

FS020-10 Operating Instructions



Description

The FS020-10 is a high performance multiplying synthesizer. The 10 MHz input signal is multiplied by two to generate a 20 MHz output signal. This output signal is bandpass filtered and amplified. The FS020-10 is provided as a module and the following precautions should be observed to obtain optimum performance. The DC voltage to operate the device should be +12 VDC. The positive DC should be applied to the feed-through labeled as +12 VDC located on the left side of the multiplier; the VDC GND should be connected to the ground pin. **The input signal level must be greater than +11 dBm**, please contact SDI if the signal level is lower than 11 dBm, otherwise the multiplier will not function properly and noise performance will be seriously degraded. The multiplying synthesizer is not a linear device therefore the output power does not vary linearly with input power. The absolute maximum specifications should be observed to obtain the optimum performance and ensure reliability.

Absolute Maximum Ratings

Input power: +16 dBm Maximum

Reverse Power: +20 dBm Maximum

Do not apply DC voltage on the input!

Output DC Voltage: 50 VDC Maximum

DC Supply Voltage: +15 VDC Maximum

Storage Temperature: -10 to +75 °C

Operation Environment: 0 to +50 °C



FS020-10 Specifications

| PARAMETER | CONDITIONS | MIN | TYP | MAX | UNITS |
|--|----------------|-----|------|------|--------|
| Output power | +13 dBm input | +11 | +13 | +15 | dBm |
| Impedance | Input | - | 50 | - | Ohms |
| | Output | - | 50 | - | |
| Return loss | Input (S11) | - | -15 | - | dB |
| | Output (S22) | - | -15 | - | |
| Spurious | | - | -50 | -45 | dBc |
| Harmonic distortion | +15 dBm output | - | -50 | -45 | dBc |
| Phase noise referred to 5 MHz input | 1 Hz | - | -143 | -140 | dBc/Hz |
| | 1 kHz | - | -170 | -167 | |
| | 10 kHz | - | -176 | -174 | |
| Temperature-delay coefficient | 0 - 50 °C | - | 45 | 50 | ps/°C |

Warranty

The FS020-10 is warranted to be free of defects under normal operating conditions, as specified, for one year from date of original shipment from SpectraDynamics, Inc (SDI). SDI's obligation and liability under this warranty is expressly limited to repairing or replacing, at SDI's option, any product not meeting the said specifications. This warranty shall be in effect for one (1) year from the date an FS020-10 is sold by SDI. SDI makes no other warranty, express or implied, and makes no warranty of the fitness for any particular purpose. SDI's obligation under this warranty shall not include any transportation charges or costs of installation or any liability for direct, indirect, or consequential damages or delay. Any improper use, operation beyond capacity, substitution of parts not approved by SDI, or any alteration or repair by others in such manner as in SDI's reasonable judgment affects the product materially and adversely shall void this warranty. No employee or representative of SDI is authorized to change this warranty in any way or grant any other warranty