KTMicro **Fully integrated hand-tune pointer FM / LW / MW / SW Radio chip**

Radio-on-a-Chip ™

KT0936M (B9)

• Features

Full-band single-chip solution

Built-in MCU

Support mechanical knobs transfer station

Support global wavelength 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

High reliability

Noise ratio (FM / AM): 58dB / 55dB (No external filters) Total Harmonic Distortion: 0.3%

Low power consumption

Typical operating current value 29mA

Integrated transfer station indicator

Sensitivity threshold and hysteresis can be customized

Auto Mute

When the received signal is deteriorated can be automatically reduced volume

Low operating voltage

2.1V ~ 3.6V , Using two AAA Battery

Built-in crystal oscillator circuit

stand by 32.768KHz with 38KHz Crystal

Support flexible reference clock

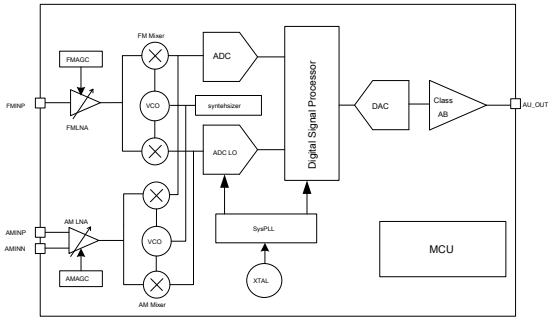
From the reference clock 30KHz To 40MHz use 1Hz Stepping can support

SOP16L Package in line

with RoHS standard

• Applications

Portable radios, clock radios, mini-stereo, radio, and other hand-tune the campus radio applications



KT0936M Internal block diagram

• Overall description

KT0936M Quantum Microelectronics is the third generation of independent intellectual property products, it is a fully integrated FM / LW / MW / SW Products that can support mechanical adjustment knob station. Its main feature is to first transfer station can already feel the improvement after PVC Comparable program. Secondly, KT0936M With a further transfer station indicator, improved EMI / EMC Characteristics, sensitivity was good flatness improvement. Finally, due to the improved anti-jamming capability, LW with MW The antenna arrangement may also be more flexible.

As a result of the advanced architecture, KT0936M We can provide a quality user experience, including high sensitivity, high signal to noise ratio, low distortion and high anti-jamming capability.

KT0936M It requires only a simple external circuit may be a mechanical knob for manual transfer station, no external MCU . In use KT0936M When the need to use EEPROM To work, at the same time KT0936M Also supports additional EEPROM In order to meet customer application.

version V2.2

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1. Electrical Characteristics

table 1 : Working conditions

parameter	symbol	Test Conditions	Min	Typ	Max	unit
voltage	AVDD	Analog ground	2.1	3.3	3.6	V
Digital Supply Voltage	DVDD	Analog ground	2.1	3.3	3.6	V
Ambient temperature	Ta		--30	25	70	℃

table 2 : Maximum Ratings

parameter	symbol	Typical values	unit
voltage	AVDD	- 0.5 to 3.9	V
digital I / O voltage	DVDD	- 0.5 to 3.9	V
Input Current	I_{IN}	10	mA
Input voltage	V_{IN}	- 0.3 to (V_{IO} + 0.3)	V
RF input level		0.7	V_{PK}

Note:

1. Exceeding the maximum ratings may cause damage to the equipment.
2. Operation Restriction function should be specified in accordance with the data table, a long time exceeding the operating conditions may affect device reliability.
3. SPAN Pin.

table 3 : DC Characteristics

(In addition there are other statements are considered Ta = - 30 to 70 ℃, AVDD = DVDD = 2.1V to 3.6 V)

parameter		symbol	Test Conditions	Min	Typ	Max	Units
Working current	FM mode	I_{FM}		-	30	-	mA
	MW mode	I_{MW}			29		mA
	SW mode	I_{SW}			29		mA

table 4 : FM Reception characteristics

(In addition there are other statements are considered Ta = - 30 to 70 ℃, AVDD = DVDD = 2.1V to 3. 6V)

parameter	symbol	Test Conditions	Min	Typ	Max	unit
FM Frequency Range	F_{rx}		32		110	MHz
Sensitivity 1,2,3	Sen	(S + N) / N = 26dB		1.6	2	uVemf
IIP3 4,5	IIP3			85		dBuVEMF
Adjacent Channel Selectivity		± 200KHz	40		51	dB
Adjacent channel selectivity secondary channel		± 400KHz	50		70	dB
Image Rejection				43		dB
AM inhibition				50		dB
Reference Clock			30	32.768	40,000	KHz
Reference clock accuracy 8			--100		100	ppm
Audio output amplitude 1,2,4,6,7		32ohm load	-	345	-	mV_{RMS}
Frequency response 1,2,4		± 3dB	30		15k	Hz
Mono SNR 1,2,3,4		Without filter	55	58		dB
Total harmonic distortion 1,2,4,6				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, 75us De-emphasis

2. MONO = 1
3. ▵ F = 22.5KHz
4. V_{EMF} = 1mV, Frx = 32MHz ~ 110MHz
5. RFAGCD = 1
6. ▵ F = 75KHz
7. VOLUME <4: 0> = 11111
8. Reference clock discontinuous specifically described with reference to application
9. ▵ F = 75KHz

table 5 : MW Reception characteristics

(In addition there are other statements are considered Ta = - 30 to 70 ℃, AVDD = DVDD = 2.1V to 3. 6V)

parameter	symbol	Test Conditions	Min	Typ	Max	unit
MW Frequency Range	F_{rx}		500		1750	KHz
Sensitivity 1,2	Sen	(S + N) / N = 20dB		16		uVemf
The audio output voltage 1,3,4,5		32ohm load		360		mV_{RMS}
Mono SNR 1,2,3,4		Without filter		55	62	dB
Total harmonic distortion 1,2,4				0.3	0.6%	
Antenna tuning inductance	L		360	-	620	uH

Note:

1. FMOD = 1KHz
2. Modulation depth 30%
3. V_{EMF} = 1mV, Frx = 500KHz ~ 1750KHz
4. VOLUME <4: 0> = 11111
5. Modulation depth 80%

table 6 : LW Reception characteristics

(In addition there are other statements are considered Ta = - 30 to 70 ℃, AVDD = DVDD = 2.1V to 3. 6V)

parameter	symbol	Test Conditions	Min	Typ	Max	unit
LW Frequency Range	F_{rx}		150		520	KHz
Sensitivity 1,2	Sen	(S + N) / N = 20dB		16		uVemf
The audio output voltage 1,3,4,5		32ohm load		360		mV_{RMS}
Mono SNR 1,2,3,4		Without filter		55	62	dB
Total harmonic distortion 1,2,4				0.3	0.6%	
Antenna tuning inductance	L		4.1	-	7	mH

Note:

6. FMOD = 1KHz
7. Modulation depth 30%
8. V_{EMF} = 1mV, Frx = 150KHz ~ 520KHz
9. VOLUME <4: 0> = 11111
10. Modulation depth 80%

table 7 : SW Reception characteristics

(In addition there are other statements are considered Ta = - 30 to 70 ℃, AVDD = DVDD = 2.1V to 3. 6V)

parameter	symbol	Test Conditions	Min	Typ	Max	unit
SW Frequency Range	F_{rx}		1.75		32	MHz
Sensitivity 1,2,3	Sen	(S + N) / N = 20dB		13		uVemf
The output voltage 2,4,5,6		32ohm load		360		mV_{RMS}
Mono SNR 2,3,4,5		Without filter		55	62	dB
Total harmonic distortion, 3,4,5				0.3	0.6%	

Note:

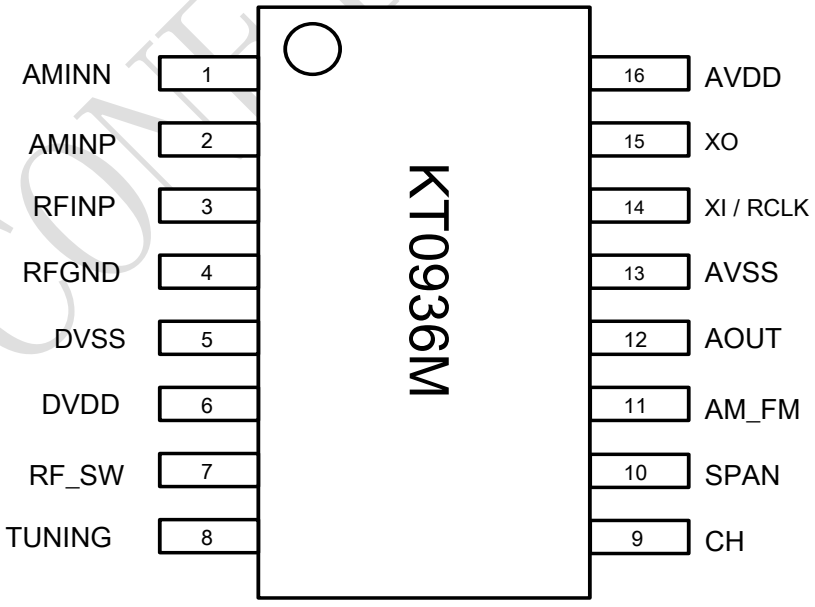
1. Additional LNA
2. FMOD = 1KHz
3. Modulation depth 30%

4. V_{EMF} = 1mV
5. VOLUME <4: 0> = 11111
6. Modulation index 80%

2. Pin Description

table 8 : Pin Description

Pin order Pin Name	I / O Type Description		
1	AMINN simulation		MW with LW Antenna negative input
2	AMINP simulation		MW with LW The positive electrode antenna input
3	RFINP	RF Entry RF input	
4	RFGND RF Ground		RF ground
5	DVSS	Digital Ground Digital Ground	
6	DVDD Digital Power		
7	RF_SW digital I / O Features 1 : RF circuit switching control pin.		Features 2 : Access to external EEPROM As the data pins (Integrated 47Kohm Pull-up resistor).
8	TUNING Digital Output Effective Taiwan instructions		
9	CH	Analog Input Frequency control pin	
10	SPAN	Analog Input Band switching control	
11	AM_FM digital I / O default 47Kohm Pull-up resistor.		Features 1 : For switching softmute effect. Features 2 : Keys for switching between bands. Features 3 : A fluctuation band switching. Features 4 : Access to external EEPROM As clock pins.
12	AOUT	Analog Output Audio output	
13	AVSS	Analog ground Analog ground	
14	XI / RCLK simulation I / O Crystal		
15	XO	simulation I / O Crystal	
16	AVDD Analog Power		



Map 1 : KT0936M FIG pins (top view)

3. Functional Description

3.1. Outline

KT0936M Is a single chip a full wavelength range FM / LW / MW / SW Radio solutions. Greatly simplifying the peripheral circuits, and may provide a variety of different configurations to achieve personalized design.

3.2. FM receiver

KT0936M of FM The receiver is based on KT Micro The third collection has been mass-produced sound chip. KT0936M Need no external frequency adjustment circuit or a filter. The architecture includes a fully integrated low noise amplifier, an automatic gain control (AGC), A series of high-performance ADC High performance analog and digital filters and a low noise automatic tuning sheet VCO . Simultaneously, KT0936M Also built high stability Class-AB Operational amplifiers, audio amplifiers do not need an increase in the chip.

3.3. AM receiver

KT0936M of AM Receiver support LW , MW , SW The wavelength range. for LW The receiver is supported from 150KHz To 520KHz In the frequency range 1 Arbitrary band and can be equipped 1 Fixed LW Band. its LW The receiver may 150KHz To 520KHz Provide accurate and automatically tuning an antenna, no manual adjustment of frequency within the range. Its value can be taken up in the ferrite antenna 4.1mH To 7mH between.

for MW The receiver is supported from 500KHz To 1750KHz The frequency range of 2 Arbitrary band and can be equipped 2 Fixed MW Band. its MW The receiver may 500KHz To 1750KHz Provide accurate and automatically tuning an antenna, no manual adjustment of frequency within the range. Its value can be taken up in the ferrite antenna 360uH To 620uH between.

for SW The receiver is supported from 1.75MHz To 32MHz In the frequency range 14 Arbitrary band and can be equipped 36 Fixed SW Band.

AM The receiver bandwidth filter may be provided by a register FLT_SEL <2: 0> Set from 1.2KHz To 6KHz In order to adapt to different customer needs.

3.4. Working band

KT0936M stand by 4 More FM Band, 4 More MW Band, 2 More LW Band and 50 More SW Band. FM The receiver frequency range covered from 32MHz To 110MHz . FM1 with FM2 Band frequency range can register FMi_LOW_CHAN <11: 0> with FMi_CHAN_NUM <11: 0> Set up, which i = 1 or 2 . FMi_LOW_CHAN <11: 0> Used to set the start frequency band, FMi_CHAN_NUM <11: 0> Number of stations to set the band (the total number of stations is reduced in this register 1). KT0936M stand by 3 Different FM Channel stepping, 50KHz , 100KHz with 200KHz . Through a separate configuration register FMi_SPACE <1: 0> Implementation, (which i = 1 or 2) . FM3 with FM4 Fixed frequency range and step, can not EEPROM Configuration.

MW Band frequency range can register MWi_LOW_CHAN <10: 0> with MWi_CHAN_NUM <11: 0> Set up, at the same time MW Band channel separate registers step by MWi_SPACE <1: 0> To set 1KHz , 9KHz or 10KHz (among them i = 1 or 2) .

MWi_LOW_CHAN <10: 0> Used to set the start frequency band, MWi_CHAN_NUM <11: 0>

Number of stations to set the band (the total number of stations is reduced in this register 1). MW3 with MW4 Fixed frequency range and step, can not EEPROM Configuration.

LW Bands LW2 Frequency range may register by MW2_LOW_CHAN <10: 0> with M W2_CHAN_NUM <11: 0> Set up, at the same time LW2 Stepping through channels separate registers MW2_SPACE <1: 0> To set 1KHz , 9KHz or 10KHz . Note that when the MW2_LOW _CHAN <10: 0> with MW2_CHAN_NUM <11: 0> Configured to LW When the wavelength range, must be avoided MW2 Band.

SW Bands SW1-SW14 The frequency range may be provided by register SWi_LOW_CHAN <14: 0> with SWi_CHAN_NUM <11: 0> (among them i = 1 , 2 , ... 14) And stepping through the channel configuration register SW_SPACE <1: 0> Set to 1KHz , 5KHz , 9KHz or 10KHz . and S W15-SW50 Fixed frequency range, can not be EEPROM Configuration.

table 9 : The default configuration of the list Band

	no EEPROM					
	Original drop noise(AM_FM High)			New Noise (AM_FM for low)		
	Start Frequency	Stop frequency	Stepping	Start frequency	stop frequency	step
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

table 10 : EEPROM It can be equipped with a list of bands

	Have EEPROM (Note 3)		
	Start Frequency	Stop frequency	Stepping
FM1	Can be equipped	Can be equipped	Can be equipped
FM2	Can be equipped	Can be equipped	Can be equipped
FM3	63.5MHz	108.5MHz	100KHz
FM4	69.5MHz	108.5MHz	100KHz
MW1	4. Can be equipped	5. Can be equipped	6. Can be equipped
MW2	Can be equipped	Can be equipped	Can be equipped
MW3	510KHz	1630KHz	10KHz
MW4	510KHz	1720KHz	10KHz
LW1	150KHz	282KHz	1KHz
LW2	It can be equipped with (note 1)	It can be equipped with (note 1)	It can be equipped with (note 1)
SW1	Can be equipped	Can be equipped	Can be equipped
SW2	Can be equipped	Can be equipped	Can be equipped

SW3	Can be equipped	Can be equipped	Can be equipped
SW4	Can be equipped	Can be equipped	Can be equipped
SW5	Can be equipped	Can be equipped	Can be equipped
SW6	Can be equipped	Can be equipped	Can be equipped
SW7	Can be equipped	Can be equipped	Can be equipped
SW8	Can be equipped	Can be equipped	Can be equipped
SW9	Can be equipped	Can be equipped	Can be equipped
SW10	Can be equipped	Can be equipped	Can be equipped
SW11	Can be equipped	Can be equipped	Can be equipped
SW12	Can be equipped	Can be equipped	Can be equipped
SW13	Can be equipped	Can be equipped	Can be equipped
SW14	Can be equipped	Can be equipped	Can be equipped
SW15	2.25MHz	10.05MHz	It can be equipped with (note 2)
SW16	2.3MHz	2.49MHz	It can be equipped with (note 2)
SW17	3.2MHz	7.6MHz	It can be equipped with (note 2)
SW18	3.2MHz	3.4MHz	It can be equipped with (note 2)
SW19	3.15MHz	10.05MHz	It can be equipped with (note 2)
SW20	3.9MHz	4MHz	It can be equipped with (note 2)
SW21	3.65MHz	12.55MHz	It can be equipped with (note 2)
SW22	4.75MHz	5.06MHz	It can be equipped with (note 2)
SW23	3.9MHz	7.5MHz	It can be equipped with (note 2)
SW24	5.6MHz	6.4MHz	It can be equipped with (note 2)
SW25	5.55MHz	22.05MHz	It can be equipped with (note 2)
SW26	5.95MHz	6.2MHz	It can be equipped with (note 2)
SW27	5.75MHz	12.15MHz	It can be equipped with (note 2)
SW28	6.8MHz	7.6MHz	It can be equipped with (note 2)
SW29	5.9MHz	9.5MHz	It can be equipped with (note 2)
SW30	7.1MHz	7.6MHz	It can be equipped with (note 2)
SW31	5.85MHz	18.05MHz	It can be equipped with (note 2)
SW32	9.2MHz	10MHz	It can be equipped with (note 2)
SW33	6.95MHz	16.05MHz	It can be equipped with (note 2)
SW34	11.45MHz	12.25MHz	It can be equipped with (note 2)
SW35	6.95MHz	23.05MHz	It can be equipped with (note 2)
SW36	11.6MHz	12.2MHz	It can be equipped with (note 2)
SW37	8.95MHz	16.05MHz	It can be equipped with (note 2)
SW38	13.4MHz	14.2MHz	It can be equipped with (note 2)
SW39	8.95MHz	22.05MHz	It can be equipped with (note 2)
SW40	13.57MHz	13.87MHz	It can be equipped with (note 2)
SW41	9.45MHz	18.05MHz	It can be equipped with (note 2)
SW42	15MHz	15.9MHz	It can be equipped with (note 2)
SW43	9.95MHz	16.05MHz	It can be equipped with (note 2)
SW44	17.1MHz	18MHz	It can be equipped with (note 2)
SW45	9.95MHz	22.05MHz	It can be equipped with (note 2)
SW46	17.48MHz	17.9MHz	It can be equipped with (note 2)
SW47	12.95MHz	18.05MHz	It can be equipped with (note 2)
SW48	21.2MHz	22MHz	It can be equipped with (note 2)
SW49	17.95MHz	28.55MHz	It can be equipped with (note 2)

SW50	21.45MHz	21.85MHz	It can be equipped with (note 2)

Note 1 : LW2 The wavelength range by the MW2 The decision of the relevant register, use LW2 versus MW2 need

2 selected 1

Note 2 : SW In the band there EEPROM When can rewrite (50 Shortwave bands Altogether With a step band), but if a non-rewritable 5KHz

Stepping it SW15-SW50 Band stop frequency becomes (total number of change).

Note 3: without using external EEPROM, and AM_FM tied low, as a new noise reduction effect; AM_FM pin high when, for the original noise reduction effect. A case where an external EEPROM, the noise reduction effect is determined by the configuration register.

6.1. And reference clock oscillator

KT0936M A low frequency crystal oscillator integrated circuit and to be supported 32.768KHz or 38KHz Crystals. By register RCLK_EN Set to 1 And setting registers according to the frequency of the external reference clock FPFD <19: 0> , KT0936M You can use COMS Electric external reference clock level. register

FPFD <19: 0> The unit is 1 / 16Hz The frequency value. To clearly illustrate use of these bits, the table 11 error! Reference source not found. Some examples are given.

table 11 :different crystal Or the reference clock Examples of use

	RCLK_EN	FPFD <19:16>	FPFD <15: 0>	DIVIDERP <10: 0>	DIVIDERN <10: 0>
32768Hz Crystal	0	0x08	0x0000	0x0001	0x029C
38KHz Crystal	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. Mode as the control knob and band control channel

KT0936M Support the unique knob pattern, its application circuit 4 Fig.

KT0936M Knob function is to connect by sliding contact of the variable resistor to achieve up to the IC, KT0936M Built-in ADC It may be measured on both sides of the resistance ratio of the variable resistor contacts, and maps the result to the control parameter, in order to adjust the channel frequencies and bands.

By setting register CH_PIN <1: 0> Put 2b'10 , The channel controller enters knob mode, as shown in a schematic circuit 2 Fig. If the sliding contact of the variable resistor on a white area, the frequency of the received channel can be calculated as follows:

$f_{tune} = \frac{f_{top} - f_{bot} - 2 \times N_{guard} \times f_{step}}{f_{step}} \times f_{step} + f_{bot}$

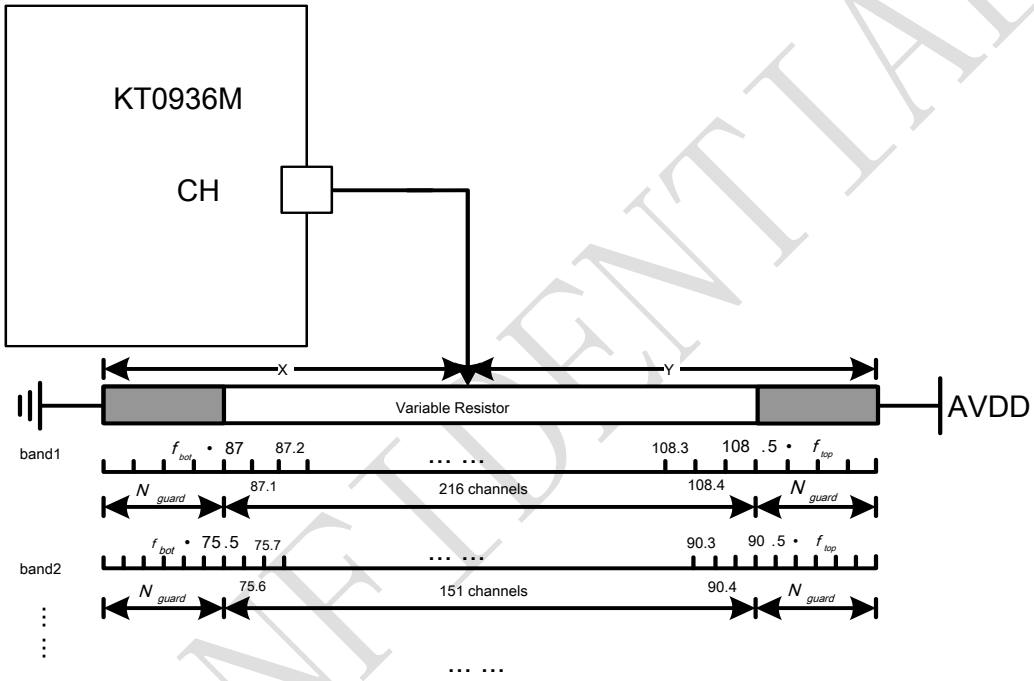
f_{step} Is a channel stepper, the register may be formed FM1_SPACE <1: 0> , FM2_SPACE <1: 0> , MW1_SPACE among them

<1: 0> , MW2_SPACE <1: 0> with SW_SPACE <1: 0> Set.

f_{top} It is the upper limit of the frequency band, f_{bot} The lower limit of the frequency band, N_{guard} For avoiding potentiometer

Due to mechanical reasons it can not be adjusted such that end points of the protection parameters can not be set in the radio receiving portion.

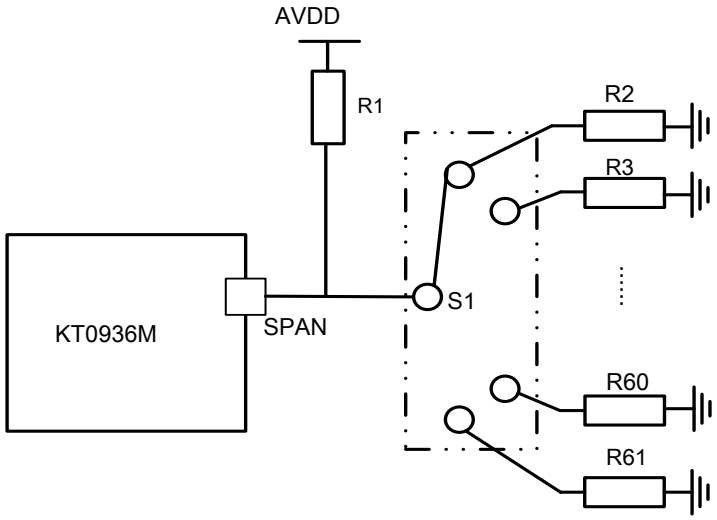
Each band N_{guard} Parameter can be set individually following registers: FM1_GUARD <7: 0> , FM 2_GUARD <7: 0> , MW1_GUARD <7: 0> , MW2_GUARD <7: 0> as well as SW_GUARD <7: 0> to realise. When the sliding contacts are transferred to the gray zone, it is maintained at the reception frequency to a frequency or upper frequency limit. have to be aware of is: MW3 , MW4 , SW15-50 , LW1 of GUARD Are fixed 5 , Not adjustable. LW2 of GUARD by MW2_GUARD <7: 0> Decision.



Map 2 : CH Pin manual knob is configured to transfer station

KT0936M In the band set by the knob mode register SPAN_PIN <1: 0> for

2b'10 Band switching is achieved, the application circuit in FIG. 3 Fig. Table resistor band selection 12 Fig.



Map 3 : SPAN Pin band switching function configured

recommended KT0936M (B9) Resistance bands R1 use 10Kohm Accuracy 1% ,resistance R2 ~ R61

The values in Table 12 Fig.

table 12 : List of resistance band

Wave band	Resistance (Accuracy 1%)
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
SW47	169Kohm
SW48	243Kohm
SW49	422Kohm
SW50	1000Kohm

6.3. AM_FM Pin

KT0936M of AM_FM have 4 Function can be used to switch softmute Effect, or fluctuation of the key switch for the band, and access to external EEPROM .

Features 1 : If you do not add EEPROM This pin is used softmute Effect switch. AM_FM Pin is high (chip built 47Kohm When the pull-up resistor) KT0936M Work in the original noise reduction (softmute) Effect, is the low level of new work in noise reduction (softmute)effect.

Features 2 :will AM_FM_PIN <2: 0> Register is set to 1 Time, AM_FM Pin requires an external band switching button as used in the chips of each negative pulse FM1 Band and full-band (by the SPAN A switching decision between the voltage pin band). Initial value at the start of the first ONLY_FM1_DIS
It determines the value of the register. When switching between bands using the key mode, KT0936M I will write back to the state of the current band EEPROM middle ONLY_FM1_DIS Register.

Features 3 : AM_FM_PIN <2: 0> Register is set to 2 Time, AM_FM Pin requires an external band switching using a toggle switch. Toggle switch is then low FM1 Band, then high there
SPAN Pin voltage determines the band (you can make all 60 Any one band).

Features 4 : Plus EEPROM As the clock pin configuration required for this mode, this automatic switching mode power chip, scanned and EEPROM After the data is automatically switched back AM_FM_PIN <2: 0> Register setting mode. If you need to write back EEPROM Save the current work status, KT0936M It will automatically switch to EEPROM Clock pin functional operation, after the completion of switch back automatically
AM_FM_PIN <2: 0> Register setting mode. If the external EEPROM , Without modifying
AM_FM_PIN <2: 0> Register (this is the default function) is 3 The case, softmute According to results
EEPROM Configuration to take effect, this pin only as a plus EEPROM When SCL Pin.

6.4. RF_SW Pin

Features 1 : RF circuit switching control pin. When a short mode this pin outputs a low level, this output pin is high when the other modes. The user can control the state of this pin external RF antenna switching circuit.

Features 2 : Plus EEPROM As data pins, the configuration required for this mode, this automatic switching mode power chip, scanned and EEPROM Automatically switch back to the function data 1 . If you need to write back EEPROM Save the current work status, KT0936M It will automatically switch to EEPROM Data pin functional operation, after the completion of the function will automatically switch back to 1 .

6.5. Chip Set

KT0936M Integrated 2-wire master The interface may be read stored in advance in the external power-on initialization time EEPROM The content (for example: 24C02). After power, KT0936M The reading is stored in EEPROM And all data written to the internal register. 24C02 with KT0936M Register bit correspondence relation table by 13 Inquire. Users will need to EEPROM Device address set 8b'1010 000x (R / W bit). KT0936M of RF_SW Pin EEPROM of SDA Pin is connected,

AM_FM Pin EEPROM of SCL Pin.

When switching between bands using the key mode, KT0936M I will write back to the state of the current band EEPROM middle ONLY_FM1_DIS Register to save the state of this button.

table 13 : 24C02 with KT0936M Register correspondence 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	Reading and writing	Defaults	Functional Description
7: 3 Reserved bits	R	0000_0	Reserved bits
2: 0 DIVIDERP <10: 8>	RW	000	PLL Divider P Configuration

6.6.2. PLLCFG1 (Address 0x05)

Bit name	Reading and writing	Defaults	Functional Description
7: 0 DIVIDERP <7: 0>	RW	0x01	PLL Divider P Configuration

6.6.3. PLLCFG2 (Address 0x06)

Bit name	Reading and writing	Defaults	Functional Description
7: 3 Reserved bits	RW	0000_0	Reserved bits
2: 0 DIVIDERN <10: 8> RW		010	PLL Divider N Configuration

6.6.4. PLLCFG3 (Address 0x07)

Bit name	Reading and writing	Defaults	Functional Description
7: 0 DIVIDERN <7: 0>	RW	0x9C	PLL Divider N Configuration

6.6.5. SYSCLK_CFG0 (Address 0x08)

Bit name	Reading and writing	Defaults	Functional Description
7: 4 Reserved bits	RW	0000	Reserved bits
3: 0 FPFD <19:16>	RW	1000	Phase Frequency: FPFD <19: 0> = Crystal frequency or RCLK frequency/ DIVIDERP * 16

6.6.6. SYSCLK_CFG1 (Address 0x09)

Bit name	Reading and writing	Defaults	Functional Description
7: 0 FPFD <15: 8>	RW	0x00	Phase Frequency: FPFD <19: 0> = Crystal frequency or RCLK frequency/ DIVIDERP * 16P

6.6.7. SYSCLK_CFG2 (Address 0x0A)

Bit name	Reading and writing	Defaults	Functional Description
7: 0 FPFD <7: 0>	RW	0x00	Phase Frequency: FPFD <19: 0> = Crystal frequency or RCLK frequency/ DIVIDERP * 16

6.6.8. XTALCFG (Address 0x0D)

Bit name	Reading and writing	Defaults	Functional Description
7: 5 Reserved bits	RW	110	Reserved bits

Bit name		Reading and writing	Defaults	Functional Description
4	RCLK_EN	RW	0	Reference Clock Enable bit: 0 = Crystal 1 = External Reference Clock
3: 0	Reserved bits	RW	0011	Reserved bits

6.6.9. RXCFG1 (Address 0x000F)

Bit name		Reading and writing	Defaults	Functional Description
7: 5	Reserved bits	R	000	Reserved bits
4: 0	VOLUME <4: 0>	RW	1_1111	Volume control bits: 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		Reading and writing	Defaults	Functional Description
7: 6	FM2_SPACE <1: 0> RW		01	FM Wave band 2 Stepping select bits: B'00 = 200 kHz (USA, Europe) B'01 = 100KHz (Europe, Japan) B'10 = 50KHz B'11 = 50KHz
5: 4	FM1_SPACE <1: 0> RW		10	FM Wave band 1 Stepping select bits: B'00 = 200 kHz (USA, Europe) B'01 = 100KHz (Europe, Japan) B'10 = 50KHz B'11 = 50KHz
3: 2	MW2_SPACE <1: 0> RW		00	MW Wave band 2 with LW Wave band 2 Stepping select bits: B'00 = 1kHz B'01 = 9kHz B'10 = 10kHz B'11 = 10kHz
1: 0	MW1_SPACE <1: 0> RW		00	MW Wave band 1 Stepping select bits: B'00 = 1kHz B'01 = 9kHz B'10 = 10kHz B'11 = 10kHz

6.6.11. BANDCFG3 (Address 0x19)

Bit name		Reading and writing	Defaults	Functional Description
7: 2	Reserved bits	RW	0010_11	Reserved bits
1: 0	SW_SPACE <1: 0>	RW	01	SW Stepping band select bits: B'00 = 1kHz B'01 = 5kHz B'10 = 9kHz B'11 = 10kHz

6.6.12. SOUNDCFG (Address 0x28)

Bit name	Reading and writing	Defaults	Functional Description
7: 6 Reserved bits	R	00	Reserved bits
5: 4 BASS <1: 0>	RW	00	Subwoofer Gain select bits: Bypass b'01 = 9.4 = B'00 dB @ 70Hz b'10 = 13.3dB@70Hz B'11 = 18.2dB@70Hz
3: 0 Reserved bits	RW	0001	Reserved bits

6.6.13. DSPCFG0 (Address 0x2A)

Bit name	Reading and writing	Defaults	Functional Description
7 Reserved bits	RW	1	Reserved bits
6: 4 FM_GAIN <2: 0>	RW	100	FM Audio 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	RW	0000	Reserved bits

6.6.14. DSPCFG6 (Address 0x30)

Bit name	Reading and writing	Defaults	Functional Description
7: 5 Reserved bits	RW	101	Reserved bits
4: 0 FM_RSSI_BIAS <4: 0 >	RW	0_0000	FM RSSI Bias: 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	Reading and writing	Defaults	Functional Description
7: 4 Reserved bits	RW	0101	Reserved bits
3: 0 SW_GAIN <2: 0>	RW	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	Reading and writing	Defaults	Functional Description
			B'0110 = -12dB B'0111 = -15dB B'1000 = -18dB

6.6.16. AMDSP7 (Address 0x39)

Bit name	Reading and writing	Defaults	Functional Description
7: 4 Reserved bits	RW	0000	Reserved bits
3: 0 SW_VOLUME <3: 0> RW		1010	Volume control bit short: 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	Reading and writing	Defaults	Functional Description
7: 6 Reserved bits	RW	00	Reserved bits
5: 4 DEPOP_TC <1: 0>	RW	11	Removing electrical noise on the time constants: B'00 = 250ms B'01 = 500ms B'10 = 750ms B'11 = 1s
3 Reserved bits	RW	0	Reserved bits
2: 0 AUDV_DCLVL <2: 0 > >	RW	010	The audio output control common mode voltage: 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	Reading and writing	Defaults	Functional Description
7 Reserved bits	RW	1	Reserved bits
6: 4 AM_FM_PIN <2: 0> RW		011	AM_FM Pin Function Control: B'000 = Reserved B'001 = Key control band selection

Bit name	Reading and writing	Defaults	Functional Description
			B'010 = Switch control band selection B'011 = softmute Switch (if used EEPROM , Even if this register is B'011 , softmute The effect is in accordance with EEPROM Configuration takes effect) other = Reserved
3: 0 Reserved bits	R	1010	Reserved bits

6.6.19. GPIOCFG2 (Address 0x51)

Bit name	Reading and writing	Defaults	Functional Description
7: 6 Reserved bits	RW	00	Reserved bits
5: 4 SPAN_PIN <1: 0>	RW	10	SPAN Pin Function Control: B'00 = Reserved B'01 = Reserved B'10 = Voltage control band selection B'11 = Reserved
3: 2 Reserved bits	RW	00	Reserved bits
1: 0 CH_PIN <1: 0>	RW	10	CH Pin 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	Reading and writing	Defaults	Functional Description
7: 4 MW_GAIN <3: 0>	RW	0100	MW with LW Audio 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>	RW	001	AM Selection filter bandwidth: 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	Reading and writing	Defaults	Functional Description
7: 5 Reserved bits	R	000	Reserved bits
4: 0 AM_RSSI_BIAS <4: 0>	RW	0_0000	AM RSSI Bias:

Bit name		Reading and writing	Defaults	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		Reading and writing	Defaults	Functional Description
7: 4	Reserved bits	RW	1000	Reserved bits
3: 0	MW_VOLUME <3: 0 >	RW	1010	MW with LW Volume control bits: 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		Reading and writing	Defaults	Functional Description
7: 4	Reserved bits	R	0000	Reserved bits
3: 0	SPAN_GUARD <3: 0 >	RW	0000	SPAN Rheostat scope of protection options.

6.6.24. GUARD0 (Address 0x70)

Bit name		Reading and writing	Defaults	Functional Description
7: 0	SW_GUARD <3: 0>	RW	0000_1010	SW Transfer station rheostat scope of protection options.

6.6.25. FMCHAN0 (Address 0x88)

Bit name		Reading and writing	Defaults	Functional Description
7	Reserved bits	RW	0	Reserved bits
6	ONLY_FM1_DIS	RW	0	AM_FM Pins in the band switching mode key (function 2 When) as FM1 Band or all band select bits: 0 = FM1 Wave band

Bit name	Reading and writing	Defaults	Functional Description
			1 = Full-band (SPAN Pin decision)
5: 0 Reserved bits	RW	00_0110	Reserved bits

6.6.26. FM1_LOW_CHAN0 (Address 0x90)

Bit name	Reading and writing	Defaults	Functional Description
7: 4 Reserved bits	R	0000	Reserved bits
3: 0 FM1_LOW_CHAN < 11: 8>	RW	0110	FM Wave band 1 The lowest frequency in 50KHz The default value 87MHz (0x06CC). The value of this register should be 32MHz (0x280) To 110MHz (0x898) In the range.

6.6.27. FM1_LOW_CHAN1 (Address 0x91)

Bit name	Reading and writing	Defaults	Functional Description
7: 0 FM1_LOW_CHAN < 7: 0>	RW	0xCC	FM Wave band 1 The lowest frequency in 50KHz The default value 87MHz (0x06CC). The value of this register should be 32MHz (0x280) To 110MHz (0x898) In the range.

6.6.28. FM1_CHAN_NUM0 (Address 0x92)

Bit name	Reading and writing	Defaults	Functional Description
7: 4 Reserved bits	R	0000	Reserved bits
3: 0 FM1_CHAN_NUM < 11: 8>	RW	0001	FM Wave band 1 The number of frequency points FM1_CHAN_NUM <11: 0> + 1 . in case FM1_CHAN_NUM <11: 0> set as 0 , This represents only one frequency band.

6.6.29. FM1_CHAN_NUM1 (Address 0x93)

Bit name	Reading and writing	Defaults	Functional Description
7: 0 FM1_CHAN_NUM < 7: 0>	RW	0xAE	FM Wave band 1 The number of frequency points FM1_CHAN_NUM <11: 0> + 1 . in case FM1_CHAN_NUM <11: 0> set as 0 , This represents only one frequency band.

6.6.30. FM2_LOW_CHAN0 (Address 0x94)

Bit name	Reading and writing	Defaults	Functional Description
7: 4 Reserved bits	R	0000	Reserved bits
3: 0 FM2_LOW_CHAN < 11: 8>	RW	0101	FM Wave band 2 The lowest frequency in 50KHz The default value 75.5MHz (0x05E6). The value of this register should be 32MHz (0x280) To 110MHz (0x898) In the range.

6.6.31. FM2_LOW_CHAN1 (Address 0x95)

Bit name	Reading and writing	Defaults	Functional Description
7: 0 FM2_LOW_CHAN <7: 0>	RW	0xE6	FM Wave band 2 The lowest frequency in 50KHz The default value 75.5MHz (0x05E6). The value of this register should be 32MHz (0x280) To 110MHz (0x898) In the range.

6.6.32. FM2_CHAN_NUM0 (Address 0x96)

Bit name	Reading and writing	Defaults	Functional Description
7: 4 Reserved bits	R	B'0000	Reserved bits
3: 0 FM2_CHAN_NUM <11: 8>	RW	B'0001	FM Wave band 2 The number of frequency points FM2_CHAN_NUM <11: 0> + 1 . in case FM2_CHAN_NUM <11: 0> set as 0 , This represents only one frequency band.

6.6.33. FM2_CHAN_NUM1 (Address 0x97)

Bit name	Reading and writing	Defaults	Functional Description
7: 0 FM2_CHAN_NUM <7: 0>	RW	0x4A	FM Wave band 2 The number of frequency points FM2_CHAN_NUM <11: 0> + 1 . in case FM2_CHAN_NUM <11: 0> set as 0 , This represents only one frequency band.

6.6.34. MW1_LOW_CHAN0 (Address 0x98)

Bit name	Reading and writing	Defaults	Functional Description
7: 3 Reserved bits	R	0000_0	Reserved bits
2: 0 MW1_LOW_CHAN <10: 8>	RW	010	MW Wave band 1 The lowest frequency in 1KHz The default value 513KHz (0x0201). The value of this register should be 500KHz (0x1F4) To 1750KHz (0x6D6) In the range.

6.6.35. MW1_LOW_CHAN1 (Address 0x99)

Bit name	Reading and writing	Defaults	Functional Description
7: 0 MW1_LOW_CHAN <7: 0>	RW	0x01	MW Wave band 1 The lowest frequency in 1KHz The default value 513KHz (0x0201). The value of this register should be 500KHz (0x1F4) To 1750KHz (0x6D6) In the range.

6.6.36. MW1_CHAN_NUM0 (Address 0x9A)

Bit name	Reading and writing	Defaults	Functional Description
7: 3 Reserved bits	R	0000_0	Reserved bits
2: 0 MW1_CHAN_NUM RW		100	MW Wave band 1 The number of frequency points

Bit name	Reading and writing	Defaults	Functional Description
<10: 8>			MW1_CHAN_NUM <10: 0> + 1 . in case MW1_CHAN_NUM <10: 0> set as 0 , This represents only one frequency band.

6.6.37. MW1_CHAN_NUM1 (Address 0x9B)

Bit name	Reading and writing	Defaults	Functional Description
7: 0 MW1_CHAN_NUM <7: 0>	RW	0x5C	MW Wave band 1 The number of frequency points MW1_CHAN_NUM <10: 0> + 1 . in case MW1_CHAN_NUM <10: 0> set as 0 , This represents only one frequency band.

6.6.38. MW2_LOW_CHAN0 (Address 0x9C)

Bit name	Reading and writing	Defaults	Functional Description
7: 3 Reserved bits	R	0000_0	Reserved bits
2: 0 MW2_LOW_CHAN <10: 8>	RW	010	MW Wave band 2 with LW Wave band 2 The lowest frequency in 1KHz The default value 513KHz (0x0201). The value of this register should be 500KHz (0x1F4) To 1750KHz (0x6D6) In the range.

6.6.39. MW2_LOW_CHAN1 (Address 0x9D)

Bit name	Reading and writing	Defaults	Functional Description
7: 0 MW2_LOW_CHAN <7: 0>	RW	0x01	MW Wave band 2 with LW Wave band 2 The lowest frequency in 1KHz The default value 513KHz (0x0201). The value of this register should be 500KHz (0x1F4) To 1750KHz (0x6D6) In the range.

6.6.40. MW2_CHAN_NUM0 (Address 0x9E)

Bit name	Reading and writing	Defaults	Functional Description
7: 3 Reserved bits	R	0000_0	Reserved bits
2: 0 MW2_CHAN_NUM <10: 8>	RW	100	MW Wave band 2 with LW Wave band 2 The number of frequency points MW2_CHAN_NUM <10: 0> + 1 . in case MW2_CHAN_NUM <10: 0> set as 0 , This represents only one frequency band.

6.6.41. MW2_CHAN_NUM1 (Address 0x9F)

Bit name	Reading and writing	Defaults	Functional Description
7: 0 MW2_CHAN_NUM <7: 0>	RW	0xB6	MW Wave band 2 with LW Wave band 2 The number of frequency points MW2_CHAN_NUM <10: 0> + 1 . in case MW2_CHAN_NUM <10: 0> set as 0 , It indicates that this is just a band

Bit name		Reading and writing	Defaults	Functional Description
				Frequency.

6.6.42. GUARD2 (Address 0xA0)

Bit name		Reading and writing	Defaults	Functional Description
7: 0	FM1_GUARD <7: 0>	RW	0x00	FM Wave band 1 Transfer station varistor protection range selection

6.6.43. GUARD3 (Address 0xA1)

Bit name		Reading and writing	Defaults	Functional Description
7: 0	FM2_GUARD <7: 0>	RW	0x00	FM Wave band 2 Transfer station rheostat scope of protection options.

6.6.44. GUARD4 (Address 0xA2)

Bit name		Reading and writing	Defaults	Functional Description
7: 0	MW1_GUARD <7: 0 >	RW	0x00	MW Wave band 1 Transfer station rheostat scope of protection options.

6.6.45. GUARD5 (Address 0xA3)

Bit name		Reading and writing	Defaults	Functional Description
7: 0	MW2_GUARD <7: 0 >	RW	0x00	MW Wave band 2 with LW Wave band 2 Transfer station rheostat scope of protection options.

6.6.46. SW1_LOW_CHAN0 (Address 0xA4)

Bit name		Reading and writing	Defaults	Functional Description
7	Reserved bits	R	B'0	Reserved bits
6: 0	SW1_LOW_CHAN < 14: 8>	RW	B'000_1011	SW Wave band 1 The lowest frequency in 1KHz The default value 2.95MHz (0x0BB8). The value of this register should be 1.75MHz (0x06D6) To 32MHz (0x7D00) In the range.

6.6.47. SW1_LOW_CHAN1 (Address 0xA5)

Bit name		Reading and writing	Defaults	Functional Description
7: 0	SW1_LOW_CHAN < 7: 0>	RW	0x86	SW Wave band 1 The lowest frequency in 1KHz The default value 2.95MHz (0x0BB8). The value of this register should be 1.75MHz (0x06D6) To 32MHz (0x7D00) In the range.

6.6.48. SW2_LOW_CHAN0 (Address 0xA6)

Bit name		Reading and writing	Defaults	Functional Description
7	Reserved bits	R	B'0	Reserved bits
6: 0	SW2_LOW_CHAN < 14: 8>	RW	B'011_0010	SW Wave band 2 The lowest frequency in

Bit name	Reading and writing	Defaults	Functional Description
			1KHz The default value 12.95MHz (0x32C8). The value of this register should be 1.75MHz (0x06D6) To 1.75MHz (0x7D00) In the range.

6.6.49. SW2_LOW_CHAN1 (Address 0xA7)

Bit name	Reading and writing	Defaults	Functional Description
7: 0 SW2_LOW_CHAN < 7: 0>	RW	0x96	SW Wave band 2 The lowest frequency in 1KHz The default value 12.95MHz (0x32C8). The value of this register should be 1.75MHz (0x06D6) To 1.75MHz (0x7D00) In the range.

6.6.50. SW3_LOW_CHAN0 (Address 0xA8)

Bit name	Reading and writing	Defaults	Functional Description
7 Reserved bits	R	B'0	Reserved bits
6: 0 SW3_LOW_CHAN < 14: 8>	RW	B'001_1111	SW Wave band 3 The lowest frequency in 1KHz The default value 7.95MHz (0x1F40). The value of this register should be 1.75MHz (0x06D6) To 32MHz (0x7D00) In the range.

6.6.51. SW3_LOW_CHAN1 (Address 0xA9)

Bit name	Reading and writing	Defaults	Functional Description
7: 0 SW3_LOW_CHAN < 7: 0>	RW	0x0E	SW Wave band 3 The lowest frequency in 1KHz The default value 7.95MHz (0x1F40). The value of this register should be 1.75MHz (0x06D6) To 32MHz (0x7D00) In the range.

6.6.52. SW4_LOW_CHAN0 (Address 0xAA)

Bit name	Reading and writing	Defaults	Functional Description
7 Reserved bits	R	B'0	Reserved bits
6: 0 SW4_LOW_CHAN < 14: 8>	RW	B'000_1000	SW Wave band 4 The lowest frequency in 1KHz The default value 2.2MHz (0x0898). The value of this register should be 1.75MHz (0x06D6) To 32MHz (0x7D00) In the range.

6.6.53. SW4_LOW_CHAN1 (Address 0xAB)

Bit name	Reading and writing	Defaults	Functional Description
7: 0 SW4_LOW_CHAN < 7: 0>	RW	0x98	SW Wave band 4 The lowest frequency in 1KHz The default value 2.2MHz (0x0898). The value of this register should be 1.75MHz (0x06D6) To 32MHz

				(0x7D00) In the range.

6.6.54. SW5_LOW_CHAN0 (Address 0xAC)

Bit name		Reading and writing	Defaults	Functional Description
7	Reserved bits	R	B'0	Reserved bits
6: 0	SW5_LOW_CHAN <14: 8>	RW	B'000_1011	SW Wave band 5 The lowest frequency in 1KHz The default value 3.5MHz (0x0DAC). The value of this register should be 1.75MHz (0x06D6) To 32MHz (0x7D00) In the range.

6.6.55. SW5_LOW_CHAN1 (Address 0xAD)

Bit name		Reading and writing	Defaults	Functional Description
7: 0	SW5_LOW_CHAN <7: 0>	RW	0xAC	SW Wave band 5 The lowest frequency in 1KHz The default value 3.5MHz (0x0DAC). The value of this register should be 1.75MHz (0x06D6) To 32MHz (0x7D00) In the range.

6.6.56. SW6_LOW_CHAN0 (Address 0xAE)

Bit name		Reading and writing	Defaults	Functional Description
7	Reserved bits	R	B'0	Reserved bits
6: 0	SW6_LOW_CHAN <14: 8>	RW	B'001_0000	SW Wave band 6 The lowest frequency in 1KHz The default value 4.3MHz (0x10CC). The value of this register should be 1.75MHz (0x06D6) To 32MHz (0x7D00) In the range.

6.6.57. SW6_LOW_CHAN1 (Address 0xAF)

Bit name		Reading and writing	Defaults	Functional Description
7: 0	SW6_LOW_CHAN <7: 0>	RW	0xCC	SW Wave band 6 The lowest frequency in 1KHz The default value 4.3MHz (0x10CC). The value of this register should be 1.75MHz (0x06D6) To 32MHz (0x7D00) In the range.

6.6.58. SW7_LOW_CHAN0 (Address 0xB0)

Bit name		Reading and writing	Defaults	Functional Description
7	Reserved bits	R	B'0	Reserved bits
6: 0	SW7_LOW_CHAN <14: 8>	RW	B'001_0101	SW Wave band 7 The lowest frequency in 1KHz The default value 5.55MHz (0x15AE). The value of this register should be 1.75MHz (0x06D6) To 32MHz (0x7D00) In the range.

6.6.59. SW7_LOW_CHAN1 (Address 0xB1)

Bit name	Reading and writing	Defaults	Functional Description
7: 0 SW7_LOW_CHAN < 7: 0>	RW	0xAE	SW Wave band 7 The lowest frequency in 1KHz The default value 5.55MHz (0x15AE). The value of this register should be 1.75MHz (0x06D6) To 32MHz (0x7D00) In the range.

6.6.60. SW8_LOW_CHAN0 (Address 0xB2)

Bit name	Reading and writing	Defaults	Functional Description
7 Reserved bits	R	B'0	Reserved bits
6: 0 SW8_LOW_CHAN < 14: 8>	RW	B'001_1010	SW Wave band 8 The lowest frequency in 1KHz The default value 6.78MHz (0x1A7C). The value of this register should be 1.75MHz (0x06D6) To 32MHz (0x7D00) In the range.

6.6.61. SW8_LOW_CHAN1 (Address 0xB3)

Bit name	Reading and writing	Defaults	Functional Description
7: 0 SW8_LOW_CHAN < 7: 0>	RW	0x7C	SW Wave band 8 The lowest frequency in 1KHz The default value 6.78MHz (0x1A7C). The value of this register should be 1.75MHz (0x06D6) To 32MHz (0x7D00) In the range.

6.6.62. SW9_LOW_CHAN0 (Address 0xB4)

Bit name	Reading and writing	Defaults	Functional Description
7 Reserved bits	R	B'0	Reserved bits
6: 0 SW9_LOW_CHAN < 14: 8>	RW	B'010_0011	SW Wave band 9 The lowest frequency in 1KHz The default value 9.15MHz (0x23BE). The value of this register should be 1.75MHz (0x06D6) To 32MHz (0x7D00) In the range.

6.6.63. SW9_LOW_CHAN1 (Address 0xB5)

Bit name	Reading and writing	Defaults	Functional Description
7: 0 SW9_LOW_CHAN < 7: 0>	RW	0xBE	SW Wave band 9 The lowest frequency in 1KHz The default value 9.15MHz (0x23BE). The value of this register should be 1.75MHz (0x06D6) To 32MHz (0x7D00) In the range.

6.6.64. SW10_LOW_CHAN0 (Address 0xB6)

Bit name	Reading and writing	Defaults	Functional Description
7 Reserved bits	R	B'0	Reserved bits

Bit name	Reading and writing	Defaults	Functional Description
6: 0 SW10_LOW_CHAN <14: 8>	RW	B'010_1011	SW Wave band 10 The lowest frequency in 1KHz The default value 11.1MHz (0x2B5C). The value of this register should be 1.75MHz (0x06D6) To 32MHz (0x7D00) In the range.

6.6.65. SW10_LOW_CHAN1 (Address 0xB7)

Bit name	Reading and writing	Defaults	Functional Description
7: 0 SW10_LOW_CHAN <7: 0>	RW	0x5C	SW Wave band 10 The lowest frequency in 1KHz The default value 11.1MHz (0x2B5C). The value of this register should be 1.75MHz (0x06D6) To 32MHz (0x7D00) In the range.

6.6.66. SW11_LOW_CHAN0 (Address 0xB8)

Bit name	Reading and writing	Defaults	Functional Description
7 Reserved bits	R	B'0	Reserved bits
6: 0 SW11_LOW_CHAN <14: 8>	RW	B'011_0010	SW Wave band 11 The lowest frequency in 1KHz The default value 13MHz (0x32C8). The value of this register should be 1.75MHz (0x06D6) To 32MHz (0x7D00) In the range.

6.6.67. SW11_LOW_CHAN1 (Address 0xB9)

Bit name	Reading and writing	Defaults	Functional Description
7: 0 SW11_LOW_CHAN <7: 0>	RW	0xC8	SW Wave band 11 The lowest frequency in 1KHz The default value 13MHz (0x32C8). The value of this register should be 1.75MHz (0x06D6) To 32MHz (0x7D00) In the range.

6.6.68. SW12_LOW_CHAN0 (Address 0xBA)

Bit name	Reading and writing	Defaults	Functional Description
7 Reserved bits	R	B'0	Reserved bits
6: 0 SW12_LOW_CHAN <14: 8>	RW	B'011_1010	SW Wave band 12 The lowest frequency in 1KHz The default value 14.85MHz (0x3A02). The value of this register should be 1.75MHz (0x06D6) To 32MHz (0x7D00) In the range.

6.6.69. SW12_LOW_CHAN1 (Address 0xBB)

Bit name	Reading and writing	Defaults	Functional Description
7: 0 SW12_LOW_CHAN <7: 0>	RW	0x02	SW Wave band 12 The lowest frequency in 1KHz The default value 14.85MHz (0x3A02). The value of this register should be

				1.75MHz (0x06D6) To 32MHz (0x7D00) In the range.

6.6.70. SW13_LOW_CHAN0 (Address 0xBC)

Bit name		Reading and writing	Defaults	Functional Description
7	Reserved bits	R	B'0	Reserved bits
6: 0	SW13_LOW_CHAN <14: 8>	RW	B'100_0010	SW Wave band 13 The lowest frequency in 1KHz The default value 17.05MHz (0x429A). The value of this register should be 1.75MHz (0x06D6) To 32MHz (0x7D00) In the range.

6.6.71. SW13_LOW_CHAN1 (Address 0xBD)

Bit name		Reading and writing	Defaults	Functional Description
7: 0	SW13_LOW_CHAN <7: 0>	RW	0x9A	SW Wave band 13 The lowest frequency in 1KHz The default value 17.05MHz (0x429A). The value of this register should be 1.75MHz (0x06D6) To 32MHz (0x7D00) In the range.

6.6.72. SW14_LOW_CHAN0 (Address 0xBE)

Bit name		Reading and writing	Defaults	Functional Description
7	Reserved bits	R	B'0	Reserved bits
6: 0	SW14_LOW_CHAN <14: 8>	RW	B'101_0010	SW Wave band 14 The lowest frequency in 1KHz The default value 21.15MHz (0x529E). The value of this register should be 1.75MHz (0x06D6) To 32MHz (0x7D00) In the range.

6.6.73. SW14_LOW_CHAN1 (Address 0xBF)

Bit name		Reading and writing	Defaults	Functional Description
7: 0	SW14_LOW_CHAN <7: 0>	RW	0x9E	SW Wave band 14 The lowest frequency in 1KHz The default value 21.15MHz (0x529E). The value of this register should be 1.75MHz (0x06D6) To 32MHz (0x7D00) In the range.

6.6.74. SW1_CHAN_NUM0 (Address 0xC0)

Bit name		Reading and writing	Defaults	Functional Description
7: 4	Reserved bits	R	0000	Reserved bits
3: 0	SW1_CHAN_NUM < 11: 8>	RW	0111	SW Wave band 1 The number of frequency points SW1_CHAN_NUM <11: 0> + 1 . SW1_CHAN_NUM <11: 0> It is set 0 It represents only a sub-band frequency.

6.6.75. SW1_CHAN_NUM1 (Address 0xC1)

Bit name	Reading and writing	Defaults	Functional Description
7: 0 SW1_CHAN_NUM <7: 0>	RW	0xD0	SW Wave band 1 The number of frequency points SW1_CHAN_NUM <11: 0> + 1 . SW1_CHAN_NUM <11: 0> set as 0 , This represents only one frequency band.

6.6.76. SW2_CHAN_NUM0 (Address 0xC2)

Bit name	Reading and writing	Defaults	Functional Description
7: 4 Reserved bits	R	0000	Reserved bits
3: 0 SW2_CHAN_NUM <11: 8>	RW	0111	SW Wave band 2 The number of frequency points SW2_CHAN_NUM <11: 0> + 1 . SW2_CHAN_NUM <11: 0> set as 0 , This represents only one frequency band.

6.6.77. SW2_CHAN_NUM1 (Address 0xC3)

Bit name	Reading and writing	Defaults	Functional Description
7: 0 SW2_CHAN_NUM <7: 0>	RW	0xD0	SW Wave band 2 The number of frequency points SW2_CHAN_NUM <11: 0> + 1 . SW2_CHAN_NUM <11: 0> set as 0 , This represents only one frequency band.

6.6.78. SW3_CHAN_NUM0 (Address 0xC4)

Bit name	Reading and writing	Defaults	Functional Description
7: 4 Reserved bits	R	0000	Reserved bits
3: 0 SW3_CHAN_NUM <11: 8>	RW	0111	SW Wave band 3 The number of frequency points SW3_CHAN_NUM <11: 0> + 1 . SW3_CHAN_NUM <11: 0> set as 0 , This represents only one frequency band.

6.6.79. SW3_CHAN_NUM1 (Address 0xC5)

Bit name	Reading and writing	Defaults	Functional Description
7: 0 SW3_CHAN_NUM <7: 0>	RW	0xD0	SW Wave band 3 The number of frequency points SW3_CHAN_NUM <11: 0> + 1 . SW3_CHAN_NUM <11: 0> set as 0 , This represents only one frequency band.

6.6.80. SW4_CHAN_NUM0 (Address 0xC6)

Bit name	Reading and writing	Defaults	Functional Description
7: 4 Reserved bits	R	0000	Reserved bits
3: 0 SW4_CHAN_NUM <11: 8>	RW	0001	SW Wave band 4 The number of frequency points SW4_CHAN_NUM <11: 0> + 1 . SW4_CHAN_NUM <11: 0> set as 0 , This represents only one frequency band.

6.6.81. SW4_CHAN_NUM1 (Address 0xC7)

Bit name	Reading and writing	Defaults	Functional Description
7: 0 SW4_CHAN_NUM <7: 0>	RW	0x04	SW Wave band 4 The number of frequency points SW4_CHAN_NUM <11: 0> + 1 . SW4_CHAN_NUM <11: 0> set as 0 , This represents only one frequency band.

6.6.82. SW5_CHAN_NUM0 (Address 0xC8)

Bit name	Reading and writing	Defaults	Functional Description
7: 4 Reserved bits	R	0000	Reserved bits
3: 0 SW5_CHAN_NUM <11: 8>	RW	0000	SW Wave band 5 The number of frequency points SW5_CHAN_NUM <11: 0> + 1 . SW5_CHAN_NUM <11: 0> set as 0 , This represents only one frequency band.

6.6.83. SW5_CHAN_NUM1 (Address 0xC9)

Bit name	Reading and writing	Defaults	Functional Description
7: 0 SW5_CHAN_NUM <7: 0>	RW	0x96	SW Wave band 5 The number of frequency points SW5_CHAN_NUM <11: 0> + 1 . SW5_CHAN_NUM <11: 0> set as 0 , This represents only one frequency band.

6.6.84. SW6_CHAN_NUM0 (Address 0xCA)

Bit name	Reading and writing	Defaults	Functional Description
7: 4 Reserved bits	R	0000	Reserved bits
3: 0 SW6_CHAN_NUM <11: 8>	RW	0001	SW Wave band 6 The number of frequency points SW6_CHAN_NUM <11: 0> + 1 . SW6_CHAN_NUM <11: 0> set as 0 , This represents only one frequency band.

6.6.85. SW6_CHAN_NUM1 (Address 0xCB)

Bit name	Reading and writing	Defaults	Functional Description
7: 0 SW6_CHAN_NUM <7: 0>	RW	0x04	SW Wave band 6 The number of frequency points SW6_CHAN_NUM <11: 0> + 1 . SW6_CHAN_NUM <11: 0> set as 0 , This represents only one frequency band.

6.6.86. SW7_CHAN_NUM0 (Address 0xCC)

Bit name	Reading and writing	Defaults	Functional Description
7: 4 Reserved bits	R	0000	Reserved bits
3: 0 SW7_CHAN_NUM <11: 8>	RW	0000	SW Wave band 7 The number of frequency points SW7_CHAN_NUM <11: 0> + 1 . SW7_CHAN_NUM <11: 0> set as 0 , This represents only one frequency band.

6.6.87. SW7_CHAN_NUM1 (Address 0xCD)

Bit name	Reading and writing	Defaults	Functional Description
7: 0 SW7_CHAN_NUM <7: 0>	RW	0xD2	SW Wave band 7 The number of frequency points SW7_CHAN_NUM <11: 0> + 1 . SW7_CHAN_NUM <11: 0> set as 0 , This represents only one frequency band.

6.6.88. SW8_CHAN_NUM0 (Address 0xCE)

Bit name	Reading and writing	Defaults	Functional Description
7: 4 Reserved bits	R	0000	Reserved bits
3: 0 SW8_CHAN_NUM <11: 8>	RW	0000	SW Wave band 8 The number of frequency points SW8_CHAN_NUM <11: 0> + 1 . SW8_CHAN_NUM <11: 0> set as 0 , It indicates that this is only one frequency band

6.6.89. SW8_CHAN_NUM1 (Address 0xCF)

Bit name	Reading and writing	Defaults	Functional Description
7: 0 SW8_CHAN_NUM <7: 0>	RW	0xCC	SW Wave band 8 The number of frequency points SW8_CHAN_NUM <11: 0> + 1. SW8_CHAN_NUM <11: 0> set as 0 , This represents only one frequency band.

6.6.90. SW9_CHAN_NUM0 (Address 0xD0)

Bit name	Reading and writing	Defaults	Functional Description
7: 4 Reserved bits	R	0000	Reserved bits
3: 0 SW9_CHAN_NUM <11: 8>	RW	0000	SW Wave band 9 The number of frequency points SW9_CHAN_NUM <11: 0> + 1 . SW9_CHAN_NUM <11: 0> set as 0 , This represents only one frequency band.

6.6.91. SW9_CHAN_NUM1 (Address 0xD1)

Bit name	Reading and writing	Defaults	Functional Description
7: 0 SW9_CHAN_NUM <7: 0>	RW	0xE6	SW Wave band 9 The number of frequency points SW9_CHAN_NUM <11: 0> + 1 . SW9_CHAN_NUM <11: 0> set as 0 , This represents only one frequency band.

6.6.92. SW10_CHAN_NUM0 (Address 0xD2)

Bit name	Reading and writing	Defaults	Functional Description
7: 4 Reserved bits	R	0000	Reserved bits
3: 0 SW10_CHAN_NUM <11: 8>	RW	0001	SW Wave band 10 The number of frequency points SW10_CHAN_NUM <11: 0> + 1 . SW10_CHAN_NUM <11: 0> set as 0 , This represents only one frequency band.

6.6.93. SW10_CHAN_NUM1 (Address 0xD3)

Bit name	Reading and writing	Defaults	Functional Description
7: 0 SW10_CHAN_NUM <7: 0>	RW	0x04	SW Wave band 10 The number of frequency points SW10_CHAN_NUM <11: 0> + 1 . SW10_CHAN_NUM <11: 0> set as 0 , This represents only one frequency band.

6.6.94. SW11_CHAN_NUM0 (Address 0xD4)

Bit name	Reading and writing	Defaults	Functional Description
7: 4 Reserved bits	R	0000	Reserved bits
3: 0 SW11_CHAN_NUM <11: 8>	RW	0001	SW Wave band 11 The number of frequency points SW11_CHAN_NUM <11: 0> + 1 . SW11_CHAN_NUM <11: 0> set as 0 , This represents only one frequency band.

6.6.95. SW11_CHAN_NUM1 (Address 0xD5)

Bit name	Reading and writing	Defaults	Functional Description
7: 0 SW11_CHAN_NUM <7: 0>	RW	0x04	SW Wave band 11 The number of frequency points SW11_CHAN_NUM <11: 0> + 1 . SW11_CHAN_NUM <11: 0> set as 0 , This represents only one frequency band.

6.6.96. SW12_CHAN_NUM0 (Address 0xD6)

Bit name	Reading and writing	Defaults	Functional Description
7: 4 Reserved bits	R	0000	Reserved bits
3: 0 SW12_CHAN_NUM <11: 8>	RW	0000	SW Wave band 12 The number of frequency points SW12_CHAN_NUM <11: 0> + 1 . SW12_CHAN_NUM <11: 0> set as 0 , This represents only one frequency band.

6.6.97. SW12_CHAN_NUM1 (Address 0xD7)

Bit name	Reading and writing	Defaults	Functional Description
7: 0 SW12_CHAN_NUM <7: 0>	RW	0xE6	SW Wave band 12 The number of frequency points SW12_CHAN_NUM <11: 0> + 1 . SW12_CHAN_NUM <11: 0> set as 0 , It indicates that this is only one frequency band

6.6.98. SW13_CHAN_NUM0 (Address 0xD8)

Bit name	Reading and writing	Defaults	Functional Description
7: 4 Reserved bits	R	0000	Reserved bits
3: 0 SW13_CHAN_NUM <11: 8>	RW	0000	SW Wave band 13 The number of frequency points SW13_CHAN_NUM <11: 0> + 1 . SW13_CHAN_NUM <11: 0> set as 0 , This represents only one frequency band.

6.6.99. SW13_CHAN_NUM1 (Address 0xD9)

Bit name	Reading and writing	Defaults	Functional Description
7: 0 SW13_CHAN_NUM <7: 0>	RW	0xFA	SW Wave band 13 The number of frequency points SW13_CHAN_NUM <11: 0> + 1 . SW13_CHAN_NUM <11: 0> set as 0 , This represents only one frequency band.

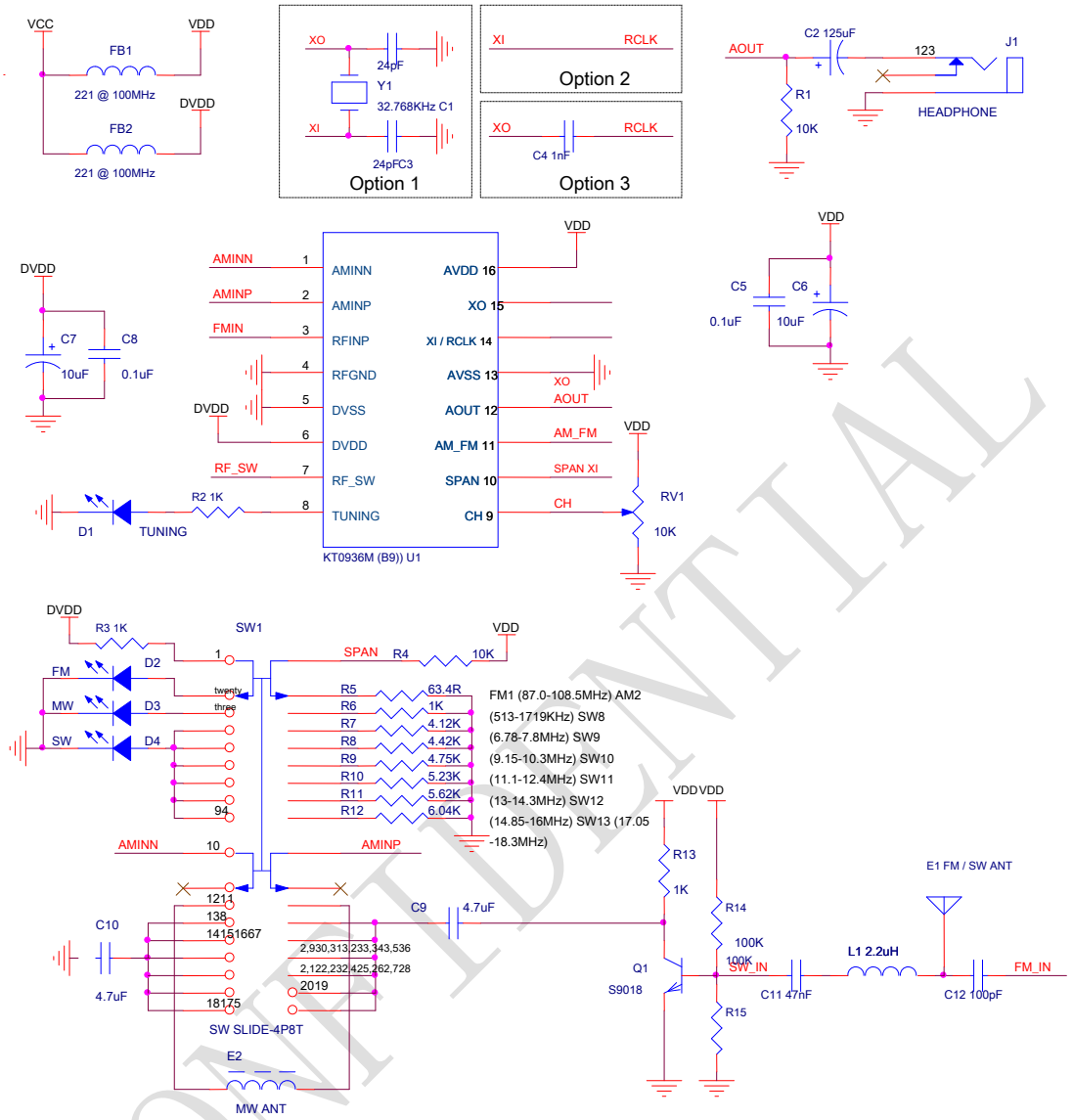
6.6.100. SW14_CHAN_NUM0 (Address 0xDA)

Bit name	Reading and writing	Defaults	Functional Description
7: 4 Reserved bits	R	0000	Reserved bits
3: 0 SW14_CHAN_NUM <11: 8>	RW	0000	SW Wave band 14 The number of frequency points SW14_CHAN_NUM <11: 0> + 1 . SW14_CHAN_NUM <11: 0> set as 0 , This represents only one frequency band.

6.6.101. SW14_CHAN_NUM1 (Address 0xDB)

Bit name	Reading and writing	Defaults	Functional Description
7: 0 SW14_CHAN_NUM <7: 0>	RW	0xE6	SW Wave band 14 The number of frequency points SW14_CHAN_NUM <11: 0> + 1 . SW14_CHAN_NUM <11: 0> set as 0 , This represents only one frequency band.

7. Reference circuit

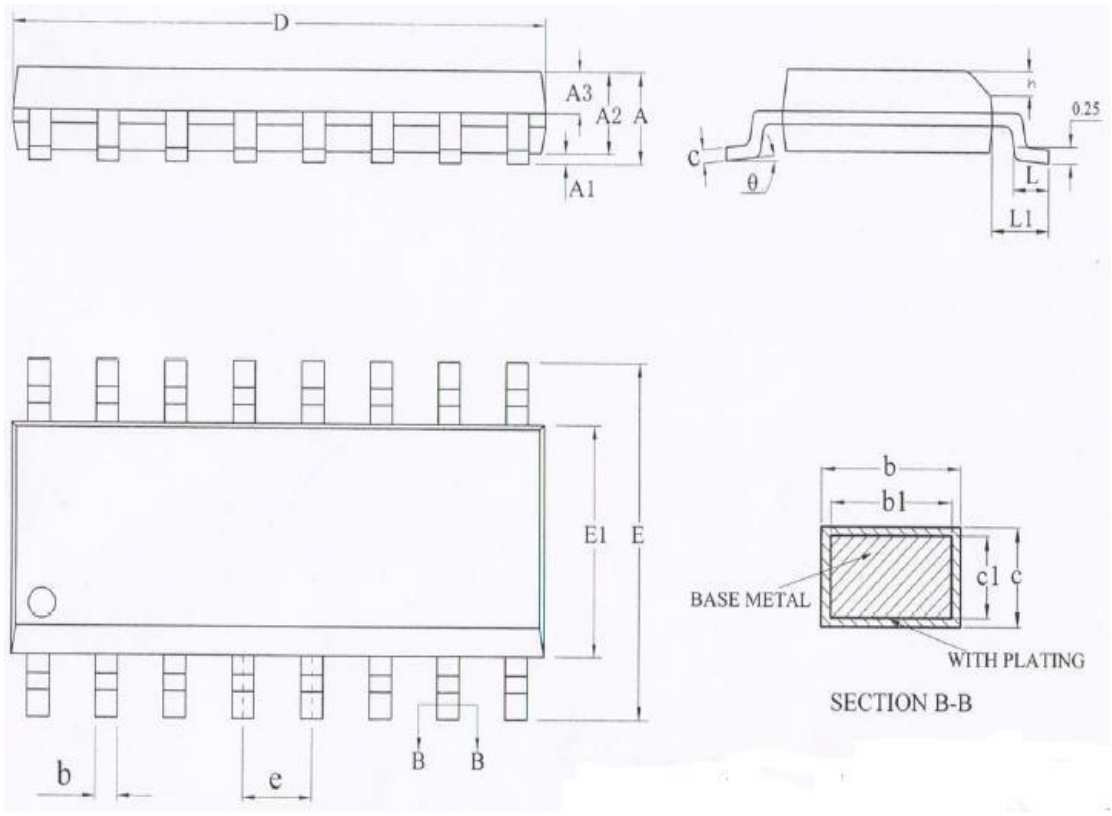


Map 4: Typical application circuit

Components	description	Parameter Value
C1, C4	Crystal oscillator capacitor	24pF
C2, C7	Decoupling capacitor	0.1uF
C3, C6	Decoupling capacitor	10uF
C5	AC coupling capacitors	125uF
C8, C9	AC coupling capacitors	4.7uF
C10	SW Input filter	47nF
C11	AC coupling capacitors	100F
D1	Transfer station indicator	led
D2	FM Pilot lamp	led
D3	MW Pilot lamp	led
D4	SW Pilot lamp	led
E1	FM / SW antenna	FM / SW antenna
E2	MW Ferrite antenna	420uH
F1, FB2	Beads	221 @ 100MHz
J1	Headphone jack	

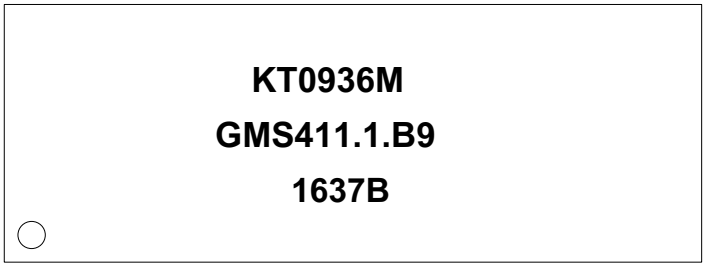
L1	SW Input filter	2.2uH
Q1	SW Low noise amplifier	S9018
RV1	Variable resistor	1Kohm
RV2	Variable resistor	10Kohm
R1	Resistor	10Kohm
R2, R3, R13	Resistor	1Kohm
R4	A band switching resistor	10Kohm (1%)
R5	A band switching resistor	63.4ohm (1%)
R6	A band switching resistor	1Kohm (1%)
R7	A band switching resistor	4.12Kohm (1%)
R8	A band switching resistor	4.42Kohm (1%)
R9	A band switching resistor	4.75Kohm (1%)
R10	A band switching resistor	5.23Kohm (1%)
R11	A band switching resistor	5.62Kohm (1%)
R12	A band switching resistor	6.04Kohm (1%)
R14, R15	Resistor	100Kohm
SW1	Band switch	4 Knife 8 Throw switch
U1	FM / LW / MW / SW receiver	KT0936M (B9)
Y1	Crystal	32.768KHz

8. Package size



symbol	Millimeter			symbol	Millimeter		
	Minimum	Typical values	Maximum		Min Typical 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. Screen printing package



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

10. Ordering Guide

model	description	Package	The minimum order quantity
KT0936M (B9)	The third generation fully integrated global band FM / LW / MW / SW Radio chip	SOP16 Lead-free 3000	pcs

11. historic version

V1.0 First release

V1.1 Modify register table

V2.0 Amended to apply to KT0936M (9A) version of.

V2.1 Modify the first 2 section RF_SW with AM_FM Pin description of 6.3 section AM_FM Description of pin functions. modify 0x88 Described registers. Named register ONLY_FM_DIS Changed ONLY_FM1_DIS .

V2.2 Amended to apply to KT0936M (B9) version of. Modify the first 2 section AM_FM Pin description of 3.4 Description of parts, the first 6.3 section AM_FM Description of pin functions. Modify the table 9 ,table 10 ,table 12 Fig. 3 . modify 0x4F Described registers. Modify the resistance value of the band in the typical application circuit. Screen described as increasing the packaging.