

TOSHIBA CMOS Digital Integrated Circuit Silicon Monolithic

# TC9304F-011

Single Chip DTS Micro Controller (DTS-10)

TC9304F-011 is a CMOS LSI designed for FM/MW/LW radio of PLL frequency synthesizer system corresponded to the requirement of the whole world.

Since prescaler and LCD driver are built in addition to PLL and controller, the compact FM/MW/LW digital tuning system of high performance with clock such as car stereo and home stereo can be constructed.

## Features

### Receiving Frequency Band

AREA	CODE A2A1A0	BAND	RECEIVING FREQUENCY [Hz]	STEP [Hz]	FREF [Hz]	IF [Hz]
(Note 1) Europe	000 or 001	FM	87.50~ 108.00M	50k	25k	+ 10.70M
		MW	522~ 1620k	9k	9k	450, 459k
		LW	153~ 281k	1k / 9k (Note 3)	1k	
(Note 2) USA 1	010	FM	87.5~ 107.9M	200k	25k	+ 10.7M
		MW	520~ 1710k	10k	10k	450k
USA 2	011	FM	87.5~ 108.0M	100k	25k	+ 10.7M
		MW	520~ 1710k	10k	10k	450k
Middle and South America	100	FM	87.5~ 108.0M	100k	25k	+ 10.7M
		MW	520~ 1620k	5k	5k	450k
Oceania Middle and Near East	101	FM	87.5~ 108.0M	100k	25k	+ 10.7M
		MW	531~ 1602k	9k	9k	450, 459k
Japan	110	FM	76.0~ 90.0M	100k	25k	- 10.7M
		MW	522~ 1629k	9k	9k	450, 459k
South Africa	111	FM	87.50~108.00M	50k	25k	- 10.7M
		MW	531~ 1602k	9k	9k	450, 459k

Note 1: At CODE = 000 24-h clock is available.

Note 2: IF-offset of MW is 450 kHz even if jumper AMIF = 1.

Note 3: During auto tuning, it's 9 kHz step.

## Outline of Function

### Tuning Function

- Manual tuning
  - Manual UP.....Step tuning and continuous tuning by pushing of key.
  - Manual DOWN.....Step tuning and continuous tuning by pushing of key.
- Auto-tuning
  - SCAN UP/DOWN .....Receiving stations by every 5 second.
  - SEEK UP/DOWN .....Once reception is made, tuning stops at that station.
- Auto-tuning of ARI (transportation information system) is available.
- IF counter for auto-stop is applicable.
- IF offset of AM (MW/LW) is possible.  
(limited only to Europe, Oceania, Middle and Near East, Japan and South Africa.)
- Band changeover can be made with 1-button cyclic type.

### Memory Function

- Preset memory can select any one of 6 stations of each FM1, FM2, MW and LW (totally 24 stations) or any one of 6 stations of each FM, MW, and LW (totally 18 stations).
- Last channel memory can provide one station of each FM (FM1&FM2), MW and LW.

### Clock Function

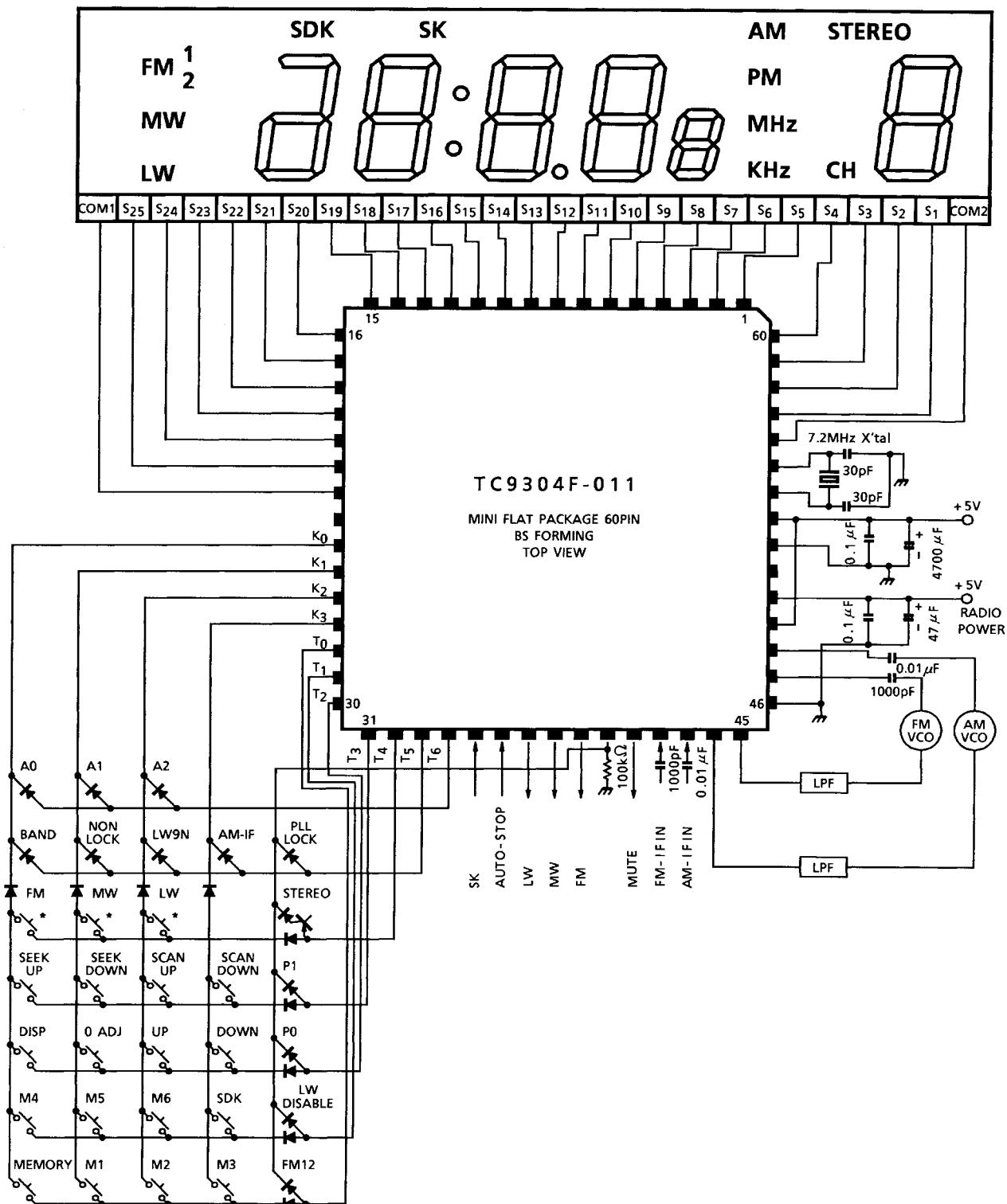
- 24-h or 12-h display for European band and 12-h display for other areas.  
(attached with AM and PM display.)
- Clock function is optional.

### Others

- 1/2 duty 50-segment LCD display.
- STEREO display can be made.

### Tracking Data

BAND	AREA	M1	M2	M3	M4	M5	M6
FM (MHz)	Europe, South Africa	87.50	87.90	97.90	105.90	108.00	87.50
	U.S.A 1	87.5	87.9	97.9	105.9	107.9	87.5
	U.S.A 2						
	Middle and South America	87.5	87.9	97.9	105.9	108.0	87.5
	Oceania, Middle and Near East						
MW (kHz)	Japan	76.0	80.0	83.0	86.0	90.0	76.0
	Europe	522	603	999	1404	1620	522
	U.S.A 1, 2	520	660	1100	520	1710	520
	Middle and South America	520	520	555	780	1620	520
	Oceania, Middle and Near East						
LW (kHz)	South Africa						
	Japan	531	603	999	1404	1629	531
LW (kHz)	Japan	522	603	999	1404	1629	522
	Europe	153	164	218	272	281	153



Note 4: At \* mark, it's able to use the lock key.

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