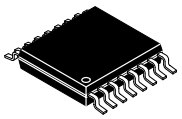
PCS1P2858A

Product Preview

Multi-Output Clock Generator

ON Semiconductor®

http://onsemi.com



TSSOP−16
T SUFFIX
CASE 948AN

Description

The PCS1P2858A is a versatile multi output clock generator. The PCS1P2858A uses the latest PLL technology. The six Clock outputs are generated using an inexpensive 27 MHz Crystal. The accuracy of the 27 MHz Input Clock should be within ±50 ppm. The outputs consist of 24.576 MHz, 24 MHz, 10 MHz, and 28.322 MHz clocks together with two 27 MHz reference clocks. The OE tri−states all the clocks when disabled. The device operates from a Supply Voltage of 3.3 V ± 5% V. The device is available in a 16−pin TSSOP JEDEC package.

Application

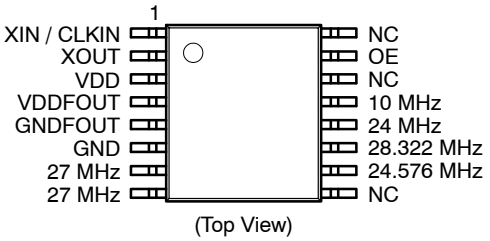
PCS1P2858A is targeted for use in HDTV digital video.

Features

- Generates Multiple Clock Outputs from an Inexpensive 27 MHz Crystal
- Multiple Clock Outputs:
  - 27 MHz Reference Clock
  - 27 MHz Reference Clock
  - 10 MHz
  - 24 MHz
  - 28.322 MHz
  - 24.576 MHz
- Supply Voltage: 3.3 V ± 5% V
- 16−pin TSSOP Package
- Commercial Temperature Range
- Low−power CMOS Process
- These Devices are Pb−Free, Halogen Free/BFR Free and are RoHS Compliant

This document contains information on a product under development. ON Semiconductor reserves the right to change or discontinue this product without notice.

PIN CONFIGURATION



(Top View)

ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 6 of this data sheet.

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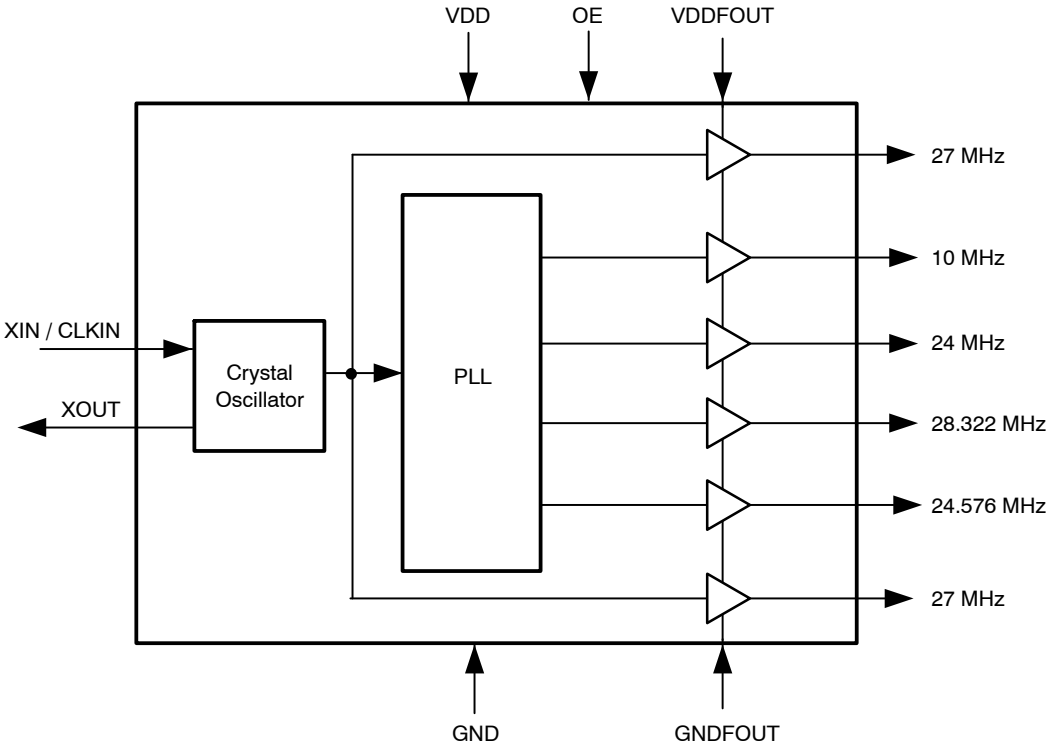


Figure 1. Block Diagram

Table 1. PIN DESCRIPTION

Pin #	Pin Name	Pin Type	Pin Description
1	XIN / CLKIN	Input	Crystal connection or External reference Clock input.
2	XOUT	Output	Connection to crystal. If using an external reference clock, this pin must be left unconnected.
3	VDD	Power	Connect to +3.3 V.
4	VDDFOUT	Power	Connect to +3.3 V.
5	GNDFOUT	Power	Connect to ground.
6	GND	Power	Connect to ground.
7	27 MHz	Output	27 MHz Reference Clock output.
8	27 MHz	Output	27 MHz Reference Clock output.
9	NC	–	No connection.
10	24.576 MHz	Output	24.576 MHz Output Clock.
11	28.322 MHz	Output	28.322 MHz Output Clock.
12	24 MHz	Output	24 MHz Output Clock.
13	10 MHz	Output	10 MHz Output Clock.
14	NC	–	No connection.
15	OE	Input	Output Enable bit. When this pin is made HIGH, the output clocks are enabled. Tri−states all the clocks when disabled. Has an Internal pull−up resistor.
16	NC	–	No connection.

Table 2. ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Rating	Unit
VDD	Power Supply Voltage relative to Ground	−0.5 to +4.6	V
V_{IN}	Input Voltage relative to Ground (Input Pins)	−0.5 to VDD+0.3	
T_{STG}	Storage temperature	−65 to +150	°C
T_s	Max. Soldering Temperature (10 sec)	260	°C
T_J	Junction Temperature	125	°C
T_{DV}	Static Discharge Voltage (As per JEDEC STD22− A114−B)	2	KV

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Table 3. OPERATING CONDITIONS

Parameter	Description	Min	Typ	Max	Unit
VDD / VDDFOUT	Operating Voltage	3.135	3.3	3.465	V
T_A	Operating Temperature (Ambient Temperature)	0		+70	°C
C_L	Load Capacitance			15	pF
C_{IN}	Input Capacitance		5		pF

Table 4. DC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Conditions	Min	Typ	Max	Units
VDD	Operating Voltage		3.135	3.3	3.465	V
V_{IH}	Input High Voltage		2		VDD+0.3	V
V_{IL}	Input Low Voltage		GND−0.3		0.8	V
V_{OH}	Output High Voltage	I_{OH} = −12 mA	2.4			V
V_{OL}	Output Low Voltage	I_{OL} = 12 mA			0.4	V
I_{OS}	Short Circuit Current	Clock outputs		±70		mA
I_{CC}	Static Current	CLKIN Pin pulled low			10	mA
I_{DD}	Dynamic Current	No Load, All Clocks on			30	mA
Z_{OUT}	Nominal output impedance			30		Ω

Table 5. AC ELECTRICAL CHARACTERISTICS

Symbol	Parameter		Min	Typ	Max	Unit
CLKIN	Input Clock frequency			27		MHz
CLK OUT	Output Clock frequency			27		MHz
				10		
				24		
				24.576		
				28.322		
t_{LH} (Note 1)	Output rise time (Measured from 0.8 V to 2.0 V)		0.8	1.4	2.0	nS
t_{HL} (Note 1)	Output fall time (Measured from 2.0 V to 0.8 V)		0.8	1.4	2.0	nS
t_{JC}	Period Jitter			±300		pS
	Synthesis Error (Output Frequency)	28.322 MHz		5.68		ppm
		Other outputs		0		
t_D (Note 1)	Output duty cycle		45	50	55	%
t_{ON}	Power up Time (first locked cycle after power−up)			3	5	mS

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

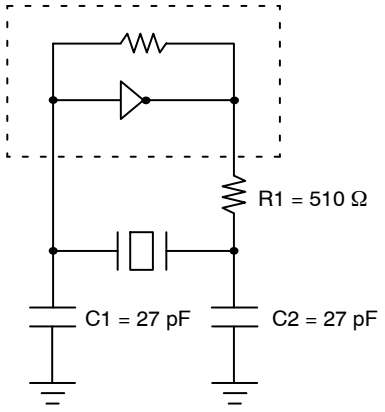


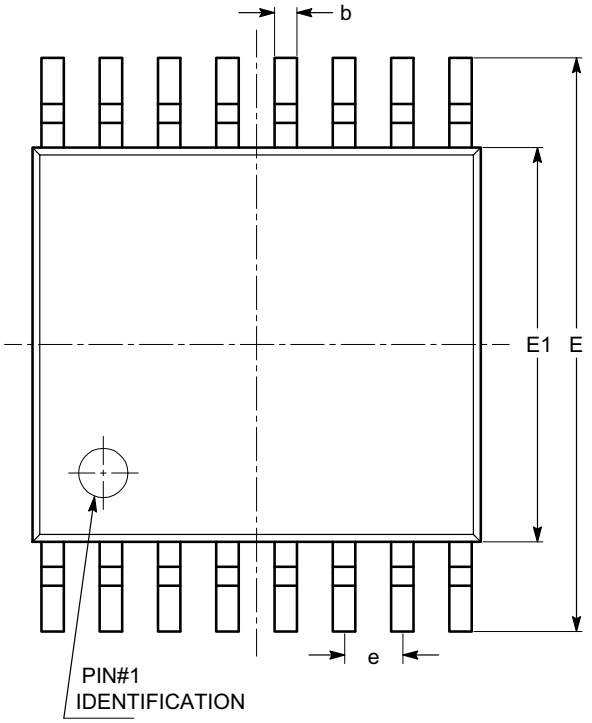
Figure 2. Typical Crystal Oscillator Circuit

Table 6. TYPICAL CRYSTAL SPECIFICATIONS

Fundamental AT Cut Parallel Resonant Crystal	
Nominal frequency	27 MHz
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	18 pF
Shunt capacitance	7 pF maximum
ESR	25 Ω

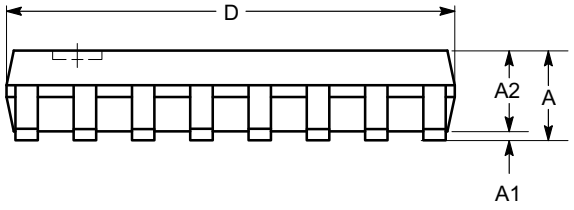
PACKAGE DIMENSIONS

TSSOP16, 4.4x5
CASE 948AN−01
ISSUE O

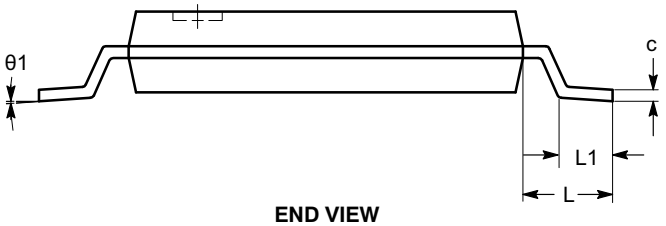


TOP VIEW

SYMBOL	MIN	NOM	MAX
A			1.10
A1	0.05		0.15
A2	0.85		0.95
b	0.19		0.30
c	0.13		0.20
D	4.90		5.10
E	6.30		6.50
E1	4.30		4.50
e	0.65 BSC		
L	1.00 REF		
L1	0.45		0.75
θ	0º		8º



SIDE VIEW



END VIEW

Notes:
(1) All dimensions are in millimeters. Angles in degrees.
(2) Complies with JEDEC MO-153.

Table 7. ORDERING INFORMATION

Part Number	Marking	Package Type	Temperature
PCS1P2858AG−16TR	3P2858AG	16−Pin TSSOP, TAPE & REEL, Green	Commercial
PCS1P2858AG−16TT	3P2858AG	16−Pin TSSOP, TUBE, Green	Commercial

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