## The Big Deal

- Low Insertion loss, 0.4 dB typical
- 1W Power Handling
- DC Passing up to of 350 mA
- SMA-F (50 ) to F-Type-M (75 $)$


## Product Overview

Mini-Circuits' SFMP-5075+ is a coaxial $50 / 75 \Omega$ matching transformer covering the DC to 2500 MHz frequency range, supporting impedance matching in a wide range of systems including CATV, broadband networks, and more. This model is ideal for $50 / 75 \Omega$ impedance matching in systems where minimizing overall signal loss is a priority. The transformer handles RF input power up to 1 W and is capable of passing DC current up to 350 mA . Measuring only 2.22 (I) x 0.67 " (dia.), the transformer comes housed in a rugged, nickel-plated brass case with SMA-F (50 ) to F-Type-M (75 ) connectors.

Key Features

| Feature |  |
| :--- | :--- |
| Wideband, DC to 2500 MHz | Supports a wide variety of applications including CATV and DOCSIS® 3.1 systems and equipment. |
| Low insertion loss, 0.4 dB | Enables excellent signal power transmission from input to output, minimizing overall system losses. |
| 1W power handling | Supports a range of system power requirements. |
| DC Passing up to 350 mA | Supports applications where DC passing is needed through the RF line. |
| Compact size, 2.2 (I) x 0.67" (dia.) | Accommodates tight space requirements for crowded system layouts. |
| SMA-F (50®) to F-Type-M connec- <br> tors | Supports connections between components with different connector types. |

Notes
A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled . The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled
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| Maximum Ratings |  |
| :--- | ---: |
| Operating Temperature | $-40^{\circ} \mathrm{C}$ to $85^{\circ} \mathrm{C}$ |
| Storage Temperature | $-55^{\circ} \mathrm{C}$ to $100^{\circ} \mathrm{C}$ |
| $D C$ Current | 350 mA max. |
| DC Resistance | $0.08 \Omega$ max. |
| Permanent damage may occurif any of these limits are exceeded. |  |

Permanent damage may occur if any of these limits are exceeded.

## Coaxial Connections

| Input | SMA-Female |
| :--- | ---: |
| Output | F-Male |



Outline Dimensions $\binom{$ (inch }{mm}

| A | B | C | D | E | Wt. |
| :--- | ---: | ---: | ---: | ---: | ---: |
| -- | .67 | -- | 2.22 | -- | grams |
| -- | 17.02 | -- | 56.39 | -- | 35 |

Features

- Low matching loss of 0.4 dB typical
- Wideband coverage, DC-2500MHz
- Connectorized package


## Applications

- Impedance matching
- General Wireless Communications

Electrical Specifications at $25^{\circ} \mathrm{C}$

| Parameter | Frequency (MHz) | Min. | Typ. | Max. | Unit |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Frequency Range | - | DC | - | 2500 | MHz |
| Insertion Loss | 10 | - | - | 1.0 |  |
|  | $950-2500$ | - | 0.4 | 1.2 | dB |
| Power | 10 | - | - | 1.8 | $: 1$ |

Typical Performance Data

| Frequency <br> (MHz) | Insertion Loss <br> (dB) | VSWR |  |
| :---: | :---: | :---: | :---: |
|  |  | $50 \Omega$ | $\mathbf{7 5 \Omega}$ |
|  |  |  |  |
| 50 | 0.01 | 1.50 |  |
| 100 | 0.03 | 1.50 | 1.50 |
| 250 | 0.07 | 1.50 | 1.49 |
| 500 | 0.19 | 1.47 | 1.48 |
| 950 | 0.32 | 1.21 | 1.36 |
| 1000 | 0.17 | 1.20 | 1.16 |
| 1950 | 0.17 | 1.45 | 1.16 |
| 2300 | 0.26 | 1.37 | 1.38 |
| 2500 | 0.38 | 1.27 | 1.33 |
|  | 0.40 |  | 1.27 |

## Config. D



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## Typical Performance Data

| FREQ. | INSERTION LOSS | INPUT RETURN LOSS (50@) | OUTPUT RETURN LOSS (75 ) |
| :---: | :---: | :---: | :---: |
| (MHz) | (dB) | (dB) | (dB) |
| 1.00 | 0.00 | 14.05 | 13.97 |
| 10.00 | 0.01 | 14.02 | 14.00 |
| 50.00 | 0.03 | 13.98 | 14.12 |
| 100.00 | 0.07 | 14.00 | 14.24 |
| 125.00 | 0.09 | 14.03 | 14.29 |
| 150.00 | 0.10 | 14.07 | 14.36 |
| 175.00 | 0.13 | 14.13 | 14.45 |
| 200.00 | 0.15 | 14.19 | 14.56 |
| 225.00 | 0.17 | 14.27 | 14.66 |
| 250.00 | 0.19 | 14.37 | 14.77 |
| 300.00 | 0.23 | 14.61 | 14.95 |
| 325.00 | 0.25 | 14.75 | 15.06 |
| 350.00 | 0.26 | 14.90 | 15.21 |
| 400.00 | 0.29 | 15.23 | 15.54 |
| 425.00 | 0.30 | 15.42 | 15.71 |
| 450.00 | 0.31 | 15.62 | 15.88 |
| 475.00 | 0.31 | 15.82 | 16.07 |
| 500.00 | 0.32 | 16.04 | 16.29 |
| 525.00 | 0.32 | 16.27 | 16.53 |
| 550.00 | 0.32 | 16.51 | 16.79 |
| 575.00 | 0.31 | 16.76 | 17.04 |
| 600.00 | 0.31 | 17.02 | 17.31 |
| 625.00 | 0.30 | 17.27 | 17.62 |
| 650.00 | 0.29 | 17.53 | 17.97 |
| 675.00 | 0.28 | 17.80 | 18.34 |
| 700.00 | 0.27 | 18.07 | 18.72 |
| 725.00 | 0.26 | 18.35 | 19.09 |
| 750.00 | 0.24 | 18.62 | 19.46 |
| 775.00 | 0.23 | 18.89 | 19.85 |
| 800.00 | 0.22 | 19.16 | 20.27 |
| 825.00 | 0.21 | 19.42 | 20.73 |
| 850.00 | 0.20 | 19.67 | 21.13 |
| 875.00 | 0.19 | 19.91 | 21.50 |
| 900.00 | 0.18 | 20.12 | 21.82 |
| 925.00 | 0.17 | 20.31 | 22.09 |
| 950.00 | 0.17 | 20.49 | 22.36 |
| 975.00 | 0.17 | 20.65 | 22.57 |
| 1000.00 | 0.17 | 20.77 | 22.65 |
| 1025.00 | 0.17 | 20.85 | 22.56 |
| 1050.00 | 0.17 | 20.88 | 22.37 |
| 1100.00 | 0.18 | 20.84 | 21.89 |
| 1150.00 | 0.19 | 20.69 | 21.17 |
| 1200.00 | 0.21 | 20.38 | 20.35 |
| 1250.00 | 0.23 | 19.96 | 19.67 |
| 1300.00 | 0.25 | 19.49 | 18.98 |
| 1350.00 | 0.26 | 18.96 | 18.36 |
| 1400.00 | 0.27 | 18.42 | 17.89 |
| 1450.00 | 0.27 | 17.88 | 17.43 |
| 1500.00 | 0.27 | 17.34 | 17.04 |
| 1600.00 | 0.26 | 16.41 | 16.49 |
| 1700.00 | 0.24 | 15.65 | 16.13 |
| 1800.00 | 0.24 | 15.13 | 15.93 |
| 1900.00 | 0.24 | 14.84 | 15.88 |
| 2000.00 | 0.27 | 14.84 | 15.93 |
| 2050.00 | 0.29 | 14.90 | 16.02 |
| 2100.00 | 0.31 | 15.02 | 16.16 |
| 2150.00 | 0.33 | 15.23 | 16.27 |
| 2200.00 | 0.35 | 15.51 | 16.45 |
| 2250.00 | 0.37 | 15.83 | 16.74 |
| 2300.00 | 0.38 | 16.23 | 17.01 |

## Typical Performance Curves



## Case Style

## Outline Dimensions

FF1891


Dimensions are in inches (mm). Tolerances: 2Pl. $\pm .03$; 3Pl. $\pm .015$

Notes:

1. Case material: Brass.
2. Case finish: Nickel plate.

## $\square$ Mini-Circuits

All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

| Specification | Test/Inspection Condition | Reference/Spec |
| :---: | :---: | :---: |
| Operating Temperature | $-55^{\circ} \text { to } 100^{\circ} \mathrm{C}$ <br> Ambient Environment | Individual Model Data Sheet |
| Storage Temperature | $-55^{\circ} \text { to } 100^{\circ} \mathrm{C}$ <br> Ambient Environment | Individual Model Data Sheet |
| Barometric Pressure | 100,000 Feet | MIL-STD-202, Method 105, Condition D |
| Humidity | $90 \% \mathrm{RH}, 65^{\circ} \mathrm{C}$ <br> Units may require bake-out after humidity to restore full performance. | MIL-STD-202, Method 103 |
| Thermal Shock | $-65^{\circ}$ to $125^{\circ} \mathrm{C}, 5$ cycles | MIL-STD-202, Method 107, Condition B |
| Vibration (High Frequency) | 20 g peak, $10-2000 \mathrm{~Hz}, 12$ times in each of three perpendicular directions (total 36) | MIL-STD-202, Method 204, Condition D |
| Mechanical Shock | $100 \mathrm{~g}, 6 \mathrm{~ms}$ sawtooth, 3 shocks each direction 3 axes (total 18) | MIL-STD-202, Method 213, Condition I |
| ENV28 Rev: B 09/26/13 M143494 File: ENV28.pdf |  |  |
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