



PPM-2515M
Surface Mount Mixer
.05 to 2.5 GHz

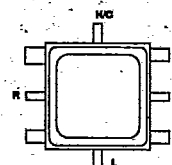
T-77-05-05

FEATURES

- PlanarPak Surface Mount Package
- 7 dB Conversion Loss/Noise Figure
- 30 dB Port-to-Port Isolation
- Low VSWR at All Ports

APPLICATIONS

- High Density Microstrip Applications
- Overlapping RF, LO, and IF Requirements
- EW Systems



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DESCRIPTION

The PPM-2515M is a triple-balanced surface mount mixer with a frequency range of 0.05 to 2.5 GHz and an IF range of 0.001 to 1.5 GHz. This PlanarPak mixer uses precisely matched monolithic beam lead Schottky diodes and polyimide insulated baluns to yield excellent performance over more than 5 octaves of RF and LO bandwidths. With overlapping RF, LO and IF frequency ranges there is still

greater than 25 dB of port to port isolation. IF bandwidths up to 1500 MHz are obtained with very flat conversion loss. A good 50-ohm match is realized at all ports.

The PPM-2515M is supplied in Avantek's 0.375 x 0.375 in. surface mount package which allows the use of simpler microstrip installation at higher densities and improved performance. Refer to the Application Note on page 14-38.

ELECTRICAL SPECIFICATIONS (Measured in a 50-ohm system)

Symbol	Characteristic	Operating Frequencies GHz			Power Level			Specifications		Unit
		f_{LO}	f_{RF}	f_{IF}	LO Port dBm (typ)	Model Suffix	RF Port dBm	Typical $T_c = 25^\circ\text{C}$	Guaranteed $T_c = -55^\circ\text{ to } +100^\circ\text{C}$	
BW	Operating Frequency Range	0.05-3.0	0.05-2.5	0.001-1.5	+10 to +15	M				GHz
CL, NF	SSB Conversion Loss and Noise Figure	0.05-2.0 0.05-3.0 0.05-3.0 0.05-3.0	0.05-1.5 0.05-1.5 1.5-2.5 1.5-2.5	0.001-1.5 0.500-1.5 0.001-0.5 0.500-1.5				7.0 7.2 7.4 7.6	9.0 9.0 10.0 10.0	dB max
ISOL	Isolation Port-to-Port	L-R L-I R-I	0.05-3.0 0.05-3.0 0.05-3.0	— — 0.001-1.5				35 35 30	25 25	dB min
—	VSWR (50 ohm)	L L R R I	0.05-2.0 2.00-3.0 0.05-2.0 0.05-3.0 0.05-3.0	— — 0.05-0.5 0.5-2.5 0.001-1.5				1.5:1 2.5:1 1.2:1 2.0:1 1.5:1	2.5:1 3.0:1 2.5:1 3.0:1 2.5:1	max
CC	Conversion Compression Point (1dB)		0.05-2.0	0.05-2.5	$\geq +10$	M		+5		dBm typ
IP ₃	Third-Order Two-Tone Intercept Point		0.06 0.11 0.30 0.60 1.10 2.50 3.00	0.05 0.10 0.25 0.50 1.00 2.00 2.50				15 16 18 22 15 13 13		dBm typ

NOTES: 1. Specifications apply in a 50-ohm system with LO input power of +10 dBm and RF input power of -10 dBm.
2. Low frequency performance can be extended and/or enhanced through use of additional turns on LO, RF or IF transformers or by use of transformer material with higher relative permeability. Such modifications result in degradation of high frequency performance.
3. Guaranteed specifications apply with LO input power of +10 dBm.

WEIGHT: (typical) 0.5 grams

Avantek, Inc. • 481 Cottonwood Drive, Milpitas, CA 95035 • Contact your local representative, distributor or field sales office for further information. Listings are in the back of this Data Book.

Typical Single Tone Intermodulation Harmonic Suppression at 25°C (dB below desired output)

Harmonics of f_{RF}	1	2	3	4	5
5	>70	>70	>70	>70	>70
4	>70	>70	>70	>70	>70
3	65	>70	60	>70	65
2	55	45	55	58	55
1	0	35	18	45	30
	1	2	3	4	5
	Harmonics of f_{LO}				

Typical Harmonic Intermodulation Suppression for mixer generated harmonics of the input signals. Suppression numbers are for a f_{RF} signal level at -10 dBm and f_{LO} signal level of +10 dBm and RF input power of -10 dBm.

NOTES: $f_{RF} = 50$ MHz
 $f_{LO} > f_{RF}$
 $LO = +10$ dBm
 $RF = -10$ dBm

