

## Specifications

| FREQUENCY               |                |
|-------------------------|----------------|
| <b>Range:</b>           |                |
| LS3081D:                | 9 kHz to 3GHz  |
| LS6081D:                | 9 kHz to 6GHz  |
| LS1291D:                | 9 kHz to 12GHz |
| <b>Resolution:</b>      | 0.001 Hz       |
| <b>Phase offset:</b>    | 0.01 deg       |
| <b>Switching speed:</b> |                |
| Standard:               | 500 $\mu$ s    |
| FS Option:              | 100 $\mu$ s    |

| FREQUENCY REFERENCE     |                          |
|-------------------------|--------------------------|
| <b>Temp. Stability:</b> | $\pm 25$ ppb max.        |
| <b>Aging:</b>           | $\pm 3$ ppm for 20 years |
| <b>Warm up time:</b>    | 30 min                   |

| AMPLITUDE <sup>(1)</sup>   |                  |                  |
|----------------------------|------------------|------------------|
| <b>Max output power:</b>   |                  |                  |
| Settable:                  | +20 dBm          |                  |
| Calibrated:                | +15 dBm          |                  |
| <b>Min output power:</b>   | Base             | LP Opt.          |
| Settable:                  | -30 dBm          | -100 dBm         |
| Calibrated:                | -20 dBm          | -80 dBm          |
| <b>Resolution:</b>         | 0.01 dB          |                  |
| <b>Power Mute:</b>         | -95 dBm          |                  |
| <b>Output Return Loss:</b> | -10 dBm          |                  |
| <b>Accuracy (dB):</b>      | -50dBm to +15dBm | -90dBm to -50dBm |
| Up to 100MHz:              | $\pm 0.3$ (typ.) | $\pm 0.5$ (typ.) |
| 100MHz to 3GHz:            | $\pm 0.4$ (typ.) | $\pm 0.6$ (typ.) |
| 3GHz to 9GHz:              | $\pm 0.7$ (typ.) | $\pm 0.9$ (typ.) |
| Above 9GHz:                | $\pm 1$ (typ.)   | $\pm 1.5$ (typ.) |

| PHASE NOISE (dBc/Hz)    |             |
|-------------------------|-------------|
| Measured @ 10kHz offset |             |
| <b>1 GHz:</b>           | -138 (typ.) |
| <b>2 GHz:</b>           | -133 (typ.) |
| <b>3 GHz:</b>           | -130 (typ.) |
| <b>6 GHz:</b>           | -124 (typ.) |
| <b>12 GHz:</b>          | -118 (typ.) |

| HARMONICS (dBc)           |                        |
|---------------------------|------------------------|
| <b>Up to 100 MHz:</b>     | -30 dBc                |
| <b>100 MHz to 12 GHz:</b> | -50 dBc <sup>(2)</sup> |

| SUB-HARMONICS (dBc) |         |
|---------------------|---------|
| <b>6 to 12 GHz:</b> | -55 dBm |

| NON-HARMONICS (dBc)  |  |
|----------------------|--|
| <b>Up to 12 GHz:</b> | -90dBc (typ.) <sup>(4,5)</sup><br>-60dBc max. <sup>(6)</sup> |

| MODULATION                  |                            |
|-----------------------------|----------------------------|
| <b>FREQUENCY MODULATION</b> |                            |
| <b>Maximum Deviation:</b>   | 10 MHz                     |
| Resolution:                 | 0.1% or 1 Hz (the greater) |
| <b>Modulation Rate:</b>     | 1 MHz                      |
| Resolution:                 | 1 Hz                       |

| AMPLITUDE MODULATION <sup>(6)</sup> |               |
|-------------------------------------|---------------|
| <b>AM Depth:</b>                    |               |
| Type:                               | Linear        |
| Maximum settable:                   | 90%           |
| Resolution:                         | 0.1% of depth |
| <b>Modulation rate:</b>             | DC to 100 kHz |

| PHASE MODULATION        |               |
|-------------------------|---------------|
| <b>Peak Deviation:</b>  | 360 deg       |
| <b>Modulation Rate:</b> | DC to 100 kHz |

| PULSE MODULATION (PLS OPTION)     |              |
|-----------------------------------|--------------|
| <b>On/off ratio:</b>              | 60 dB        |
| <b>Rise/fall time: (10%-90%):</b> | 15ns (typ.)  |
| <b>Resolution:</b>                | 6.4ns        |
| <b>Minimum Width:</b>             | 32ns         |
| <b>Repetition frequency:</b>      | DC to 10 MHz |

| PATTERN MODULATION (PAT OPTION) |                  |
|---------------------------------|------------------|
| <b>Number of steps:</b>         | 1 to 2048        |
| <b>Step Repetition:</b>         | 1 to 65535       |
| <b>On/off time:</b>             | 32 ns to 20 days |

| SWEEP              |                                      |
|--------------------|--------------------------------------|
| <b>Range:</b>      | Same as freq. range                  |
| <b>Modes:</b>      | Frequency step, Amplitude step, List |
| <b>Dwell time:</b> | 10 $\mu$ s to 1000 s                 |

|                          |                                |
|--------------------------|--------------------------------|
| <b>Resolution:</b>       | 1 $\mu$ s                      |
| <b>Number of points:</b> |                                |
| List:                    | 2 to 4,096                     |
| Step:                    | 2 to 65,535                    |
| <b>Step change:</b>      | Linear                         |
| <b>Trigger:</b>          | Free run, External, Bus, Timer |

| INPUTS                       |                      |
|------------------------------|----------------------|
| <b>MODULATION INPUT</b>      |                      |
| <b>Connector Type:</b>       | MMCX                 |
| <b>Input Impedance:</b>      | 50 $\Omega$          |
| <b>Max. input voltage:</b>   | $\pm 1$ V            |
| <b>Input damage level:</b>   | $\pm 3.5$ V          |
| <b>PULSE / TRIGGER INPUT</b> |                      |
| <b>Connector type:</b>       | MMCX                 |
| <b>Input Impedance:</b>      | 50 $\Omega$          |
| <b>Input voltage:</b>        | TTL, CMOS compatible |
| Threshold:                   | 1.5V                 |
| <b>Damage level:</b>         | -0.42V or 5.42V      |

| EXTERNAL REFERENCE INPUT    |                   |
|-----------------------------|-------------------|
| <b>Connector type:</b>      | SMA               |
| <b>Input Impedance:</b>     | 50 $\Omega$       |
| <b>Waveform:</b>            | Sine or Square    |
| <b>Frequency:</b>           | 10/100MHz         |
| <b>Power:</b>               | -3 dBm to +10 dBm |
| <b>Absolute Max. Level:</b> | +15 dBm           |
| <b>Locking Range:</b>       | $\pm 2$ ppm       |

| OUTPUTS                   |                   |
|---------------------------|-------------------|
| <b>RF OUT</b>             |                   |
| <b>Impedance:</b>         | 50 $\Omega$       |
| <b>Connector type:</b>    | SMA               |
| <b>Number of outputs:</b> | 1                 |
| <b>REFERENCE OUT</b>      |                   |
| <b>Impedance:</b>         | 50 $\Omega$       |
| <b>Connectors type:</b>   | 2 x SMA           |
| <b>Frequency:</b>         | 10 MHz or 100 MHz |
| <b>Shape:</b>             | Sine              |
| <b>Power:</b>             | 3 to 7 dBm        |

<sup>(1)</sup> Above 100kHz; <sup>(2)</sup> With LP Option; <sup>(3)</sup> 750MHz to 900MHz -35dBc (typ.); <sup>(4)</sup> -60dBm max. @ 1GHz, 1.5GHz, 2.5GHz and 3GHz;

<sup>(5)</sup> -75dBm max. @ -15dBm to +15dBm and f>6GHz; <sup>(6)</sup> Boundary spurs which may appear @ -100MHz to +100MHz offset from CW. <sup>(6)</sup> Specified for >100MHz.

LUCID SERIES  
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## Specifications

| GENERAL                   |                            |
|---------------------------|----------------------------|
| <b>Voltage:</b>           | +12.0 to +12.6 VDC         |
| <b>Power Consumption:</b> |                            |
| Normal Operation:         | 18W nom.                   |
| Max:                      | 24W max.                   |
| <b>Interface:</b>         | MICRO-USB, SPI             |
| <b>Dimensions:</b>        | 12 x 16 x 2.5 cm           |
| <b>Weight:</b>            |                            |
| Without Package:          | 1.0 kg                     |
| Shipping Weight:          | 1.5 kg                     |
| <b>Temperature:</b>       |                            |
| Operating:                | 0°C to +40°C               |
| Storage:                  | -40°C to +70°C             |
| <b>Warm up time:</b>      | 15 minutes                 |
| <b>Humidity:</b>          | 85% RH, non-condensing     |
| <b>Safety:</b>            | CE Marked, IEC61010-1:2010 |
| <b>EMC:</b>               | IEC 61326-1:2013           |
| <b>Calibration:</b>       | 2 years                    |
| <b>Warranty:</b>          | 3 year standard            |

| ORDERING INFORMATION |   |
|----------------------|---|
| MODEL                | DESCRIPTION                                     |
| LS3081D              | 3GHz RF Analog Signal Generator Desktop Module  |
| LS6081D              | 6GHz RF Analog Signal Generator Desktop Module  |
| LS1291D              | 12GHz RF Analog Signal Generator Desktop Module |
| OPTIONS              |   |
| LP                   | Low Power Option (-90dBc)                       |
| PLS                  | Pulse Modulation                                |
| PAT                  | Pattern Modulation                              |
| FS                   | Fast Switching                                  |

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