



PACIFIC MONOLITHICS

DATA SHEET

0.01-16 GHz MONOLITHIC CONVERTERS

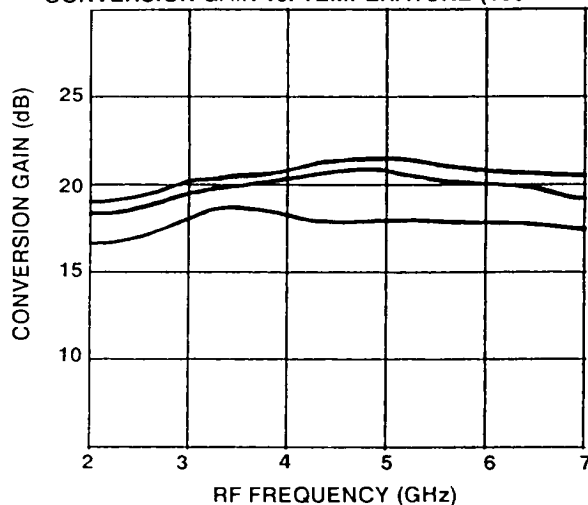
Pacific Monolithics offers numerous MMIC- and hybrid/MMIC-based frequency converters for a broad variety of applications. These subsystems combine several microwave functions on a single monolithic die, and often combine multiple MMICs and/or hybrid circuits to form a complete converter subsystem. MMIC converters provide the advantages of small size and improved reliability, due to their higher level of integration.

MMIC frequency converters combine RF amplifiers, IF amplifiers, and LO buffer amplifiers directly with the mixer. The RF amplifier establishes the converter noise figure, while the IF amplifier provides gain and increases the output power and intercept point. The LO buffer amplifier isolates the LO port from the mixer, and reduces the ripple due to VSWR mismatch. All the functional blocks are electrically very close to the mixer, which reduces the ripple due to VSWR mismatch. MMIC devices improve reliability and reduce assembly and tuning time because of the reduction in parts count and interconnections. Unit-to-unit phase and gain tracking is also improved for the same reason. These attributes make MMICs an excellent choice in applications where repeatable/reliable performance is required.

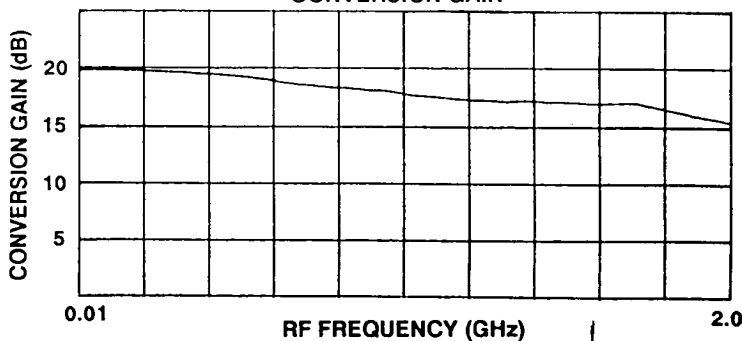
The frequency-converter circuits outlined in this summary sheet utilize double-balanced GaAs FET or Schottky diode mixers. All packages have 50-Ohm single-ended inputs and outputs (unless otherwise noted). This summary matrix shows PM's monolithic converter capabilities and custom designs are available. Potential applications include communication receivers, RF front ends, and second downconverters for wideband receivers.

MIL-STD 883 screening available

CONVERSION GAIN vs. TEMPERATURE (100-MHz IF)



CONVERSION GAIN



Solutions for Wireless Communications.

MONOLITHIC FREQUENCY CONVERTER CAPABILITIES

SPECIFICATIONS (TYPICAL AT 25°C)

Model Number	RF (GHz)	Frequency LO (GHz)	IF (GHz)	Conversion Gain (dB)	SSB Noise Figure (dB)	Power Out -1dB (dBm)	RF	VSWR LO	IF	LO-IF Leakage (dBm)	LO Power (dBm)	BIAS (V,A)	Package Type
NARROWBAND DOWNCONVERTERS													
CV0103	0.75-1.0	0.5-1.25	0.05-0.25	12-17	5.5	-3	3.5:1	2.0:1	2.0:1	-25	+5	+5V@30mA,-5V@1mA	B,D
CV0104	0.75-1.0	0.5-1.25	0.05-0.25	19-27	5.0	+8	3.5:1	2.0:1	2.0:1	-25	+5	+8V@110mA,-5V@2mA	B,D
CV0203	1.0-1.4	1.0-1.4	0.05-0.3	12-17	5.5	-3	3.5:1	2.0:1	2.0:1	-25	+5	+5V@30mA,-5V@1mA	B,D
CV0204	1.0-1.4	1.0-1.4	0.05-0.3	20-28	5.0	+8	3.5:1	2.0:1	2.0:1	-25	+5	+8V@110mA,-5V@2mA	B,D
CV0206	1.2-1.6	1.2-1.6	0.05-0.3	12-16	5.5	-3	3.5:1	2.0:1	2.0:1	-25	+5	+5V@30mA,-5V@1mA	B,D
CV0207	1.2-1.6	1.2-1.6	0.05-0.3	20-28	5.0	+8	3.5:1	2.0:1	2.0:1	-25	+5	+8V@80mA,-5V@2mA	B,D
CV0402	2.0-4.0	1.5-4.5	0.01-1.0	10-14	12.5	+7	2.0:1	2.0:1	2.0:1	-25	+0	+8V@150mA,-5V@5mA	A,B,D
CV0901	8.0-9.0	8.0-9.5	0.1-0.5	15-19	7.0	+7	2.5:1	2.5:1	2.0:1	-10	+5	+8V@220mA,-5V@70mA	S
CV0902	8.0-9.0	8.0-9.5	0.1-0.5	6-8	12.0	+7	2.5:1	2.5:1	2.0:1	-10	+5	+8V@160mA,-5V@50mA	D
CV01002	9.0-10.0	8.0-10.5	0.1-0.5	6-8	12.0	+7	2.5:1	2.5:1	2.0:1	-10	+10	+8V@160mA,-5V@50mA	D
CV01003	9.0-10.0	8.0-10.5	0.1-0.5	18-25	7.0	+7	2.5:1	2.5:1	2.0:1	-10	+10	+8V@220mA,-5V@70mA	S
CV01201	10.0-12.0	9.0-13.0	0.25-1.0	18-23	7.0	+12	2.5:1	2.5:1	2.0:1	-10	+10	+8V@255mA	S
CV01401	12.0-14.0	11.0-15.0	0.25-1.0	18-23	8.0	+12	2.5:1	2.5:1	2.0:1	-10	+10	+8V@255mA	S
WIDEBAND DOWNCONVERTERS													
CV0209	0.05-1.7	0.05-1.7	0.02-0.5	5-13	16.5	-3	2.0:1	2.5:1	2.0:1	-25	+5	+5V@30mA,-5V@1mA	B,D
CV0210	0.5-2.0	0.5-2.0	0.01-1.0	30-37	5.5	+8	2.5:1	2.0:1	2.0:1	-25	+5	+8V@150mA,-5V@2mA	B,D
CV0302	0.01-2.3	0.01-2.5	0.1-1.2	5-16	12.0	+6	2.0:1	2.0:1	2.0:1	-30	+0	+8V@90mA,-5V@5mA	A,B,D
CV0303	0.05-2.5	0.05-2.5	0.02-1.0	6-17	16.5	+8	2.0:1	2.5:1	2.0:1	-25	+5	+8V@100mA,-5V@2mA	B,D
CV0701	2-7	2.1-7.1	0.01-1.2	15-19	12.5	+7	3.0:1	3.0:1	2.0:1	0	0	+8V@135mA,-5V@5mA	A,B,D,S
CV1401	8.0-14.0	7.0-15.0	0.05-1.0	5-15	10.0	+7	2.5:1	2.5:1	2.0:1	-10	+10	+8V@180mA,-5V@60mA	S
SPECIAL APPLICATION CONVERTERS													
Model Number	RF (GHz)	Frequency LO (GHz)	IF (GHz)	Conversion Gain (dB)	Noise Figure (dB)	Power Out -1dB (dBm)	Function	LO-IF Leakage (dBm)	LO Power (dBm)	BIAS (V,A)	Package Type		

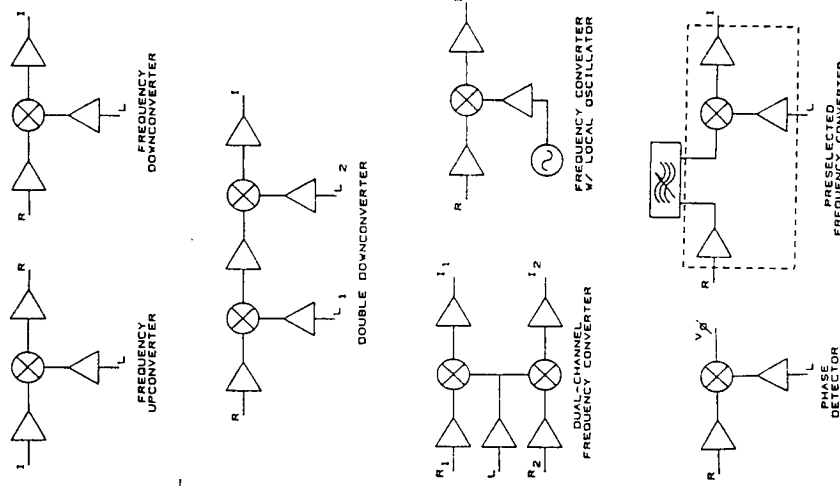
SPECIAL APPLICATION CONVERTERS

Model Number	RF (GHz)	Frequency		Conversion Gain (dB)	Noise Figure (dB)	Power Out -1dB (dBm)	Function	LO-IF Leakage (dBm)	LO Power (dBm)	BIAS (V,A)	Package Type
		LO (GHz)	IF (GHz)								
CV0209	0.05-1.7	0.05-1.7	0.01-0.5	5-12	16.5	-3	Upconverter	-25	+5	+5V@30mA, -5V@1mA	B,D
CV0302	0.1-2.0	0.05-1.0	0.05-2.0	5-15	10.0	0	Upconverter	-25	+0	+8V@90mA, -5V@2mA	A,B,D
CV0303	0.05-2.5	0.05-2.0	0.02-1.0	5-17	16.5	+8	Upconverter	-25	+5	+8V@100mA, -5V@2mA	B,D
CO0601	3.0-6.0	4.5-5.5	0.1-1.5	30-35	6.0	0	Upconverter w/local osc	-20	+0	+8V@160mA, -5V@3mA	A

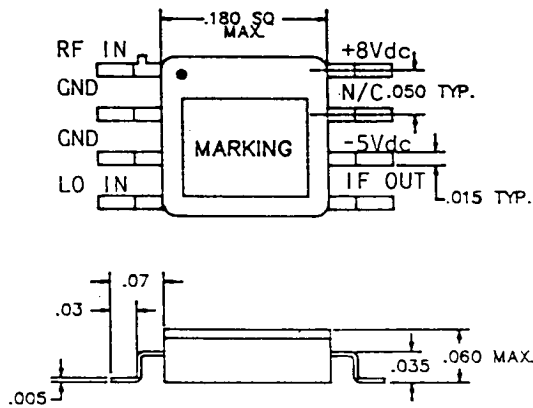
All the above devices are available in an "S" package.

Performance of converters depends largely on required LO, RF, IF frequencies and input levels. For detailed specifications on a device, consult the factory.

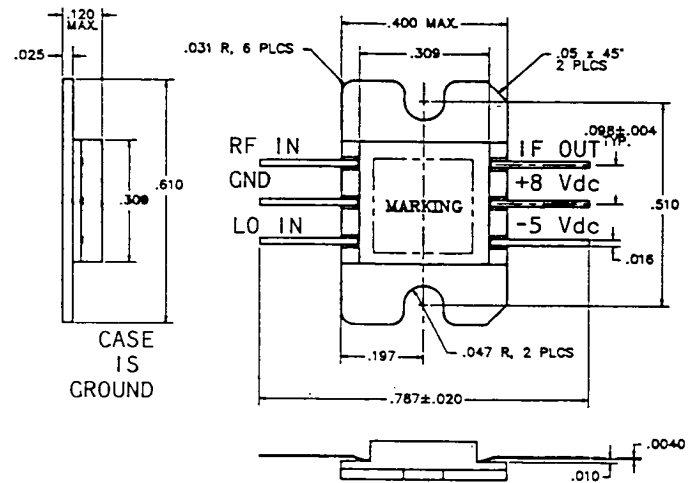
BLOCK DIAGRAMS OF SINGLE-MMIC CONVERTER SUBSYSTEMS



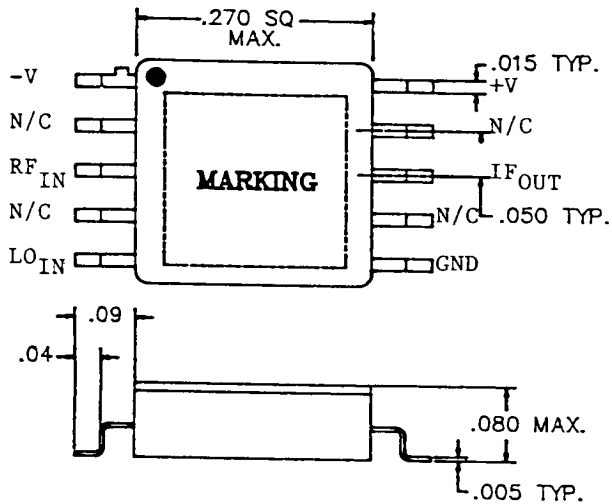
"A" PACKAGE



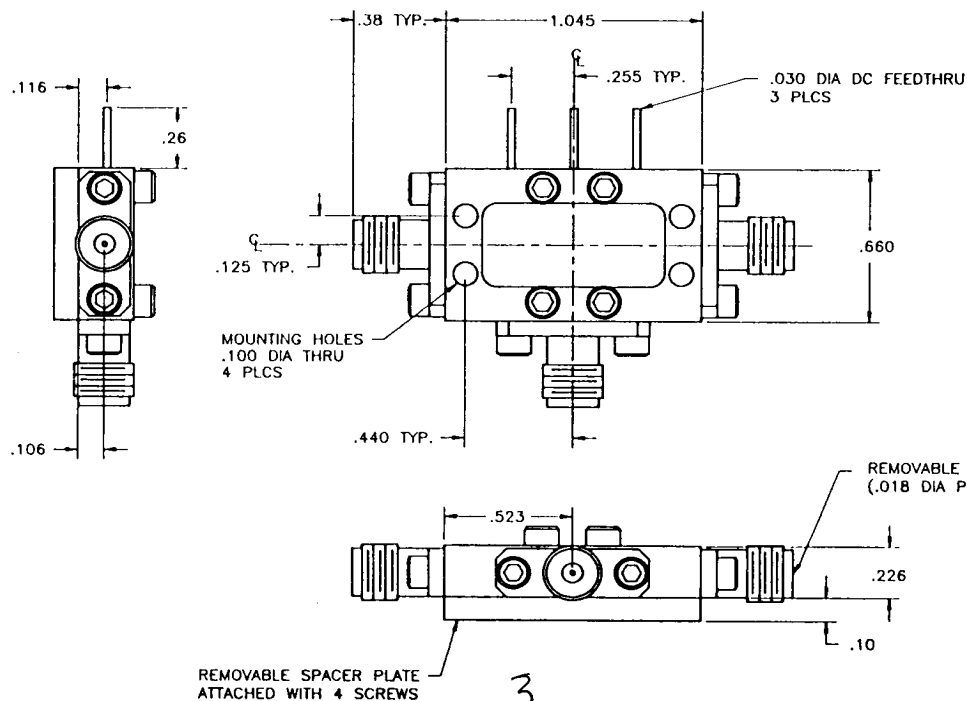
"D" PACKAGE



"B" PACKAGE



NOTE: PIN DESIGNATIONS MAY VARY FOR PARTICULAR MODELS. CONSULT FACTORY.



"S" PACKAGE (PMpac™)

910510