

50 Ω

DC to 216 MHz

The Big Deal

- High rejection
- Low Insertion loss, 1.2 dB typical in passband
- Fast roll-off
- Good VSWR
- Connectorized package

*Generic photo used for illustration purposes only*

CASE STYLE: KE1467

Product Overview

ZX75LP-216-S+ is a 50 Ω low pass filter built in a connectorized package. Covering DC-216 MHz bandwidth, these units offer good matching within the passband and high rejection in stopband. This will find its applications in TV and broadcasting systems, ADC/DAC circuitry and portable transceivers. It has repeatable performance across production lots and consistent performance across temperature.

Key Features

Feature	Advantages
Low passband insertion loss	Suitable for high performance application
Fast roll-off	Provides very good adjacent band rejection
Connectorized package	The connectorized package is easy to interface with other devices and well suited for test setups
Good VSWR	Provides good interface when used with other devices.

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



Low Pass Filter

50Ω

DC to 216 MHz

ZX75LP-216-S+



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CASE STYLE: KE1467

Connectors	Model
SMA-MF	ZX75LP-216-S+

Features

- High rejection
- Low Insertion loss
- Fast roll-off
- Good VSWR
- Connectorized package

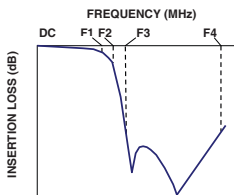
Applications

- Baseband
- TV / Broadcasting
- FM Transmitters / Receivers
- Satellite systems
- Test equipment
- ADC / DAC circuitry

Functional Schematic



Typical Frequency Response



Electrical Specifications at 25°C

Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Insertion Loss	DC-F1	—	1.2	2.0	dB
	Freq. Cut-Off	F2	—	3.0	—	dB
	VSWR	DC-F1	—	1.3	1.7	:1
Stop Band	Rejection Loss	F3-F4	20	32	—	dB
	VSWR	F3-F4	—	35	—	:1

Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power Input	0.5W max.

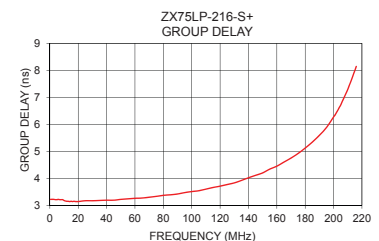
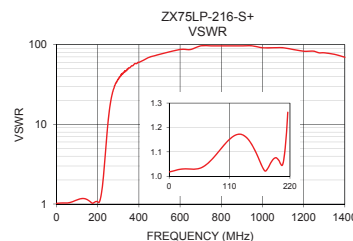
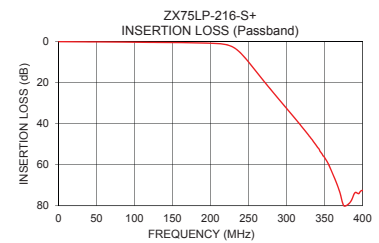
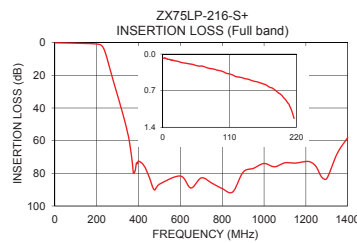
Permanent damage may occur if any of these limits are exceeded.

Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)	Frequency (MHz)	Group Delay (nsec)
1	0.08	1.02	1	3.22
35	0.17	1.03	5	3.21
90	0.31	1.10	25	3.17
180	0.65	1.03	50	3.22
200	0.85	1.06	75	3.33
216	1.23	1.26	100	3.51
232	3.28	2.93	110	3.60
245	7.77	7.63	120	3.71
260	14.59	17.22	130	3.83
280	23.75	28.96	140	4.02
290	28.17	33.42	150	4.20
300	32.56	36.97	160	4.45
325	43.77	44.55	170	4.75
350	56.47	51.10	180	5.12
400	72.53	59.91	190	5.59
500	86.64	75.53	200	6.27
750	85.96	96.51	205	6.71
1000	73.97	91.43	210	7.29
1200	72.74	82.73	214	7.85
1400	58.13	69.49	216	8.14

+RoHS Compliant

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



Notes

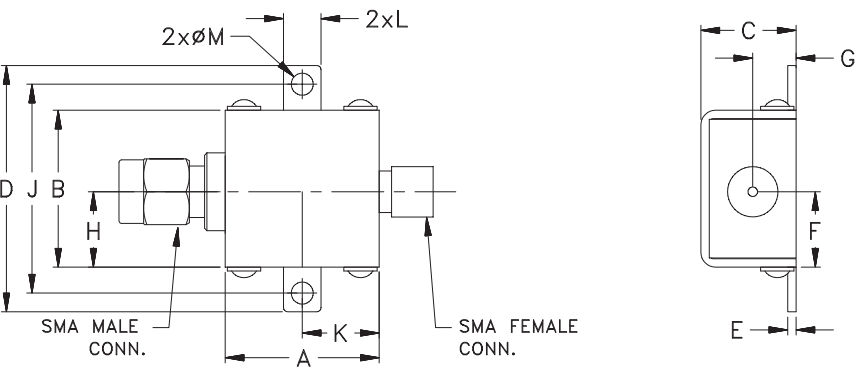
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Coaxial Connections

INPUT	SMA-Male
OUTPUT	SMA-Female

Outline Drawing



Outline Dimensions (^{inch}/_{mm})

A	B	C	D	E	F	G
.74	.75	.46	1.18	.04	.362	.21
18.80	19.05	11.68	29.97	1.02	9.19	5.33
H	J	K	L	M		Wt.
.362	1.00	.37	.18	.11		grams
9.19	25.40	9.40	4.57	2.79		24.4

Note: Please refer to case style drawing for details

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Coaxial Low Pass Filter

ZX75LP-216-S+

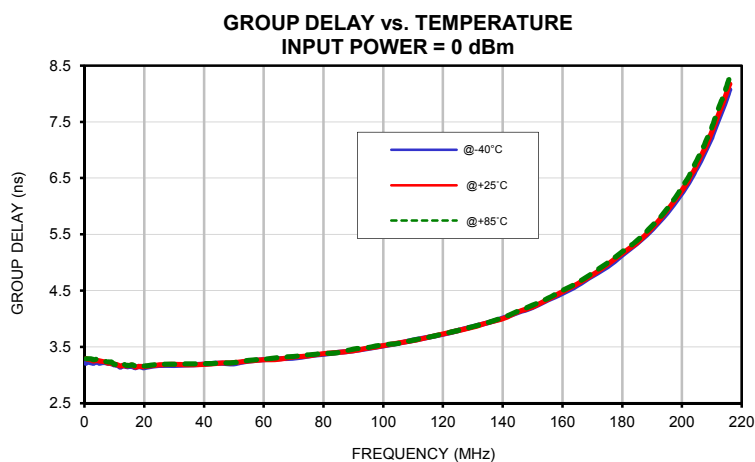
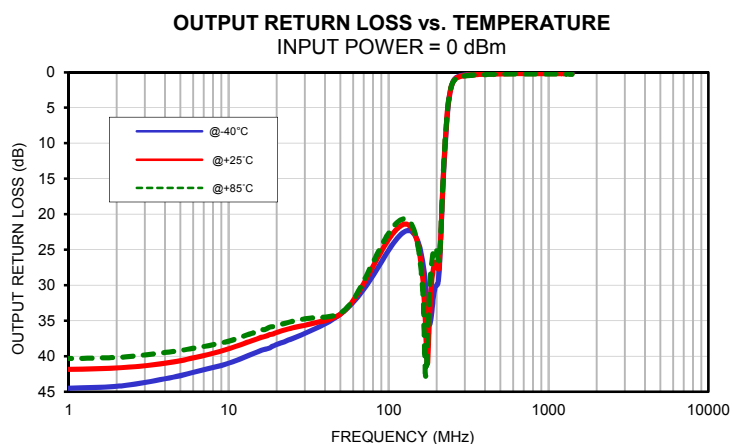
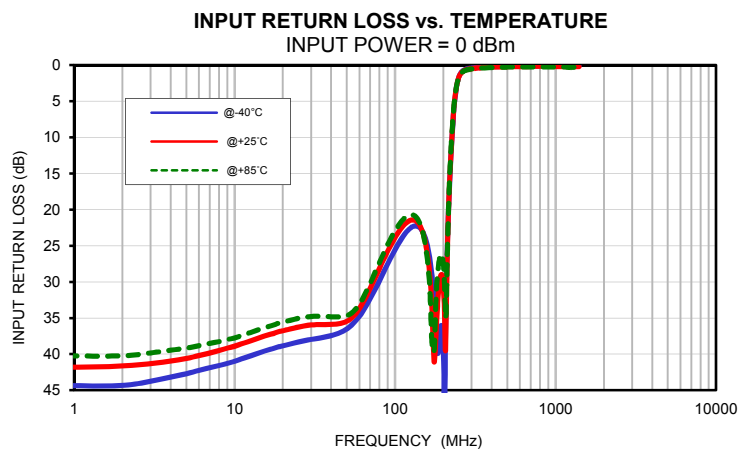
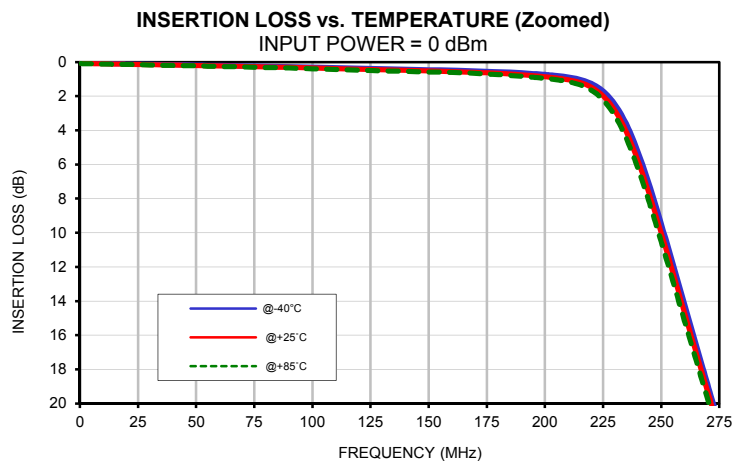
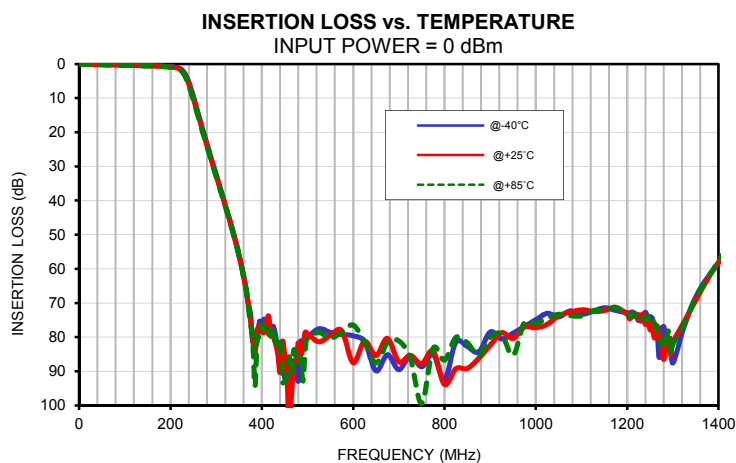
Typical Performance Data

FREQ.	INSERTION LOSS			INPUT RETURN LOSS			OUTPUT RETURN LOSS		
(MHz)	(dB)			(dB)			(dB)		
	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C
0.5	0.05	0.07	0.08	44.14	41.80	40.13	44.40	41.86	40.28
1	0.06	0.07	0.09	44.37	41.80	40.25	44.50	41.85	40.33
10	0.08	0.09	0.11	41.03	38.91	37.76	40.99	38.98	37.89
20	0.11	0.13	0.14	38.86	36.77	35.57	38.36	36.65	35.68
30	0.13	0.15	0.17	37.96	35.96	34.79	36.80	35.65	34.74
35	0.14	0.17	0.19	37.73	35.92	34.77	36.11	35.27	34.57
40	0.15	0.17	0.20	37.45	35.89	34.84	35.45	35.01	34.50
50	0.17	0.20	0.22	36.54	35.47	34.69	34.06	34.06	33.91
60	0.20	0.23	0.26	34.77	33.71	33.09	32.43	32.22	32.08
70	0.22	0.25	0.28	32.35	30.91	30.21	30.54	29.75	29.40
80	0.25	0.29	0.32	29.83	28.12	27.32	28.62	27.36	26.76
90	0.27	0.31	0.35	27.52	25.74	24.84	26.75	25.25	24.48
100	0.30	0.35	0.39	25.54	23.88	22.94	25.09	23.56	22.69
120	0.35	0.41	0.47	22.89	21.67	20.88	22.79	21.58	20.76
140	0.41	0.49	0.54	22.39	21.91	21.51	22.47	21.99	21.55
160	0.48	0.55	0.61	25.22	26.57	27.52	25.56	27.05	28.07
180	0.56	0.65	0.73	37.35	37.39	32.21	35.49	34.80	30.94
190	0.63	0.75	0.83	37.25	29.65	26.60	31.95	27.80	25.43
200	0.72	0.86	0.96	39.62	30.70	27.56	29.96	26.98	25.16
210	0.87	1.03	1.15	28.14	29.67	29.97	25.30	25.21	25.00
216	1.05	1.24	1.38	19.34	19.27	19.09	18.73	18.42	18.20
220	1.25	1.47	1.65	15.12	14.78	14.48	14.84	14.42	14.09
225	1.68	1.97	2.20	10.88	10.50	10.17	10.76	10.32	9.98
230	2.43	2.82	3.13	7.58	7.27	6.99	7.51	7.17	6.88
231	2.63	3.03	3.36	7.03	6.73	6.47	6.97	6.64	6.37
232	2.84	3.27	3.61	6.50	6.23	5.99	6.44	6.15	5.90
235	3.60	4.08	4.47	5.12	4.92	4.73	5.08	4.86	4.66
240	5.21	5.76	6.23	3.42	3.32	3.22	3.38	3.28	3.17
245	7.20	7.77	8.29	2.31	2.30	2.26	2.28	2.25	2.22
250	9.42	10.00	10.52	1.62	1.65	1.66	1.60	1.63	1.62
260	14.13	14.66	15.15	0.93	1.01	1.04	0.91	0.98	1.02
270	18.86	19.31	19.75	0.66	0.73	0.78	0.64	0.72	0.76
280	23.46	23.85	24.26	0.52	0.60	0.65	0.51	0.59	0.63
290	27.97	28.27	28.62	0.45	0.52	0.58	0.44	0.51	0.56
300	32.38	32.64	32.95	0.40	0.47	0.53	0.38	0.45	0.51
310	36.79	37.00	37.27	0.37	0.44	0.49	0.35	0.43	0.47
320	41.23	41.46	41.72	0.34	0.41	0.46	0.32	0.40	0.44
325	43.49	43.70	43.88	0.33	0.40	0.45	0.31	0.38	0.42
350	55.89	56.09	56.22	0.28	0.35	0.40	0.26	0.33	0.38
400	76.07	78.11	76.34	0.22	0.29	0.34	0.22	0.27	0.32
450	91.97	85.03	92.97	0.19	0.25	0.30	0.18	0.24	0.28
500	80.17	79.00	80.27	0.16	0.23	0.27	0.17	0.23	0.27
550	78.63	79.48	80.28	0.14	0.21	0.25	0.15	0.21	0.25
600	79.63	87.49	76.48	0.12	0.20	0.25	0.14	0.20	0.25
650	89.89	85.41	87.58	0.11	0.19	0.24	0.12	0.19	0.24
700	89.55	87.24	81.15	0.10	0.19	0.24	0.11	0.18	0.24
750	88.66	87.83	99.43	0.09	0.18	0.24	0.10	0.17	0.23
800	92.53	93.87	86.74	0.09	0.18	0.24	0.10	0.18	0.24
850	82.78	89.20	81.71	0.08	0.18	0.25	0.09	0.17	0.24
900	78.50	82.44	80.05	0.07	0.18	0.24	0.09	0.18	0.25
950	78.85	80.38	85.36	0.08	0.19	0.27	0.09	0.18	0.25
1000	74.92	77.26	76.08	0.07	0.18	0.26	0.09	0.18	0.25
1050	74.11	73.73	73.33	0.07	0.19	0.27	0.08	0.18	0.26
1100	73.27	71.99	73.78	0.07	0.19	0.27	0.08	0.19	0.25
1150	71.41	72.22	72.20	0.07	0.19	0.27	0.08	0.18	0.25
1200	72.86	73.32	73.47	0.08	0.21	0.28	0.07	0.19	0.25
1250	74.01	77.84	76.16	0.08	0.20	0.29	0.07	0.18	0.26
1300	87.53	81.59	82.14	0.08	0.21	0.30	0.08	0.20	0.27
1350	68.26	69.29	68.38	0.07	0.21	0.30	0.08	0.20	0.28
1400	58.23	58.03	57.53	0.08	0.22	0.31	0.09	0.22	0.31

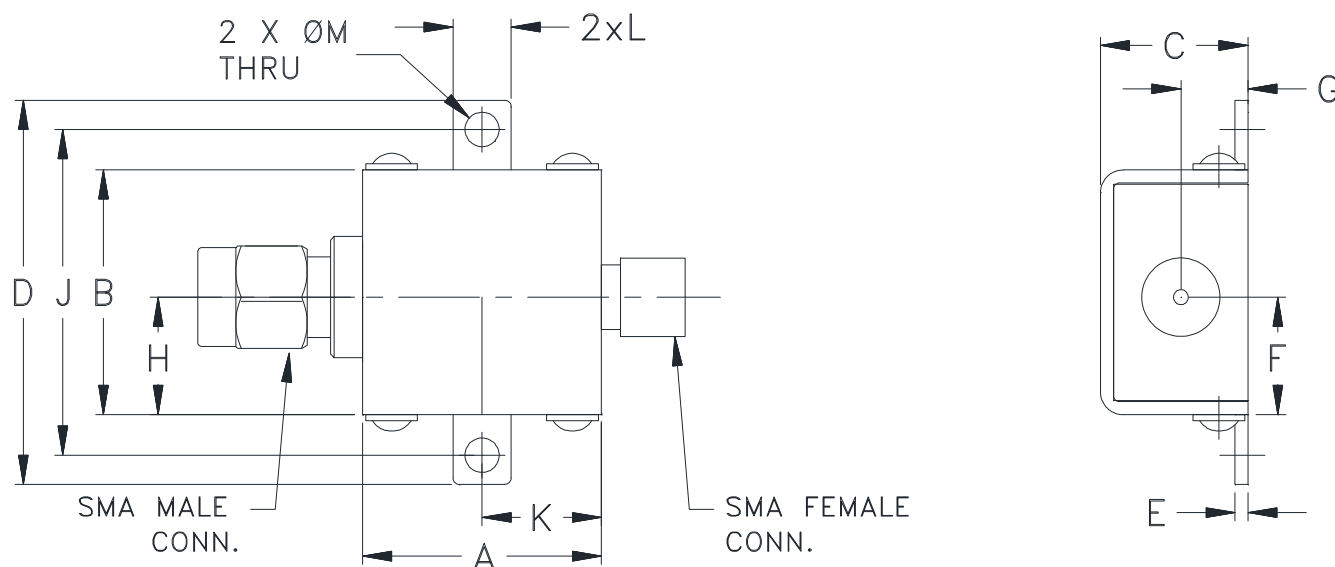
Typical Performance Data

FREQ.	GROUP DELAY		
(MHz)	(ns)		
	@-40°C	@+25°C	@+85°C
0.5	3.21	3.29	3.29
1	3.23	3.28	3.29
10	3.18	3.19	3.19
15	3.15	3.17	3.17
20	3.13	3.15	3.16
25	3.17	3.18	3.19
30	3.17	3.19	3.19
35	3.18	3.18	3.20
40	3.19	3.19	3.20
45	3.21	3.21	3.21
50	3.20	3.22	3.22
55	3.25	3.25	3.26
60	3.27	3.27	3.28
65	3.29	3.28	3.31
70	3.30	3.32	3.33
75	3.34	3.34	3.36
80	3.37	3.38	3.38
85	3.40	3.40	3.40
90	3.43	3.43	3.46
95	3.47	3.48	3.49
100	3.52	3.52	3.54
105	3.56	3.57	3.56
110	3.62	3.61	3.62
115	3.67	3.67	3.67
120	3.72	3.73	3.73
125	3.79	3.79	3.79
130	3.86	3.85	3.86
135	3.93	3.93	3.93
140	4.01	4.00	4.02
145	4.11	4.12	4.13
150	4.20	4.21	4.24
155	4.33	4.34	4.36
160	4.45	4.48	4.50
165	4.59	4.62	4.64
170	4.76	4.78	4.81
175	4.92	4.96	4.99
180	5.13	5.16	5.19
185	5.34	5.35	5.39
190	5.58	5.61	5.65
195	5.88	5.92	5.95
200	6.23	6.28	6.33
205	6.68	6.74	6.82
210	7.22	7.32	7.40
212	7.50	7.59	7.70
214	7.77	7.87	7.97
216	8.07	8.17	8.29

Typical Performance Curves



Outline Dimensions



CASE #.	A	B	C	D	E	F	G	H	J	K	L	M
KE1467	.74 (18.80)	.75 (19.05)	.46 (11.68)	1.18 (29.97)	.04 (1.02)	.362 (9.19)	.21 (5.33)	.362 (9.19)	1.00 (25.40)	.37 (9.40)	.18 (4.57)	.11 (2.79)

CASE #.	WT. GRAM
KE1467	24.4

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

Tolerance on hole size and interaxes dimensions to be $\pm .005$.

Note:

1. Case material: Brass
2. Case finish: Gold
3. Cover: Nickel plated.



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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