Coaxial, Dual-Channel

Power Splitter/Combiner ZC8SC272-12DL+

8 Way-0° 50Ω 1 to 100 MHz, 2450 to 2700 MHz

The Big Deal

- Distributes IF and reference signals on the same line
- Excellent VSWR, 1.2:1 typ.
- Good isolation, 22 dB

CASE STYLE: UU2358-1

Product Overview

Mini-Circuits' ZC8SC272-12DL+ is an 8-way 0˚ dual channel splitter/combiner with a low pass channel from 1 to 100 MHz and a high pass channel from 2450 to 2700 MHz. This model is ideal for distributing signals where S-band IF and a reference signal are fed onto the same line. It provides good input and output matching VSWR, low insertion loss, and excellent isolation between channels. It comes housed in a rugged aluminum alloy case (4.00" x 1.25" x 0.50") with SMA connectors.

Key Features

Feature	Advantages
Dual channel: • 1 to 100 MHz low pass • 2450 to 2700 high pass	Distributes S-Band IF and reference signals on the same line into 8 paths without the need for diplexers and other additional components.
Good matching VSWR • 1.2:1 high pass (ports 1-8) • 1.1:1 low pass (ports 1-8)	Provides excellent transmission of signal power with minimal signal reflection.
Good power handling: • +37 dBm high pass (as a splitter) • +27 dBm low pass (as a splitter)	Suitable for a wide range of power requirements
Low insertion loss: • 0.5 dB low pass • 2.0 dB high pass	Low insertion loss minimizes intrinsic losses, making this model a suitable candidate for high power signal distribution applications where low loss is a requirement.

Notes
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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/MCLStore/terms.jsp

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ZC8SC272-12DL+

8 Way-0° 50Ω 1 to 100 MHz, 2450 to 2700 MHz

Generic photo used for illustration purposes only

CASE STYLE: UU2358-1

Connectors	Model
SMA	ZC8SC272-12DL+

+RoHS Compliant

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

Maximum Ratings

Operating Temperature	-55°C to 85°C
Storage Temperature	-55°C to 100°C

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

Coaxial Connections

SUM PORT	S
PORT 1,2,3,4,5,6,7,8	1,2,3,4,5,6,7,8

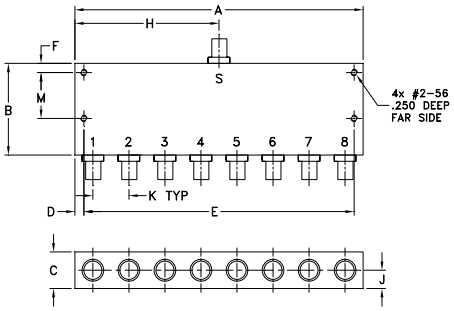
Features

- Dual Channel Frequency
- Excellent input matching, VSWR 1.35:1 typ.
- Excellent output matching, VSWR 1.2:1 typ.

Applications

- ISM
- MDS
- SATCOM
- WLAN
- Test Instrumentation

Outline Drawing

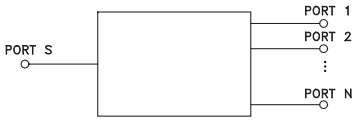


Outline Dimensions (inch / mm)

A	B	C	D	E	F	G
4.00	1.25	.50	.125	3.750	.125	--
101.60	31.75	12.70	3.18	95.25	3.18	--

H	J	K	L	M	wt
2.00	.25	.500	--	0.625	grams
50.80	6.35	12.70	--	15.88	85

Electrical Schematic



Electrical Specifications at 25°C

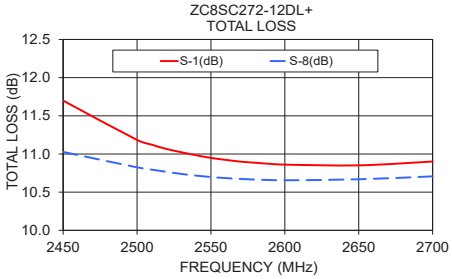
Parameter		Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range			2450		2700	MHz
Insertion Loss (above theoretical 9.0 dB)	Low Pass	1 - 100	—	0.5	0.9	dB
	High Pass	2450 - 2700	—	2.0	3.5	
Isolation	Low Pass	1 - 100	20	30	—	dB
	High Pass	2450 - 2700	15	22	—	
Phase Unbalance	Low Pass	1 - 100	—	0.2	3.0	Degree
	High Pass	2450 - 2700	—	7.0	16.0	
Amplitude Unbalance	Low Pass	1 - 100	—	0.05	0.3	dB
	High Pass	2450 - 2700	—	0.6	1.5	
VSWR (Port S)	Low Pass	1 - 100	—	1.15	1.30	:1
	High Pass	2450 - 2700	—	1.35	1.7	
VSWR (Port 1-8)	Low Pass	1 - 100	—	1.1	1.3	:1
	High Pass	2450 - 2700	—	1.2	1.5	
Power Input	Low Pass	Splitter[1]	—	—	27	dBm
		Combiner[2]	—	—	24	
	High Pass	Splitter[1]	—	—	37	dBm
		Combiner[2]	—	—	24	

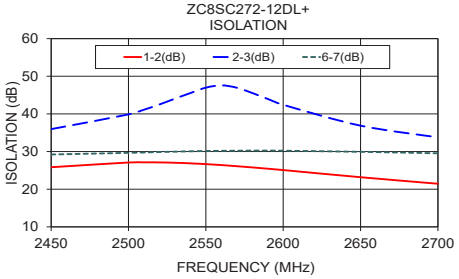
1. All outputs must terminate 50 ohms (VSWR 2.0:1 or better)
2. As a combiner of non-coherent signals, max. power as specified.

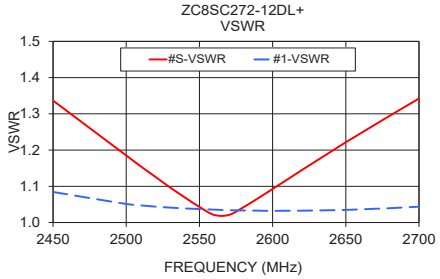
Typical Performance Data

Freq. (MHz)	Total Loss[3] (dB)						Amp. Unb. (dB)	Isolation (dB)				Phase Unb. (deg.)	VSWR S	VSWR 1	VSWR 8
	S-1	S-2	S-3	S-4	S-6	S-8		1-2	2-3	3-4	6-7				
2450	11.70	11.28	11.18	10.92	11.32	11.03	1.00	25.83	35.96	28.29	29.22	7.67	1.34	1.08	1.15
2500	11.18	10.86	10.94	10.72	10.84	10.82	0.67	27.09	39.87	28.96	29.66	7.46	1.19	1.05	1.17
2510	11.12	10.81	10.91	10.70	10.79	10.79	0.63	27.13	41.12	28.87	29.76	7.44	1.15	1.05	1.17
2520	11.07	10.76	10.88	10.67	10.74	10.77	0.60	27.12	42.51	28.70	29.88	7.41	1.13	1.04	1.18
2530	11.02	10.72	10.85	10.65	10.70	10.74	0.58	27.02	44.05	28.45	29.97	7.38	1.10	1.04	1.18
2540	10.98	10.69	10.83	10.63	10.66	10.72	0.56	26.87	45.54	28.15	30.07	7.38	1.07	1.04	1.18
2550	10.95	10.66	10.81	10.61	10.63	10.70	0.54	26.66	46.97	27.79	30.15	7.40	1.04	1.04	1.18
2560	10.92	10.64	10.80	10.60	10.61	10.68	0.54	26.41	47.58	27.39	30.20	7.43	1.02	1.04	1.18
2570	10.90	10.61	10.79	10.58	10.59	10.67	0.53	26.11	46.95	26.95	30.22	7.46	1.02	1.03	1.18
2580	10.89	10.60	10.78	10.58	10.58	10.66	0.53	25.79	45.55	26.49	30.25	7.49	1.04	1.03	1.17
2590	10.87	10.59	10.77	10.57	10.56	10.66	0.52	25.44	43.98	26.02	30.25	7.56	1.07	1.03	1.17
2600	10.86	10.58	10.76	10.57	10.55	10.66	0.52	25.08	42.42	25.55	30.22	7.62	1.09	1.03	1.16
2650	10.85	10.58	10.76	10.56	10.53	10.67	0.50	23.18	36.88	23.27	29.93	7.97	1.22	1.03	1.15
2700	10.90	10.62	10.78	10.58	10.54	10.71	0.47	21.45	33.78	21.33	29.54	8.76	1.34	1.04	1.15

3. Total Loss = Insertion Loss + 9dB theoretical splitter loss.







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Dual-Channel 8 Way-0° Power Splitter/Combiner ZC8SC272-12DL+

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	S-6	S-8		1-2	2-3	3-4	6-7			S	1	8
Low Pass																
1	9.41	9.41	9.41	9.40	9.40	9.40	0.01	37.32	42.59	35.19	41.56	0.11	1	1.17	1.09	1.09
2	9.37	9.37	9.37	9.37	9.37	9.37	0.01	36.22	41.87	34.70	41.20	0.08	2	1.14	1.06	1.05
3	9.38	9.37	9.37	9.37	9.38	9.37	0.01	35.66	41.54	34.31	41.03	0.08	3	1.12	1.04	1.04
4	9.39	9.39	9.39	9.39	9.39	9.39	0.01	35.24	41.06	34.13	40.93	0.08	4	1.11	1.03	1.03
5	9.40	9.40	9.40	9.40	9.40	9.40	0.01	34.95	41.01	33.98	40.64	0.15	5	1.11	1.03	1.02
6	9.41	9.41	9.40	9.41	9.41	9.41	0.01	34.83	40.81	33.82	40.55	0.05	6	1.10	1.02	1.02
7	9.42	9.42	9.42	9.42	9.42	9.42	0.01	34.83	40.75	33.77	40.50	0.11	7	1.10	1.02	1.02
8	9.42	9.42	9.42	9.43	9.42	9.42	0.01	34.61	40.53	33.67	40.26	0.11	8	1.10	1.02	1.02
9	9.43	9.44	9.43	9.43	9.43	9.43	0.01	34.57	40.53	33.62	40.28	0.14	9	1.10	1.02	1.02
10	9.44	9.44	9.44	9.44	9.44	9.44	0.01	34.45	40.43	33.58	40.17	0.14	10	1.09	1.02	1.01
11	9.45	9.45	9.44	9.45	9.44	9.45	0.01	34.38	40.33	33.53	40.12	0.16	11	1.09	1.01	1.01
12	9.46	9.45	9.45	9.46	9.45	9.45	0.01	34.30	40.33	33.49	40.11	0.17	12	1.09	1.01	1.01
13	9.46	9.46	9.46	9.46	9.45	9.46	0.01	34.24	40.24	33.43	40.04	0.18	13	1.09	1.01	1.01
14	9.46	9.46	9.46	9.46	9.46	9.46	0.01	34.20	40.23	33.40	40.04	0.18	14	1.09	1.01	1.01
15	9.47	9.47	9.47	9.47	9.46	9.47	0.01	34.16	40.17	33.37	39.99	0.20	15	1.09	1.01	1.01
16	9.47	9.47	9.47	9.47	9.47	9.47	0.01	34.12	40.14	33.35	39.96	0.22	16	1.09	1.01	1.01
17	9.48	9.48	9.47	9.48	9.47	9.48	0.01	34.08	40.08	33.31	39.95	0.22	17	1.09	1.01	1.01
18	9.48	9.48	9.48	9.48	9.48	9.48	0.01	34.01	40.04	33.28	39.89	0.24	18	1.09	1.01	1.01
19	9.49	9.48	9.48	9.48	9.48	9.48	0.01	33.96	40.01	33.25	39.85	0.24	19	1.09	1.01	1.01
20	9.49	9.49	9.49	9.49	9.48	9.49	0.01	33.92	39.95	33.24	39.78	0.25	20	1.09	1.01	1.01
50	9.59	9.59	9.59	9.59	9.58	9.59	0.01	32.78	38.94	32.64	39.04	0.58	50	1.10	1.01	1.01
100	9.72	9.72	9.72	9.72	9.71	9.72	0.01	31.85	38.56	32.67	39.17	1.09	100	1.12	1.01	1.01
High Pass																
2000	18.70	18.38	17.38	18.01	17.89	17.26	1.43	8.44	24.70	10.33	25.35	16.30	2000	1.16	1.55	1.43
2050	15.69	15.28	14.65	14.94	14.98	14.56	1.14	11.23	25.57	14.03	26.10	15.00	2050	1.46	1.51	1.36
2100	13.99	13.54	13.22	13.24	13.37	13.16	0.83	14.67	27.34	18.18	27.36	13.58	2100	1.71	1.43	1.35
2150	13.08	12.66	12.59	12.43	12.56	12.62	0.66	18.08	28.60	21.45	27.78	12.96	2150	1.78	1.34	1.32
2200	12.49	12.09	12.33	12.02	12.03	12.49	0.65	20.94	29.16	23.44	27.75	11.96	2200	1.69	1.27	1.35
2250	12.08	11.67	12.33	11.88	11.62	12.72	1.10	23.05	29.95	24.37	28.32	8.94	2250	1.48	1.22	1.34
2300	12.02	11.55	12.63	12.01	11.47	12.78	1.31	24.07	32.18	24.17	29.13	10.47	2300	1.28	1.20	1.25
2350	12.63	11.99	12.35	11.78	11.86	11.86	1.25	23.51	35.05	24.32	29.04	9.60	2350	1.31	1.20	1.18
2400	12.67	12.00	11.58	11.22	12.06	11.30	1.74	23.68	34.76	26.30	29.23	4.81	2400	1.40	1.15	1.16
2450	11.70	11.28	11.18	10.92	11.32	11.03	1.00	25.83	35.96	28.29	29.22	7.67	2450	1.34	1.08	1.15
2500	11.18	10.86	10.94	10.72	10.84	10.82	0.67	27.09	39.87	28.96	29.66	7.46	2500	1.19	1.05	1.17
2510	11.12	10.81	10.91	10.70	10.79	10.79	0.63	27.13	41.12	28.87	29.76	7.44	2510	1.15	1.05	1.17
2520	11.07	10.76	10.88	10.67	10.74	10.77	0.60	27.12	42.51	28.70	29.88	7.41	2520	1.13	1.04	1.18
2530	11.02	10.72	10.85	10.65	10.70	10.74	0.58	27.02	44.05	28.45	29.97	7.38	2530	1.10	1.04	1.18
2540	10.98	10.69	10.83	10.63	10.66	10.72	0.56	26.87	45.54	28.15	30.07	7.38	2540	1.07	1.04	1.18
2550	10.95	10.66	10.81	10.61	10.63	10.70	0.54	26.66	46.97	27.79	30.15	7.40	2550	1.04	1.04	1.18
2560	10.92	10.64	10.80	10.60	10.61	10.68	0.54	26.41	47.58	27.39	30.20	7.43	2560	1.02	1.04	1.18
2570	10.90	10.61	10.79	10.58	10.59	10.67	0.53	26.11	46.95	26.95	30.22	7.46	2570	1.02	1.03	1.18
2580	10.89	10.60	10.78	10.58	10.58	10.66	0.53	25.79	45.55	26.49	30.25	7.49	2580	1.04	1.03	1.17
2590	10.87	10.59	10.77	10.57	10.56	10.66	0.52	25.44	43.98	26.02	30.25	7.56	2590	1.07	1.03	1.17
2600	10.86	10.58	10.76	10.57	10.55	10.66	0.52	25.08	42.42	25.55	30.22	7.62	2600	1.09	1.03	1.16
2650	10.85	10.58	10.76	10.56	10.53	10.67	0.50	23.18	36.88	23.27	29.93	7.97	2650	1.22	1.03	1.15
2700	10.90	10.62	10.78	10.58	10.54	10.71	0.47	21.45	33.78	21.33	29.54	8.76	2700	1.34	1.04	1.15
2750	10.99	10.71	10.83	10.61	10.58	10.77	0.49	20.02	31.79	19.77	29.29	9.82	2750	1.45	1.06	1.11
2800	11.09	10.79	10.86	10.64	10.59	10.83	0.53	18.86	30.43	18.55	29.36	10.80	2800	1.53	1.08	1.08
2850	11.19	10.88	10.88	10.65	10.59	10.87	0.60	17.93	29.40	17.57	29.76	11.62	2850	1.58	1.11	1.08
2900	11.30	10.97	10.90	10.64	10.58	10.88	0.72	17.19	28.55	16.79	30.62	12.36	2900	1.60	1.14	1.10
2950	11.38	11.03	10.90	10.62	10.51	10.86	0.87	16.55	27.72	16.14	32.00	12.93	2950	1.58	1.17	1.11
3000	11.46	11.08	10.88	10.61	10.42	10.82	1.04	16.01	26.82	15.56	34.25	13.18	3000	1.53	1.20	1.13

[1]Total Loss = Insertion Loss + 9dB Splitter Loss

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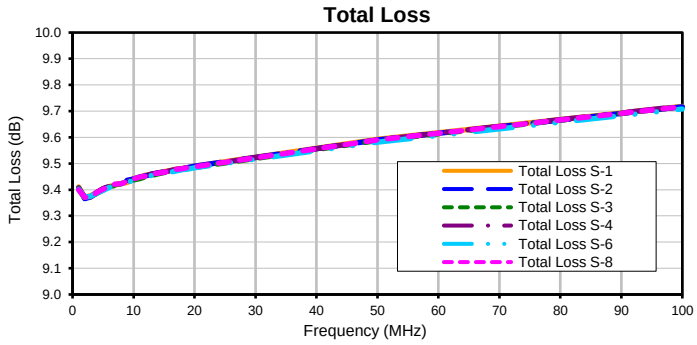
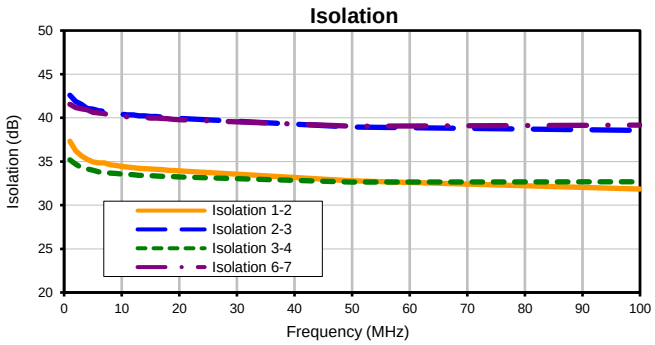
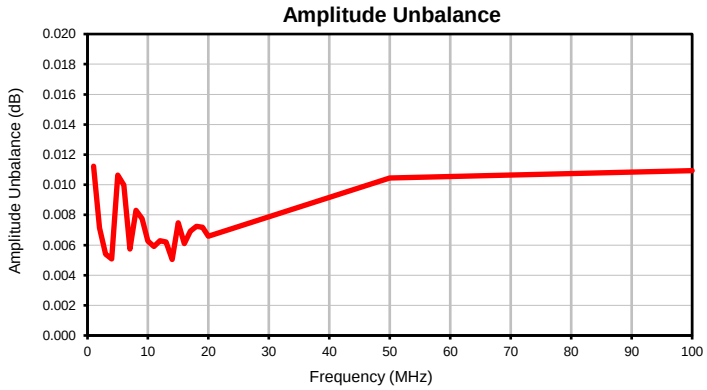
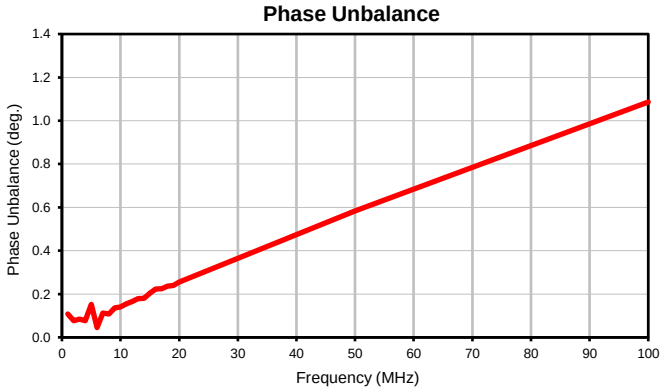
Typical Performance Curves

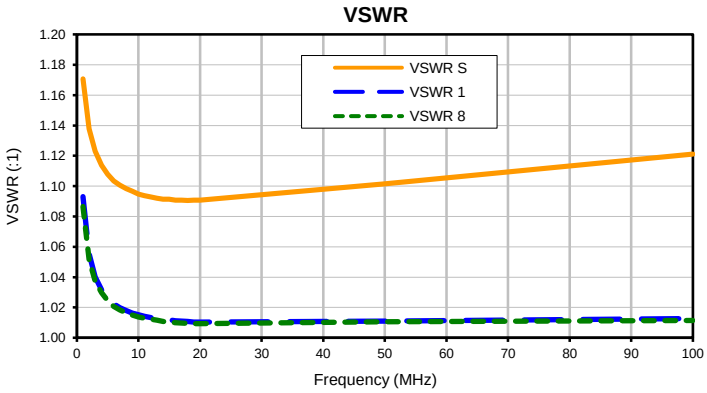
Low Pass







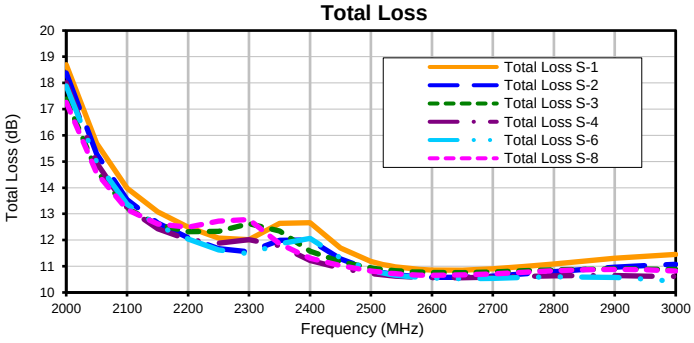




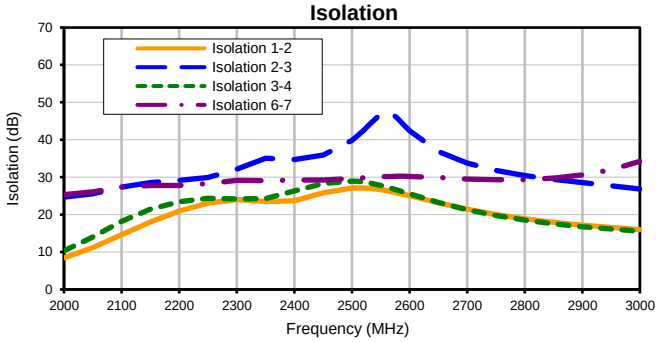
Typical Performance Curves

High Pass

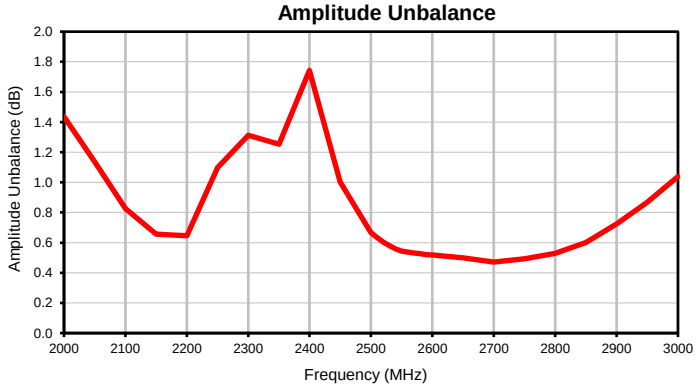
Total Loss



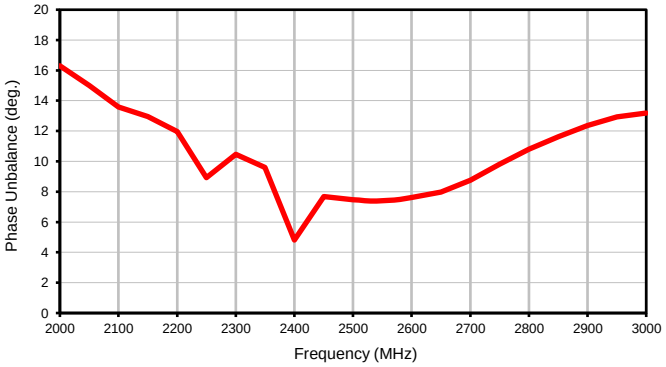
Isolation



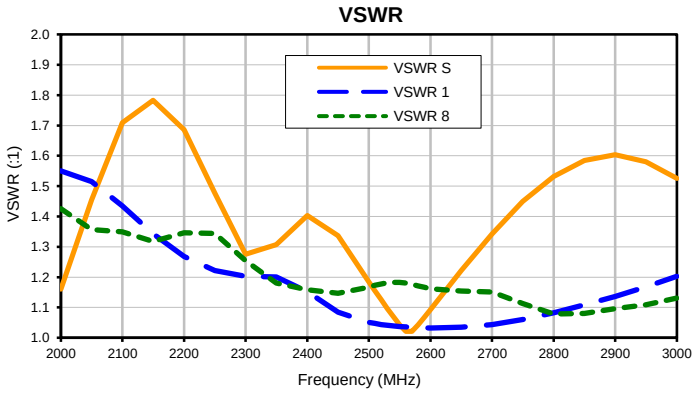
Amplitude Unbalance



Phase Unbalance



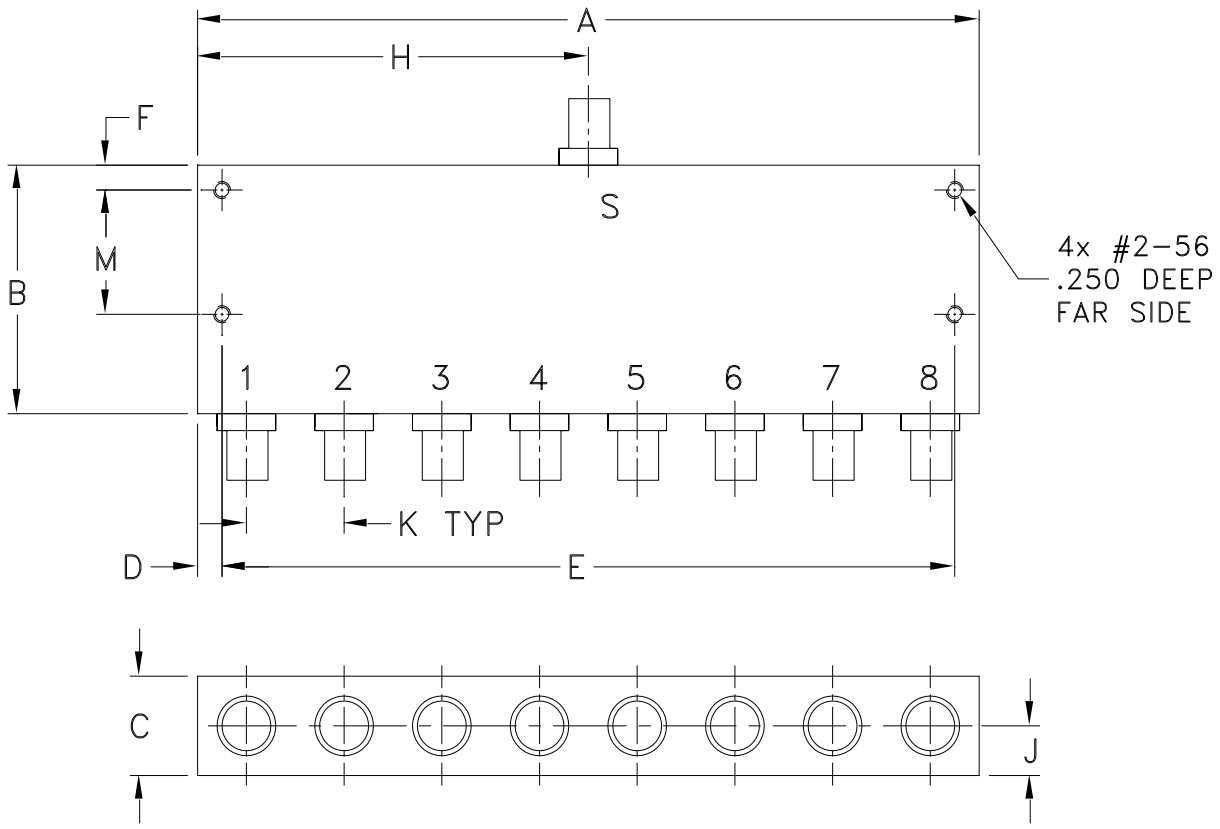
VSWR



Case Style UU

Outline Dimensions

UU2358-1



CASE#	A	B	C	D	E	F	G	H	J	K	L	M	WT. GRAMS
UU2358-1	4.00 (101.60)	1.25 (31.75)	.50 (12.70)	.125 (3.18)	3.750 (95.25)	.125 (3.18)	-- --	2.00 (50.80)	.25 (6.35)	.500 (12.70)	-- --	.625 (15.87)	85

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

Notes:

1. Case material: Aluminum alloy.
2. Case finish:
   For RoHS Case Styles: Clear chemical conversion coating, non-chrome or trivalent chrome based.
3. Refer to the individual model data sheet for the type of connectors available.

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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 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

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