Fairview Microwave®
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PRODUCT GUIDE

Mixers, Multipliers & Dividers

Broad Selection of Ready-to-Ship Mixers, Modulators, Multipliers and Dividers

Fairview Microwave's RF multipliers, RF mixers and RF dividers cover frequency bands ranging from DC to 110 GHz and are available in both coaxial packaged and waveguide configurations. These versatile frequency conversion products are commonly deployed in a variety of RF/microwave applications involving test instrumentation, radar, and communications systems.

Fairview's RF mixer models are available in IQ, double balanced, and triple balanced designs with LO drive levels ranging from 4 to 20 dBm. Frequency multipliers and dividers support 0.5 to 23 GHz. Waveguide Active Multipliers are available in 2x, 4x, and 6x versions with input frequencies ranging from 10 to 20 GHz. Waveguide converter mixers are available in both up and down converter versions with DC to 18 GHz IF frequency bands. These frequency conversion components are essential in the signal processing chain, helping to reduce system complexity and cost. Our wide selection of RF mixers, RF modulators, RF multipliers, RF dividers, and waveguide converter mixers are all in-stock and available for same-day shipping.

Our RF multipliers, RF mixers and RF dividers can be viewed online at www.fairviewmicrowave.com with real-time inventory, pricing, and detailed datasheets that include typical performance graphs and CAD drawings. Our application engineers are available to answer any of your technical questions and can assist you with selecting the right product for your application.

Frequency Mixers

Doubled and Triple Balanced

FM P/N	Type	RF Range (GHz)	LO Range (GHz)	IF Range (GHz)	LO Power (dBm)	Conversion Loss (dB)	LO to RF Isolation (dB)	LO to IF Isolation (dB)	P1dB (dBm)	Connector	ECCN
FMMX1013 	Double Balanced	0.5 MHz - 500 MHz	0.5 MHz - 500 MHz	DC - 500 MHz	10	6.8	55	45		SMA	EAR99
FMMX1020 	Double Balanced	1 MHz - 2.7	1 MHz - 2.7	1 MHz - 2	10	7	39	36		SMA	EAR99
FMMX1021 	Double Balanced	1 MHz - 2.7	1 MHz - 2.7	1 MHz - 2	17	7	38	31		SMA	EAR99
FMMX1014 	Double Balanced	5 MHz - 1	5 MHz - 1	DC - 1	7	7	47	45		SMA	EAR99
FMMX1016 	Double Balanced	5 MHz - 1	5 MHz - 1	DC - 1	13	7	39	30		SMA	EAR99
FMMX1018 	Double Balanced	5 MHz - 1.5	5 MHz - 1.5	DC - 1	7	7.5	40	30		SMA	EAR99
FMMX1022 	Double Balanced	5 MHz - 3.5	5 MHz - 3.5	5 MHz - 2.5	13	8	33	28		SMA	EAR99
FMMX1023 	Double Balanced	5 MHz - 4.2	5 MHz - 4.2	5 MHz - 3.5	13	9.8	29	26		SMA	EAR99
FMMX1015 	Double Balanced	10 MHz - 1	10 MHz - 1	DC - 800 MHz	4	7.2	60	33		SMA	EAR99
FMMX1017 	Double Balanced	10 MHz - 1.2	10 MHz - 1.2	DC - 1.2	13	8	45	42		SMA	EAR99
FMMX1019 	Double Balanced	40 MHz - 2.5	40 MHz - 2.5	DC - 1	13	8	37	35		SMA	EAR99
FMMX1024 	Double Balanced	800 MHz - 4.2	800 MHz - 4.2	DC - 800 MHz	13	9	35	18		SMA	EAR99
FMFX1050 	Double Balanced	2 - 8	2 - 8	DC - 1.5	10	5.5	35	25	4	SMA	EAR99
FMFX1052 	Double Balanced	2 - 18	2 - 18	DC - 600 MHz	10	6.5	28	25	4	SMA	EAR99

Doubled and Tripled Balanced Continued

FM P/N	Type	RF Range (GHz)	LO Range (GHz)	IF Range (GHz)	LO Power (dBm)	Conversion Loss (dB)	LO to RF Isolation (dB)	LO to IF Isolation (dB)	P1dB (dBm)	Connector	ECCN
FMMX1026 	Double Balanced	2.25 - 18	2.25 - 18	DC - 3	13	11	35	20		SMA	EAR99
FMMX1025 	Double Balanced	2.5 - 6	2.5 - 6	DC - 1.5	17	8.7	28	14		SMA	EAR99
FMMX1027 	Double Balanced	3 - 10	3 - 10	DC - 4	17	9	45	45	15	SMA	EAR99
FMFX1053 	Double Balanced	5 - 18	5 - 18	DC - 4	10	6.2	35	30	4	SMA	EAR99
FMMX1006 	Double Balanced	5 - 20	5 - 20	DC - 3	20	10	30	17		SMA	EAR99
FMMX1008 	Double Balanced	5 - 20	5 - 20	DC - 3	20	10	30	17		SMA	EAR99
FMMX1007 	Double Balanced	6 - 18	6 - 18	DC - 3	6	7.5	23	20		SMA	EAR99
FMMX1028 	Double Balanced	6 - 26	6 - 26	DC - 8	13	10	37	37	11	SMA	EAR99
FMFX1003 	Double Balanced	7 - 14	7 - 14	DC - 5	13					SMA	EAR99
FMMX1029 	Double Balanced	7 - 34	7 - 34	DC - 8	15	11	35	30	13	2.92mm	EAR99
FMMX1009 	Double Balanced	7 - 43	7 - 43	DC - 10	13	9	35	35		2.92mm	EAR99
FMMX1004 	Double Balanced	11 - 20	11 - 20	DC - 6	13					2.92mm	EAR99
FMMX1030 	Double Balanced	16 - 30	16 - 30	DC - 8	13	9	40	32	13	2.92mm	EAR99
FMMX1000 	Double Balanced	16 - 32	16 - 32	DC - 8	13					2.92mm	EAR99
FMMX1002 	Double Balanced	23 - 37	23 - 37	DC - 13	13	9	35	35		2.92mm	EAR99

Doubled and Tripled Balanced Continued

FM P/N	Type	RF Range (GHz)	LO Range (GHz)	IF Range (GHz)	LO Power (dBm)	Conversion Loss (dB)	LO to RF Isolation (dB)	LO to IF Isolation (dB)	P1dB (dBm)	Connector	ECCN
FMMX1031 	Double Balanced	24 - 32	24 - 32	DC - 8	13	10.5	38	40	13	2.92mm	EAR99
FMMX1001 	Double Balanced	24 - 38	24 - 38	DC - 8	13	9	35	40		2.92mm	EAR99
FMMX1010 	Double Balanced	24 - 40	24 - 40	DC - 18	13	8	35	28		2.92mm	EAR99
FMMX1032 	Triple Balanced	2 - 18	2 - 18	1 - 6		8	25	30		SMA	EAR99
FMFX1054 	Triple Balanced	6 - 18	6 - 18	1.5 - 8	10	7	27	25	4	SMA	EAR99

IQ

FM P/N	Type	RF Range (GHz)	LO Range (GHz)	IF Range (GHz)	LO Power (dBm)	Conversion Loss (dB)	LO to RF Isolation (dB)	LO to IF Isolation (dB)	P1dB (dBm)	Connector	ECCN
FMMX9000 	IQ	4 - 8.5	4 - 8.5	DC - 3.5	15					SMA	EAR99
FMMX9001 	IQ	6 - 10	6 - 10	DC - 3.5	19	7.5	45	25	17	SMA	EAR99
FMMX9002 	IQ	8.5 - 13.5	8.5 - 13.5	DC - 2	19	8	38	25	17	SMA	EAR99
FMMX9003 	IQ	11 - 16	11 - 16	DC - 3.5	19	9	35	25		SMA	EAR99
FMMX9004 	IQ	15 - 23	15 - 23	DC - 3.5	17	8	35	22	15	SMA	EAR99
FMMX9005 	IQ	20 - 31	20 - 31	DC - 4.5	17	10	42	30	17	2.92mm	EAR99
FMMX9006 	IQ	30 - 38	30 - 38	DC - 3.5	17					2.92mm	EAR99

Bi-Phase Modulators

FM P/N	Frequency Band (GHz)	Insertion Loss (dB)	Switching Speed (nsec)	Phase State (On/Off)	VSWR	RF Input Power (CW) (dBm)	Max Peak RF Input Power (1 µsec) (W)	Bias Voltage (Volts)	Connectors	ECCN
FM86GM2000 	0.5 - 1	2.5	10	0°/180°	2:1	+20	0.5	+5 / -5	SMA Female	EAR99
FM86GM2001 	1 - 2	3	30	0°/180°	2:1	+20	0.5	+12 / -12	SMA Female	EAR99
FM86GM2002 	2 - 4	2.5	75	0°/180°	1.5:1	+20	0.5	+5 / -5	SMA Female	EAR99
FM86GM2003 	2 - 6	1.7	50	0°/180°	1.8:1	+27	0.5	+5 / -15	SMA Female	EAR99
FM86GM2004 	4 - 8	2.5	30	0°/180°	2:1	+20	0.5	+5 / -5	SMA Female	EAR99
FM86GM2005 	6 - 12	2.5	15	0°/180°	2:1	+20	0.5	+5 / -5	SMA Female	EAR99
FM86GM2006 	8 - 18	3	75	0°/180°	2:1	+20	0.5	+5 / -5	SMA Female	EAR99
FM86GM2007 	2 - 18	3.5	35	0°/180°	1.7:1	+20	0.5	+5 / -12	SMA Female	EAR99
FM86GM2008 	26.5 - 40	5.5	50	0°/180°	2:1	+20	0.5	+5 / -5	2.92mm	EAR99

Frequency Dividers

FM P/N	Frequency (GHz)	Divide-By Prescaler	Typ Output Power (dBm)	Phase Noise @100 KHz (dBc/Hz)	Max Input Power (CW) (dBm)	DC Bias (V/mA)	Connector	ECCN
FMFD3000 	0.1 - 7	3	-1	-150	12	+12 / 70	SMA - SMA	3A001.A.11.B
FMFD25000 	0.1 - 7	5	-1	-150	12	+12 / 80	SMA - SMA	3A001.A.11.B
FMFD15000 	0.1 - 7	15	-1	-150	10	+12 / 150	SMA - SMA	3A001.A.11.B

Frequency Dividers Continued

FM P/N	Frequency (GHz)	Divide-By Prescaler	Typ Output Power (dBm)	Phase Noise @100 KHz (dBc/Hz)	Max Input Power (CW) (dBm)	DC Bias (V/mA)	Connector	ECCN
FMFD8003 	0.1 - 12	8	-7	-150	10	+12 / 75	SMA - SMA	3A001.A.11.B
FMFD24000 	0.1 - 12	24	-1	-147	10	+12 / 140	SMA - SMA	3A001.A.11.B
FMFD40000 	0.1 - 12	40	-1	-147	10	+12 / 150	SMA - SMA	3A001.A.11.B
FMFD1001 	0.1 - 12.5	10	-1	-144	10	+12 / 200	SMA - SMA	3A001.A.11.B
FMFD4003 	0.1 - 13	4	5	-151	10	+12 / 120	SMA - SMA	3A001.A.11.B
FMFD12000 	0.1 - 13	12	-2	-145	10	+12 / 185	SMA - SMA	3A001.A.11.B
FMFD20000 	0.1 - 13	20	-1	-145	10	+12 / 195	SMA - SMA	3A001.A.11.B
FMFD5001 	0.1 - 15	5	5	-153	10	+5 / 205	SMA - SMA	3A001.A.11.B
FMFD6000 	0.1 - 15	6	5	-153	10	+5 / 205	SMA - SMA	3A001.A.11.B
FMFD7000 	0.1 - 15	7	5	-153	10	+5 / 205	SMA - SMA	3A001.A11.B
FMFD9000 	0.1 - 15	9	5	-153	10	+5 / 205	SMA - SMA	3A001.A.11.B
FMFD2002 	0.1 - 20	2	5	-153	10	+5 / 160	SMA - SMA	3A001.A.11.B
FMFD4002 	0.1 - 20	4	5	-153	10	+5 / 170	SMA - SMA	3A001.A.11.B
FMFD8002 	0.1 - 20	8	5	-153	10	+5 / 175	SMA - SMA	3A001.A.11.B
FMFD1002 	0.2 - 6	10	-2	-144	10	+12 / 100	SMA - SMA	3A001.A.11.B

Frequency Dividers Continued

FM P/N	Frequency (GHz)	Divide-By Prescaler	Typ Output Power (dBm)	Phase Noise @100 KHz (dBc/Hz)	Max Input Power (CW) (dBm)	DC Bias (V/mA)	Connector	ECCN
FMFD20001 	0.2 - 6	20	2	-144	10	+12 / 95	SMA - SMA	3A001.A. 11.B
FMFD16000 	0.4 - 4	16	-2	-144	10	+12 / 70	SMA - SMA	3A001.A. 11.B
FMFD32000 	0.4 - 4	32	1	-144	10	+12 / 70	SMA - SMA	3A001.A. 11.B
FMFD5000 	0.5 - 8	5	-1	-155	10	+5 / 80	SMA - SMA	3A001.A. 11.B
FMFD2001 	0.5 - 18	2	-4	-147	10	+12 / 85	SMA - SMA	3A001.A. 11.B
FMFD4000 	0.5 - 18	4	-4	-150	10	+5 / 93	SMA - SMA	3A001.A. 11.B
FMFD4001 	0.5 - 18	4	-4	-147	10	+12 / 110	SMA - SMA	3A001.A. 11.B
FMFD8001 	0.5 - 18	8	-4	-147	10	+12 / 110	SMA - SMA	3A001.A. 11.B
FMFD1000 	0.5 - 18	10	-1	-155	10	+5 / 152	SMA - SMA	3A001.A. 11.B

Frequency Multipliers

Active

FM P/N	Type	Input Frequency (GHz)	Output Frequency (GHz)	CW Input Power (dBm)	Fund. Iso. Typ (dB)	Conversion Gain (dB)	DC Voltage (Volts)	Female In/Out Connector	ECCN
FMFX2015 	Triplers	250 - 350	0.75 - 1.05	-3	40	7	12	SMA	EAR99
FMFX2016 	Triplers	320 - 450	0.96 - 1.35	-3	30	6	12	SMA	EAR99
FMFX2017 	Triplers	450 - 600	1.35 - 1.8	-3	35	9	12	SMA	EAR99

Active Frequency Multipliers Continued

FM P/N	Type	Input Frequency (GHz)	Output Frequency (GHz)	CW Input Power (dBm)	Fund. Iso. Typ (dB)	Conversion Gain (dB)	DC Voltage (Volts)	Female In/Out Connector	ECCN
FMFX2018 	Triplers	600 - 750	1.8 - 2.25	-3	30	4	12	SMA	EAR99
FMFX2019 	Triplers	700 - 1,000	2.1 - 3	0	25	12	12	SMA	EAR99
FMFX2020 	Triplers	0.95 - 1.5	2.85 - 4.5	0	20	9	12	SMA	EAR99
FMFX2003 	Doublers	4 - 10.5	8 - 21	6		8	12	SMA	EAR99
FMFX2000 	Doublers	9 - 14.5	18 - 29	3	20	13	5	2.92mm	EAR99
FMFX2001 	Doublers	12 - 16.5	24 - 33	3	20	14	5	2.92mm	EAR99
FMFX2002 	Doublers	16 - 23	32 - 46	3	20	10	5	2.92mm	EAR99

Passive Doublers

FM P/N	Input Frequency (GHz)	Output Frequency (GHz)	Input Drive Power (dBm)	Conversion Loss (dB)	Fund. Iso. Typ (dB)	Female In/Out Connector	ECCN
FMFX2010 	0.01 - 1	0.02 - 2	16	12	35	SMA	EAR99
FMFX2011 	0.9 - 1.8	1.8 - 4	18	14	35	SMA	EAR99
FMFX2012 	1.25 - 3	2.5 - 6	18	15	25	SMA	EAR99
FMDB1000 	1.5 - 5	3 - 10	13	8.5		SMA	EAR99
FMFX2013 	2 - 4	4 - 8	18	14	25	SMA	EAR99

Passive Doubler Frequency Multipliers Continued

FM P/N	Input Frequency (GHz)	Output Frequency (GHz)	Input Drive Power (dBm)	Conversion Loss (dB)	Fund. Iso. Typ (dB)	Female In/Out Connector	ECCN
FMDB1001 	2 - 6	4 - 12	13	11		SMA	EAR99
FMFX2014 	4 - 8	8 - 16	18	17	25	SMA	EAR99
FMDB1002 	4 - 9	8 - 18	13	10	25	SMA	EAR99
FMDB1003 	9 - 13	18 - 26	13	10	25	SMA	EAR99

Waveguides

Waveguide Active Frequency Multipliers

FM P/N	Waveguide Type	Input Frequency Range (GHz)	Output Frequency Range (GHz)	Typ Output Power (dBm)	Typ Harmonics	Max DC Voltage (V)	Typ DC Current (mA)	Flange Type	ECCN
FMFX2021 	WR-28	13.25 - 20	26.5 - 40	+22	-15	8	350	UG-599/U	EAR99
FMFX2022 	WR-19	10 - 15	40 - 60	+10	-15	8	150	UG-383/U-M	EAR99
FMFX2023 	WR-15	12.5 - 18.75	50 - 75	+15	-15	8	275	UG-385/U	EAR99
FMFX2026 	WR-10	12.5 - 18.33	75 - 110	+10	-15	8	375	UG-387/U-M	3A001.B.4.E.3

Waveguide Converters/Mixers

FM P/N	RF/LO Frequency Range (GHz)	IF Frequency Range (GHz)	Conversion Loss (dB)	Waveguide Type	Connector	ECCN
FMMD1005 	26.5 - 40	DC - 18 GHz	6	WR-28 UG-599/U	SMA Female	EAR99
FMMD1002 	50 - 75	DC - 18 GHz	8	WR-15 UG-385/U	SMA Female	EAR99

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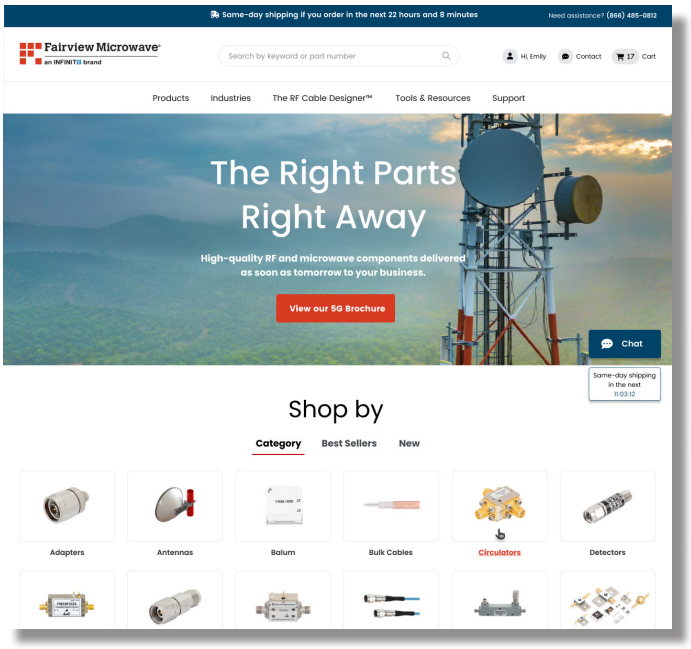
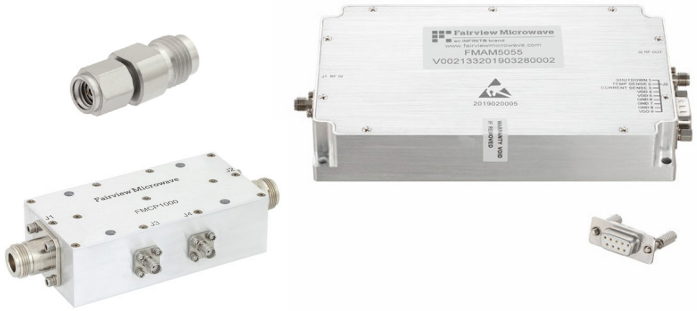




Who We Are

Since 1992, Fairview Microwave has been a leading supplier of high-quality RF and microwave components in the U.S. and across the globe and specializes in immediate product needs by offering same-day shipping on thousands of in-stock items with no minimum purchasing requirements.

We know that having the correct parts shipped directly to you the same day you order them can mean the difference between project success and failure. That's why Fairview maintains an inventory of thousands of RF products including adapters, connectors, amplifiers, attenuators, coaxial cables, waveguide, terminations and more. In addition, Fairview holds an extensive component inventory to build custom cable assemblies that can be designed to your exact specifications and shipped same day.

All orders are shipped from our ISO 9001:2015 certified production facilities in Lewisville, Texas and backed by expert technical service and engineering support so that no matter the project, timeline, or requirements you can get the right parts, right away.

Create Your Own Custom Cable Assemblies with The RF Cable Designer™

Over 250,000 Custom Cable Configurations Available to Ship Same-Day!

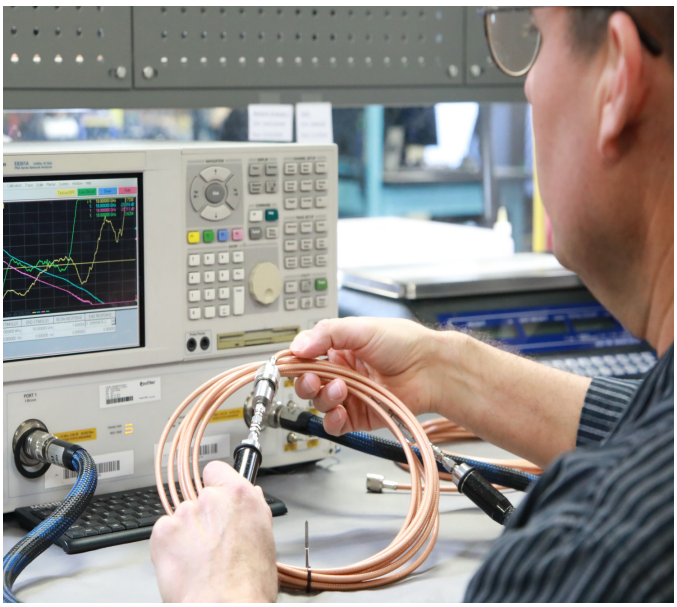
- Choose from over 2,030 RF coax connectors
- 123 coaxial cable types, including Twinax
- Choose your desired length (metric or standard)
- Includes high-reliability and low PIM assembly types

Full-Service Testing Including:

- RF testing to 65 GHz
- PIM testing up to -117 dBm (-160 dBc)
- Phase Matching +/- 2 degrees per GHz
- Hi Pot testing to 5,000 volts DC and 6,000 volts AC

Value-Added Services for Custom Assemblies Include:

- Custom booting/heat shrink
- Special labeling
- Test plots provided for an additional fee
- Custom connector clocking of right angle connectors
- Serialized test data available for high performance test cables



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About Infinite Electronics

Infinite Electronics has a global portfolio of leading in-stock connectivity solution brands. Infinite's brands help propel the world's innovators forward by working urgently to provide products, solutions and real-time support for their customers. Backed by Warburg Pincus, Infinite's brands serve customers across a wide range of industries with a broad inventory selection, same-day shipping and 24/7 customer service. Learn more at InfiniteElectronics.com

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