

Power Splitter/Combiner

ZAPD-20+

2 Way-0° 50Ω 700 to 2000 MHz

Maximum Ratings

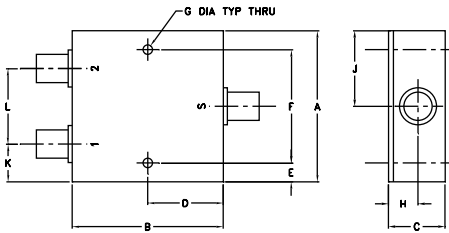
| | |
|-----------------------------|------------------------------|
| Operating Temperature | -55°C to 100°C |
| Storage Temperature | -55°C to 100°C |
| Power Input (as a splitter) | 10W max. |
| Internal Dissipation | 0.125W max. |
| DC Current | 500 mA (250mA for each port) |

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

Coaxial Connections

| | |
|----------|---|
| SUM PORT | S |
| PORT 1 | 1 |
| PORT 2 | 2 |

Outline Drawing



Outline Dimensions (inch/mm)

| | | | | | | |
|-------|-------|-------|-------|------|-------|-------|
| A | B | C | D | E | F | G |
| 2.00 | 2.00 | .75 | 1.00 | .13 | 1.750 | .125 |
| 50.80 | 50.80 | 19.05 | 25.40 | 3.30 | 44.45 | 3.18 |
| H | J | K | L | | | wt |
| .39 | 1.00 | .50 | 1.00 | | | grams |
| 9.91 | 25.40 | 12.70 | 25.40 | | | 170.0 |

Features

- wideband, 700 to 2000 MHz
- low insertion loss, 0.3 dB typ.
- high isolation, 30 dB typ.
- up to 10W power input as splitter
- excellent amplitude unbalance, 0.1 dB typ.
- excellent phase unbalance, 1 deg. typ.
- excellent VSWR, 1.1:1 typ.
- rugged shielded case

Applications

- cellular
- GPS
- PCS/DCS
- instrumentation

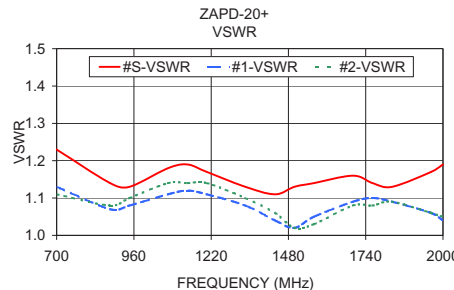
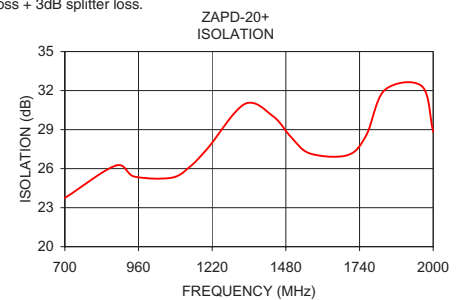
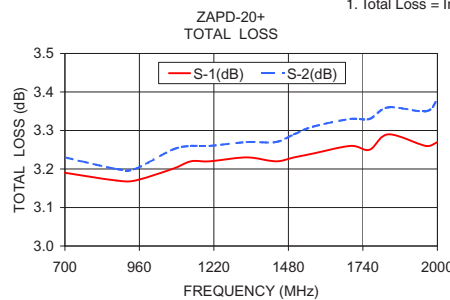
Electrical Specifications

| FREQ. RANGE (MHz) | ISOLATION (dB) | | INSERTION LOSS (dB) ABOVE 3.0 dB | | PHASE UNBALANCE (Degrees) | AMPLITUDE UNBALANCE (dB) | VSWR (:1) | |
|--------------------------------|----------------|------|----------------------------------|------|---------------------------|--------------------------|-----------|---------------|
| | Typ. | Min. | Typ. | Max. | Max. | Max. | S Typ. | OUT Typ. Max. |
| f _L -f _H | | | | | | | | |
| 700-2000 | 30 | 20 | 0.3 | 0.7 | 3 | 0.4 | 1.15 | 1.35 1.1 1.3 |

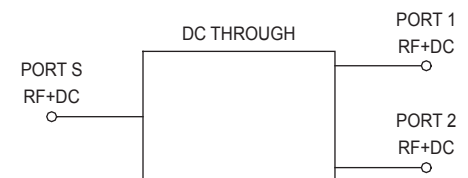
Typical Performance Data

| Frequency (MHz) | Total Loss ¹ (dB) | | Amplitude Unbalance (dB) | Isolation (dB) | Phase Unbalance (deg.) | VSWR S | VSWR 1 | VSWR 2 |
|-----------------|------------------------------|------|--------------------------|----------------|------------------------|--------|--------|--------|
| | S-1 | S-2 | | | | | | |
| 700.00 | 3.19 | 3.23 | 0.04 | 23.74 | 0.29 | 1.23 | 1.13 | 1.11 |
| 880.00 | 3.17 | 3.20 | 0.04 | 26.24 | 0.50 | 1.14 | 1.07 | 1.08 |
| 945.00 | 3.17 | 3.20 | 0.03 | 25.39 | 0.54 | 1.13 | 1.08 | 1.10 |
| 1075.00 | 3.20 | 3.25 | 0.05 | 25.29 | 0.59 | 1.18 | 1.11 | 1.14 |
| 1140.00 | 3.22 | 3.26 | 0.04 | 26.12 | 0.61 | 1.19 | 1.12 | 1.14 |
| 1205.00 | 3.22 | 3.26 | 0.04 | 27.59 | 0.60 | 1.17 | 1.11 | 1.14 |
| 1335.00 | 3.23 | 3.27 | 0.04 | 30.97 | 0.64 | 1.13 | 1.08 | 1.10 |
| 1435.00 | 3.22 | 3.27 | 0.04 | 30.03 | 0.53 | 1.11 | 1.04 | 1.06 |
| 1500.00 | 3.23 | 3.29 | 0.05 | 28.39 | 0.51 | 1.13 | 1.02 | 1.02 |
| 1566.00 | 3.24 | 3.31 | 0.06 | 27.16 | 0.66 | 1.14 | 1.05 | 1.03 |
| 1697.00 | 3.26 | 3.33 | 0.07 | 27.03 | 0.71 | 1.16 | 1.09 | 1.08 |
| 1763.12 | 3.25 | 3.33 | 0.08 | 28.54 | 0.69 | 1.14 | 1.10 | 1.08 |
| 1828.75 | 3.29 | 3.36 | 0.07 | 32.04 | 0.78 | 1.13 | 1.09 | 1.09 |
| 1960.00 | 3.26 | 3.35 | 0.09 | 32.34 | 0.94 | 1.17 | 1.06 | 1.06 |
| 2000.00 | 3.27 | 3.38 | 0.10 | 28.83 | 0.83 | 1.19 | 1.04 | 1.05 |

1. Total Loss = Insertion Loss + 3dB splitter loss.



electrical schematic



Notes

- 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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
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N-Type version shown

CASE STYLE: F53

| Connectors | Model |
|------------|------------|
| N-TYPE | ZAPD-20-N+ |
| SMA | ZAPD-20-S+ |

+RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

2 Way-0° Power Splitter/Combiner

ZAPD-20+

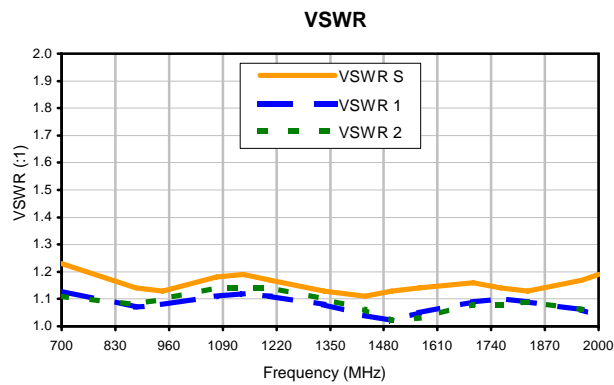
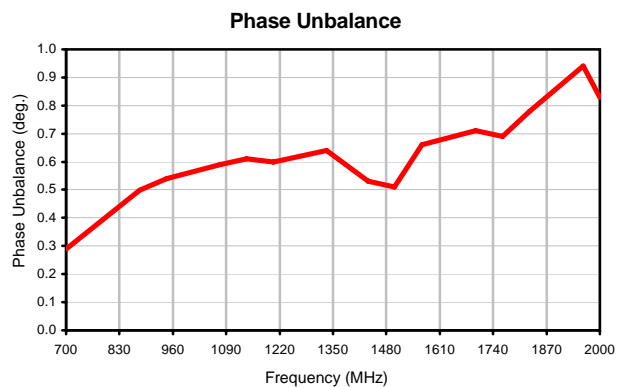
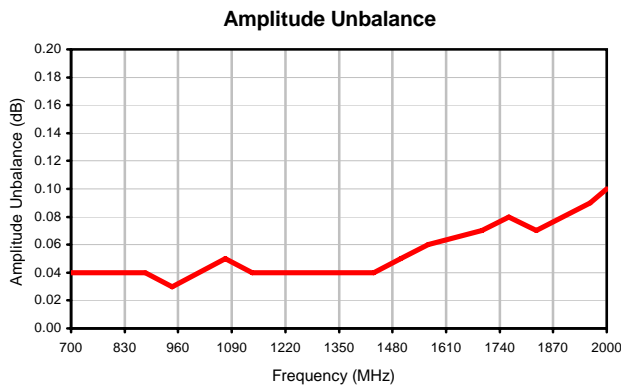
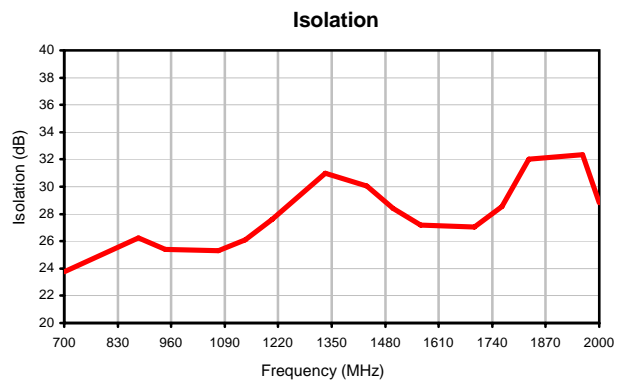
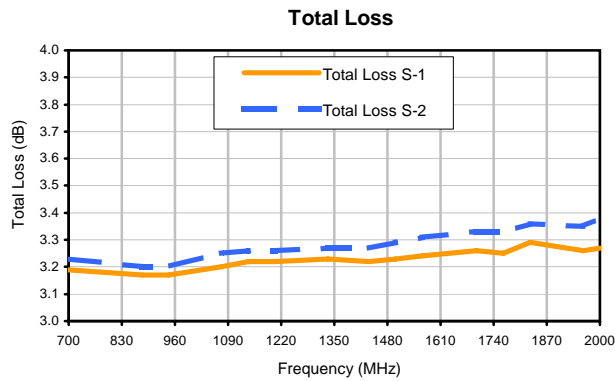
Typical Performance Data

| FREQUENCY (MHz) | TOTAL LOSS ¹ (dB) | | AMPLITUDE UNBALANCE (dB) | ISOLATION (dB) | PHASE UNBALANCE (deg.) | FREQUENCY (MHz) | VSWR (:1) | | |
|--------------------|---------------------------------|------|--------------------------------|-------------------|------------------------------|--------------------|--------------|------|------|
| | S-1 | S-2 | | | | | S | 1 | 2 |
| 700.0 | 3.19 | 3.23 | 0.04 | 23.74 | 0.29 | 700.0 | 1.23 | 1.13 | 1.11 |
| 880.0 | 3.17 | 3.20 | 0.04 | 26.24 | 0.50 | 880.0 | 1.14 | 1.07 | 1.08 |
| 945.0 | 3.17 | 3.20 | 0.03 | 25.39 | 0.54 | 945.0 | 1.13 | 1.08 | 1.10 |
| 1075.0 | 3.20 | 3.25 | 0.05 | 25.29 | 0.59 | 1075.0 | 1.18 | 1.11 | 1.14 |
| 1140.0 | 3.22 | 3.26 | 0.04 | 26.12 | 0.61 | 1140.0 | 1.19 | 1.12 | 1.14 |
| 1205.0 | 3.22 | 3.26 | 0.04 | 27.59 | 0.60 | 1205.0 | 1.17 | 1.11 | 1.14 |
| 1335.0 | 3.23 | 3.27 | 0.04 | 30.97 | 0.64 | 1335.0 | 1.13 | 1.08 | 1.10 |
| 1435.0 | 3.22 | 3.27 | 0.04 | 30.03 | 0.53 | 1435.0 | 1.11 | 1.04 | 1.06 |
| 1500.0 | 3.23 | 3.29 | 0.05 | 28.39 | 0.51 | 1500.0 | 1.13 | 1.02 | 1.02 |
| 1566.0 | 3.24 | 3.31 | 0.06 | 27.16 | 0.66 | 1566.0 | 1.14 | 1.05 | 1.03 |
| 1697.0 | 3.26 | 3.33 | 0.07 | 27.03 | 0.71 | 1697.0 | 1.16 | 1.09 | 1.08 |
| 1763.1 | 3.25 | 3.33 | 0.08 | 28.54 | 0.69 | 1763.1 | 1.14 | 1.10 | 1.08 |
| 1828.8 | 3.29 | 3.36 | 0.07 | 32.04 | 0.78 | 1828.8 | 1.13 | 1.09 | 1.09 |
| 1960.0 | 3.26 | 3.35 | 0.09 | 32.34 | 0.94 | 1960.0 | 1.17 | 1.06 | 1.06 |
| 2000.0 | 3.27 | 3.38 | 0.10 | 28.83 | 0.83 | 2000.0 | 1.19 | 1.04 | 1.05 |

¹Total Loss = Insertion Loss + 3dB Splitter Loss



Typical Performance Curves

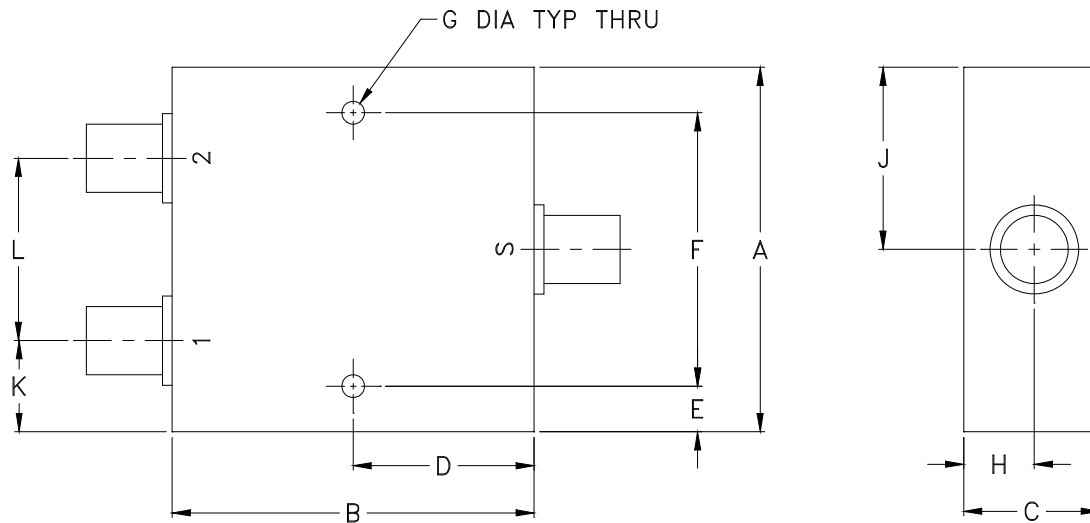


Case Style

F

Outline Dimensions

F53



| CASE # | A | B | C | D | E | F | G | H | J | K | L | WT. GRAM |
|--------|-----------------|-----------------|----------------|-----------------|---------------|------------------|----------------|---------------|-----------------|----------------|-----------------|----------|
| F53 | 2.00 (50.80) | 2.00 (50.80) | .75 (19.05) | 1.00 (25.40) | .13 (3.30) | 1.750 (44.45) | .125 (3.18) | .39 (9.91) | 1.00 (25.40) | .50 (12.70) | 1.00 (25.40) | 170.0 |

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

Notes:

- Case material: Aluminum alloy.
- Case finish:
For RoHS Case Styles: Clear chemical conversion coating, non-chrome or trivalent chrome based.
- Refer to the individual model data sheet for the type of connectors available.

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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° to 100°C Ambient Environment | Individual Model Data Sheet |
| Storage Temperature | -55° to 100° C Ambient Environment | Individual Model Data Sheet |
| Barometric Pressure | 100,000 Feet | MIL-STD-202, Method 105, Condition D |
| Humidity | 90% RH, 65°C Units may require bake-out after humidity to restore full performance. | MIL-STD-202, Method 103 |
| Thermal Shock | -65° to 125°C, 5 cycles | MIL-STD-202, Method 107, Condition B |
| Vibration (High Frequency) | 20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36) | MIL-STD-202, Method 204, Condition D |
| Mechanical Shock | 100g, 6ms sawtooth, 3 shocks each direction 3 axes (total 18) | MIL-STD-202, Method 213, Condition I |