

FREQUENCY MIXERS

Plug-In & Coaxial

LEVEL 23 10 kHz to 2.5 GHz

SURFACE MOUNT



SYM



RAY



ZMY



ZAY

+23 dBm LO, up to +15 dBm RF

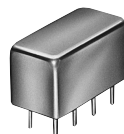
MODEL NO.	FREQUENCY MHz		CONVERSION LOSS dB				LO-RF ISOLATION, dB			LO-IF ISOLATION, dB			CASE STYLE	CONSTRUCTION	PRICE \$						
	LO/RF f_L-f_U	IF	Mid-Band \bar{m}	σ	Max.	Total Range Max.	L Typ.	M Typ.	U Typ.	L Typ.	M Typ.	U Typ.				Note B	Qty. (1-9)				
NEW SYM-15VH**	10-1500	10-1500	6.5	.05	8.5	8.8	52	30	45	25	39	25	35	24	35	25	34	22	TTT167	x	27.95
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	40.95
RAY-2	10-1000	DC-1000	6.89	.22	8.5	10.0	50	35	40	30	35	25	50	35	35	25	25	20	A01	f	64.45
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	40.95
RAY-6	0.03-50	DC-50	5.36	.15	7.5	8.5	60	50	45	30	35	25	60	45	40	25	30	20	A01	d	52.45
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	46.95
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 $f_U/2$)

U = upper range ($f_U/2$ to f_U)

m = mid band ($2f_L$ to $f_U/2$)



SAY



ZFY

+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	CONSTRUCTION	PRICE \$						
	LO/RF f_L-f_U	IF	Mid-Band \bar{m}	σ	Max.	Total Range Max.	L Typ.	M Typ.	U Typ.	L Typ.	M Typ.	U Typ.				Note B	Qty. (1-9)				
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-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	A01	m	67.95
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

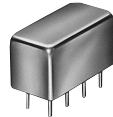
L = low range (f_L to $10 f_L$)

M = mid range ($10 f_L$ to $f_U/2$)

U = upper range ($f_U/2$ to f_U)

m = mid band ($2f_L$ to $f_U/2$)

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	PRICE \$
	LO/RF f_L-f_U	IF	Mid-Band		Total Range	L	M	U	L	M	U			
			\bar{x}	σ Max.								Max.		
VAY-1	0.5-500	.02-500	5.79	.15	7.5	8.5	47	40	46	35	35	25	A01	84.95

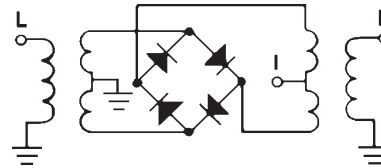
L = low range (f_L to $10 f_L$)

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 ($f_L+f_U/4$)
- σ Standard deviation
- Non-hermetic
- * IF response from .01 to .1 MHz falls off 3 dB
- ** SYM-15VH, IP3 @ centerband, 31 dBm typ.
- 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	d	e	f	m	s	ad	ae	x
LO	8	8	8	8	1	1	1	2
RF	1	1	1	1	8	2	3	1
IF	3,4^	3,4^	3,4^	3	3	3	2	3
GND EXT.	2,5,6,7	2,5,6,7	2,5,6,7	2,5,6,7	2,5,6,7			4,5,6
CASE GND	—	2	2,5,6,7	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-2	5895-01-111-7368
RAY-3	5895-01-064-5082
RAY-6	5895-01-317-5882
SAY-11	5895-01-199-3893
VAY-1	5895-01-232-5890
ZMY-1B	5895-01-213-3888
ZMY-2	4935-01-080-7636

*units are not QPL listed



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