

Frequency Mixer

ZMDB-24H-K+

Level 15 (LO Power +15 dBm) 5000 to 21000 MHz

The Big Deal

- Low conversion loss, 8.5 dB
- Excellent IF bandwidth, DC to 5 GHz
- High L-R isolation, 30 dB



CASE STYLE: UK2938

Product Overview

Mini-Circuits' ZMDB-24H-K+ coaxial frequency mixer provides an RF and LO frequency range from 5 to 21 GHz and an IF frequency range from DC to 5 GHz, ideal for applications including defense radar and communication, VSAT, line of sight links, WiFi, ISM, Satellite up and down converters and more. This model handles input power up to +21 dBm and provides low conversion loss with high L-R isolation. The mixer comes housed in a rugged, 2.92mm connectorized housing (0.56 x 0.56 x 0.34") suitable for assembled systems and lab use.

Key Features

Feature	Advantages
Wide bandwidth, 5 to 21 GHz	Useful in wideband systems and several narrowband systems, reducing inventory.
Wide IF bandwidth, DC to 5 GHz	Usable in first and second down converter applications. IF down to DC enables use in phase detector applications.
Low conversion loss, 8.5 dB	Enables lower NF front ends, improving system sensitivity.
High isolation <ul style="list-style-type: none"> • L-R, 30 dB • L-I, 40 dB 	Preserves signal integrity from input to output and reduces undesired signal responses that can interfere with system performance.
High IP3, 22 dBm	Minimizes third order intermodulation distortion and enables high-dynamic range.
2.92mm-F connectorized housing, (0.56 x 0.56 x 0.34")	Ideal for assembled systems and lab use. High-frequency connector mates with 2.92mm and SMA connectors.

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



Coaxial, Wideband Frequency Mixer

ZMDB-24H-K+

Level 15 (LO Power +15 dBm) 5000 to 21000 MHz

Maximum Ratings

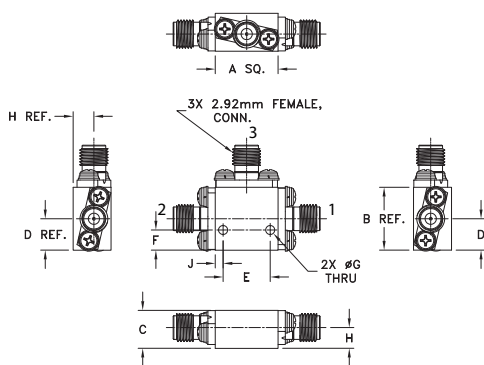
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	125mW

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

Coaxial Connections

LO	2
RF	1
IF	3

Outline Drawing



Outline Dimensions (inch/mm)

A	B	C	D	E	
.56	.56	.34	.28	.420	
14.22	14.22	8.64	7.11	10.67	
F	G	H	J	wt	
.18	.081	.19	.07	grams	
4.57	2.06	4.83	1.78	23	

Features

- wide bandwidth, 5000 to 21000 MHz
- low conversion loss, 8.5 dB typ.
- high L-R isolation, 30 dB typ.
- excellent IF BW, DC to 5000 MHz
- rugged construction
- small size
- useable as up and down converter

Applications

- defense radar and communications
- VSAT
- ISM
- line of sight links
- WiFi
- satellite up and down connectors



Generic photo used for illustration purposes only

CASE STYLE: UK2938

Connectors Model
2.92mm-Female ZMDB-24H-K+

+RoHS Compliant

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

Electrical Specifications at 25°C

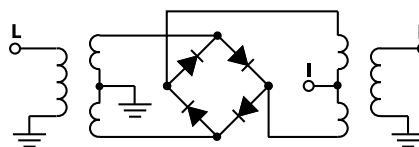
Parameter	Min.	Typ.	Max.	Unit
Frequency Range, RF	5000	—	21000	MHz
Frequency Range, LO	5000	—	21000	MHz
Frequency Range, IF	DC	—	5000	MHz
Conversion Loss*	—	8.5	10.8	dB
LO to RF Isolation	15	30	—	dB
LO to IF Isolation	20	40	—	dB
IP3	—	22	—	dBm
RF Input at 1 dB Compression	—	+10	—	dBm

* Conversion loss at 30 MHz IF. Increases with IF frequency.

Typical Performance Data

Frequency (MHz)	Conversion Loss (dB)		Isolation L-R (dB)		Isolation L-I (dB)		VSWR RF Port (:1)		VSWR LO Port (:1)	
	LO	+15dBm	LO	+15dBm	LO	+15dBm	LO	+15dBm	LO	+15dBm
5000.10	5030.10	7.09	29.14	29.50	1.44	3.25				
5500.10	5530.10	6.66	34.55	31.42	1.20	2.67				
6000.10	6030.10	6.91	39.86	35.48	1.82	2.82				
6500.10	6530.10	7.16	39.02	40.18	2.73	4.00				
7000.10	7030.10	7.61	36.04	45.62	3.09	3.31				
7500.10	7530.10	8.19	33.87	43.49	2.33	2.22				
8000.10	8030.10	8.45	33.75	41.25	4.21	3.29				
9000.10	9030.10	8.36	34.33	40.33	5.04	2.85				
10000.10	10030.10	9.63	34.87	41.02	3.28	3.15				
11000.10	11030.10	8.71	30.98	37.18	5.68	3.53				
12000.10	12030.10	7.99	25.57	26.86	3.34	2.28				
13000.10	13030.10	7.52	26.74	41.57	2.72	2.55				
14000.10	14030.10	7.21	25.63	54.46	1.60	1.49				
15000.10	15030.10	7.04	29.61	51.98	2.62	2.78				
16000.10	16030.10	7.53	24.89	41.60	1.22	1.62				
17000.10	17030.10	7.48	23.42	38.76	3.74	6.63				
18000.10	18030.10	8.01	22.13	36.72	1.95	1.70				
19000.10	19030.10	8.25	19.46	34.57	3.77	3.82				
19800.10	19830.10	8.51	20.21	36.90	5.51	2.80				
21000.10	21030.10	9.31	20.66	39.86	1.09	2.40				

Electrical Schematic



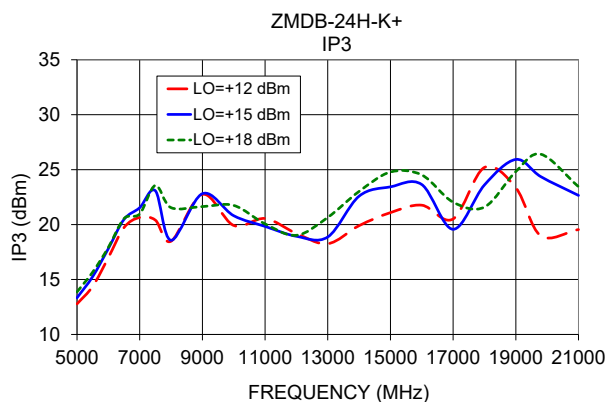
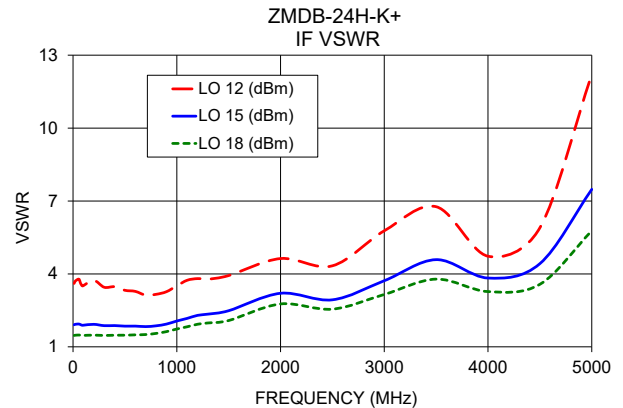
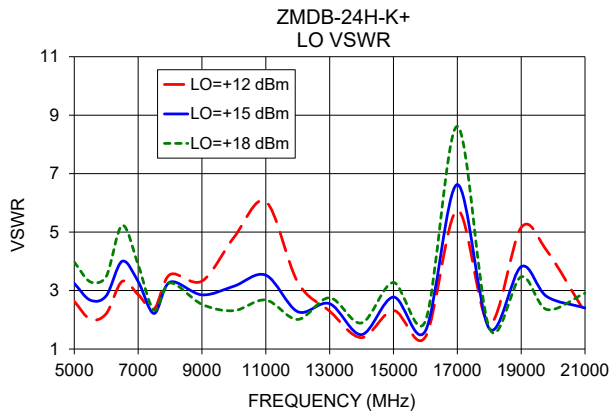
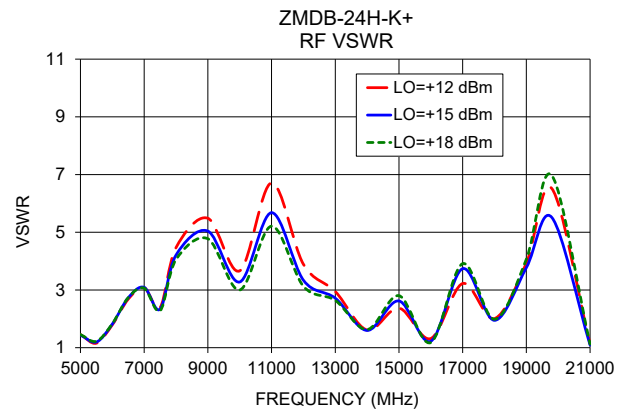
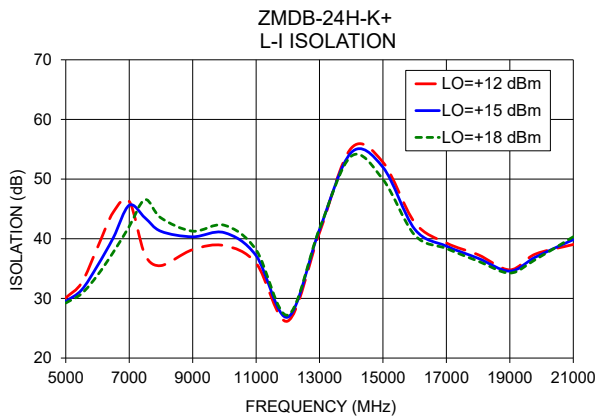
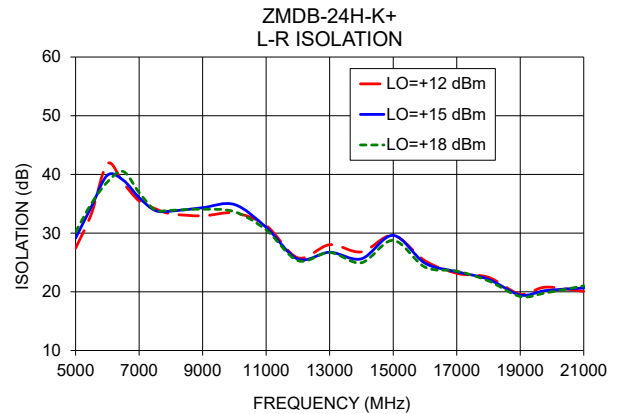
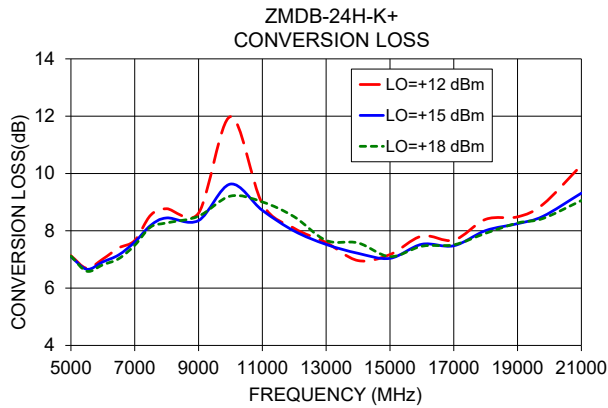
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