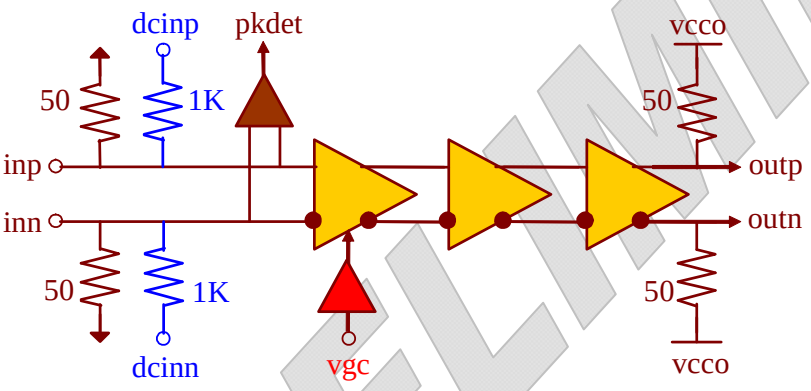
ADSANTEC
Advanced Science and Novel Technology
27 Via Porto Grande, Rancho Palos Verdes, CA, 90275. Ph. # 1-310-377-6029. Fax # 1-310-377-9940.

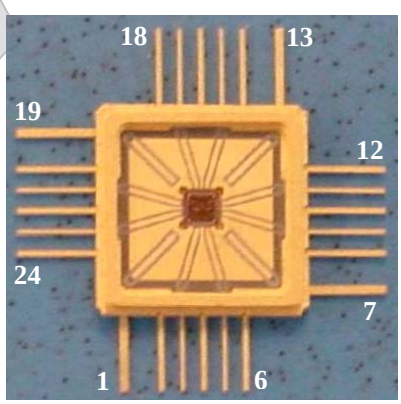
ASNT6142-KMC
25*Gb/s* Linear Amplifier

- Broadband linear amplifier for receiver-side applications.
- Features gain control, input offset adjustment, and input peak detector.
- Exhibits low jitter and limited temperature variation over industrial temperature range.
- 20*GHz* of analog bandwidth.
- Fully differential input and output buffers with on-chip 50*Ohm* termination.
- Single -3.3*V* power supply.
- Low current consumption of 210*mA* at nominal conditions.
- Fabricated in SiGe for high performance, yield, and reliability.
- Custom CQFP 24-pin package.

DESCRIPTION



Functional Block Diagram



Package View

The temperature-stable linear amplifier ASNT6142-KMC, which is fabricated in an advanced SiGe technology, provides low-jitter broadband variable signal amplification between its input ("inp"/"inn") and output ("outp"/"outn") signal ports and is intended for use in high-speed communication systems. Gain adjustment between 10-22dB is performed through the external control port ("vgc"). The part's I/Os support a CML-type interface with on chip 50*Ohm* termination and may be used differentially, AC/DC coupled, single-ended, or in any combination. The on-chip peak detector delivers a single-ended output voltage ("pkdet") proportional to the input signal's amplitude. Additional control ports "dcinp" and "dcinn" can be used for input signal common-mode voltage adjustment. The amplifier operates from a single negative 3.3V power supply. For optional output common-mode voltage adjustment, the output termination resistors are connected to a separate positive supply voltage ("vcco").

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TERMINAL FUNCTIONS

TERMINAL NAME	(NO.)	TYPE	DESCRIPTION
vcc	2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24	PS	Power Supply: 0*V* (GND)
vee	1, 7, 13, 19	PS	Power Supply: -3.3*V*
inp	21	Input	Differential high-speed analog signal inputs
inn	23		
outp	11	Output	Differential high-speed analog signal outputs
outn	9		
dcinp	17	Input	Differential input common-mode voltage adjustment
dcinn	3		
vgc	5	Input	Low-speed amplitude adjustment tuning input
pkdet	15	Output	Peak detector output

ELECTRICAL CHARACTERISTICS

PARAMETER	MIN	TYP	MAX	UNIT	COMMENTS
VEE	-3.1	-3.3	-3.5	V	±6%
VCC		0.0		V	
IEE		210		mA	
Power		693		mW	
Junction Temp.	0	50	85	°C	
Input (in) Bandwidth		20		GHz	-3 dB
CM Level	-0.8		0	V	
Input Noise Density		1.5		nV/sqrt(Hz)	High Gain
S11		-10		dB	DC to 30*GHz*
Gain Control Port Input Impedance		2		kOhm	
Output (out) CM Level		-0.6		V	
S22		-8		dB	DC to 30*GHz*
Small Signal Gain		22		dB	10*GHz*, $V_{gc1\ 2}$=-3.3*V*
Small Signal Gain		10		dB	10*GHz*, $V_{gc1\ 2}$=0*V*
Output referred 1dB Compression Point		2.7		dBm	Single-Ended, 20*GHz*
THD		0.2		%	Vout=350*mV*p-p, SE