

JCOS-175LN



CASE STYLE: BG419

- very low phase noise, -118 dBc/Hz at 10 kHz offset, typ.
- excellent tuning sensitivity, 3-5 MHz/V typ.
- aqueous washable

- aircraft radios
- VHF/UHF transmitters

Frequency (MHz)		Power Output (dBm)	Tuning Voltage (V)		Phase Noise (dBc/Hz) SSB at offset frequencies: Typ.					Pulling pk-pk @ 12 dB _r (MHz)	Pushing (MHz/V)	Tuning Sensitivity (MHz/V)	Harmonics (dBc)		3 dB Modulation Bandwidth (MHz)	DC Operating Power	
Min.	Max.	Typ.	Min.	Max.	100 Hz	1 KHz	10 KHz	100 KHz	1 MHz	Typ.	Typ.	Typ.	Typ.	Max.	Typ.	V _{cc} (volts)	Current (mA)
125	175	+3.7	1	17	—	-95	-118	-138	-158	0.08	0.05	3-5	-25	-20	2.9	12	20

RF OUT	7
VCC	8
V-TUNE	1
GROUND	2,3,4,5,6,9,10,11,12,13,14

Operating Temperature	-55°C to 85°C
Storage Temperature	-55°C to 100°C
Absolute Max. Supply Voltage (Vcc)	+15V
Absolute Max. Tuning Voltage (Vtune)	+18V

all specifications: 50 ohm system
Permanent damage may occur if any of these limits are exceeded.

PCB Land Pattern

TOP VIEW

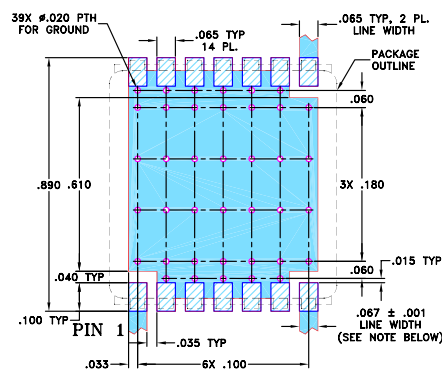
SIDE VIEW

BOTTOM VIEW

Suggested Layout,
Tolerance to be within ± 0.002

A	B	C	D	E	F	G	H	J	K	L	wt
.870	.800	--	.100	.400	.100	.100	.047	.065	.065	.890	grams
22.10	20.32	--	2.54	10.16	2.54	2.54	1.19	1.65	1.65	22.61	6.4

Suggested PCB Layout (PL-011)



NOTES:

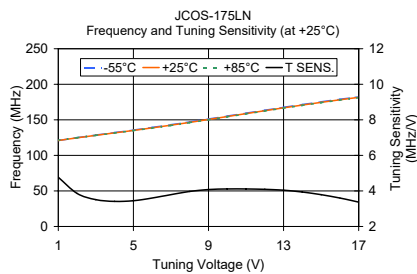
1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS $0.030" \pm 0.002"$; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
 DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
 DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Notes:

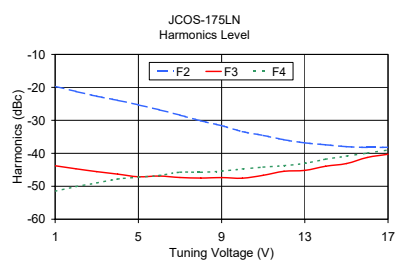
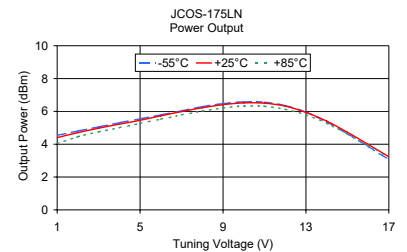
- A.** Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- B.** Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- C.** The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"). Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit [Mini-Circuits' website at www.minicircuits.com/MCISStoreTerms.aspx](http://www.minicircuits.com/MCISStoreTerms.aspx)

Performance Curves

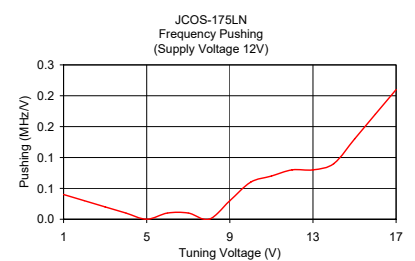
JCOS-175LN



V TUNE	TUNING SENS. (MHz/V)	FREQUENCY (MHz)			POWER OUTPUT (dBm)		
		-55°C	+25°C	+85°C	-55°C	+25°C	+85°C
1.00	4.77	120.86	120.86	121.38	4.54	4.40	4.04
2.00	3.86	124.92	124.72	124.90	4.81	4.71	4.46
3.00	3.51	128.55	128.23	128.24	5.06	4.98	4.76
4.00	3.41	132.06	131.64	131.52	5.31	5.22	5.01
5.00	3.45	135.60	135.09	134.87	5.55	5.46	5.27
6.00	3.60	139.27	138.69	138.39	5.79	5.73	5.53
7.00	3.79	143.11	142.48	142.13	6.04	5.99	5.79
8.00	3.97	147.09	146.45	146.06	6.29	6.22	6.02
9.00	4.08	151.17	150.53	150.13	6.47	6.41	6.21
10.00	4.11	155.29	154.64	154.24	6.58	6.52	6.32
11.00	4.11	159.39	158.74	158.34	6.56	6.50	6.31
12.00	4.09	163.50	162.84	162.42	6.35	6.32	6.13
13.00	4.04	167.57	166.88	166.43	5.95	5.94	5.79
14.00	3.94	171.51	170.81	170.37	5.36	5.41	5.28
15.00	3.79	175.30	174.61	174.17	4.64	4.73	4.63
16.00	3.60	178.90	178.20	177.78	3.87	3.99	3.92
17.00	3.37	182.28	181.58	181.15	3.06	3.24	3.20



V TUNE	HARMONICS (dBc)			FREQ. PUSHING (MHz/V)
	F2	F3	F4	
1.00	-19.69	-43.77	-51.50	0.04
2.00	-21.24	-44.70	-50.08	0.03
3.00	-22.68	-45.56	-48.98	0.02
4.00	-23.91	-46.31	-47.81	0.01
5.00	-25.29	-47.11	-47.24	0.00
6.00	-26.78	-46.91	-46.74	0.01
7.00	-28.43	-47.35	-45.73	0.01
8.00	-30.13	-47.51	-45.74	0.00
9.00	-31.61	-47.36	-45.40	0.03
10.00	-33.40	-47.55	-44.74	0.06
11.00	-34.55	-46.68	-44.18	0.07
12.00	-35.89	-45.46	-43.74	0.08
13.00	-36.83	-45.18	-43.04	0.08
14.00	-37.41	-43.92	-41.80	0.09
15.00	-37.98	-43.11	-40.84	0.13
16.00	-38.20	-41.26	-39.93	0.17
17.00	-38.17	-40.28	-38.99	0.21



Notes

- Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp



Voltage Controlled Oscillator

JCOS-175LN

Typical Performance Data

V TUNE	TUNE SENS (MHz/V)	FREQUENCY (MHz)			POWER OUTPUT (dBm)			HARMONICS (dBc)			FREQ. PUSH (MHz/V)	FREQ OFFSET (KHz)	PHASE NOISE (dBc/Hz)
		-55°C	+25°C	+85°C	-55°C	+25°C	+85°C	F2	F3	F4			
1.0	4.77	120.9	120.9	121.4	4.54	4.40	4.04	-19.7	-43.8	-51.5	0.04	1	-95
2.0	3.86	124.9	124.7	124.9	4.81	4.71	4.46	-21.2	-44.7	-50.1	0.03	10	-118
3.0	3.51	128.6	128.2	128.2	5.06	4.98	4.76	-22.7	-45.6	-49.0	0.02	100	-138
4.0	3.41	132.1	131.6	131.5	5.31	5.22	5.01	-23.9	-46.3	-47.8	0.01	1000	-158
5.0	3.45	135.6	135.1	134.9	5.55	5.46	5.27	-25.3	-47.1	-47.2	0.00		
6.0	3.60	139.3	138.7	138.4	5.79	5.73	5.53	-26.8	-46.9	-46.7	0.01		
7.0	3.79	143.1	142.5	142.1	6.04	5.99	5.79	-28.4	-47.4	-45.7	0.01		
8.0	3.97	147.1	146.5	146.1	6.29	6.22	6.02	-30.1	-47.5	-45.7	0.00		
9.0	4.08	151.2	150.5	150.1	6.47	6.41	6.21	-31.6	-47.4	-45.4	0.03		
10.0	4.11	155.3	154.6	154.2	6.58	6.52	6.32	-33.4	-47.6	-44.7	0.06		
11.0	4.11	159.4	158.7	158.3	6.56	6.50	6.31	-34.6	-46.7	-44.2	0.07		
12.0	4.09	163.5	162.8	162.4	6.35	6.32	6.13	-35.9	-45.5	-43.7	0.08		
13.0	4.04	167.6	166.9	166.4	5.95	5.94	5.79	-36.8	-45.2	-43.0	0.08		
14.0	3.94	171.5	170.8	170.4	5.36	5.41	5.28	-37.4	-43.9	-41.8	0.09		
15.0	3.79	175.3	174.6	174.2	4.64	4.73	4.63	-38.0	-43.1	-40.8	0.13		
16.0	3.60	178.9	178.2	177.8	3.87	3.99	3.92	-38.2	-41.3	-39.9	0.17		
17.0	3.37	182.3	181.6	181.2	3.06	3.24	3.20	-38.2	-40.3	-39.0	0.21		

REV. X1
JCOS-175LN
060606
Page 1 of 1



IF/RF MICROWAVE COMPONENTS • ISO 9001 ISO 14001 AS 9100 CERTIFIED RoHS compliant

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



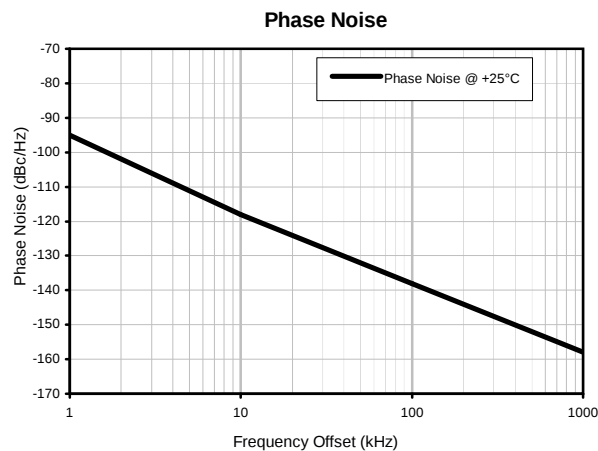
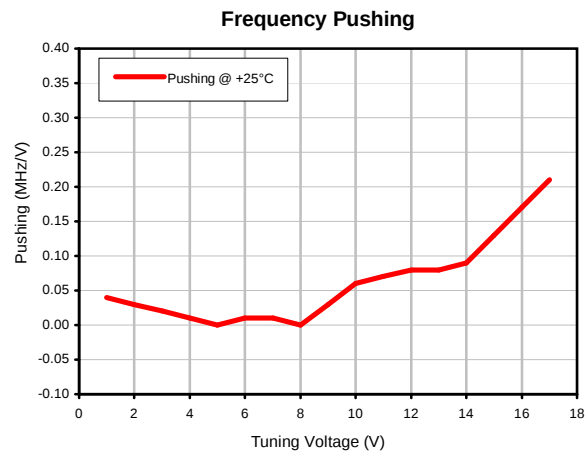
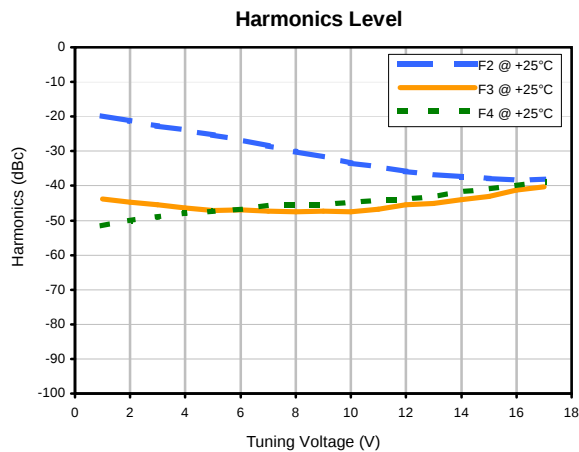
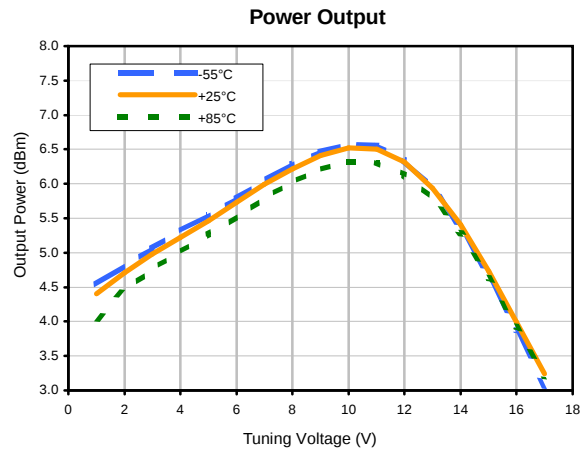
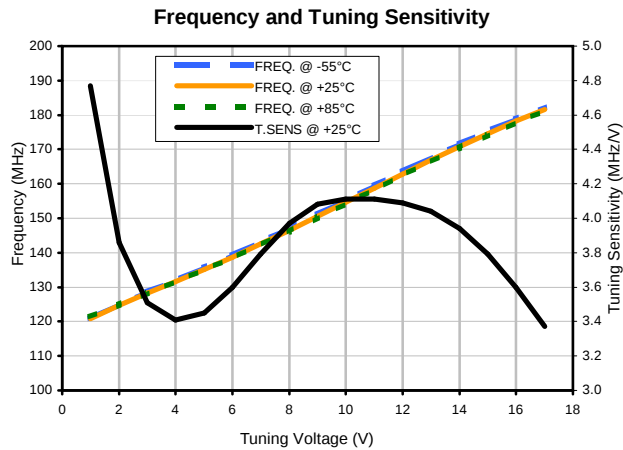
The Design Engineers Search Engine finds the model you need, Instantly • For detailed performance specs & shopping online see



Voltage Controlled Oscillator

JCOS-175LN

Typical Performance Data



REV. X1
JCOS-175LN
060606
Page 1 of 1

Mini-Circuits®

IF/RF MICROWAVE COMPONENTS • ISO 9001 ISO 14001 AS 9100 CERTIFIED RoHS compliant
P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661

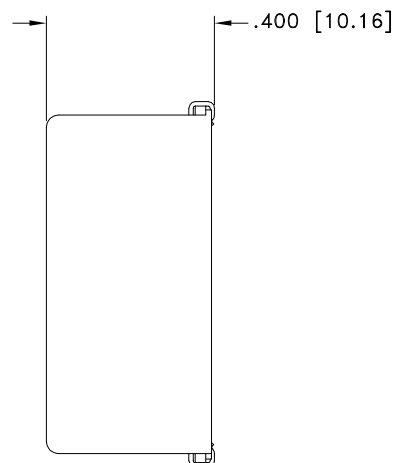
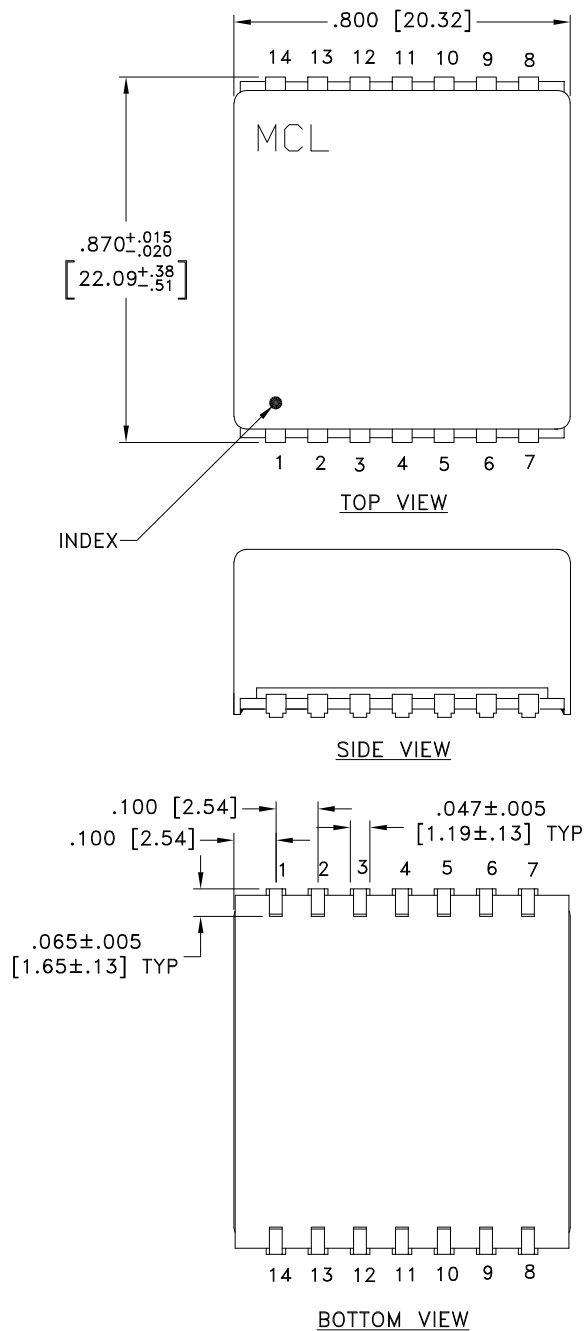


The Design Engineers Search Engine finds the model you need, Instantly • For detailed performance specs & shopping online see

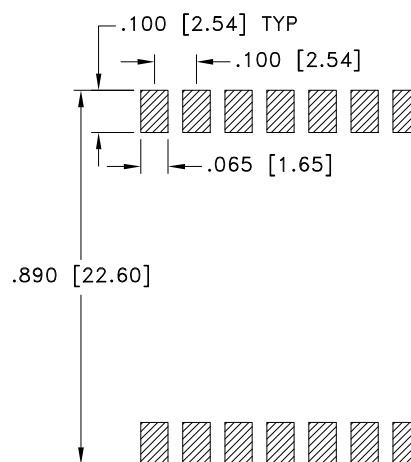


Outline Dimensions

BG419



SIDE VIEW



SUGGESTED LAYOUT
FOR PCB LAND PATTERN
(TOL $\pm$.002)

DENOTES METALLIZATION

Weight: 4 gram

Dimensions are in inches[mm]. Tolerances: 2PL $\pm$ 0.03[0.76]; 3 PL $\pm$ 0.015 [0.381] inches[mm], unless otherwise specified

Notes:

1. Case material: Copper-Nickel alloy.
2. Base material: Printed wiring laminate.
3. Termination finish:

For RoHS Case Styles: Tin plate over Nickel plate. All models, (+) suffix.

For RoHS-5 Case Styles: Tin-Lead plate. All models, no (+) suffix.

Mini-Circuits®
ISO 9001 ISO 14001 CERTIFIED

ALL NEW
minicircuits.com

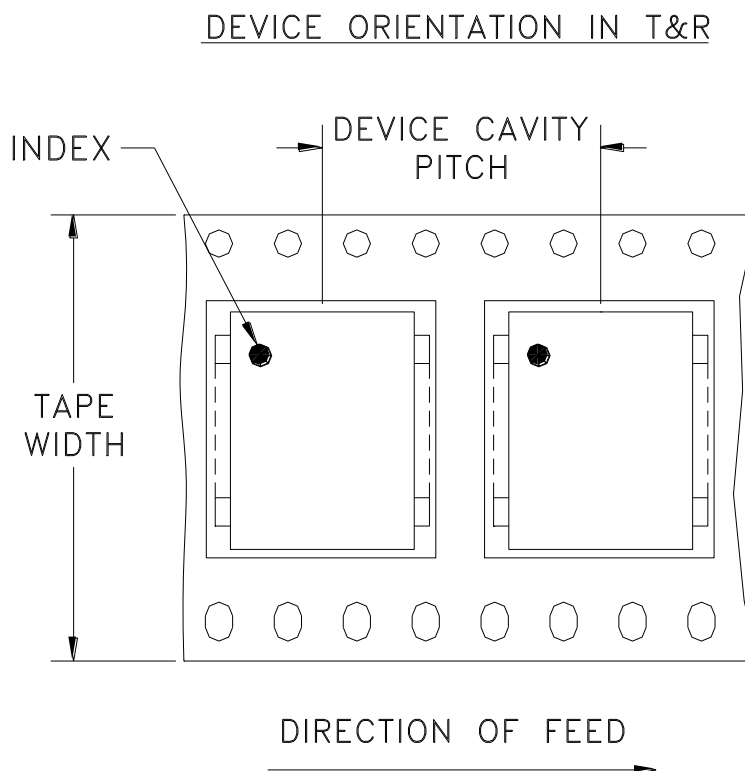
P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site



The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

RF/IF MICROWAVE COMPONENTS

Tape & Reel Packaging TR-F25



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel	
44	32	13	Small quantity standards (see note)	20
				50
				100
			Standard	125

Note: Please consult individual model data sheet to determine device per reel availability.

Mini-Circuits carrier tape materials provide protection from ESD (Electro-Static Discharge) during handling and transportation. Tapes are static dissipative and comply with industry standards EIA-481/EIA-541.

Go to: www.minicircuits.com/pages/pdfs/tape.pdf



Distribution Centers NORTH AMERICA 800-654-7949 • 417-335-5935 • Fax 417-335-5945 • EUROPE 44-1252-832600 • Fax 44-1252-837010

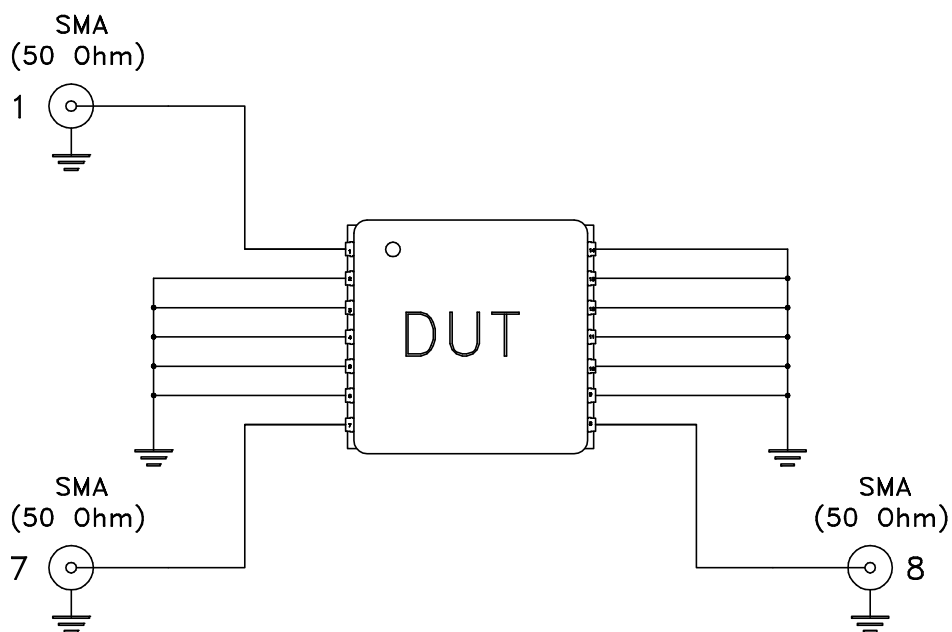
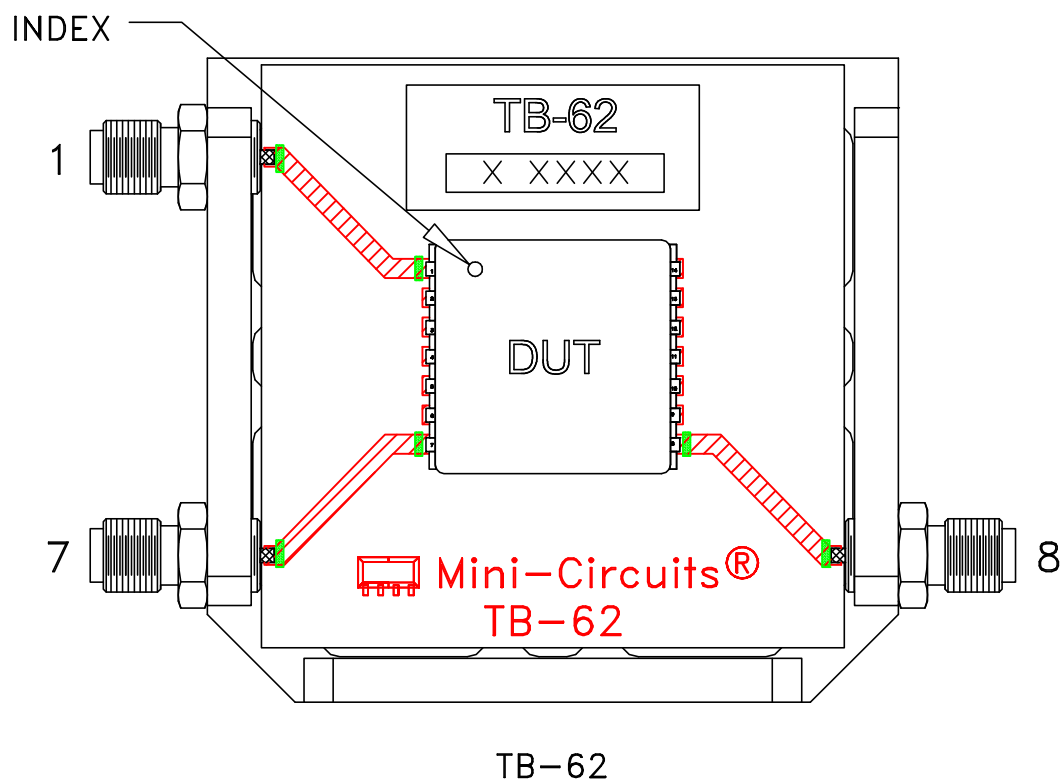
Mini-Circuits ISO 9001 & ISO 14001 Certified

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

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

Evaluation Board and Circuit

For Pin Connection Refer to
Data Sheet of the DUT



Schematic Diagram

Notes:

1. SMA Female connectors.
2. PCB Material: Rogers R04350 or equivalent,
Dielectric Constant=3.5, Thickness=.030 inch.

 Mini-Circuits®



All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-55° to 85°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
HAST	130°C, 85% RH, 96 hours	JESD22-A110
Humidity	90 to 95% RH, 240 hours, 50°C	MIL-STD-202, Method 103, Condition A, Except 50°C and end-point electrical test done within 12 hours
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
Solder Reflow Heat	Sn-Pb Eutectic Process: 225°C peak Pb-Free Process, 245°C peak	J-STD-020, Table 4-1, 4-2 and 5-2, Figure 5-1
Solderability	10X Magnification	J-STD-002, Para 4.2.5, Test S, 95% Coverage
Vibration (High Frequency)	20g peak, 20-2000 Hz, 4 times in each of three axes (total 12)	MIL-STD-883, Method 2007.3, Condition A
Mechanical Shock	50g, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes	MIL-STD-202, Method 213, Condition A
Marking Resistance to Solvents	Isopropyl alcohol + mineral spirits at 25°C; terpene defluxer at 25°C; distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C	MIL-STD-202, Method 215