

DAS8121

0.5 TO 8.0 GHz HIGH-SPEED ANALOG DETECTOR

Typical Values @ +25 °C

Wide Frequency Range	0.5 to 10.0 GHz
Wide Power Range	-30.0 to +5.0 dBm
Temperature Stability	± 0.5 dB
Power Flatness	± 0.5 dB
Low VSWR	1.5:1
Super fast pulse response	15-20 ns
Standard SMT0-8 Package	
Fast Response Time, Low Drift	

DAS8121

SPECIFICATIONS*

Parameter	Typical	Guaranteed		
		0 to 50 °C	-40 to +85 °C	
Frequency (Min.)	0.5-10.0 GHz	0.5-8.0 GHz	0.5-8.0 GHz	
Input Power Range (Min.)	-30 to +5 dBm	-25 to 0 dBm	-25 to 0 dBm	
VSWR (Max.)	1-6 GHz 0.5-8 GHz	1.5:1 1.5:1	1.8:1 2.0:1	1.8:1 2.0:1
Sensitivity, Vout (Min.)	140 mV†	90 mV†	90 mV†	
Power Flatness (Max.)	±0.5 dB	±0.75 dB	±0.75 dB	
Temperature Stability (Max.)	±0.4 dB	±0.5 dB	±0.5 dB	
Pulse Response, Pin = -15 dBm	15 ns‡	35/50 ns‡	35/50 ns‡	
Pulse Response, Pin = 0 dBm	22 ns‡	50/70 ns‡	50/70 ns‡	
Supply Current, no RF (Max.)	9 mA	12 mA	15 mA	
Supply Current, Pin = 5 dBm (Max.)	15 mA	22 mA	25 mA	
Output Offset Voltage, no RF (Max.)	2 mV	10 mV	10 mV	
1 dB Square Law Departure	-10 dBm	—	—	

*Measured in a 50 Ohm system at ±5.0 Vdc unless otherwise specified.

†Pin = -15 dBm. ‡Total response time, Tr/Tf: 50% RF to 90 or 10% Video. 50 Ohm || 8pF output load.

MAXIMUM RATINGS

DC Voltage	±6.0 V
Continuous RF Input Power	+14.0 dBm
Operating Case Temperature	-40 °C to +95 °C
Storage Temperature	-65 °C to +125 °C
Burn-In Temperature	+125 °C
Detector Thermal Resistance¹ (θjc)	+3500 °C/Watt
Temperature Rise @ 0 dBm (Tjc)	+3.5 °C
Temperature Rise @ +5 dBm (Tjc)	+35 °C

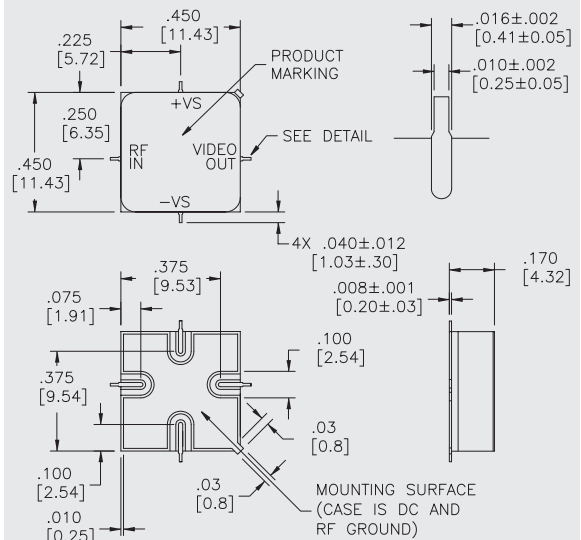
¹ Thermal resistance is based on RF input power. Ratings based on +25 °C.

APPLICATION NOTES

- ✦ Average power detection is obtained at power levels below approximately -13dBm.
- ✦ RF input is AC coupled (DC block).
- ✦ DAS8121 contains a plastic packaged IC.
- ✦ DAS8121 provides maximum video performance with no output load capacitance. However, the detector is capable of driving capacitive loads up to 100 pF without oscillations. Load capacitance above that specified may produce pulse overshoot and ringing.

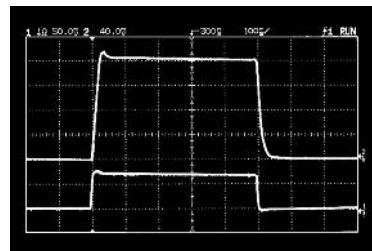
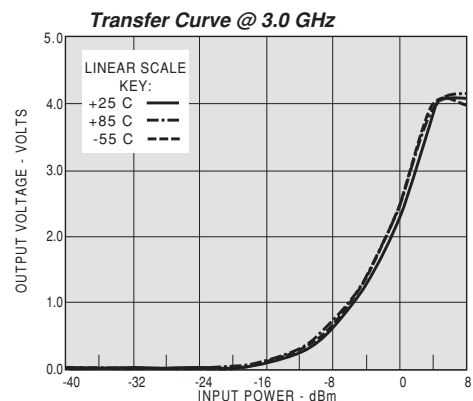
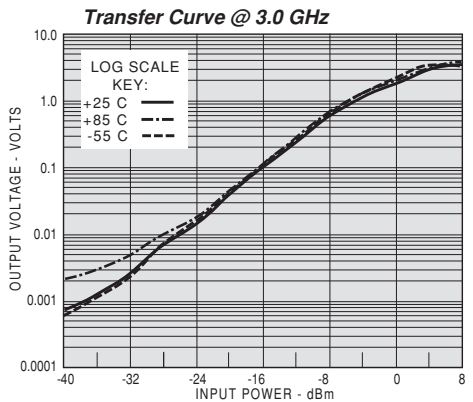
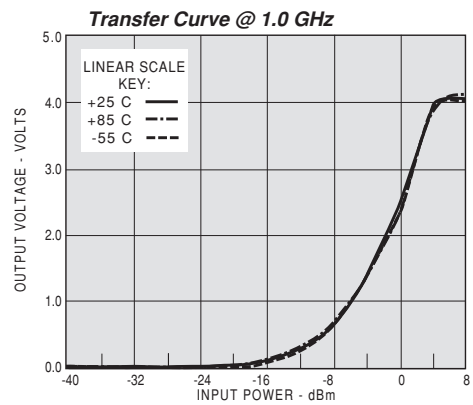
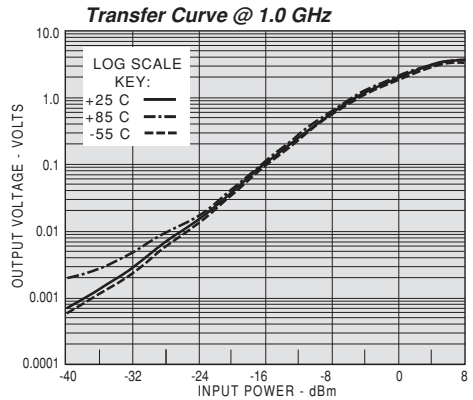
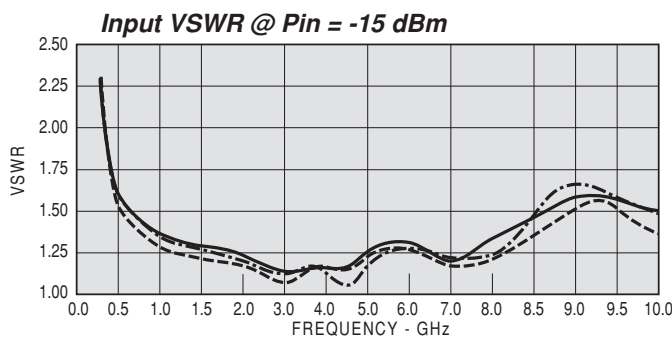
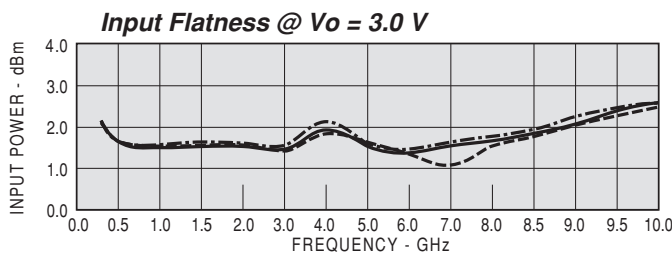
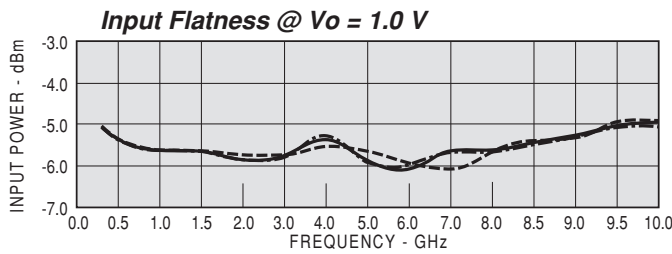
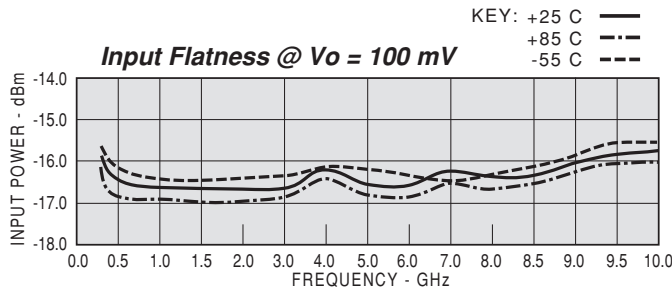
DAS8121

SMT0-8 for Detectors



DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE



Pulse Response @ $P_{in} = 0$ dBm Pulse Response @ $P_{in} = -15$ dBm

**Top Trace: Detector Response
Bottom Trace: RF Input
Time Base: 100 ns/div**