DAQ6103 0.1 TO 6.0 GHz ANALOG DETECTOR

Typical Values @ +25° C	***DAQ6103***
Wide Frequency Range	***0.1 to 8.0 GHz***
Wide Power Range	***–10.0 to 25.0 dBm***
Temperature Stability	***± 0.25 dB***
Flatness	***± 0.5 dB***
Low VSWR	***1.2:1***

Single or Dual Power Supply
Cougar Q Package

SPECIFICATIONS

Parameter	Typical	Guaranteed* 0 to 50° C	Guaranteed* -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 20 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		

* Measured in a 50-ohm system at ±5 Vdc, 2 KΩ||50 pF unless otherwise specified.
† Pin = +5 dBm. ^ Vout = 100 mV. ^^ 3 dB NF, 1 MHz Bandwidth. ‡ 50% RF to 10 or 90% Video.

MAXIMUM RATINGS

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

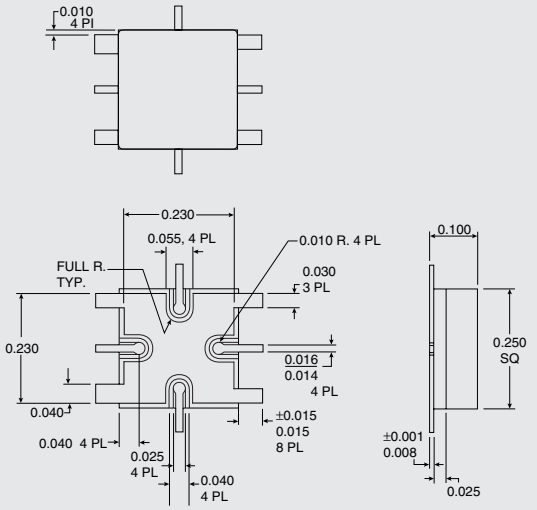
[1] Thermal resistance is based on total power dissipation. Ratings based on +25° C.

APPLICATIONS

- 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, Rs = (Vs – 5)/0.01. (e.g.: Vs = 15v, Rs = 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.

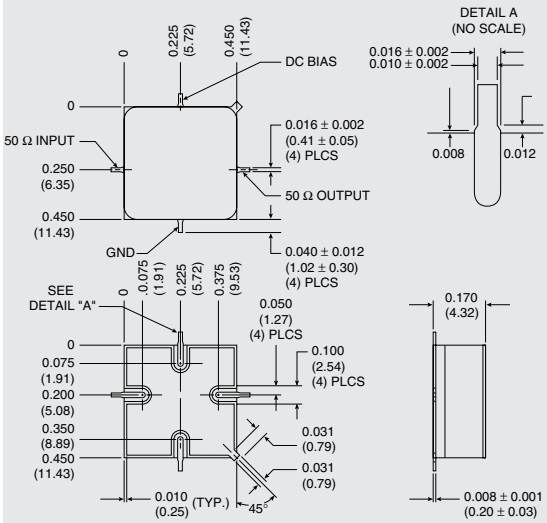
DAQ6103

1/4 Inch SMTO-8 for Detectors



DAS6103

SMTO-8 Package for Detectors

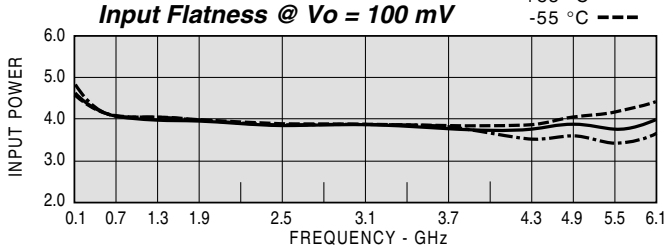


DETECTORS

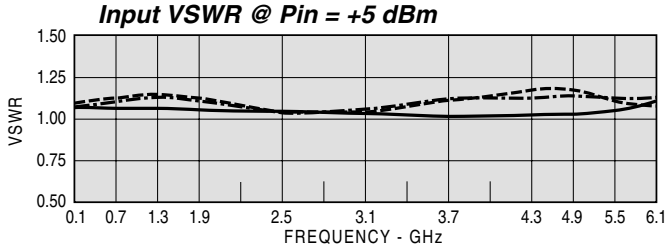
TYPICAL PERFORMANCE

KEY: +25 °C
+85 °C
-55 °C

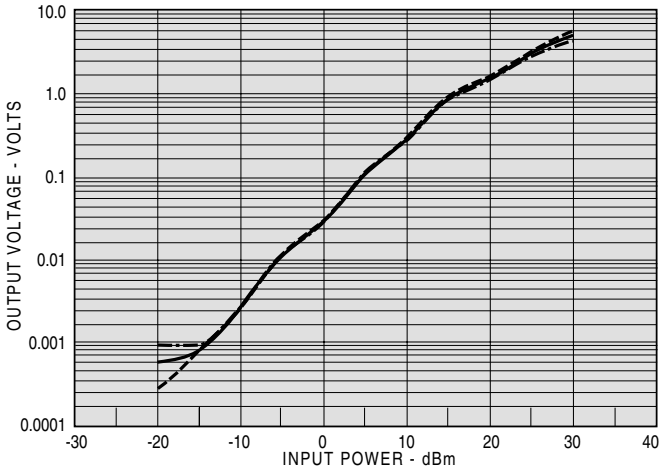
Input Flatness @ Vo = 100 mV



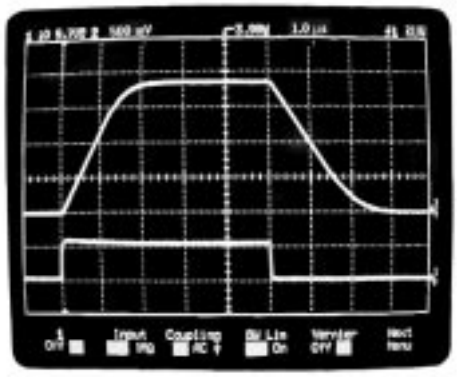
Input VSWR @ Pin = +5 dBm



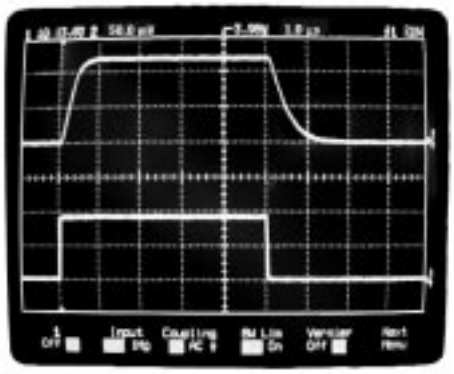
Transfer Curve Vcc = +10 V



TYPICAL PERFORMANCE



Pulse Response @ P_{in} = 0 dBm



Pulse Response @ P_{in} = –15 dBm

DETECTORS