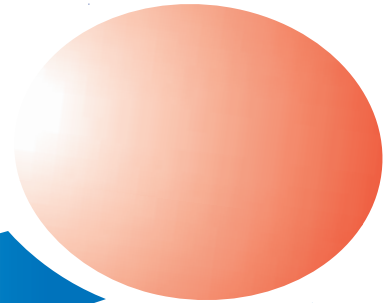




*The Design Engineers Search Engine*

# USER'S GUIDE

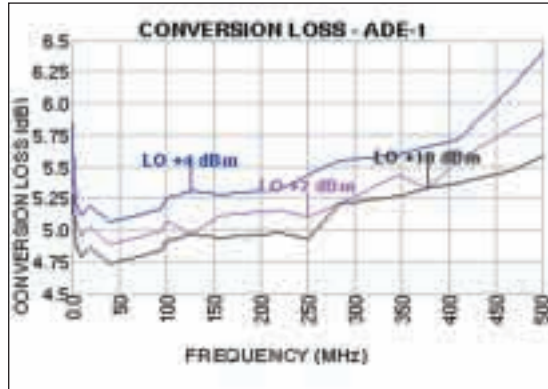




**YONI** is a unique search engine for Design Engineers that taps the power of the Internet to search Mini-Circuits database, find the most cost effective component that meets or beats your requirements, then delivers actual component performance data to your computer anywhere in the world, any time, free of charge.

The search results provide Actual Measured Performance Data delivered in the form of tables and graphs. NO Simulations...NO Averages!

In about 2 minutes, **YONI** can provide an actual solution you can use...thus avoiding long design delays, higher costs, and frustration.



P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661  
For quick access to product information see MINI-CIRCUITS CATALOG & WEB SITE

Provides ACTUAL Data Instantly From MINI-CIRCUITS At: [www.minicircuits.com](http://www.minicircuits.com)

## Ordering And Delivery Information

Refer to the rep listing in this guide for Mini-Circuits worldwide network of sales representatives and distributors ready to serve your needs, supply your orders, and answer your questions promptly and courteously.

**Federal supply code: 15542**

### how to order

Your local representative or distributor is the contact for both sales and service assistance for products listed. These local offices have the latest price and delivery information on all models. They can also provide details on ordering procedures, service information and application engineering data. Your order may be sent directly to Mini-Circuits or to any of the local sales offices listed.

Prices listed are domestic F.O.B. Brooklyn, New York. Mini-Circuits reserves the right to change specifications, models, prices, or designs without prior notice and without liability for such changes. Minimum order **\$100.00**.

### shipping instructions

Shipments can be made by either air or surface carriers. If specific shipping instructions do not accompany the order, Mini-Circuits will supply the carrier to be used. For air shipments, Mini-Circuits has arranged for substantial discounts with carriers.

### terms

Net 30 days from date of invoice. If credit is not established with Mini-Circuits, shipments will be made C.O.D. (cash on delivery) or prepaid. We also accept most major credit cards. If prepaying, please include freight.

### warranty

**Limited Warranty and Exclusive Remedy.** Each product manufactured by Mini-Circuits is warranted to conform to Mini-Circuits' applicable specifications on the date of shipment, subject to permissible variations and defects defined by The Institute for Interconnecting and Packaging Electronic Circuits, provided that these products are used with compatible components in appropriate environments, within the applications and ranges for which they were manufactured, and in accordance with applicable instructions, and provided further that they have not been subject to improper installation, improper maintenance, abuse, accident, negligence, alteration, misuse or the like. The warranty period is twelve (12) months after shipment, unless another period is specified. The sole and exclusive remedy available under this limited warranty is the repair or replacement of any products which Mini-Circuits determines to be defective or, if Mini-Circuits determines that this exclusive remedy fails its essential purpose, the purchaser will, at its option, be entitled to a refund of the purchase price for the products in question or a credit therefor.

**LIMITATION OF WARRANTY.** THERE ARE NO OTHER WARRANTIES HEREUNDER, WHETHER EXPRESSED OR IMPLIED, ARISING BY OPERATION OF LAW OR OTHERWISE, INCLUDING WITHOUT LIMITATION, THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND ANY WARRANTIES ARISING UNDER COURSE OF PERFORMANCE, COURSE OF DEALING OR USAGE OF TRADE. UNLESS A STATEMENT IS SPECIFICALLY IDENTIFIED IN THIS BROCHURE AS A WARRANTY, THE STATEMENTS MADE HEREIN RELATING TO ANY PRODUCTS ARE NOT EXPRESS WARRANTIES BUT ARE MERELY MINI-CIRCUITS' OPINION OR COMMENDATION OF SUCH PRODUCTS. ANY DESCRIPTION OF PRODUCTS SPECIFIED HEREIN IS NOT INTENDED TO BE A WARRANTY, BUT IS FOR THE SOLE PURPOSE OF IDENTIFYING SUCH PRODUCTS AND IT DOES NOT CONSTITUTE A WARRANTY THAT PRODUCTS WILL CONFORM TO THAT DESCRIPTION. SIMILARLY, THE USE OF ANY SAMPLES, MODELS OR DRAWINGS IS ONLY FOR ILLUSTRATIVE PURPOSES AND DOES NOT CONSTITUTE A WARRANTY THAT PRODUCTS WILL CONFORM WITH SUCH SAMPLES, MODELS OR DRAWINGS.

**WAIVER OF CONSEQUENTIAL DAMAGES.** UNDER NO CIRCUMSTANCES WILL MINI-CIRCUITS BE LIABLE FOR ANY CONSEQUENTIAL, EXEMPLARY, INCIDENTAL, INDIRECT OR SPECIAL DAMAGES, OR LOST PROFITS, EXPENSES OR LOSSES ARISING OUT OF OR RELATED TO THE SALE OR USE OF ANY OF ITS PRODUCTS REGARDLESS OF WHETHER THE LIABILITY RESULTED FROM ANY GENERAL OR PARTICULAR REQUIREMENT OR NEED WHICH MINI-CIRCUITS KNEW OR SHOULD HAVE KNOWN OF.

For a full statement of limited warranty offered by Mini-Circuits and the exclusive rights and remedies thereunder, together with Mini-Circuits limitations of warranties and limitation of liability, please refer to Mini-Circuits sales order form (3/25/98). If you do not have this form, please contact Mini-Circuits representative and one will be provided promptly.

**Warning:** Since each system utilizing components is unique with different component configurations and attributes and differing requirements and environments, all of which can, among other things, affect product performance, the selection and use of any product offered by Mini-Circuits must be determined by competent engineers and other appropriate professionals who are familiar with the specific system in question. Nothing contained in this brochure shall constitute any professional advice and should not be used as a substitute for competent professional determinations. Since Mini-Circuits has not given any professional advice, it is not responsible or liable for improper selection, use or installation of products offered by Mini-Circuits and, with respect to the systems in which such products are utilized, improper system design or the inadequacy of back-up systems.

**Warning:** While products offered by Mini-Circuits have the potential to be used as components in (i) devices or systems utilized in air or space flight; (ii) medical devices; or (iii) life support devices or systems, such uses are not authorized, nor will such products be covered by Mini-Circuits' limited warranty, without the prior written consent of Mini-Circuits.

### For U.S. Customers

To provide superior customer convenience and fast delivery, our Distribution Center is open 12 hours a day (8AM to 8PM for East Coast and 5AM to 5PM for West Coast customers). For West Coast orders, second day air service is offered at UPS ground rates. And, of course, all prices are the same as quoted from the factory.

### For European Customers

To provide superior customer convenience, our Distribution Center in the UK (Wharf Rd., Frimley Green, Camberley, Surrey, GU16 6LF) is open from 8:30AM to 5:30PM. And, exclusive of duty and freight, all prices are the same as quoted from Mini-Circuits' factory.

# Contents

## The YONI Search Engine "User's Guide"

<b>Introduction To YONI</b> . . . . .	2
<b>Ordering And Delivery Information</b> . . . . .	3
<b>Flow Diagram Of YONI Operation</b> . . . . .	4
<b>How And Where Can I Access YONI?</b> . . . . .	5-6
Computer System Requirements . . . . .	5
Internet Access And Web Address . . . . .	5
"Click" To The YONI Search Engine . . . . .	5
Registration . . . . .	6
How Big Is YONI? . . . . .	6
How Often Is YONI Updated? . . . . .	6
<b>YONI Component Categories (ie: VCOs, Mixers, etc.)</b> . . . . .	7
<b>YONI Data Entry Fields</b> . . . . .	8-10
Minimum Required Data Entry Fields . . . . .	8
Required Data Entry Field Reminder . . . . .	9
Optional Data Entry Fields . . . . .	10
<b>YONI Search Results</b> . . . . .	11
Display Of Models With Specs And Case Styles . . . . .	11
How To Find Models With The Lowest Price . . . . .	11
<b>Viewing Actual Performance Data And Case Styles</b> . . . . .	12-13
Viewing Tables And Graphs . . . . .	12
Viewing Case Style Information . . . . .	13
<b>How To Evaluate, Select, And Order Your Parts</b> . . . . .	14
How To Evaluate And Select Your Parts . . . . .	14
How To Order Your Parts . . . . .	14
<b>What Happens If YONI Draws A Blank?</b> . . . . .	15-18
Obtaining A Best Possible Match . . . . .	15
YONI Suggests Alternate Models . . . . .	16-17
Contacting An Applications Engineer . . . . .	18
<b>Limitations Of The YONI Search Engine</b> . . . . .	19
<b>How To Obtain Actual Performance Data Using The Model Number</b> . . . . .	20-22
<b>How To Obtain A Copy Of Mini-Circuits "RF/IF Designer's Guide"</b> . . . . .	23
<b>Worldwide Sales Offices And Distributors</b> . . . . .	Back Cover

CREDIT CARDS WELCOME



AMERICAN EXPRESS



VISA



ACCESS



MASTER CARD

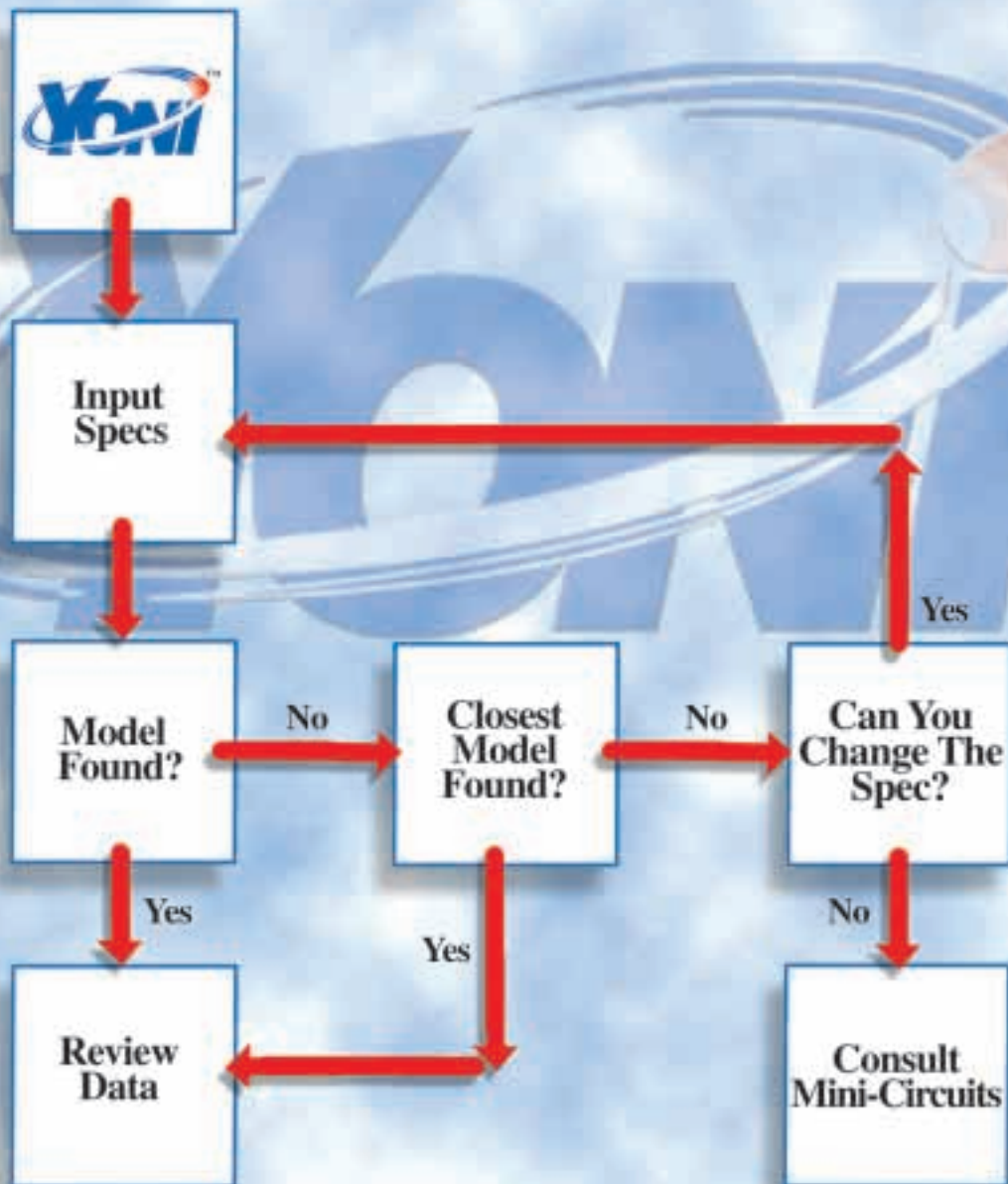


EUROCARD

see us on the web  
[www.minicircuits.com](http://www.minicircuits.com)



# Flow Diagram Of **Yovi**<sup>TM</sup> Operation.





Mini-Circuits home page at [www.minicircuits.com](http://www.minicircuits.com) "clicks thru" to the YONI Search Engine

### How And Where Can I Access YONI?

#### Computer System Requirements:

- A computer with appropriate internet web browser software installed (Internet Explorer®, Netscape®, etc.).
- Java Script must be enabled.
- No special downloads, extra software, or plug-ins are required to use "The YONI Search Engine" however, Acrobat® Reader is needed to view Mini-Circuits On-Line Catalog pages.

#### Internet Access And YONI Web Address

YONI can be accessed anywhere in the world where an internet connection is available. YONI is located on the World Wide Web at [www.minicircuits.com](http://www.minicircuits.com), and is free of charge to use.

#### "Click" To The YONI Search Engine

The Mini-Circuits web address above provides access to Mini-Circuits Home Page which displays a link to "The YONI Search Engine".

see us on the web  
[www.minicircuits.com](http://www.minicircuits.com)





After registration, begin using YONI immediately.

### Registration

Your first visit will require completion of our quick and easy registration form. Then, you can begin using YONI immediately.

### How Big Is YONI?

The YONI Search Engine combs Mini-Circuits large and extensive database containing thousands of models with actual measured performance data. The database includes Mini-Circuits standard catalog items, plus additional "Engineering Designs" (ED) that were developed to custom performance specifications.

### How Often Is YONI Updated?

New products, performance data, specification revisions, and new Case Style Drawings and Outline Dimensions are added to YONI on a daily basis as they become available. This provides a jump start to use new product developments and assures a timely search.



Pick a product category to search in YONI.

### **YONI Component Categories**

Upon entering the YONI Search Engine, you will be asked to “Pick a component to search” from the available categories. Select a component category with a single click.

YONI searches are available for categories listed on the screen. Additional search categories will be added in the future.

*For the purposes of this User’s Guide, we will use the category of “Frequency Mixers” for demonstration.*

#### **TIP:**

*If your Component Type does not appear on the YONI search menu, browse our Online Catalog, and also check the “What’s New” feature.*



**Mini-Circuits®**  
ISO 9001 & ISO 14001 CERTIFIED

Have something what **VALUE** is all about

Review Online Catalog

Choose Product...

Quick Search

Model Number  
Model Series Prefix  
Case Type

**GO!**

**YONI**  
Parameter Search  
for Design Engineers

Home  
What's New  
Application Notes  
About Mini-Circuits  
Contact Us  
Employment Opps.

**Quality Policy**  
Mini-Circuits Quality Policy is to provide products and services to our internal and external customers that will:

- meet stated requirements
- exceed expectations
- continuously be improved.

**YONI Frequency Mixer**

Please enter the specifications  
*(minimum data requirement fields are highlighted)*

**LO Power Level**

0 dBm  3 dBm  4 dBm  6 dBm  7 dBm  
 9 dBm  10 dBm  13 dBm  14 dBm  15 dBm  
 16 dBm  17 dBm  20 dBm  23 dBm  26 dBm  
 27 dBm  30 dBm

**Packaging Style**

Flip-S  Surface Mount  Connector  Not Critical

**Electrical Characteristics**

**Max. Conversion Loss (dB):**  
RFLO Freq Low (MHz):  
RFLO Freq High (MHz):  
Min. LO RF Isolation (dB):  
Min. LO IF Isolation (dB):  
LO Freq Low (MHz):  
LO Freq High (MHz):  
IF (MHz):

**Max. VSWR, IF port (dB):**  
IF Freq Low (MHz):  
IF Freq High (MHz):  
Max. VSWR, RF port (dB):  
Max. VSWR, LO port (dB):  
RFLO Freq Low (MHz):  
RFLO Freq High (MHz):

**Search** **Clear**

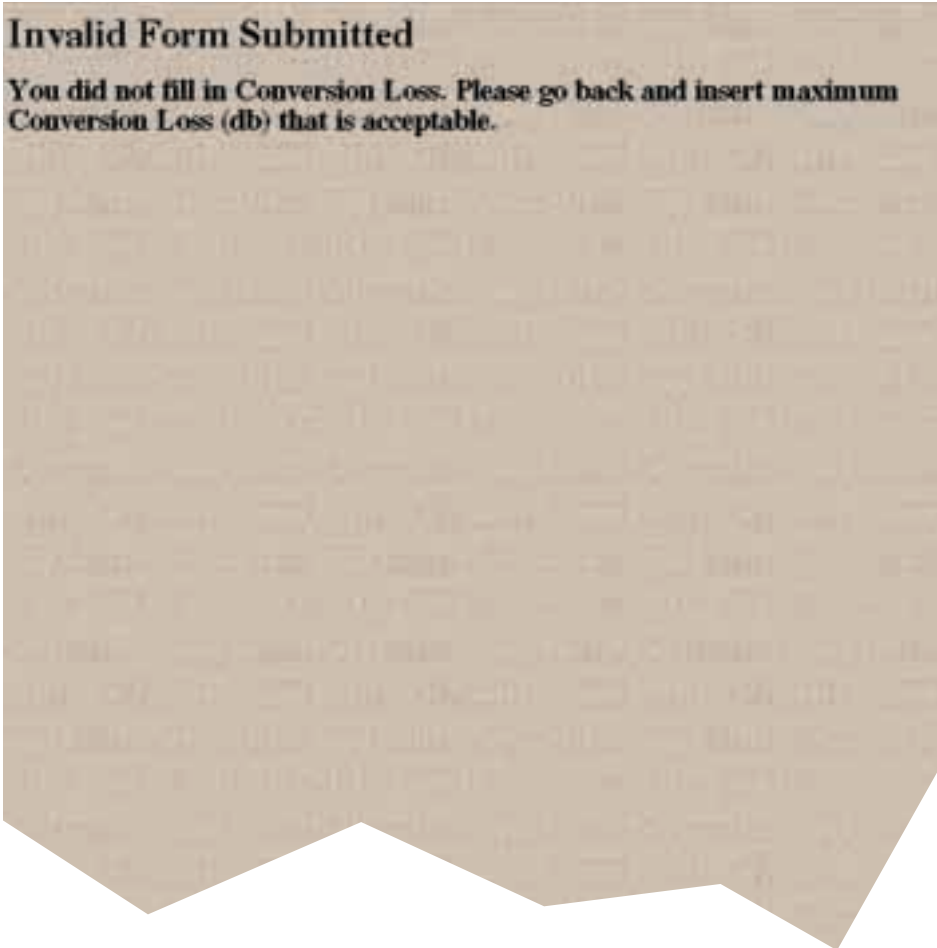
Completion of all minimum data fields (red) are required to proceed with a search.

### YONI Data Entry Fields

#### Minimum Required Data Entry Fields

After picking a component family from the choices given, a "Data Entry Information Page" will be displayed. The completion of all the Minimum Data Requirement Fields on this page are mandatory for YONI to proceed with a successful search. Mandatory data fields are highlighted in red.





---

*If all required fields are not completed, YONI will issue a friendly reminder.*

***YONI Will Remind You To Complete ALL Required Fields***

If a search is attempted with any REQUIRED field left blank, YONI will display a page titled "Invalid Form Submitted". At this point, simply click the "Back" button in your browser to return to the "Data Entry Information Page" and enter the additional REQUIRED specification(s).



Typically, more optional fields completed = tighter component match. Fewer optional fields completed = broader component match.

### Optional Data Entry Fields

On the same Data Entry Information Page, Optional Data Entry Fields are headed in black. Each "Optional Data Entry Field" that is completed narrows YONI's search to display a subgroup of all components that meet or exceed the entered specs. Hence, to obtain the tightest component match to your specific performance requirements, complete as many Optional Data Entry Fields as possible.

After all the REQUIRED fields and as many OPTIONAL fields as desired are completed, click **Search** located at the bottom of the page to launch the YONI search engine, or click **Clear** to clear all entered data in Data Entry Fields, and start over.

## Frequency Mixers LO Power Level 7 dBm

Click on the reference number to see Performance Data and Graphs.

Reference No.	Frequency MHz		Conversion Loss dB		LO-RF Isolation dB			LO-IF Isolation dB			Case Style	Conn-ctn	Notes
	LO/RF	IF	Mid Band	Total Range	L	M	U	L	M	U			
<a href="#">LRMS-1J</a>	0.500-500	DC-500	7.8	8.5	50	25	20	45	23	19	009563	w	
<a href="#">RMS-1</a>	0.500-500	DC-500	7.8	8.5	50	25	20	45	23	19	T748	w	
<a href="#">ADE-1</a>	0.500-500	DC-500	6.5	7.8	50	35	30	45	25	20	CD536	M	*,L4
<a href="#">ADE-1LH</a>	0.500-500	DC-500	6.5	8.2	50	35	26	40	22	20	CD536	M	
<a href="#">ADE-ED9819/1</a>	0.100-1112	5-1050									CD542	M	U
<a href="#">ADE-ED7841/1</a>	0.100-2000	10-1000									CD542	bu	U
<a href="#">ADE-ED7879/1</a>	0.400-953	0-520									CD542	M	U
<a href="#">ADE-ED7892/1</a>	0.400-900	0-520									CD536	M	U
<a href="#">LRMS-ED4552/1</a>	0.500-985	5-590									009563	w	U
<a href="#">ADE-ED6329/1</a>	0.000-1540	100-1145									CD542	bu	U

L-low range( $f_L$  to  $10f_L$ ) M-mid range( $10f_L$  to  $f_U/2$ ) U-upper range( $f_U/2$  to  $f_U$ )

Pin Connections - see case style outline drawing

Part	LO	RF	IF	Grd	Ext.	Case	Grd	Not Used
w	1	4	5	2,3,6	-	-	-	-
M	6	3	2	1,4,5	-	-	-	-
bu	6	2	3	1,4,5	-	-	-	-

Notes:

- 1 - +7dBm LO, up to +1 dBm RF
- Absolute maximum power, voltage and current ratings:
  - a. RF power, 50mW
  - b. Peak IF current, 40mA
- U - Non-catalog model. Please consult factory for price and delivery
- General Quality Control Procedures and Environmental Specifications are given in [Mini-Circuits Component One](#)
- Hi-Pol. MIL description are given in [Hi-Pol and MIL](#)
- Prices and Specifications subject to change without notice.

[Back](#)

YONI will display a list of models (Reference No.) that fall within your requirements, complete with case style number.

### YONI Search Results

#### Display Of Models With Specifications And Case Styles

After you click "Search", YONI will instantly display a list of Mini-Circuits standard catalog models and/or Engineering Design (ED) references from our internal development database. Typically, the TOTAL frequency range for these units will be shown along with guaranteed performance specifications. YONI selected these units because they meet or exceed the performance criteria you entered within the frequency range you specified.

#### How To Find Models With The Lowest Price

After preliminary evaluation of all models shown, check the price for each model you selected by using our "RF/IF Designers Guide" (see page 23), or the "Browse Online Catalog" feature on the Mini-Circuits home page (see page 22). This feature accesses a "Catalog Model Index" from the "Choose Product..." pull-down menu. Locate your component category in the index, then click on a Model Number to view prices. By using YONI in conjunction with our catalog, you can get relative pricing for the models you selected. For high quantity or "ED" model pricing, contact factory or complete a "Price Quotes" form available by following the "Contact Us" link on the Mini-Circuits home page.

#### TIP:

To aid your evaluation, click the Case Style number corresponding to the Reference No. to display complete case style information.

see us on the web  
[www.minicircuits.com](http://www.minicircuits.com)



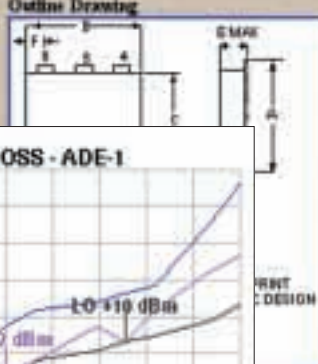
Spec page displays tables of actual performance data. Graphical data is indexed on the page to be displayed when clicked.

## Frequency Mixers

### LO Power Level 7 dBm

**Pin Configuration**  
For LO RF F Grid Ext. Case Grid Not Used  
1 2 3 4 5

**Outline Drawing**



**Notes:**

- +7dBm LO, up to +1 dBm RF
- Absolute maximum power, voltage and current ratings:
- a. RF power, 500mW
- b. Peak F current, 40mA

General Quality Control Procedures and Environmental Specifications are given in [Mini-Circuits Quality Control](#).  
H-Freq. Mfg. description see given in [LO-IF Mixer](#).  
• Prices and Specifications subject to change without notice.

**Electrical Specifications**  
ADE-1 LO Power Level 7 dBm

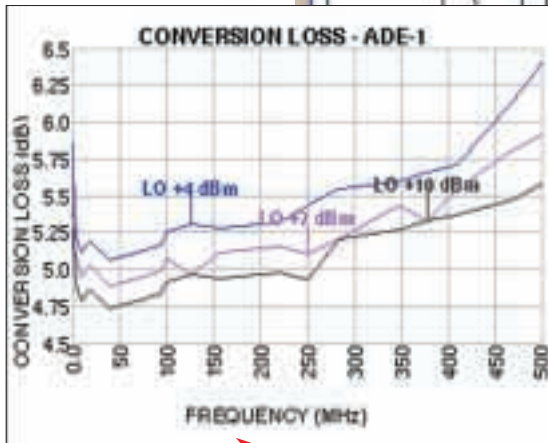
Frequency MHz	Max. Conversion Loss dB	Min. LO-RF Isolation dB	Min. LO-F Isolation dB
100-500	4.5	58	35

Color range: [L to 10L] [M to 10M] [U to 10U] [D to 10D] [E to 10E]

**Typical Performance Data**

RF MHz	LO MHz	Conversion Loss (dB)	LO Isolation (dB)	LO-RF Isolation (dB)	LO-F Isolation (dB)
0.800	30.800	5.88	58.88	57.88	56.88
0.800	30.800	5.71	5.55	5.38	50.900
1.800	31.800	5.69	5.28	5.12	51.000
5.900	35.900	5.22	5.06	4.89	54.200
30.800	40.800	5.12	4.95	4.79	55.17
50.000	50.000	5.19	5.02	4.86	55.24
100.000	100.000	5.06	4.89	4.73	55.31
150.000	150.000	5.00	4.83	4.67	55.38
200.000	200.000	4.93	4.76	4.60	55.45
250.000	250.000	4.86	4.69	4.53	55.52
300.000	300.000	4.79	4.62	4.46	55.59
350.000	350.000	4.72	4.55	4.39	55.66
400.000	400.000	4.65	4.48	4.32	55.73
450.000	450.000	4.58	4.41	4.25	55.80
500.000	500.000	4.51	4.34	4.18	55.87

**CONVERSION LOSS - ADE-1**



**Mini-Circuits**  
P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661  
For quick access to product information see MINI-CIRCUITS CATALOG & WEB SITE  
DISTRIBUTOR CONTACT: EUROPE/AFRICA 306-654-7983 • 417-335-3903 • Fax 417-335-3945 • JAPAN 44-252-432880 • Fax 44-252-62798  
ISO 9001 CERTIFIED

### Viewing Actual Performance Data And Case Styles

#### Viewing Tables And Graphs

Start with the lowest priced part that meets your requirements and click on the reference number to display a specification page. The resulting page shows *actual performance data* in tabular form and indexes actual graphical performance data available for up to 7 important electrical specifications. Click on the bar for the performance specification you wish to view graphically and a Java Applet Window will appear with corresponding actual performance curves. To view another performance curve, simply click another performance specification bar.



Within the component's broad frequency range, evaluate the frequency band needed for your application (example: 50-100MHz as shown in red box).

### Frequency Mixers

#### LO Power Level 7 dBm

**Pin Configuration**  
 Pin LO RF F (Ind Ext. Case Ind Not Used)  
 1 4 3 2 1,4,3 - -

**Outline Drawing**

**Notes:**

- +70dB LO, up to +1 dBm RF
- Absolute maximum power, voltage and current ratings:
- RF power, 50mW
- Peak RF current, 40mA

General Quality Control Procedures and Environmental Specifications are given in [Mini-Circuits' Standard Quality](#). H-Pair, MIL, Drawings are given in [H-Pair/MSL](#).

• Prices and Specifications subject to change without notice.

#### Electrical Specifications

**ADE-1 LO Power Level 7 dBm**

Frequency (MHz)	Max Conversion Loss (dB)	Min. LO-RF Isolation (dB)	Min. LO-F Isolation (dB)
0.000-000.000	8.5	7.5	50 20 30 40 25 20

Units: (dBm) to (dBm) | Min. range (10% to 1/2) | Unupper range (1/2 to 1/2)

#### Typical Performance Data

RF (MHz)	LO (MHz)	Conversion Loss (dB)			ISO (MHz)	Isolation LR (dB)			Isolation LI (dB)		
		+4 dBm	+7 dBm	+10 dBm		+4 dBm	+7 dBm	+10 dBm	+4 dBm	+7 dBm	+10 dBm
0.000	30.000	7.05	7.68	7.22	10.000	67.51	67.88	69.34	59.64	58.07	55.50
0.000	30.000	5.71	5.58	5.28	20.000	68.50	67.50	69.80	69.84	58.02	55.34
1.000	31.000	6.49	5.28	5.28	31.000	68.80	67.81	69.27	59.50	58.87	55.34
5.000	35.000	5.22	5.46	4.84	35.000	69.33	66.27	67.84	58.16	55.50	54.50
10.000	40.000	5.12	4.46	4.79	40.000	68.27	68.27	66.84	57.06	54.17	52.84
20.000	50.000	5.18	5.02	4.86	50.000	68.50	65.34	64.07	52.17	51.17	50.84
30.000	60.000	5.06	4.68	4.84	60.000	65.27	61.22	61.22	48.84	48.84	48.84
40.000	70.000	5.18	4.84	4.84	70.000	61.22	61.22	61.22	48.84	48.84	48.84
50.000	80.000	5.18	4.84	4.84	80.000	61.22	61.22	61.22	48.84	48.84	48.84
60.000	90.000	5.18	4.84	4.84	90.000	61.22	61.22	61.22	48.84	48.84	48.84
70.000	100.000	5.18	4.84	4.84	100.000	61.22	61.22	61.22	48.84	48.84	48.84
80.000	110.000	5.18	4.84	4.84	110.000	61.22	61.22	61.22	48.84	48.84	48.84
90.000	120.000	5.18	4.84	4.84	120.000	61.22	61.22	61.22	48.84	48.84	48.84
100.000	130.000	5.18	4.84	4.84	130.000	61.22	61.22	61.22	48.84	48.84	48.84

**CONVERSION LOSS - ADE-1**

**FOOT PRINT FOR PCB DESIGN**

[Conversion Loss](#) [LO-RF Isolation](#) [LO-F Isolation](#) [VSWR RF Port](#) [VSWR LO Port](#) [VSWR F Port](#)

Click Above for Actual Performance Data

**Mini-Circuits**  
 DISTRIBUTOR: <http://www.minicircuits.com>  
 P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661  
 Distribution Centers: NORTH AMERICA 800-694-7345 • 407-325-9125 • Fax 407-325-9543 EUROPE 44-1252-032600 • Fax 44-1252-637000  
 ISO 9001 CERTIFIED

### How To Evaluate, Select, And Order Your Parts

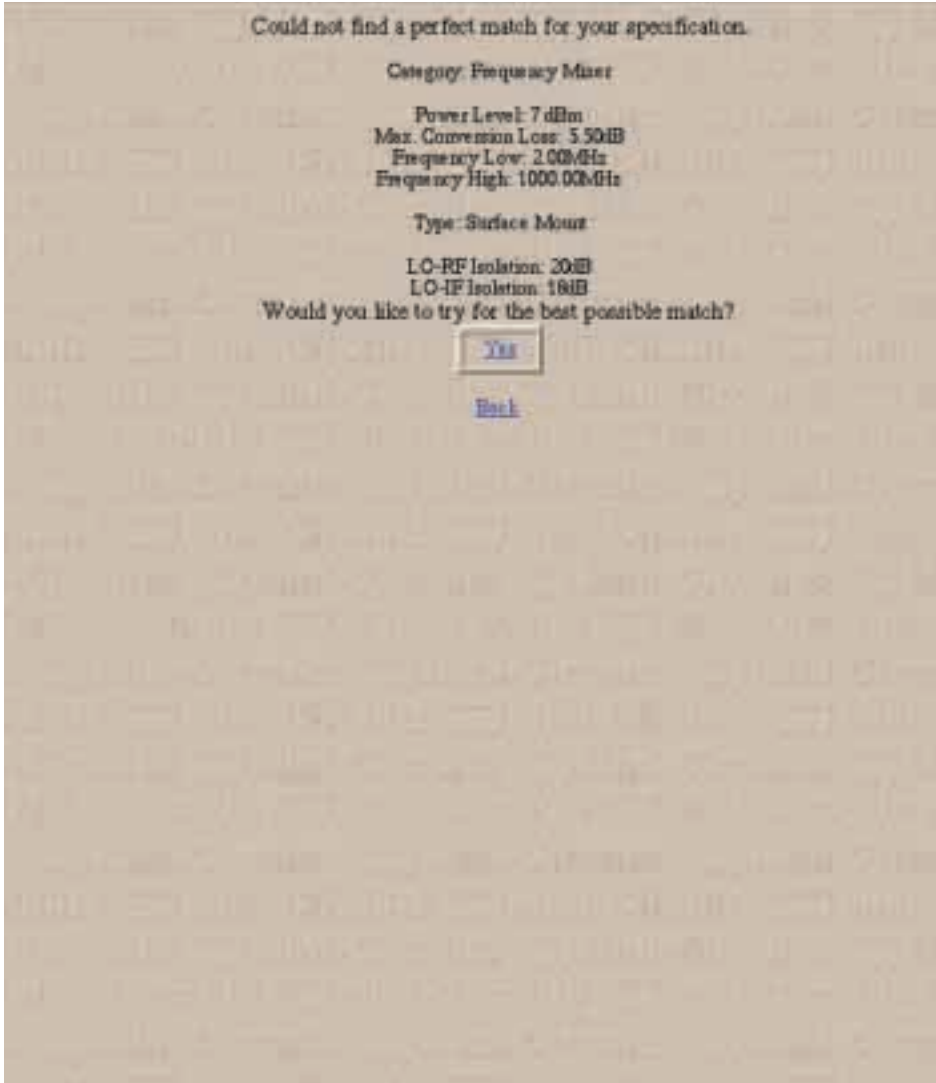
#### How To Evaluate And Select Your Parts

Within the Tables and Curves, locate the frequency range you specified when you initiated the search and evaluate the corresponding electrical specifications within that frequency band. Evaluate the package style as well.

Repeat this procedure with each model you selected to obtain the optimum price/performance solution for your application.

#### How To Order Your Parts

To order your parts on the internet, contact Mini-Circuits sales by clicking the "Contact Us" bar at the Home Page and following the "Sales" link, or email: [sales@minicircuits.com](mailto:sales@minicircuits.com). Be sure to advise that you selected your model using YONI so we will be confident you selected the optimum model for your application.




If your criteria are not matched, YONI asks, "Would you like to try for the best possible match?"

### What Happens If YONI "Draws A Blank"?

#### SCREEN #1: Obtaining A Best Possible Match

If YONI could not find an exact match for your specification criteria, best possible component matches can be found. In this situation, YONI will display a page listing your stated criteria and will ask: "Would you like to try for the best possible match?"

To view a list of components displaying best possible matches, Click  .



## Frequency Mixers LO Power Level 7 dBm

Click on the reference number to see Performance Data and Graph.

Reference No.	Matched Criteria			Frequency MHz		Conversion Loss dB		LO-RF Isolation dB			LO-IF Isolation dB			Case Style	Connection	Notes
	VIEW	CLR	LI	LO/RF	IF	Mid-Band	Total Range	L	M	U	L	M	U			
<a href="#">YONI</a>	N.Y.Y	..		2.00-1000	DC-1000	7.2	9.3	45	30	25	40	24	20	111166	s	*1,4
<a href="#">YON1</a>	N.Y.Y	..		1.000-2500	10-600	9.0	10.5	40	24	20	40	20	15	111170	x	*1,4
<a href="#">YON1</a>	N.Y.Y	..		1.000-2500	DC-500	8.5	9.8	50	25	20	45	10	8	111167	+	*1,4
<a href="#">THE-350M</a>	N.Y.Y	..		1.000-1500	1-1000	7.0	9.0	40	30	17	45	25	20	100130	gn	*1,4
<a href="#">AOE-350C</a>	N.Y.Y	..		1.000-1000	DC-1000	6.8	9.5	45	30	20	40	22	12	00352	ln	*1,4
<a href="#">YON1UB</a>	N.Y.Y	..		1.000-3000	10-600	8.3	9.8	40	25	25	40	20	20	111167	+	
<a href="#">YON1U</a>	N.Y.Y	..		1.000-2500	10-500	8.0	9.8	40	24	20	40	20	15	00351	ln	*1,4
<a href="#">ADR-3000M</a>	N.Y.Y	..		0.100-1112	5-1050									00352	ln	U
<a href="#">ADR-3000M</a>	N.Y.Y	..		0.100-2000	10-1000									00352	ln	U
<a href="#">ADR-3000M</a>	N.Y.Y	..		2.00-1577	0-1400									00352	ln	U
<a href="#">ADR-3000M</a>	N.Y.Y	..		0.500-1050	0-1000									00352	ln	U
<a href="#">ADR-3000M</a>	N.Y.Y	..		1.000-1970	3-900									000268	w	U
<a href="#">ADR-3000M</a>	N.Y.Y	..		0.000-1540	100-1145									00352	ln	U

L=low range (f<sub>L</sub> to 10f<sub>L</sub>) M=mid range (10f<sub>L</sub> to f<sub>U</sub>/2) U=upper range (f<sub>U</sub>/2 to f<sub>U</sub>)

Pin Connections - see case style outline drawing

Part	LO	RF	IF	Grid Ext.	Case Grid	Not Used
w	1	4	5	2,3,6	-	-
x	2	1	3	4,5,6	-	-
gn	4	2	1	3	3	-
ln	6	3	2	1,4,5	-	-
lu	6	2	3	1,4,5	-	-
ln	11	5	2	1,3,4,6,7,8,9,10,12	-	-

Notes:  
 +7dBm LO, up to +1 dBm RF  
 unless otherwise specified, maximum power, 50m W

If YONI could not match your performance criteria, you can select from alternate models.

### YONI Suggests Alternate Models

After clicking [THE](#), YONI will display a page listing Models and Engineering Design Reference Numbers with specifications and case styles of components that closely match your entered criteria. A column headed "Matched Criteria" will be displayed. This column is keyed to your specific search criteria and will indicate which of your specifications were met (Y) and which were not (N).

- Y=Search Criteria Meets Spec.
- N=Search Criteria Does Not Meet Spec.
- Blank=Criteria was not defined.

By viewing the specifications of suggested alternate components, and knowing at a glance which specifications meet your criteria and which do not (Y or N), you can determine if alternate units are acceptable for your consideration.




## Frequency Mixers

### LO Power Level 7 dBm

**Pin Configuration**  
Foot: LO RF F-Grid Ext. Case Grid Not Used  
1 2 3 4 5 6

**Outline Drawing**



**Notes:**

- +7dBm LO, up to +1dBm RF
- Absolute maximum power, voltage and current ratings:
- a. RF power, 500W
- b. Peak RF current, 40A

General Quality Control Procedures and Environmental Specifications are given in [Mini-Circuits' Environmental Control](#).  
RF-Part, ML description are given in [RF-Part and ML](#).

Prices and Specifications subject to change without notice.

**Electrical Specifications**  
SYM-2 LO Power Level 7 dBm

Frequency MHz	Max. Conversion Loss(dB)	Min. LO-IF Isolation(dB)	Min. LO-RF Isolation(dB)						
LO:RF F-Grid Ext. Total Range	L   M   U   L   M   U	L   M   U   L   M   U	L   M   U   L   M   U						
2.00-1000	97-1000	7.2	9.5	45	50	25	40	24	20

Label range(L) to (U) | Mount range(M) to (U) | Loss percentage(U to L)

**Typical Performance Data**

RF Freq MHz	LO Freq MHz	Conversion Loss (dB)			ISOL	Isolation L-R (dB)			Isolation L-U (dB)		
		LO -44	LO -47	LO -48		LO -44	LO -47	LO -48	LO -44	LO -47	LO -48
1,000	11,000	7.05	7.21	7.25	1,000	54.00	57.00	70.00	54.00	57.00	70.00
2,000	12,000	6.99	7.50	6.50	2,000	54.00	57.00	70.00	54.00	57.00	70.00
3,000	13,000	6.14	5.80	5.81	3,000	54.00	57.00	70.00	54.00	57.00	70.00
10,000	40,000	6.01	5.62	5.47	10,000	54.00	57.00	70.00	54.00	57.00	70.00
20,000	80,000	6.10	5.64	5.51	20,000	54.00	57.00	70.00	54.00	57.00	70.00
50,000	80,000	5.94	5.30	5.44	50,000	54.00	51.94	60.00	54.00	45.74	54.00
100,000	70,000	5.50	5.33		100,000	58.00	54.33	50.23	55.94		
187,040	107,040	5.50			187,040	58.00	48.85	40.00	48.85		
252,870	150,870				252,870	58.00	45.30	34.00	45.30		

Case Style - TTT360 (inch,mm) weight: 0.0 gram.

Conversion Loss | LO-RF Isolation | LO-RF Isolation | VSWR RF Port | VSWR LO Port | VSWR F Port

Click Above for Actual Performance Data.

**Mini-Circuits**  
DISTRIBUTION CENTER: NORTH AMERICA 800-454-7867 • 407-325-9325 • Fax 407-325-5915 • EUROPE +44-1252-432889 • Fax 44-1252-437098  
INTERNET <http://www.minicircuits.com>  
P.O. Box 35894, Brooklyn, New York 11235-0893 (781) 914-4500 Fax (781) 323-4661

Evaluate the alternate component suggested using Tabular and Graphical displays.

You can review each alternate component's specification page by clicking on the Model or Engineering Design Reference Number. The resulting page will display actual measured performance data in the form of tables, and indexes performance curves.



*If YONI could not provide a part to meet your requirements, contact Mini-Circuits for a fast response.*

Could not find a perfect match for your specification.

Category: Frequency Mixer

Power Level: 7dBm  
Max. Conversion Loss: 2.00dB  
Frequency Low: 5.00MHz  
Frequency High: 600.00MHz

Type: Surface Mount

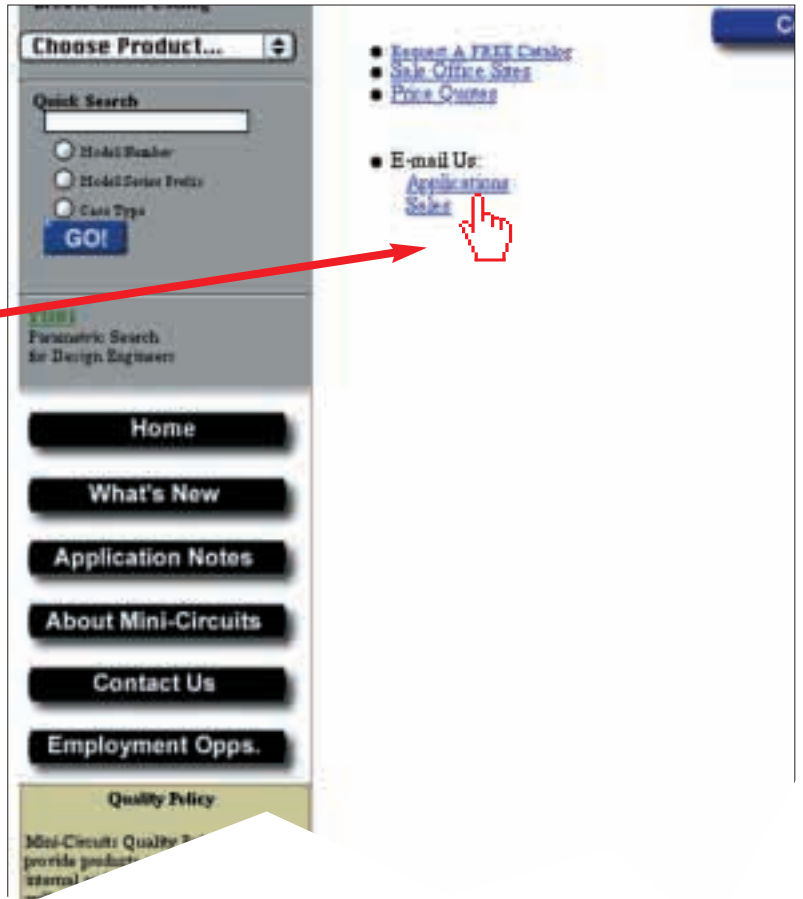
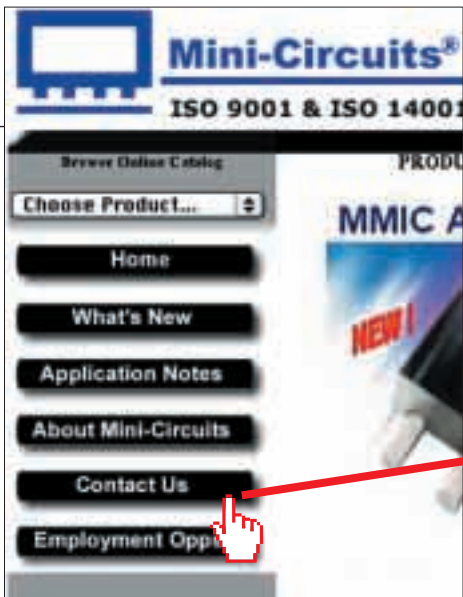
Please fill out the form if you would like to be contacted regarding your requirement in this application.

Your Email Address	<input type="text"/>
*Your Full Name	<input type="text"/>
*Phone Number	<input type="text"/>
*Company Name	<input type="text"/>
*Country	<input type="text"/>
*Special Requirement * = optional	<input type="text"/>

**SCREEN #2: Contacting An Applications Engineer**

If a component match is not found and YONI could not suggest alternate models, a form will be provided to communicate your requirements to Mini-Circuits (see screen above).

Our team of dedicated applications Engineers are prepared to respond courteously, knowledgeably, and promptly to help find the Mini-Circuits part for your applications.



To obtain help finding your part in The YONI Search Engine, click the "Contact Us" bar on the Mini-Circuits home page, then click the "Applications" link.

### **Limitations Of The YONI Search Engine**

YONI may not locate your part on the search engine if the required frequency range you entered is too narrow. If YONI does not suggest a part, return to the Data Entry Fields (see page 8), broaden the frequency range, and proceed with a new search.

If The YONI Search Engine still cannot find an acceptable part for your requirements, you may contact Mini-Circuits through the "Contact Us" link on the home page. Detail your requirements in the form provided, and an Applications Engineer will contact you within 48 hours.





**TIP:**  
 The YONI "Quick Search" option can display spec pages by entering a complete model number or series prefix. It can also provide a detailed case style drawing.

**How To Obtain Actual Performance Data Using The Component Model Number**

Actual performance data may be obtained via "The YONI Search Engine" using a component model number as well.

Return to Mini-Circuits Home Page at: [www.minicircuits.com](http://www.minicircuits.com) and enter the model number in the "Quick Search" field. Select the "Model Number" circle under the field, then click "GO".

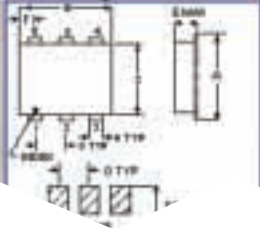
This is an alternate method for accessing the YONI Search Engine to obtain actual performance data, tables, curves, and case style information for component categories that are indexed (see page 7).

Note: This feature works with Internet Explorer version 4.0 or higher or Netscape 4.0 or higher.

**Frequency Mixers**  
**LO Power Level 7 dBm**

**Pin Configuration**  
Pin: LO RF F Inlet Etc. Case Out Pin (24)

**Outline Drawing**



**Notes:**

- 1. 40dB LO up to +10dB RF
- 2. Maximize maximum power, voltage and current
- 3. RF power 100mW
- 4. Pin 8 - common, 40Vdc
- 5. Ground (Output) Connected and
- 6. Recommended Specifications are given
- 7. All Pin, I/O, Descriptions are given in the data sheet
- 8. Prices and Specifications subject to change without notice.

**Electrical Specifications**  
**ADE-1 - LO Power Level 7 dBm**

Frequency (MHz)	Max. Conversion Loss (dB)	Min. LO-IF Isolation (dB)	Min. LO-RF Isolation (dB)
100	4.5	18	20
150	4.5	18	20
200	4.5	18	20
250	4.5	18	20
300	4.5	18	20
350	4.5	18	20
400	4.5	18	20
450	4.5	18	20
500	4.5	18	20

**Typical Performance Data**

Frequency (MHz)	Conversion Loss (dB)	LO-IF Isolation (dB)	LO-RF Isolation (dB)
100	4.5	18	20
150	4.5	18	20
200	4.5	18	20
250	4.5	18	20
300	4.5	18	20
350	4.5	18	20
400	4.5	18	20
450	4.5	18	20
500	4.5	18	20

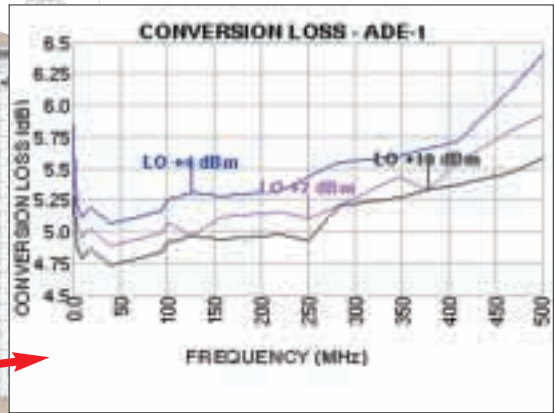
**ORIENTATION**  
Tape Cavity  
Direction of Feed

**Conversion Loss** | **Isolation** | **LO-IF Isolation** | **ISWR RF Port** | **ISWR LO Port** | **ISWR F Port**

Click Above for Actual Performance Data.

**Mini-Circuits**  
3010 E. 21st Ave., Brooklyn, NY 11235-0001 (718) 339-4000 Fax (718) 339-4044  
Saskatoon, Canada: (306) 454-7942 Fax (306) 454-7905 Toronto, Canada: (416) 491-4000 Fax (416) 491-4079

Alternate method for obtaining  
Actual Performance Data.



If the part entered is indexed in YONI, the resulting page allows you to view actual performance data for the model entered. Tables will be displayed and graphical data may be viewed by clicking the appropriate specification bar.

For YONI navigating instructions, see pages 12 to 14.





Mini-Circuits®

ISO 9001 & ISO 14001 CERTIFIED

We're redefining what  
**VALUE**  
is all about

Browse Online Catalog

Choose Product... [dropdown arrow]

Home

What's New

Application Notes

About Mini-Circuits

Contact Us

Employment Opps.

**PRODUCT SPOTLIGHT**

**MMIC AMPLIFIERS**



**NEW!**

GAL

[Product Details](#)  
[Designer's Kit](#)

Quick Search

[Search Input]

Model Number  
 Model Series Prefix  
 Core Type

**GO!**

**YONI**  
Parametric Search  
for Design Engineers

[Amplifier S-Parameters  
CAT](#)

**Quality Policy**

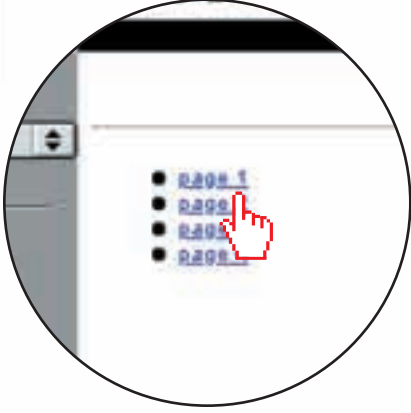
Mini-Circuits Quality Policy is to provide products and services to our internal and external customers that will:

meet stated requirements  
exceed expectations  
continuously be improved

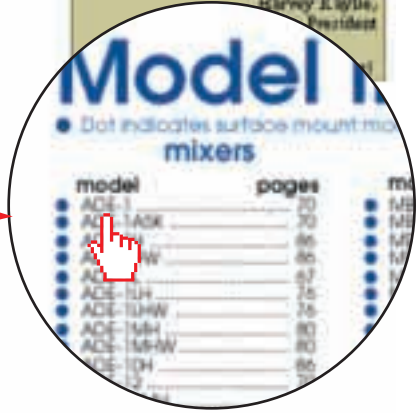
Harvey K. Lytle,  
President



Select "Catalog Model Index" from the "Browse Online Catalog" drop-down menu.



Browse pages for your component category.



Click the model number to view specs and prices.

If the Model Number you entered is not indexed in YONI, return to the Mini-Circuits Home Page and locate your Model Number in "Catalog Model Index" from the drop-down menu located in the "Browse Online Catalog" feature.

Locate your component category in the index, then Click on a Model Number to view information from our Online Catalog.



P.O.Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661  
For quick access to product information see MINI-CIRCUITS CATALOG & WEB SITE

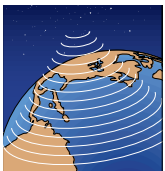
The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: [www.minicircuits.com](http://www.minicircuits.com)

ISO 9001 CERTIFIED



**FREE!**

## AVAILABLE WORLDWIDE...NOW!



### Mini-Circuits new 2001 RF/IF Designer's Guide

is filled with 212 pages of informative features and innovative products including practical articles, answers to frequently asked surface mount technology questions, and the most complete, up-to-date specifications and price information about all Mini-Circuits signal processing components. The guide includes a wealth of new models ranging from an inventive family of electronic line stretchers, monolithic amplifiers, and VCOs, to ultra-low profile, low cost Blue Cell™ mixers, power splitters, and more! So contact Mini-Circuits and put a free copy of this off-the-shelf RF, IF, and microwave component guide-*On The Shelf* today!

*Mini-Circuits...we're redefining what VALUE is all about!*



MIXERS • POWER SPLITTERS/COMBINERS • AMPLIFIERS • ATTENUATORS • LIMITERS • DIRECTIONAL COUPLERS • ELECTRONIC LINE STRETCHERS • PHASE DETECTORS  
BIAS TEES • IMPEDANCE MATCHING PADS • SWITCHES • TERMINATIONS • FILTERS • PHASE SHIFTERS • RF CHOKES • MODULATORS/DEMODULATORS  
OSCILLATORS (VCO's) • RF TRANSFORMERS • FREQUENCY DOUBLERS

see us on the web  
[www.minicircuits.com](http://www.minicircuits.com)



# WORLDWIDE SALES OFFICES AND DISTRIBUTORS



United States Of America



Denmark



Hungary



Poland



Japan



Taiwan



Canada



Finland



Ireland



Spain



Singapore



Australia



Belgium



France



Italy



Sweden



Malaysia



Israel



Luxembourg



Germany



Netherlands



United Kingdom



Indonesia



South Africa



Czech Republic



Austria



Norway



India



Republic Of Korea



China

## NORTH AMERICAN AND INTERNATIONAL REPRESENTATIVES

### MID WEST

Cain-Forlaw Co., Inc.  
Palatine, IL 60067  
(847) 202-9898  
Cedar Rapids, IA 52404  
(319) 286-9898  
Ft. Wayne, IN 46804  
(219) 436-4466  
Merriam, KS 66202  
(913) 789-9896  
Burnsville, MN 55337  
(612) 882-4090  
Bucyrus, OH 44820  
(419) 563-9702  
cfc@starnetinc.com

### NEW ENGLAND

Advanced Technology  
Marketing Inc.  
Chelmsford, MA 01824  
(978) 458-0200  
atm@atmink.com

### NEW JERSEY-SOUTH E. PENNSYLVANIA, DELAWARE

Amplitude Technical Sales  
Doylestown, PA 18901  
(215) 340-0123  
sales@ampsales.com

### NEW JERSEY-NORTH

**NEW YORK-METRO**  
Spectrum Sales, Inc.  
Syosset, NY 11791  
(516) 921-5750  
sales@spectrumsales.com

### NEW YORK-UPSTATE

Robtron, Inc.  
Syracuse, NY 13211  
(315) 454-3953  
robtron@csi.com

### NORTHWEST

Cain-Sweet Co.  
Aloha, OR 97006  
(503) 591-0647  
Bellevue, WA 98007  
(425) 562-6028  
sales@cainsweet.com  
**SOUTHEAST**  
Beacon Electronics  
Associates  
Altamonte Spgs, FL 32701  
(407) 788-1155  
Atlanta, GA 30328  
(404) 256-9640

### Raleigh, NC 27607

(919) 787-0330

MARYLAND, VIRGINIA,  
WEST VIRGINIA,  
WASHINGTON DC.  
Vienna, VA 22182  
(703) 903-6500  
info@beaconmail.com

### SOUTHWEST

Beacon Electronics  
Associates  
Round Rock, TX 78681  
(512) 244-6675  
Richardson, TX 75080  
(972) 437-1505  
mfoster@beaconmail.com

### WEST

N & S DAKOTA, MONTANA,  
NEW MEXICO, UTAH,  
EASTERN NEVADA  
IRT  
(800) 654-7949  
rm@minicircuits.com

ARIZONA  
Thorson Desert States Inc.  
Scottsdale, AZ 85260  
(480) 998-2444  
info@tdsiaz.com

CALIFORNIA-NORTH  
Disman-Bakner  
Mountain View, CA 94043  
(650) 969-3010  
sales@dbsales.com

CALIFORNIA-SOUTH  
Youngewirth & Olenick  
Tustin, CA 92780  
(714) 838-5144  
contactus@yando.com

COLORADO  
GLX, Inc.  
Englewood, CO 80112  
(303) 771-3230  
glxa@aol.com

### CANADA

Cain-Sweet Co.  
(800) 676-2118  
sales@cainsweet.com  
Burnaby, British Columbia  
V3J 1R6 Canada  
(604) 420-6886

Calgary, Alberta  
T2E 6K9 Canada  
(403) 250-7288  
Etobicoke, Ontario  
M9B 4B1 Canada  
(416) 695-1444

Ottawa, Ontario  
K2G 5T5, Canada  
(613) 228-6955  
Kirkland, Quebec  
H9H 3C3, Canada  
(514) 693-1116

••Giga-Tron Assoc. Ltd.  
Ottawa, Ontario  
K1K 3A5 Canada  
(613) 747-4114  
sales@gigatron.com

### EUROPE

#### BELGIUM, LUXEMBOURG

▲Mini-Circuits Europe

#### CZECH REPUBLIC

▲Mini-Circuits Europe

DENMARK  
Betch Components  
DK-5540 Ullerslev, Denmark  
45 7010 1410  
info@betchcomp.dk

#### FINLAND

Impact Memec  
02630 Espoo, Finland  
358 9 2535 4400  
info.fi@impact.fi.memec.com

#### FRANCE

Elexience  
91371 Verrières-le-Buisson  
Cedex, France  
31 69 53 8000  
tmo@elexience.fr

#### GERMANY, AUSTRIA, SWITZERLAND

Municom GmbH  
D-83278 Traunstein, Germany  
49 8611 66770  
info@municom.de

#### GERMANY, AUSTRIA

••Industrial Electronics  
D-65760 Eschborn, Germany  
49 6196 927900  
ie@industel.com

#### HUNGARY

▲Mini-Circuits Europe

#### IRELAND

▲Mini-Circuits Europe

#### ITALY

Microelit S.P.A.  
20146 Milan, Italy  
3902 4817900  
00141 Rome, Italy  
3906 86894323  
microelit@microelit.it

#### NETHERLANDS

▲Mini-Circuits Europe

#### NORWAY

Datamatik, AS  
N-1067 Oslo, Norway  
47 22 30 17 30  
datamatik@datamatik.no

#### SPAIN

Ibercom S.A.  
28709 Madrid, Spain  
34 91 659 2970  
ibercom2@mad.servicom.es  
08014 Barcelona, Spain  
34 93 409 9350

#### SWEDEN

Nordimar  
S-182 05  
Djursholm, Sweden  
46 8 753 3760  
info@nordimar.se

••Impact Memec

S-161 11 Bromma, Sweden  
46 8 80 4685  
sall@impact.se.memec.com

#### UNITED KINGDOM

▲Mini-Circuits Europe

#### ASIA

##### CHINA

Mitron, Inc.  
Fuzhou 350025, China  
86 591 3718827  
mitron@public.fz.fj.cn

Hong Kong, China

852 2577 3896  
weilhua@netvigate.com

Xian, China

86 29 8230131  
mitronxa@pub.xaonline.com

##### INDIA

Chithra Int'l  
Bangalore 560038, India  
91 80 525 8310  
chithra@glasbg01.vsnl.net.in

#### JAPAN

M-RF Co. Ltd.  
Kandaizumi, Tokyo, Japan  
81 3 5821 3623

Minamimori, 530, Japan  
81 6 6313 7180  
sales@mrf.co.jp

••Mini-Circuits Yokohama  
Tokyo, 158-0083, Japan  
81 3 5731 9511

#### SINGAPORE, MALAYSIA

INDONESIA  
Precision Technologies  
Singapore 159552  
65 2 734 573  
comms@pretech.com.sg

SOUTH KOREA  
R.F. Hitec Inc.  
Seoul, Korea 139-052  
82 2 999 4601/5  
rhitec@rhitec.co.kr

#### TAIWAN

Ameleks Corp.  
Taipei, Taiwan ROC  
886 2 275 86958  
sales@ameleks.com

#### AUSTRALIA

Clarke & Severn Electronics  
Hornsby NSW Australia 2077  
61 29482 1944  
sales@clarke.com.au

#### MIDEAST

##### ISRAEL

I. Vitel Ltd.  
Kfar-Saba, 44425 Israel  
972 97664766  
sales@vitel.co.il

#### SOUTH AFRICA

ECS (Pty) Ltd.  
Midrand, 1685 S. Africa  
27 11 805 4272  
info@ecssa.co.za

### NORTH AMERICAN DISTRIBUTION CENTER

Mini-Circuits P.O. BOX 7128 Branson, MO 65615  
(800) 654-7949 (417) 335-5935 Fax (417) 335-5945  
sales@minicircuits.com

**Industrial Accounts:**  
Dept. D  
(800) 654-7949 Ext. 605

**Small-Order Accounts:**  
Dept. F  
(800) 214-6428 Ext. 606

••Distributor Only



### ▲ DISTRIBUTION CENTER/LOCAL REP.

Mini-Circuits Europe Dale House, Wharf Road  
Frimley Green, Camberley, Surrey GU16 6LF, England  
Phone 44 1252-832600 Fax 44 1252-837010  
postmaster@uk.minicircuits.com