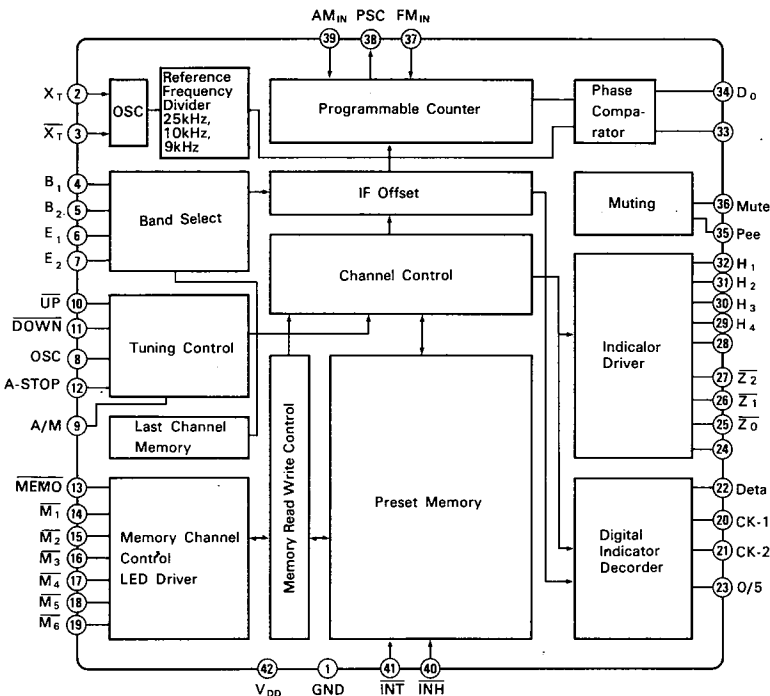# 3. INTERIOR BLOCK DIAGRAM OF IC

● TC9140P (PLL Synthesizer Control IC)

● Terminal Functions of TC9140P

Pin No.	Symbols on substrate	Functions
2, 3	X_T $\overline{X_T}$	Terminals to connect a quartz oscillator for generating a reference frequency.
4, 5	B_1 B_2	Terminals to input a signal for switching FM/AM band and a signal for selecting the IF fine tuning in FM receiving. <table><tr><td>B_1</td><td>B_2</td><td></td></tr><tr><td>0</td><td>0</td><td>AM</td></tr><tr><td>1</td><td>0</td><td>FM (10.7MHz − 50K)</td></tr><tr><td>0</td><td>1</td><td>FM (10.7MHz + 50K)</td></tr><tr><td>1</td><td>1</td><td>FM (10.7MHz)</td></tr></table>
6, 7	E_1 E_2	Terminals to input a signal for selecting destinations of Japan, USA, and Europe. <table><tr><td>E_1</td><td>E_2</td><td>Mode</td></tr><tr><td>0</td><td>0</td><td>−</td></tr><tr><td>1</td><td>0</td><td>Japan</td></tr><tr><td>0</td><td>1</td><td>USA</td></tr><tr><td>1</td><td>1</td><td>Europe</td></tr></table> * Inputs of terminals E_1 and E_2 are read and latched in $\overline{INH}$ = L state and in FM/AM switching.
8	OSC	Terminal to connect capacitor and resistor for the oscillator for determinating the speed of automatic search operation. The automatic store-release in the preset memory unit and the conversion period to fast forwarding in manual selection of broadcasting stations are determined according to this oscillation frequency.
9	A/M	Terminal to input a signal for switching the manual operation to automatic search operation or vice versa in the UP/DOWN tuning mode. "H" : Automatic, "L" : Manual
10 11	$\overline{UP}$ $\overline{DOWN}$	Terminals to input a signal from the tuning key. * In manual operation: When the key is kept depressed for 0.3 sec or more in one-step/one-push step feeding, the operation changes to fast forwarding; when the key is released, the operation stops at the next stop. In this case, even if there is a station on the way, the station is neglected. * In automatic search operation (7900Z): When the key is depressed once, the automatic search operation starts and stops automatically after having selected the desired station. * A pull-up resistance is provided therein.

Pin No.	Symbols on substrate	Functions
12	A-STOP	Terminal to input a signal for performing the automatic search stop. When a "H" level signal is applied to this terminal during automatic search operation, the scanning operation stops. (7900Z Only)
13	$\overline{MEMO}$	Terminal to input a signal for storing data in the preset memory unit. Input/output terminal in which a LED driver is provided. * When depressing the MEMO key, the MEMO lamp comes on. Next, when any desired memory No. key is depressed, the data on receiving frequency is written into the memory unit and the MEMO lamp goes off. * When the MEMO key is depressed and the memory No. key is not depressed, the frequency data is released automatically.
14 ~ 19	$\overline{M_1}$~$\overline{M_6}$	Terminals to input a signal for designating memory addresses. Input/output terminals in which a LED driver is provided. * Terminals M_1 to M_6 designate the addresses of FM memory unit in FM receiving and the addresses of AM memory unit in AM receiving. * When depressing the MEMO key and any desired station key of M_1 to M_6, the data is written into the memory unit. * When depressing any desired station key of M_1 to M_6, the data is read out.
20 21 22 23	CK-1, CK-2, Data, 0/5	Terminals to output the data for displaying the received frequency digitally and a timing signal. The data fed to the driver TD6301P for displaying a static frequency and the timing signal are outputted once only when the frequency is updated in such case as when the power supply is tuned on, the UP/DOWN key is depressed, the automatic scanning operation is made, the data are read out of the memory unit, or FM/AM is switched. In the ordinary receiving state, this terminal is fixed to a "L" level. * Data: Binary coded frequency data and receiving band. * CK-1, CK-2: Initialize and transfer clock signals. * 0/5: For displaying 50 kHz during FM receiving in Europe.
25 ~ 27	$\overline{Z_0}$ ~ $\overline{Z_2}$	Terminal to output a signal for driving the LEDs for displaying the linear scale on a received frequency. The LEDs are driven in push-pull connection with the terminals H_1 to H_5. 18 points at its maximum.
29 ~ 32	H_4 ~ H_1	Terminals to output a signal for driving the LEDs for displaying the linear scale on a received frequency. The LEDs are driven in push-pull connection with the terminals Z_0 to Z_2.
34	D_0	Terminal to output a signal from a phase comparator. This terminal can be used for FM and AM, separately.
35	Pee	Terminal to output a signal for generating a sound "Pee" to confirm that the key is depressed correctly.
36	Mute	Terminal to output the muting signal. The terminal is kept in "L" level in ordinary state, and in "H" level in muting.
37	FM_{IN}	Terminal to input a signal from the FM programmable counter. An amplifier is provided in the input.
38	PSC	Terminal to output a signal for controlling the Prescaler IC of TD6104P.
39	AM_{IN}	Terminal to input a signal from the AM programmable counter. An amplifier is provided in the input.
40	$\overline{INH}$	Terminal to input a signal of inhibit. Ordinary operation in "H" level; inhibit operation in "L" level.
41	$\overline{INT}$	Terminal to input an initialize signal. This terminal changes to H level in the ordinary operation and to L level in the initialize operation.
1, 42	GND, V_{DD}	Power supply terminals. 5V ±0.5V