Avantek Products

Threshold Detector .1 to 6 GHz

Technical Data

PPD-6002

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Features

- **Frequency Range: 0.1 to 6 GHz**
- **Threshold Externally Programmable with One Resistor or Voltage**
- **Temperature Compensated Threshold**
- **TTL Output**
- **12 mA (typ) Power Consumption @ +15 VDC**
- **Surface Mount Package**

Applications

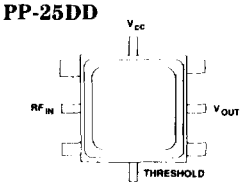
- **System Built-In Test (BIT)**
- **Channel RF Activity Monitoring**
- **Excessive VSWR Indicator**
- **Gain Switch Control**
- **Surface Mount Assembly**

Description

The PPD-6002 is a sensitive microwave threshold detector which provides efficient and accurate RF level measurement at critical system points. It contains a Schottky diode detector, a precision integrated circuit operational amp, comparator 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.

Pin Configuration

PP-25DD



(See Section 5 for detailed case drawings.)

Maximum Ratings

Parameter	Maximum
DC Voltage	±17 Volts
DC Voltage Reference	+2 Volts
Continuous RF Input Power	+15 dBm
Operating Case Temperature	–55 to +125°C
Storage Temperature	–62 to +150°C
"R" Series Burn-In Temperature	+125°C

Weight: (typical) 0.21 grams

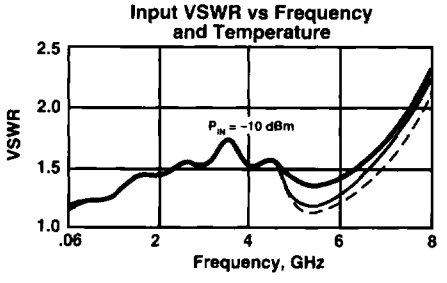
Electrical Specifications

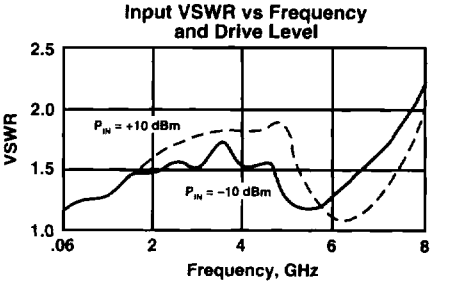
(Measured in 50 Ω system @ +15 VDC nominal unless otherwise noted)

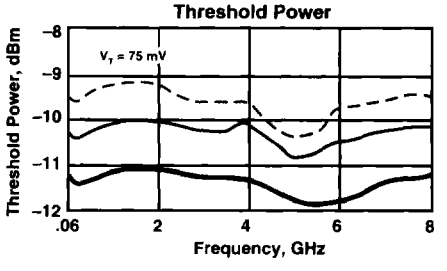
Symbol	Characteristic	Typical	Guaranteed Specifications		Unit
		T_C = 25°C	T_C = 0 to 50°C	T_C = −55 to +85°C	
—	Frequency (Min.)	.1-6	.1-6	.1-6	GHz
—	Input Flatness (Max.), P_{IN} = −10 to +10 dBm	±0.7	±1.0	±1.0	dB
—	Input Operating Range	−10 to +10	−10 to +10	−10 to +10	dBm
—	Input VSWR (Max.), P_{IN} = −10 dBm	1.5:1	2.0:1	2.0:1	—
—	Input Power (Max.)	+15	+15	+15	dBm
—	Threshold Temperature Stability (Max.)				
	@ −10 dBm Input Power	—	±1.0	±1.5	dB
	@ 0 dBm Input Power	—	±0.7	±1.0	dB
	@ +10 dBm Input Power	—	±0.5	±0.7	dB
—	Threshold Level Control				
	@ −10 dBm Input Power	75/220	—	—	mV/Ω
	@ 0 dBm Input Power	250/800	—	—	mV/Ω
	@ +10 dBm Input Power	900/3100	—	—	mV/Ω
—	Threshold Hysteresis				
	Resistance Control	0.5	—	—	dB
	Voltage Control	0.1	—	—	dB
—	Control Terminal Current	0.3	—	—	mA
—	Output Compatibility	TTL	TTL	TTL	—
—	Output at P_{IN} Threshold (Min.)	2.7	2.7	2.7	V
—	Output Short Circuit Current (Min.)	3.0	3.0	3.0	mA
—	Output Sink Current (Min.), V_0 = 0.7 V	2.0	2.0	2.0	mA
—	Output for Input Power Change > 3 dB above CW Threshold				
	Rise Time	30	—	—	ns
	Fall Time	80	—	—	ns
	Propagation Delay	1000	—	—	ns
—	Supply Voltage				
	As Specified	+15	—	—	VDC
	Operational	+11 to +16	—	—	VDC
—	Supply Current @ +15 Volts (Max.)	12	15	15	mA
—	Package	PP-25DD	—	—	—

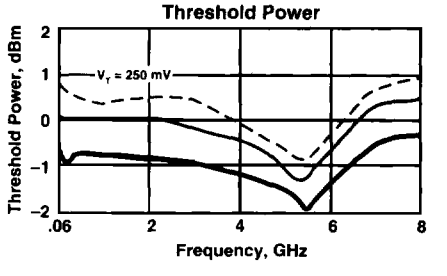
Typical Performance Over Temperature (@ +15 VDC unless otherwise noted)

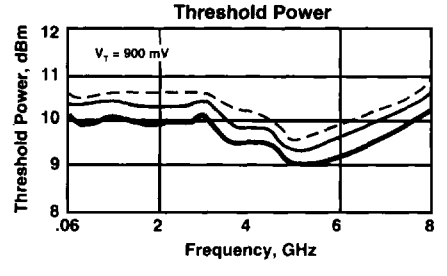
Key: +25°C ——
+85°C — —
-55°C ▬▬

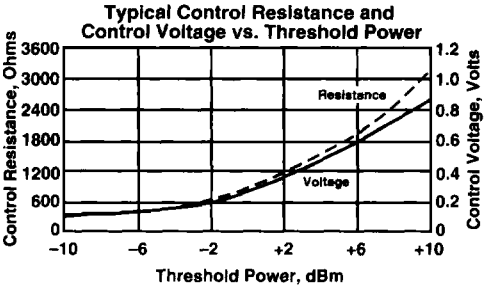




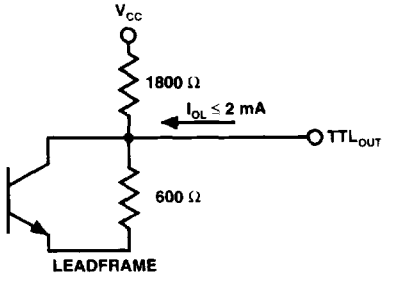




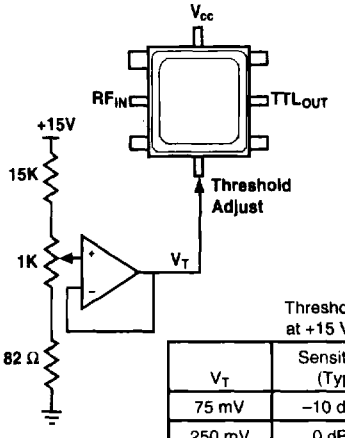




Output Schematic



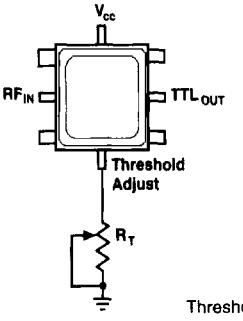
Voltage Control



Threshold Adjust at +15 VDC Bias

V_T	Sensitivity (Typ)	Hysteresis (Typ)
75 mV	−10 dBm	0.1 dB
250 mV	0 dBm	0.1 dB
900 mV	+10 dBm	0.1 dB

Resistive Control



Threshold Adjust at +15 VDC Bias

R_T	Sensitivity (Typ)	Hysteresis (Typ)
220 Ω	−10 dBm	0.5 dB
800 Ω	0 dBm	0.5 dB
3100 Ω	+10 dBm	0.5 dB

Indicator Drive