



Approved Product

**C6007B**

## Clock Generator for DVD Stereo System

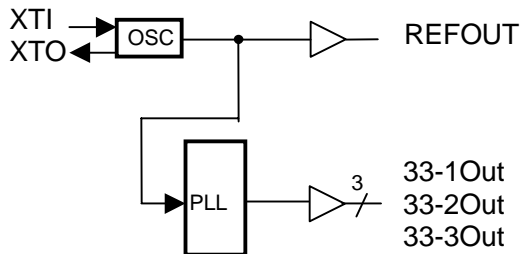
### Product Features

- One Reference outputs
- Three 33.8688MHz output
- 27.00MHz Clock or crystal input
- 3.3 Volt operation
- High drive outputs
- 16 pin TSSOP package
- 0 PPM application frequency synthesis error

### Product Description

The C6007 is a clock generator solution that supports DVD Stereo System. It produces a complete set of clocks needed to support the entire system. All output clocks are synthesized from a single 27.00MHz fundamental cut crystal or input reference clock. The output clocks are precisely synthesized to meet the systems low PPM error requirements.

### Block Diagram



### Pin configuration

VDD	1	16	NC
VSS	2	15	NC
REFOUT	3	14	NC
NC	4	13	33-3Out
VDD	5	12	VDD
VSS	6	11	VSS
XTI	7	10	33-2Out
XTO	8	9	33-1Out

**Pin Description**

PIN No.	Pin Name	I/O	Description
3	REFOUT	O	3.3V fixed reference frequency clock output.
9,10,13	33-1Out 33-2Out 33-3Out	O	3.3V fixed frequency 33.8688MHz clock outputs.
4,14,15,16	NC		No connection
8	XTO	O	On-chip reference oscillator pin. Drives an external crystal. When an externally generated reference signal is used at XTI, this pin remains unconnected. Bypass with a proper capacitance to ground to match the external crystal's load capacitance.
7	XTI	I	On-chip reference oscillator input pin. Requires either an external crystal (nominally 27MHz) or externally generated reference signal. Bypass with a proper capacitance to ground to match the external crystal's load capacitance.
1, 5, 12	VDD	PWR	3.3 Volt Power supply.
2,6,11	VSS	PWR	Device ground for all circuitry

Note: Table nomenclature

I = Input pins, O = Output pins and PWR = Power connection pins.

**Maximum Lumped Capacitive Output Loads**

Clock	Max Load	Units
REFOUT	40	pF
33-1Out,-2Out	15	pF
33-3Out	25	pF

## Maximum Ratings

Maximum Input Voltage Relative to VSS:VSS – 0.3V	
Maximum Input Voltage Relative to VDD:VDD + 0.3V	
Storage Temperature:	-65° to +150°C
Operating Temperature:	-10° to +75°C
Maximum ESD protection	2KV
Maximum Power Supply:	5.5V
Operating Voltage:	3.0 – 3.6V

This device contains circuitry to protect the inputs against damage due to high static voltages or electric field; however, precautions should be taken to avoid application of any voltage higher than the maximum rated voltages to this circuit. For proper operation, Vin and Vout should be constrained to the range:

$$VSS < (V_{in} \text{ or } V_{out}) < VDD$$

Unused inputs must always be tied to an appropriate logic voltage level (either VSS or VDD).

## DC Parameters (VDD = 3.3V +/- 10%, TA = -10°C to +75°C)

Characteristic	Symbol	Min	Typ	Max	Units	Conditions
Dynamic Supply Current	I <sub>dd3.3V</sub>	-	18	27	mA	No output load
Output Low Voltage	VOL	-	-	0.4	V	IOL = 4.0mA
Output High Voltage	VOH	2.4	-	-	V	IOH = 4.0mA
Crystal pin capacitance	Cxtal	-	-	5	pF	Capacitance at XT1, XTO

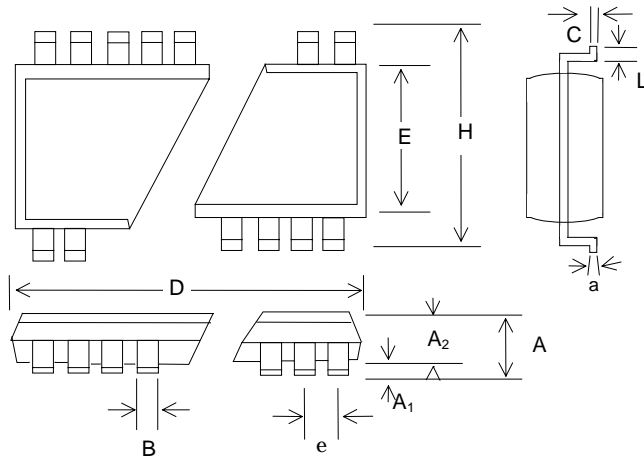
## AC Parameters (Note 1)

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Frequency error, all outputs	F <sub>ERR</sub>	-	-	0	PPM	XTI= 27.00MHz
Rise Time	T <sub>R</sub>	-	3	5	nsec	All clocks at rated load, Note 2
Fall Time	T <sub>F</sub>	-	3	5	nsec	All clocks at rated load, Note 2
Power up to Stable Output	T <sub>PU</sub>	-	-	3	msec	All Output Clocks, Note 3
Clock Duty Cycle (all output clocks)	T <sub>DC1</sub>	45	50	55	%	All clocks at rated load, Note 3
Clock Jitter (33-1Out,-2Out,-3Out)	T <sub>j1</sub>	-	150	200	psec	Cycle to cycle jitter (Peak -maximum) All clocks at rated load Note 3
Clock Jitter (REFOUT)	T <sub>j2</sub>	-	220	350	psec	

### Notes:

- Parameters are guaranteed by design and characterization. Not 100% tested in production. All parameters specified with fully loaded outputs.
- Measured between 0.2\*VDD and 0.8\*VDD Volts
- Triggering is done at 1.5 Volts

## Package Drawing and Dimensions



### 16 Pin TSSOP Outline Dimensions

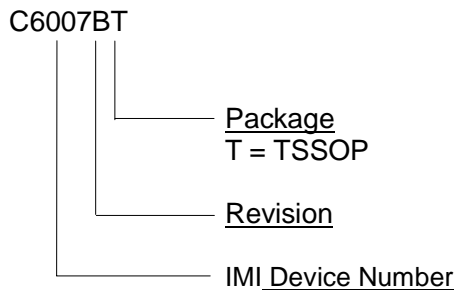
SYMBOL	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	-	-	0.047	-	-	1.20
A <sub>1</sub>	0.002	-	0.006	0.05	-	0.15
A <sub>2</sub>	0.031	0.039	0.041	0.80	1.00	1.05
B	0.007	-	0.012	0.19	-	0.30
C	0.004	-	0.008	0.09	-	0.20
D	0.193	0.197	0.201	4.90	5.00	5.10
E	0.169	0.173	0.177	4.30	4.40	4.50
e	0.026 BSC			0.65 BSC		
H	0.244	0.252	0.260	6.20	6.40	6.60
L	0.018	0.024	0.030	0.45	0.60	0.75
a	0°	-	8°	0°	-	8°

### Ordering Information

Part Number	Package Type	Production Flow
C6007BT	16 Pin TSSOP	Commercial, -10°C to +75°C

**Note:** The ordering part number is formed by a combination of device number, device revision, package style, and screening as shown below.

**Marking:** Example: IMI ,Date Code  
C6007BT  
Lot #



**DISCLAIMER**

International Microcircuits, Inc. ("IMI") reserves the right to change or modify the information contained in this datasheet and the products described therein, without prior notice. IMI does not convey any license under its patent rights nor the rights of others. Charts, drawings and schedules contained in this datasheet are provided for illustration purposes only and they vary depending upon specific applications.

IMI makes no warranty or guarantee regarding suitability of these products for any particular purpose, nor does IMI assume any liability arising out of the application or use of any product or circuit described herein. IMI does not authorize use of its products as critical components in any application in which the failure of the IMI product may be expected to result in significant injury or death, including life support systems and critical medical instruments.



CYPRESS

**C6007B**

<b>Document Title: C6007B Clock Generator for DVD Stereo System</b>				
<b>Document Number: 38-07101</b>				
<b>REV.</b>	<b>ECN NO.</b>	<b>Issue Date</b>	<b>Orig. of Change</b>	<b>Description of Change</b>
**	107392	05/22/01	IKA	New Data Sheet