No.407D

LC7120

C MOS LSI
27MHz CB TRANSCEIVER
PLL FREQUENCY SYNTHESIZER

DISCONTINUED PRODUCT

Functions

(1) Only one crystal is required for AM C8 transceiver.
(2) Two selections of intermediate frequency: IF_1=10.695MHz, IF_2=9.785MHz.
(3) Two selections of lock monitor output:
- $\overline{LM}$: • High level at locked mode • Low level at unlocked mode
- LM: • Low level at locked mode • High level at unlocked mode

(4) Amplifier for low-pass filter.
(5) Input amplifier for programmable counter.
(6) Detector for misprogramming of programmable counter.
(7) BCD code input to programmable counter.
(8) Buffer output for reference oscillator.
(9) Output for half frequency of reference oscillator.
(10) 10.24MHz crystal oscillator (with feedback resistor).
(11) A scan type transceiver can be formed in conjunction with scan LSI LC7181/LC7191.

Absolute Maximum Ratings/T_a=25°C

			unit
Maximum Supply Voltage	V_{DD} max	−0.3 to +9	V
Input Voltage	V_{IN}	−0.3 to V_{DD}+0.3	V
Output Voltage	V_{OUT} (Output OFF)	−0.3 to V_{DD}+0.3	V
Operating Temperature	T_{opg}	−30 to +70	°C
Storage Temperature	T_{stg}	−40 to +125	°C

Allowable Operating Ranges/T_a=25°C

	Symbol	Pin	Conditions	min	typ	max	unit
Supply Voltage	V_{DD}			6.0	7.0	8.0	V
High Level Input Voltage	V_{IH}	D1 to D6, T/R, IFS		V_{DD}−1.5			V
Low Level Input Voltage	V_{IL}	D1 to D6, T/R, IFS				1.5	V
Input Amplitude	V_{IN}(1)	XIN	10.25MHz, duty 50±10% sine wave, capacitive coupling	3.0		0.9V_{DD}	Vp-p
	V_{IN}(2)	PCIN	3.5MHz, duty 50±10% sine wave, capacitive coupling	0.7		0.66V_{DD}	Vp-p
Input Frequency	f_{IN}(1)	XIN	3.0Vp-p, duty 50±10% sine wave, capacitive coupling	0.5		10.25	MHz
	f_{IN}(2)	PCIN	0.7Vp-p, duty 50±10% sine wave, capacitive coupling	0.5		3.5	MHz

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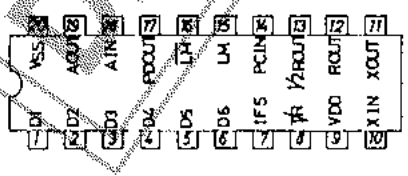
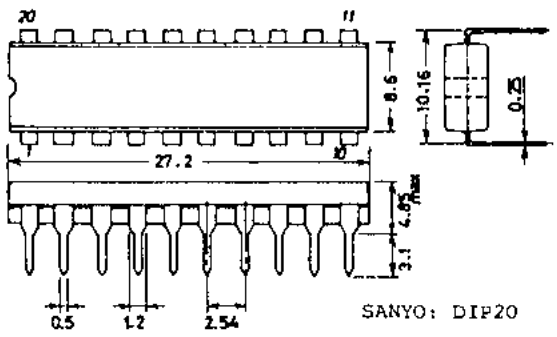


Case Outline 3008A-D20IC
(unit: mm)



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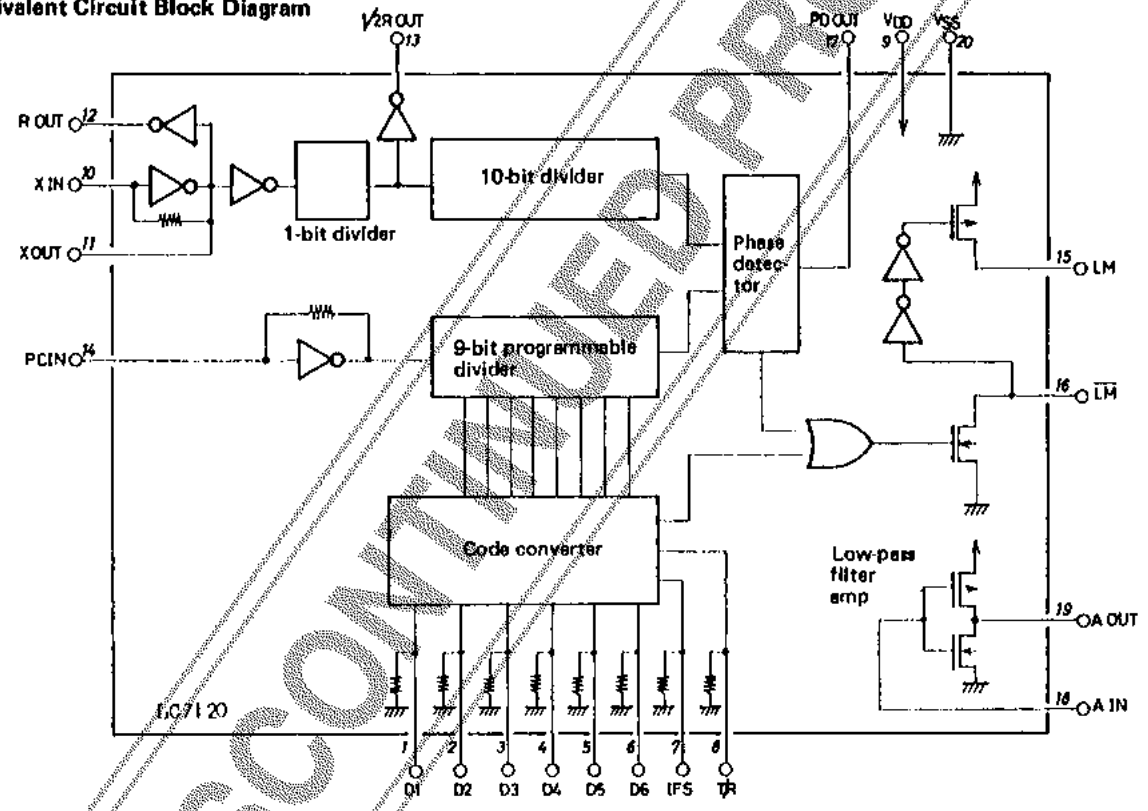
TOKYO SANYO ELECTRIC CO., LTD. SEMICONDUCTOR DIVISION
15-13, 6-CHOME, SOTOKANDA, CHIYODA-KU, TOKYO 101 JAPAN

Electrical Characteristics/T_a=25°C, V_{DD}=7V±1V

		(Pin)		min	typ	max	unit
Feedback Resistance	$R_f(1)$	XIN			7		MΩ
	$R_f(2)$	PCIN			3		MΩ
Pull-down Resistance	RP	D1 to D6, T/R, IFS			28		kΩ
Input Floating Voltage	V_{IF}	D1 to D6, T/R, IFS pin open				1.0	V
3-State OFF Leak Current	$I_{OFF}(1)$	PD OUT	$V_O=V_{DD}/2$			1	nA
Output OFF Leak Current	$I_{OFF}(2)$	$\overline{LM}$	$V_O=V_{DD}$			3.0	μA
Output OFF Leak Current	$I_{OFF}(3)$	LM	$V_O=V_{SS}$			3.0	μA
Input Current	I_{IN}	A_{IN}	$V_I=V_{DD}, V_I=V_{SS}$			1	nA
Filter Amp Gain	VG	AIN, AOUT	$R_f=1MΩ, f_{IN}=10kHz, Rg=600Ω$	28			dB
Low Level Output Voltage	V_{OL}	$\overline{LM}$	$I_O=2mA$			0.9	V
High Level Output Voltage	V_{OH}	LM	$I_O=5mA$	V_{DD}-0.9			V
Current Dissipation	I_{DD}		$f_{IN}(1)=10.24MHz$ $f_{IN}(2)=3.5MHz$ N=182			20	mA

Equivalent Circuit Block Diagram



Pin Name

D1 to D6	Program input (BCD) D1 ---- LSB D6 ---- MSB
T/R	Transmission/reception select input
IFS	IF select input
AIN	Low-pass filter amp input
A OUT	Low-pass filter amp output
$\overline{LM}$	Lock monitor output (Unlock: Low)
LM	Lock monitor output (Unlock: High)
V_{SS}	GND
V_{DD}	Power supply
PD OUT	Phase detector output
1/2R OUT	1/2 reference frequency output
R OUT	Reference frequency output
XIN	Crystal oscillator input
XOUT	Crystal oscillator output
PCIN	Programmable divider input

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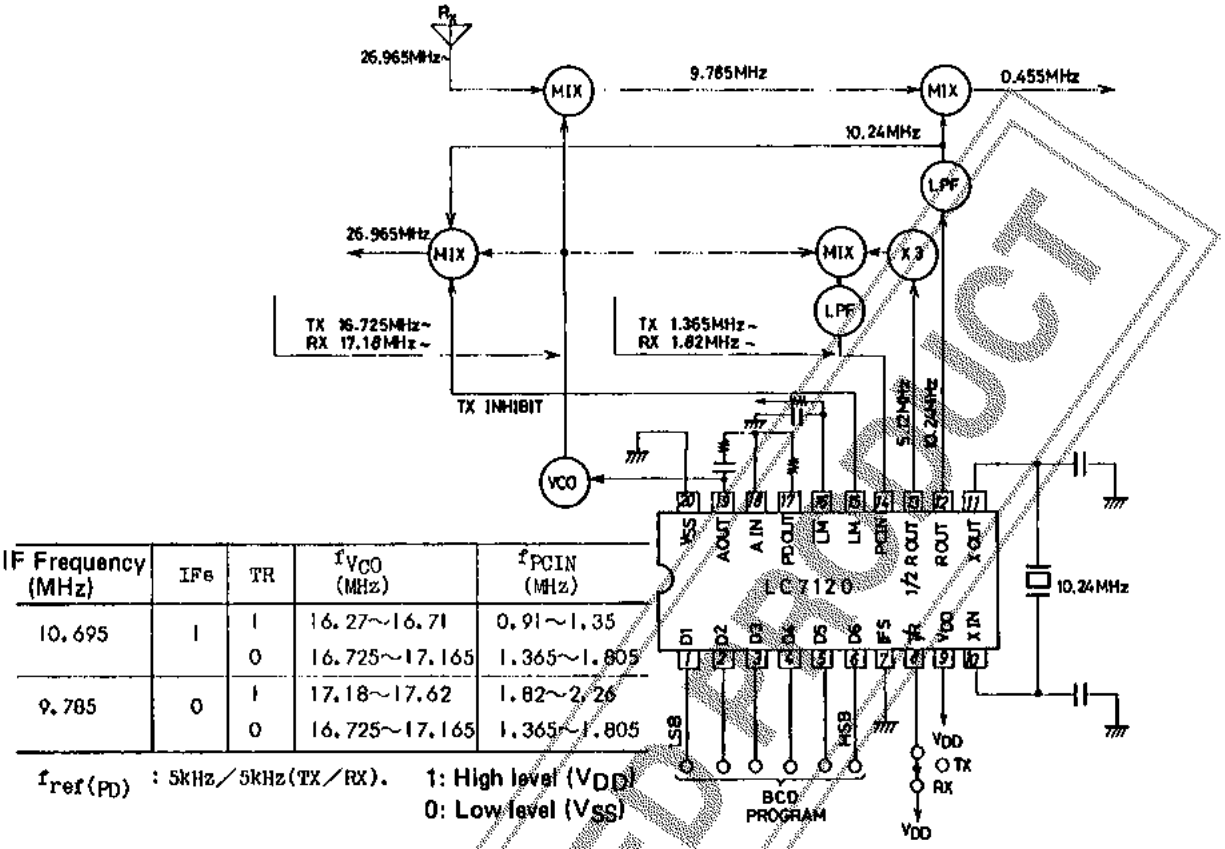
■ Sample Application Circuit



IF Frequency (MHz)	IFs	TR	f_{VCO} (MHz)	f_{PCIN} (MHz)
10.695	1	1	16.27~16.71	0.91~1.35
		0	16.725~17.165	1.365~1.805
9.785	0	1	17.18~17.62	1.82~2.26
		0	16.725~17.165	1.365~1.805

$f_{ref(PD)}$: 5kHz/5kHz(TX/RX). 1: High level (V_{DD})
0: Low level (V_{SS})

T/R: Rx when V_{DD} is applied
Tx when open or V_{SS} is applied

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