

DTC6002 0.01 TO 6.0 GHz THRESHOLD DETECTOR

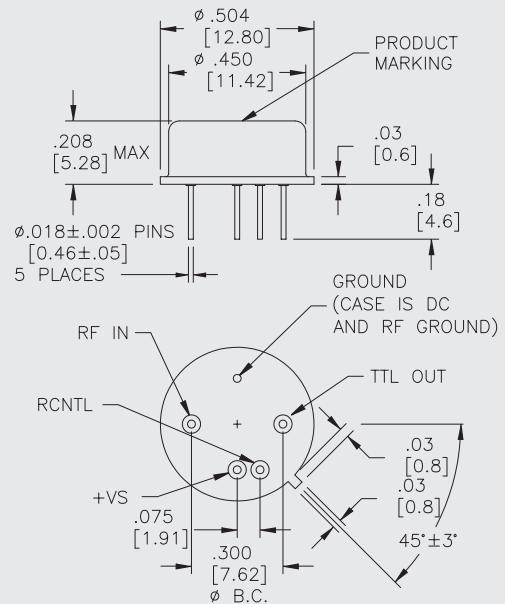
Typical Values @ +25 °C

Wide Frequency Range	0.01 to 6.0 GHz
Wide Power Range	-30.0 to -5.0 dBm
Temperature Stability	± 0.50 dB
Power Flatness	± 0.50 dB
Standard Size TO-8 or Surface Mount Package	
External Adjustable Threshold Level, Fast Response Time, Low Drift,	
Insensitive Threshold Level to Applied Voltage	

DTC6002

DTC6002

TO-8 Package for Detectors

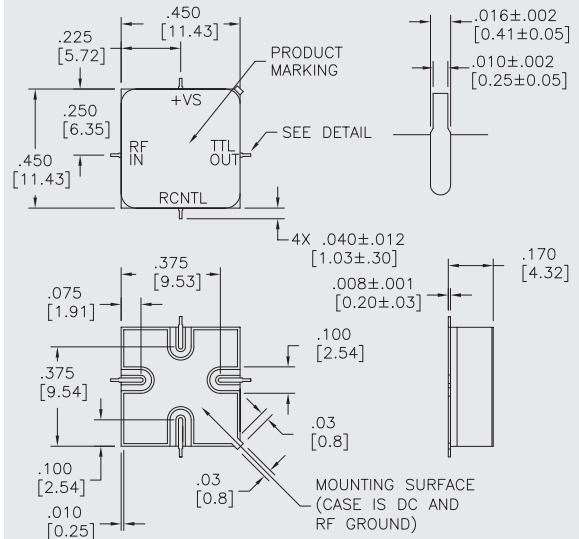


SPECIFICATIONS*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to +85 °C
Frequency (Min.)	0.01-7.0 GHz	0.01-6.0 GHz	0.01-6.0 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 (Max.)	±0.2 dB	±0.5 dB	±0.5 dB
Pulse Response (Max.)	50 μ sec^‡	100 μ sec^‡	100 μ sec^‡
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	0.25 Volts	0.25 Volts
Supply Current (Max.)	2.5 mA†	5.0 mA†	5.0 mA†

DTS6002

SMT0-8 Package for Detector



MAXIMUM RATINGS

DC Voltage	+7 V
Continuous RF Input Power	+14.0 dBm
Operating Case Temperature	-55 °C to +125 °C
Storage Temperature	-65 °C to +125 °C
Burn-In Temperature	+125 °C
Detector Thermal Resistance¹ (θ_{jc})	+3500 °C/Watt
Temperature Rise @ 0 dBm	+3.5 °C

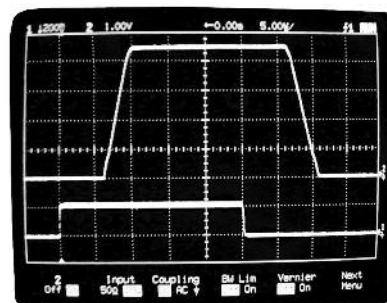
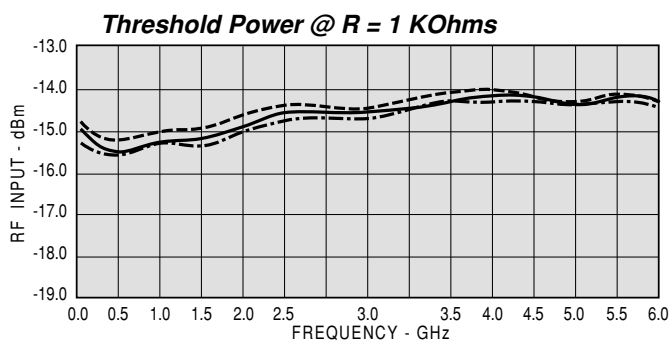
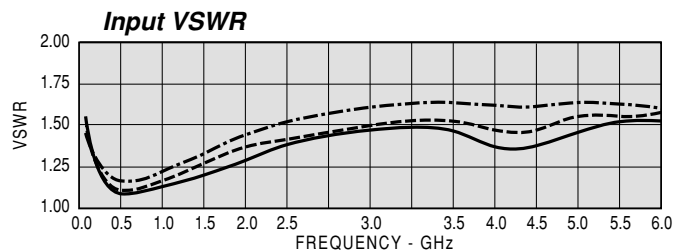
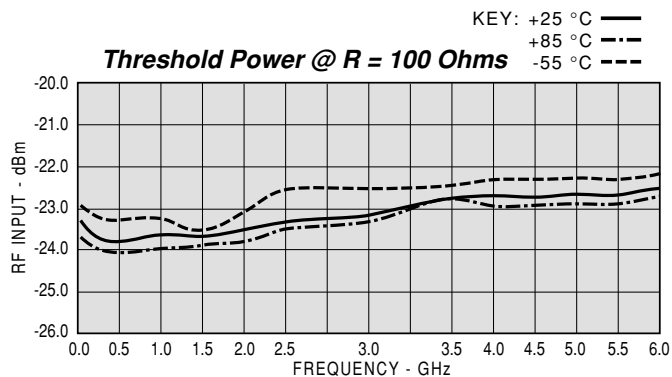
¹ Thermal resistance is based on RF input power. Ratings based on +25 °C.

APPLICATION NOTES

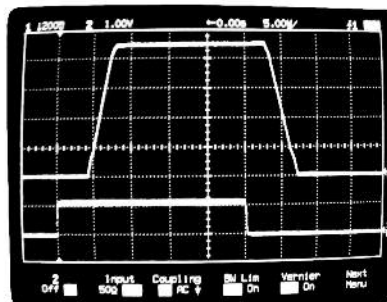
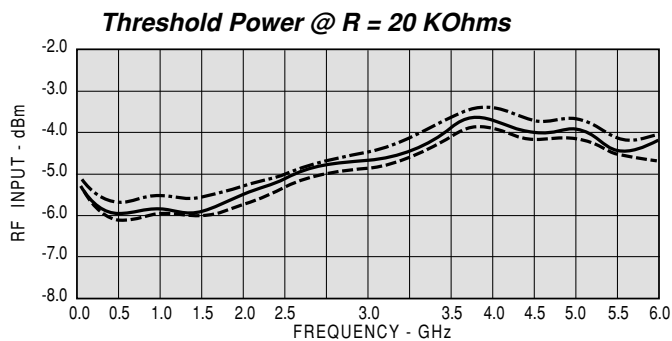
- ✦ This unit is DC coupled and employs a RF choke at the input (DC short).
- ✦ DO NOT bypass the Threshold Control pin. Capacitance greater than 50pF may cause instabilities. Keep the threshold programming resistor or circuit close to this pin.
- ✦ Average power detection is obtained at power levels 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]

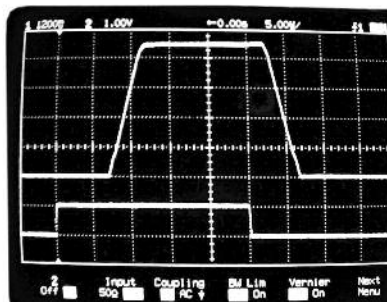
TYPICAL PERFORMANCE



Pulse Response @ R_{TH} = 100 Ohms



Pulse Response @ R_{TH} = 1 KOhms



Pulse Response @ R_{TH} = 20 KOhms

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