Analog Devices Welcomes Hittite Microwave Corporation

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HMC-T2240
Synthesized Signal Generator, 10 MHz to 40 GHz
HMC-T2240
SYNTHESIZED SIGNAL GENERATOR, 10 MHz to 40 GHz

Wide Frequency Range, 10 MHz to 40 GHz Signal Generator!

The HMC-T2240 is an easy to implement test equipment solution designed to fulfill your signal generation needs. Built on a foundation of high quality and market leading Hittite MMICs, the HMC-T2240 provides the highest output power, lowest harmonic levels and broadest frequency range amongst signal generators of its size and cost.

This compact and lightweight signal generator also features USB, GPIB and Ethernet interfaces ensuring carefree integration within various test environments while improving overall productivity and equipment utilization.

Applications
♦ ATE
♦ Test & Measurement
♦ R&D Laboratories

Advantages
♦ Versatile: Higher Drive Simplifies Test Set-Ups
♦ Efficient: 500 µs Frequency Switching
♦ Reliable: Incorporates Hittite MMICs
♦ Flexible: Manual or Software Control
  Via USB, GPIB or Ethernet

Performance
♦ High Output Power: +27 dBm @ 1 GHz
♦ Wide Frequency Range:
  10 MHz to 40 GHz
♦ Excellent Phase Noise Performance:
  -98 dBC/Hz @ 10 kHz Offset @ 10 GHz
♦ Spurious Rejection: -70 dBC @ 10 GHz
♦ Power Resolution: 0.1 dB
♦ Frequency Resolution: 1 Hz
HMC-T2240
SYNTHESIZED SIGNAL GENERATOR, 10 MHz to 40 GHz

Frequency
Accuracy: As Per Internal Ref. ±1.5 ppm
Resolution: 1 Hz
Internal Reference: 10 MHz
Aging Rate: <1 ppm/yr
External Reference Input: 10 MHz (Sine)
Internal Reference Output: 10 MHz (Square Wave)
Frequency Switching Speed: 500 µs

Output Power (Maximum Leveled)
Minimum Settable: -40 dBm

<table>
<thead>
<tr>
<th>Frequency (GHz)</th>
<th>Power Output (dBm)</th>
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<tbody>
<tr>
<td>0.01</td>
<td>24</td>
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<tr>
<td>0.1</td>
<td>26</td>
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<td>0.5</td>
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<td>30</td>
<td>22</td>
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<tr>
<td>40</td>
<td>20</td>
</tr>
</tbody>
</table>

Dynamic Range: >60 dB
Resolution: 0.1 dB
Power Accuracy: ± 1 dB > 500 MHz
± 2 dB ≤ 500 MHz
± 2 dB < -20 dBm (All Frequencies)
RF OFF < -70 dBm

Spurious @ 10 dBm Output
< -70 dBc @ Integer Frequencies
< -65 dBc @ Fractional Frequencies <10 GHz
< -57 dBc @ Fractional Frequencies 10-20 GHz
< -52 dBc @ Fractional Frequencies > 20 GHz

SSB Phase Noise vs. Frequency

Output Power Range @ 25°C

Output Power = +10 dBm

Harmonics

<table>
<thead>
<tr>
<th>Frequency (GHz)</th>
<th>2nd Harmonics (dBc)</th>
<th>3rd Harmonics (dBc)</th>
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</thead>
<tbody>
<tr>
<td>0.01</td>
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<td>-45</td>
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<td>0.05</td>
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<td>0.1</td>
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<td>-58</td>
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<tr>
<td>25</td>
<td>-35</td>
<td>-</td>
</tr>
</tbody>
</table>

SSB Phase Noise (dBc/Hz)

Above data is typical performance at +25°C after 30 minutes of warm-up time unless otherwise stated.

2 Elizabeth Drive • Chelmsford, MA 01824
Phone: 978-250-3343  Fax: 978-250-3373
Order Online at www.tm-hittite.com
Instrumentation Product Support at TE@hittite.com
HMC-T2240
SYNTHESIZED SIGNAL GENERATOR, 10 MHz to 40 GHz

General Specifications

Frequency:  
Accuracy:
  For < 2.5 GHz, Reference +0/-90 nHz  
  For > 2.5 GHz, Reference +0/-2.88 uHz  
Internal Reference: ±1.5 ppm  
Resolution: 1 Hz  
Aging Rate: <1 ppm/yr  
External Reference Input: 10 MHz (Sine Wave)  
Internal Reference Output: 10 MHz (Square Wave)  
Frequency Switching Speed: 500 µs

RF Output Power Change Versus Temperature:
- 10 MHz to 5 GHz: 0.10 dB/°C
- 5 GHz to 15 GHz: 0.125 dB/°C
- 15 GHz to 20 GHz: 0.20 dB/°C
- 20 GHz to 40 GHz: 0.10 dB/°C

Input / Output:
- 10 MHz REFOUT [1]
- 10 MHz REFIN [2]
- TRIGGER IN [3]: TTL
- TRIGGER OUT [3]: TTL
- RS-232 (used for field upgrades)
- Ethernet
- USB 2.0
- RF Output 2.92mm Female

Power - AC:
- 100 to 240 VAC @ 50 to 60 Hz

Operating Temperature (for indoor use only):
- 0 to 35 °C

Storage Temperature: -20 to 70 °C

Cooling: 2 Internal Fans

Fan Noise: < 50 dBA

Mechanical Vibration & Shock:
- MIL PRF-288000 Class 4, non operating

Compliance:
- CSA & CE
- ECCN:
  - EAR99

General Mechanical Characteristics
- H: 76.2 mm (3 in)
- W: 203 mm (8 in)
- D: 305 mm (12 in)
- Weight: 3.6 kg (8 lbs)

Warranty: 1 Year Parts and Labor

Above data is typical performance at +25°C after 30 minutes of warm-up time unless otherwise stated.

[1] +10 dBm typ. into 50 Ohms; BNC Connector
[2] +5 dBm max., -5 dBm min., 50 Ohms; BNC Connector
[3] The trigger input can be driven from either 3.3V or 5V sources for direct interface with TTL signal levels; BNC Connector
HMC-T2240
SYNTHESIZED SIGNAL GENERATOR, 10 MHz to 40 GHz

HMC-T2240 Rear Panel I/O Connections

Connectivity & Control
Its compact size, light weight, fast switching speed and USB, GBIP and Ethernet control interfaces support the standard SCPI command set ensuring smooth integration within all test environments, particularly those associated with automated test. An installation disk that accompanies each unit includes all the drivers required to remotely control the device as well as a user friendly GUI interface (right) compatible with a Windows XP®, Windows Vista® or Windows 7® or operating system. User control is facilitated via pull down menus that allow programming of single or swept modes in frequency or power. Integration of multiple units within a production test environment is easy, and affordable.

Remote Interface
- Hardware: USB (Windows XP®, Windows Vista®, Windows 7® Drivers Supplied), GPIB or Ethernet
- Software: LabVIEW 2009 Driver
- Frequency Switching Speed:
  500 us Typ.

Local Interface
- Front Panel Rotary Knob & Display

HMC-T2100 Compatibility
To facilitate integration into existing HMC-T2100 applications, the HMC-T2240 has a HMC-T2100 compatibility mode. In this mode, the HMC-T2240 identifies itself as a HMC-T2100 so that the HMC-T2100 USB drivers will work for a HMC-T2240, and programs which use the *IDN? string will recognize a HMC-T2240 as a HMC-T2100. Frequency resolution, maximum and minimum values for power, and minimum sweep dwell time also change to match the HMC-T2100.

Windows® - Windows XP®, Windows Vista® and Windows 7® are registered trademarks of Microsoft Corporation.
**HMC-T2240**
SYNTHESIZED SIGNAL GENERATOR, 10 MHz to 40 GHz

Two Tone Third Order Intercept Test Set-up

Efficient Mixer Conversion Loss, Isolation & MxN Spurious Test Set-up
HMC-T2240
SYNTHESIZED SIGNAL GENERATOR, 10 MHz to 40 GHz

Ordering Information

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Description</th>
<th>Price</th>
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<tr>
<td>HMC-T2240</td>
<td>Synthesized Signal Generator</td>
<td>$19,498.00</td>
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<td>10 MHz to 40 GHz</td>
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Includes 100 - 240V AC Power Supply and one Power Cord at no cost. Please specify your preferred power cord part number at time of ordering. (see “Optional Power Cord” table)

Test Rack Mount Kit

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Price</th>
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<tbody>
<tr>
<td>HMC-RM02</td>
<td>Dual Rack Mounting Plate</td>
<td>$385.00</td>
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<td>19” 2u Chassis</td>
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Power Cord

<table>
<thead>
<tr>
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<th>Region</th>
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<tbody>
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<td>HMC-PC01</td>
<td>Continental Europe</td>
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<tr>
<td>HMC-PC02</td>
<td>United Kingdom</td>
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<td>South Africa / India</td>
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<td>HMC-PC11</td>
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All pricing is in U.S. Dollars and is subject to change without notice.