SMA Series Coaxial Detector, 10 MHz~40 GHz

Introduction

Sample Technology' s SMA series coaxial detectors are suitable for power detection, video detection, signal source amplitude leveling, and swept-frequency measurements of transmission and reflection in various military or civilian electronic equipment, including communications, radar, electronic countermeasures, navigation, and microwave measurements. Utilizing low-barrier Schottky diodes as detection components, these detectors feature SMA coaxial inputs and offer either positive or negative polarity voltage outputs. They deliver excellent performance, including compact size, high sensitivity, fast response time, superior frequency response, and wide operating bandwidth.

Features

- Frequency Range：10 MHz~40 GHz
- Power, Max Input：+20 dBm（100 mW）
- Voltage Sensitivity, Min：≥0.35 mV@-30dBm
- Rising Time：≤7 ns
- Size：Ø9.0×30.5 mm@40 GHz

Wide Application

SMA Coaxial Detector Series Designed for RF and microwave envelope detection, this series supports both Continuous Wave (CW) and pulse detection outputs.

- **Excellent VSWR Performance:** Minimizes measurement uncertainty and errors.
- **Superior Wideband Amplitude-Frequency Characteristics:** Reduces measurement errors when used for wideband modulated signal detection.
- **High-Speed Pulse Response:** Minimizes edge distortion during pulse signal detection.

Specifications

Specifications③	SMA06G	SMA18G	SMA26G	SMA40G
Frequency Range	10MHz ~ 6GHz	10MHz ~ 18GHz	10MHz ~ 26.5GHz	10MHz ~ 40GHz
Power, Max Input	+20 dBm (100 mW)			
Minimum Input Detection Power	-55 dBm (3 nW)			
Voltage Sensitivity①	≥0.35 mV@-30 dBm; ≥185 mV@0 dBm;			
Pulse Response Time (Minimum Pulse Width)	≤10 μS@10kΩ		≤3 μs@10kΩ	
Minimum Rise Time	≤7 ns			
Amplitude-Frequency Response②	±0.2 dB (Typ) ±0.5 dB (Max)		±0.6 dB (Typ) ±0.8 dB (Max)	±0.75 dB (Typ) ±1 dB (Max)
VSWR	≤1.35:1 (Typ) ≤1.5:1 (Max)		≤1.5:1 (Typ) ≤1.6:1 (Max)	≤1.65:1 (Typ) ≤1.85:1 (Max)
Temperature Range	Operating Temperature Range: -20 ℃~+60 ℃ Storage Temperature Range: -40 ℃~+85 ℃			
RF Connector In Series	SMA (M) , No input DC block			2.92 (M) , No input DC block
DC Connector Out Series	SMA-F			
Dimensions	Ø9.0×34.5 mm			Ø9.0×30.5 mm
Body Material	Gold-plated Brass or Ternary Alloy-plated Brass		Passivated	

Important Notes & Technical Specifications

•ESD Warning: This product is an electrostatic sensitive device (ESD). Proper ESD protection must be maintained during storage, transportation, and operation.

•DC Input Warning: The input is not DC-blocked. DC signals are not allowed at the input terminal.

•Ordering Information: Please ensure you select the correct model number corresponding to your required output polarity (positive or negative) when ordering.

① Detector Voltage Output [Amplitude-Frequency Response] Criteria (@ 0 dBm input):

1.Output Voltage: ≥ 185 mV across the full frequency range.

2.Voltage Variation (Typical): ±35 mV across the full frequency range. *Calculation: At 0 dBm input, Verr = (V{max} - V{min}) / 2*

3.Definitions:

1. V_{err} :Voltage variation (proportional to the amplitude-frequency response).
2. V_{max} :Maximum output voltage within the frequency band.
3. V_{min} :Minimum output voltage within the frequency band.

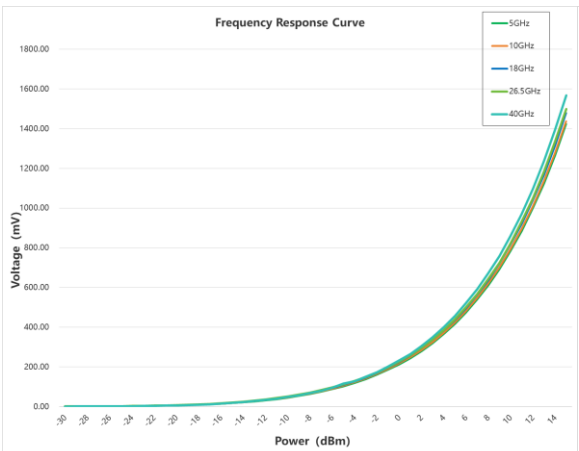
② Amplitude-Frequency Response:

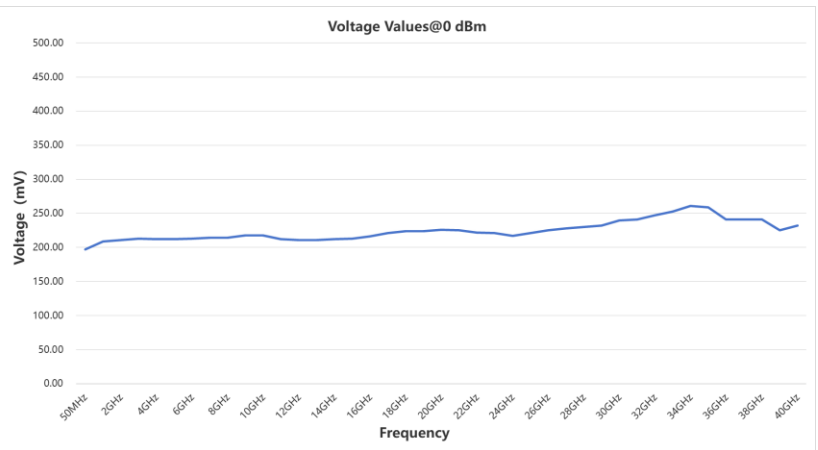
Defined as the device's frequency response across its entire operating range at a signal input power of 0 dBm.

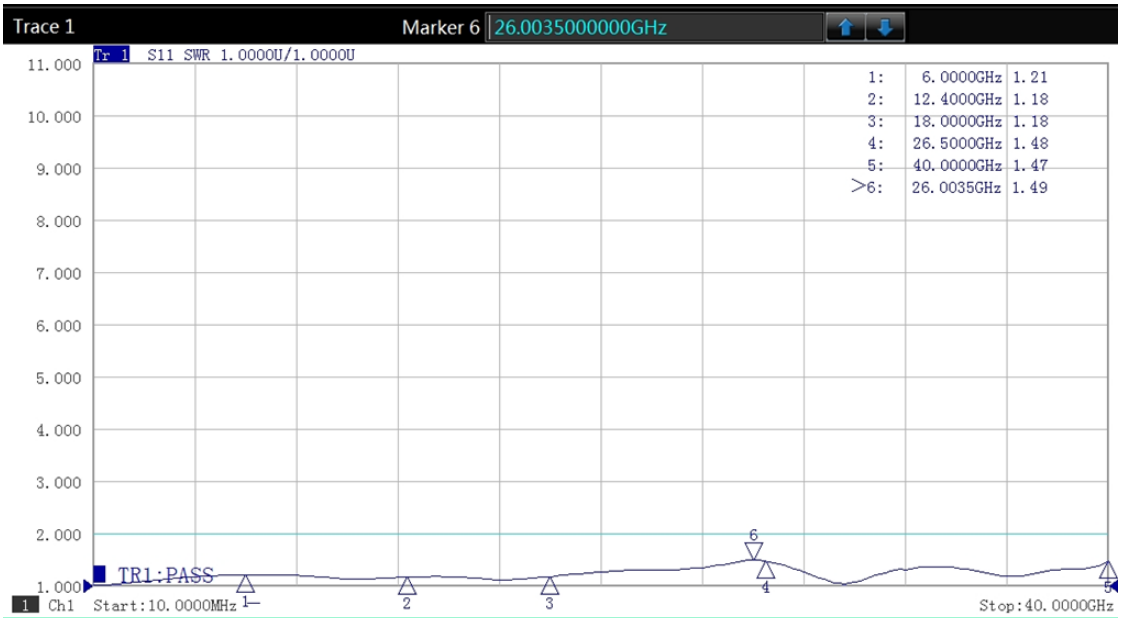
③ Customization:

All performance parameters have room for optimization. If your application requires more stringent technical specifications, please specify your requirements before placing an order.

Typical Test Curve

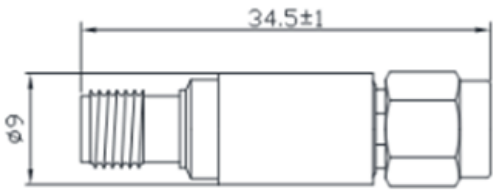




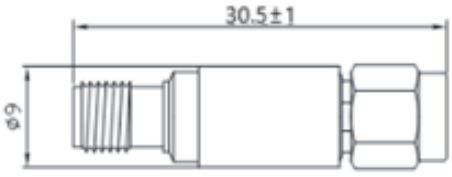


40GHz Detector VSWR

Dimensions (mm)



≤Package Dimensions (< 40 GHz)



Package Dimensions (SMA40G)

Ordering Guide

SMA06G+: 10 MHz - 6 GHz Coaxial Detector with Positive Output Polarity;
SMA06G- : 10 MHz - 6 GHz Coaxial Detector with Negative Output Polarity;
SMA18G+: 10 MHz - 18 GHz Coaxial Detector with Positive Output Polarity;
SMA18G- : 10 MHz - 18 GHz Coaxial Detector with Negative Output Polarity;
SMA26G+: 10 MHz – 26.5 GHz Coaxial Detector with Positive Output Polarity;
SMA26G- : 10 MHz – 26.5 GHz Coaxial Detector with Negative Output Polarity;
SMA40G+: 10 MHz - 40 GHz Coaxial Detector with Positive Output Polarity;
SMA40G- : 10 MHz - 40 GHz Coaxial Detector with Negative Output Polarity;

Sample Technology WeChat

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