



Threshold Detector

.1 to 6 GHz

Technical Data

PSD-6002-25

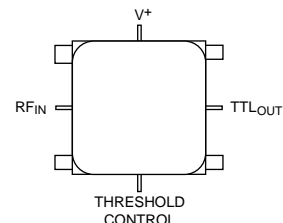
Features

- **Frequency Range: 0.1 to 6 GHz usable to 8 GHz**
- **Threshold Externally Programmable with Resistor or Voltage**
- **Temperature Compensated**
- **TTL Output**
- **12 mA (typ) Power Consumption @ +15 VDC**
- **Surface Mount Package**

Description

The PSD-6002 is a microwave threshold detector which provides a TTL "1" output for RF input levels above a settable threshold. It contains a Schottky diode detector, a precision amp, comparator and a temperature compensated voltage reference. The unit is built with chip and wire construction on a thin-film substrate for small size and ruggedness.

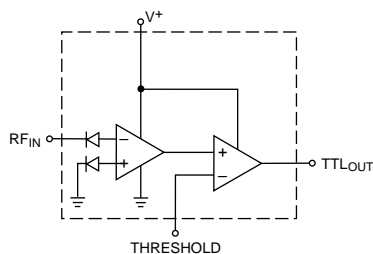
Pin Configuration SM-25DD



Applications

- **Channel Activity Monitoring**
- **Excessive VSWR Indicator**
- **Gain Switch Control**

Schematic



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

Thermal Characteristics

θ_{JC}	35°C/W
Temperature Rise (No Load)	15°C
Temperature Rise (Output S.C.)	45°C

Weight: (typical) 0.5 grams

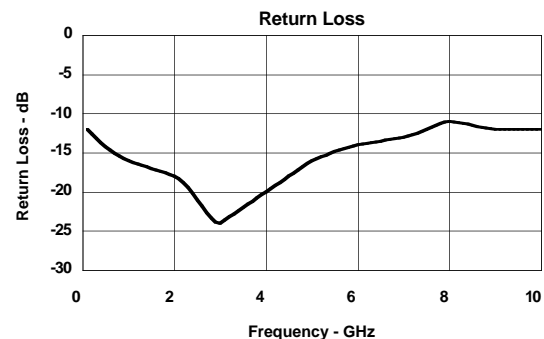
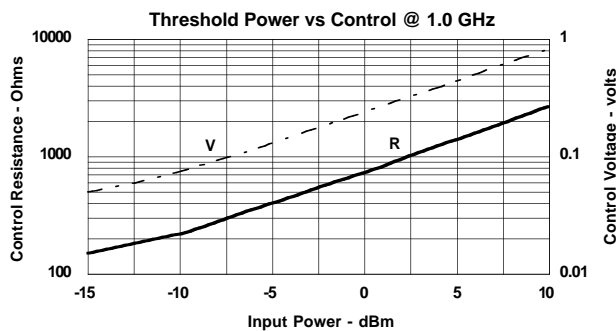
Electrical Specifications

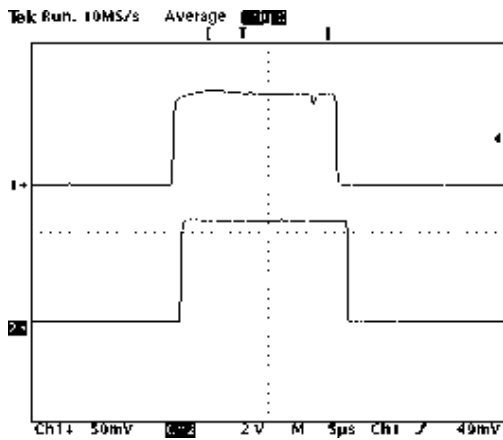
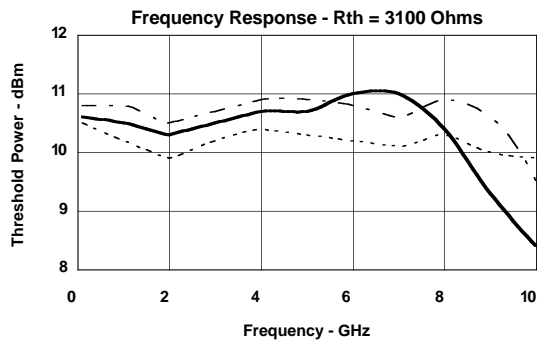
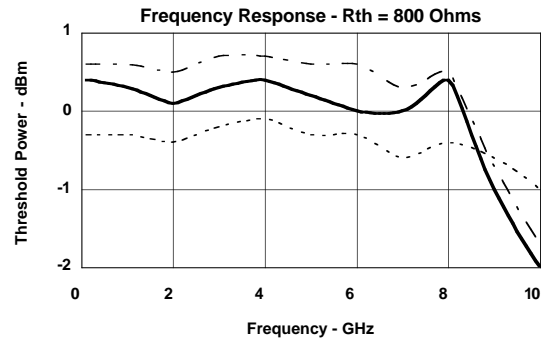
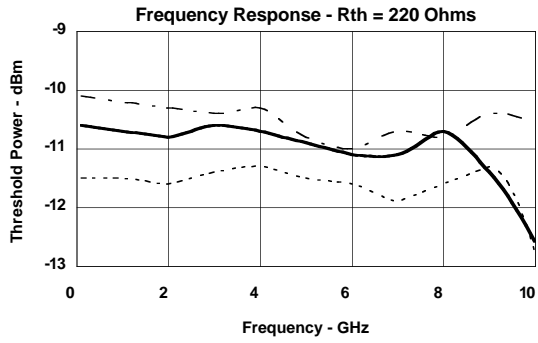
(Measured in 50 Ω system @ +15 VDC nominal unless otherwise noted)

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

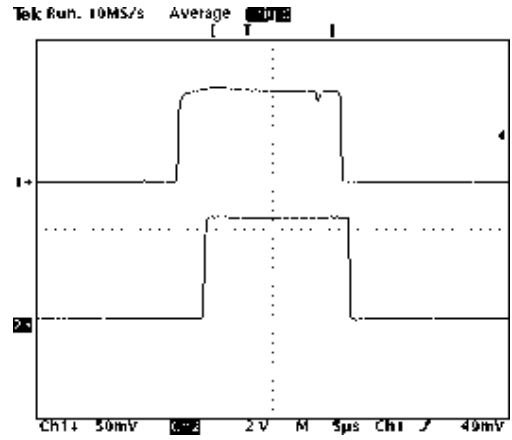
Typical Performance Over Temperature (@ +15 VDC unless otherwise noted)

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



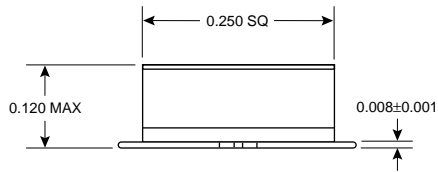
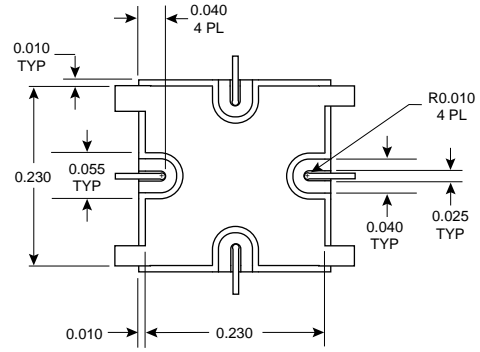
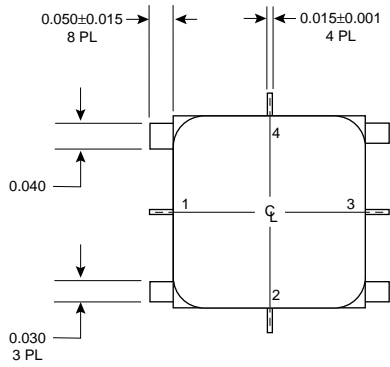


Response Delay
 Top Trace: Input pulse @ 0 dBm
 Bottom Trace: Detector Response @ $R_T = 400 \Omega$



Response Delay
 Top Trace: Input pulse @ 0 dBm
 Bottom Trace: Detector Response @ $R_T = 600 \Omega$

Case Drawings



PKG #	PIN DESIGNATION			
	1	2	3	4
SM-25	RF IN	GND	RF OUT	+V
SM-25F	RF IN	V-CONT	RF OUT	+V
SM-25DA	RF IN	-V	VID OUT	+V
SM-25DD	RF IN	CTL	TTL OUT	+V

NOTES:

1. MAXIMUM TEMPERATURE EXPOSURE IS 260°C FOR 10 SECONDS.
2. DIMENSIONS IN INCHES.
3. TOLERANCES: xx ± .01
xxx ± .005

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