

Custom Clock Generator for Fax System

Features

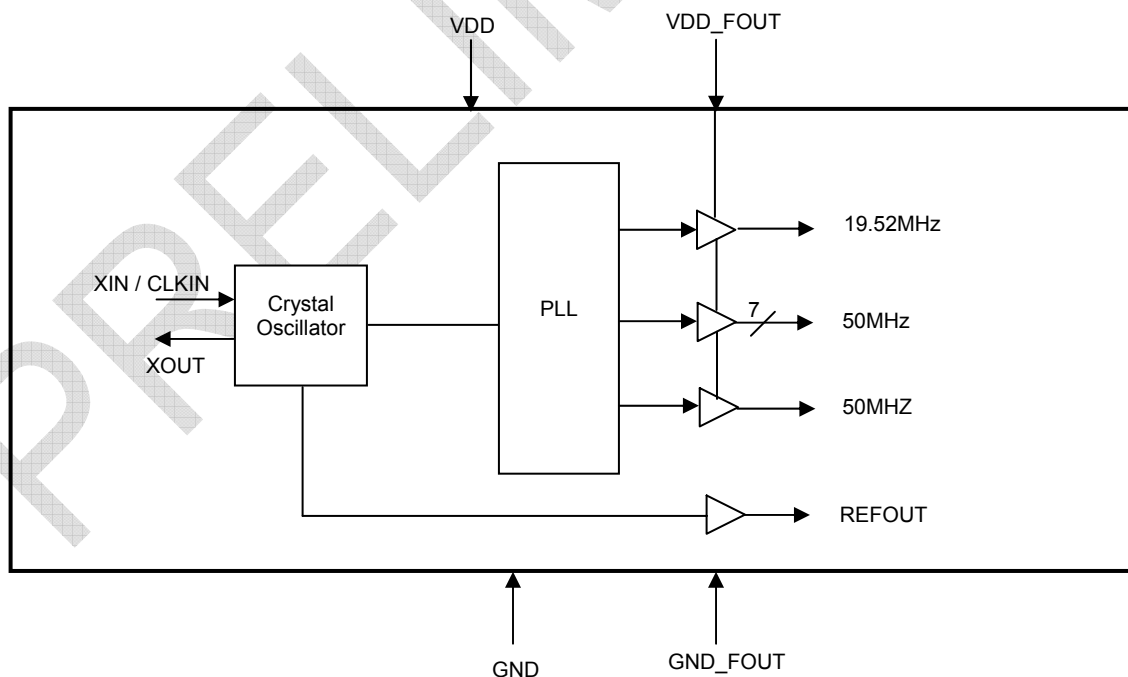
- Generates Custom Clocks for FAX system from an inexpensive 24MHz Crystal
- 7 x 50MHz synchronized non-Spread Spectrum clocks (for CPU, ASIC2, ASIC3, HDD, and PCI Analyzer, Ethernet, and LAN PHY)
- 1 x 50MHz for CPU Timer
- 1x 19.52MHz non-spread clock for Scanner
- REFOUT Clock
- Supply Voltage 3.3 V +/- 0.3V
- Available in 16L TSSOP, Green package
- Commercial Temperature operation

Product Description

ASM3P2855B is a part of the two chip custom clock generator solution for NEC FAX system. Together with ASM3P2854A, ASM3P2855B realizes all the eighteen clocks required by the various components and subsystems of the FAX system. It uses an inexpensive 24MHz crystal as the input to generate five synchronized 50MHz non-spread PCI clocks used by CPU, HDD, PCI Analyzer, ASIC2 and ASIC3, two non-spread

synchronized 50MHz clocks for Ethernet and LAN PHY, a 50MHz clock for the CPU Timer, and a 19.52MHz non-spread clock used by ASIC1 for Scanner. The custom clock generator ASM3P2855B works with a Supply Voltage of 3.3V. The device is available in a 16L TSSOP Green package and in commercial temperature range.

Block Diagram

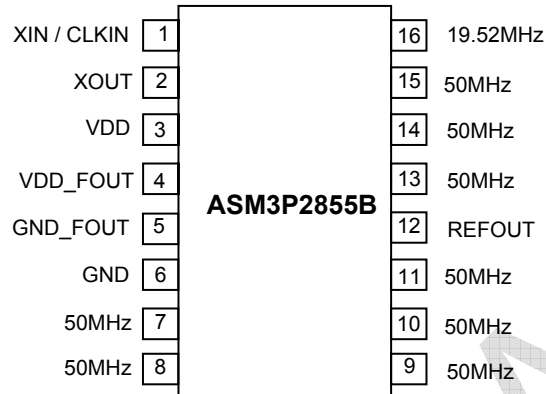


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Pin Diagram



Pin Description

Pin#	Pin Name	Type	Description
1	XIN / CLKIN	I	Crystal connection or external reference frequency input. This pin has dual functions. It can be connected either to an external crystal or an external reference clock.
2	XOUT	O	Crystal connection. If using an external reference, this pin must be left unconnected.
3	VDD	P	Power supply for the core
4	VDD_FOUT	P	Power supply for the output buffers.
5	GND_FOUT	P	Ground connection for the output buffers
6	GND	P	Ground connection
7	50MHz	O	Synchronous 50MHz Clock Output
8	50MHz	O	Synchronous 50MHz Clock Output
9	50MHz	O	Synchronous 50MHz Clock Output
10	50MHz	O	Synchronous 50MHz Clock Output
11	50MHz	O	Synchronous 50MHz Clock Output
12	REFOUT	O	24MHz Reference Clock Output
13	50MHz	O	Synchronous 50MHz Clock Output
14	50MHz	O	Synchronous 50MHz Clock Output
15	50MHz	O	50MHz Clock Output
16	19.52MHz	O	19.52MHz Clock Output

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Absolute Maximum Ratings

Symbol	Parameter	Rating	Unit
VDD, VDD_FOUT	Power Supply Voltage relative to GND	-0.5 to +4.6	V
V _{IN}	Input Voltage relative to GND (Input Pins)	-0.5 to VDD+0.5	
T _{STG}	Storage temperature	-65 to +125	°C
T _s	Max. Soldering Temperature (10 sec)	260	°C
T _J	Junction Temperature	150	°C
T _{DV}	Static Discharge Voltage (As per JEDEC STD22- A114-B)	2	KV

Note: These are stress ratings only and are not implied for functional use. Exposure to absolute maximum ratings for prolonged periods of time may affect device reliability.

Recommended Operating Conditions

Symbol	Parameter	Min	Typ	Max	Units
T _A	Operating Temperature	0		+70	°C
VDD	Core Voltage	+3.0	+3.3	+3.6	V
VDD_FOUT	Output Voltage	+3.0	+3.3	+3.6	V

DC Electrical Characteristics

Symbol	Parameter	Min	Typ	Max	Unit
V _{IL}	Input low voltage	GND - 0.3		0.8	V
V _{IH}	Input high voltage	2.0		VDD + 0.3	V
I _{IL}	Input low current			-35	μA
I _{IH}	Input high current			35	μA
I _{XOL}	XOUT output low current (V _{XOL} @0.4V, VDD=3.3V)		3		mA
I _{XOH}	XOUT output high current (V _{XOH} @2.5V, VDD=3.3V)		3		mA
V _{OL}	Output low voltage (VDD = 3.3V, I _{OL} = 10mA)			0.4	V
V _{OH}	Output high voltage (VDD = 3.3V, I _{OH} = 10mA)	2.5			V
I _{DD}	Static supply current*		10		mA
I _{CC}	Dynamic supply current (VDD =3.3V)		28		mA
VDD	Operating Voltage	3.0	3.3	3.6	V
VDD_FOUT	Operating Voltage	3.0	3.3	3.6	V
t _{ON}	Power-up time (first locked cycle after power-up)			5	mS
Z _{OUT}	Output impedance		29		Ω

* XIN is pulled low

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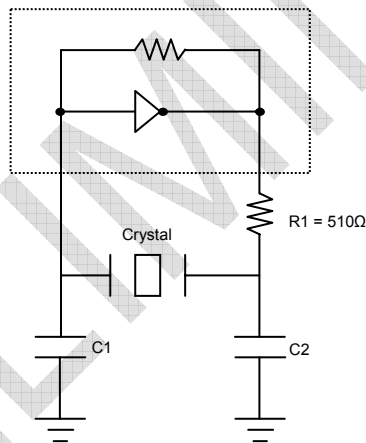
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AC Electrical Characteristics

Symbol	Parameter	Min	Typ	Max	Unit
XIN / CLKIN	Input frequency		24		MHz
F _{OUT}	Output frequency	At Pins 7,8,9,10,11,13,14,15	50		MHz
		At Pin 12	24		
		At Pin 16	19.52		
t _{LH} *	Output rise time (measured from 0.8 to 2.0V)		0.9		nS
t _{HL} *	Output fall time (measured at 2.0V to 0.8V)		0.7		nS
t _{JC}	Jitter (Cycle to cycle)		250		pS
t _D	Output duty cycle	40	50	60	%

* t_{LH} and t_{HL} are measured into a capacitive load of 15pF

Typical Crystal Oscillator Circuit



Typical Crystal Specifications

Fundamental AT cut parallel resonant crystal	
Nominal frequency	24MHz
Frequency tolerance	± 50 ppm or better at 25°C
Operating temperature range	-25°C to +85°C
Storage temperature	-40°C to +85°C
Load capacitance	18pF
Shunt capacitance	7pF maximum
ESR	25 Ω

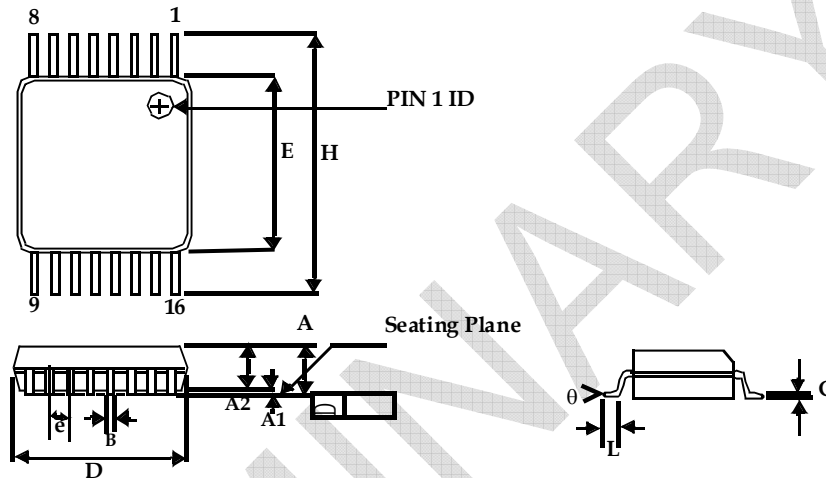
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Package Information

16-lead Thin Shrunken Small Outline Package (4.40-MM Body)



Symbol	Dimensions			
	Inches		Millimeters	
	Min	Max	Min	Max
A		0.043		1.20
A1	0.002	0.006	0.05	0.15
A2	0.031	0.041	0.80	1.05
B	0.007	0.012	0.19	0.30
C	0.004	0.008	0.09	0.20
D	0.193	0.201	4.90	5.10
E	0.169	0.177	4.30	4.50
e	0.026 BSC		0.65 BSC	
H	0.252 BSC		6.40 BSC	
L	0.020	0.030	0.50	0.75
θ	0°	8°	0°	8°



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Ordering Codes

Ordering Code	Marking	Package Type	Operating Range
ASM3P2855BG-16TT	3P2855BG	16-pin 4.4-mm TSSOP - TUBE, Green	Commercial
ASM3P2855BG-16TR	3P2855BG	16-pin 4.4-mm TSSOP - TAPE & REEL, Green	Commercial

Device Ordering Information

A S M 3 P 2 8 5 5 B G - 1 6 T R

R = Tape & Reel, T = Tube or Tray	
O = SOT S = SOIC T = TSSOP A = SSOP V = TVSOP B = BGA Q = QFN	U = MSOP E = TQFP L = LQFP U = MSOP P = PDIP D = QSOP X = SC-70
DEVICE PIN COUNT	
F = LEAD FREE AND RoHS COMPLIANT PART G = GREEN PACKAGE, LEAD FREE, and RoHS	
DEVICE NUMBER	
X= Automotive (-40C to +125C) I= Industrial (-40C to +85C) P or n/c = Commercial (0C to +70C)	1 = Reserved 2 = Non PLL based 3 = EMI Reduction 4 = DDR support products 5 = STD Zero Delay Buffer
6 = Power Management 7 = Power Management 8 = Power Management 9 = Hi Performance 0 = Reserved	
PulseCore Semiconductor Mixed signal Product	

Licensed under U.S Patent Nos 5,488,627 and 5,631,921

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PulseCore Semiconductor Corporation
1715 S. Bascom Ave Suite 200
Campbell, CA 95008
Tel: 408-879-9077
Fax: 408-879-9018
www.pulsecoresemi.com

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Preliminary Information
Part Number: ASM3P2855B
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Note: This product utilizes US Patent # 6,646,463 Impedance Emulator Patent issued to PulseCore Semiconductor, dated 11-11-2003

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