



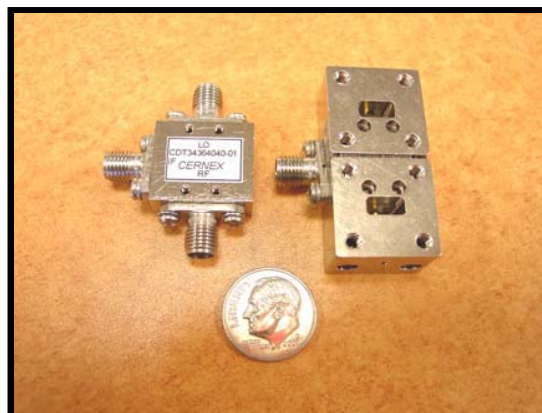
Balanced Mixers (Waveguide & Coaxial)

FEATURES:

- ❖ Coverage from DC-100GHz
- ❖ Low conversion loss
- ❖ Low LO drive power
- ❖ Full waveguide band operation
- ❖ Compact and rugged package

APPLICATIONS:

- ❖ Test equipment
- ❖ Communication systems
- ❖ Radar receivers



CMB Series

DESCRIPTION:

Cernex CMB series balanced mixers are offered in coaxial and several waveguide bands to cover the frequency spectrum from DC to 100 GHz. These mixers employ high performance GaAs Schottky beamlead diodes and balanced configuration to produce superior performance with moderate LO pumping level. The mixers are designed for full RF waveguide band operation with extremely wide IF bandwidth. These mixers offer moderate port to port isolation, which is high enough for most applications to eliminate additional filter requirement. These mixers are idea candidates for test equipment, communication systems and Radar receivers where frequency down conversion is desired.

SPECIFICATIONS:

SINGLE-BALANCED:

Model Number	RF (GHz)	LO (GHz)	IF (GHz)	CONVERSION LOSS (dB) Typ.	ISOLATIONS		LO DRIVE LEVEL (dBm) Typ.	Case Type
					L-R (dB)	L-I (dB)		
CMB40440409X	18 – 40	14 - 44	DC - 4	9.0	-	-	12	-
CMB35190311U	25 – 35	11 - 19	DC - 3	11.0	-	-	9	-
CMB35090311U	25 – 35	5 - 9.5	DC - 3	11.0	-	-	10	-
CMB46470307X	32 – 46	29 - 47	DC - 3	7.0	-	-	15	-
CMB7777U107U	76 – 77	76 - 77	DC – 0.1	7.5	-	-	5	-
CMB7777U108U	76 – 77	76 - 77	DC – 0.1	8.0	-	-	5.5	-
CMB99990311V	91 – 99	91 - 99	DC - 3	11.5	-	-	16	-

ALL THE ABOVE SPECIFICATIONS ARE @ 25°C

DOUBLE-BALANCED:

Model Number	RF (GHz)	LO (GHz)	IF (GHz)	CONVERSION LOSS (dB) Typ.	ISOLATIONS		LO DRIVE LEVEL (dBm) Typ.	Case Type
					L-R (dB)	L-I (dB)		
CMB02020208Y	0.00005-2	0.00005-2	0.00005-2	8.0	32	35	10	M01
CMBU5U5U506Y	0.0005-0.5	0.0005-0.5	DC-0.5	6.0	40	40	7	M01
CMBU6U6U507Y	0.001-0.6	0.001-0.6	DC-0.5	7.5	30	30	17	M01



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Model Number	RF (GHz)	LO (GHz)	IF (GHz)	CONVERSION LOSS (dB) Typ.	ISOLATIONS		LO DRIVE LEVEL (dBm) Typ.	Case Type
					L-R (dB)	L-I (dB)		
CMBU6U6U607Y	0.001-0.6	0.001-0.6	DC-0.6	7.5	30	33	10	M01
CMBU7U7U705Y	0.001-0.7	0.001-0.7	DC-0.7	5.5	35	35	7	M01
CMBU8U8U806Y	0.001-0.8	0.001-0.8	DC-0.8	6.5	25	25	17	M01
CMB01010107Y	0.001-1	0.001-1	DC-1	7.0	37	26	7	M01
CMB0202U608Y	0.002-2.5	0.002-2.5	0.002-0.6	8.5	25	30	7	M01
CMB01010107Y1	0.005-1.2	0.005-1.2	DC-1.2	7.5	25	20	17	M01
CMB01010106Y1	0.005-1.5	0.005-1.5	DC-1	6.0	30	30	10	M01
CMB01010106Y2	0.005-1.5	0.005-1.5	DC-1.5	6.5	35	30	7	M01
CMB0101U507Y	0.01-1	0.01-1	0.005-0.5	7.5	40	30	10	M01
CMB01010106Y	0.01-1	0.01-1	0.01-1	6.0	45	45	7	M01
CMB0101U706Y	0.01-1.5	0.01-1.5	0.01-0.7	6.5	25	30	7	M01
CMB0202U808Y	0.01-2	0.01-2	0.01-0.8	8.0	25	30	7	M01
CMB03030208Y	0.01-3	0.01-3	0.01-2.5	8.5	25	25	17	M01
CMB03030207Y	0.01-3	0.01-3	0.01-2.5	7.5	25	20	10	M01
CMB02020107Y	0.04-2.5	0.04-2.5	DC-1	7.5	40	33	10	M01
CMB2020U307M	0.5 - 20	0.5 - 20	DC - 0.3	9.0	30	25	13	-
CMB2626U307M	0.5 - 26.5	0.5 - 26.5	DC - 0.3	9.0	25	25	13	-
CMB4040U408M	0.5 - 40	0.5 - 40	DC - 0.4	10.0	28	30	13	-
CMB5050U309M	0.5 - 50	0.5 - 50	DC - 0.3	11.0	27	27	13	-
CMB2727U308M	0.7 - 27	0.7 - 27	DC - 0.3	10.0	35	25	13	-
CMB0202U608Y1	0.1-2	0.1-2	DC-0.6	8.0	37	30	7	M01
CMB2121V512M	1 - 21	1 - 21	DC - 0.05	14.0	-	-	13	-
CMB2626U707M1	1 - 26.5	1 - 26.5	DC - 0.7	9.0	30	30	13	-
CMB4040U708M	1 - 40	1 - 40	DC - 0.7	10.0	30	27	13	-
CMB5050U409M	1 - 50	1 - 50	DC - 0.4	11.0	27	27	13	-
CMB6565U409M	1 - 65	1 - 65	DC - 0.4	11.5	27	27	13	-
CMB05050307H	1.8 - 5	1.8 - 5	DC - 3	8.0	42	36	15	-
CMB04040205M	2 - 4	2 - 4	DC - 2	7.0	35	22	13	-
CMB04040207Y	2 - 4	2 - 4	0.02-2	7.5	20	23	10	M01
CMB04040207Y1	2 - 4	2 - 4	0.02-2.5	7.5	20	23	10	M01
CMB08080205M	2 - 8	2 - 8	DC - 2	7.5	35	22	13	-
CMB08080207Y	2 - 8	2 - 8	0.02-2.5	7.5	20	23	10	M01
CMB08080207Y1	2 - 8	2 - 8	0.02-2.5	7.5	20	23	10	M01
CMB08080207Y2	2 - 8	2 - 8	0.02-2.5	7.5	20	20	10	M02
CMB08080607Y	2 - 8	2 - 8	1 - 6	7.0	20	23	10	M01
CMB09090205M	2 - 9	2 - 9	DC - 2	7.0	40	35	13	-
CMB12060205M	2 - 12	1 - 6	DC - 2	7.5	38-2L	42-2L	13	-
CMB12120205M1	2 - 12	2 - 12	DC - 2	7.5	35	20	13	-
CMB18180207M	2 - 18	2 - 18	DC - 2	9.0	35	25	13	-
CMB18180207Y6	2 - 18	2 - 18	0.02-2.5	7.5	20	23	10	M01



Balanced Mixers (Waveguide & Coaxial)

Model Number	RF (GHz)	LO (GHz)	IF (GHz)	CONVERSION LOSS (dB) Typ.	ISOLATIONS		LO DRIVE LEVEL (dBm) Typ.	Case Type
					L-R (dB)	L-I (dB)		
CMB18180207Y7	2 - 18	2 - 18	0.02-2.5	7.5	20	23	10	M01
CMB18180207Y8	2 - 18	2 - 18	0.02-2.5	7.5	20	20	10	M02
CMB18180408Y	2 - 18	2 - 18	0.03-4	8.0	20	23	10	M08
CMB18180508Y	2 - 18	2 - 18	0.03-5	8.0	20	25	10	M08
CMB18180607Y	2 - 18	2 - 18	1 - 6	7.0	20	23	10	M01
CMB2020U707M	2 - 20	2 - 20	DC - 0.7	9.0	25	30	13	-
CMB20200106M	2 - 20	2 - 20	DC - 1.5	8.5	30	15	13	-
CMB20200207M	2 - 20	2 - 20	DC - 2	9.0	35	25	13	-
CMB2626U707M2	2 - 26.5	2 - 26.5	DC - 0.7	9.5	25	30	13	-
CMB26260106M	2 - 26.5	2 - 26.5	DC - 1.5	8.5	30	15	13	-
CMB6565U108M	2 - 65	2 - 65	DC - 0.1	10.0	25	25	13	-
CMB09090405M	3 - 9	3 - 9	DC - 4	7.5	32	23	13	-
CMB10100306M	3 - 10	3 - 10	DC - 3	8.0	50	40	13	-
CMB10100207Y	3 - 10	3 - 10	0.02-2.5	7.5	23	25	10	M01
CMB10100207Y1	3 - 10	3 - 10	0.02-2.5	7.5	20	20	10	M02
CMB10100208Y	3 - 10	3 - 10	0.02-2.5	8.0	23	23	10	M08
CMB12120405M1	3 - 12	3 - 12	DC - 4	7.5	34	25	13	-
CMB26260207M	3 - 26.5	3 - 26.5	DC - 2	7.5	40	25	13	-
CMB04050106M	3.6 - 4.3	4.7 - 5.4	DC - 1.5	8.0	37	21	13	-
CMB14140205M	3.6 - 14.5	3.6 - 14.5	DC - 2.5	7.5	32	25	13	-
CMB14140305M	3.7 - 14.5	3.7 - 14.5	DC - 3.5	7.5	33	32	13	-
CMB08080308H	4 - 8	4 - 8	DC - 3	8.0	40	42	13	-
CMB08080405M1	4 - 8	4 - 8	DC - 4	7.0	35	19	13	-
CMB08080405M	4 - 8	4 - 8	DC - 4	7.5	35	25	15	-
CMB08080206Y	4 - 8	4 - 8	0.02-2.5	6.5	23	25	10	M01
CMB08080207Y3	4 - 8	4 - 8	0.02-2.5	7.5	23	25	10	M01
CMB08080207Y4	4 - 8	4 - 8	0.02-2.5	7.5	20	23	10	M02
CMB08080406Y	4 - 8	4 - 8	1 - 4	6.5	23	25	10	M01
CMB12120205M	4 - 12	4 - 12	DC - 2	7.0	40	25	13	-
CMB12120305M2	4 - 12	4 - 12	DC - 3.5	7.5	35	18	13	-
CMB12120405M	4 - 12	4 - 12	DC - 4	7.0	40	30	13	-
CMB18180406M1	4 - 18	4 - 18	DC - 4	8.0	35	30	13	-
CMB20100406M	4 - 20	2 - 10	DC - 4	8.0	45-2LO	40-2LO	13	-
CMB20200406M	4 - 20	4 - 20	DC - 4	8.0	35	30	13	-
CMB20200205M	4 - 20	4 - 20	DC - 2	7.5	40	30	13	-
CMB44440307M	4 - 44	4 - 44	DC - 3	9.0	25	25	13	-
CMB44220307M	4 - 44	2 - 22	DC - 3	9.0	25	25	13	-
CMB65650307M	4 - 65	4 - 65	DC - 3	9.0	25	25	13	-
CMB09110205M	4.5 - 9.5	2.5 - 11.5	DC - 2	7.0	40	25	13	-
CMB09090305M	5 - 9	5 - 9	DC - 3.5	7.0	40	19	13	-



Balanced Mixers (Waveguide & Coaxial)

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					L-R (dB)	L-I (dB)		
CMB10100207Y2	5 - 10	5 - 10	DC - 2	7.5	23	23	6	M03
CMB10100207Y3	5 - 10	5 - 10	DC - 2	7.5	23	23	6	M03
CMB18180207Y	5 - 18	5 - 18	DC - 2	7.5	20	23	6	M03
CMB18180207Y1	5 - 18	5 - 18	DC - 2	7.5	20	23	6	M03
CMB20200310H	5 - 20	5 - 20	DC - 3	10.0	30	16	20	-
CMB20200406M2	5 - 20	5 - 20	DC - 4	8.0	35	30	13	-
CMB40400307M	5 - 40	5 - 40	DC - 3	9.0	25	25	13	-
CMB45450408M	5 - 45	5 - 45	DC - 4	10.0	28	25	13	-
CMB06050105M	5.8 - 6.5	4.7 - 5.4	DC - 1.5	7.5	40	20	13	-
CMB10100307Y	6 - 10	6 - 10	DC - 3	7.5	23	23	6	M02
CMB10100405M	6 - 10	6 - 10	DC - 4	7.0	35	25	13	-
CMB11110207H	6 - 11	6 - 11	DC - 2	7.0	40	40	15	-
CMB14140405M	6 - 14	6 - 14	DC - 4	7.0	35	30	13	-
CMB16160405M	6 - 16	6 - 16	DC - 4	7.5	35	30	13	-
CMB18180405M	6 - 18	6 - 18	DC - 4	7.5	33	30	13	-
CMB18180307Y	6 - 18	6 - 18	DC - 3	7.5	23	23	6	M02
CMB18180610H	6 - 18	6 - 18	DC - 6	10.0	28	20	15	-
CMB20200605M	6 - 20	6 - 20	DC - 6	7.5	40	20	13	-
CMB11140507H	7 - 11	11 - 14	DC - 5	7.0	48/45	33/35	13	-
CMB18180307Y1	7 - 18	7 - 18	DC - 3	7.5	23	23	20	M02
CMB26260806M	7 - 26.5	7 - 26.5	DC - 8	8.0	38	25	13	-
CMB50501007M	7 - 50	7 - 50	DC - 10	9.0	25	25	13	-
CMB65651007M	7 - 65	7 - 65	DC - 10	9.5	25	25	13	-
CMB12120207Y	8 - 12	8 - 12	DC - 2	7.0	23	30	6	M03
CMB12120307Y	8 - 12	8 - 12	DC - 3	7.5	23	23	6	M02
CMB12120206Y	8 - 12	8 - 12	0.02-2.5	6.5	23	25	10	M01
CMB12120207Y1	8 - 12	8 - 12	0.02-2.5	7.5	23	25	10	M01
CMB12120207Y2	8 - 12	8 - 12	0.02-2.5	7.5	20	20	10	M02
CMB12120406Y	8 - 12	8 - 12	1 - 4	6.5	23	25	10	M01
CMB18180207Y2	8 - 18	8 - 18	DC - 2	7.5	23	25	6	M03
CMB18180406M2	8 - 18	8 - 18	DC - 4	8.0	35	30	13	-
CMB18180805M	8 - 18	8 - 18	DC - 8	7.5	38	20	13	-
CMB18180207Y3	8 - 18	8 - 18	0.02-2.5	7.5	23	25	10	M01
CMB18180607Y1	8 - 18	8 - 18	1 - 6	7.0	25	25	10	M01
CMB25250706M	8 - 25	8 - 25	DC - 7	8.0	35	25	13	-
CMB20201005M	9 - 20	9 - 20	DC - 10	7.5	35	13	13	-
CMB42422210M	9 - 42	9 - 42	1 - 22	12.0	25	25	13	-
CMB43434318M	9 - 43	9 - 43	DC - 43	10-27 typ	-	-	13	-
CMB50502210M	9 - 50	9 - 50	1 - 22	12.0	25	25	13	-
CMB20200406M3	10 - 20	10 - 20	DC - 4	8.0	35	30	13	-



Balanced Mixers (Waveguide & Coaxial)

Model Number	RF (GHz)	LO (GHz)	IF (GHz)	CONVERSION LOSS (dB) Typ.	ISOLATIONS		LO DRIVE LEVEL (dBm) Typ.	Case Type
					L-R (dB)	L-I (dB)		
CMB45450807M	10 - 45	10 - 45	DC - 8	9.0	33	22	13	-
CMB13140305M	10.5 - 13	11.5 - 14	DC - 3	7.5	32	35	13	-
CMB16200608H	12 - 16	11 - 20	DC - 6	8.0	44	40	13	-
CMB18180207Y4	12 - 18	12 - 18	0.02-2.5	7.5	23	25	10	M01
CMB18180207Y5	12 - 18	12 - 18	0.02-2.5	7.5	20	23	10	M02
CMB18180407Y	12 - 18	12 - 18	1 - 4	7.0	25	25	10	M01
CMB15140305M	13.5 - 15	11.5 - 14	DC - 3	7.5	32	35	13	-
CMB23230210H	14 - 23	14 - 23	DC - 2	10.0	38	45	15	-
CMB26260807H	14 - 26	14 - 26	DC - 8	7.5	39	35	13	-
CMB32320807H	18 - 32	18 - 32	DC - 8	7.5	38	40	13	-
CMB40421811M	18 - 40	35.5 - 42.2	2 - 18	13.0	25	25	13	-
CMB26170608T	20 - 26	13 - 17	0.5 - 6	8.0	30	25	13	-
CMB65302212M	20 - 65	5 - 30	1 - 22	14.0	30	30	13	-
CMB36401810H	24 - 36	36 - 40	DC - 18	8.0/10.0	35	28	13	-
CMB40400809H	25 - 40	25 - 40	DC - 8	9.5	42	35	13	-
CMB40200126M	30 - 40	7.5 - 20	DC - 1.0	22.0	-	-	13	-
CMB40140312M	37 - 40	11.5 - 14	DC - 3.5	14.5	30	28	13	-
CMB62402212M	42 - 62	DC - 40	2 - 22	14.0	30	30	13	-

ALL THE ABOVE SPECIFICATIONS ARE @ 25°C

TRIPLE-BALANCED:

Model Number	RF (GHz)	LO (GHz)	IF (GHz)	CONVERSION LOSS (dB) Typ.	ISOLATIONS		LO DRIVE LEVEL (dBm) Typ.	Case Type
					L-R (dB)	L-I (dB)		
CMB03030206M	.005 - 3	.005 - 3	.0002 - 2	8.5	35	40	13	-
CMB04040306M	.01 - 4	.01 - 4	.0002 - 3	8.0	30	35	13	-
CMB26200608M	.01 - 26	.01 - 20	.001 - 6	10.0	20	20	13	-
CMB06060307M	.2 - 6	.2 - 6	.0002 - 3	9.0	25	35	13	-
CMB09090307M	.2 - 9	.2 - 9	.0002 - 3	9.0	25	35	13	-
CMB20200607M1	1 - 20	0.5 - 20	.001 - 6	9.5	24	25	13	-
CMB08080607M	2 - 8	2 - 8	.001 - 6	9.0	20	30	13	-
CMB12120607M	2 - 12	2 - 12	.001 - 6	9.0	20	30	13	-
CMB18180607M	2 - 18	2 - 18	.001 - 6	9.5	23	25	13	-
CMB18181007M	2 - 18	2 - 18	1 - 10	9.5	23	25	13	-
CMB18181207M	2 - 18	2 - 18	1 - 12	9.5	30	23	13	-
CMB19190607M	2 - 19	2 - 19	.001 - 6	9.0	25	25	13	-
CMB20200607M2	2 - 20	2 - 20	.001 - 6	9.0	23	25	13	-
CMB20201007M	2 - 20	2 - 20	1 - 10	9.0	23	25	13	-
CMB26261507M	2 - 26.5	2 - 26.5	.001 - 6	9.5	23	25	13	-
CMB26260607M	2 - 26.5	2 - 26.5	1 - 10	9.5	23	25	13	-

CERNEX, Inc. 766 San Aleso Avenue, Sunnyvale, CA 94085 Tel: (408) 541-9226 Fax: (408) 541-9229

03/07



Balanced Mixers (Waveguide & Coaxial)

Model Number	RF (GHz)	LO (GHz)	IF (GHz)	CONVERSION LOSS (dB) Typ.	ISOLATIONS		LO DRIVE LEVEL (dBm) Typ.	Case Type
					L-R (dB)	L-I (dB)		
CMB26261007M	2 - 26.5	2 - 26.5	.001 - 6	9.5	20	20	13	-
CMB26260607M	2 - 26.5	2 - 26.5	.001 - 6	9.0	25	25	13	-
CMB40400609M	2 - 40	2 - 40	.001 - 6	11.0	30	30	13	-
CMB43434310M	2 - 43	2 - 43	0.4 - 43	12.0	30	25	13	-
CMB50505010M	2 - 50	2 - 50	0.4 - 50	12.0	25	25	13	-
CMB50505010M2	2 - 50	2 - 50	0.4 - 50	12.0	25	25	13	-
CMB40402010M	4 - 40	4 - 40	0.5 - 20	12.0	25	25	13	-

ALL THE ABOVE SPECIFICATIONS ARE @ 25°C

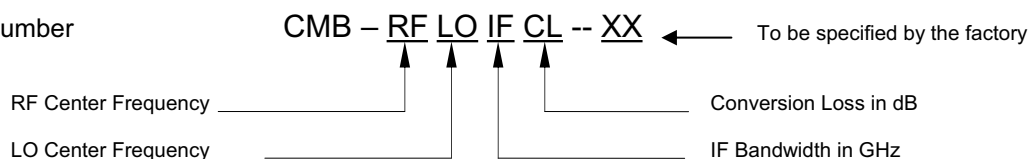
Waveguide Band	K	Ka	Q	U	V	E	W
Waveguide Size	WR-42	WR-28	WR-22	WR-19	WR-15	WR-12	WR-10
LO Frequency Range (GHz)	18 to 26.5	26.5 to 40	33 to 50	40 to 60	50 to 75	60 to 90	75 to 110
IF Frequency Range (GHz)	0.01 to 8	0.01 to 14	0.01 to 17	0.01 to 18	0.01 to 18	0.01 to 18	0.01 to 18
LO Pumping Level (dBm)	10 to 13	10 to 13	10 to 13	10 to 13	10 to 13	10 to 13	10 to 13
Conversion Loss (dB, Typical)	7.5	8.0	8.5	9.0	9.5	10.0	11.0
Port Isolation (dB, Typical)	20	20	20	20	20	20	20
Maximum Input Signal Level	+ 18 dBm						

Notes: The operation frequency range for RF port is full waveguide band. Contact factory for other waveguide bands and specifications.

Integrated Local Oscillator is also available as an option.

HOW TO ORDER:

Specify Model Number



Example: To order WR-15 waveguide balanced mixer with RF frequency of 28 GHz, a LO frequency of 26GHz, an IF bandwidth of 8Ghz and 9 dB conversion loss, specify CMB-28260809-XX.

CERNEX RESERVE THE RIGHT TO CHANGE THE SPECIFICATIONS WITHOUT NOTICE