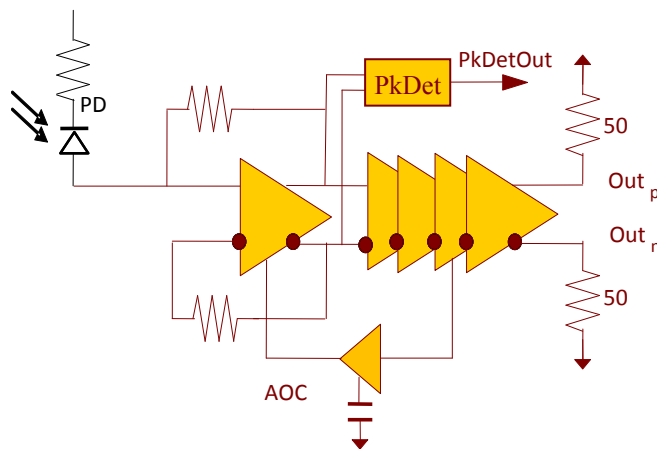


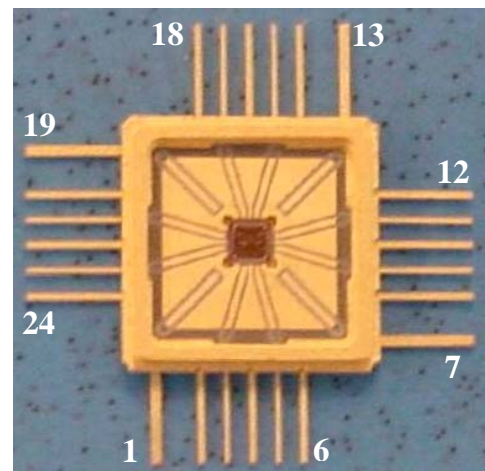
ASNT6021-KMC 10.7Gb/s Transimpedance Amplifier

- Broadband transimpedance amplifier for low noise receiver side applications.
- Features automatic input offset control and a peak detector.
- 8GHz of analog bandwidth for limiting of input data.
- 60dBΩ of transimpedance differential gain.
- 15pA/sqrtHz of input referred noise density (0.1 to 10GHz).
- CML output interface with 50Ω termination and 225mVp-p single-ended swing.
- Single +3.3V power supply.
- Power consumption: 250mW.
- Exhibits low jitter and limited temperature variation over industrial temperature range.
- Custom CQFP 24-pin package.

DESCRIPTION



Functional Block Diagram



Package View

ASNT6021-KMC SiGe IC combines the functions of a transimpedance and limiting amplifiers to convert a small current from a photodiode into a standard digital signal. The device can process an input current signal within the frequency band from DC to 8GHz and deliver output CML signal with a data rate up to 10.7Gbps and differential amplitude of 450mV. The output CML logic interface has on chip 50Ω termination and may be used differentially, AC/DC coupled, single-ended, or in any combination. The part operates from a positive power supply VCC=3.3V. The on-chip peak detector with a sensitivity of 3V/mA generates a single-ended output voltage in the range from VCC to VCC-1V.



TERMINAL FUNCTIONS

TERMINAL NAME (NO.)	TYPE	DESCRIPTION
vee 2,4,6,8,10,12 14,16,18,20,22,24	PS	Power Supply: 0V
vcca 1,19	PS	Analog Power Supply: +3.3V
vccd 7,13	PS	Digital Power Supply: +3.3V
dp 21	Input	High-speed positive data current input
dn 23	Input	High-speed negative data current input
outp 11 outn 9	Output	Differential CML high-speed data signal outputs
dcoutp 15 dcoutn 5	Control	Differential output duty cycle control inputs
cfilt 3		External capacitor connection
pkdet 17	Output	Single-ended peak detector output

ELECTRICAL CHARACTERISTICS

PARAMETER	MIN	TYP	MAX	UNIT	COMMENTS
vcca, vccd	3.1	3.3	3.5	V	±6%
vee		0.0		V	
Icc		75		mA	
Power		250		mW	
Junction Temp.	-25	50	125	°C	
Input (in)					
Frequency	0.0		8	GHz	
Optical sensitivity	-19	-18	-16	dBm	0.85A/W responsivity
Overload current		1		mA	
Output (out)					
Data rate	0.0		10	Gbps	
CM Level*	Vcc-0.3	Vcc-0.25	Vcc-0.2	V	
Differential Swing	380	450	520	mV	Peak-to-Peak
Peak Detector (pkdet)					
Sensitivity		3		V/mA	
Output range	Vcc-1		Vcc	V	

PACKAGE INFORMATION

The chip is packaged in ADSANTEC's custom 24-pin metal-ceramic package (CQFP). The package's mechanical information is available on the company's [website](#).