Avantek Products

Double Balanced Mixer 1.0 to 500 MHz

Technical Data

UMX-520

Features

- **50 dB LO to RF Isolation**
- **6 dB Conversion Loss/Noise Figure**
- **Low VSWR (1.5:1) at All Ports**

Applications

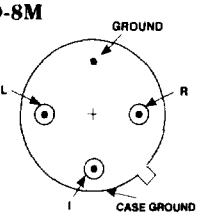
- **Low Cost, High Performance**
- **High Density Requirements**
- **Communications Systems**
- **Instrumentation and Test Equipment**

Description

The UMX Series double-balanced mixers feature exceptionally high isolation and good harmonically-related intermodulation product suppression. They are packaged in compact easy-to-use hermetically sealed TO-8 cans. The UMX-520 is a low level Class I mixer with four closely matched Schottky-barrier diodes in a ring configuration.

Pin Configuration

TO-8M



(See Section 5 for detailed case drawings.)

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Maximum Ratings

Parameter	Maximum
Peak Input Current @ 25°C	100 mA DC
Pin Temperature	260°C for 10 seconds
Operating Case Temperature	–55°C to +100°C
Storage Temperature	–65°C to +100°C
Continuous RF Input Power	200 mW @ +25°C 100 mW @ +100°C

Weight: (typical) 0.06 oz.

Electrical Specifications

(Measured in a 50 Ω system)

Symbol	Characteristic	Operating Frequencies MHz			Power Level			Specifications		Unit
		f_{LO}	f_{RF}	f_{IF}	LO Port dBm (typ)	Model Suffix	RF Port dBm	Typical T_C = 25°C	Guaranteed T_C = –55° to +100°C	
BW	Operating Frequency Range	1-500	1-500	DC-500						MHz
CL	SSB Conversion Loss	1-500	1-500	DC-500	+7			6.0	7.0	dB max
NF	SSB Noise Figure	1-500	1-500	0.1-500	+7			6.0	7.0	dB max
ISOL	Isolation Port-to-Port L-R	1-100	—	—				65	40	dB
	L-R	100-500	—	—				50	40	min
	L-I	1-100	—	—				50	35	
	L-I	100-500	—	—				45	30	
	R-I	—	1-100	—				40		
	R-I	—	100-500	—				25		
—	VSWR (50 ohm) L	1-500	—	—				1.5:1		typ
	R	—	1-500	—				1.4:1		
	I	—	—	1-500				1.5:1		
CC	Conversion	1-500	1-500	DC-500	+7			1.0		dBm
	Compression Point (1 dB)									typ
IP_3	Third-Order	1-100	1-100	DC-500	+7		—	+12	—	dBm
	Two-Tone	100-500	100-500	DC-500	+7		—	+10	—	typ
	Intercept Point									

Typical Performance At 25°C Temperature

(Measured in a 50-ohm system with LO = +7 dBm)