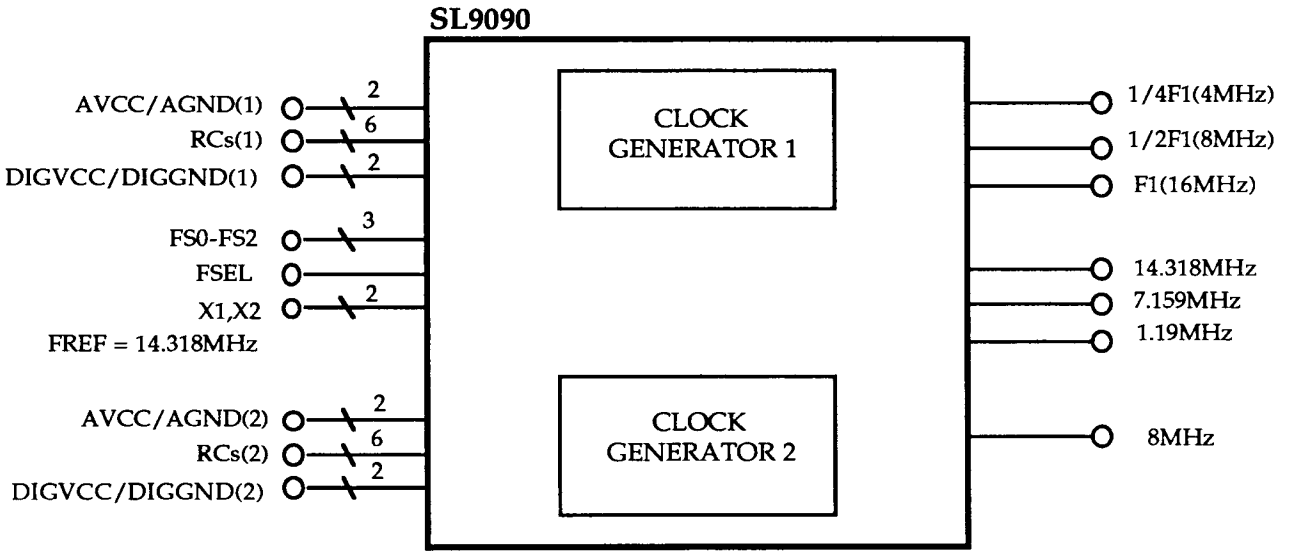
UNIVERSAL PC/AT CLOCK CHIP
SL9090

PRELIMINARY

FEATURES

- Generates all essential Clock Signals for P.C.'s.
- Supports 8086/8088/80286/80386SX/80386-based designs.
- Clock Options of 60, 50, 48, 40, or 32 MHz and others.
- Requires only one Crystal and few RC components.
- Two Independent Clock Generators.
- Glitch free switching for both Clock Generators.
- All outputs capable of 8 mA Drive.
- Advanced Bipolar technology.
- 40 Pin Plastic Dip, or 44 Pin PLCC.

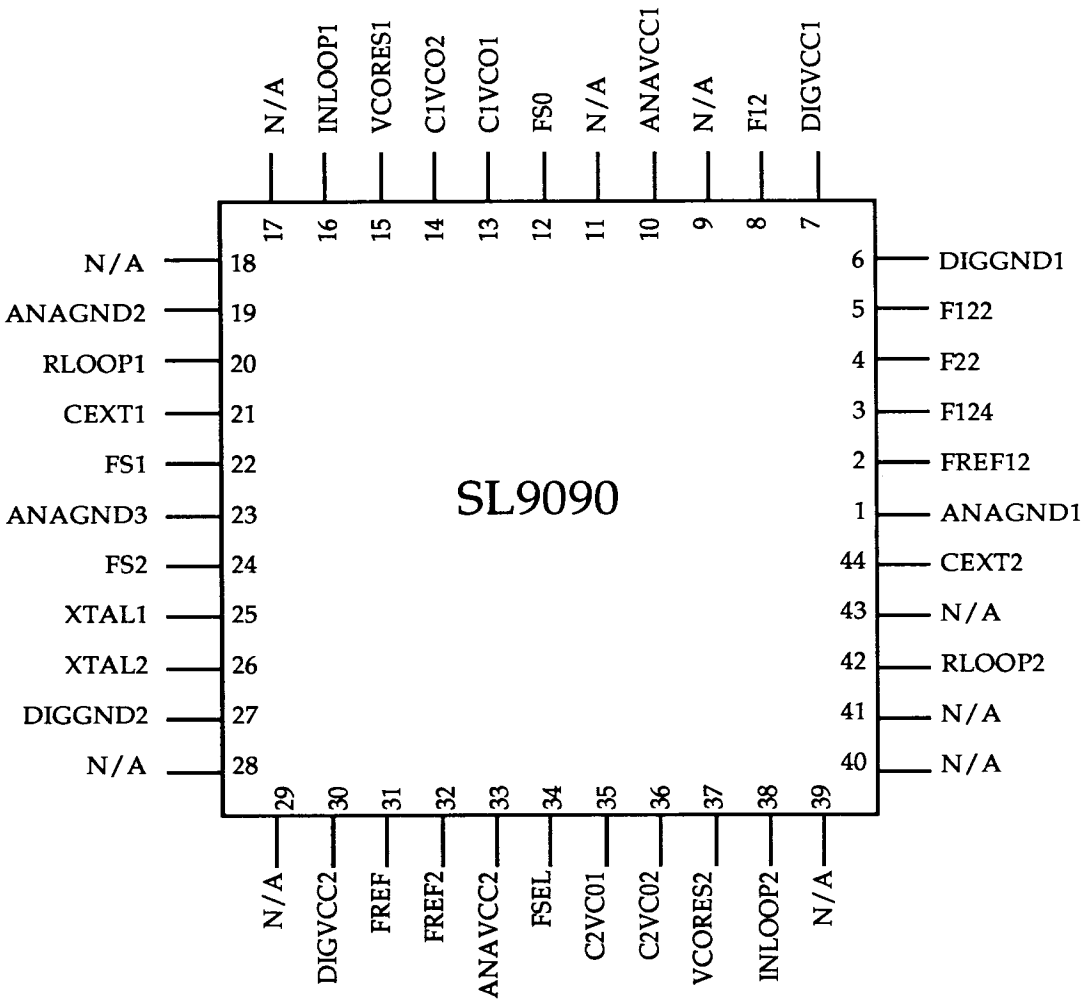
FUNCTIONAL BLOCK DIAGRAM



October 1988

LOGICSTAR, Inc. (415) 651-2796
4160-B Technology Drive
Fremont, CA 94538

PINOUT



PIN DESCRIPTION

SYMBOL	PIN	TYPE	DESCRIPTION
ANAGND1,2,3	1,19,23	-	Analog Ground.
ANAVCC1,2	10,33	-	Analog VCC +5/12V for Clock generator 1,2.
C1VCO1,2	13,14	I	VCO capacitor pin 1, 2 for Clock generator 1.
C2VCO1,2	35,36	I	VCO capacitor pin 1, 2 for Clock generator2.
CEXT1,2	21,44	I	Charge pump pin for Clock generator 1,2.
DIGGND1,2	6,27	-	Digital Ground.
DIGVCC1,2	7,30	-	Digital +5V supply.
F22	4	O	8 MHz output.
F12	8	O	FREQ 1 or 16 MHz output.
F122	5	O	FREQ 1 / 2 or 8 MHz output.
F124	3	O	FREQ 1 / 4 or 4 MHz output.
FREF	31	O	14.318 MHz output.
FREF2	32	O	7.159 MHz output (Timer clock).
FREF12	2	O	1.19 MHz output (Keyboard clock).
FS0-FS2	12,22,24	I	Frequency Select LSB-MSB (from Keyboard or Jumpers).
FSEL	34	I	Frequency Select input (Dynamic).
INLOOP1,2	16,38	I	Loop filter resistor pin 1 for Clock generator 1,2.
N.C.	9,11,17,18,28, 29,39,40,41,43	-	No Connect.
RLOOP1,2	20,42	I	Loop filter resistor pin 2 for Clock generator 1,2.
VCORES1,2	15,37	I	Center frequency resistor for Clock generator 1,2.
XTAL1,2	25,26	X1,X2	Crystal oscillator pin 1,2.

FREQUENCY SELECT CODES

PIN NAME	FSEL	FS2	FS1	FS0	F12	F122	F124	F2	F22	
PIN No.	34	24	22	12	8	5	3	-	4	
FUNCTION					(F1,F2)	$\frac{(F1,F2)}{2}$	$\frac{(F1,F2)}{4}$	(F2)	$\frac{(F2)}{2}$	UNIT
	1	0	0	0	48	24	12	16	8	MHz
	1	0	0	1	50	25	12.5	16	8	MHz
	1	0	1	0	60	30	15	16	8	MHz
	1	0	1	1	19.2	9.6	4.8	16	8	MHz
	1	1	0	0	32	16	8	16	8	MHz
	1	1	0	1	40	20	10	16	8	MHz
	0	X	X	X	16	8	4	16	8	MHz

PIN NAME	FREF	FREF2	FREF12	
PIN No.	31	32	2	
FUNCTION	(FREF)	$\frac{(FREF)}{2}$	$\frac{(FREF)}{12}$	UNIT
	14.318	7.159	1.19	MHz

NOTES:

1. FS0, FS1, FS2, & FSEL can all be switched dynamically.
2. FSEL switching response time is less than 2X F1 clock cycles.
3. FS0, FS1 & FS2 switch occurs within 1 μs to 10% of selected frequency.

DC Characteristics SL9090

(TA = 0 ° C to 70 ° C, VDD = 5V ± 5%)

Parameters	Symbol	Min.	Max.	Units	Conditions
Low Level Input Voltage	VIL	0	0.8	V	
Low Level Input Current	IIL		-0.6	mA	Vin = 0.4V
High Level Input Voltage	VIH	2.0	5.25	V	
High Level Input Current	IIH		10	mA	Vin = DIGVCC
Low Level Output Voltage	VOL1		0.5	V	Iol = 3mA
High Level Output Voltage	VOH1	2.4		V	Ioh = -400 µA
Low Level Output Voltage (low power TTL)	VOL2		0.5	V	Iol = 8mA
High Level Out Voltage (low power TTL)	VOH2	2.4		V	Ioh = -400µA
Supply Current	ICC		140	mA	

NOTES

1. Thermal resistance of package = 66 °C/W.
2. Calculated worst case tpd factor = 1 °81.
3. Calculated max junction temp = 117 °C.

A.C. CHARACTERISTICS

(TA = 0 ° C to 70 ° C, VDD = 5V ± 5%)

XTAL1, XTAL2, Crystal frequency.....14.318 MHz

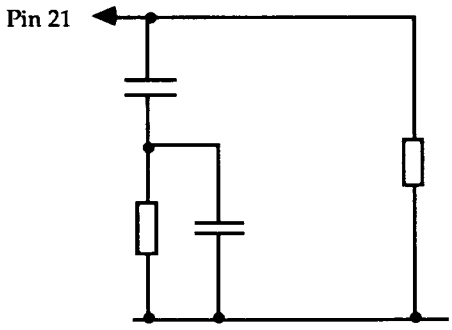
F12, F122 Duty Cycle.....45:55 - 55:45
(Load 2 LSTTL inputs, External resistor may be required to achieve duty cycle close to 50%.)

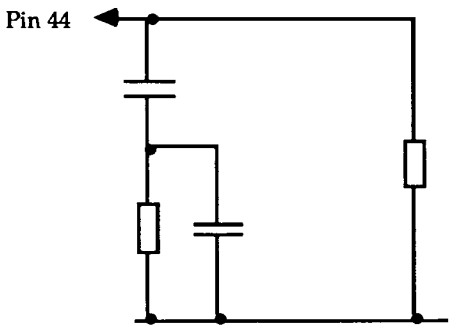
F2, F22, FREF, FREF2, FREF12 duty Cycle.....40:60 - 60:40
(Load 2 LSTTL inputs, External resistor may be required to achieve duty cycle close to 50%.)

Settling time from change of FS1, FS2, FS3.....1uS to +/- 10% of defined frequency.
(300uS to lock.)

EXTERNAL COMPONENTS

Description	Name	Clock Generator 1	Clock Generator 2
Shunt Regulator Centre frequency resistor Loop filter resistor VCO Capacitor VCO Resistor Charge Pump Components	(RSHUNT) (VCORES) (RLOOP - INLOOP) (CVCO1 - CVCO2) (CEXT)	TBD	TBD





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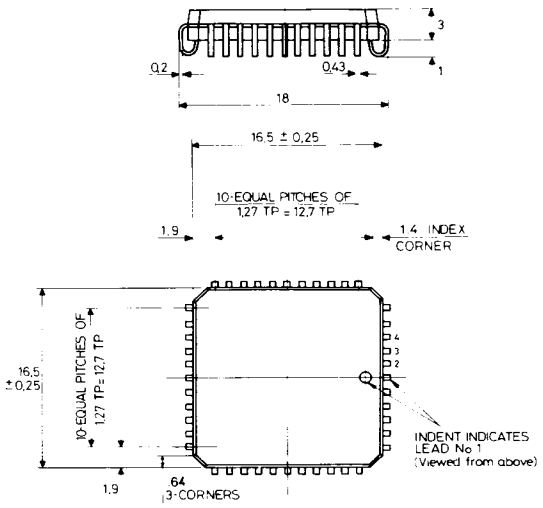
Package Information

44 Pin Plastic Leadless Chip Carrier



ORDERING INFORMATION

Device Type:
SL9090

Package Type:
PL- Plastic LCC
PD-PDIP

Temperature Range:
C- Commercial temperature range, 0 to 70 °C, 4.75 to 5.25 V

SL9090 XX X

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