	Resistors for switching bands	5.23Kohm (1%)
R11	Resistors for switching bands	5.62Kohm (1%)
R12	Resistors for switching bands	6.04Kohm (1%)
R14,R15	Resistors	100Kohm
SW1	Band switch	4knife8Throw switch
U1	FM/LW/MW/SWReceiver	KT0936M(B9)
Y1	Crystal	32.768KHz

8.Package size



symbol	Millimeters			symbol	Millimeters		
	Minimum value	typical value	maximum value		Minimum value	Typical Value	maximum value
A			1.75	D	9.70	9.90	10.10
A1	0.10		0.25	E	5.80	6.00	6.20
A2	1.30	1.40	1.50	E1	3.70	3.90	4.10
A3	0.60	0.65	0.70	e		1.27BSC	
b	0.39		0.48	h	0.25		0.50
b1	0.38	0.41	0.43	L	0.50		0.80
c	0.21		0.26	L1		1.05BSC	
C1	0.19	0.20	0.21	θ	0		8°

9.Package silk screen



Mark Method	YAG Laser	
Line 1 Marking	Device ID	KT0936M
Line 2 Marking	LOT Number	GMS411.1.B9
Line 3 Marking	Year Work week Manufacturing code	16 37 B

10.Ordering Guide

model	describe	Encapsulation	Minimum order quantity quantity
KT0936M （B9）	Third Generation Fully Integrated Global Band FM/LW/MW/SWRadio chip	SOP16, lead-free	3000 pcs

11.History

V1.0 First release

V1.1 Modify register table

V2.0 Modified to apply toKT0936M(9A)version.

V2.1 Modified2partRF_SWandAM_FMPin Description, p.6.3partAM_FMlead Description of the foot function. Modify0x88Description of the register. Register namingONLY_FM_DISChange to ONLY_FM1_DIS.

V2.2Modified to apply toKT0936M(B9)Modified the version of2partAM_FMPin Description, p.3.4Part description, 6.3partAM_FMDescription of pin functions. Modified Table9,surface 10,surface12,picture3.Revise0x4FRegister description. Modified the band resistance value in the typical application circuit. Added package silkscreen description.

【CAUTION】

The specifications on this databook are only given for information, without any guarantee as regards either mistakes or omissions. The application circuits in this databook are described only to show representative usages of the product and not intended for the guarantee or permission of any right including the industrial rights.