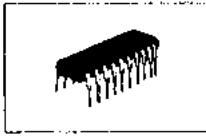




No. 407D



# 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/ $T_a=25^\circ\text{C}$**

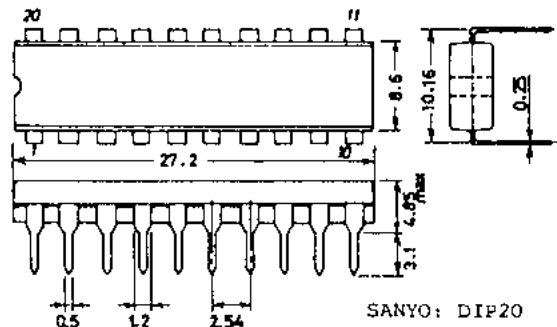
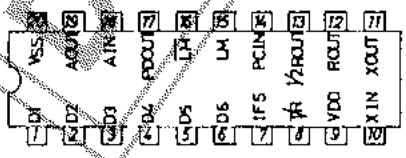
	Symbol	Conditions	unit
Maximum Supply Voltage	$V_{DD}$ max	-0.3 to +9	V
Input Voltage	$V_{IN}$	-0.3 to $V_{DD}+0.3$	V
Output Voltage	$V_{OUT}$ (Output OFF)	-0.3 to $V_{DD}+0.3$	V
Operating Temperature	$T_{opg}$	-30 to +70	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-40 to +125	$^\circ\text{C}$

**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

(continued on next page)

Case Outline 3008A-D20IC  
(unit: mm)



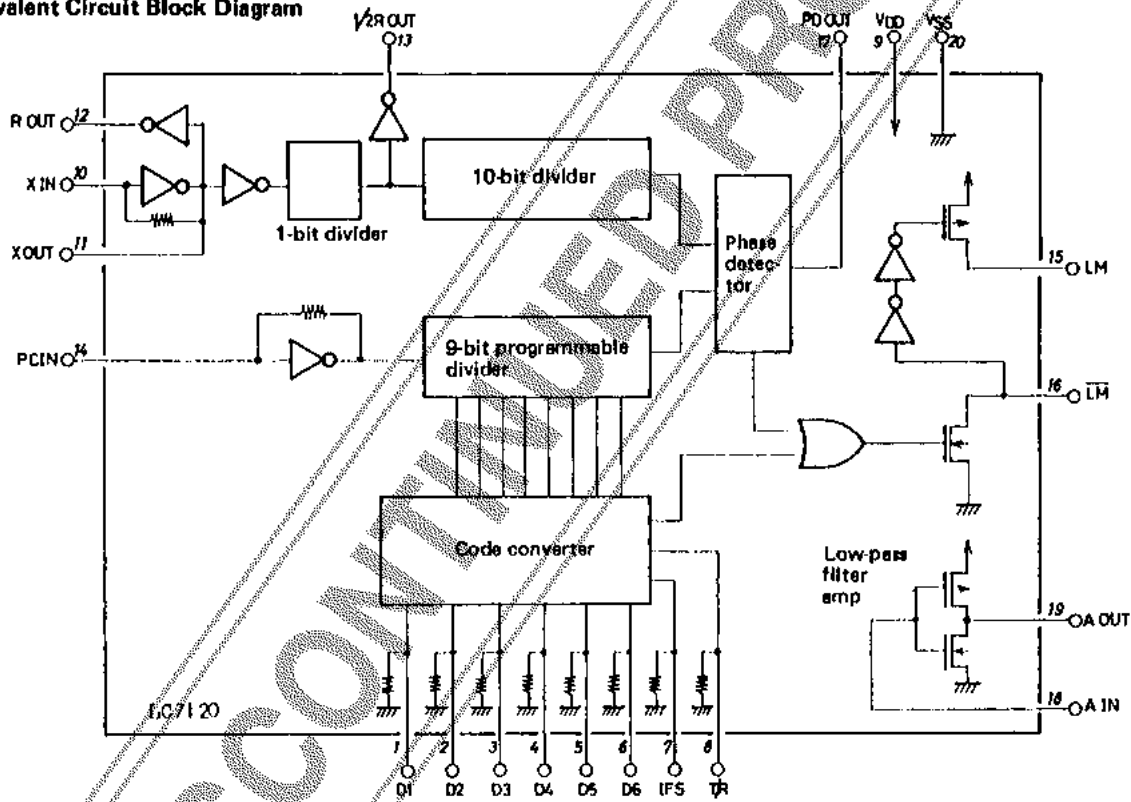
These specifications are subject to change without notice.

# LC7120

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

		(Pin)	min	typ	max	unit
Feedback Resistance	$R_F(1)$	XIN		7		$M\Omega$
	$R_F(2)$	PCIN		3		$M\Omega$
Pull-down Resistance	$R_P$	D1 to D6, T/R, IFS		20		$k\Omega$
Input Floating Voltage	$V_{IF}$	D1 to D6, T/R, IFS pin open			1.0	V
3-State OFF Leak Current	$I_{OPP(1)}$	PD OUT	$V_o = V_{DD}/2$	1		nA
Output OFF Leak Current	$I_{OPP(2)}$	$\overline{LM}$	$V_o = V_{DD}$		3.0	$\mu\text{A}$
Output OFF Leak Current	$I_{OPP(3)}$	LM	$V_o = V_{SS}$		3.0	$\mu\text{A}$
Input Current	$I_{IN}$	A IN	$V_i = V_{DD}, V_o = V_{SS}$	1		nA
Filter Amp Gain	$V_O$	A IN, A OUT	$R_F = 1M\Omega, f_{IN} = 10kHz, R_G = 600\Omega$	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

A IN 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)

VSS GND

VDD Power supply

PD OUT Phase detector output

1/2R OUT 1/2 reference frequency output

R OUT Reference frequency output

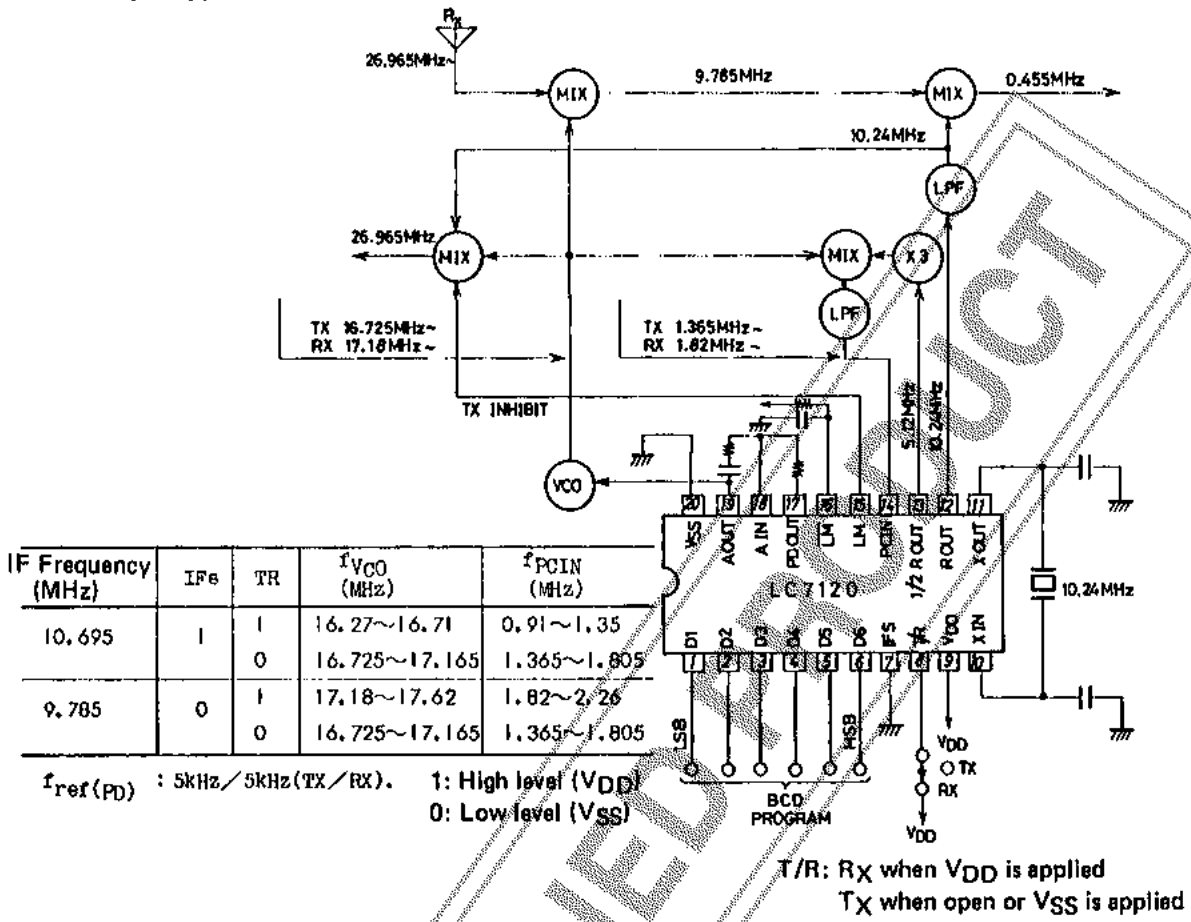
XIN Crystal oscillator input

XOUT Crystal oscillator output

PCIN Programmable divider input

# LC7120

## Sample Application Circuit



Information furnished by SANYO is believed to be accurate and reliable. However, no responsibility is assumed by SANYO for its use, nor for any infringements of patents or other rights of third parties which may result from its use, and no license is granted by implication or otherwise under any patent or patent rights of SANYO.