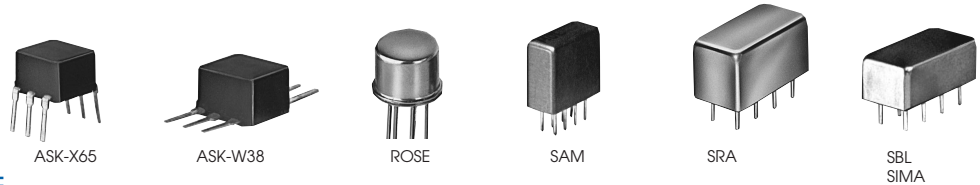


FREQUENCY MIXERS

Plug-In & Flatpack

LEVEL 7 500 Hz to 4.3 GHz



+7 dBm LO, up to +1 dBm RF

MODEL NO.	FREQUENCY MHz		CONVERSION LOSS dB				LO-RF ISOLATION, dB					LO-IF ISOLATION, dB					CAPD DATA	CASE STYLE	CONNECTOR	PRICE \$		
	LO/RF f_1-f_0	IF	Mid-Band \bar{x}	m	σ	Total Range Max.	L Typ.	L Min.	M Typ.	M Min.	U Typ.	U Min.	L Typ.	M Typ.	U Typ.	L Min.					M Min.	U Min.
<input type="checkbox"/> ASK-1*	1-600	DC-600	5.58	.06	7.0	8.5	50	30	35	25	30	20	45	35	30	20	25	15	W38	w	6.95	
<input checked="" type="checkbox"/> ASK-2*	1-1000	DC-1000	6.79	.10	8.0	9.8	60	40	35	18	26	16	50	30	25	17	15	10	W38	w	8.25	
ROSE-1	1-600	DC-600	5.08	.03	6.5	7.5	40	30	35	25	30	20	55	40	40	20	25	18	PP94	ab	11.95	
ROSE-2	1-1000	DC-1000	5.60	.23	7.0	8.0	61	45	37	22	25	18	55	40	26	17	16	12	PP94	ab	16.95	
SAM-1	1-600	DC-600	5.67	.05	7.0	8.5	55	45	45	30	35	20	50	40	40	25	30	20	A03	e	16.95	
SAM-2	1-1000	DC-1000	5.68	.08	7.5	9.5	55	45	40	25	35	20	50	40	40	25	30	25	A03	f	20.45	
SAM-3	0.1-500	DC-500	5.04	.07	7.0	8.5	60	50	50	35	35	30	50	40	45	30	30	20	A03	e	19.95	
SRA-1	.5-500	DC-500	5.11	.09	7.0	8.5	50	45	45	30	35	25	45	35	40	25	30	20	FOR	A01	e	13.45
SRA-1W	1-750	DC-750	5.80	.04	7.5	8.5	50	45	45	30	35	25	45	30	40	25	30	20	DATA	A01	f	15.95
SRA-1-1	1-500	DC-500	4.81	.11	7.5	8.5	50	45	45	30	35	25	45	30	40	25	30	20	A01	e	14.95	
SRA-2	1-1000	.5-500	5.66	.07	7.5	8.5	45	30	35	20	30	20	45	30	30	20	30	20	A01	j	15.95	
SRA-2CM	5-1000	DC-1000	5.27	.04	7.0	8.5	60	50	35	30	30	25	50	45	30	25	25	20	SEE YON!	A01	f	14.95
SRA-3	.025-200	DC-200	4.61	.06	7.5	8.5	60	50	45	35	35	25	45	35	40	30	30	20	ON OUR	A01	e	15.95
SRA-4	5-1250	.5-500	5.71	.08	7.5	8.5	50	40	40	20	30	20	50	40	40	20	30	20	WEBSITE	A01	j	17.95
SRA-5	5-1500	10-600	6.69	.07	8.0	8.5	50	45	35	30	30	20	45	40	30	25	25	15	A06	m	24.95	
SRA-6	.003-100	DC-100	4.58	.05	7.5	8.5	60	50	45	30	35	25	60	45	40	25	30	20	A01	d	24.95	
SRA-8	.0005-10	DC-10	5.69	.11	7.5	8.5	60	50	50	40	45	35	60	50	50	40	45	35	A01	d	29.95	
SRA-11	5-2000	10-600	6.72	.07	8.5	9.0	50	45	35	25	30	20	45	40	30	20	25	15	A06	m	20.95	
SRA-12	800-1250	50-90	6.21	.13	7.5	7.5	32	25	35	25	35	25	30	20	30	20	30	20	A06	m	29.95	
SRA-149***	5-500	DC-500	5.61	.07	6.5	8.0	60	50	55	45	53	40	50	40	35	25	30	24	A06	p	9.95	
SRA-2000	100-2000	DC-600	8.60	.15	9.5	9.5	37 (Typ.) 20 (Min.)					30 (Typ.) 20 (Min.)					A06	m	21.95			
SRA-2400	750-2400	DC-400	5.95	.26	9.0	9.0	30	20	30	20	30	20	30	8	30	8	30	8	A06	s	22.95	
SRA-3500**	500-3500	DC-1000	7.28	.31	9.5	9.5	30	17	30	17	30	17	20	8	20	8	20	8	A06	s	28.95	
<input type="checkbox"/> SBL-1	1-500	DC-500	5.60	.09	7.0	8.0	60	45	45	35	40	25	45	35	40	25	30	20	A06	d	4.75	
<input type="checkbox"/> SBL-1X	10-1000	5-500	5.88	.10	7.5	8.0	50	40	40	30	30	20	50	45	40	35	35	25	A06	j	6.45	
<input type="checkbox"/> SBL-1Z	10-1000	DC-500	6.27	.09	7.5	9.0	50	40	35	25	25	20	40	25	25	18	19	15	A06	s	7.45	
<input type="checkbox"/> SBL-1-1	0.1-400	DC-400	4.84	.04	7.0	8.0	50	45	45	30	35	25	45	30	40	25	30	20	A06	d	7.45	
<input type="checkbox"/> SBL-3	.025-200	DC-200	4.81	.05	7.5	8.5	55	50	45	30	35	25	45	35	40	30	30	20	A06	e	7.45	
<input type="checkbox"/> SBL-11	5-2000	10-600	7.08	.11	8.5	9.0	50	45	35	25	30	20	45	40	30	20	25	15	A06	m	19.95	
SIMA-5	2-1500	DC-1000	7.01	.08	8.0	9.0	65	44	44	23	31	22	54	38	30	18	25	11	A06	m	24.95	

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 ($2 f_L$ to $f_U/2$)

NOTES:

- \bar{x} Average of conversion loss at center of mid-band frequency ($f_L+f_U/4$)
- σ Standard deviation
- Non-hermetic
- Phase detection, positive polarity
- ASK plug-in mounting case X65
- ** Below 10°C, f_L is 0.2 MHz.
- * Conversion loss 9.5 dB maximum from 0.01 to 0.015 MHz
- ** Conversion loss 10dB maximum at IF=1000 MHz
- *** Blue bead pin 4
- A. General Quality Control Procedures, Environmental Specifications, Hi-Rel and MIL description are given in section 0, see "Mini-Circuits Guarantees Quality" article.
- B. Connector types and case mounted options, case finishes are given in section 0, 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, 50 mW
 - 1b. Peak IF current, 40 mA

NSN GUIDE

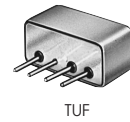
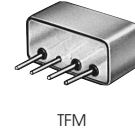
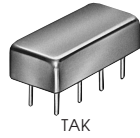
MCL NO.	NSN MIL-M-28837/1*
ASK-1	5895-01-320-0366
SAM-1	5895-01-117-2926
SAM-2	5895-01-165-6621
SAM-3	5895-01-062-9973
SBL-1	5895-01-126-4913
SBL-1X	5895-01-179-8084
SRA-1	5895-00-008-8272 03
SRA-1-1	5962-01-113-5431
SRA-1W	5895-01-163-0433 09
SRA-3	5895-01-021-5914
SRA-4	5826-01-155-6545
SRA-6	5895-01-124-0117
SRA-8	5985-01-081-0977
SRA-11	5895-01-273-0883
SBL-3	5895-01-326-6030
TAK-5	5895-01-271-0842
TAK-6	5895-01-231-2372
TFM-2	5895-01-135-1852
TFM-3	5895-01-112-0031
TFM-4	5895-01-317-9388
TFM-11	5895-01-409-1158
TFM-12	5895-01-179-5686
TSM-3	5895-01-373-2444



Distribution Centers NORTH AMERICA 800-654-7949 • 417-335-5935 • Fax 417-335-5945 • EUROPE 44-1252-835094 • Fax 44-1252-837010

INTERNET <http://www.minicircuits.com>

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661



+7 dBm LO, up to +1 dBm RF

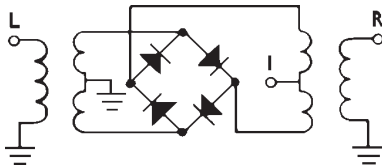
MODEL NO.	FREQUENCY MHz		CONVERSION LOSS dB				LO-RF ISOLATION, dB						LO-IF ISOLATION, dB						CAPD DATA	CASE STYLE	CONNECT ION	PRICE \$	
	LO/RF f_L - f_U	IF	Mid-Band			Total Range Max.	L		M		U		L		M		U						Note B
			\bar{x}	m	σ		Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.					
TAK-5*	.01-250	DC-250	4.65	.02	7.0	8.5	60	50	50	35	40	35	55	45	45	30	35	25	A04	e	20.95		
TAK-5R	.05-200	DC-200	4.70	.05	6.5	8.0	55	50	45	35	45	35	50	45	40	30	40	30	A04	d	20.95		
TAK-6	.5-600	DC-600	5.58	.04	7.5	8.5	60	50	50	30	40	25	55	45	45	30	30	20	A04	e	20.95		
TAK-6R	.5-600	DC-600	5.40	.11	7.0	8.0	55	50	45	30	35	30	45	40	40	25	30	25	A04	f	20.95		
TAK-7	2-1000	5-500	5.86	.08	7.5	8.5	45	30	35	20	30	20	45	30	35	20	30	20	A04	j	20.95		
TSM-3	.1-500	DC-500	4.75	.04	7.5	8.5	60	50	50	35	35	25	55	45	45	30	35	25	A11	e	21.95		
TFM-2	1-1000	DC-1000	5.74	.07	7.5	8.5	50	45	40	25	30	25	45	40	35	25	25	18	B02	z	13.95		
† TFM-2P	1-1000	DC-1000	5.74	.07	7.5	8.5	50	45	40	25	30	25	45	40	35	25	25	18	B02	z	13.95		
† TFM-3**	0.04-400	DC-400	4.70	.06	7.0	8.0	60	50	50	35	35	25	55	40	45	30	35	25	B02	z	21.45		
† TFM-4	5-1250	DC-1250	6.47	.05	7.5	8.5	50	45	40	30	30	25	45	40	35	25	25	20	B02	z	23.45		
TFM-5	5-1500	DC-1000	6.33	.06	8.5	9.5	60	45	35	25	30	25	60	40	35	15	25	14	B02	aa	25.45		
TFM-11	1-2000	5-600	7.16	.07	8.5	9.0	50	45	35	25	25	20	45	40	27	20	25	20	B13	z	47.45		
TFM-12	800-1250	50-90	5.71	.14	—	7.5	35	25	35	25	35	25	30	20	30	20	30	20	B13	z	47.45		
TFM-2400	750-2400	DC-400	6.65	.20	—	9.0	30	20	30	20	30	20	30	10	30	10	30	10	B13	aa	28.95		
TFM-4300	300-4300	DC-800	5.87	.13	—	10.5	30	20	—	—	30	17	15	7	—	—	10	7	B13	aa	38.95		
□ TUF-1	2-600	DC-600	5.85	.04	7.0	8.0	60	50	42	30	37	25	60	45	47	30	36	22	B02	z	4.25		
□ TUF-2	50-1000	DC-1000	5.85	.07	7.5	9.0	58	40	47	30	42	25	50	35	44	20	29	18	B02	z	5.20		
□ TUF-3	0.15-400	DC-400	4.7	.02	7.0	8.0	60	50	46	30	35	25	60	40	47	25	35	20	B02	z	6.10		
□ TUF-5	20-1500	DC-1000	5.7	.04	9.0	9.0	54	40	42	30	39	25	40	25	32	18	23	8	B02	z	9.45		
□ TUF-5X	1-1500	1-1000	5.9	.10	7.0	9.0	60	40	40	20	28	17	60	45	45	25	38	20	B02	gm	11.95		
□ TUF-11A	1400-1900	40-500	6.8	.30	8.6	8.6	33 (typ.)	20 (min.)	—	—	—	—	29 (typ.)	15 (min.)	—	—	—	—	B02	z	16.95		
□ TUF-860	800-1050	DC-250	5.6	.24	7.75	7.75	35 (typ.)	25 (min.)	—	—	—	—	27 (typ.)	20 (min.)	—	—	—	—	B02	z	9.45		

FOR
DATA
SEE YONI
ON OUR
WEBSITE

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 connections see case style outline drawings

PORT	d	e	f	j	m	p	s	t	w	z	aa	ab	gm
LO	8	8	8	8	8	8	1	1	1	4	1	1	4
RF	1	1	1	3,4^	1	2	8	8	4	1	4	3	2
IF	3,4^	3,4^	3,4^	1	3	5,6^	3	5,6^	5	2	2	2	1
GND EXT.	2,5,6,7	2,5,6,7	2,5,6,7	2,5,6,7	2,5,6,7	1,3,4,7	2,5,6,7	2,3,4,7	2,3,6	3	3	4	3
CASE GND	—	2	2,5,6,7	2,5,6,7	2,5,6,7	3,4,7	2,5,6,7	3,4,7	—	3	3	4	3
NOT USED	—	—	—	—	4	—	4	—	—	—	—	—	—

^ pins must be connected together externally

SUNSTAR 商斯达实业集团是集研发、生产、工程、销售、代理经销、技术咨询、信息服务等为一体的高科技企业，是专业高科技电子产品生产厂家，是具有 10 多年历史的专业电子元器件供应商，是中国最早和最大的仓储式连锁规模经营大型综合电子零部件代理分销商之一，是一家专业代理和分销世界各大品牌 IC 芯片和电子元器件的连锁经营综合性国际公司，专业经营进口、国产名厂名牌电子元件，型号、种类齐全。在香港、北京、深圳、上海、西安、成都等全国主要电子市场设有直属分公司和产品展示展销窗口门市部专卖店及代理分销商，已在全国范围内建成强大统一的供货和代理分销网络。我们专业代理经销、开发生产电子元器件、集成电路、传感器、微波光电元器件、工控机/DOC/DOM 电子盘、专用电路、单片机开发、MCU/DSP/ARM/FPGA 软件硬件、二极管、三极管、模块等，是您可靠的一站式现货配套供应商、方案提供商、部件功能模块开发配套商。商斯达实业公司拥有庞大的资料库，有数位毕业于著名高校——有中国电子工业摇篮之称的西安电子科技大学（西军电）并长期从事国防尖端科技研究的高级工程师为您精挑细选、量身订做各种高科技电子元器件，并解决各种技术问题。

微波光电部专业代理经销高频、微波、光纤、光电元器件、组件、部件、模块、整机；电磁兼容元器件、材料、设备；微波 CAD、EDA 软件、开发测试仿真工具；微波、光纤仪器仪表。欢迎国外高科技微波、光纤厂商将优秀产品介绍到中国、共同开拓市场。长期大量现货专业批发高频、微波、卫星、光纤、电视、CATV 器件：晶振、VCO、连接器、PIN 开关、变容二极管、开关二极管、低噪晶体管、功率电阻及电容、放大器、功率管、MMIC、混频器、耦合器、功分器、振荡器、合成器、衰减器、滤波器、隔离器、环行器、移相器、调制解调器；光电子器件和组件：红外发射管、红外接收管、光电开关、光敏管、发光二极管和发光二极管组件、半导体激光二极管和激光器组件、光电探测器和光接收组件、光发射接收模块、光纤激光器和光放大器、光调制器、光开关、DWDM 用光发射和接收器件、用户接入系统光收发器件与模块、光纤连接器、光纤跳线/尾纤、光衰减器、光纤适配器、光隔离器、光耦合器、光环行器、光复用器/转换器；无线收发芯片和模组、蓝牙芯片和模组。

更多产品请看本公司产品专用销售网站：

商斯达中国传感器科技信息网：<http://www.sensor-ic.com/>

商斯达工控安防网：<http://www.pc-ps.net/>

商斯达电子元器件网：<http://www.sunstare.com/>

商斯达微波光电产品网：[HTTP://www.rfoe.net/](http://www.rfoe.net/)

商斯达消费电子产品网：<http://www.icasic.com/>

商斯达实业科技产品网：<http://www.sunstars.cn/> 微波元器件销售热线：

地址：深圳市福田区福华路福庆街鸿图大厦 1602 室

电话：0755-82884100 83397033 83396822 83398585

传真：0755-83376182 (0) 13823648918 MSN: SUNS8888@hotmail.com

邮编：518033 E-mail:szss20@163.com QQ: 195847376

深圳赛格展销部：深圳华强北路赛格电子市场 2583 号 电话：0755-83665529 25059422

技术支持：0755-83394033 13501568376

欢迎索取免费详细资料、设计指南和光盘；产品凡多，未能尽录，欢迎来电查询。

北京分公司：北京海淀区知春路 132 号中发电子大厦 3097 号

TEL: 010-81159046 82615020 13501189838 FAX: 010-62543996

上海分公司：上海市北京东路 668 号上海赛格电子市场 D125 号

TEL: 021-28311762 56703037 13701955389 FAX: 021-56703037

西安分公司：西安高新开发区 20 所(中国电子科技集团导航技术研究所)

西安劳动南路 88 号电子商城二楼 D23 号

TEL: 029-81022619 13072977981 FAX:029-88789382