



## COAXIAL NON-ISOLATING

# Power Splitter/Combiner

## COM-2G42G51K0+

50Ω 4-Way-0° 2.4 to 2.5 GHz N type Female to 7/16 DIN Female 1200W

### THE BIG DEAL

- Very high-power handling, up to 1200W CW
- Exceptionally low insertion loss, 0.1dB typ.
- Low amplitude (0.15dB typ.) and phase unbalance (1° typ.)
- Patent Pending

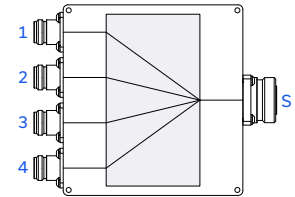


Generic photo used for illustration purposes only

### APPLICATIONS

- RF energy generators
- Industrial heating
- Plasma generators
- S-band high-power amplifiers

### FUNCTIONAL DIAGRAM



### PRODUCT OVERVIEW

Mini-Circuits' COM-2G42G51K0+ is a 4-way 0° non-isolating combiner providing very high power handling and exceptionally low insertion loss across 2400 to 2500 MHz. It is designed to maximize the efficiency of high-power amplifiers and generators working in the ISM 2.45GHz band and a variety of other S-band applications.

### KEY FEATURES

Features	Advantages
Non-Isolating Combiner	The COM-2G42G51K0+ is a non-isolating combiner (i.e. no internal isolating resistors). All performance parameters, when used as a combiner, are based upon all 4 input ports fed with coherent signals and 50 ohm impedances
Power handling up to 1.2kW	This makes COM-2G42G51K0+ suitable for high-power SSPA application
Low insertion loss, 0.1dB	Low insertion loss results in low power dissipation and easy thermal management, high power combining efficiency
Optimized distribution of electrical, thermal and mechanical stress	Excellent ruggedness and long-term reliability
Low amplitude unbalance (0.15dB typ.) and phase imbalance (1° typ.)	High power combining efficiency. Precise signal distribution when used as the splitter

REV. OR  
ECO-017143  
COM-2G42G51K0+  
MCL NY  
230329





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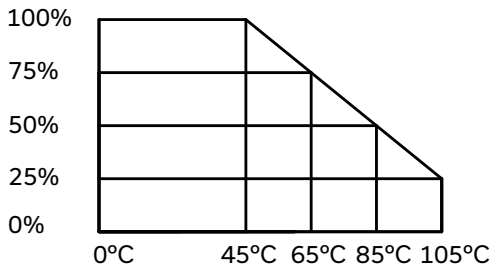
## ELECTRICAL SPECIFICATIONS AT T<sub>CASE</sub> = 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Units
Frequency Range	-	2400	-	2500	MHz
Insertion Loss (above 6 dB) <sup>1</sup>	2400-2500	-	0.1	0.3	dB
Phase Unbalance (±) <sup>2</sup>	2400-2500	-	1	5	Degree
Amplitude Imbalance (±) <sup>2</sup>	2400-2500	-	0.15	0.3	dB
VSWR (Port S)	2400-2500	-	1.1	1.22	:1
Power Handling <sup>1</sup>	As Splitter <sup>2,4</sup>	2400-2500	-	1200	W
	As Combiner <sup>3,4</sup>	2400-2500	-	1200	

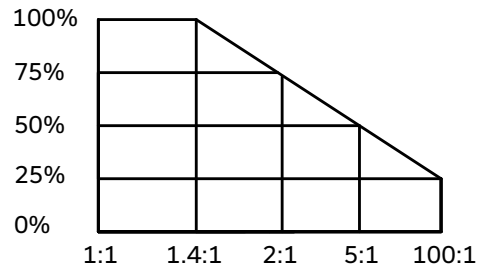
- All 4 ports are fed with coherent input signals when used as combiner, for derating vs temperature and VSWR, see graph below
- All ports must be terminated with 50 Ω.
- As a combiner of coherent signals, max. power per port is 300W.

## POWER DERATING CURVE

Power Derating<sup>4</sup> vs Temperature



Power Derating<sup>4</sup> vs VSWR



4. Power derating chart is based on units operated in CW mode

## ABSOLUTE MAXIMUM RATINGS<sup>5</sup>

Parameter	Ratings
Operating Case Temperature <sup>6</sup>	0 °C to +105 °C
Storage Temperature	0 °C to +105 °C

- Permanent damage may occur if any of these limits are exceeded.
- Units can be operated up to 105°C. Please refer to power derating chart.





COAXIAL NON-ISOLATING

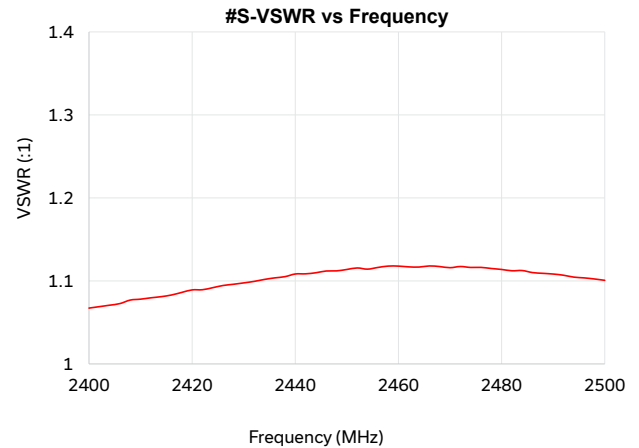
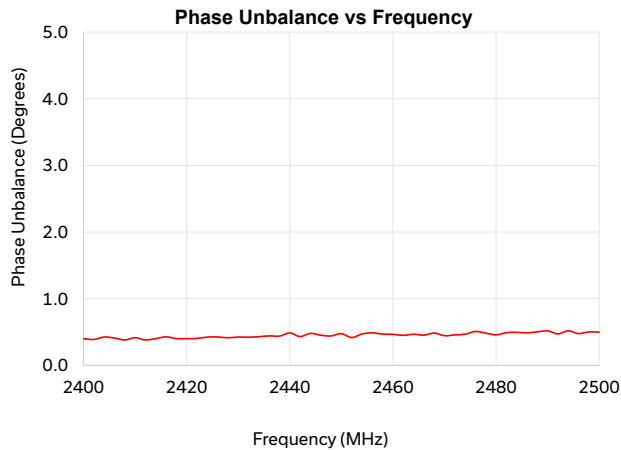
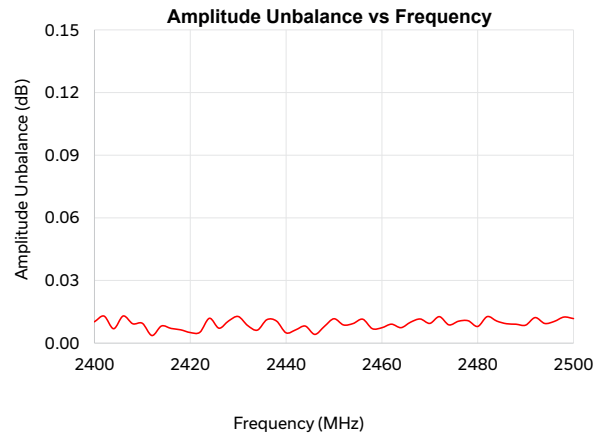
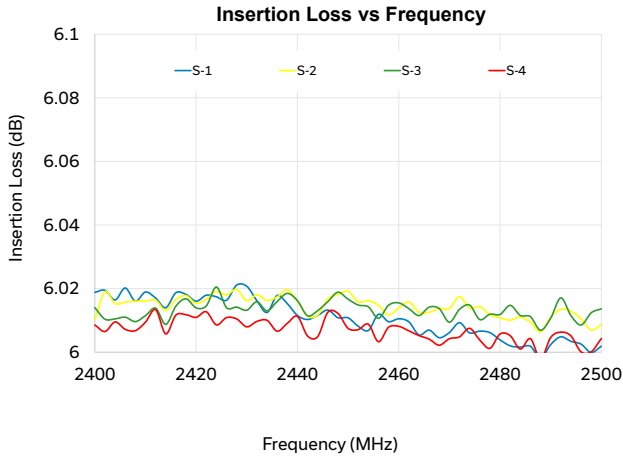
# Power Splitter/Combiner

**COM-2G42G51K0+**

Mini-Circuits

50Ω 4-Way-0° 2.4 to 2.5 GHz N type Female to 7/16 DIN Female 1200W

## TYPICAL PERFORMANCE DATA ACROSS FREQUENCY ( $T_{CASE} = +25^{\circ}C$ , 50Ω SYSTEM)





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# Power Splitter/Combiner

# COM-2G42G51K0+

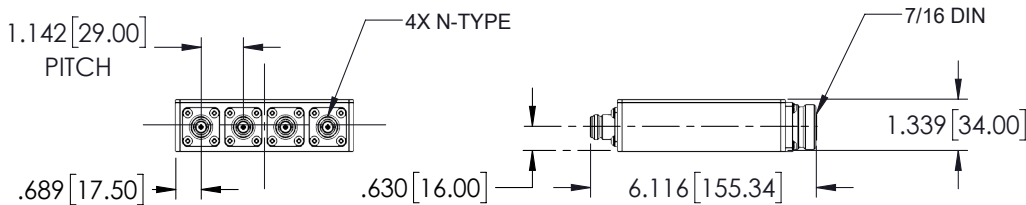
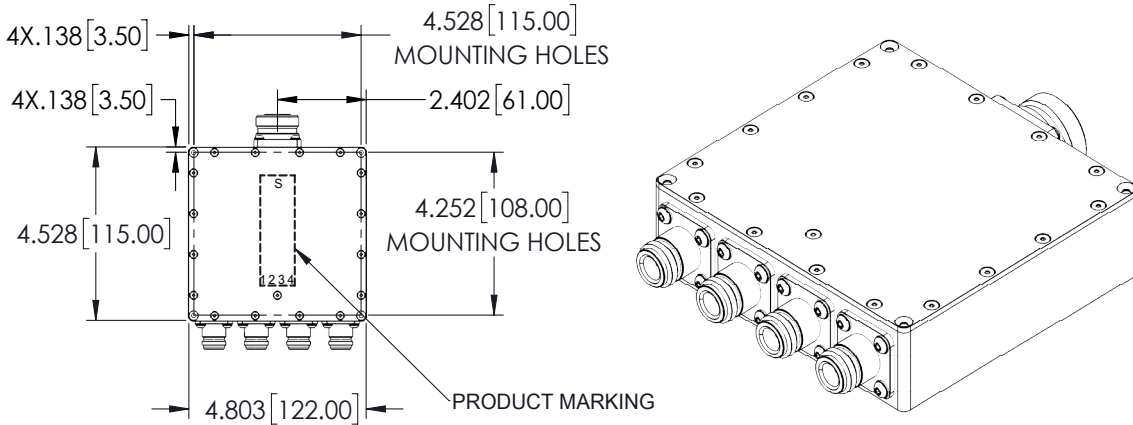
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### COAXIAL CONNECTIONS

(Port 1,2,3,4)	N type Female
(Port S)	7/16 DIN Female

### CASE STYLE DRAWING



Weight: 875.5 grams

Dimensions are in inches [mm]. Tolerances: 2 Pl. 0.01inch; 3 Pl. 0.005 inch

### PRODUCT MARKING\*: COM-2G42G51K0+

\*Marking may contain other features or characters for internal lot control.

### ADDITIONAL INFORMATION IS AVAILABLE ON OUR DASHBOARD

[CLICK HERE](#)

<b>Performance</b>	Data
	Graphs
	S-Parameter (S5P Files) Data Set (.zip file)
<b>Case Style</b>	VU3413
<b>RoHs Status</b>	Compliant
<b>Environmental Ratings</b>	ENV28T21

#### 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 to the rights and benefits contained therein. For a full statement of the standard terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at [www.minicircuits.com/terms/viewterm.html](http://www.minicircuits.com/terms/viewterm.html)



# 4 Way-0° Power Splitter/Combiner

# COM-2G42G51K0+

## Typical Performance Data

Data tested at  $T_{CASE} = 25^{\circ}C$

FREQ. (MHz)	INSERTION LOSS <sup>1</sup> (dB)				AMP. UNBAL. <sup>2</sup> (dB)	PHASE UNBAL. <sup>3</sup> (deg.)	VSWR:(-1) <sup>4</sup> S
	S-1	S-2	S-3	S-4			
2400	6.019	6.010	6.014	6.009	0.0102	0.3992	1.0673
2402	6.019	6.019	6.010	6.007	0.0130	0.3886	1.0690
2404	6.016	6.015	6.010	6.010	0.0069	0.4244	1.0708
2406	6.020	6.016	6.011	6.007	0.0130	0.4094	1.0727
2408	6.016	6.016	6.010	6.007	0.0093	0.3805	1.0769
2410	6.019	6.016	6.011	6.009	0.0095	0.4144	1.0780
2412	6.017	6.016	6.014	6.013	0.0036	0.3810	1.0797
2414	6.014	6.013	6.009	6.006	0.0082	0.4003	1.0810
2416	6.019	6.017	6.014	6.012	0.0070	0.4278	1.0831
2418	6.018	6.018	6.017	6.012	0.0064	0.4009	1.0862
2420	6.016	6.015	6.014	6.011	0.0051	0.4012	1.0892
2422	6.018	6.017	6.015	6.013	0.0052	0.4040	1.0894
2424	6.017	6.019	6.020	6.009	0.0119	0.4238	1.0919
2426	6.016	6.018	6.014	6.011	0.0072	0.4257	1.0945
2428	6.021	6.020	6.014	6.010	0.0106	0.4137	1.0960
2430	6.021	6.016	6.013	6.008	0.0128	0.4247	1.0976
2432	6.016	6.018	6.016	6.010	0.0084	0.4223	1.0994
2434	6.012	6.016	6.013	6.010	0.0062	0.4297	1.1018
2436	6.018	6.017	6.016	6.007	0.0112	0.4420	1.1037
2438	6.015	6.020	6.018	6.009	0.0106	0.4387	1.1052
2440	6.012	6.016	6.016	6.011	0.0049	0.4856	1.1084
2442	6.010	6.011	6.011	6.005	0.0064	0.4317	1.1086
2444	6.012	6.012	6.013	6.005	0.0082	0.4799	1.1099
2446	6.013	6.017	6.016	6.013	0.0042	0.4521	1.1120
2448	6.011	6.018	6.019	6.012	0.0080	0.4413	1.1121
2450	6.011	6.019	6.017	6.008	0.0117	0.4748	1.1138
2452	6.008	6.016	6.015	6.007	0.0087	0.4168	1.1156
2454	6.007	6.016	6.014	6.009	0.0094	0.4710	1.1142
2456	6.012	6.015	6.011	6.003	0.0115	0.4870	1.1162
2458	6.010	6.012	6.015	6.008	0.0069	0.4690	1.1179
2460	6.011	6.014	6.016	6.008	0.0074	0.4651	1.1178
2462	6.010	6.016	6.014	6.007	0.0091	0.4505	1.1169
2464	6.005	6.013	6.012	6.005	0.0074	0.4666	1.1167
2466	6.007	6.013	6.014	6.004	0.0100	0.4528	1.1180
2468	6.005	6.014	6.014	6.002	0.0116	0.4844	1.1173
2470	6.006	6.014	6.009	6.004	0.0095	0.4447	1.1160
2472	6.009	6.018	6.013	6.005	0.0127	0.4571	1.1174
2474	6.006	6.014	6.015	6.008	0.0087	0.4673	1.1162
2476	6.007	6.014	6.010	6.004	0.0105	0.5082	1.1163
2478	6.006	6.012	6.012	6.001	0.0107	0.4832	1.1150
2480	6.004	6.011	6.012	6.006	0.0080	0.4577	1.1138
2482	6.002	6.010	6.015	6.005	0.0127	0.4901	1.1122
2484	6.002	6.011	6.012	6.001	0.0106	0.4957	1.1125
2486	6.002	6.009	6.011	6.004	0.0093	0.4869	1.1101
2488	6.002	6.006	6.007	6.004	0.0091	0.5030	1.1092
2490	6.002	6.011	6.011	6.005	0.0086	0.5171	1.1083
2492	6.005	6.013	6.017	6.006	0.0122	0.4715	1.1069
2494	6.003	6.013	6.012	6.005	0.0094	0.5178	1.1046
2496	6.003	6.011	6.009	6.000	0.0104	0.4762	1.1037
2498	6.000	6.007	6.012	6.000	0.0125	0.5017	1.1024
2500	6.002	6.009	6.014	6.004	0.0118	0.4975	1.1007

1. Insertion loss includes theoretical loss of 6dB

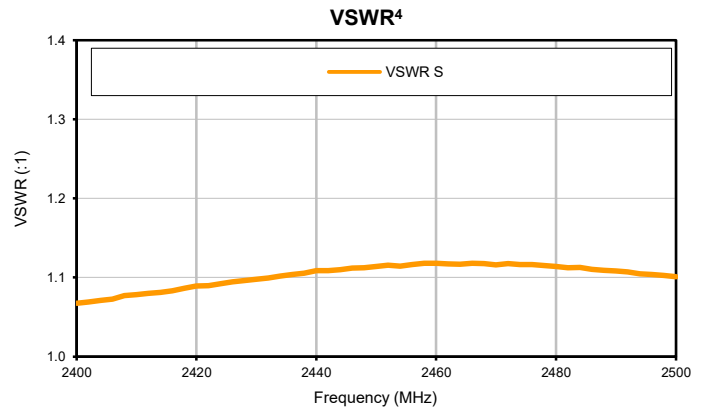
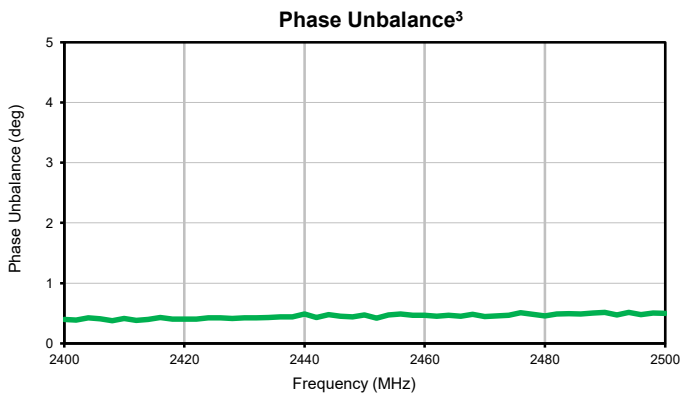
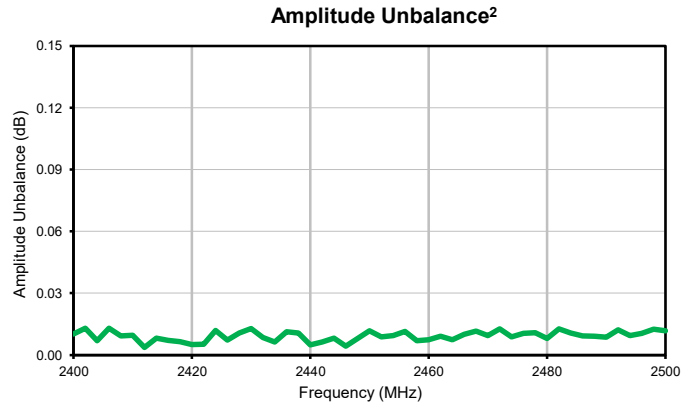
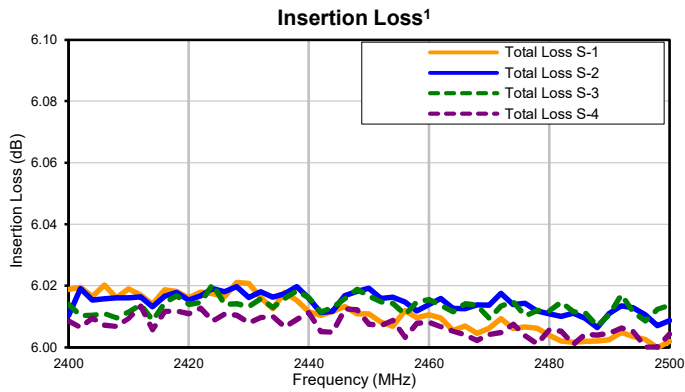
2. Amplitude imbalance is average unbalance between any ports

3. Phase imbalance is average unbalance between S ports

4. VSWR is typical representation of S ports

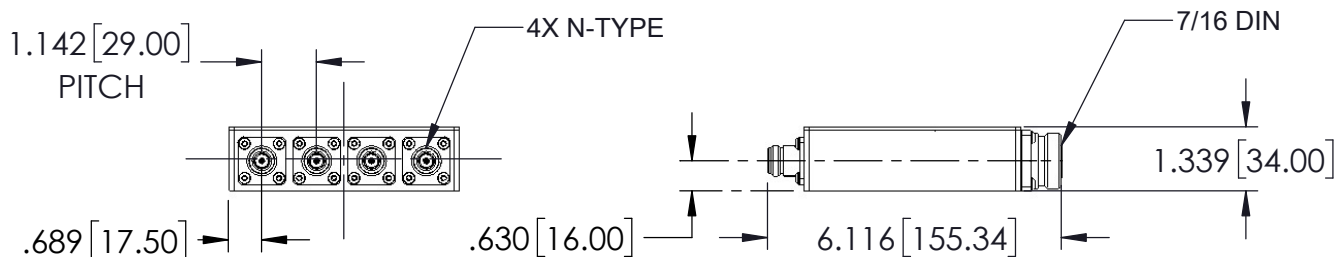
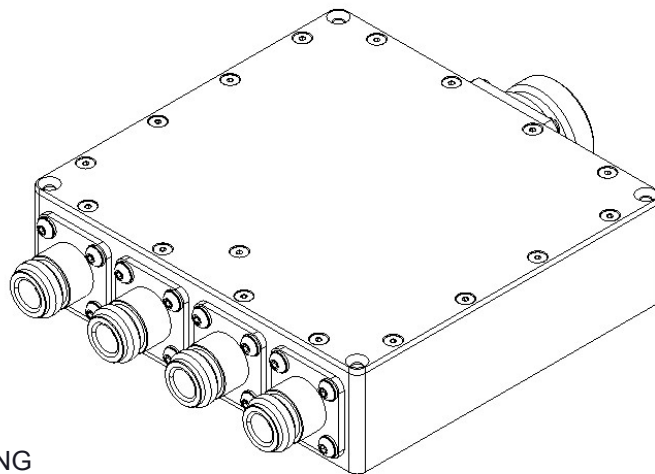
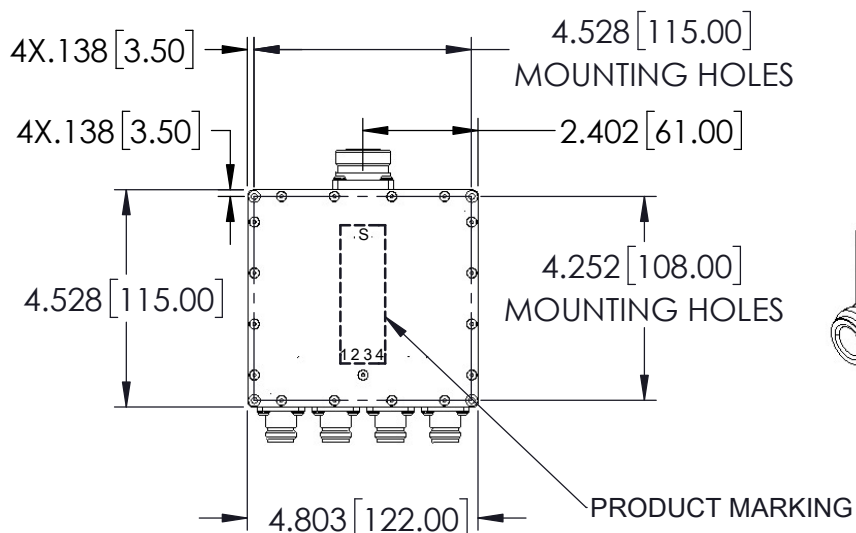


## Typical Performance Curves



**Note:**

1. Insertion loss includes theoretical loss of 6dB
2. Amplitude unbalance is average unbalance between any ports
3. Phase unbalance is average unbalance between any ports
4. VSWR is typical representation of S ports



### Notes:

1. Case Material: Aluminum
2. Case Finish: Polished Aluminum
3. Dimensions are in inches [mm]. Tolerances: 2 Pl.  $\pm 0.03$  inch; 3 Pl.  $\pm 0.015$  inch
4. Weight: 875.5 grams
5. Marking may contain other features or characters for internal lot control
6. Recommended screws for mounting model: Use M3 90° flat head.



P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site



The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: [www.minicircuits.com](http://www.minicircuits.com)

RF/IF MICROWAVE COMPONENTS

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.

<b>Specification</b>	<b>Test/Inspection Condition</b>	<b>Reference/Spec</b>
Operating Temperature	0° C to +105° C Ambient Environment	Individual Model Datasheet
Storage Temperature	0° C to +105° C Ambient Environment	Individual Model Datasheet
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