

FREQUENCY MIXERS

Surface Mount

LEVEL 10 150 kHz to 6 GHz



ADE



†JMS



†LRMS-J



MBA

+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)	CASE STYLE	CONNECTION	PRICE \$
	LO/RF f _L -f _U	IF	Mid-Band			Total Range Max.	L		M		U		L		M		U					
			$\bar{x}$	σ	Max.		Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.				
◆ 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	CD636	ht	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	CD542	ht	4.95***
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	—	BH292	ht	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	—	BH292	ht	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	—	BH292	ht	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	—	QQQ569	w	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	—	QQQ569	w	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	—	QQQ569	w	14.95
◆ LRMS-20J	1500-2000	DC-500	5.0	.15	—	7.5	35 (Typ.)	22 (Min.)					26 (Typ.)	18 (Min.)					18	QQQ569	w	6.95***
◆ LRMS-25J	750-2500	DC-600	5.2	.15	—	9.5	35 (Typ.)	17 (Min.)					20 (Typ.)	7 (Min.)					18	QQQ569	w	7.95***
◆ MBA-15LH*	1200-2400	DC-600	5.6	0.1	—	8.5	26 (Typ.)	17 (Min.)					22 (Typ.)	10 (Min.)					15	SM2	ld	6.95***
◆ MBA-18LH*	1600-3200	DC-500	5.8	0.1	—	8.5	30 (Typ.)	17 (Min.)					22 (Typ.)	10 (Min.)					12	SM2	ld	6.95***
◆ MBA-25LH*	2200-3600	DC-500	7.0	0.1	—	9.2	32 (Typ.)	21 (Min.)					20 (Typ.)	10 (Min.)					12	SM2	ld	6.95***
◆ MBA-35LH*	3000-4000	DC-700	4.8	0.1	—	8.5	26 (Typ.)	18 (Min.)					13 (Typ.)	7 (Min.)					10	SM2	ld	6.95***

L = low range [f_L to 10 f_L]

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]

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



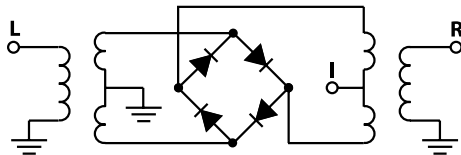


MODEL NO.	FREQUENCY MHz		CONVERSION LOSS dB				LO-RF ISOLATION, dB						LO-IF ISOLATION, dB						IP3@ center band Typ. (dBm)	CASE STYLE	CONNECTION	PRICE \$					
	LO/RF f _L -f _U	IF	Mid-Band			Total Range Max.	L			M			U			L							M			U	
			-	m			L	M	U	L	M	U	L	M	U	L	M	U									
			x	σ	Max.		Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.				Typ.	Min.	Qty. (1-9)			
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	—	TT240	w	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	—	TT100	w	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	—	TT240	w	14.95					
SCM-2500LH	500-2500	DC-500	5.6	.20	6.8	10.0	35 (Typ.)			20 (Min.)			18 (Typ.)			10 (Min.)			—	YY101	r	13.95					
SKY-53LHR	2800-5300	DC-500	5.7	.20	—	9.5	28 (typ.)			15 (min.)			12 (typ.)			8 (min.)			14	BJ398	hp	16.95					
SKY-60LH	2500-6000	DC-1500	6.2	.20	—	9.7	28 (typ.)			17 (min.)			14 (typ.)			8 (min.)			15	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	—	TTT167	x	11.95					
SYM-25DLHW	40-2500	DC-1000†	6.3	.10	7.5	8.8	48	28	40	25	38	22	36	25	33	25	39	21	22	TTT167	x	7.95***					
SYM-30LH	800-3000	1-300	6.5	.25	—	8.8	—			35 20			—			35 20			21	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	—	NNN150	z	7.25					
TUF-2LHSM☆	50-1000	DC-1000	5.2	.30	7.0	8.5	58	40	44	30	39	25	60	35	50	25	38	20	—	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	—	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	—	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.)			—	NNN150	z	19.95					

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

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

¹ pin connection physically same as w



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