FREQUENCY MIXERS

Surface Mount

LEVEL 17 150 kHz to 6 GHz

JYM MBA MBY SYM TUF-SM

+17 dBm LO, up to +10 dBm RF

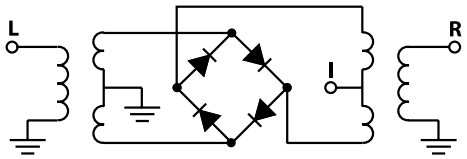
MODEL NO.	FREQUENCY MHz LO/RF f_L-f_U	IF	CONVERSION LOSS dB Mid-Band $\bar{x}$	m σ	Max.	Total Range Max.	LO-RF ISOLATION, dB L Typ.	Min.	M Typ.	Min.	U Typ.	Min.	LO-IF ISOLATION, dB L Typ.	Min.	M Typ.	Min.	U Typ.	Min.	IP3@ center band Typ. (dBm)	CASE STYLE Note B	CONNECTION	PRICE $ Qty. (1-9)
JYM-20H	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
◆ 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-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
TUF-18DHSM	100-1800	50-750	7.3	.15	8.5	9.0	41 (Typ.)		23 (Min.)				33 (Typ.)		20 (Min.)				27	NNN150	z	23.95

L = low range [f_L to 10 f_L] M = mid range [10 f_L to f_U/2] U = upper range [f_U/2 to f_U]
m = mid band [2f_L to f_U/2]

NOTES:

$\bar{x}$ Average of conversion loss at center of mid-band frequency (fL+fU/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.
†† Conversion loss increases 0.5 dB when IF is above 150 MHz.
❄ 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

BLUE CELL™



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	1,4,7,8,9	4,5,6
CASE GND	—	—	3	—	—	—	—	—	pins	—	—
ISOLATE	—	—	—	—	—	—	—	—	—	2,6	—
DEMO BOARD	TB-44	TB-12	—	TB-11	TB-03	TB-11	TB-02	TB-02	—	TB-117	TB-12

[1] pin connection physically same as w

NSN GUIDE

MCL NO.	NSN
SYM-18H	5895-01-483-0503

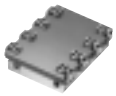
020614


ADE/ADEX


†JMS


†LRMS-J


†RMS


SKY


SYM


SYM-J


TUF-SM

+17 dBm LO, up to +14 dBm RF

MODEL NO.	FREQUENCY MHz LO/RF f_L-f_U	FREQUENCY MHz IF	CONVERSION LOSS dB Mid-Band $\bar{x}$	σ_m	Max.	Total Range Max.	LO-RF ISOLATION, dB L Typ.	L Min.	M Typ.	M Min.	U Typ.	U Min.	LO-IF ISOLATION, dB L Typ.	L Min.	M Typ.	M Min.	U Typ.	U Min.	IP3@ center band Typ. (dBm)	CASE STYLE Note B	CONNECTION	PRICE $ Qty. (1-9)
◆ 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	.10	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-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***
◆ ADE-20H**	1500-2000	DC-300	5.2	.20	—	7.8	29 (Typ.)		22 (Min.)				31 (Typ.)		20 (Min.)				24	CD542	jv	8.95***
NEW ◆ ADEX-10H**	10-1000	DC-800	7.0	.10	8.5	9.5	68	55	55	40	47	31††	46	30	32	20	26	13	22	CD542	ht	3.45***
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-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-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
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-24DH	1400-2400	10-250	7.0	.20	—	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***
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	.40	—	9.0	—	—	30	20	—	—	—	—	34	20❄	—	—	25	TTT167	x	21.95
◆ SYM-10HJ	400-1000	DC-400	6.6	.10	—	8.0	46 (Typ.)		33 (Min.)				32 (Typ.)		18 (Min.)			25	CG581	ka	9.95***	
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	10.20
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	11.20
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	12.45
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	15.45
TUF-11AHSM	1400-1900	40-500	7.30	.28	9.0	9.0	35 (Typ.)		25 (Min.)				30 (Typ.)		15 (Min.)				—	NNN150	z	23.95

L = low range [f_L to 10 f_L] M = mid range [10 f_L to f_U/2] U = upper range [f_U/2 to f_U]
m = mid band [2f_L to f_U/2]

020409