

DTQ6001

0.1 TO 6.0 GHz THRESHOLD DETECTOR

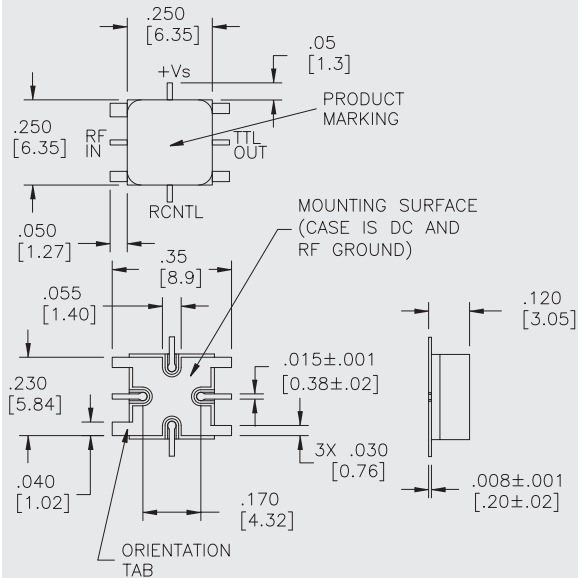
Typical Values @ +25 °C

Wide Frequency Range	0.1 to 6.0 GHz
Wide Power Range	-30.0 to -5.0 dBm
Temperature Stability	± 0.50 dB
Power Flatness	± 0.50 dB
Cougar Q Package	

DTQ6001

DTQ6001

SM-25 for Detectors



SPECIFICATIONS*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to +85 °C
Frequency (Min.)	0.1-7.0 GHz	0.1-6.0 GHz	0.1-6.0 GHz
Input Power Range (Min.)	-30 to -5 dBm*	-25 to -5 dBm*	-25 to -5 dBm*
VSWR (Max.)	1.5:1†	2.0:1†	2.0:1†
Power Flatness (Max.)	±0.5 dB	±0.75 dB	±0.75 dB
Threshold Temperature Stability (Max.)	±0.25 dB^	±0.5 dB^	±0.5 dB^
Threshold Hysteresis	±0.2 dB	±0.5 dB	±0.5 dB
Pulse Response	15 µsec^‡	50 µsec^‡	50 µsec^‡
Logic: Pin > Pth	1	1	1
Output Voltage Hi @ 5mA source	4.4 Volts	3.5 Volts	3.5 Volts
Output Voltage Lo @ 5mA sink	0.1 Volts	0.5 Volts	0.5 Volts
Supply Current	6.0 mA	8.0 mA	8.0 mA

* Measured in a 50 Ohm system at $V_s=+5.0$ Vdc. $R_{th} = 10$ to 100 KOhm. ^ $R_{th} = 100$ to 20 KOhm.
† Pin ≤ -15 dBm. ‡ 50% RF to 10 or 90% Video Response time for input change ≥ 3 dB above Pth.

MAXIMUM RATINGS

DC Voltage	+5 V
Continuous RF Input Power	+14.0 dBm
Operating Case Temperature	-55 °C to +100 °C
Storage Temperature	-65 °C to +125 °C
Burn-In Temperature	+100 °C
Detector Thermal Resistance¹ (θ_{jc})	+3500 °C/Watt
Temperature Rise @ 0 dBm	+3.5 °C

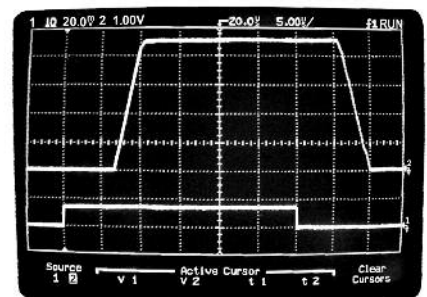
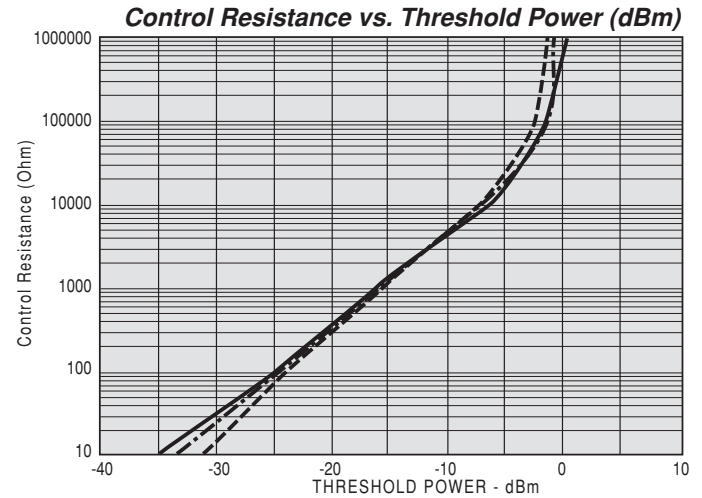
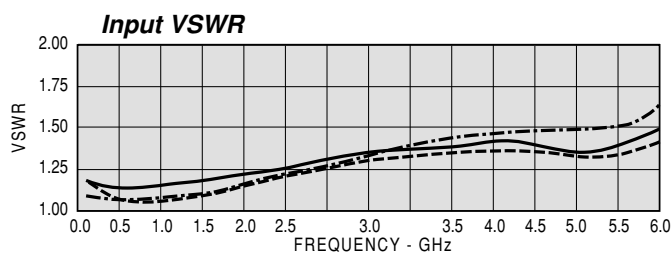
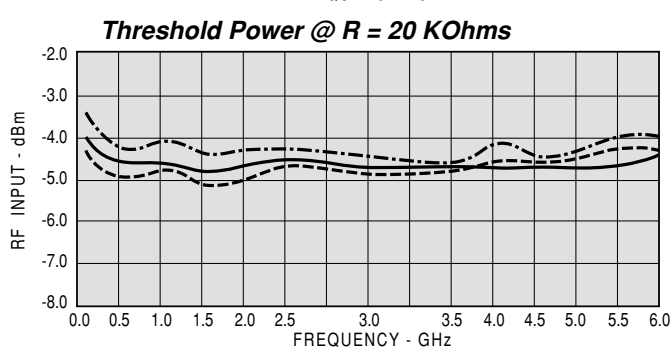
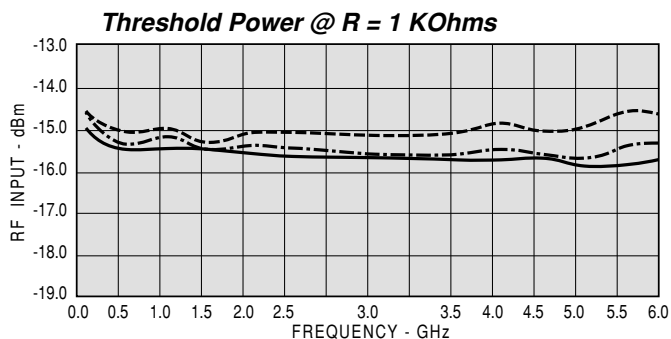
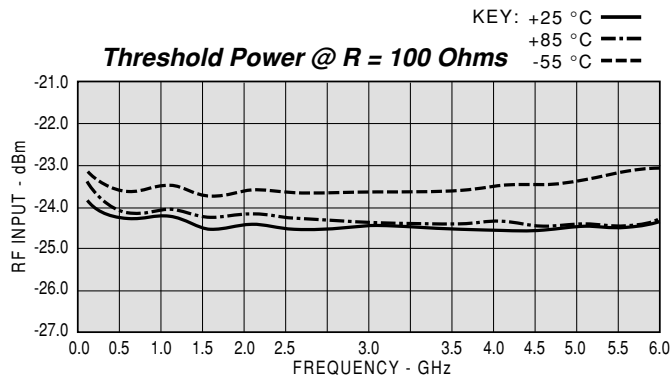
¹ Thermal resistance is based on RF input power. Ratings based on +25 °C.

APPLICATION NOTES

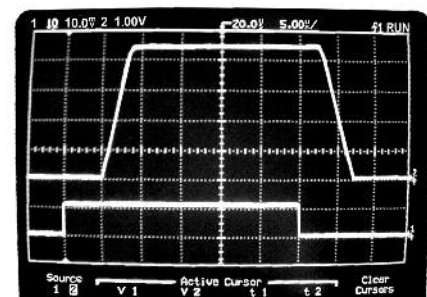
- ✦ This unit is DC coupled and employs a RF choke at the input (DC short).
- ✦ DO NOT bypass the Threshold Control pin. Capacitance greater than 50pF may cause instabilities. Keep the threshold programming resistor or circuit close to this pin.
- ✦ Average power detection is obtained at power levels below approximately -13 dBm.
- ✦ The output of this unit is derived from an op-amp, not a true logic device.
- ✦ Connect external threshold resistor from Rcntl port to ground.

DIMENSIONS ARE IN INCHES [MILLIMETERS]

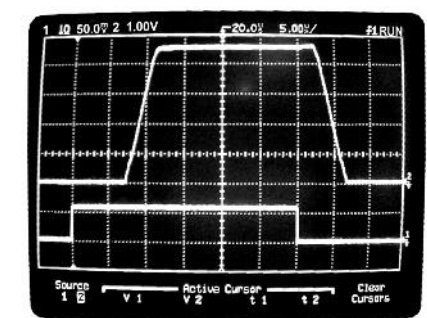
TYPICAL PERFORMANCE



Pulse Response @ 100 Ohms



Pulse Response @ 1 KOhms



Pulse Response @ 20 KOhms

Top Trace: TTL Logic Out
Bottom Trace: RF Input
Time Base: 5.0 μ s/div