

FREQUENCY MIXERS

Surface Mount

LEVEL 17 150 MHz to 6 GHz



+17 dBm LO, up to +10 dBm RF

MODEL NO.	FREQUENCY MHz		CONVERSION LOSS dB				LO-RF ISOLATION, dB						LO-IF ISOLATION, dB						IP3@ center band Typ. (dBm)	CASE STYLE Note B	CONNECTION	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.	L Typ. Min.	M Typ. Min.	U Typ. Min.									
NEW	◆ ADE-1H**	0.5-500 DC-500	5.3 .10 6.8	8.0	65	50	52	35	40	26	53	40	42	25	32	20	23	CD636	ht	4.95***		
	◆ ADE-1HW**	5-750 DC-750	6.0 0.1 7.2	8.8	64	45	48	35	42	28	50	35	40	30	30	18	26	CD542	ht	6.45***		
	◆ ADE-10H**	400-1000 DC-500	7.0 .10 —	8.5	39 (Typ.)	29 (Min.)	—	—	—	—	25 (Typ.)	17 (Min.)	—	—	—	—	30	CD542	jw	7.95***		
	◆ ADE-20H**	1500-2000 DC-300	5.2 .20 —	7.8	29 (Typ.)	22 (Min.)	—	—	—	—	31 (Typ.)	20 (Min.)	—	—	—	—	24	CD542	ju	8.95***		
	JYM-20H	2-2000 4-700	5.7 .20 8.5	9.0	40	30	44	28	40	25	40	35	40	22	29	15	—	BJ293	hp	17.95		
	JYM-28H	400-2800 4-700	6.3 .20 8.0	9.0	40 (Typ.)	25 (Min.)	—	—	—	—	30 (Typ.)	15 (Min.)	—	—	—	—	—	BJ293	hp	21.95		
	JYM-30H	2-3000 4-1400	6.0 .20 8.9	10.6	40	30	40	25	30	25	40	35	30	20	22	15	—	BJ293	hp	23.95		
BLUE CELL	◆ MBA-9H*	800-1000 DC-200	6.4 .30 —	9.0	30 (Typ.)	18 (Min.)	—	—	—	—	17 (Typ.)	12 (Min.)	—	—	—	18	SM2	lc	9.95***			
	◆ MBA-12H*	800-2500 DC-500	6.8 .20 —	9.5	30 (Typ.)	18 (Min.)	—	—	—	—	13 (Typ.)	7 (Min.)	—	—	—	18	SM2	lc	9.95***			
	◆ MBY-20H*	1700-2200 DC-700	5.5 .07 —	8.5	31 (Typ.)	24 (Min.)	—	—	—	—	30 (Typ.)	23 (Min.)	—	—	—	23	SM18	hp	11.95***			
	◆ SYM-10HJ	400-1000 DC-400	6.6 .10 —	8.0	46 (Typ.)	33 (Min.)	—	—	—	—	32 (Typ.)	18 (Min.)	—	—	—	25	CG581	ka	9.95***			
	SYM-11H	50-2000 50-1950	6.3 .10 7.5	9.0	45	35	40	25	37	25	40	25	32	20	30	20	—	TTT167	x	17.95		
	SYM-10DH	800-1000 20-200	7.6 — —	9.3	45 (Typ.)	34 (Min.)	—	—	—	—	29 (Typ.)	20 (Min.)	—	—	—	31	TTT167	x	9.95***			
	SYM-10DHW	50-1000 20-800	7.0 — 8.5	9.8	48 (Typ.)	30 (Min.)	—	—	—	—	29 (Typ.)	20 (Min.)	—	—	—	25	TTT167	x	16.95			
	SYM-22H	1500-2200 DC-200	5.6 .30 —	8.8	33 (Typ.)	22 (Min.)	—	—	—	—	38 (Typ.)	22 (Min.)	—	—	—	30	TTT167	x	9.95***			
	SYM-25H	10-2400 1-1100	6.1 .10 8.5	9.2	38	20	40	20	30	18	54	40	40	22	33	20	25	TTT167	lp	21.95		
	SYM-36H	1500-3600 DC-600	6.3 0.4 —	9.0	—	—	30	20	—	—	—	—	34	20*	—	—	25	TTT167	x	21.95		
	TUF-18DHSM	100-1800 50-750	7.3 .15 8.5	9.0	41 (Typ.)	23 (Min.)	—	—	—	—	33 (Typ.)	20 (Min.)	—	—	—	27	NNN150	z	21.95			

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 washable 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.
- * 15 dB min. over 1500-1800MHz
- ‡ Conversion loss measured at IF frequency between 10 and 1300 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
- *** Prices 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 200mW
 - 1b. Peak IF current, 40mA



Incorporates multi-layer monolithic ceramic substrates for moderate bandwidth and low cost RF/Microwave products

NSN GUIDE

MCL NO.	NSN
LMX-123	5895-01-367-9005
LMX-148	5962-01-357-4432
TFM-15	5895-01-292-2759
ZFM-15	5895-01-412-3035
ZFM-150	5895-01-217-6878



+17 dBm LO, up to +14 dBm RF

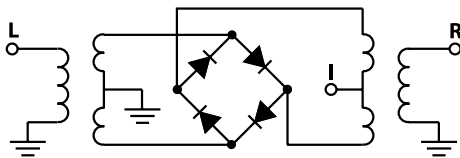
MODEL NO.	FREQUENCY MHz		CONVERSION LOSS dB			Total Range Max.	LO-RF ISOLATION, dB			LO-IF ISOLATION, dB			IP3@ center band Typ. (dBm)	CASE STYLE Note B	C O M M O N I Z E D NO. 1-9	PRICE \$ Qty. (1-9)
	LO/RF f_L - f_U	IF	Mid-Band \bar{x} σ Max.	L Typ. Min.	M Typ. Min.		U Typ. Min.	L Typ. Min.	M Typ. Min.	U Typ. Min.						
◆ ADE-12H*	500-1200	DC-250	6.7 .20 —	8.2	34 (Typ.) 25 (Min.)			28 (Typ.) 20 (Min.)			28	CD542	jv	8.95***		
◆ ADE-17H**	100-1700	50-1500	7.2 .10 8.5	9.5	32 20 — — 36 22			32 20 — — 37 22			25	CD542	ht	8.95***		
JMS-1H	2-500	DC-500	5.90 .10 7.0	8.5	60 45	50 25	37 22	55 45	50 25	37 22	—	BH292	ht	11.45		
JMS-2H	20-1000	DC-1000	7.00 .15 8.4	9.5	63 40	50 28	35 20	56 30	47 22	37 20	—	BH292	ht	12.45		
JMS-5H	5-1500	DC-1000	5.90 .10 8.0	9.5	70 50	50 25	35 20	60 40	35 18	20 8	—	BH292	ht	12.95		
◆ LRMS-1HJ	2-500	DC-500	6.25 .034 7.0	8.5	55 44	44 25	33 20	50 34	45 25	37 22	—	QQQ569	w	10.95		
◆ LRMS-1WHJ	10-750	DC-750	7.00 .11 8.5	8.8	55 40	43 22	28 20	52 30	38 22	29 20	—	QQQ569	w	11.95		
◆ LRMS-2HJ	5-1000	DC-900	6.98 .054 8.5	9.3	55 40	39 22	33 20	52 30	45 22	30 17	—	QQQ569	w	11.95		
◆ LRMS-2UHJ	10-1000	10-750	7.10 .083 9.2	9.9	50 40	38 30	30 23	50 30	40 25	34 22	—	QQQ569	w	14.45		
◆ LRMS-5HJ	10-1500	DC-900	6.36 .05 8.0	9.8	65 40	36 20	22 15	50 30	30 18	17 7	—	QQQ569	w	17.95		
RMS-1H	2-500	DC-500	6.25 .034 7.0	8.5	55 44	44 25	33 20	50 34	45 25	37 22	—	TT240	w	10.95		
RMS-1WH	10-750	DC-750	7.00 .11 8.5	8.8	55 40	43 22	28 20	52 30	38 22	29 20	—	TT240	w	11.95		
RMS-2H	5-1000	DC-900	6.98 .054 8.5	9.3	55 40	39 22	33 20	52 30	45 22	30 17	—	TT240	w	11.95		
RMS-5H	10-1500	DC-900	6.36 .05 8.0	9.8	65 40	36 20	22 15	50 30	30 18	17 7	—	TT240	w	17.95		
SKY-53HR	2800-5300	DC-500	5.70 .20 —	9.5	28 (Typ.) 15 (Min.)			12 (Typ.) 8 (Min.)			—	BJ398	hp	18.95		
SKY-60H	2500-6000	DC-1500	6.20 .20 —	9.7	28 (Typ.) 17 (Min.)			14 (Typ.) 8 (Min.)			—	BJ398	je	18.95		
SYM-14H	100-1370	10-1000	6.50 .20 7.4	8.9	36 (Typ.) 28 (Min.)			30 (Typ.) 24 (Min.)			30	TTT167	x	9.95***		
SYM-18H	5-1800	10-1500	5.75 .10 7.6	8.9†	50 28	45 35	40 24	39 22	50 30	30 22	30	TTT167	x	9.95***		
SYM-20DH	1700-2000	10-300	6.70 .16 —	8.2	35 (Typ.) 22 (Min.)			34 (Typ.) 22 (Min.)			32	TTT167	x	9.95***		
SYM-20DHW	10-2000	10-1800	6.20 .10 7.5	8.8	33 20	40 25	37 22	44 30	42 28	34 22	27	TTT167	x	17.95		
NEW SYM-24DH	1400-2400	10-250	7.0 0.2 —	9.3	32 (Typ.) 22 (Min.)			36 (Typ.) 23 (Min.)			29	TTT167	x	9.95***		
SYM-25DHW	80-2500	DC-1000†	6.40 .10 8.0	8.6	46 29	37 25	35 20	38 26	33 24	36 20	30	TTT167	x	9.95***		
TUF-1HSM	2-600	DC-600	5.90 .18 7.0	8.0	68 50	50 30	43 25	62 45	48 30	33 22	—	NNN150	z	9.25		
TUF-2HSM	50-1000	DC-1000	6.20 .22 7.5	9.0	58 40	47 30	42 25	58 35	44 25	28 18	—	NNN150	z	10.20		
TUF-3HSM	0.15-400	DC-400	5.00 .33 7.0	8.0	60 50	50 35	40 30	60 40	45 25	35 20	—	NNN150	z	11.10		
TUF-5HSM	20-1500	DC-1000	7.50 .17 8.5	9.0	62 55	50 40	38 25	40 25	29 18	20 8	—	NNN150	z	14.45		
TUF-11AHSM	1400-1900	40-500	7.30 .28 9.0	9.0	35 (Typ.) 25 (Min.)			30 (Typ.) 15 (Min.)			—	NNN150	z	21.95		
TUF-860HSM	800-1050	DC-250	6.80 .31 8.3	8.3	38 (Typ.) 25 (Min.)			24 (Typ.) 18 (Min.)			—	NNN150	z	14.45		

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

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

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

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



pin connections see case style outline drawings

PORT	w	x	z	hp	ht ¹	je	jv	jw	ka	lc	lp
LO	1	2	4	5	6	1	6	4	11	10	3
RF	4	1	1	1	3	5	4	6	5	5	1
IF	5	3	2	7	2	7	3	3	2	3	2
GND EXT.	2,3,6	4,5,6	3	2,3,4,6,8	1,4,5	2,3,4,6,8	1,2,5	1,2,5	all other pins	1,4,7,8,9	4,5,6
CASE GND	—	—	3	—	—	—	—	—	—	—	—
ISOLATE	—	—	—	—	—	—	—	—	—	2,6	—
DEMO BOARD	TB-44	TB-12	—	TB-11	TB-03	TB-11	TB-02	TB-02	—	—	TB-12

¹ pin connection physically same as w



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