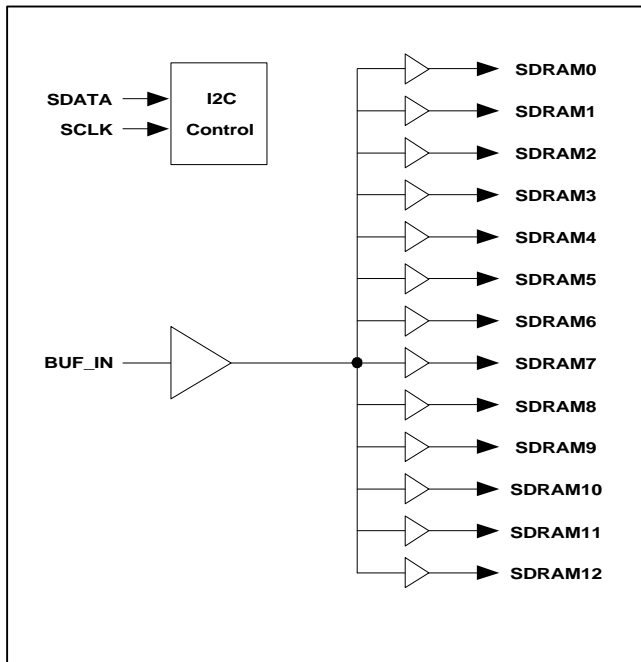


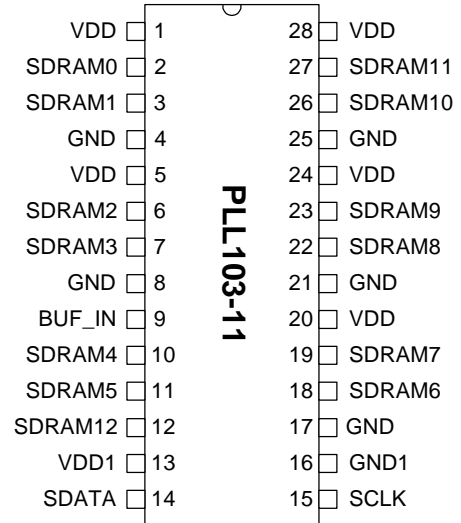
FEATURES

- Generates 13 copies of High-speed clock inputs.
- Supports up to three SDRAM DIMMS synchronous clocks.
- Supports 2-wire I2C serial bus interface with readback.
- 50% duty cycle with low jitter.
- Less than 5ns delay.
- Skew between any outputs is less than 250 ps.
- Tri-state pin for testing.
- Frequency up to 150 MHz.
- 3.0V-3.7V Supply range.
- Available in 28-pin 300mil SOIC package.

BLOCK DIAGRAM



PIN CONFIGURATION



POWER GROUP

- VDD: SDRAM (0:12)
- VDD1: I2C Circuitry

GROUND GROUP

- GND: SDRAM (0:12)
- GND1: I2C Circuitry

KEY SPECIFICATIONS

- BUF_IN to SDRAM outputs Delay: 1 ~ 5 ns.
- Output Slew: ≥ 1.5 V/ns.
- Output Skew: ± 250 ps.
- Output Duty Cycle: $50\% \pm 5\%$.

PIN DESCRIPTIONS

Name	Number	Type	Description
SDRAM (0:5)	2,3,6,7,10,11	O	SDRAM Byte0 Clock outputs.
SDRAM (6:11)	18,19,22, 23,26,27	O	SDRAM Byte1 Clock outputs.
SDRAM 12	12	O	SDRAM Byte2 Clock outputs.
BUF_IN	9	I	Input for fanout buffers SDRAM (0:12).
SDATA	14	B	Serial data inputs for serial interface port.
SCLK	15	I	
VDD	1,5,20,24,28	P	3.3V Power supply for SDRAM buffer.
VDD1	13	P	3.3V Power supply for I2C circuitry.
GND	4,8,17,21,25	P	Ground for SDRAM buffer.
GND1	16	P	Power supply for I2C circuitry.

I2C BUS CONFIGURATION SETTING

Address Assignment	A6	A5	A4	A3	A2	A1	A0	R/W
	1	1	0	1	0	0	1	-
Slave Receiver/Transmitter	Provides both slave write and readback functionality							
Data Transfer Rate	Standard mode at 100kbits/s							
Data Protocol	<p>This serial protocol is designed to allow both blocks write and read from the controller. The bytes must be accessed in sequential order from lowest to highest byte. Each byte transferred must be followed by 1 acknowledge bit. A byte transferred without acknowledged bit will terminate the transfer. The write or read block both begins with the master sending a slave address and a write condition (0xD2) or a read condition (0xD3).</p> <p>Following the acknowledge of this address byte, in Write Mode: the Command Byte and Byte Count Byte must be sent by the master but ignored by the slave, in Read Mode: the Byte Count Byte will be read by the master then all other Data Byte. Byte Count Byte default at power-up is = (0x09).</p>							

I2C CONTROL REGISTERS

1. BYTE 0: SDRAM(0:5) Clock Register (1=Enable, 0=Disable)

Bit	Pin#	Default	Description
Bit 7	11	1	SDRAM5 (Active/Inactive)
Bit 6	10	1	SDRAM4 (Active/Inactive)
Bit 5	-	1	Reserved
Bit 4	-	1	Reserved
Bit 3	7	1	SDRAM3 (Active/Inactive)
Bit 2	6	1	SDRAM2 (Active/Inactive)
Bit 1	3	1	SDRAM1 (Active/Inactive)
Bit 0	2	1	SDRAM0 (Active/Inactive)

2. BYTE 1: SDRAM(6:11) Clock Register (1=Enable, 0=Disable)

Bit	Pin#	Default	Description
Bit 7	27	1	SDRAM11 (Active/Inactive)
Bit 6	26	1	SDRAM10 (Active/Inactive)
Bit 5	23	1	SDRAM9 (Active/Inactive)
Bit 4	22	1	SDRAM8 (Active/Inactive)
Bit 3	-	1	Reserved
Bit 2	-	1	Reserved
Bit 1	19	1	SDRAM7 (Active/Inactive)
Bit 0	18	1	SDRAM6 (Active/Inactive)

3. BYTE 2: SDRAM12 Clock Register (1=Enable, 0=Disable)

Bit	Pin#	Default	Description
Bit 7	-	1	Reserved
Bit 6	12	1	SDRAM12 (Active/Inactive)
Bit 5	-	1	Reserved
Bit 4	-	1	Reserved
Bit 3	-	1	Reserved
Bit 2	-	1	Reserved
Bit 1	-	1	Reserved
Bit 0	-	1	Reserved

ELECTRICAL SPECIFICATIONS

1. Absolute Maximum Ratings

PARAMETERS	SYMBOL	MIN.	MAX.	UNITS
Supply Voltage	V _{DD}	V _{SS} -0.5	7.0	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
Storage Temperature	T _S	-65	150	°C
Ambient Operating Temperature	T _A	0	70	°C

Exposure of the device under conditions beyond the limits specified by Maximum Ratings for extended periods may cause permanent damage to the device and affect product reliability. These conditions represent a stress rating only, and functional operations of the device at these or any other conditions above the operational limits noted in this specification is not implied.

2. AC/DC Electrical Specifications

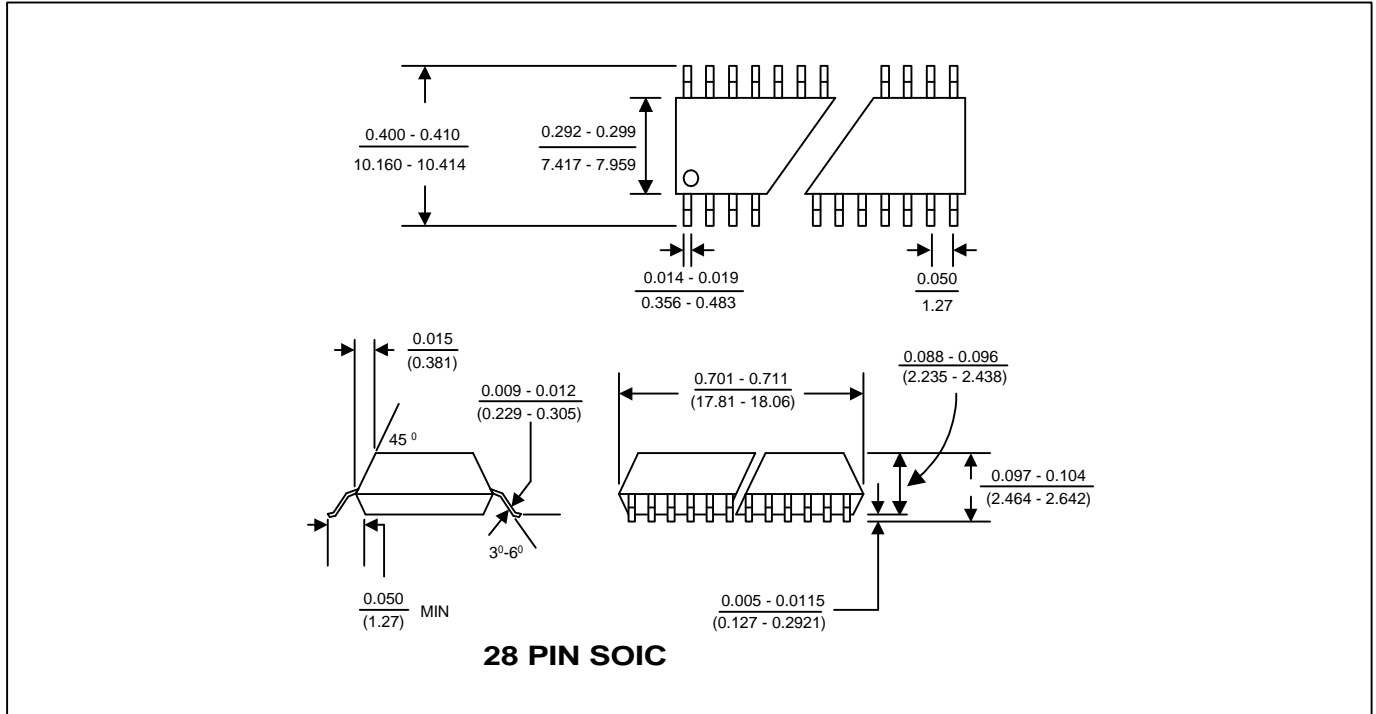
PARAMETERS	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Input High Current	I _{IH}	V _{IN} = V _{DD}			5	µA
Input Low Current	I _{IL}	V _{IN} =0V; with no pull-up resistors				µA
	I _{IL}	V _{IN} =0V; with 100k pull-up resistors				µA
Input High Voltage	V _{IH}		2		V _{DD} +0.3	V
Input Low Voltage	V _{IL}		V _{SS} -0.3		0.8	V
Input Frequency	F _{IN}	V _{DD} =3.3V; All outputs loaded	10		150	MHz
Input Capacitance	C _{IN}	Logic Inputs			5	pF
Operating Supply Current	I _{DD1}	C _L = 0pf @ 66MHz		80	120	mA
	I _{DD2}	C _L = 0pf @ 100MHz		120	180	mA
	I _{DD3}	C _L = 30pf; RS= 33Ω @ 66MHz		180	260	mA
	I _{DD4}	C _L = 30pf; RS= 33Ω @ 100MHz		240	360	mA
	I _{DD5}	Stopped, input at 0 or VDD				500

2. Output Buffer Electrical Specifications

Unless otherwise stated, all power supplies = 3.3V±5%, and ambient temperature range T_A= 0°C to 70°C

PARAMETERS	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Output High Voltage	V _{OH}	I _{OH} = -36 mA	2.4	3		V
Output Low Voltage	V _{OL}	I _{OH} = 23 mA		0.27	0.4	V
Output High Current	I _{OH}	V _{OH} = 2.0 V		-115	-54	mA
Output Low Current	I _{OL}	V _{OL} = 0.8 V	40	57		mA
Output Impedance	R _{DSP}	V _O = (0.5) * V _{DD}	10		24	ohm
Output Impedance	R _{DSN}	V _O = (0.5) * V _{DD}	10		24	ohm
Rise Time	T _r	V _{OL} = 0.4 V, V _{OH} = 2.4V		0.95	1.33	ns
Fall Time	T _f	V _{OH} = 2.4 V, V _{OL} = 0.4V		0.95	1.33	ns
Skew	T _{skew}	V _T = 1.5 V		110	250	ps
Duty Cycle	D _T	V _T = 1.5 V	45	50	55	%
Propagation	T _{PROP}	V _T = 1.5 V	1	5	6	ns
	T _{PROPEN}	V _T = 1.5 V	1		8	ns
	T _{PROPDIS}	V _T = 1.5 V	1		8	ns

PACKAGE INFORMATION



ORDERING INFORMATION

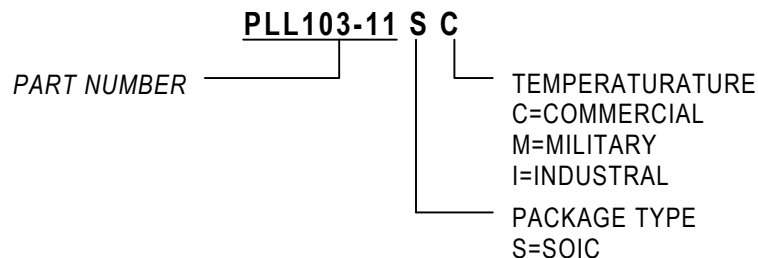
For part ordering, please contact our Sales Department:

47745 Fremont Blvd., Fremont, CA 94538, USA

Tel: (510) 492-0990 Fax: (510) 492-0991

PART NUMBER

The order number for this device is a combination of the following:
Device number, Package type and Operating temperature range



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