



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 • Low level at unlocked mode	LM • Low level at locked mode • High level at unlocked mode
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- (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/ $T_a=25^\circ\text{C}$

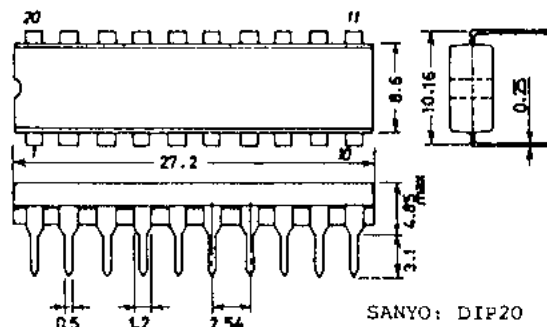
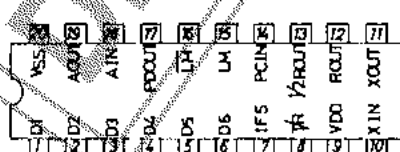
			unit
Maximum Supply Voltage	V_{DD} max	-0.3 to +9	V
Input Voltage	V_{IN}	-0.3 to $V_{DD}+0.3$	V
Output Voltage	V_{OUT} (Output OFF)	-0.3 to $V_{DD}+0.3$	V
Operating Temperature	T_{opg}	-30 to +70	$^\circ\text{C}$
Storage Temperature	T_{stg}	-40 to +125	$^\circ\text{C}$

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±10% sine wave, capacitive coupling	3.0	0.9 V_{DD}		Vp-p
	$V_{IN(2)}$	PCIN	3.5MHz, duty 50±10% sine wave, capacitive coupling	0.7	0.66 V_{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)



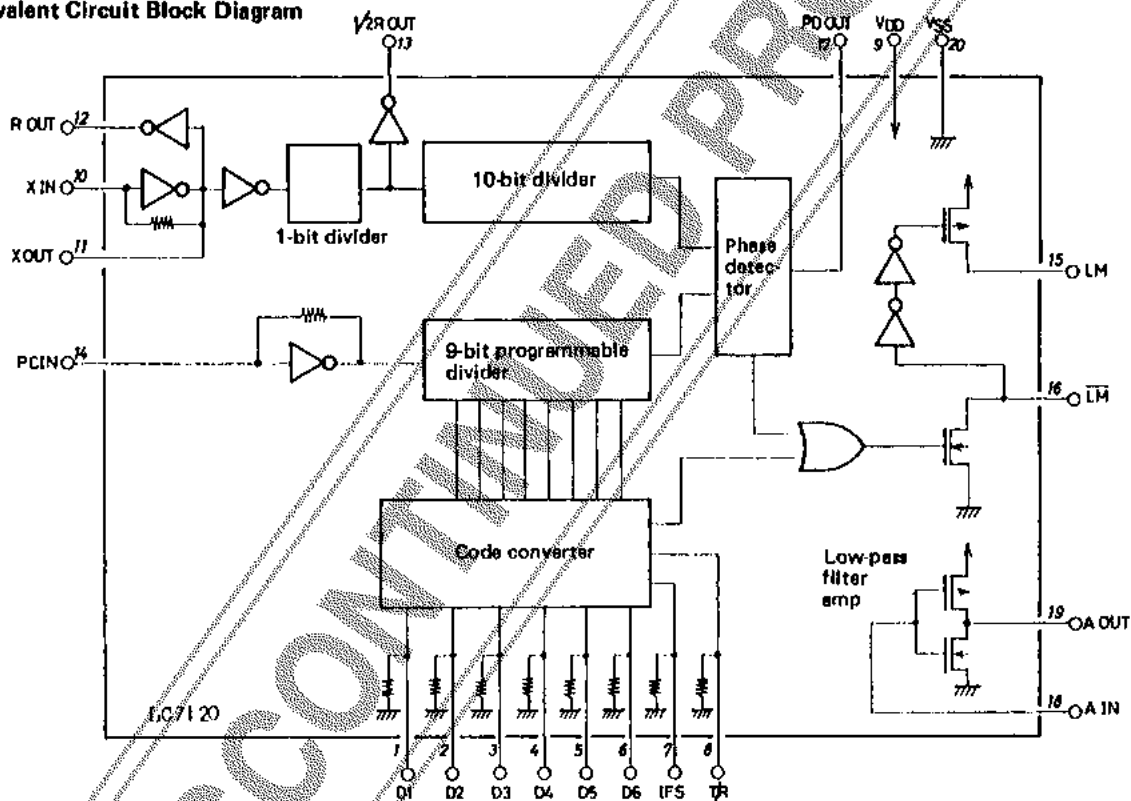
These specifications are subject to change without notice.

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

Electrical Characteristics/ $T_a=25^{\circ}\text{C}$, $V_{DD}=7V\pm1V$

		(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	$I_{OFF}(1)$	PD OUT	$V_0=V_{DD}/2$	1		nA
Output OFF Leak Current	$I_{OFF}(2)$	$\overline{LM}$	$V_0=V_{DD}$	3.0		μA
Output OFF Leak Current	$I_{OFF}(3)$	LM	$V_0=V_{SS}$	3.0		μA
Input Current	I_{IN}	A IN	$V_1=V_{DD}, V_2=V_{SS}$	1		nA
Filter Amp Gain	VG	A IN, A OUT	$R_F=1M\Omega, f_{IN}=10kHz, R_g=600\Omega$	20		dB
Low Level Output Voltage	V_{OL}	$\overline{LM}$	$I_0=2mA$	0.9		V
High Level Output Voltage	V_{OH}	LM	$I_0=5mA$	$V_{DD}=0.9$		V
Current Dissipation	I_{DD}		$f_{IN}(1)=10.24MHz$ $f_{IN}(2)=3.5MHz$ $N=182$	20		mA

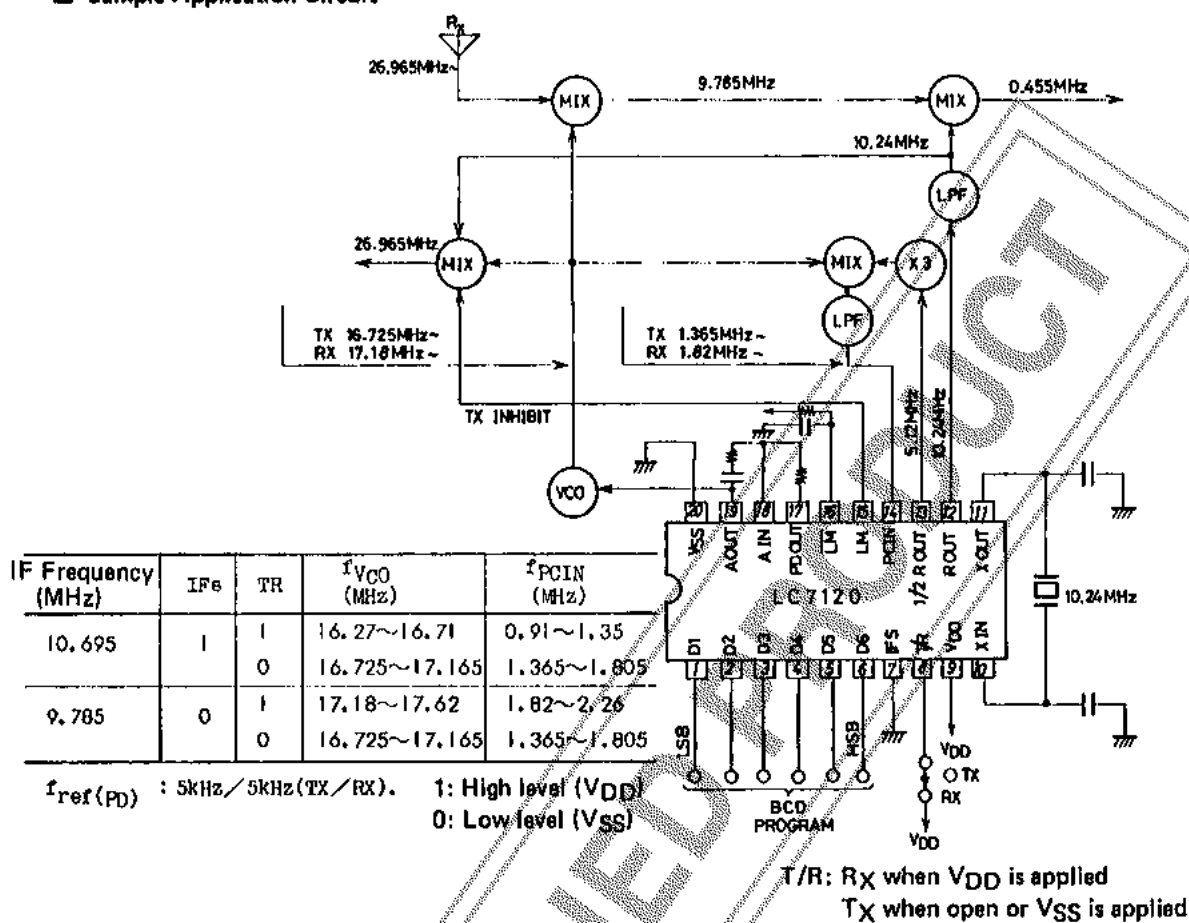
Equivalent Circuit Block Diagram



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

■ Sample Application Circuit



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