Surface Mount

Diplexer

RDP-50-2R15+

50Ω DC to 2150 MHz (DC-50, 950-2150 MHz)

CASE STYLE: CK605

The Big Deal

- Low insertion loss
- High stopband insertion loss
- Miniature shielded package

Product Overview

RDP-50-2R15+ is a low-pass + high-pass combination device. Low pass port is designed for DC to 50 MHz and high pass port is designed for 950 to 2150 MHz. This diplexer can be used to pass, IF, pilot carrier or clock synchronizing signal, SATCOM modems, air-traffic control and other multiband radio systems.

Key Features

Feature	Advantages
Low passband insertion loss	Suitable for high performance application.
Extended stopband rejection	Spurious rejection and avoids using additional filters.
Shielded case.	Reduced interference with the surrounding components.

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+RoHS Compliant

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

Maximum Ratings

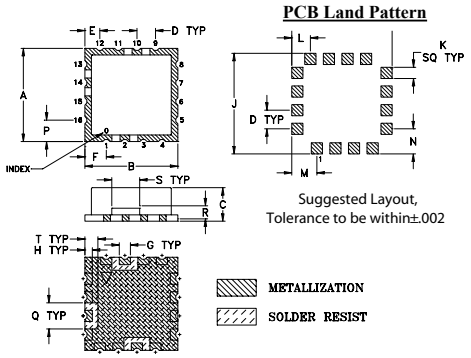
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power Input	1W at 25°C

Permanent damage may occur if any of these limits are exceeded. These ratings are not intended for continuous normal operation

Pin Connections

HIGH PASS PORT	10
LOW PASS PORT	14
COMMON PORT	2
GROUND	1,3-9,11-13,15,16

Outline Drawing

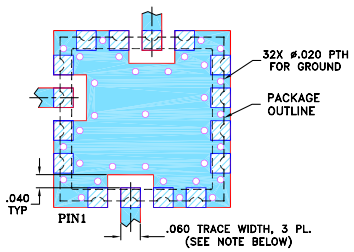


Outline Dimensions (inch / mm)

A	B	C	D	E	F	G	H	J	K
.500	.500	.180	.100	.080	.115	.060	.040	.540	.060
12.7	12.7	4.572	2.54	2.032	2.921	1.524	1.016	13.72	1.524

L	M	N	P	Q	R	S	T	Wt.
.100	.135	.135	.115	.140	.070	.150	.070	grams
2.54	3.429	3.429	2.921	3.556	1.778	3.81	1.778	1.0

Demo Board MCL P/N: TB-10+
Suggested PCB Layout (PL-012)



NOTES: 1. TRACE WIDTH IS SHOWN FOR FR4 WITH DIELECTRIC THICKNESS .030" ± .002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

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

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Features

- Low insertion loss
- 50Ω Impedance
- Combination of Low pass and High pass filters
- Miniature shielded pakckage
- Aqueous washable

Applications

- SATCOM modem
- Air-traffic control

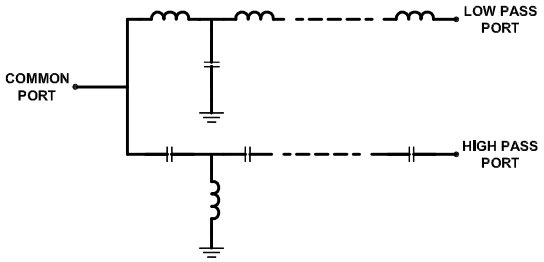
Electrical Specifications at 25°C

Parameter		Port	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Insertion Loss	Low Pass	DC-50	-	0.5	1.0	dB
		High Pass	950-2150	-	0.3	1.0	
	Flatness	High pass	950-2150	-	± 0.1	-	dB
	Return Loss	Low Pass	DC-50	15	22	-	dB
		High Pass	950-2150	15	22	-	
		Common	DC-50	15	22	-	
			950-2150	15	22	-	
Stop Band Isolation		Low Pass	150-950	25	34	-	dB
			950-2150	40	53	-	
		High Pass	50-250	25	32	-	dB
			DC-50	60	74	-	

Typical Performance Data at 25°C

FREQUENCY (MHz)	INSERTION LOSS (dB)		RETURN LOSS (dB)		
	Low Pass Port	High Pass Port	Common Port	Low Pass Port	High Pass Port
1	0.17	100.77	36.90	37.13	0.05
6	0.18	103.55	29.95	29.69	0.04
50	0.45	89.18	24.50	22.94	0.03
56	0.53	87.99	20.84	19.89	0.03
72	2.08	83.82	6.49	6.28	0.03
78	3.97	82.25	3.58	3.44	0.04
82	5.68	83.66	2.41	2.30	0.04
112	20.10	69.85	0.42	0.43	0.04
130	27.19	62.78	0.29	0.30	0.05
140	30.64	59.39	0.25	0.27	0.06
150	33.83	56.20	0.23	0.24	0.06
250	57.76	32.77	0.17	0.11	0.16
264	60.68	30.27	0.18	0.10	0.19
326	80.43	20.50	0.27	0.07	0.33
496	66.85	3.06	3.98	0.05	4.19
520	66.66	2.07	5.61	0.04	5.83
685	69.06	0.35	20.41	0.05	20.61
950	66.50	0.21	27.63	0.06	29.44
1500	81.05	0.18	22.60	0.11	26.52
1800	61.62	0.17	24.45	0.12	30.63
2000	55.30	0.17	28.52	0.13	39.82
2150	51.83	0.17	32.48	0.14	33.86

Functional Schematic



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.
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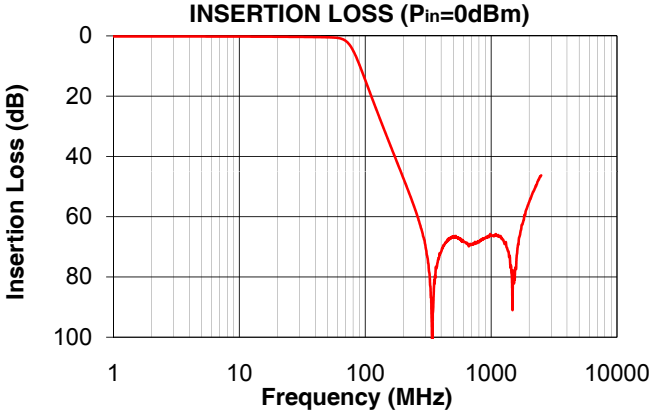
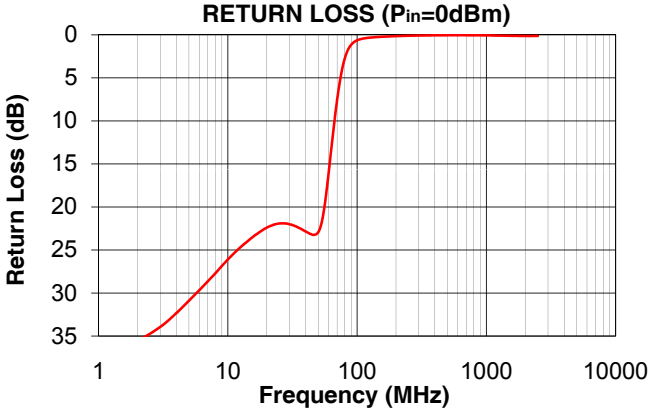
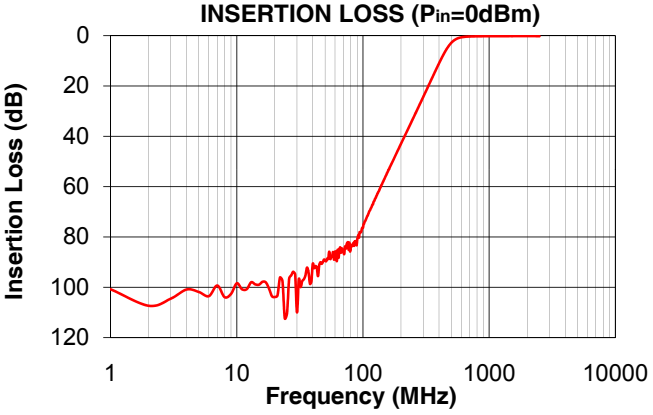
RDP-50-2R15+ LOW PASS PORT
INSERTION LOSS (P_{in}=0dBm)



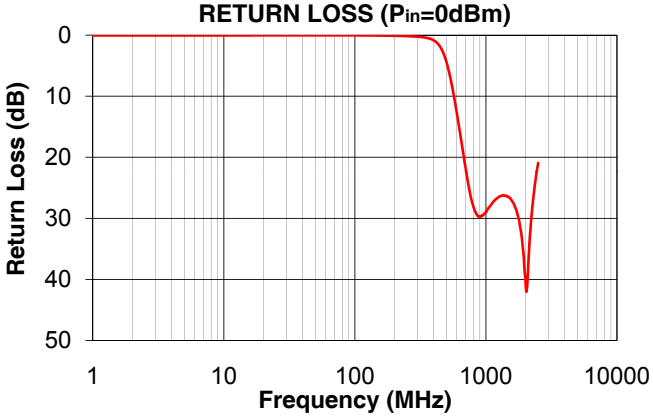
RDP-50-2R15+ LOW PASS PORT
RETURN LOSS (P_{in}=0dBm)



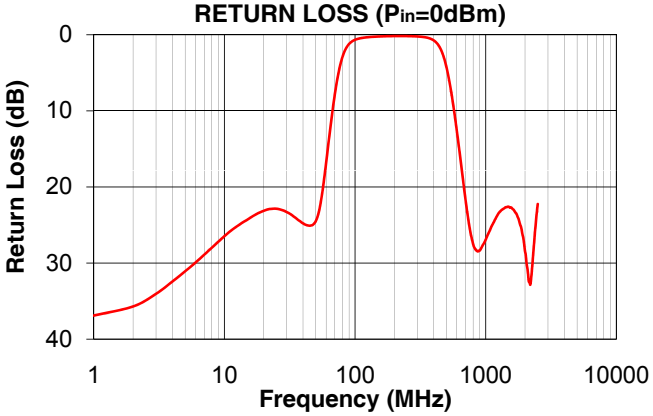
RDP-50-2R15+ HIGH PASS PORT
INSERTION LOSS (P_{in}=0dBm)



RDP-50-2R15+ HIGH PASS PORT
RETURN LOSS (P_{in}=0dBm)



RDP-50-2R15+ COMMON PORT
RETURN LOSS (P_{in}=0dBm)



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