

# DAQ6103

## 0.1 TO 6.0 GHz ANALOG DETECTOR

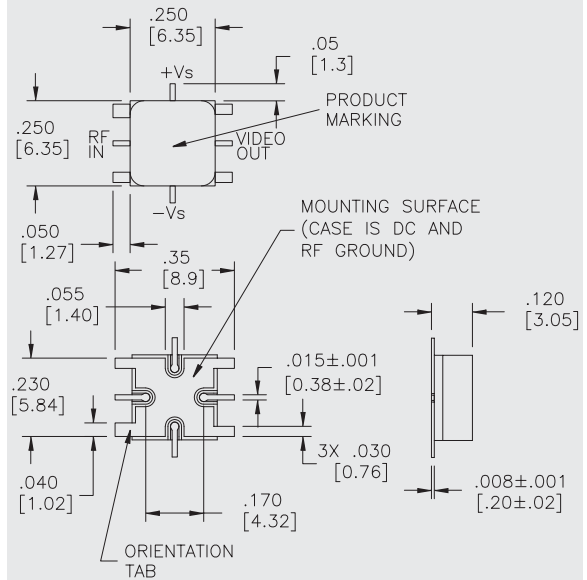
Typical Values @ +25 °C

<b>Wide Frequency Range</b> .....	<b>0.1 to 8.0 GHz</b>
<b>Wide Power Range</b> .....	<b>-10.0 to +25.0 dBm</b>
<b>Temperature Stability</b> .....	<b>± 0.25 dB</b>
<b>Flatness</b> .....	<b>± 0.5 dB</b>
<b>Low VSWR</b> .....	<b>1.2:1</b>
<b>Single or Dual Power Supply</b>	
<b>Cougar Q Package</b>	

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#### SM-25 for Detectors

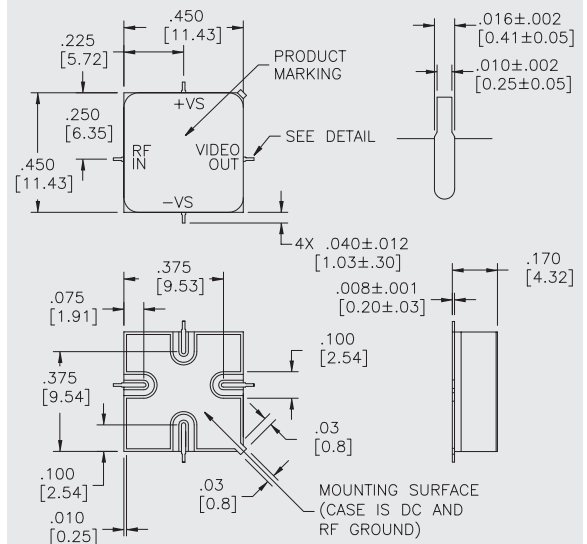


## SPECIFICATIONS\*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to +85 °C
Frequency (Min.)	0.1-8.0 GHz	0.1-6.0 GHz	0.1-6.0 GHz
Input Power Range (Min.)	-10 to +25 dBm	-5 to +20 dBm	-5 to 2+0 dBm
VSWR (Max.)	1.2:1†	1.5:1†	1.5:1†
Sensitivity, Vout (Min.)	120 mV†	90 mV†	90 mV†
Power Flatness (Max.)	±0.5 dB^	±0.75 dB^	±0.75 dB^
Temperature Stability (Max.)	±0.25 dB‡	±0.5 dB‡	±0.5 dB‡
Output Offset Voltage, no RF (Max.)	±0.5 mV	±2.0 mV	±2.0 mV
1 dB Square Law Departure	+10 dBm	—	—
Tangential Sensitivity	-25 dBm^^	—	—
Pulse Response, Pin = +5 dBm	1.5 µsec‡	—	—
Pulse Response, Pin = +25 dBm	3.0 µsec‡	—	—
Max Output Voltage	Vs-1 Volts	—	—
Supply Current, no RF	2 +mA, 2 -mA	—	—
Supply Current, Pin = +25 dBm	10 +mA, 2 -mA	—	—

### DAS6103

#### SMT0-8 Package for Detectors



DIMENSIONS ARE IN INCHES [MILLIMETERS]

## MAXIMUM RATINGS

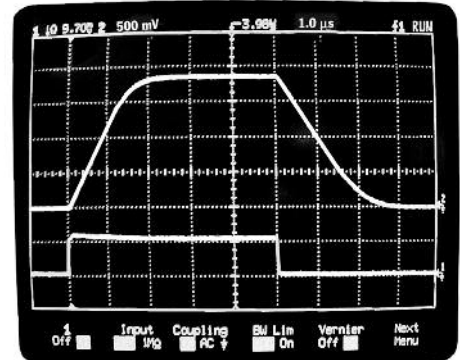
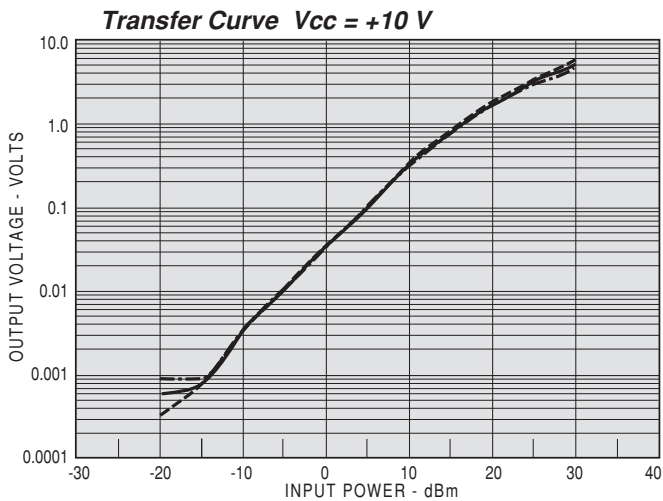
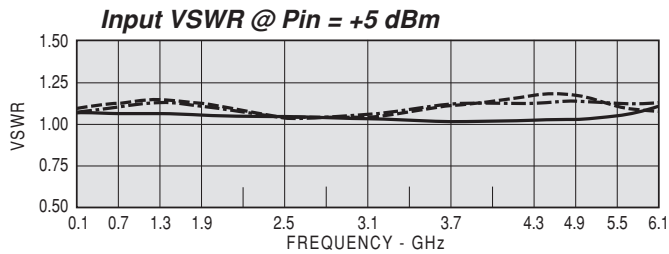
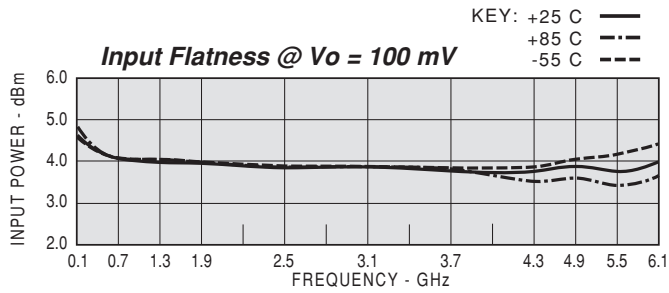
<b>DC Voltage</b> .....	<b>±18 V</b>
<b>Continuous RF Input Power</b> .....	<b>+27 dBm (±5 Vdc)</b>
<b>Operating Case Temperature</b> .....	<b>-55 °C to +100 °C</b>
<b>Storage Temperature</b> .....	<b>-65 °C to +125 °C</b>
<b>Burn-In Temperature</b> .....	<b>+100 °C</b>
<b>Detector Thermal Resistance<sup>1</sup> (θjc)</b> .....	<b>+3500 °C/Watt</b>
<b>Temperature Rise @ +20 dBm (Tjc)</b> .....	<b>+3.5 °C</b>

<sup>1</sup> Thermal resistance is based on RF input power. Ratings based on +25 °C.

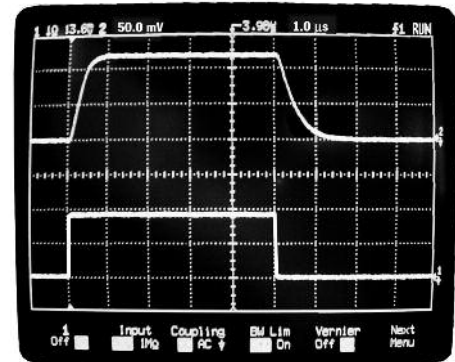
## ABSOLUTE MAXIMUM RATINGS

- This unit is DC coupled and employs a RF choke at the input (DC short). If the application calls for the input to sink current there will approximately be an additional 1 mV of output offset voltage for each 3 mA of current. Sink current should be limited to 100 mA max to avoid choke burnout.
- For higher supply voltages, up to ±15 volts, the positive supply pin must include a series current limiting resistor,  $R_s = (V_s - 5)/0.01$ . (e.g.:  $V_s = 15v$ ,  $R_s = 1K$ )
- Average power detection is obtained at power levels below approximately +7 dBm.
- For best pulse response the supply pins should be bypassed with an additional 0.1 µF capacitor. The unit contains 0.01 µF internal capacitors.

**TYPICAL PERFORMANCE**



**Pulse Response @  $P_{in} = 0$  dBm**



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