

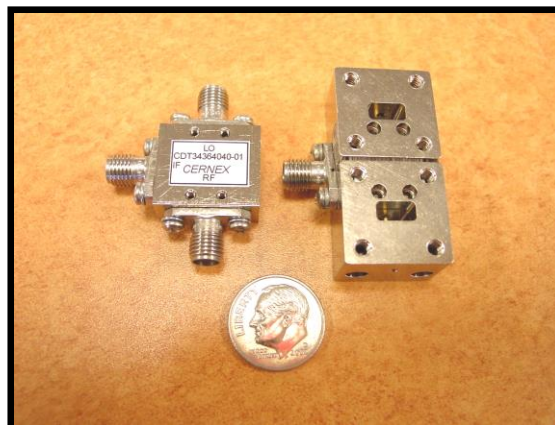
## Balanced Mixers (Waveguide & Coaxial)

### 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 beam lead 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 ideal 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 L-R (dB) L-I (dB)		LO DRIVE LEVEL (dBm) Typ.	Size LxWxH (mm)
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	-
CMB45240311U	35 – 45	16 – 24	DC – 3	11.0	-	-	10	-
CMB7777U107U	76 – 77	76 - 77	DC – 0.1	7.5	-	-	5	-
CMB7777U108U	76 – 77	76 - 77	DC – 0.1	8.0	-	-	5.5	-
CMB99990312V	91 – 99	91 - 99	DC - 3	12	-	-	16	-

ALL THE ABOVE SPECIFICATIONS ARE @ 25°C

#### DOUBLE-BALANCED:

Model Number	RF (GHz)	LO (GHz)	IF (GHz)	CONVERSION LOSS (dB) Typ.	ISOLATIONS L-R (dB) L-I (dB)		LO DRIVE LEVEL (dBm) Typ.	Size LxWxH (mm)
CMBU2U2U208Y	0.00005-0.2	0.00005-0.2	0.00005-0.2	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

Model Number	RF (GHz)	LO (GHz)	IF (GHz)	CONVERSION LOSS (dB) Typ.	ISOLATIONS L-R (dB)	L-I (dB)	LO DRIVE LEVEL (dBm) Typ.	Size LxWxH (mm)
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
CMB0202U608Y1	0.1-2	0.1-2	DC-0.6	8.0	37	30	7	M01
CMB05050307H	1.8 - 5	1.8 - 5	DC - 3	8.0*	42	36	15	-
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
CMB08080207Y	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
CMB18180207Y6	2 - 18	2 - 18	0.02-2.5	7.5	15	15	10	M03
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
CMB07070307H	2.5 - 7	2.5 - 7	DC - 3	7.0*	48	28	15	-
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
CMB08080307H	4 - 8	4 - 8	DC - 3	7.0*	40	42	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
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	M05
CMB18180207Y1	5 - 18	5 - 18	DC - 2	7.5	20	23	6	M03
CMB20200310H	5 - 20	5 - 20	DC - 3	10.0*	30	17	20	-
CMB14140607H	5.5-14	5.5-14	DC - 6	7.0*	45	24	15	-
CMB10100307Y	6 - 10	6 - 10	DC - 3	7.5	23	23	6	M02
CMB11110207H	6 - 11	6 - 11	DC - 2	7.0*	40	40	15	-

Model Number	RF (GHz)	LO (GHz)	IF (GHz)	CONVERSION LOSS (dB) Typ.	ISOLATIONS L-R (dB)	L-I (dB)	LO DRIVE LEVEL (dBm) Typ.	Size LxWxH (mm)
CMB14140506C	6 - 14	6 - 14	DC - 5	-6.5	43	37	9	-
CMB18180305Y	6 - 18	6 - 18	DC - 3	9.0	35Typ	30Typ	13	20.6 x 15 x 7
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	MX2
CMB26260906C	6 - 26	6 - 26	DC - 9	-6.5	40	48	13	-
CMB26261009H	6 - 26	6 - 26	DC - 10	9.0	38	38	13	-
CMB14140508H	7 - 14	7 - 14	DC - 5	8.0*	45	35	11.5	-
CMB18180307Y1	7 - 18	7 - 18	DC - 3	7.5	23	23	20	M02
CMB43431009H	7 - 43	7 - 43	DC - 10	9.0	35	35	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
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
CMB20200608H	11 - 20	11 - 20	DC - 6	8.0*	44	40	11	-
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
CMB23230210H	14 - 23	14 - 23	DC - 2	10.5*	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	-
CMB36360309A	18 - 36	18 - 36	DC - 3	9.5	22Typ	22Typ	2	-
CMB26170608T	20 - 26	13 - 17	0.5 - 6	8.0	30	25	13	-
CMB30150610U	20 - 30	10 - 15	DC - 6	-10.0	29	-	-4	-
CMB32321007C	20 - 32	20 - 32	DC - 10	-7	36	36	21	-
CMB40401808H	24 - 40	24 - 40	DC - 18	8.0*	35	28	13	-
CMB32150311U	25 - 32	12 - 15.5	0.1 - 3	-11.0	-	-	5	-
CMB35190311U	25 - 35	11 - 19	DC - 3	-11.0	-	-	9	-
CMB40400809H	25 - 40	25 - 40	DC - 8	9.5*	42	35	13	-
CMB45451206C	26 - 45	26 - 45	DC - 12	-6.5	37	29	25	-
CMB46462008C	30 - 46	30 - 46	5 - 20	-8	30	20	19	-
CMB45240311U	35 - 45	16 - 24	DC - 3	-11.0	-	-	10	-
CMB64640508H	54 - 64	54 - 64	DC - 5	8.0*	30	25	13	-
CMB65320512U	55 - 65	27.5 - 32.5	DC - 5	-12.0	-	-	10	-
CMB90901812H	70 - 90	70 - 90	DC - 18	12.0*	-	-	14	-
CMB86441211U	71 - 86	34.5 - 44	DC - 12	-11.0	17	-	2	-
CMB7777U108U	76 - 77	76 - 77	DC - 0.1	-8.0	22	-	5.5	-

ALL THE ABOVE SPECIFICATIONS ARE @ 25°C

\* C.L. TYPICAL AT LOW END FREQUENCY



**TRIPLE-BALANCED:**

Model Number	RF (GHz)	LO (GHz)	IF (GHz)	CONVERSION LOSS (dB) Typ.	ISOLATIONS L-R (dB)	L-I (dB)	LO DRIVE LEVEL (dBm) Typ.	Size LxWxH (mm)
CMB26261008M	2 - 26.5	2 - 26.5	1 – 10	8.5	23	25	13	-
CMB26260608M1	2 – 26.5	2 – 26.5	.001 - 6	8.0	25	25	13	-
CMB22222210H	16 - 22	16 - 22	16 - 22	10.0	45	45	15	-

ALL THE ABOVE SPECIFICATIONS ARE @ 25°C

**ACTIVE MIXER:**

Model Number	RF (GHz)	LO (GHz)	IF (GHz)	CONVERSION LOSS (dB) Typ.	ISOLATIONS L-R (dB)	L-I (dB)	LO DRIVE LEVEL (dBm) Typ.	Size LxWxH (mm)
CMB30150610U	20.0 -30.0	10.0 - 15.0	DC – 6.0	10.0	29	-	-4	-
CMB35190311U	25.0-35.0	11.0-19.0	DC-3.0	11.0	-	-	9	-
CMB45240311U	35.0-45.0	16.0-24.0	DC-3.0	11.0	-	-	10	-
CMB65320512U	55.0-65.0	27.5-32.5	DC-5.0	-20	-	-	10	1.06x0.57x0.35
CMB7777U108U	76.0-77.0	76.0-77.0	DC-0.10	8.0	22	-	5.5	-
CMB7777U107U	76.0 –77.0	76.0 –77.0	DC -0.10	7.5	25	-	7	-

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						

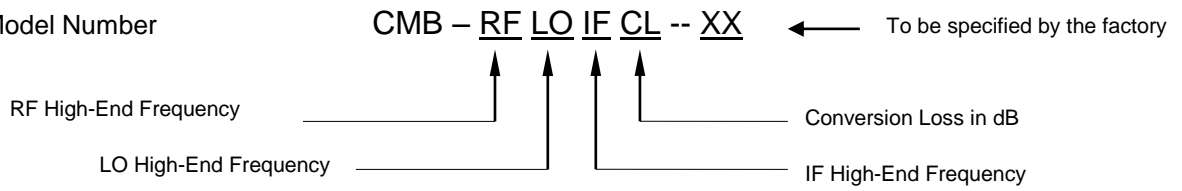
**Notes:** The operation frequency range for RF port is full waveguide band. Contact factory for other waveguide bands and specifications.

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