

Typical Applications

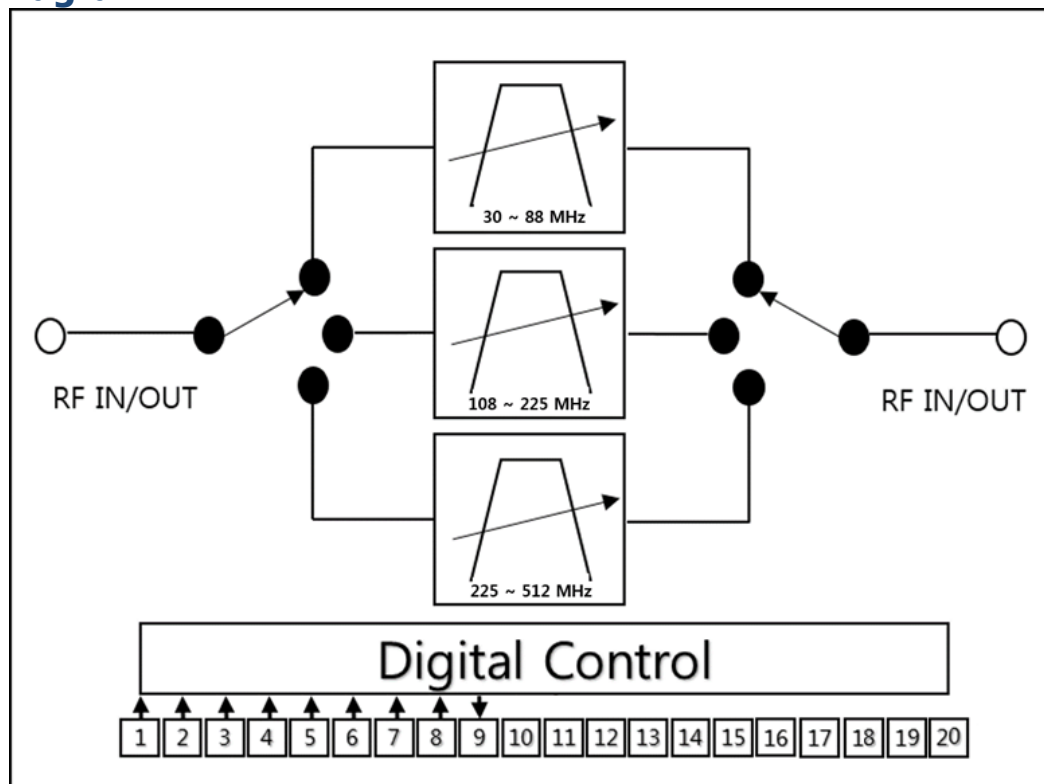
- Military Tactical Radios
- Military Radar
- Test and Measurement Equipment
- Industrial and Medical Equipment

Features

- 5 Watt CW power handling
- 5.5 dB typ. IL and 6.5 typ. Shape factor



Functional Diagram

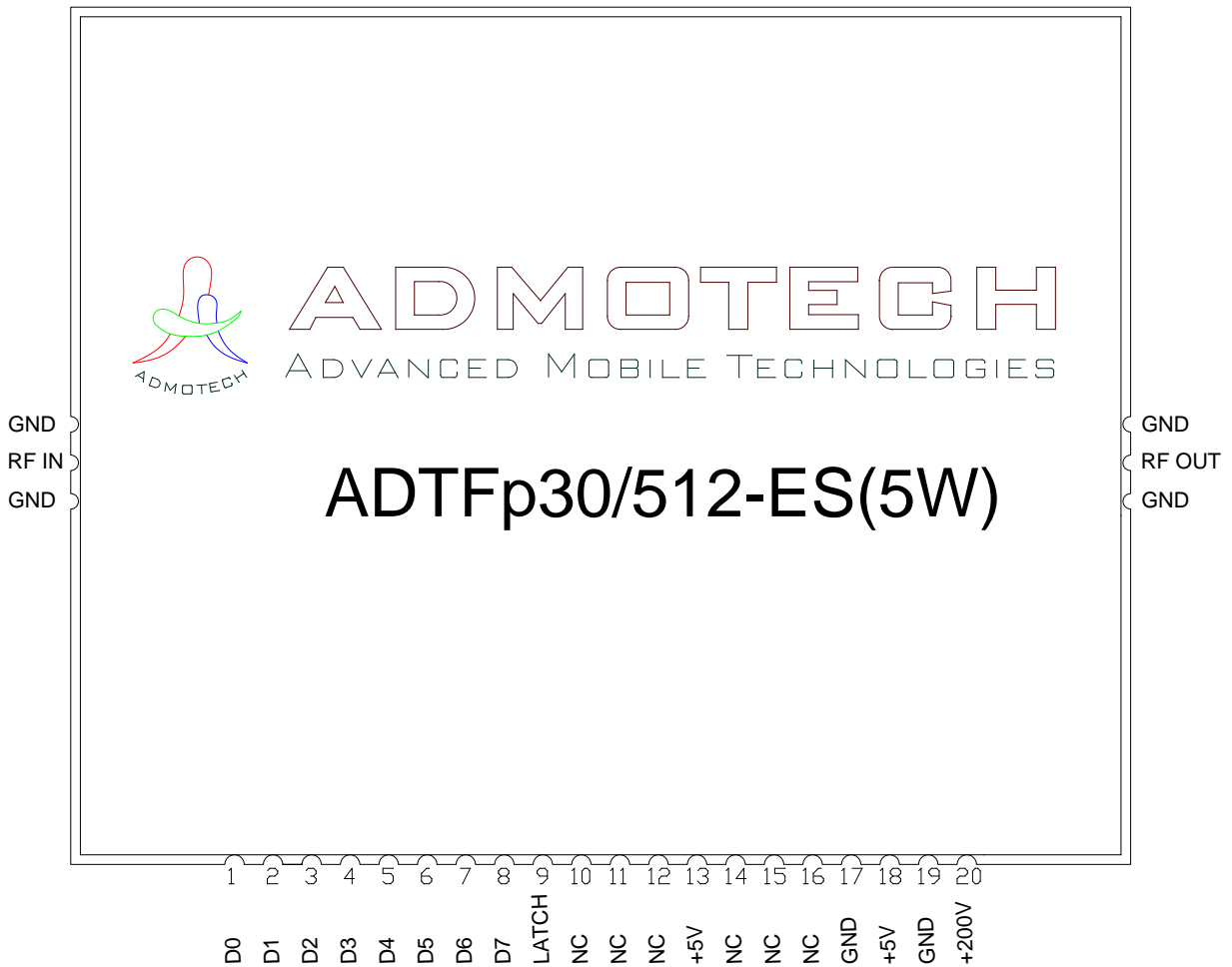


Discription

- ADTFp 30/520-XX-S is a low-cost, miniature, high performance tunable band pass filter. The ADTFp uses PIN diodes to deliver high filter performance and parallel interface is available to tune the frequency. All ADTFp tunable filters are fully tuned and tested by ADMOTECH for convenience and ease of use.

1.0 Pinout and Functional Information

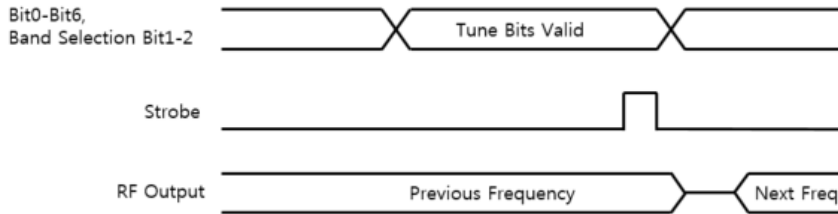
1.1 Pin out



1.2 Pin Description

| Pin Number | Label | Description |
|------------|-------|---|
| 1 | D0 | Parallel Data Bit0, Tune Command |
| 2 | D1 | Parallel Data Bit1, Tune Command |
| 3 | D2 | Parallel Data Bit2, Tune Command |
| 4 | D3 | Parallel Data Bit3, Tune Command |
| 5 | D4 | Parallel Data Bit4, Tune Command |
| 6 | D5 | Parallel Data Bit5, Tune Command |
| 7 | D6 | Tunable Filter is an internally switched 3-band. The band can be selected in Band selection bit D6, D7. |
| 8 | D7 | Tunable Filter is an internally switched 3-band. The band can be selected in Band selection bit D6, D7. |
| 9 | LATCH | The filter is tuned to the frequency designated by the tune word existing on the eight control bit lines when the Strobe line is brought low. Once strobed, data existing on the tune control lines is ignored until strobed again. |
| 10 | N/C | Enable or N/C |
| 11 | N/C | Enable or N/C |
| 12 | N/C | Enable or N/C |
| 13 | Vdd | Supply Voltage Input : +5 VDC for optimum performance |
| 14 | N/C | Enable or N/C |
| 15 | N/C | Enable or N/C |
| 16 | N/C | Enable or N/C |
| 17 | GND | Digital and Analog GND |
| 18 | Vdd | Supply Voltage Input : +5 VDC for optimum performance |
| 19 | GND | Digital and Analog GND |
| 20 | Vss | High Bias Supply Voltage Input : +200 VDC for optimum performance |

1.3 Parallel Interface Timing



The filter is tuned to the frequency designated by the tuneword existing on the eight control bit lines when the Strobe line is brought low. Once strobed, data existing on the tune control lines is ignored until strobed again. When strobe is set, frequency changes to the next frequency.

1.4 Control Bit (Ex.)

| CONTROL BIT | D7 | D6 | D5 | D4 | D3 | D2 | D1 | D0 | Fc(MHz) |
|-------------|-----|----|----|----|----|----|----|----|---------|
| CH | 128 | 64 | 32 | 16 | 8 | 4 | 2 | 1 | |
| CH1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 |
| CH2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 30.1 |
| CH3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 30.2 |
| CH4 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 30.4 |
| . | | | | | | | | | . |
| . | | | | | | | | | . |
| . | | | | | | | | | . |
| CH128 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 88 |
| CH129 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 108 |
| . | | | | | | | | | . |
| . | | | | | | | | | . |
| . | | | | | | | | | . |
| CH192 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 225 |
| CH193 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 226 |
| . | | | | | | | | | . |
| . | | | | | | | | | . |
| . | | | | | | | | | . |
| CH256 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 512 |

2.0 Specifications

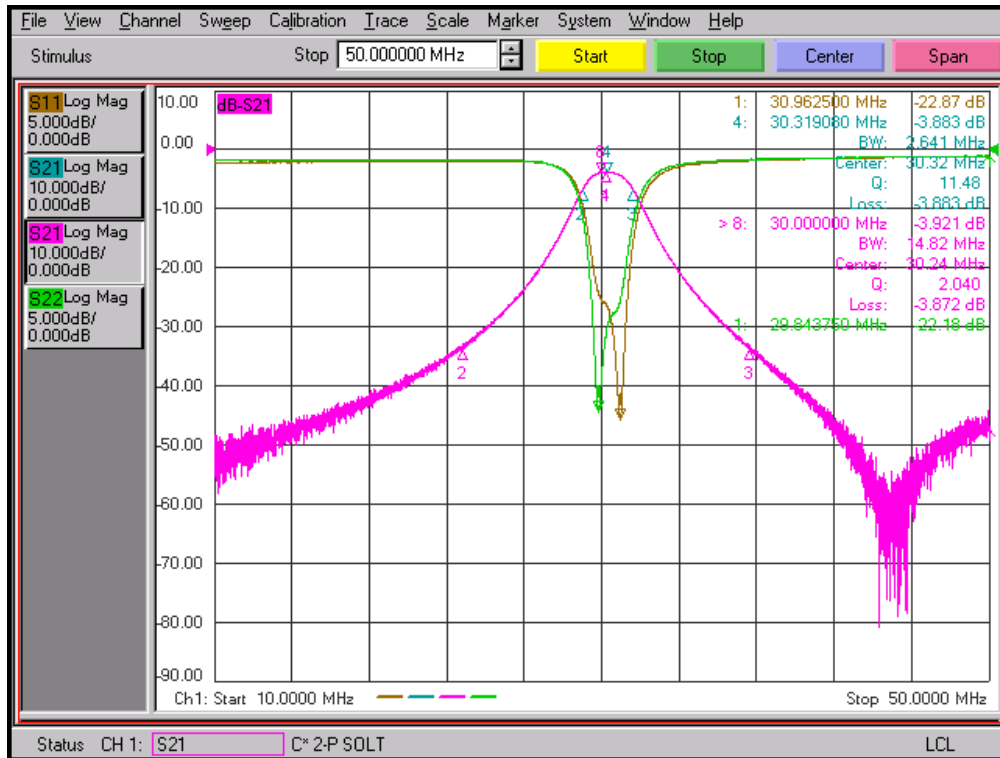
2.1 Electrical Specifications

| Frequency Coverage: | 30 – 88 MHz Band I | 108-225 MHz Band II | 225 – 512 MHz Band III |
|---------------------------|-----------------------------|---------------------------|---------------------------|
| Input/Output Impedance: | 50 Ω | 50 Ω | 50 Ω |
| Inband Input/Output VSWR: | 2.0:1 max | 2.0:1 max | 2.0:1 max |
| Insertion Loss: | 3.8 dB typ. 4.0 dB max | 3.2 dB typ. 3.5 dB max | 4.0 dB typ. 5.0 dB max |
| 1 dB Bandwidth: | 1 MHz min | 8 MHz min | 8 MHz min |
| Selectivity: | >14 dB@ \pm 10 MHz offset | - | - |
| % BW(3dB BW/fo) | 10.0 % typ. | 14.0 % typ. | 9.0 % typ. |
| Ultimate Attenuation: | 50 dB typ. @ 2 x fo | 50 dB typ. @ 2 x fo | 50 dB typ. @ 2 x fo |
| Shape Factor (30dB/3dB): | 7.0 typ. | 7.0 typ. | 7.0 typ. |

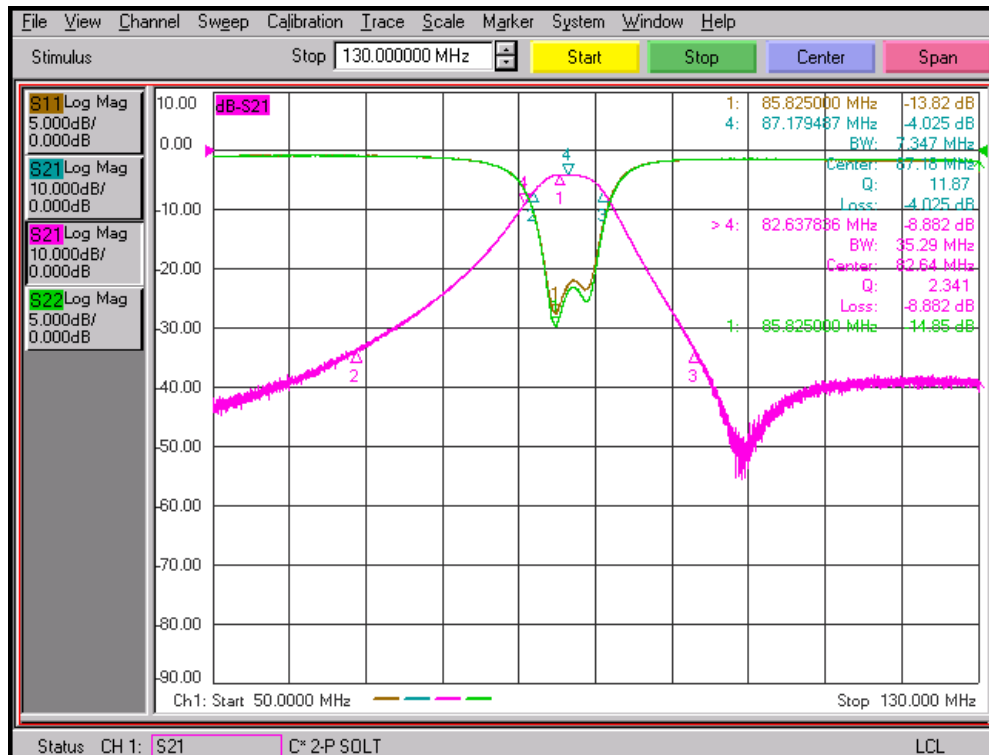
| | |
|---|---|
| Maximum RF input Power for for linear operation | 37 dBm |
| Out of Band RF Power Handling: | 40 dBm |
| Tuning Control: | Parallel (Option: Series) |
| DC Power (Static) | +5.0 V _{DC} @ 500 mA max +200 V _{DC} @ 20 mA max |
| Operating Temperature Range: | -40 to +85 °C |

2.2 Typical Characteristics

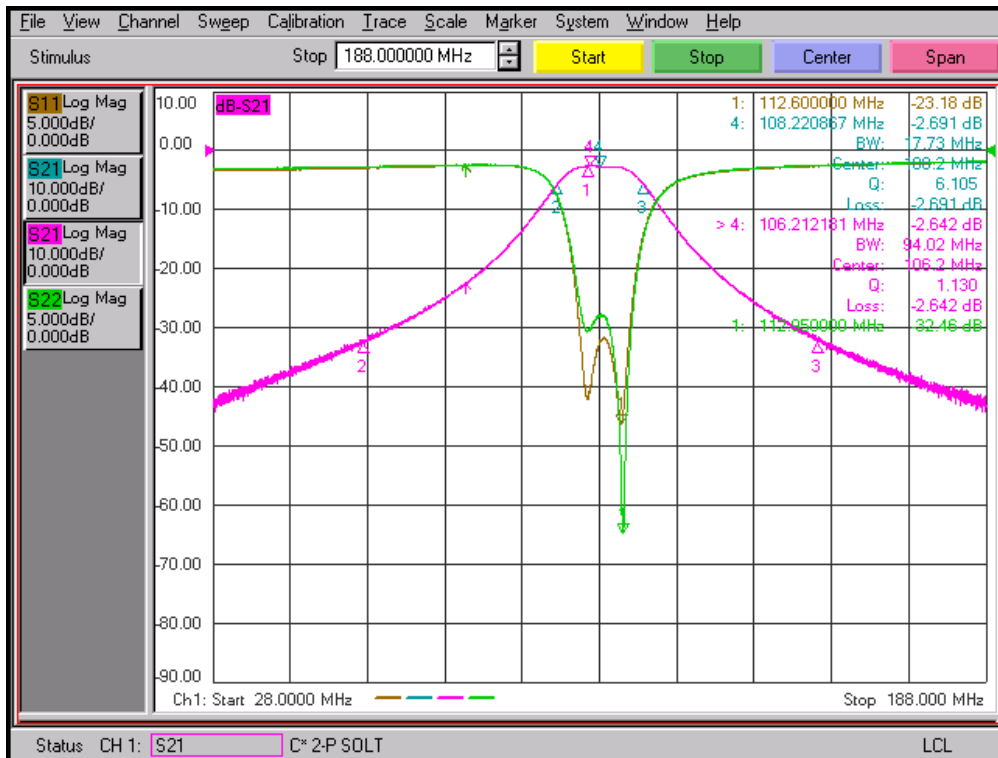
fo : 30 MHz



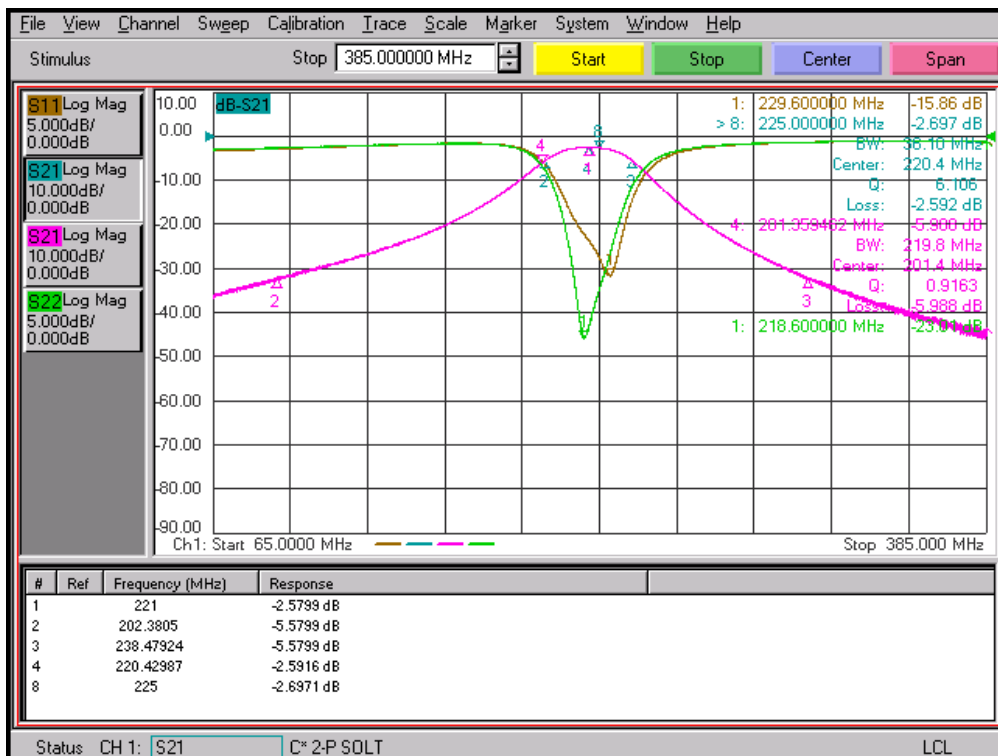
fo : 88 MHz



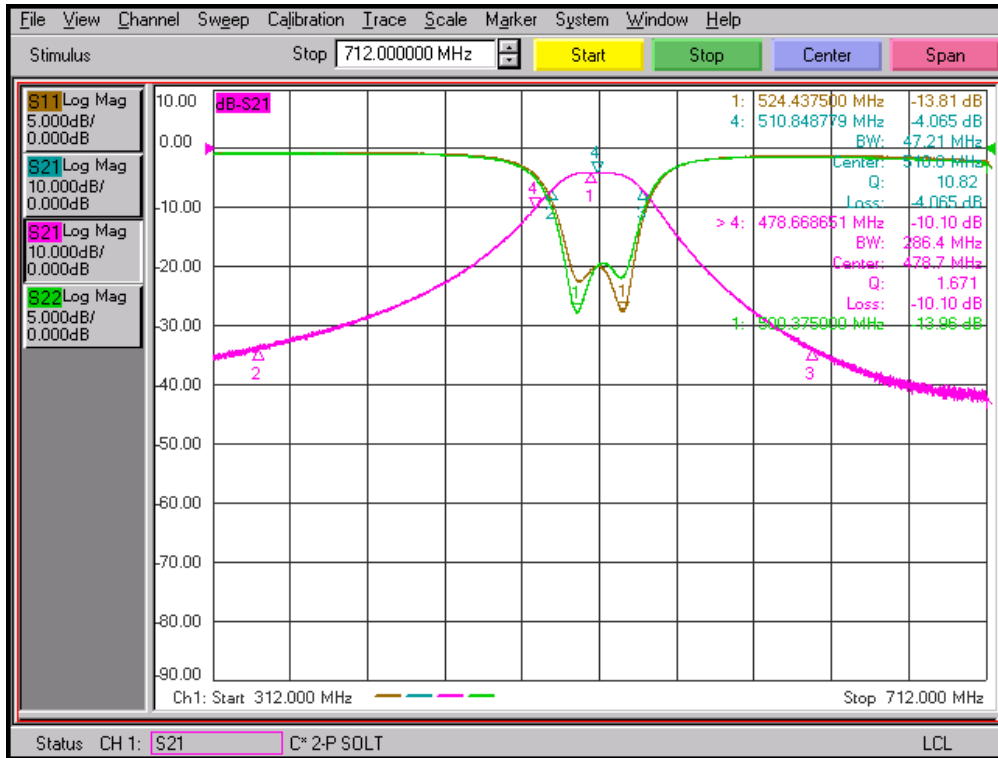
fo : 108 MHz



fo : 225 MHz

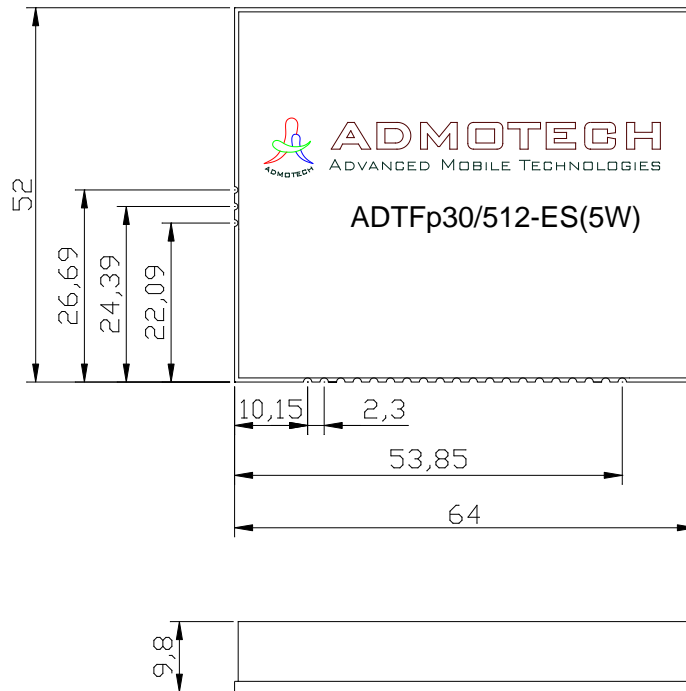


fo : 512 MHz



2.3 Mechanical Drawings

2.3.1. Dimension



2.3.2. Land Pattern

Recommend Land Pattern

