NON-CATALOG

Coaxial

Power Splitter/Combiner ZC16PD-251-S+

16 Way-0° 50Ω 1 to 250 MHz 5 Watt

The Big Deal

- High power handling, 5W as a splitter
- High IP2 (+70 dB) and IP3 (+50 dB) at 1W input
- Low insertion loss, 2.6 dB
- Low unbalance, 0.3 dB / 1°
- Good isolation, 25 dB



CASE STYLE: UU640

Product Overview

Mini-Circuits' ZC16PD-251-S+ is a connectorize 16-way 0˚ splitter/combiner covering the 1 to 250 MHz frequency range, supporting bandwidth requirements for a wide range of RF/microwave systems. This model can handle up to 5W RF input power as a splitter and provides low insertion loss, high isolation, low amplitude unbalance, and low phase unbalance. The unit comes housed in a slim aluminium alloy case (8.50 x 4.00 x 0.50) with SMA connectors. Saving space in created system layouts.

Key Features

Feature	Advantages
High power handling, 5W	Supports a wide range of power requirements with multiple outputs.
High IP2, +70 dBm High IP3, +50 dBm	Minimizes second harmonic and third order intermodulation where multiple carriers may be present.
Low insertion loss, 1.6 dB (above 12 dB theoretical loss)	The combination of 5W power handling and low insertion loss makes this model a suitable candidate for distributing signals while maintaining excellent transmission of signal power.
High isolation, 25 dB	Minimizes interference between ports.
Low unbalance, 0.3 dB / 1°	Low unbalance provides nearly equal output signals, ideal for parallel path/multichannel systems.
Small size, 8.50 x 4.00 x 0.50”	Saves space in crouded system layouts.

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/MCLStore/terms.jsp

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Maximum Ratings

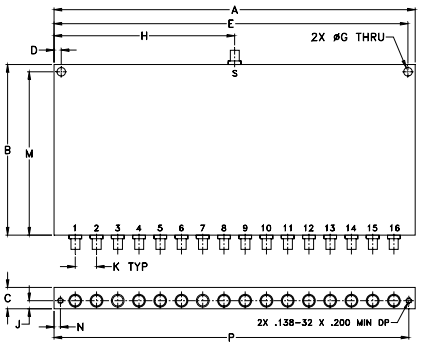
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter)	5W max.

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

Pin Connections

SUM PORT	S
PORT 1,2,3....16	1,2,3...16

Outline Drawing

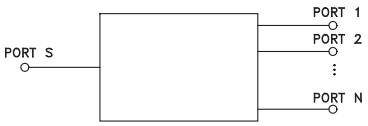


Outline Dimensions (inch / mm)

A	B	C	D	E	G	H
8.50	4.00	.50	.170	8.330	.201	4.25
215.90	101.60	12.70	4.32	211.58	5.11	107.95

J	K	M	N	P	wt
.19	.500	3.830	.150	8.350	grams
4.83	12.70	97.28	3.81	212.09	450

Electrical Schematic



Features

- high IP2, +70 dBm typ., IP3, +50 dBm at 1watt input
- low insertion loss, 2.6 dB typ.
- good isolation, 25 dB typ.
- excellent output VSWR, 1.1:1 typ.
- up to 5W power input as splitter

Applications

- VHF/UHF
- communication systems
- test instrument



CASE STYLE: UU640

Connectors	Model
SMA	ZC16PD-251-S+

+RoHS Compliant

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

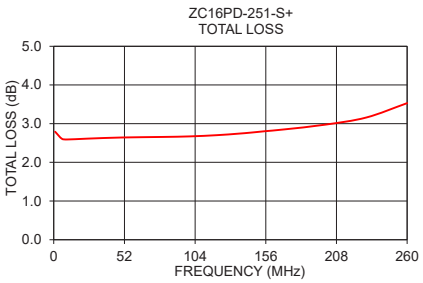
Electrical Specifications at 25°C

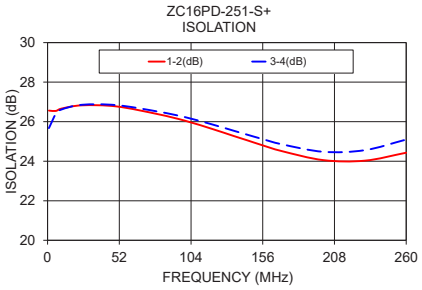
Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency		1		250	MHz
Insertion Loss	5-100	—	2.6	2.9	dB
(above theoretical 12 dB)	1-250	—	3.0	4.4	
Isolation	1-250	20	25	—	dB
Phase Unbalance	1-250		4	8	Degree
Amplitude Unbalance	1-250	—	0.3	0.7	dB
VSWR (Port S)	1-250	—	1.3	1.8	:1
VSWR (Port 1, 16)	1-250	—	1.15	1.5	:1
Input Power (as splitter)	1-250	—	—	5	W
Input Power (as combiner)	1-250	—	—	0.125	

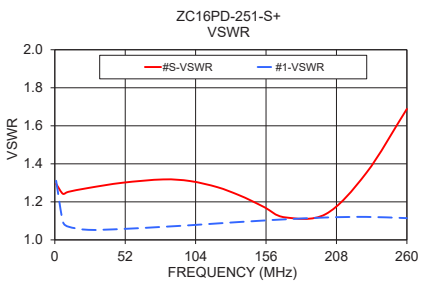
Typical Performance Data

Frequency (MHz)	Total Loss[1] (dB)	Amplitude Unbalance (dB)	Isolation (dB)		Phase Unbalance (deg.)	VSWR	VSWR
	S-1		1-2	3-4		S	1
1	2.79	0.07	26.56	25.67	1.38	1.29	1.31
6	2.61	0.05	26.54	26.39	0.36	1.24	1.10
10	2.59	0.04	26.66	26.61	0.29	1.25	1.07
25	2.61	0.03	26.83	26.85	0.29	1.27	1.05
50	2.64	0.04	26.77	26.84	0.43	1.30	1.06
80	2.66	0.04	26.38	26.51	0.64	1.32	1.07
100	2.67	0.05	26.04	26.22	0.78	1.31	1.08
120	2.70	0.07	25.62	25.85	0.96	1.28	1.09
135	2.74	0.08	25.27	25.54	1.11	1.24	1.09
145	2.77	0.10	25.05	25.34	1.22	1.21	1.10
155	2.80	0.12	24.82	25.14	1.35	1.17	1.10
170	2.85	0.14	24.51	24.85	1.58	1.12	1.11
200	2.98	0.21	24.05	24.48	2.25	1.14	1.12
230	3.16	0.31	24.03	24.56	3.26	1.35	1.12
260	3.53	0.41	24.43	25.10	4.77	1.69	1.11

1. Total Loss = Insertion Loss + 12dB splitter theoretical loss.







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16 Way-0° Power Splitter/Combiner ZC16PD-251-S+

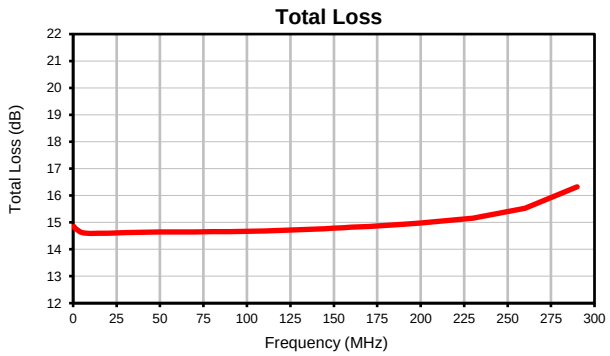
Typical Performance Data

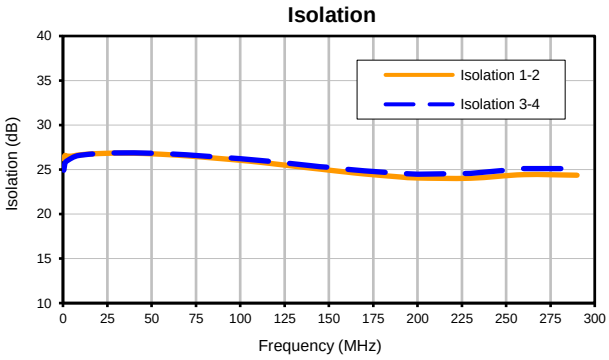
FREQUENCY (MHz)	TOTAL LOSS[1] (dB) S-1	AMPLITUDE UNBALANCE (dB)	ISOLATION (dB) 1-2	ISOLATION (dB) 3-4	PHASE UNBALANCE (deg.)
0.5	14.85	0.13	26.17	24.92	2.86
1.0	14.79	0.07	26.56	25.67	1.38
1.5	14.77	0.07	26.58	25.83	0.93
2.0	14.74	0.06	26.53	25.92	0.72
4	14.65	0.06	26.50	26.20	0.45
6	14.61	0.05	26.54	26.39	0.36
8	14.59	0.04	26.62	26.53	0.31
10	14.59	0.04	26.66	26.61	0.29
15	14.59	0.04	26.75	26.74	0.26
20	14.60	0.03	26.79	26.81	0.27
25	14.61	0.03	26.83	26.85	0.29
30	14.62	0.03	26.84	26.88	0.31
40	14.64	0.03	26.83	26.88	0.36
50	14.64	0.04	26.77	26.84	0.43
60	14.65	0.04	26.67	26.75	0.50
70	14.65	0.04	26.54	26.64	0.57
80	14.66	0.04	26.38	26.51	0.64
90	14.66	0.05	26.21	26.37	0.72
100	14.67	0.05	26.04	26.22	0.78
110	14.68	0.06	25.84	26.05	0.86
120	14.70	0.07	25.62	25.85	0.96
130	14.73	0.08	25.39	25.64	1.05
135	14.74	0.08	25.27	25.54	1.11
140	14.75	0.09	25.16	25.44	1.16
145	14.77	0.10	25.05	25.34	1.22
150	14.79	0.11	24.94	25.24	1.27
155	14.80	0.12	24.82	25.14	1.35
160	14.82	0.12	24.72	25.04	1.43
170	14.85	0.14	24.51	24.85	1.58
190	14.93	0.19	24.17	24.57	2.00
200	14.98	0.21	24.05	24.48	2.25
230	15.16	0.31	24.03	24.56	3.26
260	15.53	0.41	24.43	25.10	4.77
290	16.32	0.52	24.37	25.12	6.86

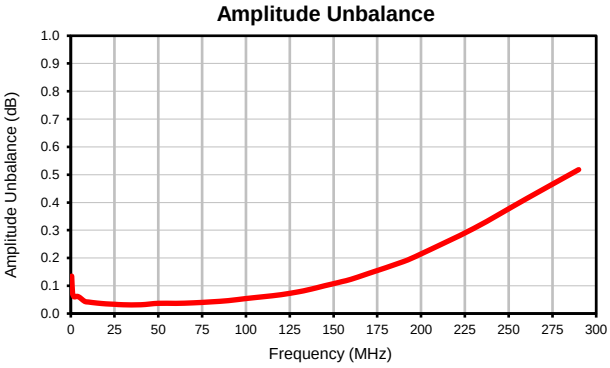
FREQUENCY (MHz)	VSWR (:1) S	VSWR (:1) 1
0.5	1.52	1.51
1.0	1.29	1.31
1.5	1.25	1.24
2.0	1.23	1.20
4	1.23	1.13
6	1.24	1.10
8	1.25	1.08
10	1.25	1.07
15	1.26	1.06
20	1.27	1.05
25	1.27	1.05
30	1.28	1.05
40	1.29	1.05
50	1.30	1.06
60	1.31	1.06
70	1.32	1.06
80	1.32	1.07
90	1.32	1.07
100	1.31	1.08
110	1.30	1.08
120	1.28	1.09
130	1.25	1.09
135	1.24	1.09
140	1.22	1.10
145	1.21	1.10
150	1.19	1.10
155	1.17	1.10
160	1.15	1.10
170	1.12	1.11
190	1.10	1.11
200	1.14	1.12
230	1.35	1.12
260	1.69	1.11
290	2.13	1.11

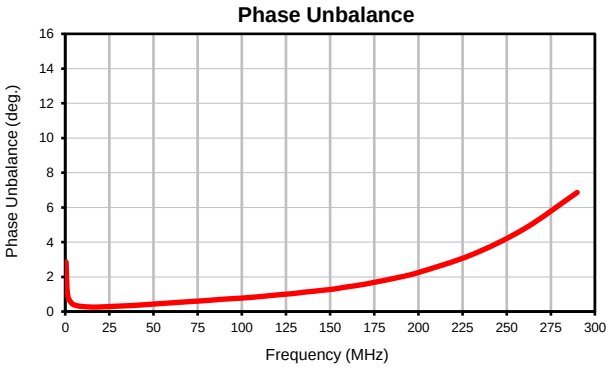
[1]Total Loss = Insertion Loss + 12dB Splitter Loss

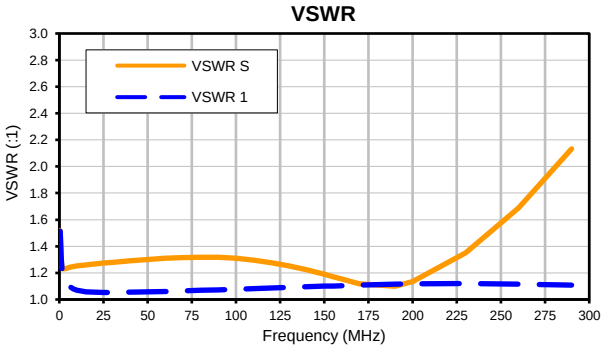
Typical Performance Curves





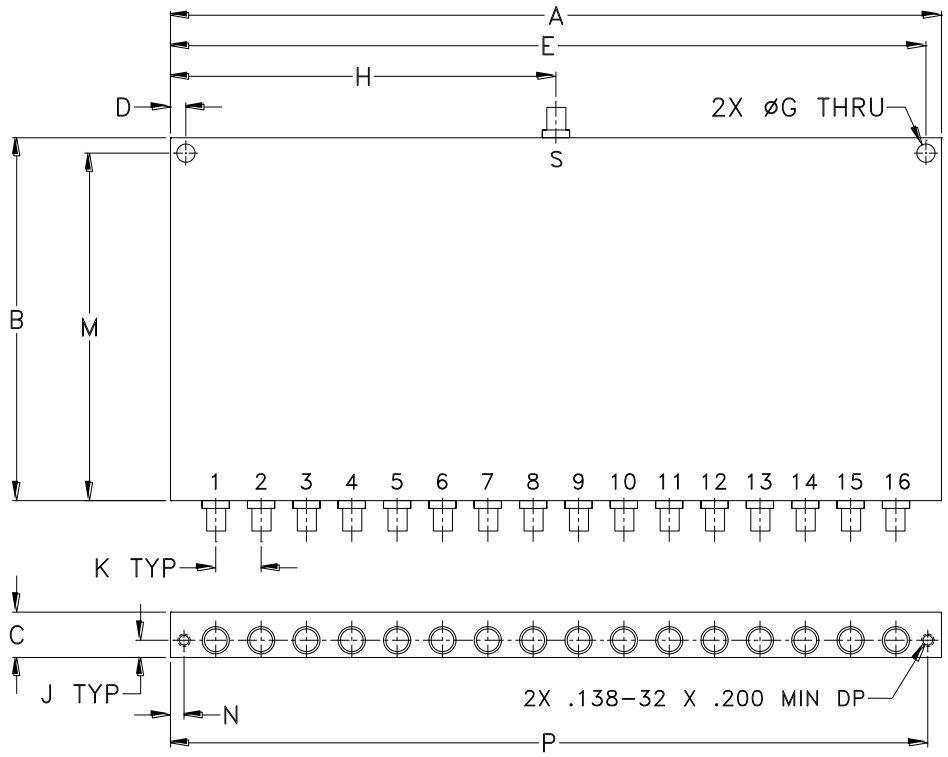






Case Style UU

Outline Dimensions UU640



CASE#	A	B	C	D	E	F	G	H	J	K	L	M
UU640	8.50 (215.90)	4.00 (101.60)	.50 (12.70)	.170 (4.32)	8.330 (211.58)	-- --	.201 (5.11)	4.25 (107.95)	.19 (4.83)	.500 (12.70)	-- --	3.830 (97.28)

CASE#	N	P	WT. GRAMS
UU640	.150 (3.81)	8.350 (212.09)	450

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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Mini-Circuits

Environmental Specifications ENV28

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
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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