



No. 407D



LC7120

C MOS LSI
27MHz CB TRANSCEIVER
PLL FREQUENCY SYNTHESIZER

Functions

- (1) Only one crystal is required for AM CB transceiver.
- (2) Two selections of intermediate frequency: $IF_1=10.695\text{MHz}$, $IF_2=9.785\text{MHz}$.
- (3) Two selections of lock monitor output:
 - LM • High level at locked mode
 - LM • Low level at unlocked mode
 - LM • Low level at locked mode
 - LM • 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/ $T_a=25^\circ\text{C}$

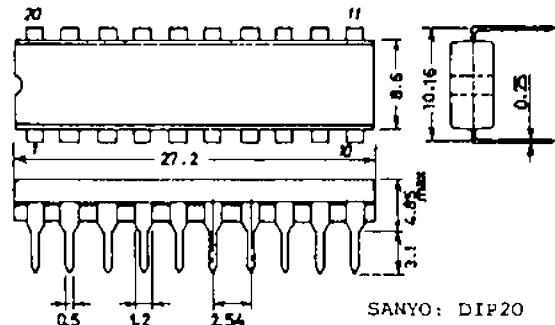
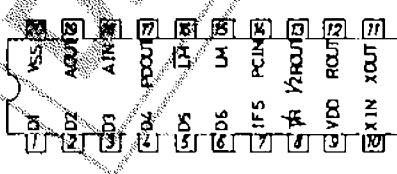
			unit
Maximum Supply Voltage	V_{DD} max	-0.3 to +9	V
Input Voltage	V_{IN}	-0.3 to $V_{DD}+0.3$	V
Output Voltage	V_{OUT} (Output OFF)	-0.3 to $V_{DD}+0.3$	V
Operating Temperature	T_{opg}	-30 to +70	$^\circ\text{C}$
Storage Temperature	T_{stg}	-40 to +125	$^\circ\text{C}$

Allowable Operating Ranges/ $T_a=25^\circ\text{C}$

	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 $50\pm 10\%$ sine wave, capacitive coupling	3.0	0.9 V_{DD}		Vp-p
	$V_{IN(2)}$	PCIN	3.5MHz, duty $50\pm 10\%$ sine wave, capacitive coupling	0.7	0.66 V_{DD}		Vp-p
Input Frequency	$f_{IN(1)}$	XIN	3.0Vp-p, duty $50\pm 10\%$ sine wave, capacitive coupling	0.5		10.25	MHz
	$f_{IN(2)}$	PCIN	0.7Vp-p, duty $50\pm 10\%$ sine wave, capacitive coupling	0.5		3.5	MHz

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Case Outline 3008A-D20IC
(unit: mm)



These specifications are subject to change without notice.

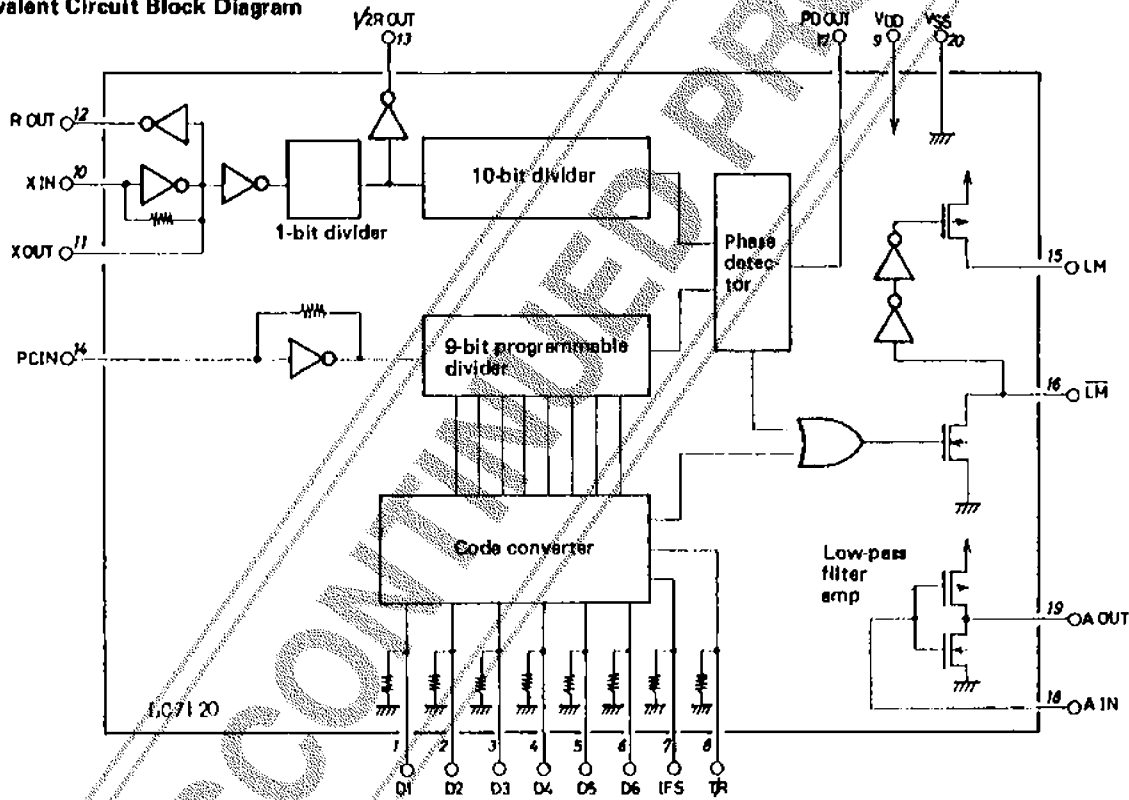
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LC7120

Electrical Characteristics/ $T_a=25^{\circ}\text{C}$, $V_{DD}=7\text{V}\pm 1\text{V}$

		(Pin)	min	typ	max	unit
Feedback Resistance	$R_F(1)$	XIN		7		$\text{M}\Omega$
	$R_F(2)$	PCIN		3		$\text{M}\Omega$
Pull-down Resistance	R_P	D1 to D6, T/R, IFS		20		$\text{k}\Omega$
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	$I_{OFF(2)}$	$\overline{\text{LM}}$	$V_O = V_{DD}$		3.0	μA
Output OFF Leak Current	$I_{OFF(3)}$	LM	$V_O = V_{SS}$		3.0	μA
Input Current	I_{IN}	A IN	$V_1 = V_{DD}, V_2 = V_{SS}$		1	nA
Filter Amp Gain	V_O	A IN, A OUT	$R_F = 1\text{M}\Omega, f_{IN} = 10\text{kHz}, R_G = 600\Omega$	28		dB
Low Level Output Voltage	V_{OL}	$\overline{\text{LM}}$	$I_O = 2\text{mA}$		0.9	V
High Level Output Voltage	V_{OH}	LM	$I_O = 5\text{mA}$		$V_{DD} - 0.9$	V
Current Dissipation	I_{DD}		$f_{IN(1)} = 10.24\text{MHz}$ $f_{IN(2)} = 3.5\text{MHz}$ $N = 182$		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

A IN Low-pass filter amp Input

A OUT Low-pass filter amp output

$\overline{\text{LM}}$ Lock monitor output (Unlock: Low)

LM Lock monitor output (Unlock: High)

VSS GND

VDD Power supply

PD OUT Phase detector output

1/2R OUT 1/2 reference frequency output

R OUT Reference frequency output

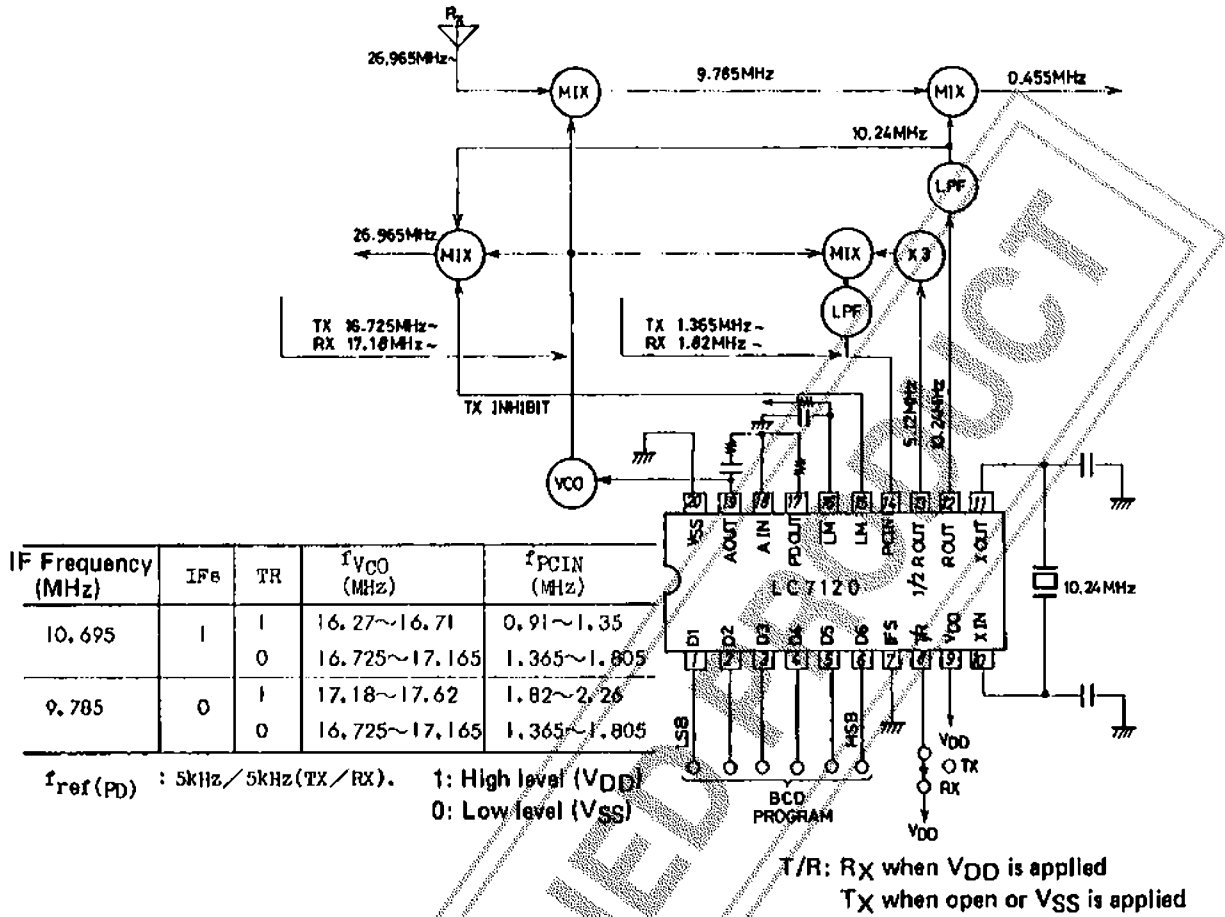
X IN Crystal oscillator input

X OUT Crystal oscillator output

PC IN Programmable divider Input

LC7120

Sample Application Circuit



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