

FREQUENCY MIXERS

Surface Mount

LEVEL 10 150 kHz to 6 GHz



+10 dBm LO, up to +5 dBm RF

◆ MODEL NO.	FREQUENCY MHz		CONVERSION LOSS dB				LO-RF ISOLATION dB						LO-IF ISOLATION dB						IP3@ center band Typ. (dBm)	E f a c t o r	CASE STYLE	CON N E C T I O N	PCB Lay- out PL-	PRICE \$ Qty. (1-9)
	LO/RF f _L -f _U	IF	Mid-Band		Total Range Max.	L		M		U		L		M		U								
			$\bar{x}$	σ		Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.							
JMS-1LH	2-500	DC-500	5.75	.10	7.0	8.0	67	50	55	30	42	25	50	40	45	25	32	20	21	1.1	BH292	ht	052	8.45
JMS-2LH	20-1000	DC-1000	6.5	.10	7.5	9.0	60	40	48	25	37	20	45	30	35	20	27	11	20	1.0	BH292	ht	052	9.45
JMS-5LH	5-1500	DC-1000	6.0	.20	8.0	9.5	60	40	50	25	35	20	55	40	35	14	15	6	16	0.6	BH292	ht	052	10.95
LRMS-1LHJ	2-500	DC-500	5.36	.08	7.0	8.0	58	45	44	25	30	20	55	40	40	25	28	17	18	0.8	QQQ569	w	083	7.95
LRMS-2LHJ	5-1000	DC-1000	6.44	.10	8.0	9.5	58	40	39	20	22	16	52	30	30	17	18	11	20	1.0	QQQ569	w	083	8.95
LRMS-5LHJ	10-1500	DC-900	5.27	.09	8.0	9.8	58	35	38	20	25	18	56	30	38	14	17	6	15	0.5	QQQ569	w	083	14.95
LRMS-20J	1500-2000	DC-500	5.0	.15	—	7.5	35 (Typ.)		22 (Min.)				26 (Typ.)		18 (Min.)				18	0.8	QQQ569	w	083	6.95
LRMS-25J	750-2500	DC-600	5.2	.15	—	9.5	35 (Typ.)		17 (Min.)				20 (Typ.)		7 (Min.)				18	0.8	QQQ569	w	083	7.95
ADE-1LH**	0.5-500	DC-500	5.0	0.10	6.5	8.2	65	50	55	35	47	26	52	40	45	22	34	20	15	0.5	CD636	ht	052	2.99
ADE-1LHW**	2-750	DC-750	5.3	0.1	6.8	8.5	66	50	52	35	46	27	64	40	50	27	40	20	15	0.5	CD542	ht	052	4.95
MBA-15LH*	1200-2400	DC-600	5.6	0.1	—	8.5	26 (Typ.)		17 (Min.)				22 (Typ.)		10 (Min.)				15	0.5	SM2	ld	066	6.95
MBA-18LH*	1600-3200	DC-500	5.8	0.1	—	8.5	30 (Typ.)		17 (Min.)				22 (Typ.)		10 (Min.)				12	0.2	SM2	ld	066	6.95
MBA-25LH*	2200-3600	DC-500	7.0	0.1	—	9.2	32 (Typ.)		21 (Min.)				20 (Typ.)		10 (Min.)				12	0.2	SM2	ld	066	6.95
MCA1-24LH*	300-2400	DC-700	6.5	0.1	—	8.9			40 25				22 12						13	0.3	DZ885	ld	045	6.45
MCA1-42LH*	1000-4200	DC-1500	6.0	0.1	—	8.9			38 23				20 11						12	0.2	DZ885	ld	045	7.45
MCA1-60LH*	1700-4400	DC-2000	6.6	0.1	—	7.9			35 23				17 —						13	0.3	DZ885	ld	045	8.45
	4400-6000	DC-2000	6.0	0.1	—	8.3			27 20				21 —						11	0.1				

E= [IP3(dBm)-LO Power(dBm)]/10

L = low range [f_L to $10 f_L$]

M = mid range [$10 f_L$ to $f_U/2$]
m = mid band [$2 f_L$ to $f_U/2$]

U = upper range [$f_U/2$ to f_U]

NOTES:

- ⌘ Average of conversion loss at center of mid-band frequency ($f_L + f_U/4$)
- σ Standard deviation
- ◆ Aqueous washable. For non-aqueous requirements, LRMS units available in case style QQQ130.
- † Phase detection, positive polarity.
- ‡ Conversion loss increases up to 6 dB higher as IF frequency decreases from 5 MHz to DC.
- ☆ L=50-100 MHz, M=100-500 MHz
- * BLUE CELL™ mixers protected by U.S. Patents 5,534,830 5,640,132 5,640,134 5,640,699
- ** Protected under U.S. Patent 6133525
- *** Price for quantities 10-49
- A. Environmental specifications and re-flow soldering information available in General Information Section.
- B. Units are non-hermetic unless otherwise noted. For details on case dimensions & finishes see "Case Styles & Outline Drawings".
- C. Prices and Specifications subject to change without notice.
- 1. Absolute maximum power, voltage and current ratings:
 - 1a. RF power 50mW
 - 1b. Peak IF current, 40mA



+10 dBm LO, up to +5 dBm RF

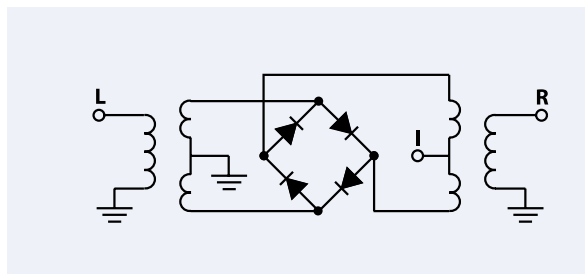
◆ MODEL NO.	FREQUENCY MHz		CONVERSION LOSS dB				LO-RF ISOLATION dB						LO-IF ISOLATION dB						IP3@ center band Typ. (dBm)	E factor	CASE STYLE	CONNECTION	PCB Lay-out PL-	PRICE \$ Qty. (1-9)
	LO/RF f_L - f_U	IF	Mid-Band $\bar{x}$	σ	Max.	Total Range Max.	L Typ. Min.	M Typ. Min.	U Typ. Min.				L Typ. Min.	M Typ. Min.	U Typ. Min.									
RMS-1LH	2-500	DC-500	5.36	.08	7.0	8.0	58	45	44	25	30	20	55	40	40	25	28	17	15	0.5	TT240	w	052	7.95
RMS-2LH	5-1000	DC-1000	6.44	.10	8.0	9.5	58	40	39	20	22	16	52	30	30	17	18	11	18	0.8	TT100	w	052	8.95
RMS-5LH	10-1500	DC-900	5.27	.09	8.0	9.8	58	35	38	20	25	18	56	30	38	14	17	6	16	0.6	TT240	w	052	14.95
SCM-2500LH	500-2500	DC-500	5.6	.20	6.8	10.0	35 (Typ.) 20 (Min.)						18 (Typ.) 10 (Min.)						16	0.6	YY101	r		13.95
SKY-53LHR	2800-5300	DC-500	5.7	.20	—	9.5	28 (typ.) 15 (min.)						12 (typ.) 8 (min.)						14	0.4	BJ398	hp		16.95
SKY-60LH	2500-6000	DC-1500	6.2	.20	—	9.7	28 (typ.) 17 (min.)						14 (typ.) 8 (min.)						15	0.5	BJ398	je		16.95
SYM-11LH	1-2000	10-600	7.0	.10	8.3	9.85	60	40	45	25	37	25	59	40	33	20	25	20	14	0.4	TTT167	x		11.95
NEW SYM-25DLHW	40-2500	DC-1000†	4.3	.10	7.5	8.8	48	28	40	25	38	22	36	25	33	25	39	21	22	1.2	TTT167	x		7.95***
SYM-30LH	800-3000	1-300	6.5	.25	—	8.8	—	—	35	20	—	—	—	—	35	20	—	—	21	1.1	TTT167	x		11.95
TUF-1LHSM	2-600	DC-600	6.0	.17	7.0	8.0	70	50	50	30	42	25	65	45	50	30	41	22	17	0.7	NNN150	z		7.25
TUF-2LHSMI	50-1000	DC-1000	5.2	.30	7.0	8.5	58	40	44	30	39	25	60	35	50	25	38	20	17	0.7	NNN150	z		8.20
TUF-3LHSM	0.15-400	DC-400	4.8	.37	7.0	8.0	67	50	51	30	40	25	67	40	45	25	34	20	14	0.4	NNN150	z		9.10
TUF-5LHSM	20-1500	DC-1000	6.9	.27	8.5	9.0	53	40	42	30	38	25	40	25	30	18	22	8	14	0.4	NNN150	z		12.45
TUF-11ALHSM	1400-1900	40-500	7.0	.20	8.6	8.6	36 (Typ.) 20 (Min.)						28 (Typ.) 15 (Min.)						10	0	NNN150	z		19.95

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M = mid range [$10 f_L$ to $f_U/2$]
m = mid band [$2f_L$ to $f_U/2$]

U = upper range [$f_U/2$ to f_U]



pin and coaxial connections see case style outline drawings for pin locations

PORT	r	w	x	z	ht ¹	hp	je	ld
LO	1	1	2	4	6	5	1	10
RF	8	4	1	1	3	1	5	5
IF	3	5	3	2	2	7	7	3
GND EXT.	2,4,5,6,7	2,3,6	4,5,6	3	1,4,5	2,3,4,6,8	2,3,4,6,8	1,2,4,6,7,8,9
CASE GND	—	—	—	3	—	—	—	—
NOT USED	—	—	—	—	—	—	—	—
DEMO BOARD	—	TB-03	TB-12	—	TB-03	TB-11	TB-11	TB-99 (MBA) TB-144 (MCA1)

¹ pin connection physically same as w