AMERICAN MICROSYSTEMS, INC.

FS6284

Dual PLL Clock Generator IC

March 2000

Advance Information

1.0 Features

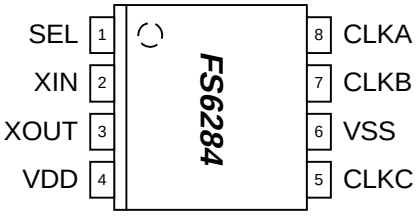
- Dual phase-locked loop (PLL) device with three output clock frequencies
- 3.3V supply voltage
- Small circuit board footprint (8-pin 0.150″ SOIC)
- Custom frequency selections available - contact your local AMI Sales Representative for more information

2.0 Description

The FS6284 is a monolithic CMOS clock generator IC designed to minimize cost and component count in digital video/audio systems.

All frequencies are ratiometrically derived from the crystal oscillator frequency. The locking of all the output frequencies together can eliminate unpredictable artifacts in video systems and reduce electromagnetic interference (EMI) due to frequency harmonic stacking.

Figure 1: Pin Configuration



8-pin (0.150″) SOIC

Table 1: Crystal / Output Frequencies

DEVICE	SEL	f_{XIN} (MHz)	CLKA (MHz)	CLKB (MHz)	CLKC (MHz)
FS6284-01	0	14.31818	14.31818 (f_{XIN})	48.000 (f_{XIN}* 352 / 105)	81.000 (f_{XIN}* 198 / 35)
	1				70.000 (f_{XIN}* 44 / 9)

NOTE: Contact AMI for custom PLL frequencies

Figure 2: Block Diagram

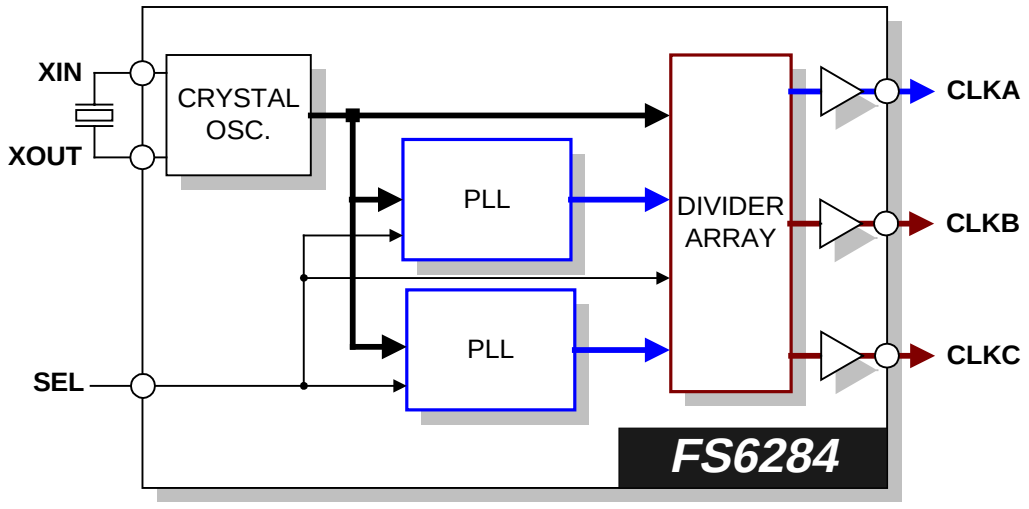


Table 2: Pin Descriptions

Key: AI = Analog Input; AO = Analog Output; DI = Digital Input; DI^U = Input with Internal Pull-Up; DI_D = Input with Internal Pull-Down; DIO = Digital Input/Output; DI-3 = Three-Level Digital Input, DO = Digital Output; P = Power/Ground; # = Active Low pin

PIN	TYPE	NAME	DESCRIPTION
1	DI^U	SEL	Select Input (see Table 1)
2	AI	XIN	Crystal Oscillator Drive / External Reference Input
3	AO	XOUT	Crystal Oscillator Feedback
4	P	VDD	Power (+3.3 volts)
5	DO	CLKC	Clock Output C
6	P	VSS	Ground
7	DO	CLKB	Clock Output B
8	DO	CLKA	Clock Output A

3.0 Electrical Specifications

Table 3: Absolute Maximum Ratings

Stresses above those listed under Absolute Maximum Ratings may cause permanent damage to the device. These conditions represent a stress rating only, and functional operation of the device at these or any other conditions above the operational limits noted in this specification is not implied. Exposure to maximum rating conditions for extended conditions may affect device performance, functionality, and reliability.

PARAMETER	SYMBOL	MIN.	MAX.	UNITS
Supply Voltage (V_{SS} = ground)	V_{DD}	V_{SS}-0.5	7	V
Input Voltage, dc	V_I	V_{SS}-0.5	V_{DD}+0.5	V
Output Voltage, dc	V_O	V_{SS}-0.5	V_{DD}+0.5	V
Input Clamp Current, dc ($V_I < 0$ or $V_I > V_{DD}$)	I_{IK}	-50	50	mA
Output Clamp Current, dc ($V_I < 0$ or $V_I > V_{DD}$)	I_{OK}	-50	50	mA
Storage Temperature Range (non-condensing)	T_S	-65	150	°C
Ambient Temperature Range, Under Bias	T_A	-55	125	°C
Junction Temperature	T_J		125	°C
Lead Temperature (soldering, 10s)			260	°C
Input Static Discharge Voltage Protection (MIL-STD 883E, Method 3015.7)			2	kV

CAUTION: ELECTROSTATIC SENSITIVE DEVICE

Permanent damage resulting in a loss of functionality or performance may occur if this device is subjected to a high-energy electrostatic discharge.

Table 4: Operating Conditions

PARAMETER	SYMBOL	CONDITIONS/DESCRIPTION	MIN.	TYP.	MAX.	UNITS
Supply Voltage	V_{DD}	3.3V ± 10%	3.0	3.3	3.6	V
Ambient Operating Temperature Range	T_A		0		70	°C

4.0 Package Information

Table 5: 8-pin SOIC (0.150") Package Dimensions

	DIMENSIONS			
	INCHES		MILLIMETERS	
	MIN.	MAX.	MIN.	MAX.
A	0.061	0.068	1.55	1.73
A1	0.004	0.0098	0.102	0.249
A2	0.055	0.061	1.40	1.55
B	0.013	0.019	0.33	0.49
C	0.0075	0.0098	0.191	0.249
D	0.189	0.196	4.80	4.98
E	0.150	0.157	3.81	3.99
e	0.050 BSC		1.27 BSC	
H	0.230	0.244	5.84	6.20
h	0.010	0.016	0.25	0.41
L	0.016	0.035	0.41	0.89
Θ	0°	8°	0°	8°

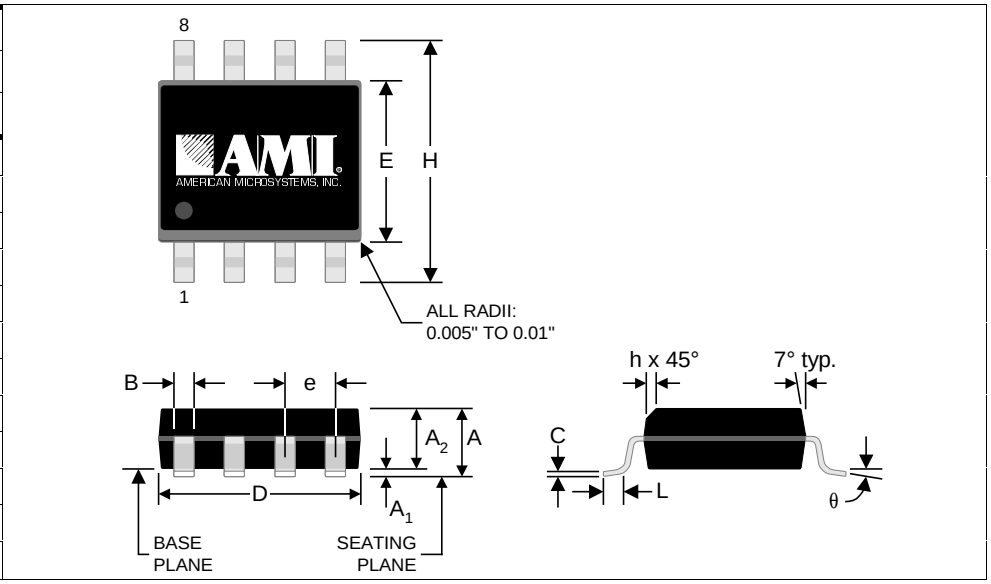


Table 6: 8-pin SOIC (0.150") Package Characteristics

PARAMETER	SYMBOL	CONDITIONS/DESCRIPTION	TYP.	UNITS
Thermal Impedance, Junction to Free-Air 8-pin 0.150" SOIC	Θ_{JA}	Air flow = 0 m/s	110	°C/W
Lead Inductance, Self	L_{11}	Corner lead	2.0	nH
		Center lead	1.6	
Lead Inductance, Mutual	L_{12}	Any lead to any adjacent lead	0.4	nH
Lead Capacitance, Bulk	C_{11}	Any lead to V_{SS}	0.27	pF

5.0 Ordering Information

ORDERING CODE	DEVICE NUMBER	PACKAGE TYPE	OPERATING TEMPERATURE RANGE	SHIPPING CONFIGURATION
11640-xxx	FS6284-01	8-pin (0.150") SOIC (Small Outline Package)	0°C to 70°C (Commercial)	Tape and Reel
11640-xxx	FS6284-01	8-pin (0.150") SOIC (Small Outline Package)	0°C to 70°C (Commercial)	Tubes

American Microsystems, Inc., 2300 Buckskin Rd., Pocatello, ID 83201, (208) 233-4690, FAX (208) 234-6796, WWW Address: http://www.amis.com E-mail: tgp@amis.com