

Coaxial

Power Splitter/Combiner

ZFSC-2-1+

2 Way-0° 50Ω 5 to 500 MHz



Generic photo used for illustration purposes only
CASE STYLE: K18

Maximum Ratings

| | |
|-----------------------------|----------------|
| Operating Temperature | -55°C to 100°C |
| Storage Temperature | -55°C to 100°C |
| Power Input (as a splitter) | 1W max. |
| Internal Dissipation | 0.125W max. |

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

Coaxial Connections

| | |
|----------|---|
| SUM PORT | 3 |
| PORT 1 | 1 |
| PORT 2 | 2 |

Features

- wideband, 5 to 500 MHz
- low insertion loss, 0.3 dB typ.
- excellent isolation, 28 dB typ.
- excellent amplitude unbalance, 0.1 dB typ.
- good VSWR, 1.2:1 typ.
- rugged shielded case

Applications

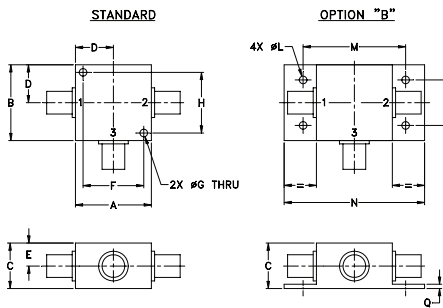
- VHF/UHF
- instrumentation
- communication systems

| Connectors | Model |
|-----------------------------|-------------|
| BNC | ZFSC-2-1+ |
| SMA | ZFSC-2-1-S+ |
| N-TYPE | ZFSC-2-1-N+ |
| BRACKET (OPTION "B") | |

+RoHS Compliant

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

Outline Drawing



Outline Dimensions (inch/mm)

| A | B | C | D | E | F | G | H |
|-------|-------|-------|-------|------|-------|------|-------|
| 1.25 | 1.25 | .75 | .63 | .38 | 1.00 | .125 | 1.000 |
| 31.75 | 31.75 | 19.05 | 16.00 | 9.65 | 25.40 | 3.18 | 25.40 |

| J | K | L | M | N | P | Q | wt |
|----|----|------|-------|-------|-------|------|-------|
| -- | -- | .125 | 1.688 | 2.18 | .75 | .07 | grams |
| -- | -- | 3.18 | 42.88 | 55.37 | 19.05 | 1.78 | 70.0 |

For option B with N-type connectors, dimension "C" increases to 0.94 inches.

Electrical Specifications

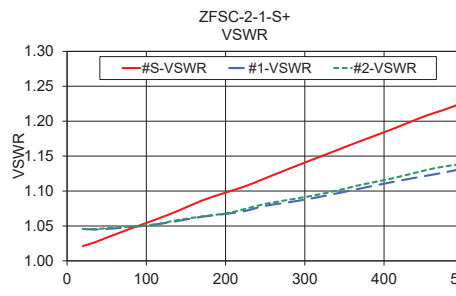
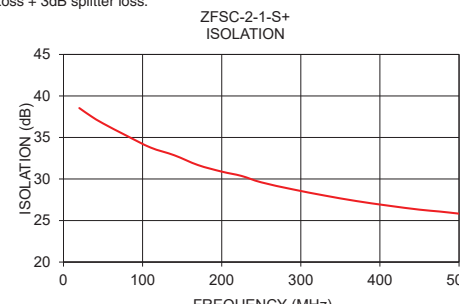
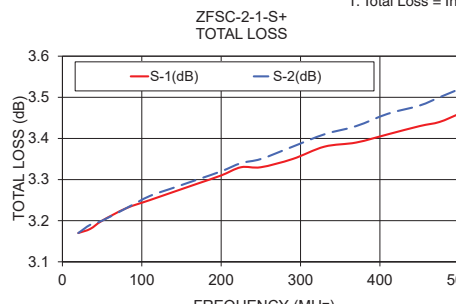
| FREQ. RANGE (MHz) | ISOLATION (dB) | | | | | | INSERTION LOSS (dB) ABOVE 3.0 dB | | | | | | PHASE UNBALANCE (Degrees) | | | AMPLITUDE UNBALANCE (dB) | | |
|-------------------|----------------|-----|------|-----|------|-----|----------------------------------|------|------|------|------|------|---------------------------|------|------|--------------------------|------|------|
| | L | | M | | U | | L | | M | | U | | L | M | U | L | M | U |
| | Typ. | Min | Typ. | Min | Typ. | Min | Typ. | Max. | Typ. | Max. | Typ. | Max. | Max. | Max. | Max. | Max. | Max. | Max. |
| f_L - f_U | 30 | 25 | 28 | 20 | 25 | 20 | 0.2 | 0.5 | 0.3 | 0.6 | 0.6 | 0.8 | 2 | 4 | 4 | 0.15 | 0.15 | 0.30 |

L = low range [f_L to $10 f_L$] M = mid range [$10 f_L$ to $f_U/2$] U = upper range [$f_U/2$ to f_U]

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 | | | | | | |
| 20 | 3.17 | 3.17 | 0.00 | 38.54 | 0.08 | 1.02 | 1.05 | 1.05 |
| 35 | 3.18 | 3.19 | 0.00 | 37.55 | 0.05 | 1.03 | 1.04 | 1.05 |
| 80 | 3.23 | 3.23 | 0.00 | 35.20 | 0.01 | 1.05 | 1.05 | 1.05 |
| 140 | 3.27 | 3.28 | 0.01 | 32.86 | 0.01 | 1.07 | 1.06 | 1.06 |
| 170 | 3.29 | 3.30 | 0.01 | 31.68 | 0.03 | 1.09 | 1.06 | 1.06 |
| 200 | 3.31 | 3.32 | 0.01 | 30.89 | 0.05 | 1.10 | 1.07 | 1.07 |
| 225 | 3.33 | 3.34 | 0.02 | 30.37 | 0.09 | 1.11 | 1.07 | 1.07 |
| 250 | 3.33 | 3.35 | 0.02 | 29.60 | 0.08 | 1.12 | 1.08 | 1.08 |
| 290 | 3.35 | 3.38 | 0.03 | 28.75 | 0.13 | 1.14 | 1.09 | 1.09 |
| 330 | 3.38 | 3.41 | 0.03 | 28.01 | 0.17 | 1.15 | 1.09 | 1.10 |
| 370 | 3.39 | 3.43 | 0.04 | 27.35 | 0.21 | 1.17 | 1.10 | 1.11 |
| 410 | 3.41 | 3.46 | 0.05 | 26.80 | 0.25 | 1.19 | 1.11 | 1.12 |
| 450 | 3.43 | 3.48 | 0.05 | 26.31 | 0.30 | 1.21 | 1.12 | 1.13 |
| 475 | 3.44 | 3.50 | 0.06 | 26.09 | 0.32 | 1.22 | 1.13 | 1.14 |
| 500 | 3.46 | 3.52 | 0.06 | 25.83 | 0.34 | 1.23 | 1.13 | 1.14 |

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-Circuits' applicable established test performance criteria and measurement instructions.
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2 Way-0° Power Splitter/Combiner

ZFSC-2-1+

Typical Performance Data

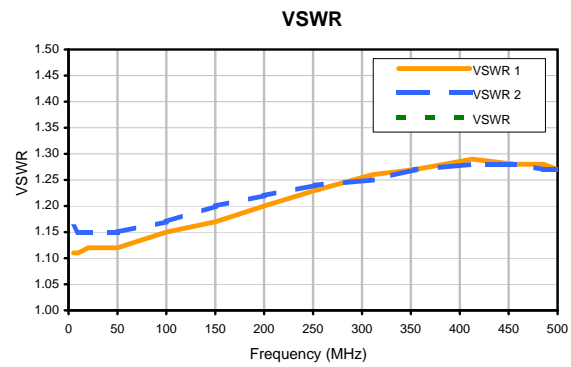
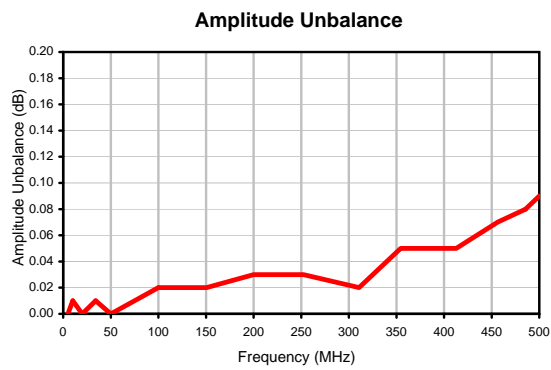
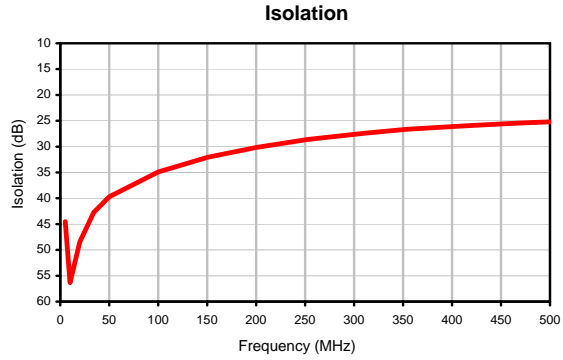
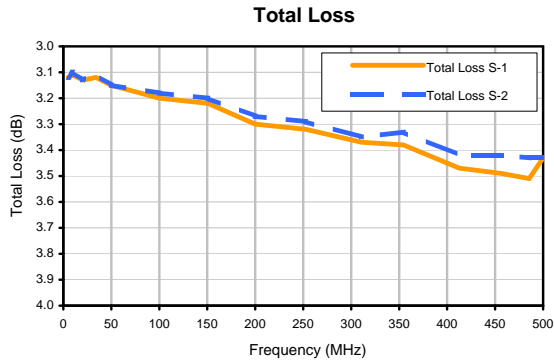
| FREQ. (MHz) | TOTAL LOSS ¹ (dB) | | AMP. UNBAL. (dB) | ISOLATION (dB) | FREQ. (MHz) | VSWR (:1) | | |
|----------------|---------------------------------|------|------------------------|-------------------|----------------|--------------|------|------|
| | S-1 | S-2 | | | | S | 1 | 2 |
| 5.0 | 3.12 | 3.12 | 0.00 | 44.52 | 5.0 | 1.11 | 1.16 | 1.16 |
| 10.0 | 3.11 | 3.10 | 0.01 | 56.33 | 10.0 | 1.11 | 1.15 | 1.15 |
| 20.0 | 3.13 | 3.13 | 0.00 | 48.46 | 20.0 | 1.12 | 1.15 | 1.15 |
| 34.1 | 3.12 | 3.11 | 0.01 | 42.76 | 34.1 | 1.12 | 1.15 | 1.15 |
| 50.0 | 3.15 | 3.15 | 0.00 | 39.71 | 50.0 | 1.12 | 1.15 | 1.15 |
| 100.0 | 3.20 | 3.18 | 0.02 | 34.91 | 100.0 | 1.15 | 1.17 | 1.17 |
| 150.6 | 3.22 | 3.20 | 0.02 | 32.05 | 150.6 | 1.17 | 1.20 | 1.19 |
| 200.0 | 3.30 | 3.27 | 0.03 | 30.16 | 200.0 | 1.20 | 1.22 | 1.21 |
| 252.5 | 3.32 | 3.29 | 0.03 | 28.61 | 252.5 | 1.23 | 1.24 | 1.23 |
| 310.7 | 3.37 | 3.35 | 0.02 | 27.41 | 310.7 | 1.26 | 1.25 | 1.25 |
| 354.4 | 3.38 | 3.33 | 0.05 | 26.63 | 354.4 | 1.27 | 1.27 | 1.27 |
| 412.7 | 3.47 | 3.42 | 0.05 | 25.97 | 412.7 | 1.29 | 1.28 | 1.27 |
| 456.3 | 3.49 | 3.42 | 0.07 | 25.56 | 456.3 | 1.28 | 1.28 | 1.27 |
| 485.5 | 3.51 | 3.43 | 0.08 | 25.30 | 485.5 | 1.28 | 1.27 | 1.27 |
| 500.0 | 3.43 | 3.43 | 0.09 | 25.21 | 500.0 | 1.27 | 1.27 | 1.26 |

¹ Total Loss = Insertion Loss + 3dB Splitter Loss

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Typical Performance Curves

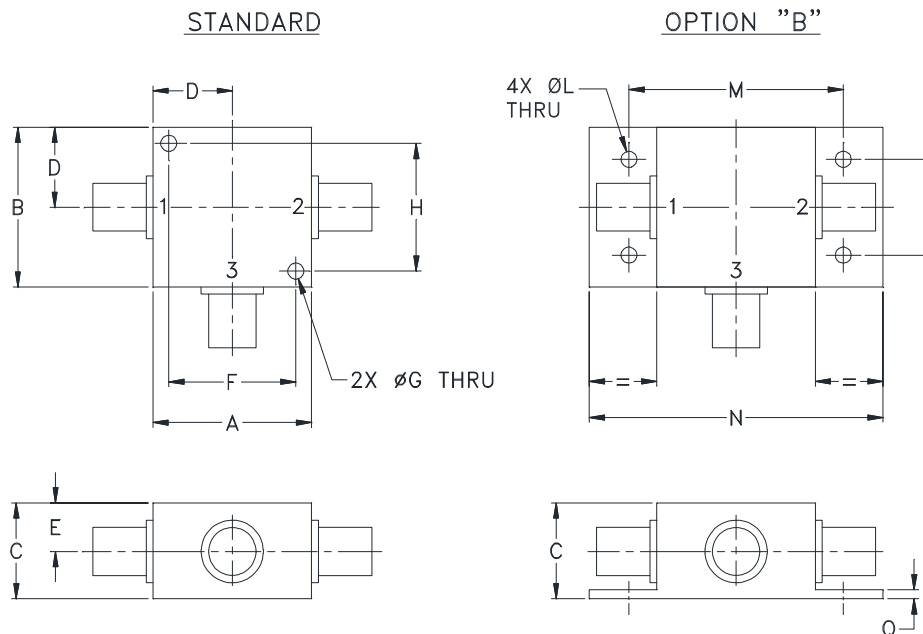


Case Style

K

K18

Outline Dimensions



| CASE# | A | B | C | D | E | F | G | H | J | K | L | M | N |
|-------|-----------------|-----------------|----------------|----------------|---------------|------------------|----------------|------------------|----|----|----------------|------------------|-----------------|
| K18 | 1.25 (31.75) | 1.25 (31.75) | .75 (19.05) | .63 (16.00) | .38 (9.65) | 1.000 (25.40) | .125 (3.18) | 1.000 (25.40) | -- | -- | .125 (3.18) | 1.688 (42.88) | 2.18 (55.37) |

| CASE# | P | Q | WT. GRAMS |
|-------|----------------|---------------|-----------|
| K18 | .75 (19.05) | .07 (1.78) | 70.0 |

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

Notes:

- Case material: Aluminum alloy.
- Case finish:
For RoHS Case Styles: Clear chemical conversion coating, non-chrome or trivalent chrome based.
- Mounting bracket available on request. Add suffix B to part number.
- For port marking 1, 2, and 3 see specifications data sheet.
- For bracket version, option B, dimension "C" changes from .75 to .94 inches when connectors are type N.
- 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 |