*Coaxial*

# Power Splitter/Combiner

## ZX10-4A-27-S+

4 Way-0° 50Ω 2225 to 2700 MHz

*Generic photo used for illustration purposes only*

CASE STYLE: GY1065

| Connectors | Model |
|---|---|
| **SMA** | ZX10-4A-27-S+ |

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

### Maximum Ratings

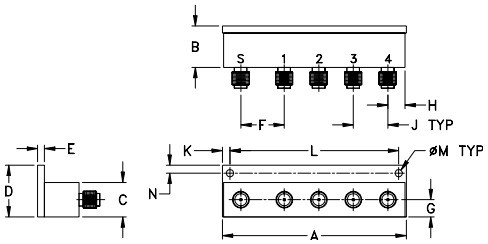
| | |
|---|---|
| Operating Temperature | -40°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| Power Input (as a splitter) | 2.5W max. |
| Internal Dissipation | 0.125W max. |

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

### Coaxial Connections

| | |
|---|---|
| SUM PORT | S |
| PORT 1 | 1 |
| PORT 2 | 2 |
| PORT 3 | 3 |
| PORT 4 | 4 |

### Outline Drawing




### Outline Dimensions (inch / mm)

| A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|
| 2.67 | .60 | .50 | .75 | .10 | .63 | .25 | .25 |
| 67.82 | 15.24 | 12.70 | 19.05 | 2.54 | 16.00 | 6.35 | 6.35 |

| J | K | L | M | N | wt. |
|---|---|---|---|---|---|
| .50 | .11 | 2.445 | .106 | .12 | grams |
| 12.70 | 2.79 | 62.10 | 2.69 | 3.05 | 65.0 |

### Features

- low insertion loss, 1.0 dB typ.
- high isolation, 20 dB typ.
- rigid unibody construction
- convenient for panel mount applications
- low cost
- protected by US patent 6,790,049
- very small size

### Applications

- antenna arrays
- signal distribution
- test bench

### Electrical Specifications ($T_{AMB}$=25°C)

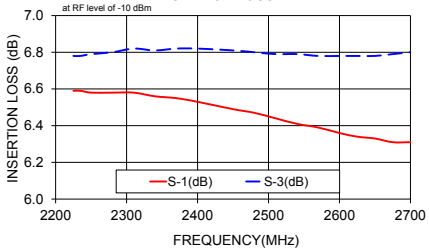
| FREQ. RANGE (MHz) | ISOLATION (dB) | | INSERTION LOSS (dB) ABOVE 6 dB | | PHASE UNBALANCE (Deg.) | AMPLITUDE UNBALANCE (dB) | INPUT VSWR (:1) | OUTPUT VSWR (:1) |
|---|---|---|---|---|---|---|---|---|
| $f_L$-$f_U$ | Typ. | Min. | Typ. | Max. | Max. | Max. | Typ. | Typ. |
| **2225-2700** | 20 | 16 | 1.0 | 1.3 | 7.0 | 0.9 | 1.4 | 1.25 |
| 2400-2600 | 25 | 18 | 0.8 | 1.3 | 6.0 | 0.8 | 1.4 | 1.25 |

### Typical Performance Data

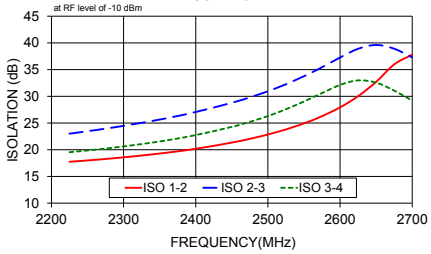
| Freq. (MHz) | Total Loss[1] (dB) | | | | Amp. Unbal. (dB) | Isolation (dB) | | | Phase Unbal. (deg.) | VSWR S | VSWR 1 | VSWR 2 | VSWR 3 | VSWR 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | S-1 | S-2 | S-3 | S-4 | | 1-2 | 2-3 | 3-4 | | | | | | |
| 2225.00 | 6.59 | 7.05 | 6.78 | 6.92 | 0.46 | 17.75 | 23.01 | 19.54 | 1.51 | 1.64 | 1.16 | 1.15 | 1.12 | 1.20 |
| 2235.00 | 6.59 | 7.04 | 6.78 | 6.92 | 0.46 | 17.85 | 23.19 | 19.67 | 1.52 | 1.64 | 1.17 | 1.15 | 1.12 | 1.20 |
| 2250.00 | 6.58 | 7.04 | 6.79 | 6.93 | 0.46 | 18.00 | 23.47 | 19.87 | 1.54 | 1.64 | 1.17 | 1.15 | 1.12 | 1.19 |
| 2280.00 | 6.58 | 7.05 | 6.80 | 6.96 | 0.46 | 18.33 | 24.05 | 20.30 | 1.60 | 1.64 | 1.18 | 1.17 | 1.13 | 1.22 |
| 2310.00 | 6.58 | 7.04 | 6.82 | 6.98 | 0.46 | 18.71 | 24.70 | 20.80 | 1.63 | 1.64 | 1.19 | 1.18 | 1.13 | 1.23 |
| 2340.00 | 6.56 | 7.02 | 6.81 | 6.98 | 0.46 | 19.14 | 25.40 | 21.35 | 1.65 | 1.61 | 1.19 | 1.18 | 1.13 | 1.21 |
| 2370.00 | 6.55 | 7.01 | 6.82 | 6.99 | 0.46 | 19.62 | 26.18 | 21.99 | 1.69 | 1.59 | 1.19 | 1.20 | 1.14 | 1.24 |
| 2400.00 | 6.53 | 6.99 | 6.82 | 7.00 | 0.47 | 20.18 | 27.07 | 22.75 | 1.73 | 1.56 | 1.20 | 1.19 | 1.14 | 1.24 |
| 2450.00 | 6.49 | 6.95 | 6.81 | 7.00 | 0.51 | 21.34 | 28.79 | 24.28 | 1.78 | 1.50 | 1.20 | 1.21 | 1.14 | 1.24 |
| 2480.00 | 6.47 | 6.91 | 6.80 | 7.01 | 0.54 | 22.20 | 30.03 | 25.43 | 1.82 | 1.46 | 1.19 | 1.21 | 1.14 | 1.26 |
| 2510.00 | 6.44 | 6.88 | 6.79 | 7.00 | 0.56 | 23.22 | 31.45 | 26.79 | 1.85 | 1.40 | 1.19 | 1.20 | 1.14 | 1.23 |
| 2540.00 | 6.41 | 6.85 | 6.79 | 7.01 | 0.59 | 24.46 | 33.15 | 28.44 | 1.89 | 1.36 | 1.18 | 1.22 | 1.13 | 1.24 |
| 2570.00 | 6.39 | 6.81 | 6.78 | 7.01 | 0.62 | 25.99 | 35.09 | 30.29 | 1.95 | 1.30 | 1.18 | 1.21 | 1.13 | 1.25 |
| 2600.00 | 6.36 | 6.78 | 6.78 | 7.01 | 0.65 | 27.93 | 37.27 | 32.13 | 2.01 | 1.24 | 1.17 | 1.20 | 1.13 | 1.22 |
| 2625.00 | 6.34 | 6.76 | 6.78 | 7.02 | 0.68 | 30.03 | 38.89 | 32.98 | 2.06 | 1.20 | 1.16 | 1.20 | 1.12 | 1.24 |
| 2650.00 | 6.33 | 6.73 | 6.78 | 7.04 | 0.71 | 32.71 | 39.61 | 32.56 | 2.12 | 1.15 | 1.15 | 1.19 | 1.12 | 1.26 |
| 2675.00 | 6.31 | 6.72 | 6.79 | 7.05 | 0.74 | 35.97 | 38.91 | 31.07 | 2.15 | 1.10 | 1.14 | 1.18 | 1.13 | 1.24 |
| 2700.00 | 6.31 | 6.70 | 6.80 | 7.07 | 0.77 | 37.81 | 37.28 | 29.20 | 2.17 | 1.07 | 1.13 | 1.19 | 1.13 | 1.25 |

1. Total Loss = Insertion Loss + 6dB splitter loss.

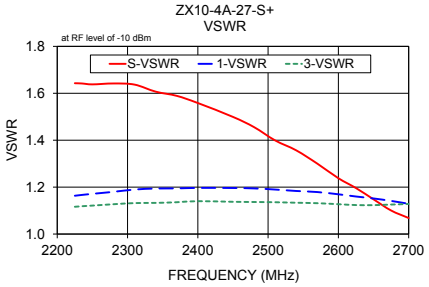
ZX10-4A-27-S+
INSERTION LOSS



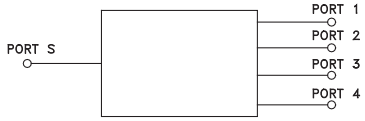

ZX10-4A-27-S+
ISOLATION




ZX10-4A-27-S+
VSWR




### electrical schematic




**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.
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# 4 Way-0° Power Splitter/Combiner ZX10-4A-27+

## *Typical Performance Data*

| FREQ. (MHz) | TOTAL LOSS[1] (dB) | | | | AMP. UNBAL. (dB) | ISOLATION (dB) | | | PHASE UNBAL. (deg.) |
|---|---|---|---|---|---|---|---|---|---|
| | S-1 | S-2 | S-3 | S-4 | | 1-2 | 2-3 | 3-4 | |
| 2225.0 | 6.59 | 7.05 | 6.78 | 6.92 | 0.46 | 17.75 | 23.01 | 19.54 | 1.51 |
| 2235.0 | 6.59 | 7.04 | 6.78 | 6.92 | 0.46 | 17.85 | 23.19 | 19.67 | 1.52 |
| 2250.0 | 6.58 | 7.04 | 6.79 | 6.93 | 0.46 | 18.00 | 23.47 | 19.87 | 1.54 |
| 2280.0 | 6.58 | 7.05 | 6.80 | 6.96 | 0.46 | 18.33 | 24.05 | 20.30 | 1.60 |
| 2310.0 | 6.58 | 7.04 | 6.82 | 6.98 | 0.46 | 18.71 | 24.70 | 20.80 | 1.63 |
| 2340.0 | 6.56 | 7.02 | 6.81 | 6.98 | 0.46 | 19.14 | 25.40 | 21.35 | 1.65 |
| 2370.0 | 6.55 | 7.01 | 6.82 | 6.99 | 0.46 | 19.62 | 26.18 | 21.99 | 1.69 |
| 2400.0 | 6.53 | 6.99 | 6.82 | 7.00 | 0.47 | 20.18 | 27.07 | 22.75 | 1.73 |
| 2450.0 | 6.49 | 6.95 | 6.81 | 7.00 | 0.51 | 21.34 | 28.79 | 24.28 | 1.78 |
| 2480.0 | 6.47 | 6.91 | 6.80 | 7.01 | 0.54 | 22.20 | 30.03 | 25.43 | 1.82 |
| 2510.0 | 6.44 | 6.88 | 6.79 | 7.00 | 0.56 | 23.22 | 31.45 | 26.79 | 1.85 |
| 2540.0 | 6.41 | 6.85 | 6.79 | 7.01 | 0.59 | 24.46 | 33.15 | 28.44 | 1.89 |
| 2570.0 | 6.39 | 6.81 | 6.78 | 7.01 | 0.62 | 25.99 | 35.09 | 30.29 | 1.95 |
| 2600.0 | 6.36 | 6.78 | 6.78 | 7.01 | 0.65 | 27.93 | 37.27 | 32.13 | 2.01 |
| 2625.0 | 6.34 | 6.76 | 6.78 | 7.02 | 0.68 | 30.03 | 38.89 | 32.98 | 2.06 |
| 2650.0 | 6.33 | 6.73 | 6.78 | 7.04 | 0.71 | 32.71 | 39.61 | 32.56 | 2.12 |
| 2675.0 | 6.31 | 6.72 | 6.79 | 7.05 | 0.74 | 35.97 | 38.91 | 31.07 | 2.15 |
| 2700.0 | 6.31 | 6.70 | 6.80 | 7.07 | 0.77 | 37.81 | 37.28 | 29.20 | 2.17 |

| FREQ. (MHz) | VSWR (:1) | | | | |
|---|---|---|---|---|---|
| | S | 1 | 2 | 3 | 4 |
| 2225.0 | 1.64 | 1.16 | 1.15 | 1.12 | 1.20 |
| 2235.0 | 1.64 | 1.17 | 1.15 | 1.12 | 1.20 |
| 2250.0 | 1.64 | 1.17 | 1.15 | 1.12 | 1.19 |
| 2280.0 | 1.64 | 1.18 | 1.17 | 1.13 | 1.22 |
| 2310.0 | 1.64 | 1.19 | 1.18 | 1.13 | 1.23 |
| 2340.0 | 1.61 | 1.19 | 1.18 | 1.13 | 1.21 |
| 2370.0 | 1.59 | 1.19 | 1.20 | 1.14 | 1.24 |
| 2400.0 | 1.56 | 1.20 | 1.19 | 1.14 | 1.24 |
| 2450.0 | 1.50 | 1.20 | 1.21 | 1.14 | 1.24 |
| 2480.0 | 1.46 | 1.19 | 1.21 | 1.14 | 1.26 |
| 2510.0 | 1.40 | 1.19 | 1.20 | 1.14 | 1.23 |
| 2540.0 | 1.36 | 1.18 | 1.22 | 1.13 | 1.24 |
| 2570.0 | 1.30 | 1.18 | 1.21 | 1.13 | 1.25 |
| 2600.0 | 1.24 | 1.17 | 1.20 | 1.13 | 1.22 |
| 2625.0 | 1.20 | 1.16 | 1.20 | 1.12 | 1.24 |
| 2650.0 | 1.15 | 1.15 | 1.19 | 1.12 | 1.26 |
| 2675.0 | 1.10 | 1.14 | 1.18 | 1.13 | 1.24 |
| 2700.0 | 1.07 | 1.13 | 1.19 | 1.13 | 1.25 |

[1] Total Loss = Insertion Loss + 6dB Splitter Loss



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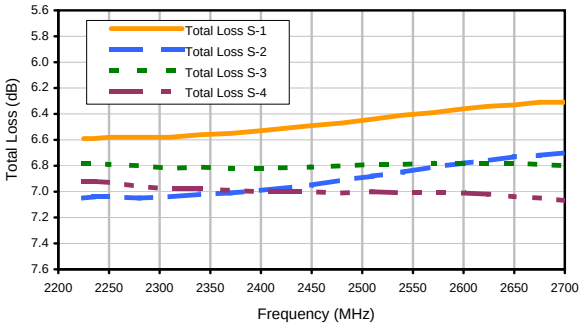
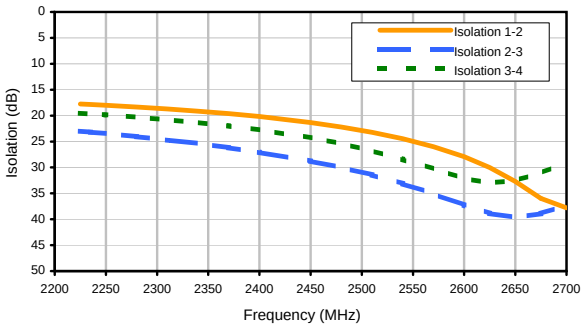
# 4 Way-0° Power Splitter/Combiner ZX10-4A-27+

*Typical Performance Curves*

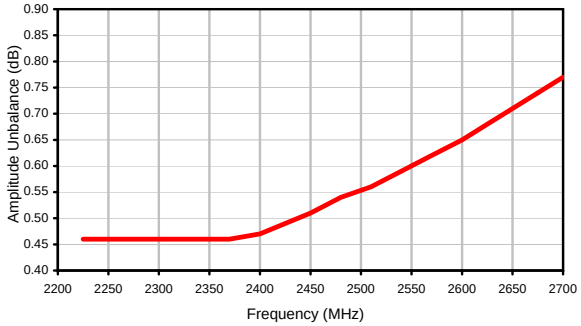
**Total Loss**



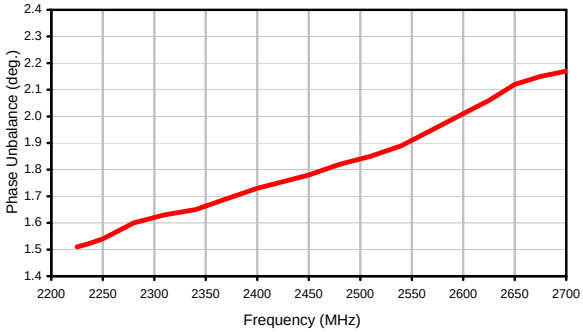

**Isolation**



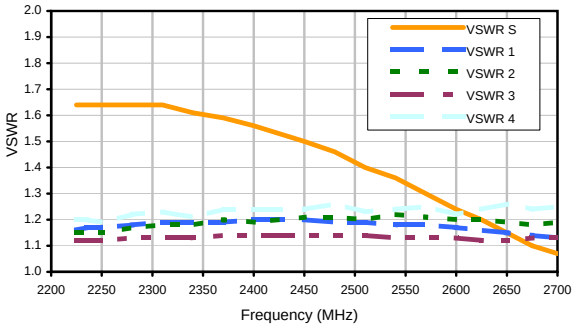

**Amplitude Unbalance**




**Phase Unbalance**




**VSWR**



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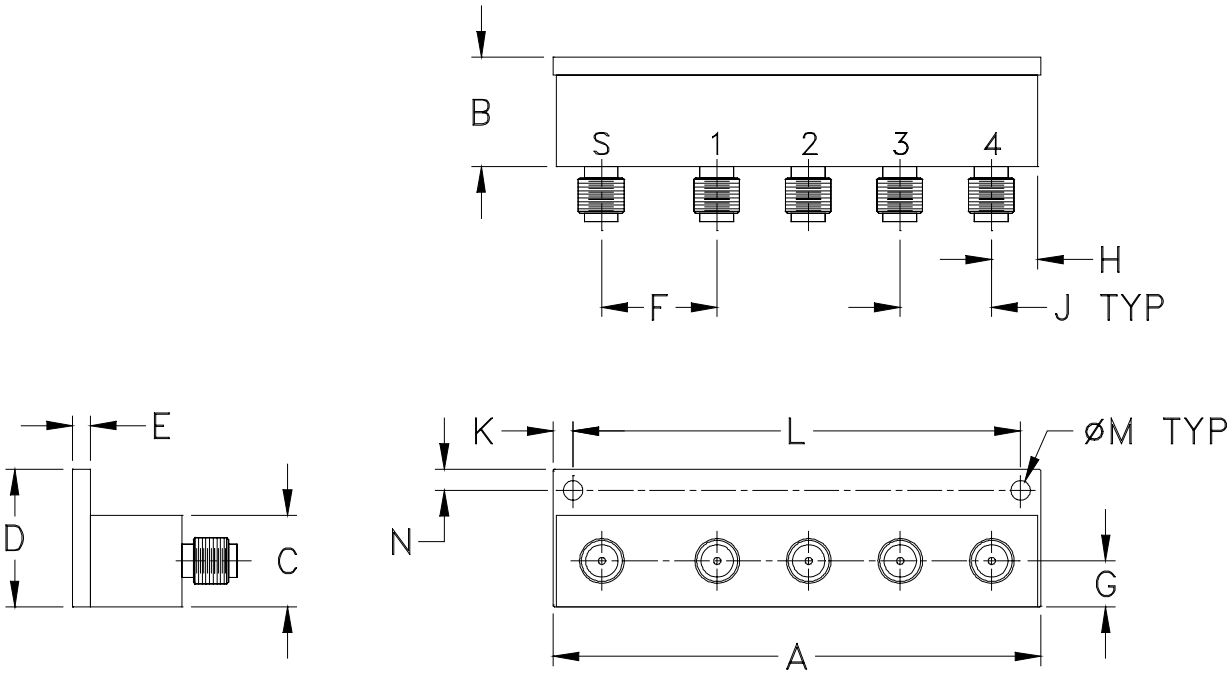
# Case Style GY

**GY1065**

## Outline Dimensions




| CASE# | A | B | C | D | E | F | G | H | J | K | L | M | N | WT. GRAM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GY1065 | 2.67 (67.82) | .60 (15.24) | .50 (12.70) | .75 (19.05) | .10 (2.54) | .63 (16.00) | .25 (6.35) | .25 (6.35) | .50 (12.70) | .11 (2.79) | 2.445 (62.10) | .106 (2.69) | .12 (3.05) | 65.0 |

**Dimensions are in inches (mm). Tolerances: 2Pl. ± .03; 3Pl. ± .015.**
**Tolerance on hole size and interaxes dimensions to be ±.005.**

### Notes:

1. Case material: Brass.
2. Case finish: Nickel plate.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**Environmental Specifications** **ENV28T5**

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 | -40° to 85°C | Individual Model Data Sheet |
| Storage Temperature | -55° to 100° C<br>Ambient Environment | Individual Model Data Sheet |
| Barometric Pressure | 100,000 Feet | MIL-STD-202, Method 105, Condition D |
| Humidity | 90% RH, 65°C<br>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 |


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