AVANTEK

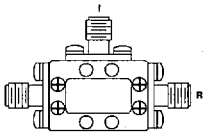
TFX-72L/M/H
Thin-Film Mixer
2 to 7 GHz Double Balanced

FEATURES

- Double Balanced
- All Thin-Film Ceramic Construction
- 2 to 7 GHz RF and LO Bandwidth
- DC to 1.2 GHz IF Bandwidth
- 6 dB Conversion Loss
- Low VSWRs All Ports
- Excellent Phase and Amplitude Matching and Tracking

APPLICATIONS

- Ideal for 2 to 6 GHz and 3.7 to 4.2 GHz Down Conversion
- Threat Warning Systems
- Self Protection Jammers
- Wideband Heterodyned Receivers



TFX, p. 16–10

DESCRIPTION

The TFX-72 double-balanced mixers are fabricated with double-sided ceramic thin-film circuitry using completely planar construction and a single beam lead Schottky diode quad. The ceramic substrates utilize double-sided metalization, allowing broadside coupled baluns with two lines to be fabricated, one on each side of the substrate. Circuit elements are attached and interconnections are made with thermocompression bonding and gap welding for high reliability, accurate placement of components, and reduction of parasitics. Thin-film design and construction techniques result in extremely low single tone intermodulation distortion, superior stability over temperature, and excellent amplitude and phase match characteristics. Conversion loss typically varies by ±0.5 dB from –55° to +100°C. Phase deviations from unit to unit are typically within ±5° and amplitude differences are within ±1.5 dB.

ELECTRICAL SPECIFICATIONS (Measured in a 50-ohm system)

L, M, H suffix models specified @ P_{LO} = +7, +10, +17 dBm respectively

	Frequency		Conversion Loss		Isolations						Typical 1 dB Compression Point	Input 3rd Order Intercept Point	VSWRS (Typ.)		
					L to R		L to I		R to I						
Suffix	RF/LO GHz	IF GHz	@F_{IF} GHz	dB Typ./Max.	@F_{LO} GHz	dB Typ./Min.	@F_{LO} GHz	dB Typ./Min.	@F_{RF} Ghz	dB Typ.	@RF, dBm	dBm, Typ.	R :1	L :1	I :1
L	2–7	DC–1.2	DC–.5 DC–1.2	5.5/7.5 6.5/8.5	2–7	35/25	2–7	35/20	2–7	35	+2 (P_{LO} = + 7)	+9 (P_{LO} = +10)	2.5	2.0	2.0
M	2–7	DC–1.2	DC–.5 DC–1.2	5.5/7.5 6.5/8.5	2–7	35/25	2–7	35/20	2–7	35	+6 (P_{LO} = +10)	+12 (P_{LO} = +17)	2.5	2.0	2.0
H	2–7	DC–1.2	DC–.5 DC–1.2	6.5/8.5 7.5/9.5	2–7	35/25	2–7	35/20	2–7	35	+12 (P_{LO} = +17)	+20 (P_{LO} = +20)	2.5	2.0	2.0
											*MIN/MAX SPECS GUARANTEED –55° TO +100°C, TYP SPECS ARE FOR 25°C				

MAXIMUM RATINGS

Peak Input Current @25°C	100 mA DC	**Pin Temperature**	260°C for 10 Sec	**Operating Case Temp**	–55° C to + 100°C
Continuous RF Input Power	200 mW @ 25°C 100 mW @ 100°C			**Storage Temp**	–65° C to + 125°C
Weight (typical): TFX—22 grams (with connectors)					

TYPICAL PERFORMANCE AT 25°C (LO Power Range Vs. Model Suffix—L: +7/+13; M: +10/+17; H: +17/+24 dBm)

Typical Single Tone Intermodulation Suppression @ 25°C (–dBc) (Measured with –10 dBm RF Input)

RF HARMONICS							
5	85	84	86	87	90	70
4	77	79	80	72	63	80
3	67	71	74	50	74	72
2	57	51	44	51	51	47
1	34	0	42	34	38	33
0	—	14	22	22	23	23
	0	1	2	3	4	5

LO HARMONICS