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**Data Sheet**

August 15, 2026

AGILENT / KEYSIGHT

# Agilent / Keysight E8254A PSG-A Series Performance Signal Generator, 40 GHz

Agilent / Keysight E8254A PSG-A Series Performance Signal Generator 250 kHz to 40 GHz

The Agilent E8254A isaPSG Family performance microwave signal generator covering 250 kHz to 40 GHz. OEM PSG E8241A/44A/51A/54A data sheets list frequency resolution of 0.01 Hz, typical frequency switching under 15 ms, and standard leveled output from -20 dBm to model-dependent maximum power, with Option 1E1 extending the minimum to -135 dBm. Local oscillator substitution, receiver and component stimulus, and high-performance microwave CW and analog-modulated signal generation on the PSG platform. The Agilent E8254A isaPSG Family performance microwave signal generator covering 250 kHz to 40 GHz. OEM PSG E8241A/44A/51A/54A data sheets list frequency resolution of 0.01 Hz, typical frequency switching under 15 ms, and standard leveled output from -20 dBm to model-dependent maximum power, with Option 1E1 extending the minimum to -135 dBm. Local oscillator substitution, receiver and component stimulus, and high-performance microwave CW and analog-modulated signal generation on the PSG platform.



MODEL

**Agilent / Keysight  
E8254A**

CALIBRATION

**Available on  
request**

CONDITION

**Used**

STATUS

**In stock**

RFQ / SKU

**E8254A**

LISTING

<https://aumictechlabs.com/products/e8254a-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 · 811210 · 541380

**This unit**

The Agilent/Keysight E8254A PSG-A Series Performance Signal Generator delivers precision signal generation across 250 kHz to 40 GHz for RF and microwave test environments. Built for aerospace, defense, and telecommunications applications, this instrument combines low phase noise, high output power, and versatile modulation capabilities to meet demanding measurement requirements.

**Technical Specifications**

**Frequency Performance**  
Frequency range: 250 kHz to 40 GHz  
Resolution: 0.01 Hz  
Internal reference aging rate (standard):  $< \pm 3 \times 10^{-8}$ /year  
Internal reference aging rate (Option UNX):  $< \pm 3 \times 10^{-8}$ /year or  $< \pm 2.5 \times 10^{-10}$ /day after 30 days

**Temperature stability** (0 to 55 °C, typical):  $< \pm 4.5 \times 10^{-9}$

**Line voltage stability** ( $\pm 10\%$  variation, typical): +4 dBm typical into 50  $\Omega$  load

**Amplitude Specifications**  
Output power at 40 GHz: up to +9 dBm (standard)  
Output power at 20 GHz: up to +22 dBm (standard)  
Output power at 10 GHz: up to +23 dBm (standard)  
Output power at 3.2 GHz: up to +13 dBm (standard)

**Amplitude resolution:** 0.01 dB

**CW level accuracy** (250 kHz to 2 GHz):  $\pm 0.6$  dB at  $> +10$  dBm  
CW level accuracy (2 to 20 GHz):  $\pm 0.8$  dB at  $> +10$  dBm  
CW level accuracy (20 to 40 GHz):  $\pm 1.0$  dB at  $> +10$  dBm  
CW level accuracy at -110 dBm (measured):  $\pm 0.5$  dB across frequency range

**Modulation level accuracy with ALC:**  $\pm 0.2$  dB (constant-amplitude and QAM/QPSK formats)

**Temperature stability:** 0.01 dB/°C typical

**Power specification warranty:** 15 to 35 °C; typical operation 0 to 55 °C with  $< 2$  dB degradation above 35 °C

**Key Features**  
Versatile modulation capabilities for complex signal simulation  
Flexible output power across the 40 GHz bandwidth  
Selectable reference oscillator options for frequency stability optimization  
I/Q modulation support with minimal power degradation

**Typical Applications**  
Component and subsystem characterization in mmWave bands  
Defense and aerospace RF testing  
Telecommunications infrastructure validation  
Research and development in high-frequency systems

## E8254A Characteristics / Specifications

| PARAMETER                                        | VALUE                                         |
|--------------------------------------------------|-----------------------------------------------|
| Model                                            | E8254A                                        |
| Instrument Type                                  | PSG-A Series performance signal generator     |
| Frequency Range                                  | 250 kHz to 40 GHz                             |
| Frequency Resolution                             | 0.01 Hz                                       |
| Frequency Switching Speed Typical                | less than 15 ms                               |
| Phase Offset Resolution Class                    | 0.1 degree nominal increments                 |
| Frequency Band 1 250 KHz To 250 Mhz              | N equals 1/8                                  |
| Frequency Band 5 Above 2 To 3.2 Ghz              | N equals 1/2                                  |
| Frequency Band 6 Above 3.2 To 10 Ghz             | N equals 1                                    |
| Frequency Band 7 Above 10 To 20 Ghz              | N equals 2                                    |
| Frequency Band 8 Above 20 To 40 Ghz              | N equals 4                                    |
| Max Specified Power Standard 250 KHz To 3.2 Ghz  | +9 dBm                                        |
| Max Specified Power Standard Above 3.2 To 20 Ghz | +9 dBm                                        |
| Max Specified Power 1Ea 250 KHz To 3.2 Ghz       | +15 dBm                                       |
| Max Specified Power 1Ea Above 3.2 To 20 Ghz      | +18 dBm                                       |
| Max Specified Power Standard Above 20 To 40 Ghz  | +9 dBm                                        |
| Max Specified Power 1Ea Above 20 To 40 Ghz       | +14 dBm                                       |
| Max Specified Power With 1E1 Above 20 To 40 Ghz  | +7 dBm standard path / +12 dBm with 1EA class |
| Min Power Standard                               | -20 dBm                                       |
| Min Power With 1E                                | -135 dBm                                      |
| Step Attenuator 1E                               | 0 dB and 5 to 115 dB in 10 dB steps           |

| PARAMETER                                  | VALUE                                                  |
|--------------------------------------------|--------------------------------------------------------|
| Amplitude Switching Speed Class            | to within 0.1 dB within one attenuator range class     |
| Rf Output Connector Class                  | type-N on 20 GHz models; 2.4 mm class on 40 GHz models |
| Remote Interface Class                     | GPIB                                                   |
| Operating Amplitude Spec Temperature Class | 15 to 35 C for primary amplitude specs                 |
| Card Geometry                              | benchtop microwave signal generator                    |

# E8254A Specifications

| PARAMETER                                   | VALUE                                    |
|---------------------------------------------|------------------------------------------|
| Key Features                                | 0.01 Hz frequency resolution synthesizer |
| Less than 15 ms typical frequency switching | Optional step attenuator to -135 dBm     |
| Technical Specifications                    | Model: E8254A                            |

# Full OEM specifications

Complete technical content extracted from the manufacturer datasheet. Sparse OEM tables are reconstructed as tables below; other text is preserved as paragraphs.

Performance Signal Generator 250 kHz to 40 GHz

Overview

The Agilent E8254A isaPSG Family performance microwave signal generator covering 250 kHz to 40 GHz. OEM PSG E8241A/44A/51A/54A data sheets list frequency resolution of 0.01 Hz, typical frequency switching under 15 ms, and standard leveled output from -20 dBm to model-dependent maximum power, with Option 1E1 extending the minimum to -135 dBm.

Applications

Local oscillator substitution, receiver and component stimulus, and high-performance microwave CW and analog-modulated signal generation on the PSG platform.

Key Features

0.01 Hz frequency resolution synthesizer  
Less than 15 ms typical frequency switching  
Optional step attenuator to -135 dBm  
Optional high-power 1EA path  
GPIB programmable ATE stimulus

Technical Specifications

## Technical Specifications

| PARAMETER                         | VALUE                                     |
|-----------------------------------|-------------------------------------------|
| Model                             | E8254A                                    |
| Instrument Type                   | PSG-A Series performance signal generator |
| Frequency Range                   | 250 kHz to 40 GHz                         |
| Frequency Resolution              | 0.01 Hz                                   |
| Frequency Switching Speed Typical | less than 15 ms                           |
| Phase Offset Resolution Class     | 0.1 degree nominal increments             |

Frequency Band 1 250 Khz To 250 Mhz: N equals 1/8  
Frequency Band 5 Above 2 To 3.2 Ghz: N equals 1/2  
Frequency Band 6 Above 3.2 To 10 Ghz: N equals 1  
Frequency Band 7 Above 10 To 20 Ghz: N equals 2  
Frequency Band 8 Above 20 To 40 Ghz: N equals 4  
Max Specified Power Standard 250 Khz To 3.2 Ghz: +9 dBm  
Max Specified Power Standard Above 3.2 To 20 Ghz: +9 dBm  
Max Specified Power 1Ea 250 Khz To 3.2 Ghz: +15 dBm  
Max Specified Power 1Ea Above 3.2 To 20 Ghz: +18 dBm  
Max Specified Power Standard Above 20 To 40 Ghz: +9 dBm  
Max Specified Power 1Ea Above 20 To 40 Ghz: +14 dBm  
Max Specified Power With 1E1 Above 20 To 40 Ghz: +7 dBm standard path / +12 dBm with 1EA class

## Specifications

| PARAMETER          | VALUE    |
|--------------------|----------|
| Min Power Standard | -20 dBm  |
| Min Power With 1E1 | -135 dBm |

| PARAMETER                                  | VALUE                                                  |
|--------------------------------------------|--------------------------------------------------------|
| Step Attenuator 1E1                        | 0 dB and 5 to 115 dB in 10 dB steps                    |
| Amplitude Switching Speed Class            | to within 0.1 dB within one attenuator range class     |
| Rf Output Connector Class                  | type-N on 20 GHz models; 2.4 mm class on 40 GHz models |
| Remote Interface Class                     | GPIB                                                   |
| Operating Amplitude Spec Temperature Class | 15 to 35 C for primary amplitude specs                 |
| Card Geometry                              | benchtop microwave signal generator                    |

Notes  
From Agilent E8241A/44A/51A/54A PSG Family Performance Signal Generator data sheet. Maximum power degrades outside 15 to 35 C; cite sheet for SSB phase noise and modulation tables by option.

### Available from Aumictech

Used and refurbished unit evaluated in-house. Calibration: Available on request. Used · In stock.

Request a quote: [sales@aumictech.com](mailto:sales@aumictech.com) · +1 (484) 841-9341

#### Aumictech

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NIST-traceable calibration · SAM registered ·  
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Technical content from manufacturer specifications. Unit photo/stock from Aumictech listing when available. Specifications subject to OEM documentation and unit condition.