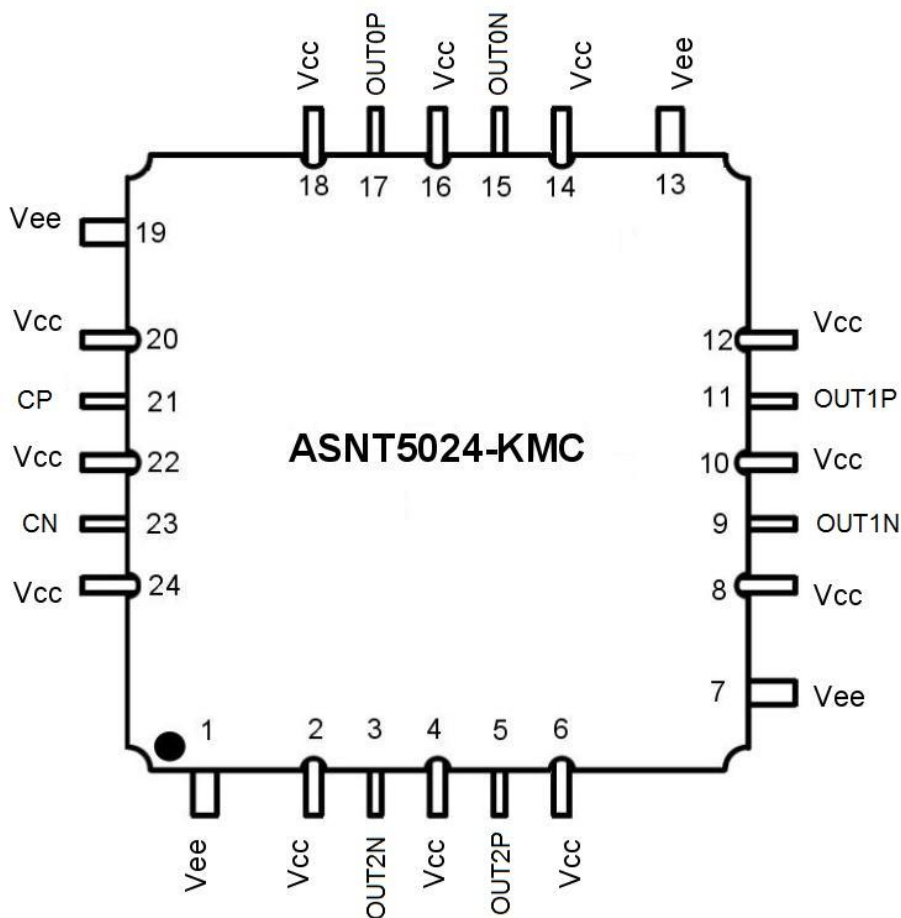




## ASNT5024-KMC 28Gbps-17GHz Data/Clock Distributor

- High-speed broadband Data/Clock Amplifier and Splitter for signal distribution.
- Exhibits low jitter and limited temperature variation over industrial temperature range.
- 17GHz analog input bandwidth.
- One input signal port and three amplified output signal ports.
- Matched phase delays for all outputs.
- Fully differential CML input interface.
- Fully differential CML output interfaces with 600mV single-ended swing.
- Single +3.3V or -3.3V power supply.
- Power consumption: 780mW.
- Fabricated in SiGe for high performance, yield, and reliability.
- Custom CQFP 24-pin package.





## DESCRIPTION

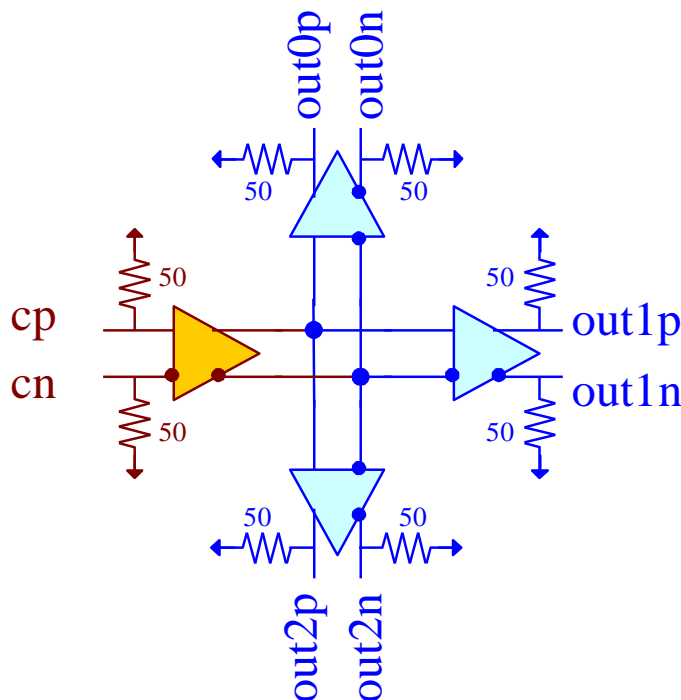


Fig. 1. Functional Block Diagram

The temperature stable ASNT5024-KMC SiGe IC provides active broadband data/clock signal splitting and is intended for use in high-speed measurement / test equipment. The IC shown in Fig. 1 can receive an up to 28Gbps-17GHz data/clock signal and effectively distribute it to three separate phase matched outputs. The part's I/Os support the CML logic interface with on chip 50Ohm termination to "vcc" and may be used differentially, AC/DC coupled, single-ended, or in any combination.

## POWER SUPPLY CONFIGURATION

The ASNT5024-KMC can operate with either a negative supply ("vcc" = 0.0V=ground and "vee" = -3.3V), or a positive supply ("vcc" = +3.3V and "vee" = 0.0V=ground). In case of the positive supply, all I/Os need AC termination when connected to any devices with 50Ohm termination to ground. Different PCB layouts will be needed for each different power supply combination.

**All the characteristics detailed below assume "vcc" = 0.0V and "vee" = -3.3V.**



## ABSOLUTE MAXIMUM RATINGS

Caution: Exceeding the absolute maximum ratings shown in Table 1 may cause damage to this product and/or lead to reduced reliability. Functional performance is specified over the recommended operating conditions for power supply and temperature only. AC and DC device characteristics at or beyond the absolute maximum ratings are not assumed or implied. All min and max voltage limits are referenced to ground (assumed “vcc”).

Table 1. Absolute Maximum Ratings.

Parameter	Min	Max	Units
Supply Voltage (“vee”)		-3.6	V
Power Consumption		0.61	W
RF Input Voltage Swing (SE)		1.0	V
Case Temperature		+90	°C
Storage Temperature	-40	+100	°C
Operational Humidity	10	98	%
Storage Humidity	10	98	%

## TERMINAL FUNCTION

TERMINAL NAME (NO.)	TYPE	DESCRIPTION
vcc 2,4,6,8,10,12 14,16,18,20,22,24	PS	Positive power supply or ground
vee 1,7,13,19	PS	Ground or negative power supply
cp 21 cn 23	Input	Differential CML high-speed signal inputs
out0p 17 out0n 15	Output	Differential CML high-speed signal outputs
out1p 11 out1n 9	Output	Differential CML high-speed signal outputs
out2p 5 out2n 3	Output	Differential CML high-speed signal outputs



## ELECTRICAL CHARACTERISTICS

PARAMETER	MIN	TYP	MAX	UNIT	COMMENTS
<b>vee</b>	-3.1	-3.3	-3.5	V	±6%
<b>vcc</b>		0.0		V	External ground
<b>Ivee</b>		235		mA	
<b>Power</b>		780		mW	
<b>Junction Temp.</b>	-25	50	125	°C	
<b>Input Data-Clock (c)</b>					
Data rate/Frequency	0.0		28/17	Gbps/GHz	
CM Level	V <sub>cc</sub> -0.8	V <sub>cc</sub> -0.2	V <sub>cc</sub>	V	
Swing (Diff or SE)	50	400	1000	mV	Peak-to-peak
Duty Cycle	40%	50%	60%		For clock signal
<b>Out Data-Clock (out)</b>					
Data rate/Frequency	0.0		28/17	Gbps/GHz	
CM Level	V <sub>cc</sub> -0.35	V <sub>cc</sub> -0.3	V <sub>cc</sub> -0.25	V	
SE Swing	570	600	630	mV	Peak-to-peak
Rise/Fall Times	15	17	19	ps	20%-80%
Additive Jitter			5	ps	Peak-to-peak
Duty Cycle	45%	50%	55%		For clock signal

## PACKAGE INFORMATION

The chip die is housed in a custom 24-pin CQFP package. The package’s mechanical information is available on the company’s [website](#). Even though the package provides a center heat slug located on the back side of the package to be used for heat dissipation, ADSANTEC does **NOT** recommend for this section to be soldered to the board. If the customer wishes to solder it, it should be connected to the “vcc” plain, which is ground for the negative supply or power for the positive supply.

The part’s identification label is ASNT5024-KMC. The first 8 digits of the name before the underscore identify the bare die including general circuit family, fabrication technology, specific circuit type, and part version while the 3 digits after the underscore represent the package’s manufacturer, type, and pin out count.

This device complies with the Restriction of Hazardous Substances (RoHS) per EU 2002/95/EC for all six substances.



## REVISION HISTORY

Revision	Date	Changes
3.1	2-2012	Revised Pinout drawing Revised Power Supply Configuration section Revised Package Information section
3.0	1-2012	Added Power Supply Configuration text Added Absolute Maximum Ratings table Revised Electrical Characteristics section Revised Package Information section
2.0	2-2009	Revised Electrical Characteristics section Revised Package Information section
1.0	1-2009	First release