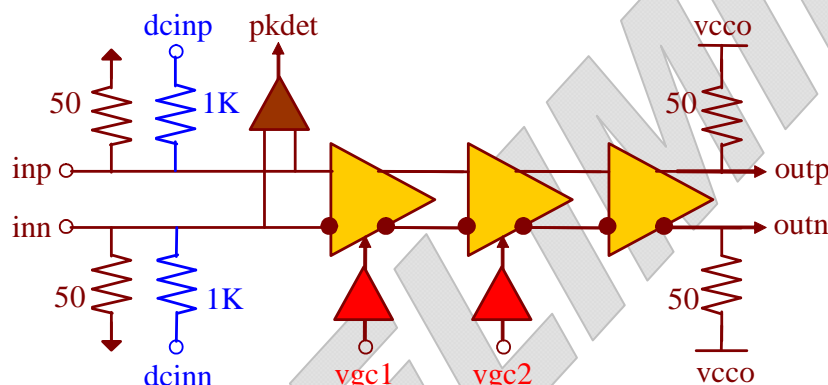


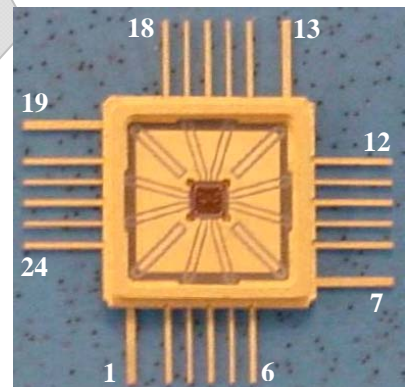
## ASNT6141-KMC 12GHz Linear Amplifier

- 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.
- DC to 12GHz analog bandwidth.
- Fully differential input and output buffers with on-chip 50Ohm termination.
- Single -3.3V power supply.
- Low current consumption of 150mA 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 ASNT6111-KMC IC fabricated in the 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. The gain adjustment is performed through two independent external control ports (“vgc1” and “vgc2”). The part’s I/Os support the CML-type interface with on chip 50Ohm 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 the input common-mode voltage adjustment. The amplifier can operate from a single -3.3V power supply. For the optional output common-mode voltage adjustment, the output termination resistors can be connected to a separate positive supply voltage (“vcco”) instead of common ground.



## TERMINAL FUNCTIONS

TERMINAL		TYPE	DESCRIPTION
NAME	(NO.)		
vcc	2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24	PS	Power Supply: 0V (GND)
vee	1, 7, 13, 19	PS	Power Supply: -3.3V
inp	21	Input	Differential high-speed analog signal inputs
inn	23		
outp	11	Output	Differential high-speed analog signal outputs
outn	9		
vgc1	3	Input	Low-speed amplitude adjustment tuning input
vgc2	5	Input	Low-speed amplitude adjustment tuning input
vcco	15	PS	Output buffer power-supply (Default: 0V)
pkdet	17	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		150	165	mA	
Power		495		mW	
Junction Temp.	0	50	85	°C	
Input (in) Bandwidth		12		GHz	-3 dB
CM Level	-0.8		0	V	
Input Noise Density		2.5		nV/sqrt(Hz)	High Gain
S11		-15		dB	DC to 10GHz
Gain Control Port Input Impedance		2		kOhm	
Output (out) CM Level		-0.6		V	
S22		-15		dB	DC to 10GHz
Small Signal Gain	30	32	33	dB	10GHz, V <sub>gc1 2</sub> =-3.3V
Small Signal Gain	0.5	0.8	1.0	dB	10GHz, V <sub>gc1 2</sub> =0V
Output referred 1dB Compression Point		2.9		dBm	Single-Ended, 10GHz
THD		0.2		%	V <sub>out</sub> =350mVp-p, SE