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

Radio-on-a-Chip ™

KT0936M

• Features

Full-band single-chip solution

Built-in MCU

Support mechanical knobs transfer station

Support global wavelength range

FM - 32MHz-110MHz AM - 500KHz

-1750KHz SW - 1.6MHz - 32MHz

High sensitivity

1.6uVEMF for FM

16uVEMF for AM

13uVEMF for SW

High reliability

Noise ratio (FM / AM) : 58dB / 55dB (Without filter) harmonic distortion: 0.3%

meets the EM55020 standard

Low power consumption

Typical operating current value 28mA

Standby current < 15uA

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

You can use two AAA Battery

Built-in crystal oscillator circuit

stand by 32.768KHz with 38KHz Crystals

Support flexible reference clock

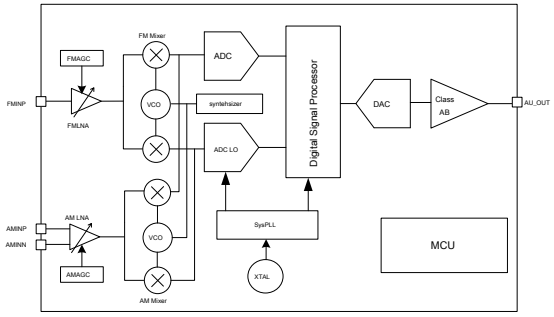
From the reference clock 30KHz To 40MHz use 1Hz Stepping can support

SSOP16L Package in line

with RoHS specification

• Applications

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



Map 1.KT0936M Internal block diagram

• Overall description

KT0936M Quantum Microelectronics is the third generation of independent intellectual property products, she is a fully integrated mono FM / AM / SW Products that can support mechanical adjustment knob station. Its main feature is that first feeling after the transfer station has been improved and can 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, AM The antenna arrangement may also be more flexible.

As a result of 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 peripheral circuit which can realize mechanical knob manually 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.

due to KT0936M The high level of integration and the streamlining of the peripheral circuit design, customers KT0936M Can reduce BOM Cost and shorten the development cycle design Improve product stability and productivity. KT0936M Real radio manufacturers ideal choice.

version 1.0

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1. Electrical Characteristics

table 1 : Recommended Operating Conditions

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

table 2 : DC Characteristics

parameter		symbol	Test Conditions	Min	Typ	Max	Units
Working current	FM If the mode M			-	27	-	mA
	MW mode I MW				28		mA
	SW mode	I SW			28		mA
stand-by current		I APD			15		μA

table 3 : FM Reception characteristics

(In addition there are other statements Agree that T a = -30 to 70 ℃, VD D = 2.1V t o 3.6V)

parameter	symbol	Test Conditions	Typical minimum		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
Alternate channel selectivity		± 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 1,2,3,4		32 Ohm load	-	190	-	mV RMS
Frequency response 1,2,4		± 3dB	30		15k	Hz
Monaural audio signal to noise ratio 1,2,3,4		Without filter	55	58		dB
Audio 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. AGCD = 1
6. △ F = 75KHz
7. VOLUME <4 : 0> = 11111
8. Reference clock discontinuous, with particular reference to the application described.

table 4 : AM Reception characteristics

(In addition there are other statements Agree that Ta = -30 ~ 70 ℃, V DD = 2.1 V to 3.6V)

parameter	symbol	Test Conditions	Min	Typ	Max	unit
AM Frequency Range	F_{rx}		500		1750	KHz
Sensitivity [1,2]	Sen	(S + N) / N = 20dB		16		uVemf
The audio output voltage [1,2,3,4]		32 Ohm load		190		mV_{RMS}
Monaural audio signal to noise ratio [1,2,3,4]		Without filter		55	62	dB
Audio 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

table 5 : SW Receiving properties

(In addition there are other statements Agree that T a = -30 to 70 ℃, VD D = 2.1V t o 3.6V)

parameter	symbol	Test Conditions	Minimum	Typical values	Max	Unit
SW Frequency Range	F_{rx}		1.6		32	MHz
Sensitivity [1,2,3]	Sen	(S + N) / N = 20dB		13		uVemf
The audio output voltage [2,3,4,5]		32 Ohm load		190		mV_{RMS}
Monaural audio signal to noise ratio [2,3,4,5]		Without filter		55	62	dB
Audio Total Harmonic Distortion [2,3,4,5]				0.3	0.6%	

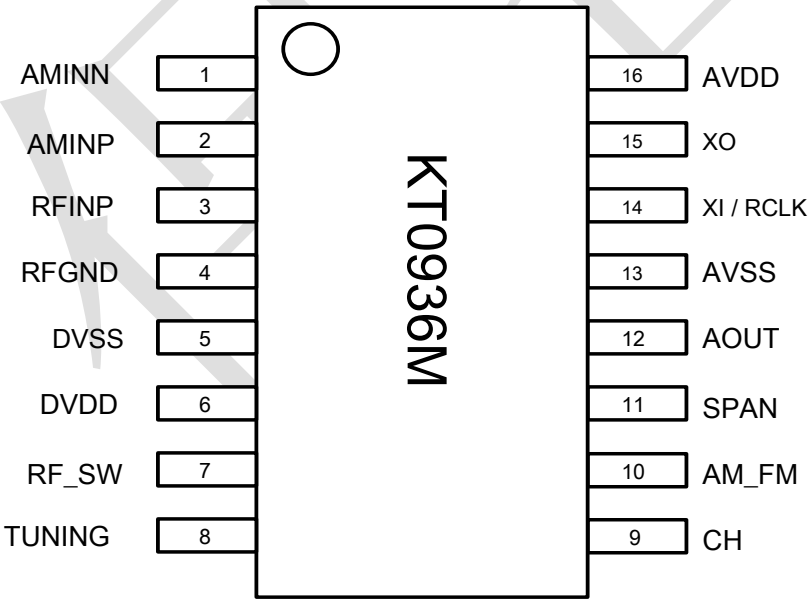
Note:

1. Additional LNA
2. FMOD = 1KHz
3. Modulation depth 30%
4. V_{EMF} = 1mV
5. VOLUME <4 : 0> = 11111

2. Pin Description

table 6 : Pin Description

Pin Number Pin Name I / O Types of			description
1	AMINN simulation I / O		AM Negative input
2	AMINP simulation I / O		AM The positive input
3	RFINP	RF Entry	FM Entry
4	RFGND RF Ground		RF Ground
5	DVSS	Digital Ground	Digital Ground
6	DVDD Digital Power		power supply
7	RF_SW Digital Output		RF Circuit switching
8	TUNING Digital Output		Transfer station instructions
9	CH	Analog Input	Transfer station
10	AM_FM Digital Output		AM / FM Switching control
11	SPAN	Analog Input	Band switching control
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 supply	power supply



Map 2. KT0936M FIG pins (top view)

3. Functional Description

3.1. Outline

KT0936M It provides a global wavelength range of a single chip FM / 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 Quantum Microelectronics Co., Ltd. has a third collection of sound production chip. Thanks to a proprietary digital low-IF architecture, KT0936M Need no external frequency adjustment circuit or a filter. The architecture includes fully integrated low-noise amplifier, automatic gain control (AGC) A series of high-performance ADC , High performance analog and digital filters and a low noise automatic adjustment plate 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 And the receiver uses FM Similar digital low-IF receiver architecture, and at the same time FM Receivers share many circuit. That AM Receiver support from 500KHz To 1750KHz Any frequency frequency range. for SW The receiver is supported from 1.6MHz To 32MHz Any frequency range 14 Sub-band. Bandwidth filter can be provided which register FLT_SEL <2 : 0> Set from 1KHz To 5KHz In order to adapt to different customer needs.

KT0936M of AM The receiver may 500KHz To 1750KHz Provide accurate and automatic adjustment of the antenna, no manual adjustment of frequency within the range. Its value can be taken up in the ferrite antenna 360uH To 620uH between.

3.4. Working band

KT0936M Support two FM Bands, two AM Band and 14 Shortwave bands. FM The receiver frequency range covered from 32MHz To 110MHz . Each FM Band frequency range may be provided by register FMi_LOW_CHAN <11 : 0> with FMi_CHAN_NUM <11 : 0> Set up, which i = 1 , 2 . KT0936M stand by 3 Different FM Channel stepping - 50KHz , 100KHz with 200KHz . Through a separate configuration register FMi_SPACE <1 : 0> (among them i = 1 , 2) .

AM Band frequency range may be provided by register MWi_LOW_CHAN <14 : 0> with MWi_CHAN_NUM <11 : 0> ,Simultaneously AM Band channel separate step by setting register MWi_SPACE <1 : 0> To set 1KHz , 9KHz or 10KHz (among them i = 1 , 2) .

SW Band 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 the step may be performed by the channel configuration register SW_SPACE <1 : 0> Set to 1KHz , 5KHz , 9KHz or 10KHz .

3.5. 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 a CMOS Level of the external reference clock. register

FPFD <19 : 0> The frequency value is multiplied by 1 / 16Hz It is the frequency of the current selection. To clearly illustrate use of these bits, the table 7 Some examples are given.

table 7 : Different crystal or Ginseng For the use of the test clock example

	RCLK_EN	FPFD <19 : 16>	FPFD <15 : 0>	DIVIDERP <1 0 : 0>	DIVIDERN <1 0 : 0>
32 . 768KH z 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

3.6. Mode as the control knob and band control channel

KT0936M Support the unique knob pattern, the application circuit in FIG. 5 Fig.

KT0936M Knob function is to connect by sliding contact of the variable resistor to pin chips onto achieved. 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 frequency of the channel, volume, etc.

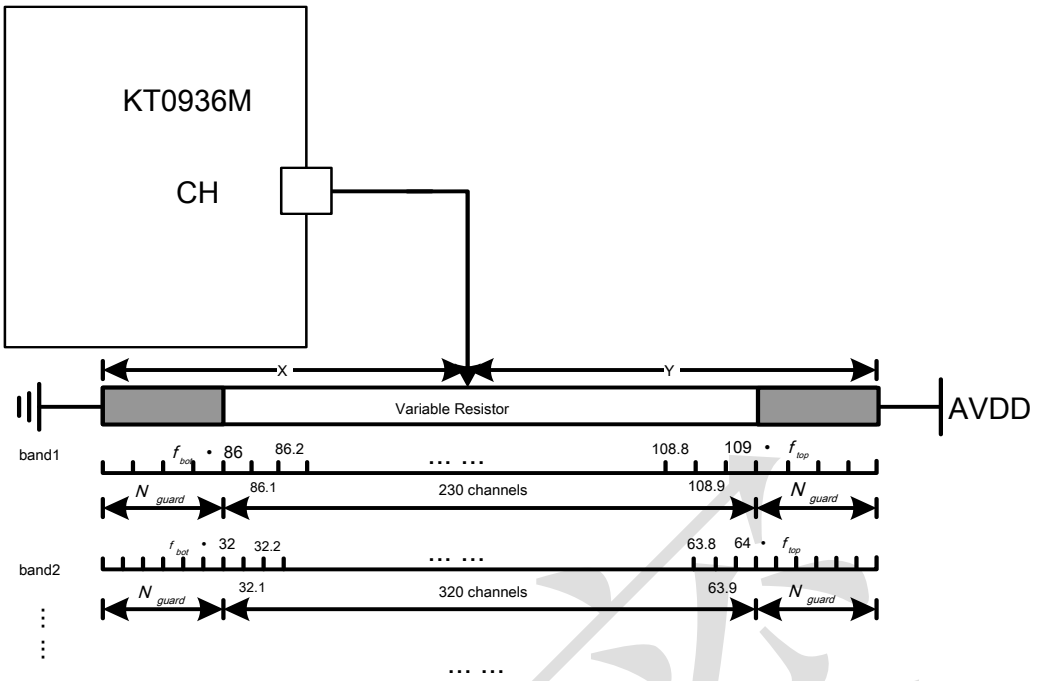
By setting register CH_PIN <1 : 0> for 10 , The channel controller enters knob mode, as shown in a schematic circuit 3 Fig. If the sliding contact of the variable resistor on a white area, the frequency of the received channel can be calculated as follows:

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

among them f_{step} is the channel stepper, It may be formed from a register FM1_SPACE <1 : 0> , FM2_SPACE <1 : 0> , MW1_SPACE <1 : 0> , MW2_SPACE <1 : 0> as well as 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} It is used to avoid Potentiometer can not be transferred due to mechanical causes 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:

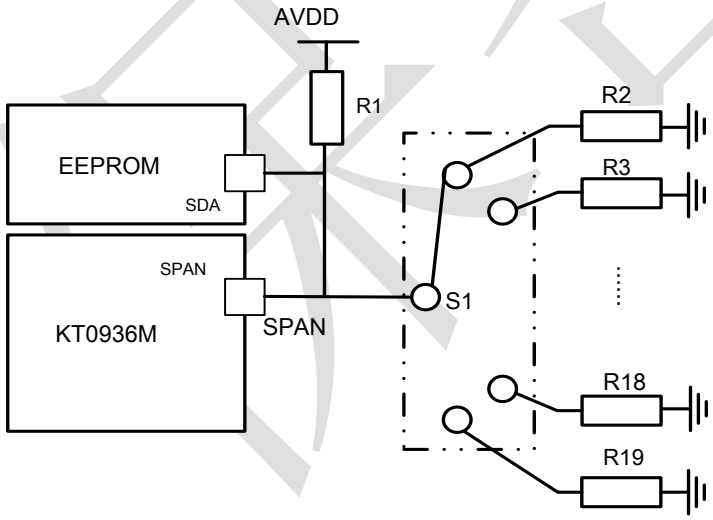
FM1_GUARD <7 : 0> , FM2_GUARD <7 : 0> , MW1_GUARD <7 : 0> ,

MW2_GUARD <7 : 0> as well as SW_GUARD <7 : 0> to realise. When the sliding contacts are transferred to the gray area, the reception frequency will be maintained in the upper or lower frequency limit frequency.



Map 3. CH Pin manual knob is configured to transfer station

KT0936M In the band set by the knob mode register SPAN_PIN <1 : 0> for 10 Band switching is achieved, the application circuit in FIG. 4 Fig.



Map 4. SPAN Pin band switching function configured

3.7. Chip Set

KT0936M Integrated I 2 C master Interface can be read on the external power initialization time EEPROM The content (for example: 24C02). Initialization information stored in advance in the EEPROM in. 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 8 Inquire. EEPROM The effective address from 000

(A2 : A0) To 110 .

table 8 : 24LC02 with KT0936M Register bit correspondence table

24LC02		KT0936M	
address	Place	address	Place
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

3.8. Register Table

3.8.1. PLLCFG0 (Address 0x04)

Bit name	Read and write the way	Defaults	Functional Description
7 : 3 Reserved bits	R	0000_0	Reserved bits
2 : 0 DIVIDERP <10 : 8>	RW	000	PLL Divider P Configuration

3.8.2. PLLCFG1 (Address 0x05)

Bit name	Read and write the way	Defaults	Functional Description
7 : 0 DIVIDERP <7 : 0> RW		0x01	PLL Divider P Configuration

3.8.3. PLLCFG2 (Address 0x06)

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

3.8.4. PLLCFG3 (Address 0x07)

Bit name	Read and write the way	Defaults	Functional Description
7 : 0 DIVIDERN <7 : 0> RW		0x9C	PLL Divider N Configuration

3.8.5. SYSCLK_CFG0 (Address 0x08)

Bit name	Read and write the way	Defaults	Functional Description
7 : 4 Reserved bits	RW	0000_0	
3 : 0 FPFD <19 : 16>	RW	1000	Phase frequency. FPFD <19 : 0> = Or the reference clock frequency external crystal / DIVIDERP

3.8.6. SYSCLK_CFG1 (Address 0x09)

Bit name	Read and write the way	Defaults	Functional Description
7 : 0 FPFD <15 : 8>	RW	0x00	Phase frequency. FPFD <19 : 0> = External crystal clock or the reference clock frequency / DIVIDERP

3.8.7. SYSCLK_CFG2 (Address 0x0A)

Bit name		Read and write the way	Defaults	Functional Description
7 : 0	FPFD <7 : 0>	RW	0x00	Phase frequency. FPFD <19 : 0> = External crystal clock or the reference clock frequency / DIVIDERP

3.8.8. XTALCFG (Address 0x0D)

Bit name		Read and write the way	Defaults	Functional Description
7 : 5	Reserved bits	RW	110	
4	RCLK_EN	RW	0	Reference clock enable . 0 = Crystal 1 = External reference clock.
3 : 0	Reserved bits	RW	0011	

3.8.9. BANDCFG0 (Address 0x16)

Bit name		Read and write the way	Defaults	Functional Description
7	SPAN_MODE	RW	1	SPAN Control mode selection 0 = AM / FM Switching from the AM_FM Pin control 1 = AM / FM Switching from the SPAN Pin control, not AM_FM Pin or AM_FM Register control
6 : 5	Reserved bits	RW	00	
4	SW_EN	RW	0	Enable control shortwave 0 = shut down 1 = When open SW_EN = 1 , SPAN_MODE Must be set 1 , FM_BAND_NUM Must be set 2 , AM_BAND_NUM Must be set 2 SW_EN = 1 Only work in Knob mode, that is to say, CH_PIN with SPAN_PIN Must be set 2
3 : 0	Reserved bits	RW	1010	

3.8.10. BANDCFG2 (Address 0x18)

Bit name		Read and write the way	Defaults	Functional Description
7 : 6	FM2_SPACE <1 : 0>	RW	01	FM Wave band 2 Stepping choice. B'00 = 200 KHz (USA, Europe) B'01 = 100KHz (Europe, Japan) B'10 = 50KHz

Bit name		Read and write the way	Defaults	Functional Description
				B'11 = 50KHz
5 : 4 FM1_SPACE <1 : 0>		RW	01	FM Wave band 1 Stepping choice. B'00 = 200 kHz (USA, Europe) B'01 = 100KHz (Europe, Japan) B'10 = 50KHz B'11 = 50KHz
3 : 2 MW2_SPACE <1 : 0>		RW	10	AM Wave band 2 Stepping choice. B'00 = 1kHz B'01 = 9kHz B'10 = 10kHz B'11 = 10kHz
1 : 0 MW1_SPACE <1 : 0>		RW	01	AM Wave band 1 Stepping selection . B'00 = 1kHz B'01 = 9kHz B'10 = 10kHz B'11 = 10kHz

3.8.11. BANDCFG3 (Address 0x19)

Bit name		Read and write the way	Defaults	Functional Description
7 : 2 Reserved bits		RW	0000_00	
1 : 0 SW_SPACE <1 : 0> RW			00	SW Stepping band selection. B'00 = 1kHz B'01 = 5kHz B'10 = 9kHz B'11 = 10kHz

3.8.12. SOUNDCFG (Address 0x28)

Bit name		Reading and writing	Defaults	Functional Description
7 : 6 Reserved bits		R	00	
5 : 4 BASS <1 : 0>		RW	00	Bass mode selection 00 = no effect 9.4 = 01 dB @ 70Hz 10 = 13.3dB@70Hz 11 = 18.2dB@70Hz
3 : 0 Reserved bits		RW	1101	

3.8.13. DSPCFG0 (Address 0x2A)

Bit name		Read and write the way	Defaults	Functional Description
7	Reserved bits	RW	1	
6 : 4 FM_GAIN <2 : 0> RW			000	FM Audio processor audio gain 000 = 0dB 001 = 3.5dB 010 = 6dB 011 = 9.5dB

Bit name		Read and write the way	Defaults	Functional Description
				100 = -2.5dB 101 = -3.66dB 110 = -6dB 111 = -8.5dB
3	Reserved bits	RW	0000	

3.8.14. DSPCFG1 (Address 0x2B)

Bit name		Read and write the way	Defaults	Functional Description
7 : 4	Reserved bits	RW	000	
3	DE	RW	0	De-emphasis 0 = 75us US use 1 = 50us , Europe, Australia and Japan use
2 : 0	Reserved bits	RW	000	

3.8.15. DSPCFG6 (Address 0x30)

Bit name		Read and write the way	Defaults	Functional Description
7 : 5	Reserved bits	RW	101	
4 : 0	FM_RSSI_BIAS <4 : 0>	RW	0_0000	FM RSSI Bias 10000 = -16dB 10001 = -15dB ..... 11110 = -2dB 11111 = -1dB 00000 = 0dB 00001 = 1dB ..... 01111 = 15dB

3.8.16. SW_CFG0 (Address 0x38)

Bit name		Read and write the way	Defaults	Functional Description
7 : 4	Reserved bits	RW	0100	
3 : 0	SW_GAIN <2 : 0> RW		0100	SW Audio processor audio gain 0000 = 6dB 0001 = 3dB 0010 = 0dB 0011 = -3dB 0100 = -6dB 0101 = -9dB 0110 = -12dB 0111 = -15dB 1000 = -18dB

3.8.17. ANACFG (Address 0x4E)

Bit name		Read and write the way	Defaults	Functional Description
7 : 6	Reserved bits	RW	00	
5 : 4	DEPOP_TC <1 : 0>	RW	00	go with POP The time constant sound 00 = 250ms 01 = 500ms 10 = 750ms 11 = 1s
3	Reserved bits	RW	0	
2 : 0	AUDV_DCLVL <2 : 0>	RW	101	Audio common mode output voltage: 000 = 0.85V 001 = 0.91V 010 = 1.05V 011 = 1.15V 100 = 1.20V 101 = 1.35V 110 = 1.50V 111 = 1.60V

3.8.18. GPIOCFG0 (Address 0x4F)

Bit name		Read and write the way	Defaults	Functional Description
7	Reserved bits	RW	1	
6 : 4	AM_FM_PIN <2 : 0>	RW	010	AM_FM Pin Function Control 000 = Reserved bits 001 = AM / FM It is selected by the button control 010 = AM / FM Toggle switch controlled by switch 011 = AM_FM Output 1 . 100 = AM_FM Output 0 .
3 : 0	Reserved bits	R	0000	

3.8.19. GPIOCFG2 (Address 0x51)

Bit name		Read and write the way	Defaults	Functional Description
7 : 6	Reserved bits	RW B'00		
5 : 4	SPAN_PIN <1 : 0>	RW B'10		SPAN Pin Function Control 00 = Reserved bits 01 = Reserved bits 10 = Mode band selection control potentiometer 11 = Reserved bits
3 : 2	Reserved bits	RW B'00		
1 : 0	CH_PIN <1 : 0>	RW B'10		CH Pin Function Control 00 = High resistance 01 = Reserved bits 10 = Subtraction potentiometer control channel 11 = Reserved bits

3.8.20. AMDSP0 (Address 0x62)

Bit name		Read and write the way	Defaults	Functional Description
7 : 4 AM_GAIN <3 : 0> RW			0110	AM Audio gain of the audio processor. 0000 = 6dB 0001 = 3dB 0010 = 0dB 0011 = -3dB 0100 = -6dB 0101 = -9dB 0110 = -12dB 0111 = -15dB 1000 = -18dB
3	Reserved bits	R	0	
2 : 0 FLT_SEL <2 : 0> RW			001	AM Channel selection filter bandwidth: 000 = 1.2KHz 001 = 2.4KHz 010 = 3.6KHz 011 = 4.8KHz 100 = 6.0KHz

3.8.21. AMDSP1 (Address 0x63)

Bit name		Read and write the way	Defaults	Functional Description
7 : 5 Reserved bits		R	000	
4 : 0 AM_RSSI_BIAS <4 : 0>		RW	0_0000	AM RSSI Bias 10000 = -16dB 10001 = -15dB ..... 11110 = -2dB 11111 = -1dB 00000 = 0dB 00001 = 1dB ..... 01111 = 15dB

3.8.22. AMDSP7 (Address 0x69)

Bit name		Read and write the way	Defaults	Functional Description
7 : 4 Reserved bits		RW	1000	
3 : 0 AM_VOLUME <3 : 0>		RW	1110	AM 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

3.8.23. GUARD0 (Address 0x6F)

Bit name		Read and write the way	Defaults	Functional Description
7 : 4	Reserved bits	R	0000	
3 : 0	SPAN_GUARD <3 : 0>	RW	0010	The scope of the potentiometer resistor pattern

3.8.24. GUARD0 (Address 0x70)

Bit name		Read and write the way	Defaults	Functional Description
7 : 0	SW_GUARD <3 : 0>	RW	0000_1101	SW The scope of the potentiometer resistance mode

3.8.25. FM1_LOW_CHAN0 (Address 0x90)

Bit name		Read and write the way	Defaults	Functional Description
7 : 4	Reserved bits	R	0000	
3 : 0	FM1_LOW_CHAN <11 : 8>	RW	0110	FM1 The lower limit of the frequency band, each LSB for 50KHz The default value 86MHz (0x06B8) . The value should be 32MHz (0x280) with 110MHz (0x898) Number between.

3.8.26. FM1_LOW_CHAN1 (Address 0x91)

Bit name		Read and write the way	Defaults	Functional Description
7 : 0	FM1_LOW_CHAN <7 : 0>	RW	0xB8	FM1 The lower limit of the frequency band, each LSB for 50KHz The default value 86MHz (0x06B8) . The value should be 32MHz (0x280) with 110MHz (0x898) Between values.

3.8.27. FM1_CHAN_NUM0 (Address 0x92)

Bit name		Read and write the way	Defaults	Functional Description
7 : 4	Reserved bits	R	0000	
3 : 0	FM1_CHAN_NUM <11 : 8>	RW	0000	FM1 The number of band channel, this value should be FM1_CHAN_NUM <11 : 0> 1 + .

Bit name		Read and write the way	Defaults	Functional Description
				in case FM1_CHAN_NUM <11 : 0> Put 0 , You can define a channel.

3.8.28. FM1_CHAN_NUM1 (Address 0x93)

Bit name		Read and write the way	Defaults	Functional Description
7 : 0	FM1_CHAN_NUM <7 : 0>	RW	0xE6	FM1 The number of band channel, this value should be FM1_CHAN_NUM <11 : 0> 1 + . in case FM1_CHAN_NUM <11 : 0> Put 0 But to define a channel

3.8.29. FM2_LOW_CHAN0 (Address 0x94)

Bit name		Read and write the way	Defaults	Functional Description
7 : 4	Reserved bits	R	B'0000	
3 : 0	FM2_LOW_CHAN <11 : 8>	RW	B'0101	FM2 The lower limit of the frequency band, each LSB for 50KHz The default value 64MHz (0x0500) . The value should be 32MHz (0x280) with 110MHz (0x898) Between values.

3.8.30. FM2_LOW_CHAN1 (Address 0x95)

Bit name		Read and write the way	Defaults	Functional Description
7 : 0	FM2_LOW_CHAN <7 : 0>	RW	0	FM2 The lower limit of the frequency band, each LSB for 50KHz The default value 64MHz (0x0500) . The value should be 32MHz (0x280) with 110MHz (0x898) Between values.

3.8.31. FM2_CHAN_NUM0 (Address 0x96)

Bit name		Read and write the way	Defaults	Functional Description
7 : 4	Reserved bits	R	B'0000	
3 : 0	FM2_CHAN_NUM <11 : 8>	RW	B'0001	FM2 The number of band channel, this value should be FM2_CHAN_NUM <11 : 0> 1 + . in case FM2_CHAN_NUM <11 : 0> Put 0 , Only you can define a channel

3.8.32. FM2_CHAN_NUM1 (Address 0x97)

Bit name		Read and write the way	Defaults	Functional Description

Bit name		Read and write the way	Defaults	Functional Description
7 : 0	FM2_CHAN_NUM <7 : 0>	RW	0x0e	FM2 The number of band channel, this value should be FM2_CHAN_NUM <11 : 0> 1 + . in case FM2_CHAN_NUM <11 : 0> Put 0 , Only you can define a channel

3.8.33. MW1_LOW_CHAN0 (Address 0x98)

Bit name		Read and write the way	Defaults	Functional Description
7 : 3	Reserved bits	R	0	
2 : 0	MW1_LOW_CHAN <10 : 8>	RW	001	MW1 The lower limit of the frequency of each band LSB for 1KHz The default value 504KHz (0x01F8) . The value should be 500Khz (0x1F4) with 1750Khz (0x6D6) Number between

3.8.34. MW1_LOW_CHAN1 (Address 0x99)

Bit name		Read and write the way	Defaults	Functional Description
7 : 0	MW1_LOW_CHAN <7 : 0>	RW	0xF8	MW1 The lower limit of the frequency of each band LSB for 1KHz The default value 504KHz (0x01F8) . The value should be 500Khz (0x1F4) with 1750Khz (0x6D6) Number between

3.8.35. MW1_CHAN_NUM0 (Address 0x9A)

Bit name		Read and write the way	Defaults	Functional Description
7 : 3	Reserved bits	R	B'00000	
2 : 0	MW1_CHAN_NUM <10 : 8>	RW	000	MW1 The lower limit of the frequency of each band LSB for 1KHz The default value 504KHz (0x01F8) . The value should be 500Khz (0x1F4) with 1750Khz (0x6D6) Number between

3.8.36. MW1_CHAN_NUM1 (Address 0x9B)

Bit name		Read and write the way	Defaults	Functional Description
7 : 0	MW1_CHAN_NUM <7 : 0>	RW	0x86	MW1 Band channel number, the value is MW1_CHAN_NUM <10 : 0> 1 + . in case MW1_CHAN_NUM <10 : 0> Put 0 , Only you can define a channel

3.8.37. MW2_LOW_CHAN0 (Address 0x9C)

Bit name	Read and write the way	Defaults	Functional Description
7 : 3 Reserved bits	R	B'000	
2 : 0 MW2_LOW_CHAN <10 : 8>	RW	B'001	MW2 The lower limit of the frequency band, each LSB for 1KHz And the default value 500KHz (0x01F4) . The value should be 500Khz (0x1F4) with 1750Khz (0x6D6) Number

3.8.38. MW2_LOW_CHAN1 (Address 0x9D)

Bit name	Read and write the way	Defaults	Functional Description
7 : 0 MW2_LOW_CHAN <7 : 0>	RW	0xF4	MW2 The lower limit of the frequency band, each LSB for 1KHz And the default value 500KHz (0x01F4) . The value should be 500Khz (0x1F4) with 1750Khz (0x6D6) Number

3.8.39. MW2_CHAN_NUM0 (Address 0x9E)

Bit name	Read and write the way	Defaults	Functional Description
7 : 3 Reserved bits	R	00000	
2 : 0 MW2_CHAN_NUM <10 : 8>	RW	000	MW2 The number of channel band, and this value should be MW2_CHAN_NUM <10 : 0> 1 + . in case MW2_CHAN_NUM <10 : 0> Put 0 , Only you can define a channel

3.8.40. MW2_CHAN_NUM1 (Address 0x9F)

Bit name	Read and write the way	Defaults	Functional Description
7 : 0 MW2_CHAN_NUM <7 : 0>	RW	0x7D	MW2 The number of channel band, and this value should be MW2_CHAN_NUM <10 : 0> 1 + . in case MW2_CHAN_NUM <10 : 0> Put 0 , Only you can define a channel

3.8.41. GUARD2 (Address 0xA0)

Bit name	Read and write the way	Defaults	Functional Description
7 : 0 FM1_GUARD <7 : 0>	RW	0x17	Mode at a potential FM1 The scope of protection

3.8.42. GUARD3 (Address 0xA1)

Bit name		Read and write the way	Defaults	Functional Description
7 : 0	FM2_GUARD <7 : 0>	RW	0x1B	Mode at a potential FM2 The scope of protection

3.8.43. GUARD4 (Address 0xA2)

Bit name		Reading and writing	Defaults	Functional Description
7 : 0	MW1_GUARD <7 : 0>	RW	0x78	Mode at a potential MW1 The scope of protection

3.8.44. GUARD5 (Address 0xA3)

Bit name		Reading and writing	Defaults	Functional Description
7 : 0	MW2_GUARD <7 : 0>	RW	0x78	Mode at a potential MW2 The scope of protection

3.8.45. SW1_LOW_CHAN0 (Address 0xA4)

Bit name		Read and write the way	Defaults	Functional Description
7	Reserved bits	R	B'0	
6 : 0	SW1_LOW_CHAN <14 : 8>	RW	B'000_0110	SW1 The lower limit of the frequency band, each LSB for 1KHz The default value 3.4MHz (0x0D48) . The value should be 1.6MHz (0x0640) To 32MHz (0x7D00) Number between

3.8.46. SW1_LOW_CHAN1 (Address 0xA5)

Bit name		Read and write the way	Defaults	Functional Description
7 : 0	SW1_LOW_CHAN <7 : 0>	RW	0x40	SW1 The lower limit of the frequency band, each LSB for 1KHz The default value 3.4MHz (0x0D48) . The value should be 1.6MHz (0x0640) To 32MHz (0x7D00) Number between

3.8.47. SW2_LOW_CHAN0 (Address 0xA6)

Bit name		Read and write the way	Defaults	Functional Description
7	Reserved bits	R	B'0	
6 : 0	SW2_LOW_CHAN <14 : 8>	RW	B'000_0110	SW2 The lower limit of the frequency band, each LSB for 1KHz The default value 4.7MHz

Bit name		Read and write the way	Defaults	Functional Description
				(0x125C) . The value should be 1.6MHz (0x0640) with 32MHz (0x7D00) Number between

3.8.48. SW2_LOW_CHAN1 (Address 0xA7)

Bit name		Read and write the way	Defaults	Functional Description
7 : 0	SW2_LOW_CHAN <7 : 0>	RW	0x40	SW2 The lower limit of the frequency band, each LSB for 1KHz The default value 4.7MHz (0x125C) . The value should be 1.6MHz (0x0640) with 32MHz (0x7D00) Number between

3.8.49. SW3_LOW_CHAN0 (Address 0xA8)

Bit name		Read and write the way	Defaults	Functional Description
7	Reserved bits	R	B'0	
6 : 0	SW3_LOW_CHAN <14 : 8>	RW	B'000_0110	SW3 The lower limit of the frequency band, each LSB for 1KHz The default value 5.2MHz (0x1450) . The value should be 1.6MHz (0x0640) with 32MHz (0x7D00) Number between

3.8.50. SW3_LOW_CHAN1 (Address 0xA9)

Bit name		Read and write the way	Defaults	Functional Description
7 : 0	SW3_LOW_CHAN <7 : 0>	RW	0x40	SW3 The lower limit of the frequency band, each LSB for 1KHz The default value 5.2MHz (0x1450) . The value should be 1.6MHz (0x0640) with 32MHz (0x7D00) Number between

3.8.51. SW4_LOW_CHAN0 (Address 0xAA)

Bit name		Read and write the way	Defaults	Functional Description
7	Reserved bits	R	B'0	
6 : 0	SW4_LOW_CHAN <14 : 8>	RW	B'000_0110	SW4 The lower limit of the frequency band, each LSB for 1KHz The default value 6.1MHz (0x17D4) . The value should be 1.6MHz (0x0640) with 32MHz (0x7D00) Number between

3.8.52. SW4_LOW_CHAN1 (Address 0xAB)

Bit name		Read and write the way	Defaults	Functional Description
7 : 0	SW4_LOW_CHAN <7 : 0>	RW	0x40	SW4 The lower limit of the frequency band, each LSB for 1KHz The default value 6.1MHz (0x17D4) . The value should be 1.6MHz (0x0640) with 32MHz (0x7D00) Number between

3.8.53. SW5_LOW_CHAN0 (Address 0xAC)

Bit name		Read and write the way	Defaults	Functional Description
7	Reserved bits	R	B'0	
6 : 0	SW5_LOW_CHAN <14 : 8>	RW	B'000_0110	SW5 The lower limit of the frequency band, each LSB for 1KHz The default value 7.8MHz (0x1E78) . The value should be 1.6MHz (0x0640) with 32MHz (0x7D00) Number between

3.8.54. SW5_LOW_CHAN1 (Address 0xAD)

Bit name		Read and write the way	Defaults	Functional Description
7 : 0	SW5_LOW_CHAN <7 : 0>	RW	0x40	SW5 The lower limit of the frequency band, each LSB for 1KHz The default value 7.8MHz (0x1E78) . The value should be 1.6MHz (0x0640) with 32MHz (0x7D00) Number between

3.8.55. SW6_LOW_CHAN0 (Address 0xAE)

Bit name		Read and write the way	Defaults	Functional Description
7	Reserved bits	R	B'0	
6 : 0	SW6_LOW_CHAN <14 : 8>	RW	B'000_0110	SW6 The lower limit of the frequency band, each LSB for 1KHz The default value 8.2MHz (0x2008) . The value should be 1.6MHz (0x0640) with 32MHz (0x7D00) Number between

3.8.56. SW6_LOW_CHAN1 (Address 0xAF)

Bit name		Read and write the way	Defaults	Functional Description
7 : 0	SW6_LOW_CHAN <7 : 0>	RW	0x40	SW6 The lower limit of the frequency band, each LSB for 1KHz The default value 8.2MHz (0x2008) . The value should be 1.6MHz

				(0x0640) with 32MHz (0x7D00) Number between

3.8.57. SW7_LOW_CHAN0 (Address 0xB0)

Bit name		Read and write the way	Defaults	Functional Description
7	Reserved bits	R	B'0	
6 : 0 SW7_LOW_CHAN <14 : 8>		RW	B'000_0110	SW7 The lower limit of the frequency band, each LSB for 1KHz The default value 10.4MHz (0x28A0) . The value should be 1.6MHz (0x0640) with 32MHz (0x7D00) Number between

3.8.58. SW7_LOW_CHAN1 (Address 0xB1)

Bit name		Read and write the way	Defaults	Functional Description
7 : 0 SW7_LOW_CHAN <7 : 0>		RW	0x40	SW7 The lower limit of the frequency band, each LSB for 1KHz The default value 10.4MHz (0x28A0) . The value should be 1.6MHz (0x0640) with 32MHz (0x7D00) Number between

3.8.59. SW8_LOW_CHAN0 (Address 0xB2)

Bit name		Read and write the way	Defaults	Functional Description
7	Reserved bits	R	B'0	
6 : 0 SW8_LOW_CHAN <14 : 8>		RW	B'000_0110	SW8 The lower limit of the frequency band, each LSB for 1KHz The default value 10.9MHz (0x2A94) . The value should be 1.6MHz (0x0640) with 32MHz (0x7D00) Number between

3.8.60. SW8_LOW_CHAN1 (Address 0xB3)

Bit name		Read and write the way	Defaults	Functional Description
7 : 0 SW8_LOW_CHAN <7 : 0>		RW	0x40	SW8 The lower limit of the frequency band, each LSB for 1KHz The default value 10.9MHz (0x2A94) . The value should be 1.6MHz (0x0640) with 32MHz (0x7D00) Number between

3.8.61. SW9_LOW_CHAN0 (Address 0xB4)

Bit name		Read and write the way	Defaults	Functional Description
7	Reserved bits	R	B'0	

Bit name		Read and write the way	Defaults	Functional Description
6 : 0	SW9_LOW_CHAN N <14 : 8>	RW	B'000_0110	SW9 The lower limit of the frequency band, each LSB for 1KHz The default value 14MHz (0x36B0) . The value should be 1.6MHz (0x0640) with 32MHz (0x7D00) Number between

3.8.62. SW9_LOW_CHAN1 (Address 0xB5)

Bit name		Read and write the way	Defaults	Functional Description
7 : 0	SW9_LOW_CHAN N <7 : 0>	RW	0x40	SW9 The lower limit of the frequency band, each LSB for 1KHz The default value 14MHz (0x36B0) . The value should be 1.6MHz (0x0640) with 32MHz (0x7D00) Number between

3.8.63. SW10_LOW_CHAN0 (Address 0xB6)

Bit name		Read and write the way	Defaults	Functional Description
7	Reserved bits	R	B'0	
6 : 0	SW10_LOW_CHAN N <14 : 8>	RW	B'000_0110	SW10 The lower limit of the frequency band, each LSB for 1KHz The default value 14.8MHz (0x39D0) . The value should be 1.6MHz (0x0640) with 32MHz (0x7D00) Number between

3.8.64. SW10_LOW_CHAN1 (Address 0xB7)

Bit name		Read and write the way	Defaults	Functional Description
7 : 0	SW10_LOW_CHAN N <7 : 0>	RW	0x40	SW10 The lower limit of the frequency band, each LSB for 1KHz The default value 14.8MHz (0x39D0) . The value should be 1.6MHz (0x0640) with 32MHz (0x7D00) Number between

3.8.65. SW11_LOW_CHAN0 (Address 0xB8)

Bit name		Read and write the way	Defaults	Functional Description
7	Reserved bits	R	B'0	
6 : 0	SW11_LOW_CHAN N <14 : 8>	RW	B'000_0110	SW11 The lower limit of the frequency band, each LSB for 1KHz The default value 18.3MHz (0x477C) . The value should be 1.6MHz (0x0640) with 32MHz (0x7D00) Number between

3.8.66. SW11_LOW_CHAN1 (Address 0xB9)

Bit name		Read and write the way	Defaults	Functional Description
7 : 0	SW11_LOW_CHAN<7 : 0>	RW	0x40	SW11 The lower limit of the frequency band, each LSB for 1KHz The default value 18.3MHz (0x477C) . The value should be 1.6MHz (0x0640) with 32MHz (0x7D00) Number between

3.8.67. SW12_LOW_CHAN0 (Address 0xBA)

Bit name		Read and write the way	Defaults	Functional Description
7	Reserved bits	R	B'0	
6 : 0	SW12_LOW_CHAN<14 : 8>	RW	B'000_0110	SW12 The lower limit of the frequency band, each LSB for 1KHz The default value 19.4MHz (0x4BC8) . The value should be 1.6MHz (0x0640) with 32MHz (0x7D00) Number between

3.8.68. SW12_LOW_CHAN1 (Address 0xBB)

Bit name		Read and write the way	Defaults	Functional Description
7 : 0	SW12_LOW_CHAN<7 : 0>	RW	0x40	SW12 The lower limit of the frequency band, each LSB for 1KHz The default value 19.4MHz (0x4BC8) . The value should be 1.6MHz (0x0640) with 32MHz (0x7D00) Number between

3.8.69. SW13_LOW_CHAN0 (Address 0xBC)

Bit name		Read and write the way	Defaults	Functional Description
7	Reserved bits	R	B'0	
6 : 0	SW13_LOW_CHAN<14 : 8>	RW	B'000_0110	SW13 The lower limit of the frequency band, each LSB for 1KHz The default value 21.6MHz (0x5460) . The value should be 1.6MHz (0x0640) with 32MHz (0x7D00) Number between

3.8.70. SW13_LOW_CHAN1 (Address 0xBD)

Bit name		Read and write the way	Defaults	Functional Description
7 : 0	SW13_LOW_CHAN<7 : 0>	RW	0x40	SW13 The lower limit of the frequency band, each LSB for 1KHz The default value 21.6MHz (0x5460) . The value should be 1.6MHz

				(0x0640) with 32MHz (0x7D00) Number between

3.8.71. SW14_LOW_CHAN0 (Address 0xBE)

Bit name		Read and write the way	Defaults	Functional Description
7	Reserved bits	R	B'0	
6 : 0	SW14_LOW_CHAN <14 : 8>	RW	B'000_0110	SW14 The lower limit of the frequency band, each LSB for 1KHz The default value 9MHz (0x2328) . The value should be 1.6MHz (0x0640) with 32MHz (0x7D00) Number between

3.8.72. SW14_LOW_CHAN1 (Address 0xBF)

Bit name		Read and write the way	Defaults	Functional Description
7 : 0	SW14_LOW_CHAN <7 : 0>	RW	0x40	SW14 The lower limit of the frequency band, each LSB for 1KHz The default value 9MHz (0x2328) . The value should be 1.6MHz (0x0640) with 32MHz (0x7D00) Number between

3.8.73. SW1_CHAN_NUM0 (Address 0xC0)

Bit name		Read and write the way	Defaults	Functional Description
7 : 4	Reserved bits	R	0000	
3 : 0	SW1_CHAN_NUM <11 : 8>	RW	0001	SW1 The number of band channel, the channel number is SW1_CHAN_NUM <11 : 0> 1 + . in case SW1_CHAN_NUM <11 : 0> Put 0 , Only you can define a channel

3.8.74. SW1_CHAN_NUM1 (Address 0xC1)

Bit name		Read and write the way	Defaults	Functional Description
7 : 0	SW1_CHAN_NUM <7 : 0>	RW	0x53	SW1 The number of band channel, the channel number is SW1_CHAN_NUM <11 : 0> 1 + . in case SW1_CHAN_NUM <11 : 0> Put 0 , Only you can define a channel

3.8.75. SW2_CHAN_NUM0 (Address 0xC2)

Bit name		Read and write the way	Defaults	Functional Description
7 : 4	Reserved bits	R	0000	
3 : 0	SW2_CHAN_NUM <11 : 8>	RW	0000	SW2 The number of band channel, the channel number is equal to SW2_CHAN_NUM <11 : 0> +

Bit name		Read and write the way	Defaults	Functional Description
				1 . in case SW2_CHAN_NUM <11 : 0> Put 0 , Only you can define a channel

3.8.76. SW2_CHAN_NUM1 (Address 0xC3)

Bit name		Read and write the way	Defaults	Functional Description
7 : 0	SW2_CHAN_NUM <7 : 0>	RW	0xF0	SW2 The number of band channel, the channel number is equal to SW2_CHAN_NUM <11 : 0> 1 + . in case SW2_CHAN_NUM <11 : 0> Put 0 , Only you can define a channel

3.8.77. SW3_CHAN_NUM0 (Address 0xC4)

Bit name		Read and write the way	Defaults	Functional Description
7 : 4	Reserved bits	R	0000	
3 : 0	SW3_CHAN_NUM <11 : 8>	RW	0001	SW3 The number of bands equal to the channel SW3_CHAN_NUM <11 : 0> 1 + . in case SW3_CHAN_NUM <11 : 0> Put 0 , You can define only one channel.

3.8.78. SW3_CHAN_NUM1 (Address 0xC5)

Bit name		Read and write the way	Defaults	Functional Description
7 : 0	SW3_CHAN_NUM <7 : 0>	RW	0x90	SW3 The number of bands equal to the channel SW3_CHAN_NUM <11 : 0> 1 + . in case SW3_CHAN_NUM <11 : 0> Put 0 , You can define only one channel.

3.8.79. SW4_CHAN_NUM0 (Address 0xC6)

Bit name		Read and write the way	Defaults	Functional Description
7 : 4	Reserved bits	R	0000	
3 : 0	SW4_CHAN_NUM <11 : 8>	RW	0001	SW4 The number of bands equal to the channel SW4_CHAN_NUM <11 : 0> 1 + . in case SW4_CHAN_NUM <11 : 0> Put 0 , You can define only one channel.

3.8.80. SW4_CHAN_NUM1 (Address 0xC7)

Bit name		Read and write the way	Defaults	Functional Description
7 : 0	SW4_CHAN_NUM <7 : 0>	RW	0x18	SW4 The number of bands equal to the channel SW4_CHAN_NUM <11 : 0> 1 + .

Bit name		Read and write the way	Defaults	Functional Description
				in case SW4_CHAN_NUM <11 : 0> Put 0 , You can define only one channel.

3.8.81. SW5_CHAN_NUM0 (Address 0xC8)

Bit name		Read and write the way	Defaults	Functional Description
7 : 4 Reserved bits		R	0000	
3 : 0 SW5_CHAN_NU	M <11 : 8>	RW	0001	SW5 The number of bands equal to the channel SW5_CHAN_NUM <11 : 0> 1 + . in case SW5_CHAN_NUM <11 : 0> Put 0 , You can define only one channel.

3.8.82. SW5_CHAN_NUM1 (Address 0xC9)

Bit name		Read and write the way	Defaults	Functional Description
7 : 0 SW5_CHAN_NU	M <7 : 0>	RW	0xB8	SW5 The number of bands equal to the channel SW5_CHAN_NUM <11 : 0> 1 + . in case SW5_CHAN_NUM <11 : 0> Put 0 , You can define only one channel.

3.8.83. SW6_CHAN_NUM0 (Address 0xCA)

Bit name		Read and write the way	Defaults	Functional Description
7 : 4 Reserved bits		R	0000	
3 : 0 SW6_CHAN_NU	M <11 : 8>	RW	0010	SW6 The number of bands equal to the channel SW6_CHAN_NUM <11 : 0> 1 + . in case SW6_CHAN_NUM <11 : 0> Put 0 , You can define only one channel.

3.8.84. SW6_CHAN_NUM1 (Address 0xCB)

Bit name		Read and write the way	Defaults	Functional Description
7 : 0 SW6_CHAN_NU	M <7 : 0>	RW	0x30	SW6 The number of bands equal to the channel SW6_CHAN_NUM <11 : 0> 1 + . in case SW6_CHAN_NUM <11 : 0> Put 0 , You can define only one channel.

3.8.85. SW7_CHAN_NUM0 (Address 0xCC)

Bit name		Read and write the way	Defaults	Functional Description
7 : 4 Reserved bits		R	0000	
3 : 0 SW7_CHAN_NU	RW		0010	SW7 The number of bands equal to the channel

Bit name		Read and write the way	Defaults	Functional Description
	M <11 : 8>			SW7_CHAN_NUM <11 : 0> 1 + . in case SW7_CHAN_NUM <11 : 0> Put 0 , You can define only one channel.

3.8.86. SW7_CHAN_NUM1 (Address 0xCD)

Bit name		Read and write the way	Defaults	Functional Description
7 : 0 SW7_CHAN_NU	M <7 : 0>	RW	0x44	SW7 The number of bands equal to the channel SW7_CHAN_NUM <11 : 0> 1 + . in case SW7_CHAN_NUM <11 : 0> Put 0 , You can define only one channel.

3.8.87. SW8_CHAN_NUM0 (Address 0xCE)

Bit name		Read and write the way	Defaults	Functional Description
7 : 4 Reserved bits		R	0000	
3 : 0 SW8_CHAN_NU	M <11 : 8>	RW	0010	SW8 The number of bands equal to the channel SW8_CHAN_NUM <11 : 0> 1 + . in case SW8_CHAN_NUM <11 : 0> Put 0 , You can define only one channel.

3.8.88. SW8_CHAN_NUM1 (Address 0xCF)

Bit name		Read and write the way	Defaults	Functional Description
7 : 0 SW8_CHAN_NU	M <7 : 0>	RW	0x7F	SW8 The number of bands equal to the channel SW8_CHAN_NUM <11 : 0> 1 + . in case SW8_CHAN_NUM <11 : 0> Put 0 , You can define only one channel.

3.8.89. SW9_CHAN_NUM0 (Address 0xD0)

Bit name		Read and write the way	Defaults	Functional Description
7 : 4 Reserved bits		R	0000	
3 : 0 SW9_CHAN_NU	M <11 : 8>	RW	0010	SW9 The number of bands equal to the channel SW9_CHAN_NUM <11 : 0> 1 + . in case SW9_CHAN_NUM <11 : 0> Put 0 , You can define only one channel.

3.8.90. SW9_CHAN_NUM1 (Address 0xD1)

Bit name		Read and write the way	Defaults	Functional Description
7 : 0 SW9_CHAN_NU	RW		0x94	SW9 The number of bands equal to the channel

Bit name		Read and write the way	Defaults	Functional Description
	M <7 : 0>			SW9_CHAN_NUM <11 : 0> 1 + . in case SW9_CHAN_NUM <11 : 0> Put 0 , You can define only one channel.

3.8.91. SW10_CHAN_NUM0 (Address 0xD2)

Bit name		Read and write the way	Defaults	Functional Description
7 : 4 Reserved bits		R	0000	
3 : 0 SW10_CHAN_NU	M <11 : 8>	RW	0010	SW10 The number of bands equal to the channel SW10_CHAN_NUM <11 : 0> 1 + . in case SW10_CHAN_NUM <11 : 0> Put 0 , You can define only one channel.

3.8.92. SW10_CHAN_NUM1 (Address 0xD3)

Bit name		Read and write the way	Defaults	Functional Description
7 : 0 SW10_CHAN_NU	M <7 : 0>	RW	0xE3	SW10 The number of bands equal to the channel SW10_CHAN_NUM <11 : 0> 1 + . in case SW10_CHAN_NUM <11 : 0> Put 0 , You can define only one channel.

3.8.93. SW11_CHAN_NUM0 (Address 0xD4)

Bit name		Read and write the way	Defaults	Functional Description
7 : 4 Reserved bits		R	0000	
3 : 0 SW11_CHAN_NU	M <11 : 8>	RW	0010	SW11 The number of bands equal to the channel SW11_CHAN_NUM <11 : 0> 1 + . in case SW11_CHAN_NUM <11 : 0> Put 0 , You can define only one channel.

3.8.94. SW11_CHAN_NUM1 (Address 0xD5)

Bit name		Read and write the way	Defaults	Functional Description
7 : 0 SW11_CHAN_NU	M <7 : 0>	RW	0x7F	SW11 The number of bands equal to the channel SW11_CHAN_NUM <11 : 0> 1 + . in case SW11_CHAN_NUM <11 : 0> Put 0 , You can define only one channel.

3.8.95. SW12_CHAN_NUM0 (Address 0xD6)

Bit name		Read and write the way	Defaults	Functional Description
7 : 4 Reserved bits		R	0000	

Bit name		Read and write the way	Defaults	Functional Description
3 : 0	SW12_CHAN_NUM <11 : 8>	RW	0010	SW12 The number of bands equal to the channel SW12_CHAN_NUM <11 : 0> 1 + . in case SW12_CHAN_NUM <11 : 0> Put 0 , You can define only one channel.

3.8.96. SW12_CHAN_NUM1 (Address 0xD7)

Bit name		Read and write the way	Defaults	Functional Description
7 : 0	SW12_CHAN_NUM <7 : 0>	RW	0xD0	SW12 The number of bands equal to the channel SW12_CHAN_NUM <11 : 0> 1 + . in case SW12_CHAN_NUM <11 : 0> Put 0 , You can define only one channel.

3.8.97. SW13_CHAN_NUM0 (Address 0xD8)

Bit name		Read and write the way	Defaults	Functional Description
7 : 4	Reserved bits	R	0000	
3 : 0	SW13_CHAN_NUM <11 : 8>	RW	0001	SW13 The number of bands equal to the channel SW13_CHAN_NUM <11 : 0> 1 + . in case SW13_CHAN_NUM <11 : 0> Put 0 , You can define only one channel.

3.8.98. SW13_CHAN_NUM1 (Address 0xD9)

Bit name		Read and write the way	Defaults	Functional Description
7 : 0	SW13_CHAN_NUM <7 : 0>	RW	0x17	SW13 The number of bands equal to the channel SW13_CHAN_NUM <11 : 0> 1 + . in case SW13_CHAN_NUM <11 : 0> Put 0 , You can define only one channel.

3.8.99. SW14_CHAN_NUM0 (Address 0xDA)

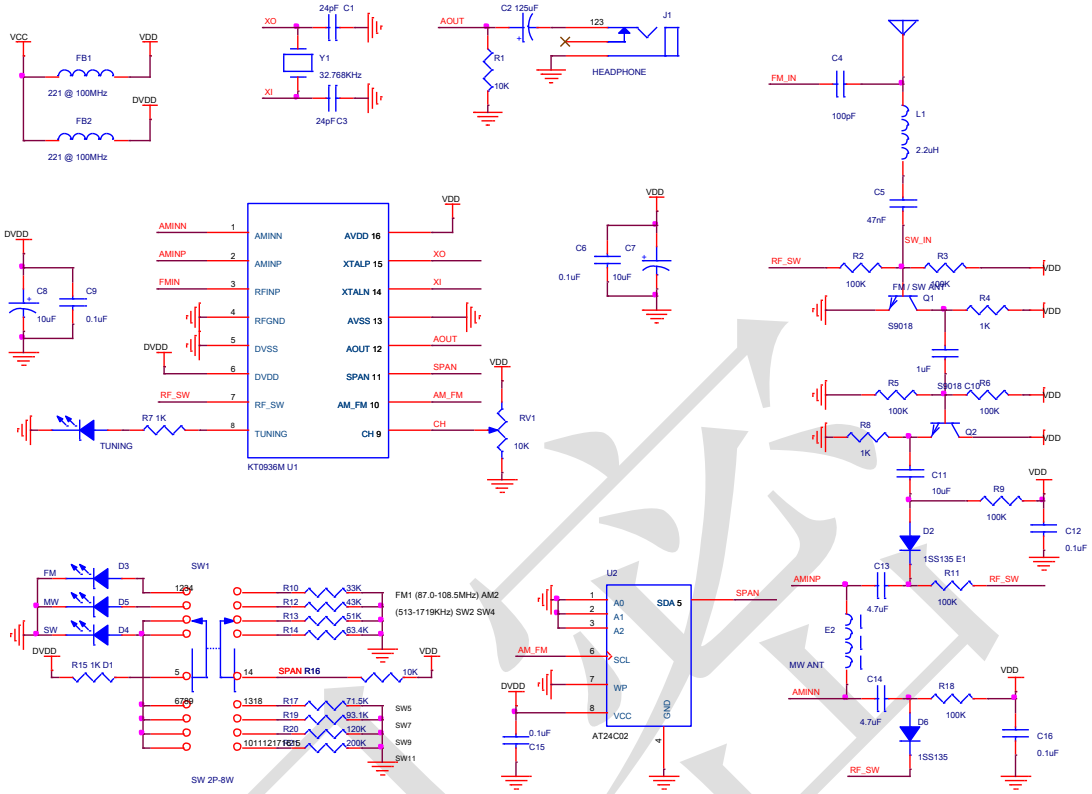
Bit name		Read and write the way	Defaults	Functional Description
7 : 4	Reserved bits	R	0000	
3 : 0	SW14_CHAN_NUM <11 : 8>	RW	0010	SW14 The number of bands equal to the channel SW14_CHAN_NUM <11 : 0> 1 + . in case SW14_CHAN_NUM <11 : 0> Put 0 , You can define only one channel.

3.8.100. SW14_CHAN_NUM1 (Address 0xDB)

Bit name		Read and write the way	Defaults	Functional Description

Bit name		Read and write the way	Defaults	Functional Description
7 : 0	SW14_CHAN_NUM <7 : 0>	RW	0xCF	SW14 The number of bands equal to the channel SW14_CHAN_NUM <11 : 0> 1 + . in case SW14_CHAN_NUM <11 : 0> Put 0 , You can define only one channel.

4. Reference circuit

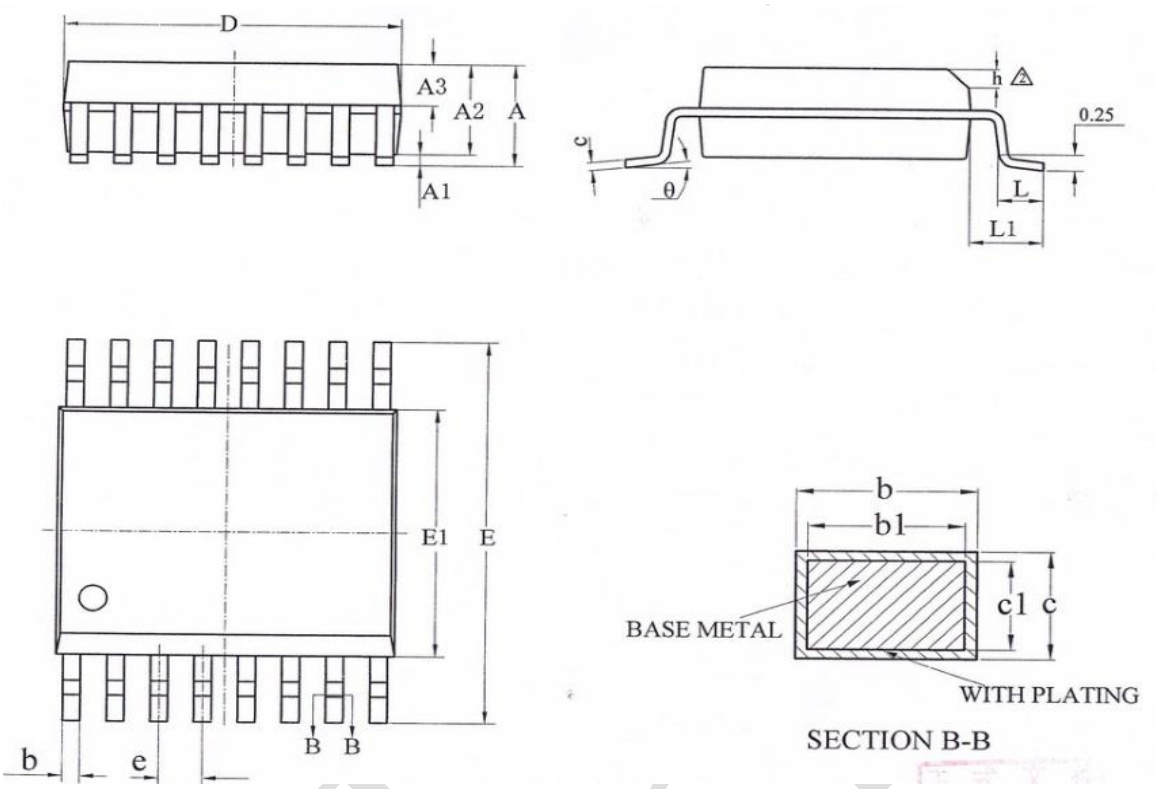


Map 5. Typical application circuit

Components	description	Parameter Value
C1 , C3	Crystal oscillator capacitor	24pF
C2	AC coupling capacitors	125uF
C4	AC coupling capacitors	100pF
C5	AC coupling capacitors	47nF
C6 , C9 , C12 , C15 , C16	Power supply decoupling capacitors	0.1uF
C7 , C8 , C11	Power supply decoupling capacitors	10uF
C10	AC coupling capacitors	1uF
C13 , C14	AC coupling capacitors	4.7uF
D1	Transfer station indicator	led
D2 , D6	SW RF Switch	1SS135
D3	FM Pilot lamp	led
D4	SW Pilot lamp	led
D5	MW Pilot lamp	led
E1	FM / SW antenna	FM / SW ANT
E2	MW Ferrite antenna	420uH
FB1 , FB2	Beads	221 @ 100MHz
J1	Headphone jack	
L1	SW Input filter inductor	2.2uH
Q1 , Q2	SW Low noise amplifier	S9018
RV1	Variable resistor	10Kohm
R1	Resistor	10Kohm

R2 , R3 , R5 , R6 , R9 , R11 , R18 Resistor	Resistor	100Kohm
R4 , R7 , R8 , R15		1Kohm
R10	A band switching resistor network	33Kohm (1%)
R12	A band switching resistor network	43Kohm (1%)
R13	A band switching resistor network	51Kohm (1%)
R14	A band switching resistor network	63.4Kohm (1%)
R16	A band switching resistor network	10Kohm (1%)
R17	A band switching resistor network	71.5Kohm (1%)
R19	A band switching resistor network	93.1Kohm (1%)
R20	A band switching resistor network	120Kohm (1%)
R21	A band switching resistor network	200Kohm (1%)
SW1	Band switch	Double-pole / 8-Throw switch
U1	FM / MW / SW receiver	KT0936M
U2	EEPROM	AT24C02
Y1	Crystal	32.768KHz

5. Package size



symbol	Millimeter		
	Minimum	The normal value	Maximum
A	-	-	1.75
A1	0.10	-	0.225
A2	1.30	1.40	1.50
A3	0.50	0.60	0.70
b	0.24	-	0.30
b1	0.23	0.254	0.28
c	0.20	-	0.25
c1	0.19	0.20	0.21
D	4.80	4.90	5.00
E	5.80	6.00	6.20
E1	3.80	-	4.00
e	0.635BSC		
h	0.25	-	0.50
L	0.50	0.65	0.80
L1	1.05BSC		
θ	0	-	8°

6. Ordering Guide

model	description	Package	The minimum order quantity
KT0936M	The third generation fully integrated global band FM / MW / SW Radio chip	SSOP16 Lead-free	2500 sheet

7. Version History

V1.0 The first release.

8. contact us

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