UNIVERSAL VIDEO CLOCK CHIP

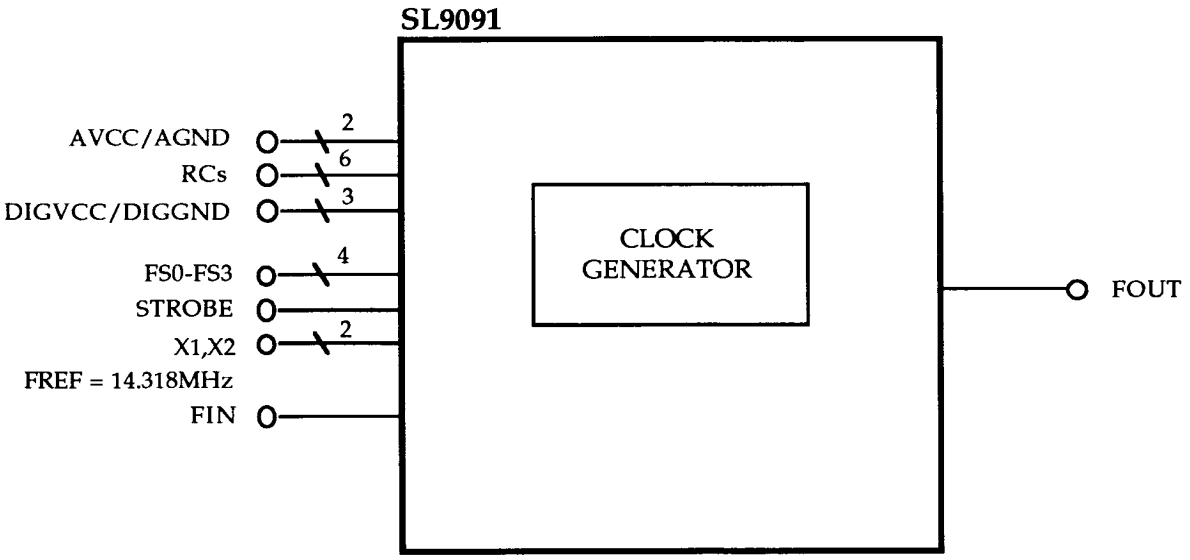
SL9091

PRELIMINARY

FEATURES

- Generates all essential Clock Signals for Video.
- Ideal for all EGA, VGA applications.
- Select code is IBM compatible.
- Generates 16 different clock frequencies (14 to 55 MHz).
- Requires only one Crystal and few RC components.
- Internal Clock Generator.
- High output drive of 8 mA.
- TTL Level inputs and Analog interface.
- Advanced Bipolar technology.
- Package option: 20 pin SOJ or DIP.

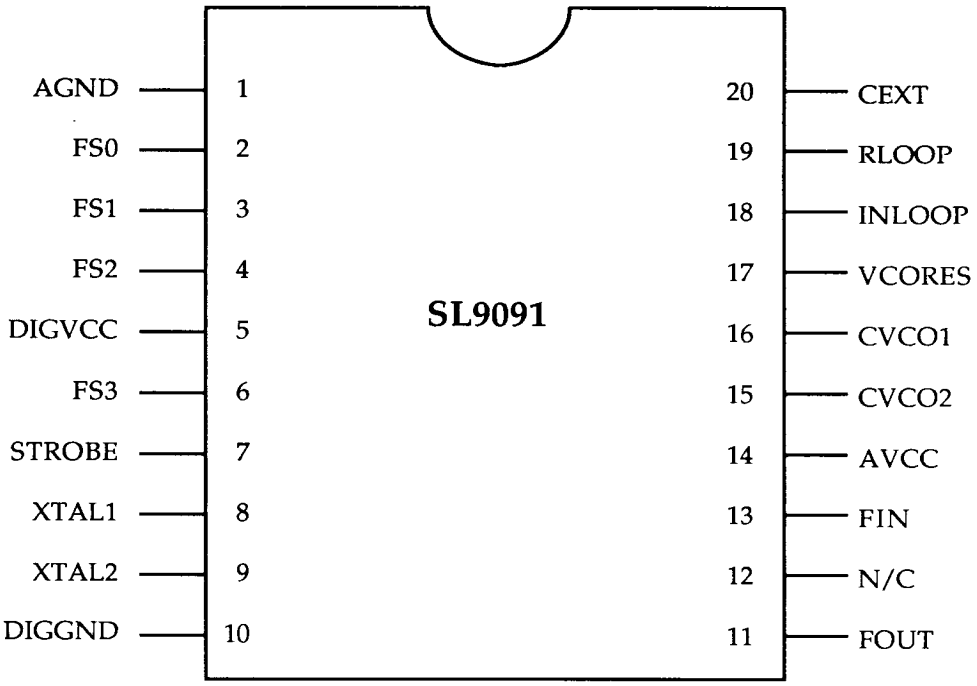
FUNCTIONAL BLOCK DIAGRAM



April 1989

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

PINOUT



PIN DESCRIPTION

SYMBOL	PIN	TYPE	DESCRIPTION
AGND	1	-	Analog Ground.
AVCC	14	-	Analog VCC.
CVCO1,2	16,15	I	VCO capacitor pin 1, 2 for Clock generator .
CEXT	20	I	Charge pump pin.
DIGGND	10	-	Digital Ground.
DIGVCC	5	-	Digital + 5V supply.
FS0-FS3	2,3,4,6	I	Frequency Select LSB-MSD.
FIN	13	I	External frequency input.
FOUT	11	O	Frequency output.
INLOOP	18	I	Loop filter resistor pin 1.
N/C	12	-	No Connect.
RLOOP	19	I	Loop filter resistor pin 2.
STROBE	7	I	Low to enable frequency selection.
VCORES	17	I	Center frequency resistor.
XTAL1,2	8,9	X1,X2	Crystal oscillator pin 1,2.

FREQUENCY SELECT CODES

FUNCTION	FS3	FS2	FS1	FS0	FOUT (MHz)
PIN No.	5	4	3	2	13
	0	0	0	0	25.175
	0	0	0	1	28.322
	0	0	1	0	31.883
	0	0	1	1	40.029
	0	1	0	0	32.554
	0	1	0	1	35.000
	0	1	1	0	44.873
	0	1	1	1	35.658
	1	0	0	0	16.277
	1	0	0	1	14.318
	1	0	1	0	35.037
	1	0	1	1	42.000
	1	1	0	0	36.000
	1	1	0	1	55.040
	1	1	1	0	39.413
	1	1	1	1	FIN

DC CHARACTERISTICS SL9091

(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	µA	Vin = DIGVCC
Low Level Output Voltage	VOL		0.5	V	Iol = 8mA
High Level Output Voltage	VOH	2.4		V	Ioh = -400 µA
Supply Current	ICC		105	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

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

FOUT Rise Time.....5 ns (typ)

FOUT Fall Time.....5 ns (typ)

FOUT Load.....35 pf (max)

FOUT Capture Time.....1 µS to ± 10% of final frequency.
500 µS to full lock (typ)

VCCD Decoupling Capacitor.....0.1 µF.

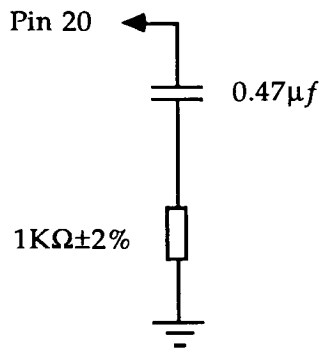
Long term Voltage stability.....same as reference input.

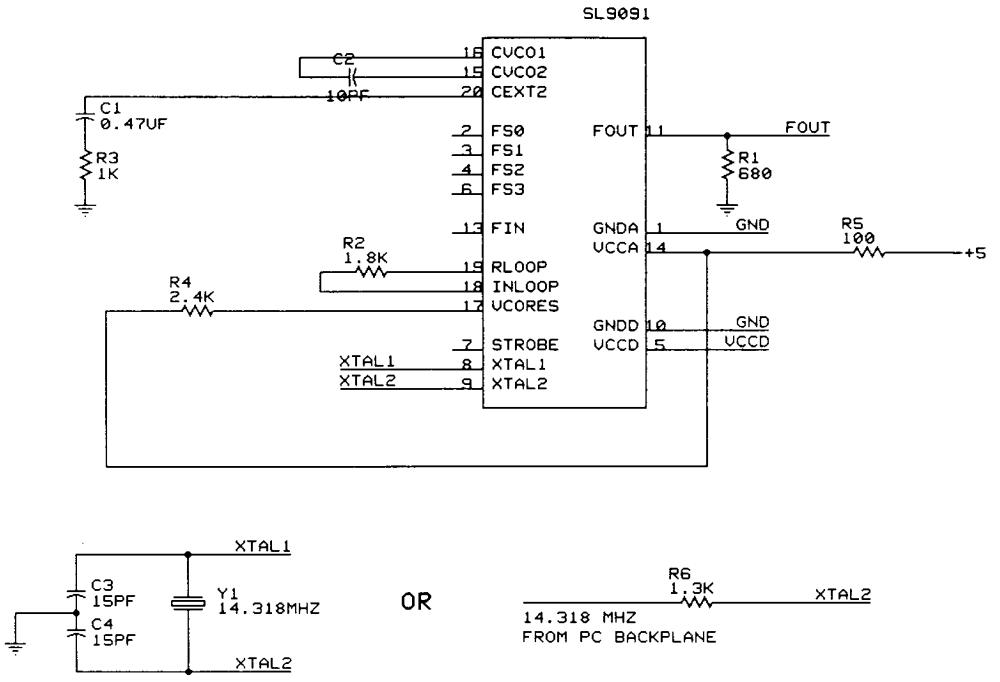
Long term Temperature stability.....same as reference input.

EXTERNAL COMPONENTS

Description	Name	Value
Shunt Regulator	(RSHUNT)	100Ω±2%
Center frequency resistor	(VCORES)	2.4KΩ±1%
Loop filter resistor	(RLOOP - INLOOP)	1.8KΩ±1%
VCO Capacitor	(CVCO1 - CVCO2)	10p*f*±0.5p*f*
FOUT pull down resistor		680Ω±0.5%

Charge Pump Components (CEXT) Connected as follows:





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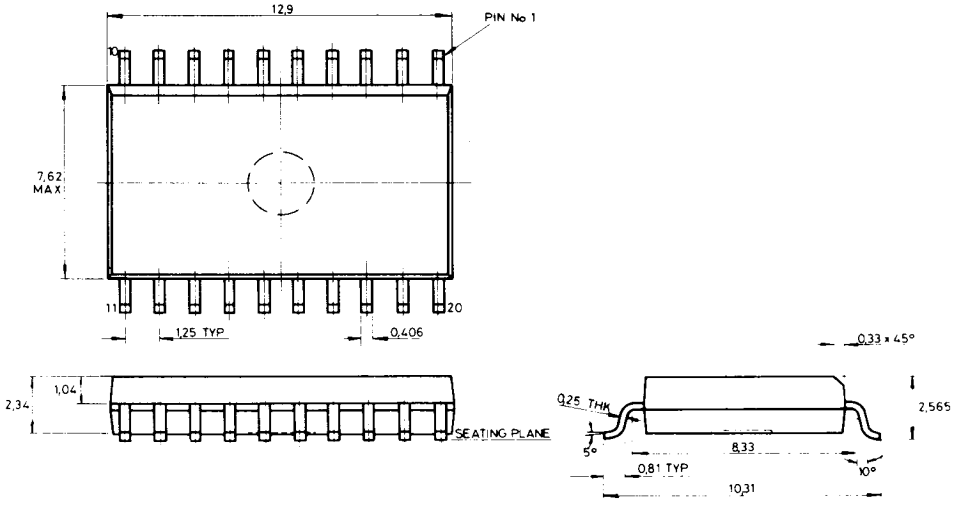
PRELIMINARY

Package Information

20 Pin Small Outline Plastic Package



ORDERING INFORMATION

Device Type:
SL9091

Package Type:
SJ-Small Outline
PD-PDIP

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

SL9091 XX X

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