

Engineering Development Model

Power Splitter/Combiner

4 Way-0°

SXP-ED13920A/1

Important Note

This model has been designed, built and tested in our engineering department. Performance data represents model capability. At present it is a non-catalog model. On request, we can supply a final specification sheet, part number and price/delivery information.



Please click "Back", and then click "Contact Us" for Applications support.

CASE STYLE : HF1485

ELECTRICAL SPECIFICATIONS 75Ω @ +25°C					
Parameter		Min.	Typ.	Max.	Units
Frequency		50		1000	MHz
Isolation	50-500 MHz		30		dB
	500-1000 MHz		23		
Insertion Loss Above 6.0 dB	50-500 MHz		0.80		dB
	500-1000 MHz		1.20		
Phase Unbalance	50-500 MHz		0.40		deg.
	500-1000 MHz		1.00		
Amplitude Unbalance	50-500 MHz		0.02		dB
	500-1000 MHz		0.05		
VSWR	SUM Port		1.20		(:1)
	OUT Ports		1.20		(:1)

MAXIMUM RATINGS	
Operating Temperature	-40°C to 100°C
Storage Temperature	-55°C to 100°C

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

Functional Diagram



P.O. Box 350186, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4851 For detailed performance specs & shopping online see Mini-Circuits web site



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IF/RF MICROWAVE COMPONENTS



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Typical Performance Data

FREQ. (MHz)	TOTAL LOSS ¹ (dB)				AMP. UNBAL. (dB)	ISOLATION (dB)			PHASE UNBAL. (deg.)	FREQ. (MHz)	VSWR (:1)				
	S-1	S-2	S-3	S-4		1-2	2-3	3-4			S	1	2	3	4
10.0	6.67	6.66	6.65	6.67	0.02	24.69	21.38	25.43	0.05	10.0	1.14	1.44	1.44	1.46	1.46
30.0	6.64	6.64	6.62	6.64	0.02	30.59	26.91	30.95	0.04	30.0	1.12	1.28	1.28	1.29	1.29
50.0	6.65	6.64	6.63	6.65	0.02	33.17	29.02	33.10	0.08	50.0	1.12	1.25	1.25	1.26	1.26
70.0	6.66	6.65	6.64	6.66	0.02	34.59	30.25	34.13	0.10	70.0	1.12	1.24	1.24	1.25	1.25
90.0	6.67	6.67	6.65	6.67	0.02	35.47	31.07	34.77	0.12	90.0	1.12	1.24	1.23	1.24	1.24
100.0	6.67	6.67	6.65	6.67	0.02	35.82	31.37	35.00	0.15	100.0	1.13	1.23	1.23	1.24	1.24
150.0	6.70	6.69	6.68	6.70	0.02	36.88	32.59	35.81	0.18	150.0	1.16	1.23	1.22	1.23	1.23
200.0	6.72	6.71	6.69	6.72	0.03	37.31	33.68	36.30	0.29	200.0	1.19	1.21	1.21	1.22	1.22
250.0	6.73	6.71	6.71	6.73	0.02	37.10	34.96	36.45	0.40	250.0	1.22	1.20	1.21	1.22	1.21
300.0	6.74	6.73	6.71	6.73	0.03	36.12	36.53	35.86	0.49	300.0	1.24	1.19	1.20	1.20	1.19
350.0	6.76	6.76	6.73	6.75	0.03	34.56	38.51	34.57	0.49	350.0	1.26	1.18	1.19	1.19	1.18
375.0	6.77	6.75	6.75	6.76	0.02	33.64	39.62	33.76	0.58	375.0	1.27	1.17	1.18	1.19	1.17
400.0	6.79	6.78	6.76	6.78	0.04	32.79	40.89	32.95	0.50	400.0	1.28	1.16	1.17	1.18	1.16
450.0	6.80	6.78	6.77	6.79	0.03	31.07	43.03	31.24	0.61	450.0	1.28	1.14	1.15	1.16	1.15
500.0	6.79	6.78	6.78	6.78	0.02	29.55	42.88	29.71	0.78	500.0	1.27	1.12	1.13	1.13	1.12
550.0	6.80	6.81	6.78	6.78	0.03	28.24	40.53	28.34	0.80	550.0	1.26	1.09	1.11	1.11	1.10
600.0	6.83	6.85	6.80	6.81	0.05	27.18	38.02	27.21	0.69	600.0	1.23	1.07	1.08	1.08	1.07
650.0	6.87	6.86	6.84	6.84	0.03	26.26	35.92	26.27	0.71	650.0	1.20	1.04	1.06	1.06	1.05
700.0	6.88	6.86	6.88	6.85	0.03	25.53	34.26	25.51	0.92	700.0	1.16	1.02	1.05	1.05	1.04
725.0	6.90	6.91	6.87	6.87	0.04	25.28	33.61	25.21	0.77	725.0	1.14	1.02	1.05	1.05	1.04
750.0	6.89	6.90	6.90	6.86	0.04	25.00	33.01	24.93	1.09	750.0	1.12	1.02	1.05	1.05	1.04
775.0	6.93	6.92	6.92	6.90	0.03	24.81	32.51	24.72	0.88	775.0	1.10	1.03	1.06	1.06	1.05
800.0	6.92	6.96	6.91	6.89	0.07	24.68	32.10	24.54	1.06	800.0	1.09	1.05	1.07	1.08	1.06
850.0	6.98	7.00	6.96	6.95	0.05	24.50	31.45	24.33	0.95	850.0	1.06	1.08	1.10	1.10	1.09
900.0	7.03	7.02	7.03	7.00	0.04	24.48	31.07	24.28	1.12	900.0	1.03	1.10	1.13	1.13	1.12
940.0	7.03	7.07	7.07	6.99	0.08	24.62	30.96	24.40	1.40	940.0	1.03	1.12	1.16	1.15	1.15
960.0	7.09	7.08	7.11	7.05	0.06	24.72	30.91	24.48	1.22	960.0	1.04	1.13	1.17	1.17	1.16
980.0	7.10	7.13	7.10	7.06	0.07	24.89	30.91	24.58	0.99	980.0	1.04	1.14	1.18	1.18	1.17
1002.0	7.09	7.15	7.15	7.05	0.10	25.07	30.97	24.79	1.36	1002.0	1.06	1.15	1.19	1.19	1.18
1050.0	7.15	7.23	7.18	7.12	0.11	25.66	31.16	25.29	1.09	1050.0	1.07	1.17	1.22	1.21	1.21
1100.0	7.23	7.27	7.25	7.20	0.07	26.45	31.45	25.98	1.25	1100.0	1.10	1.19	1.25	1.23	1.24
1150.0	7.29	7.32	7.34	7.26	0.08	27.52	31.87	26.97	1.57	1150.0	1.11	1.21	1.27	1.26	1.26
1200.0	7.31	7.39	7.40	7.29	0.11	28.93	32.22	28.19	1.75	1200.0	1.12	1.23	1.29	1.28	1.28

¹Total Loss = Insertion Loss + 6dB Splitter Loss



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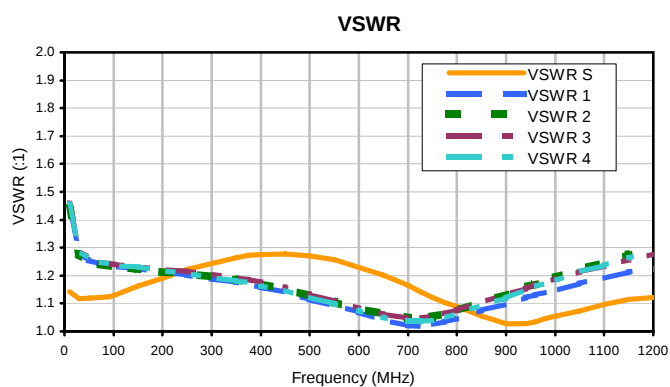
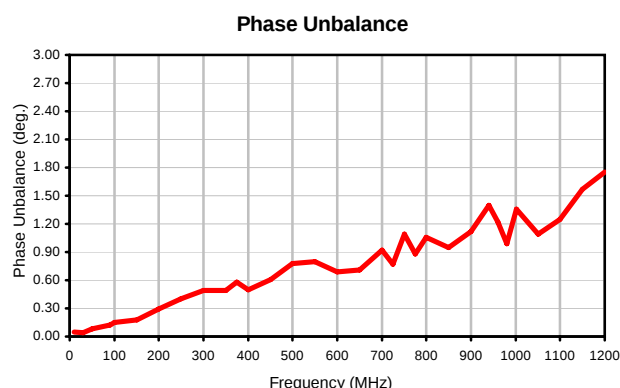
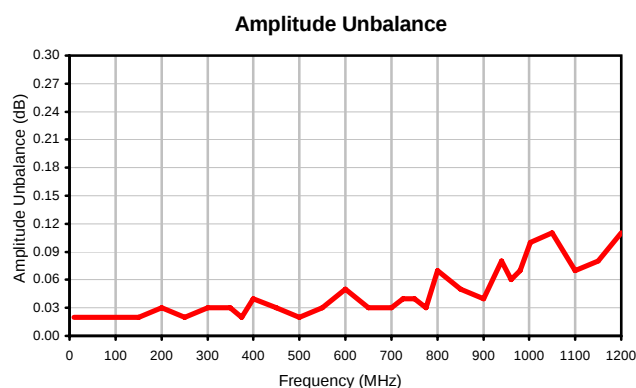
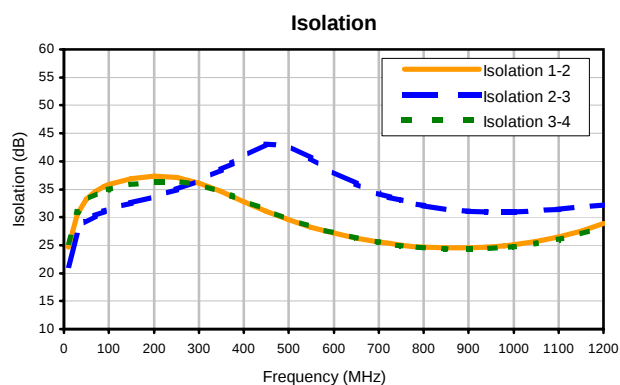
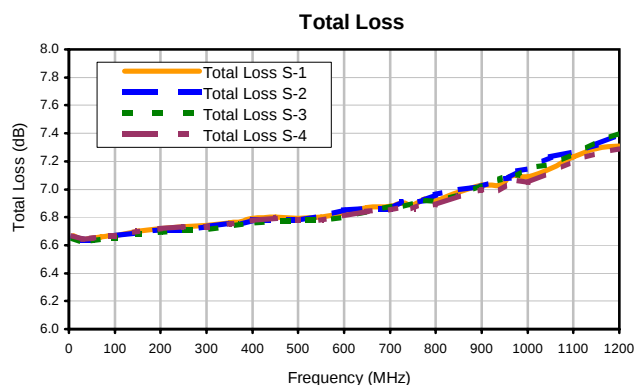
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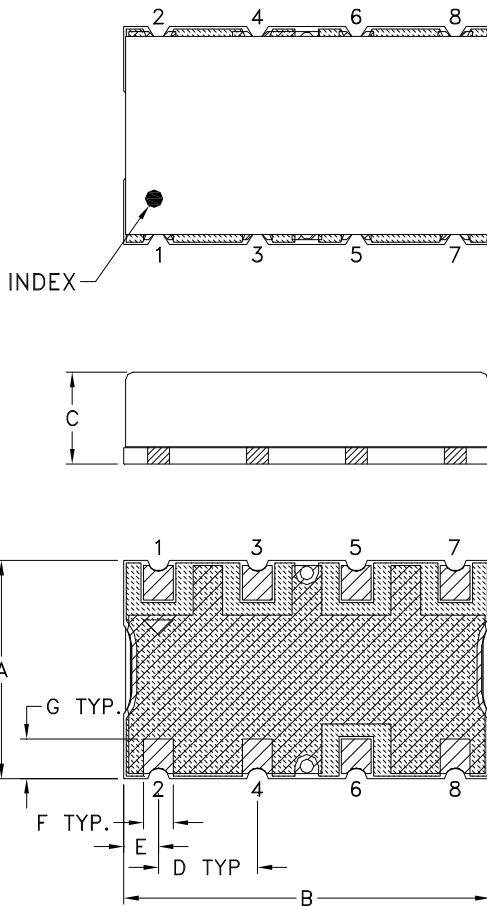
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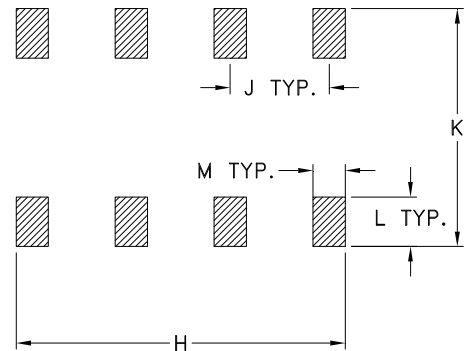
Typical Performance Curves



Outline Dimensions



PCB Land Pattern



Suggested Layout,
Tolerance to be within $\pm .002$

 METALLIZATION
 SOLDER RESIST

CASE #	A	B	C	D	E	F	G	H	J	K	L	M	WT. GRAMS
HF1485	.44 (11.18)	.74 (18.80)	.19 (4.83)	.200 (5.08)	.07 (1.78)	.060 (1.52)	.080 (2.03)	.665 (16.89)	.200 (5.08)	.480 (12.19)	.100 (2.54)	.065 (1.65)	2.5

Dimensions are in inches (mm). Tolerances: 2 Pl. $\pm .015$ "; 3 Pl. $\pm .01$ "

Notes:

- Case material: Nickel-Silver alloy.
- Base: Printed wiring laminate.
- Termination finish:
For RoHS Case Styles: 2-5 μ inch (.05-.13 microns) Gold over 120-240 μ inch (3.05-6.10 microns) Nickel plate.
For RoHS-5 Case Styles: Tin-Lead plate.



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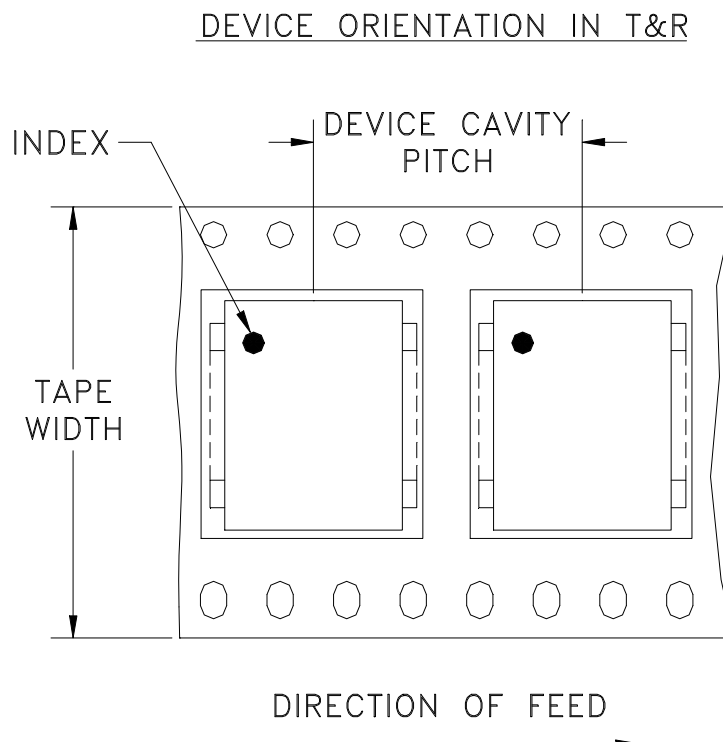


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Tape & Reel Packaging TR-F5



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel
32	16	13	500

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REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M90087	NEW RELEASE	12/18/03	AV	HY
A	M102713	ADDED "...WITH SMOBC"	01/12/06	GF	IL

.100 TYP
 .035 TYP
 .065 TYP
 .033 TRACE WIDTH, 5 PL.
 (SEE NOTE BELOW)
 PACKAGE OUTLINE
 Ø.020 PTH, 18 PL. FOR GROUND
 .025 TYP
 PIN 1
 .040, 2 PL.
 .037, 2 PL.
 .040
 .040
 .040
 .050 TYP

 DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)

 DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

UNLESS OTHERWISE SPECIFIED	INITIALS		DATE
DIMENSIONS ARE IN INCHES	DRAWN	AV	12/11/03
TOLERANCES ON:	CHECKED	IL	12/18/03
2 PL DECIMALS ± .005	APPROVED	HY	12/18/03
3 PL DECIMALS ±			
ANGLES ±			
FRACTIONS ±			

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SIZE
A

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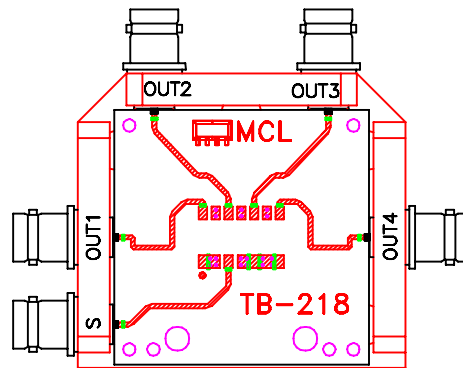
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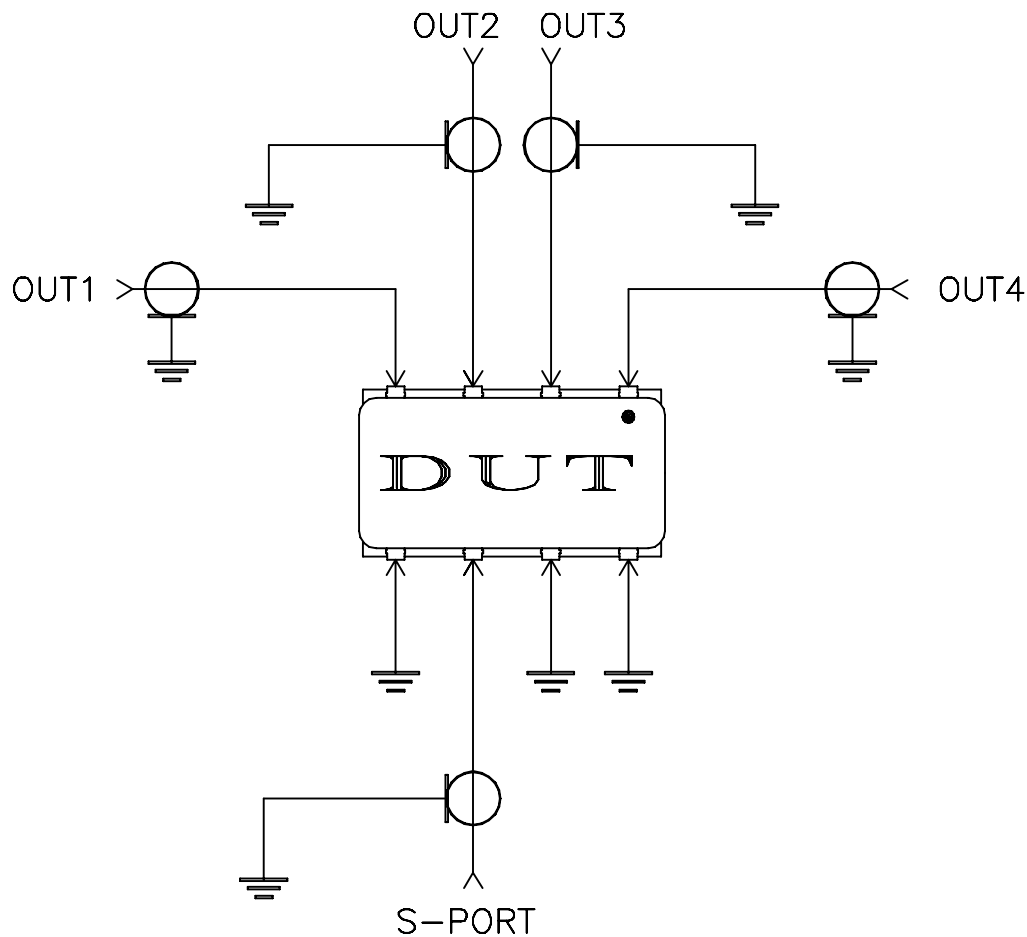
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Evaluation Board and Circuit



TB-218



Schematic Diagram

Notes:

1. BNC Female connectors.
2. PCB Material: Rogers R04350 or equivalent,
Dielectric Constant=3.5, Thickness=.030 inch.

 Mini-Circuits®



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 Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Humidity	90 to 95% RH, 240 hours, 50°C	MIL-STD-202, Method 103, Condition A, Except 50°C and end-point electrical test done within 12 hours
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
Solder Reflow Heat	Sn-Pb Eutetic Process: 225°C peak Pb-Free Process 245° - 250°C peak	J-STD-020, Table 4-1, 4-2 and 5-2, Figure 5-1
Solderability	10X Magnification	J-STD-002, 95% Coverage
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
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