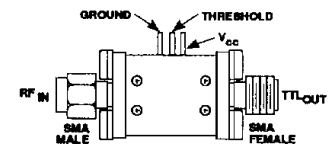


FEATURES

- Frequency Range: 0.1 to 18 GHz
- Sensitive Input: -25 to -10 dBm
- Threshold Externally Programmable with One Resistor
- Temperature Compensated Threshold
- TTL Output
- 2.5 mA (Typ) Power Consumption @ +5 VDC
- Wide Supply Voltage: 5 to 15 V

APPLICATIONS

- System Built-In Test (BIT)
- Channel RF Activity Monitoring
- Excessive VSWR Indicator
- Gain Switch Control



AT-1, p. 16-9

DESCRIPTION

The ATD-18021 is a sensitive microwave threshold detector which provides efficient and accurate RF level measurement at critical systems points. It contains a planar tunnel diode detector, precision integrated circuit operational amp, com-

parator, voltage regulator, and a temperature-compensated voltage reference assembly. The unit is built with chip and wire construction on a thin-film substrate for small size and ruggedness.

ELECTRICAL SPECIFICATIONS (Measured in a 50-ohm system @ +5 VDC nominal unless otherwise noted)

Symbol	Characteristic	Typical T _c = 25°C	Guaranteed Specifications		Unit
			T _c = 0° to 50°C	T _c = -55° to +85°C	
—	Frequency (Min.)	0.1-18	0.1-18	0.1-18	GHz
—	Input Operating Range	-25 to -10	-25 to -10	-25 to -10	dBm
—	Input Flatness (Max.)	±0.6	±1.5	±1.5	dB
—	Input VSWR (Max.)				
	-25 < P _{IN} < -10 dBm	2.2:1	3.0:1	3.0:1	—
—	Threshold Temperature Stability (Max.)	—	—	±1.5	dB
—	Threshold Hysteresis (Max.)	.7	1.2	1.2	dB
—	Response Time (see Note 1) (Max.)				
	T _{ON} , 90% RF to TTL "1"	20	300	300	μs
	T _{OFF} , 10% RF to TTL "0"	30	300	300	μs
—	Control Resistance at Threshold Level:				
	P _{IN} = -25 dBm	20	—	—	Ω
	P _{IN} = -20 dBm	200	—	—	Ω
	P _{IN} = -10 dBm	2000	—	—	Ω
—	Output Compatibility STTL Loads) (Min.)	—	3	3	—
—	Output Voltage (see Note 2)	3.6	2.7	2.7	V
—	Supply Voltage	5-20	5	5	V
—	Supply Current @ +5 VDC (Max.)	2.5	5.0	5.0	mA

NOTES: 1. Response time for input change > 3 dB above CW threshold. R_{LOAD} = 1 MΩ, C_{LOAD} = 80 pF.
2. Output voltage for P_{IN} = > threshold. R_L = 100 KΩ.

MAXIMUM RATINGS

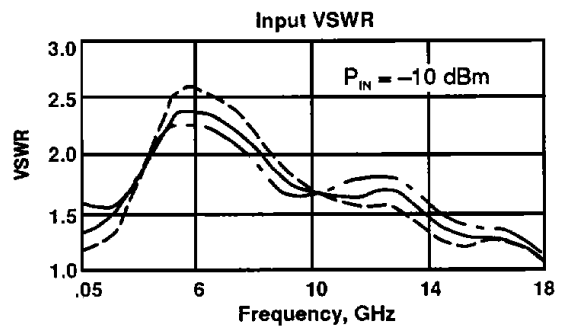
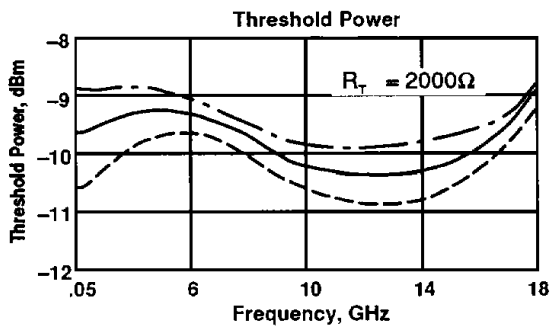
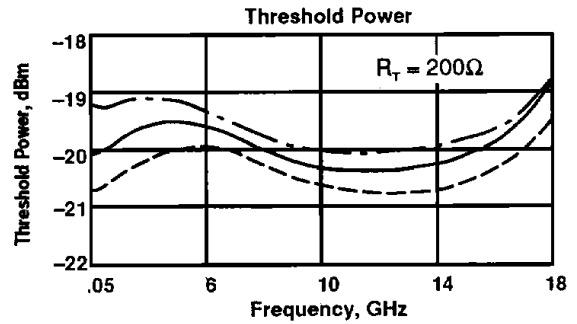
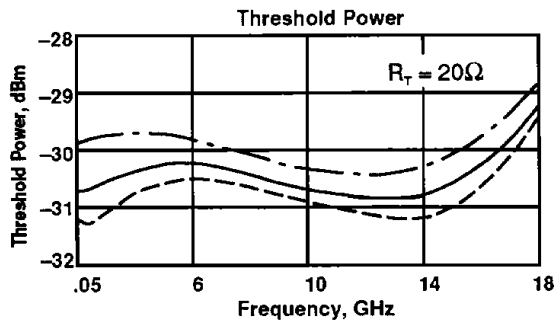
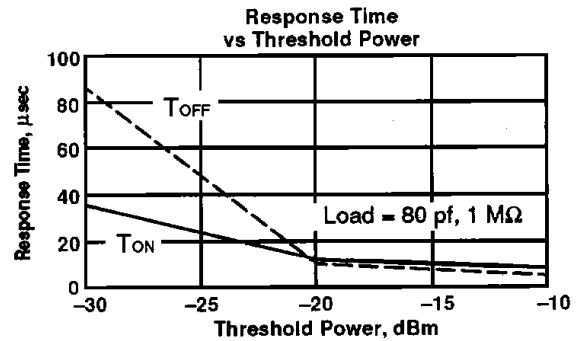
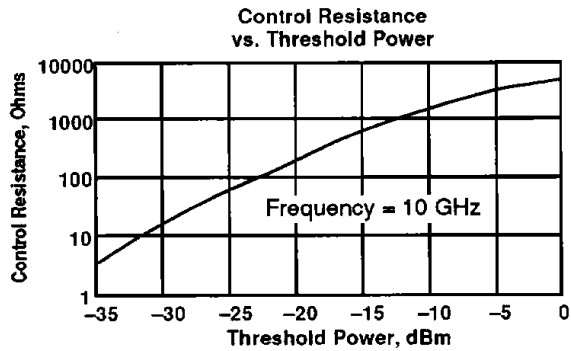
DC Voltage	+20 Volts	Operating Case Temperature	-55°C to +100°C
Continuous RF Input Power	+10 dBm	Storage Temperature	-55°C to +100°C
"R" Series Burn-In Temperature	100°C		

WEIGHT: (typical) 7.1 grams (without connectors)

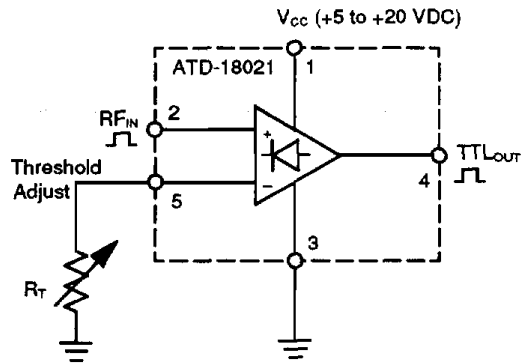
ATD-18021 Threshold Detector

TYPICAL PERFORMANCE OVER TEMPERATURE (@ +5 VDC unless otherwise noted)

KEY: +25°C ———
 +85°C - - - -
 -55°C - · - · -



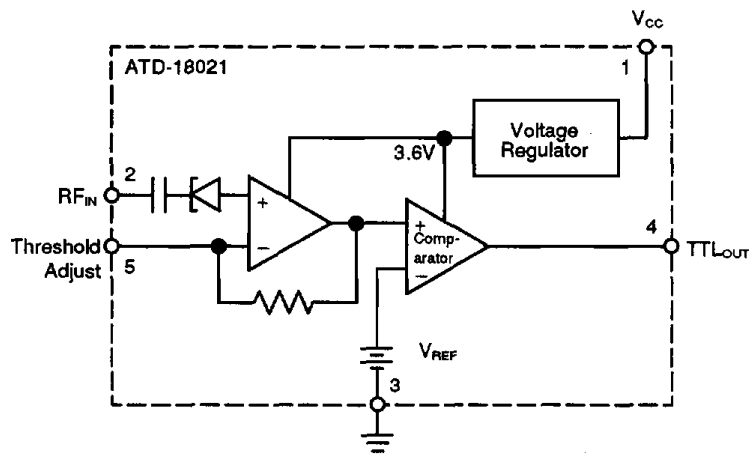
THRESHOLD ADJUST



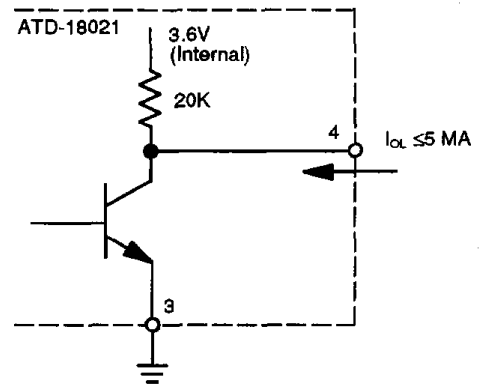
THRESHOLD ADJUST

R_T, Ω	SENSITIVITY dBm (typ)
20	-25
200	-20
2000	-10

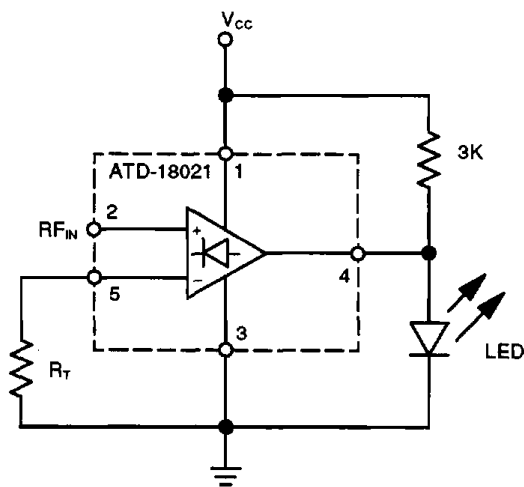
SIMPLIFIED SCHEMATIC



OUTPUT SCHEMATIC



INDICATOR DRIVE CIRCUIT



BUILT-IN TEST DETECTOR

