

Plug-In

# Power Splitter/Combiner

## MSC-2-11+

2 Way-0° 50Ω 5 to 2000 MHz



CASE STYLE: A03

### Maximum Ratings

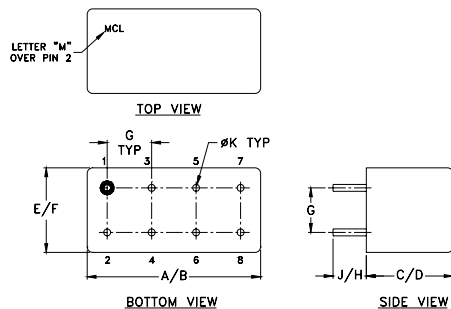
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter)	1W max.
Internal Dissipation	0.125W max.

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

### Pin Connections

SUM PORT	1
PORT 1	5
PORT 2	6
GROUND	2,3,4,7,8
CASE GROUND	2,3,4,7,8

### Outline Drawing



### Outline Dimensions (inch/mm)

A	B	C	D	E	F
.480	.500	.390	.405	.210	.230
12.19	12.70	9.91	10.29	5.33	5.84

G	H	J	K	wt
.100	.20	.14	.020	grams
2.54	5.08	3.56	0.51	2.3

### Features

- very wideband, 5 to 2000 MHz
- low insertion loss, 0.6 dB typ.
- rugged welded case

### Applications

- cellular
- GPS
- instrumentation
- defense communications

### +RoHS Compliant

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

### Electrical Specifications

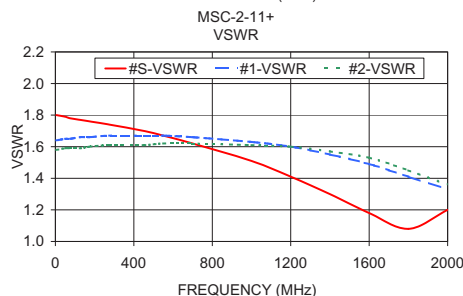
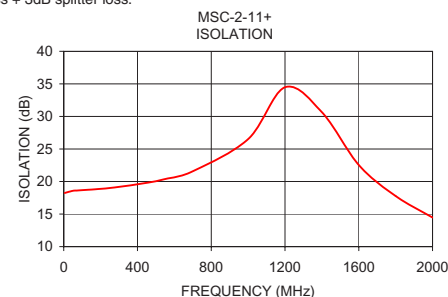
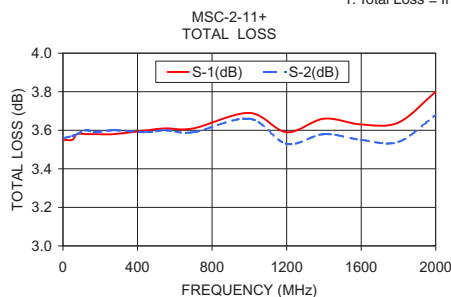
FREQ. RANGE (MHz)	ISOLATION (dB)						INSERTION LOSS (dB) ABOVE 3.0 dB						PHASE UNBALANCE (Degrees)			AMPLITUDE UNBALANCE (dB)		
	L		M		U		L		M		U		L	M	U	L	M	U
	Typ.	Min	Typ.	Min	Typ.	Min	Typ.	Max.	Typ.	Max.	Typ.	Max.	Max.	Max.	Max.	Max.	Max.	Max.
$f_L$ - $f_U$																		
5-2000	18	16	20	16	18	11	0.6	0.8	0.6	0.8	1.2	1.8	2.0	3.0	5.0	0.2	0.3	0.5

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 <sup>1</sup> (dB)		Amplitude Unbalance (dB)	Isolation (dB)	Phase Unbalance (deg.)	VSWR S	VSWR 1	VSWR 2
	S-1	S-2						
5.00	3.55	3.56	0.01	18.23	0.03	1.80	1.64	1.58
50.00	3.55	3.57	0.02	18.58	0.02	1.79	1.65	1.59
75.00	3.58	3.58	0.00	18.62	0.09	1.78	1.65	1.59
125.00	3.58	3.60	0.02	18.72	0.03	1.77	1.66	1.59
175.00	3.58	3.59	0.01	18.82	0.00	1.76	1.66	1.60
275.00	3.58	3.60	0.01	19.08	0.02	1.74	1.67	1.61
450.00	3.60	3.59	0.00	19.80	0.13	1.70	1.67	1.61
550.00	3.61	3.60	0.01	20.38	0.02	1.67	1.67	1.62
700.00	3.61	3.59	0.02	21.58	0.04	1.62	1.66	1.62
1000.00	3.69	3.66	0.03	26.52	0.13	1.51	1.63	1.61
1200.00	3.59	3.53	0.05	34.48	0.14	1.41	1.60	1.60
1400.00	3.66	3.58	0.07	30.65	0.25	1.30	1.55	1.57
1600.00	3.63	3.55	0.08	22.54	0.26	1.18	1.49	1.53
1800.00	3.64	3.54	0.11	17.78	0.45	1.08	1.41	1.45
2000.00	3.80	3.68	0.12	14.47	0.44	1.20	1.33	1.36

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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# 2 Way-0° Power Splitter/Combiner

# MSC-2-11+

## Typical Performance Data

FREQ. (MHz)	TOTAL LOSS <sup>1</sup> (dB)		AMP. UNBAL. (dB)	ISOLATION (dB) 1-2	PHASE UNBAL. (deg.)	FREQ. (MHz)	VSWR (:1)		
	S-1	S-2					S	1	2
5.0	3.55	3.56	0.01	18.23	0.03	5.0	1.80	1.64	1.58
10.0	3.54	3.56	0.02	18.57	0.05	10.0	1.80	1.65	1.58
15.0	3.54	3.56	0.01	18.60	0.04	15.0	1.79	1.65	1.58
20.0	3.55	3.56	0.01	18.58	0.05	20.0	1.79	1.65	1.58
25.0	3.55	3.58	0.03	18.58	0.09	25.0	1.79	1.65	1.58
30.0	3.55	3.57	0.02	18.57	0.02	30.0	1.79	1.65	1.58
35.0	3.56	3.58	0.02	18.57	0.02	35.0	1.79	1.65	1.58
40.0	3.56	3.57	0.01	18.57	0.00	40.0	1.79	1.65	1.58
45.0	3.54	3.57	0.02	18.57	0.04	45.0	1.79	1.65	1.58
50.0	3.55	3.57	0.02	18.58	0.02	50.0	1.79	1.65	1.59
75.0	3.58	3.58	0.00	18.62	0.09	75.0	1.78	1.65	1.59
100.0	3.57	3.59	0.01	18.67	0.08	100.0	1.77	1.65	1.59
125.0	3.58	3.60	0.02	18.72	0.03	125.0	1.77	1.66	1.59
150.0	3.58	3.59	0.01	18.77	0.02	150.0	1.76	1.66	1.60
175.0	3.58	3.59	0.01	18.82	0.00	175.0	1.76	1.66	1.60
200.0	3.59	3.60	0.01	18.90	0.06	200.0	1.75	1.66	1.60
225.0	3.60	3.62	0.03	18.98	0.06	225.0	1.75	1.67	1.60
250.0	3.59	3.60	0.01	19.02	0.05	250.0	1.74	1.67	1.60
275.0	3.58	3.60	0.01	19.08	0.02	275.0	1.74	1.67	1.61
300.0	3.62	3.63	0.01	19.22	0.08	300.0	1.73	1.67	1.61
350.0	3.60	3.60	0.00	19.36	0.03	350.0	1.72	1.67	1.61
400.0	3.65	3.65	0.01	19.63	0.06	400.0	1.71	1.67	1.61
450.0	3.60	3.59	0.00	19.80	0.13	450.0	1.70	1.67	1.61
500.0	3.64	3.64	0.00	20.10	0.08	500.0	1.68	1.67	1.61
550.0	3.61	3.60	0.01	20.38	0.02	550.0	1.67	1.67	1.62
600.0	3.61	3.61	0.01	20.75	0.11	600.0	1.65	1.67	1.61
650.0	3.60	3.60	0.00	21.13	0.01	650.0	1.64	1.66	1.62
700.0	3.61	3.59	0.02	21.58	0.04	700.0	1.62	1.66	1.62
800.0	3.64	3.63	0.01	22.81	0.08	800.0	1.59	1.65	1.62
900.0	3.68	3.64	0.04	24.37	0.16	900.0	1.55	1.64	1.62
1000.0	3.69	3.66	0.03	26.52	0.13	1000.0	1.51	1.63	1.61
1100.0	3.62	3.57	0.06	29.63	0.22	1100.0	1.46	1.62	1.61
1200.0	3.59	3.53	0.05	34.48	0.14	1200.0	1.41	1.60	1.60
1300.0	3.59	3.54	0.05	36.84	0.24	1300.0	1.36	1.58	1.59
1400.0	3.66	3.58	0.07	30.65	0.25	1400.0	1.30	1.55	1.57
1500.0	3.65	3.57	0.08	25.93	0.30	1500.0	1.24	1.52	1.55
1600.0	3.63	3.55	0.08	22.54	0.26	1600.0	1.18	1.49	1.53
1700.0	3.59	3.49	0.10	19.88	0.41	1700.0	1.12	1.45	1.49
1800.0	3.64	3.54	0.11	17.78	0.45	1800.0	1.08	1.41	1.45
1900.0	3.71	3.61	0.11	15.99	0.44	1900.0	1.11	1.37	1.41
2000.0	3.80	3.68	0.12	14.47	0.44	2000.0	1.20	1.33	1.36

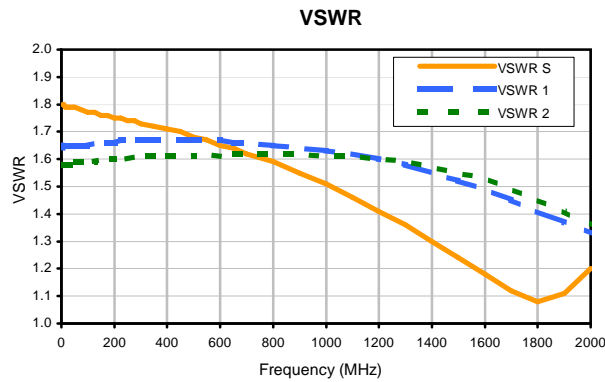
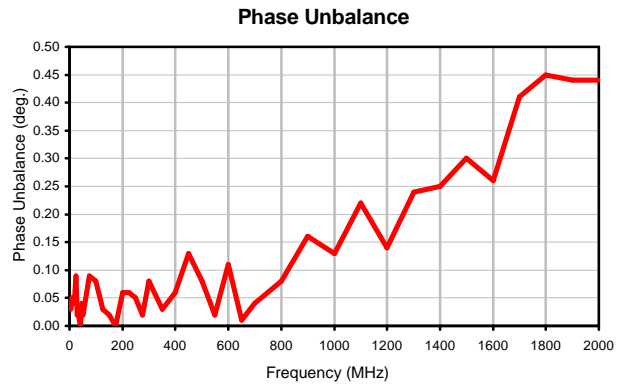
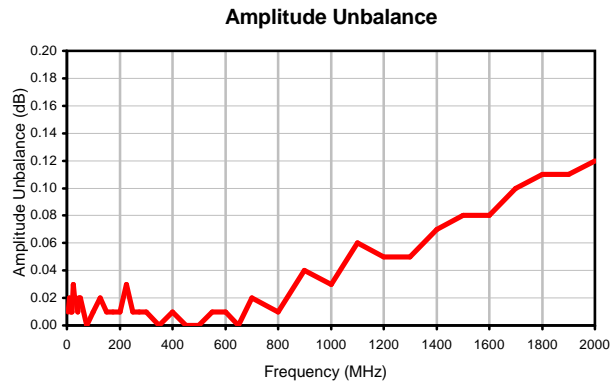
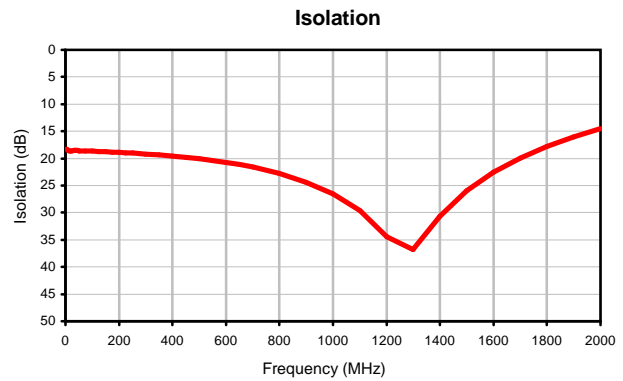
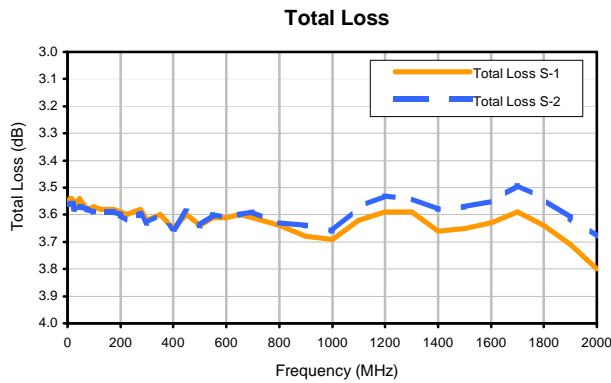
<sup>1</sup>Total Loss = Insertion Loss + 3dB Splitter Loss



# 2 Way-0° Power Splitter/Combiner

# MSC-2-11+

## Typical Performance Curves



REV. X2  
MSC-2-11+  
100624  
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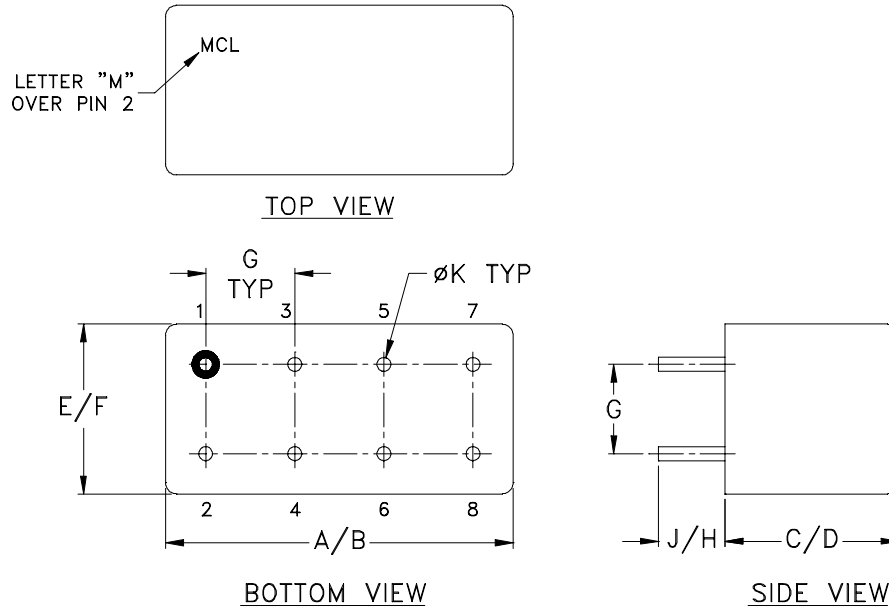
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## Outline Dimensions



CASE#	A	B	C	D	E	F	G	H	J	K	WT, GRAM
A03	.480 (12.19)	.500 (12.70)	.390 (9.91)	.405 (10.29)	.210 (5.33)	.230 (5.84)	.100 (2.54)	.20 (5.08)	.14 (3.56)	.020 (.51)	2.3
A11			.240 (6.10)	.255 (6.48)							1.9

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

### Notes:

- Header material: C.R.S.  
Pin material: #52 alloy.  
Cover material: Cupro-Nickel.
- Pin finish: Electro Tin-Silver.
- Insulated spacer available. Request P/N B14-047-01.
- Tolerance on pin diameter  $\pm .005$  inch.
- Glass meniscus 0.015 inch max.
- Blue bead indicates Pin 1. Pin numbers do not appear on unit, for reference only.

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
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
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	50g, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes	MIL-STD-202, Method 213, Condition A
Moisture Resistance	10 cycles, 24 hours per cycle	MIL-STD-202, Method 106, Condition A, except 50°C and end point electrical test done within 12 hours
Solderability	10X Magnification	J-STD-002, 95% Coverage
Resistance to Solder Heat	260°C for 10 seconds	MIL-STD-202, Method 210, Condition B
Marking Resistance to Solvents	Isopropyl alcohol + mineral spirits at 25°C; terpene defluxer at 25°C; distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C	MIL-STD-202, Method 215
Terminal Strength	4 1/2 Pound Pull	MIL-STD-202, Method 211, Condition A



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
Gross Leak	125°C Bubble Test	MIL-STD-202, Method 112, Condition D
Barometric Pressure	100,000 Feet	MIL-STD-202, Method 105, Condition D