Avantek Products

Surface Mount Double Balanced Mixer 5 to 18 GHz

Technical Data

PPM-1852L

Features

- **All Thin-Film Ceramic Construction**
- **5 to 18 GHz RF and LO Bandwidth**
- **DC to 1.0 GHz IF Bandwidth**
- **8 dB Conversion Loss**
- **Low VSWRs All Ports**
- **Excellent Phase and Amplitude Matching and Tracking**
- **Surface Mount – 0.25 Inch Square Package**

Applications

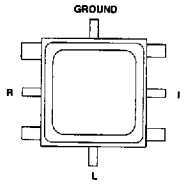
- **5 to 18 GHz Band Folding Applications**
- **EW Systems**
- **Wideband Heterodyned Receivers**
- **Communications Systems**

Description

The PPM series double balanced mixer is fabricated with single-sided ceramic thin-film circuitry and backside ground using a new patented balun structure *(PlanarBalun)* and a single beam lead Schottky diode crossover quad. This *PlanarPak* mixer allows a full 5 to 18 GHz performance with a small 0.25 inch square surface mount package. Single-sided planar circuitry is made possible by a diode crossover with improved electrical performance and a rugged ceramic substrate. Standard HP thin-film design and construction techniques result in mixers with consistent electrical performance over temperature, and excellent amplitude and phase match characteristics. Conversion loss typically varies by ±0.5 dB from -55° to +85°C. Phase deviations between mixers are typically within 5° and amplitude differences are within 0.5 dB.

Pin Configuration

PP-25M



(See Section 5 for detailed case drawings.)

Maximum Ratings

Parameter	Maximum
Peak Input Current @ 25°C	100 mA DC
Continuous RF Input Power	200 mW @ 25°C 120 mW @ 85°C
Operating Case Temperature	–55 to +125°C
Storage Temperature	–62 to +150°C

Weight: (typical) 0.21 grams

Electrical Specifications (Measured in 50 Ω system)

L suffix model specified @ P_{LO} = +10 dBm.

Suffix	Frequency RF/LO GHz	Frequency IF GHz	Conversion Loss @F_{IF} GHz	Conversion Loss dB Typ./Max.	Isolation L to R @F_{LO} GHz	Isolation L to R dB Typ./Min.	Isolation L to I @F_{LO} GHz	Isolation L to I dB Typ./Min.	Isolation R to I @F_{RF} GHz	Isolation R to I dB Typ.	Typical 1 dB Compression Point @RF, dBm	Input 3rd Order Intercept Point dBm, Typ.	VSWR (Typ.) R	VSWR (Typ.) L	VSWR (Typ.) I
L	5-18	DC-1.0	DC-1.0	8/10	5-9 9-13 13-18	29/22 20/15 24/18	5-9 9-13 13-18	11/7 19/15 24/18	5-18	31	+3.5	+9.5	2.0	2.3	2.4

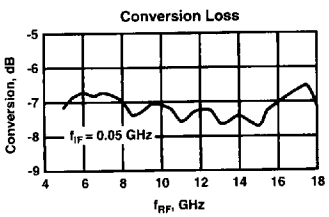
*Min/Max specs guaranteed -55 to +85°C, Typ. specs are for 25°C

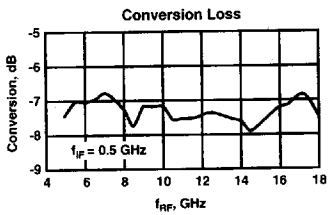
Typical Performance at 25°C (LO Power: +10 dBm)

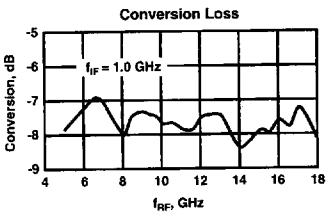
Typical Single Tone Intermodulation Suppression @ 25°C (-dBc) (Measured with -10 dBm RF Input)

RF Harmonics	0	1	2	3	4	5
5	-- / --	66 / 63	70 / 64	74 / 65	80 / 71	80 / 66
4	66 / 63	70 / 62	73 / 63	79 / 71	72 / 54	78 / 71
3	69 / 61	73 / 62	76 / 53	53 / 46	73 / 55	73 / 63
2	63 / 50	56 / 39	40 / 31	61 / 44	71 / 63	65 / 50
1	---	0	47 / 23	41 / 29	55 / 38	50 / 43
0	avge / worst	---	25 / 17	21 / 10	36 / 27	-- / --

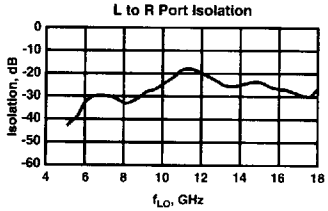
LO Harmonics

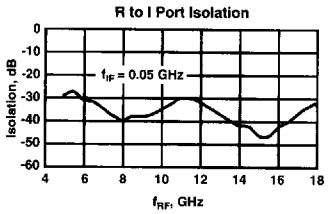


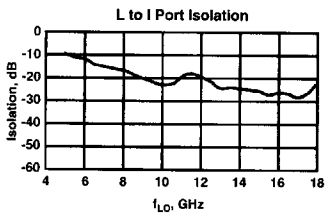


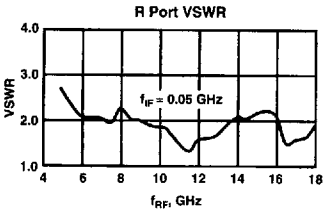


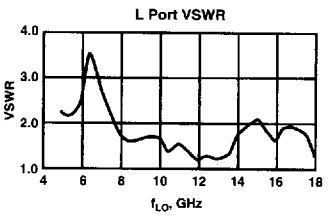
Typical Performance at 25°C (LO Power: +10 dBm), continued

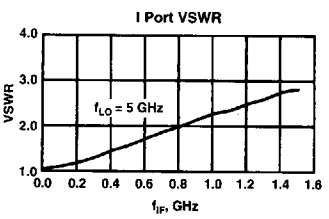


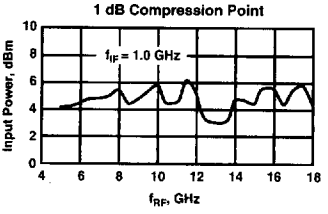


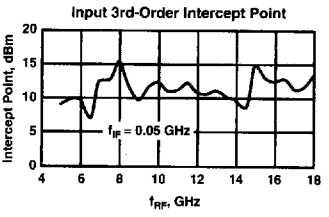


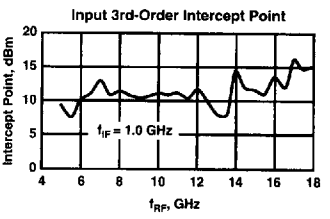












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