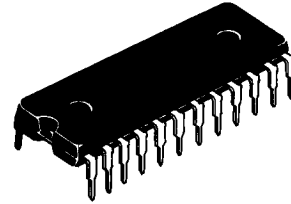


HD42851

PLL FREQUENCY SYNTHESIZER

FEATURES

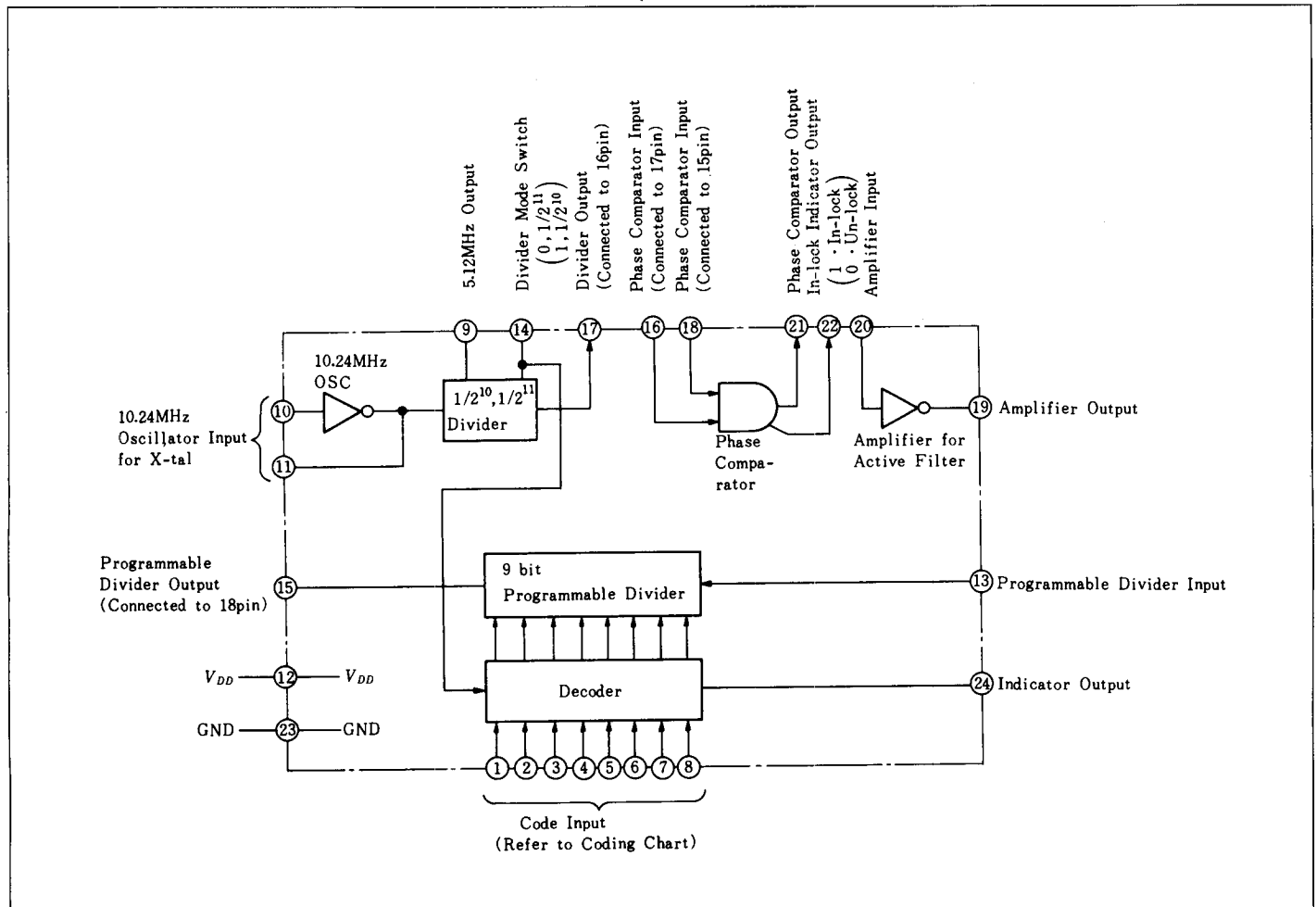
- Crystal oscillator as a reference operates at 10.24MHz
- The 10.24MHz divider provides 10kHz or 5kHz output for AM mode or SSB mode respectively
- The divider also provides 5.12MHz output for a mixer
- The phase comparator for charge pump type offers good signal-to-noise ratio
- The programmable divider is a 9-stage counter and the number of divisions are –
 - 53 to 308 for SSB mode
 - 3 to 191 for AM mode
- For encoding the channel selections, BCD or binary codes are used as in the following chart.



(DP-24)

⑭ pin	⑦ ⑧ pin	10.24MHz Divider	Programmable Divider
Low level	—	5kHz reference output at ⑰ pin (an 11-stage counter)	binary code N=53 to 308
High level	Low level	10kHz reference output at ⑰ pin (an 10-stage counter)	BCD code 1 ch. to 40 ch.
	—		binary code N=3 to 191

BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS

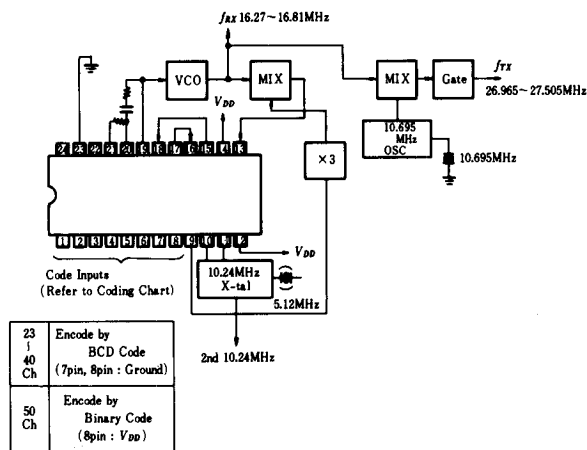
Item	Symbol	Ratings	Unit
Supply Voltage	V_{DD}	-0.3 to +9.0	V
Input Voltage	V_{IN}	-0.3 to +9.0	V
Operating Temperature	T_{opr}	-35 to +75	°C
Storage Temperature	T_{stg}	-55 to +125	°C

■ ELECTRICAL CHARACTERISTICS ($T_a = -35$ to $+75^\circ\text{C}$)

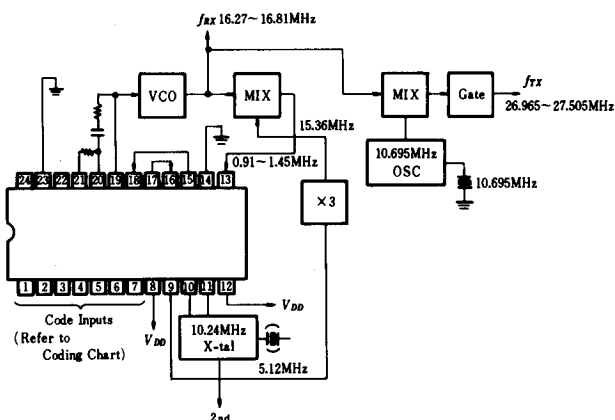
Item	Symbol	Test Condition	min	typ	max	Unit
Power Supply Voltage	V_{DD}		6.3	7.0	7.7	V
Power Supply Current	I_{DD}	$N=91$	—	7.0	14.0	mA
High-level Input Voltage	V_{IH}	① to ⑧, ⑩, ⑭, ⑯, ⑱	0.7 V_{DD}	—	V_{DD}	V
Low-level Input Voltage	V_{IL}	⑳ pin	-0.3	—	1.0	V
High-level Output Voltage	V_{OH}	⑨, ⑪, ⑮, ⑰, ⑲, ⑳, ㉑	0.8 V_{DD}	—	V_{DD}	V
Low-level Output Voltage	V_{OL}	㉒ pin	-0.3	—	0.4	V
10.24MHz Divider Count Maximum Frequency	f_D max	⑩-⑪ pin; 1M Ω , 1V $_{PP}$ in	11	—	—	MHz
Programmable Divider Count Maximum Frequency	f_P max	⑬ pin 1V $_{PP}$ in $T_a=25^\circ\text{C}$ $V_{DD}=6.3\text{V}$	1.8	—	—	MHz

■ APPLICATIONS

Block Diagram for 1 to 23 and 1 to 50 channels



Block Diagram for 1 to 70 and 1 to 99 channels



■ CODING CHART

Code Input									24-pin Output	Count Number of Programmable Divider	Frequency for Receiving f_{rx} (MHz)	Frequency for Transmitting f_{tx} (MHz)	Note
①	②	③	④	⑤	⑥	⑦	⑧	⑩					
1	0	0	0	0	0	0	0	1	0	91	16.27	26.965	1 Ch
0	1	0	0	0	0	0	0	1	0	92	28	975	2
1	1	0	0	0	0	0	0	1	0	93	29	985	3
0	0	1	0	0	0	0	0	1	0	95	31	27.005	4
1	0	1	0	0	0	0	0	1	0	96	32	015	5
0	1	1	0	0	0	0	0	1	0	97	33	025	6
1	1	1	0	0	0	0	0	1	0	98	34	035	7
0	0	0	1	0	0	0	0	1	0	100	36	055	8
1	0	0	1	0	0	0	0	1	0	101	37	065	9
0	0	0	0	1	0	0	0	1	0	102	38	075	10
1	0	0	0	1	0	0	0	1	0	103	39	085	11
0	1	0	0	1	0	0	0	1	0	105	41	105	12
1	1	0	0	1	0	0	0	1	0	106	42	115	13
0	0	0	0	1	0	0	0	1	0	107	43	125	14
1	0	1	0	1	0	0	0	1	0	108	44	135	15
0	1	1	0	1	0	0	0	1	0	110	46	155	16
1	1	1	0	1	0	0	0	1	0	111	47	165	17
0	0	0	1	1	0	0	0	1	0	112	48	175	18
1	0	0	1	1	0	0	0	1	0	113	49	185	19
0	0	0	0	0	1	0	0	1	0	115	51	205	20
1	0	0	0	0	1	0	0	1	0	116	52	215	21
0	1	0	0	0	1	0	0	1	0	117	53	225	22
1	1	0	0	0	1	0	0	1	0	120	56	255	23
0	0	1	0	0	1	0	0	1	0	118	54	235	24
1	0	1	0	0	1	0	0	1	0	119	55	245	25
0	1	1	0	0	1	0	0	1	0	121	57	265	26
1	1	1	0	0	1	0	0	1	0	122	58	275	27
0	0	0	1	0	1	0	0	1	0	123	59	285	28
1	0	0	1	0	1	0	0	1	0	124	60	295	29
0	0	0	1	1	1	0	0	1	0	125	61	305	30
1	0	0	0	1	1	0	0	1	0	126	62	315	31
0	1	0	0	1	1	0	0	1	0	127	63	325	32
1	1	0	0	1	1	0	0	1	0	128	64	335	33
0	0	1	0	1	1	0	0	1	0	129	65	345	34
1	0	1	0	1	1	0	0	1	0	130	66	355	35
0	1	1	0	1	1	0	0	1	0	131	67	365	36
1	1	1	0	1	1	0	0	1	0	132	68	375	37
0	0	0	1	1	1	0	0	1	0	133	69	385	38
1	0	0	1	1	1	0	0	1	0	134	70	395	39
0	0	0	0	0	1	0	0	1	0	135	71	405	40
0	1	0	0	0	0	1	0	1	1	2			
1	1	0	0	0	0	1	0	1	1	3			
1	1	0	1	1	0	0	1	1	1	91	16.27	26.965	1 Ch
0	0	1	1	1	0	0	1	1	1	92	28	975	2
0	0	0	0	1	0	1	1	1	1	144	16.80	27.495	49
1	0	0	0	1	0	1	1	1	1	145	81	505	50
1	1	1	1	1	1	1	1	1	1	191	17.27	27.965	
0	0	0	0	0	0	0	0	0	1	53			
1	0	0	0	0	0	0	0	0	1	54			
1	1	1	1	1	1	1	1	0	0	180			
0	0	0	0	0	0	0	0	1	0	181	16.265	26.960	
1	0	0	0	0	0	0	1	0	1	182	270	965	
0	1	0	0	0	0	0	0	0	1	183	275	970	
1	0	0	0	0	1	1	1	0	1	289	16.805	27.500	
0	1	0	0	0	1	1	1	0	1	290	810	505	
1	1	1	1	1	1	1	1	0	1	308	16.900	27.595	

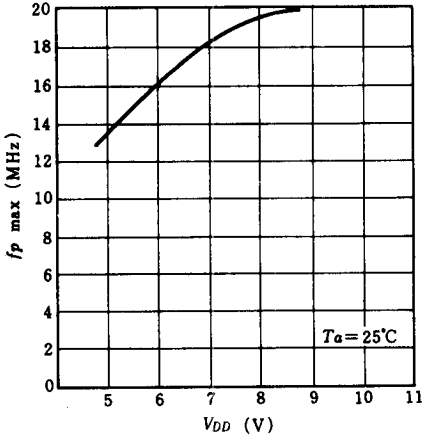
For existing 23-Channel

For 40-Channel Plan

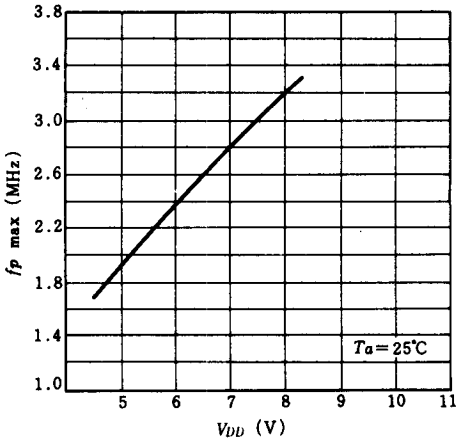
For 50-Channel Plan

For 70-or 90-Channel Plan

MAXIMUM FREQUENCY FOR DIVIDER VS. SUPPLY VOLTAGE



MAXIMUM FREQUENCY FOR PROGRAMMABLE DIVIDER VS. SUPPLY VOLTAGE



SUPPLY CURRENT VS. SUPPLY VOLTAGE

