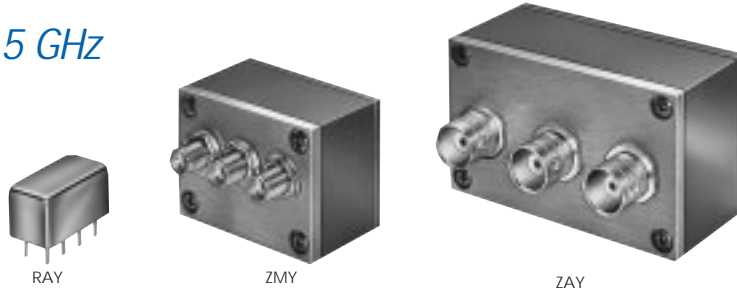


# FREQUENCY MIXERS

Plug-In & Coaxial

## LEVEL 23 10 kHz to 2.5 GHz



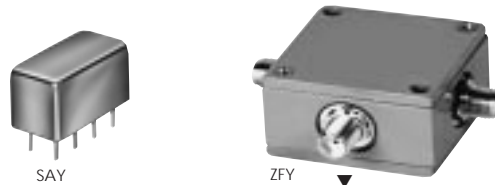
+23 dBm LO, up to +15 dBm RF

MODEL NO.	FREQUENCY MHz		CONVERSION LOSS dB				LO-RF ISOLATION, dB						LO-IF ISOLATION, dB						CASE STYLE	FUNCTION	PRICE \$		
	LO/RF $f_L-f_U$	IF	Mid-Band m			Total Range Max.	L		M		U		L		M		U					Note B	Qty. (1-9)
			$\bar{x}$	$\sigma$	Max.		Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.					
RAY-1	5-500	DC-500	6.57	.09	7.5	8.5	55	45	40	30	30	25	55	45	40	30	30	20	A01	e	42.95		
RAY-3	.07-200	DC-200	5.53	.08	7.5	8.0	55	45	40	30	30	25	55	45	40	30	30	20	A01	e	42.95		
RAY-6U	0.01-100	DC-100	5.09	.15	7.0	8.0	60	50	50	40	40	30	50	45	40	30	35	25	A01	e	48.95		
RAY-11	100-2500	DC-500	6.23	.21	9.0	9.0	35	25	32	25	32	25	14	10	20	10	20	10	A01	s	74.95		
ZMY-1	5-500	DC-500	6.62	.10	7.5	8.5	55	45	40	30	30	25	55	45	40	30	30	20	M21	ae	67.95		
ZMY-2	10-1000	DC-1000	6.89	.22	8.5	10.0	50	35	40	30	35	25	50	35	35	25	25	20	M21	ae	84.95		
ZMY-3	.07-200	DC-200	5.53	.08	7.5	8.0	55	45	40	30	30	25	55	45	40	30	30	20	M21	ae	69.95		
ZAY-1	5-500	DC-500	6.57	.09	7.5	8.5	55	45	40	30	30	25	55	45	40	30	30	20	M22	ae	64.95		
ZAY-2	10-1000	DC-1000	6.89	.22	8.5	10.0	50	35	40	30	35	25	50	35	35	25	25	20	M22	ae	84.95		
ZAY-3	.07-200	DC-200	5.53	.08	7.5	8.0	55	45	40	30	30	25	55	45	40	30	30	20	M22	ae	64.95		

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  $f_U$ ]



+23 dBm LO, up to +20 dBm RF

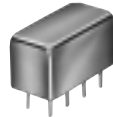
MODEL NO.	FREQUENCY MHz		CONVERSION LOSS dB				LO-RF ISOLATION, dB						LO-IF ISOLATION, dB						CASE STYLE	FUNCTION	PRICE \$		
	LO/RF $f_L-f_U$	IF	Mid-Band m			Total Range Max.	L		M		U		L		M		U					Note B	Qty. (1-9)
			$\bar{x}$	$\sigma$	Max.		Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.					
SAY-1	0.1-500	.01-500*	4.85	.18	6.0	7.5	40	20	46	35	40	30	37	23	46	35	40	30	A01	m	62.95		
SAY-11	10-2400	5-1000	7.40	.09	8.5	10	28	20	26	20	25	20	28	20	26	20	25	20	A01	m	72.95		
ZFY-1	0.1-500	.01-500	4.85	.18	6.0	7.5	40	20	46	35	40	30	37	23	46	35	40	30	K18	ad	74.95		
ZFY-2	0.1-1000	.01-500	5.40	.24	7.5	9.5	40	20	40	30	30	25	37	23	40	25	25	15	K18	ad	79.95		
ZFY-11	10-2400	5-1000	7.40	.09	8.5	10	28	20	25	20	25	20	28	20	26	20	25	20	K18	ad	84.95		

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  $f_U$ ]

## LEVEL 27 0.5 to 500 MHz



VAY

+27 dBm LO, up to +24 dBm RF

MODEL NO.	FREQUENCY MHz		CONVERSION LOSS dB				LO-RF ISOLATION, dB			LO-IF ISOLATION, dB			CASE STYLE	ZOC	PRICE \$					
	LO/RF	IF	Mid-Band			Total Range Max.	L Typ.	M Typ.	U Typ.	L Typ.	M Typ.	U Typ.								
	$f_L-f_U$		$\bar{x}$	$\sigma$	Max.															
VAY-1	0.5-500	.02-500	5.79	.15	7.5	8.5	47	40	46	35	35	25	35	28	46	35	25	A01	m	84.95

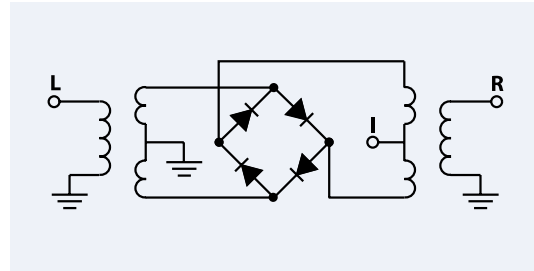
L = low range [ $f_L$  to  $10 f_L$ ]

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:**

- $\bar{x}$  Average of conversion loss at center of mid-band frequency ( $f_L+f_U/4$ )
- $\sigma$  Standard deviation
- ▼ When ordering, specify BNC or SMA connectors.
- \* IF response from .01 to .1 MHz falls off 3 dB
- 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. Level 23 mixers, RF power 350mW
  - 1b. Level 27 mixers, RF power 500mW
  - 1c. Peak IF current, 40mA



pin and coaxial connections  
 see case style outline drawings

PORT	e	m	s	ad	ae
LO	8	8	1	1	1
RF	1	1	8	2	3
IF	3,4^	3	3	3	2
GND EXT.	2,5,6,7	2,5,6,7	2,5,6,7		
CASE GND	2	2,5,6,7	2,5,6,7		
NOT USED	—	4	4		

^ pins must be connected together externally

**NSN GUIDE**

MCL NO.	NSN
RAY-1	5895-01-105-6188
RAY-3	5895-01-064-5082
SAY-11	5895-01-199-3893
VAY-15895-01-232-5890	
ZMY-1B	5895-01-213-3888
ZMY-2	4935-01-080-7636