



# Surface Mount Analog Level Detector 10 to 4000 MHz

## Technical Data

### PSD-4001-25

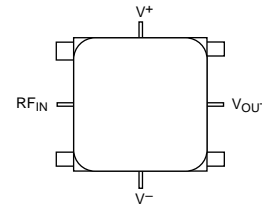
#### Features

- **Wideband:**  
Usable 10–5000 MHz
- **Wide Range:** -30 to +5 dBm
- **Temperature Stable:**  
±0.3 dB Typ
- **Operates from ±5 to ±15**  
or +5 to +15 volt supply
- **Small Size, Surface Mount**

#### Description

The PSD-4001 is a wideband analog level detector which provides low drift RF level measurement from -30 to +5 dBm. It contains a temperature stable diode detector and a precision, low offset, op-amp. The unit is built with chip and wire construction on a thin-film substrate for small size and ruggedness.

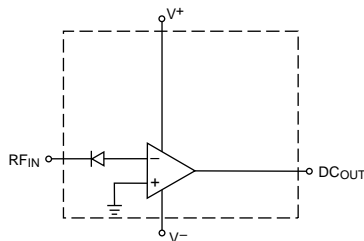
#### Pin Configuration SM-25DA



#### Applications

- Level Control
- Signal Monitoring

#### Schematic



#### Maximum Ratings

Parameter	Maximum
DC Voltage	±18 Volts
Continuous RF Input Power	+10 dBm
Operating Case Temperature	-55 to +100°C
Storage Temperature	-62 to +100°C
“R” Series Burn-In Temperature	+100°C

#### Thermal Characteristics

$\theta_{JC}$	35°C/W
Temperature Rise (No RF)	9°C
Temperature Rise (Max. RF)	30°C

**Weight:** (typical) 0.5 grams

## Electrical Specifications<sup>1</sup>

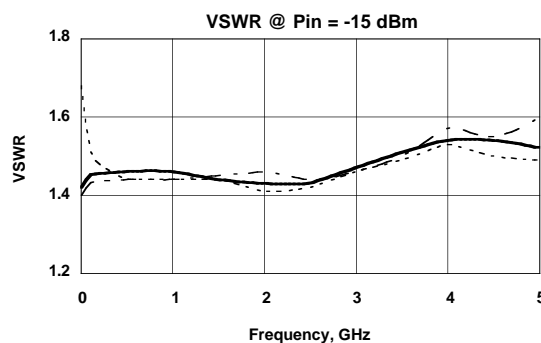
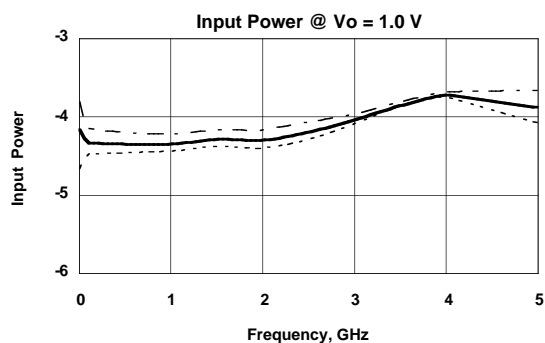
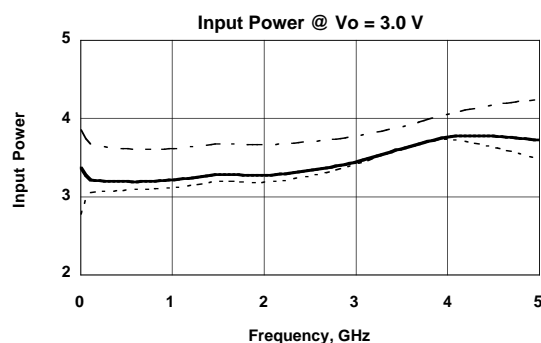
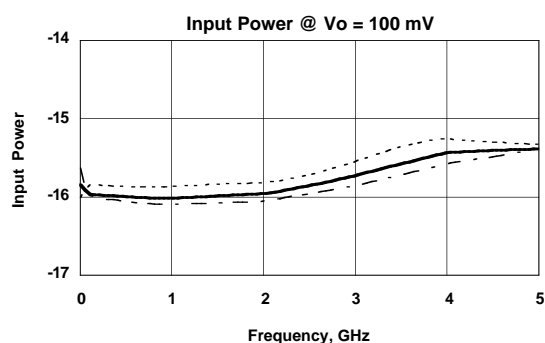
(Measured in 50  $\Omega$  system @  $\pm 15$  VDC nominal unless otherwise noted<sup>2</sup>)

Symbol	Characteristic	Typical $T_C = 25^\circ\text{C}$	Guaranteed Specifications		Unit
			$T_C = 0$ to $50^\circ\text{C}$	$T_C = -55$ to $+85^\circ\text{C}$	
BW	Frequency	10-4000	10-4000	10-4000	MHz
VSWR	VSWR (Max.) Pin=-15 dBm	1.5	2.0	2.0	:1
—	Sensitivity (Min.) Pin=-15 dBm	125	90	90	mV
—	Power Flatness (Max.) Vout=100 mV	0.3	0.6	0.75	$\pm$ dB
—	Temp. Stability Pin=-30 to +0 dBm		0.5	0.75	$\pm$ dB
—	1 dB Square Law Departure	-15			dBm
—	Pulse Response <sup>3</sup> Pin=-15 dBm	1.0			$\mu$ sec
—	Pulse Response <sup>3</sup> Pin=-15 dBm	3.0			$\mu$ sec
—	Output Offset Voltage Pin=no RF	0.5	1.0	2.0	$\pm$ mV
—	Max. Output Voltage Pin=+10 dBm	+Vs-1.0			volt
—	Supply Current Pin=no RF	2.0			mA
—	Supply Current Pin=+10 dBm	17.0			mA

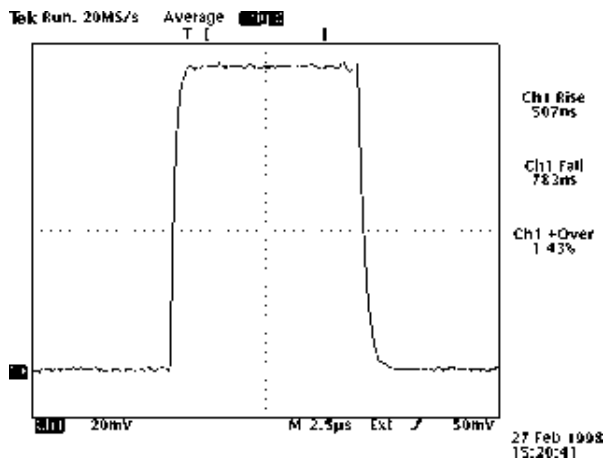
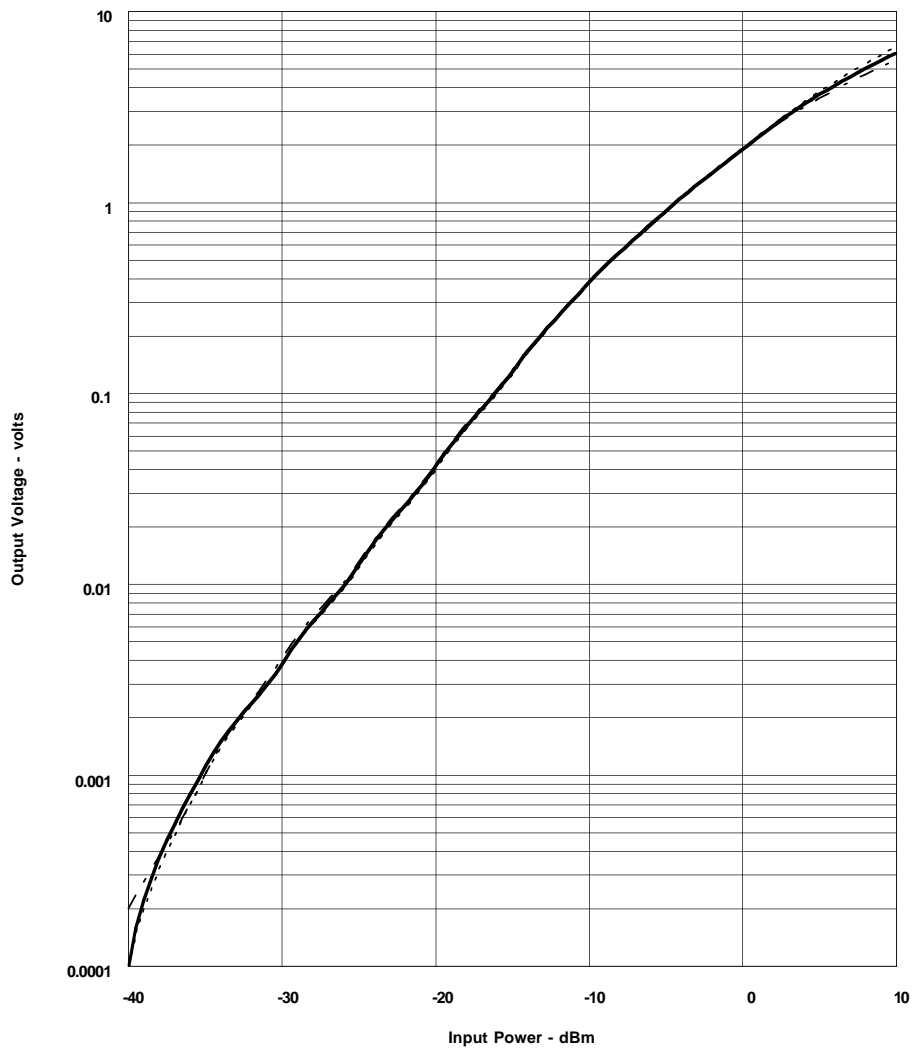
NOTES: 1. Unit employs a DC return at pin 1 (DC short circuit at RF input)  
 2. Spec's apply for dual or single 5 to 15 volt operation  
 3. 50% RF to 10 or 90% video (total delay plus rise or fall time)

## Typical Performance Over Temperature (@ $\pm 15$ VDC unless otherwise noted)

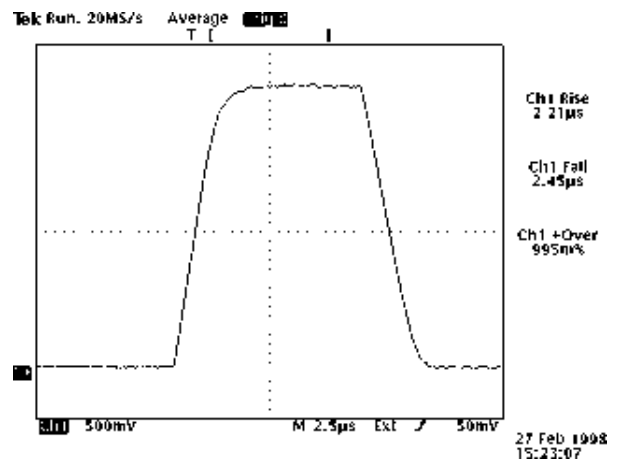
Key: +25°C ———  
 +85°C - · - · -  
 -55°C - - - -



Transfer Curve @ 1.0 GHz

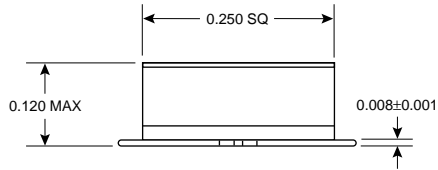
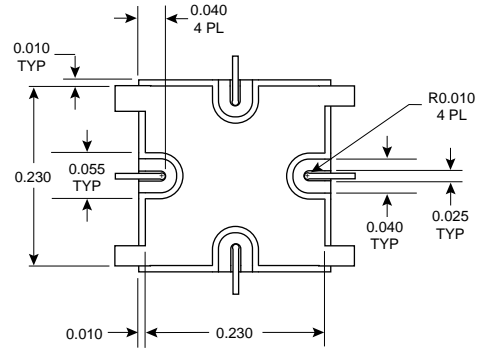
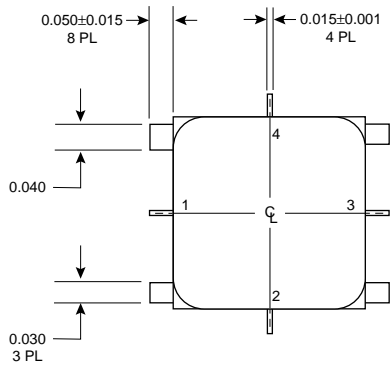


Pulse Response @ Pin = -15 dBm



Pulse Response @ Pin = +5 dBm

## 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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