

Engineering Development Model

Frequency Synthesizer

SSN-EDR9434

Important Note

This model has been designed, built and tested in our engineering department. Performance data represents model capability. At present it is a non-catalog model. On request, we can supply a final specification sheet, part number and price/delivery information.



Please click "Back", and then click "Contact Us" for Applications support.

CASE STYLE : 99-01-796

ELECTRICAL SPECIFICATIONS 50Ω, over -45°C to +85°C				
Parameter	Min.	Typ.	Max.	Units
Frequency	3100		3100	MHz
Step size		10000		kHz
Settling Time Within ±1kHz		29		msec
Output Power	-3	0	+4	dBm
Phase Noise				
at 100 Hz offset		-82		dBc/Hz
at 1 kHz offset		-97	-94	dBc/Hz
at 10 kHz offset		-99	-95	dBc/Hz
at 100 kHz offset		-106	-102	dBc/Hz
at 1000 kHz offset		-138	-134	dBc/Hz
Integrated SSB Phase Noise		-50		dBc
Reference Spurious Suppression		-104		dBc
Comparison Spurious Suppression		-108		dBc
Non-Harm. Spurious Suppression		-90		dBc
Harmonic Suppression		-24		dBc
Supply voltage				
VCO		5		V
PLL		3		V
Supply current				
VCO		46	54	mA
PLL		11	19	mA
Reference In (External)				
Frequency		20		MHz
Amplitude		1		Vp-p
Impedance		100		kΩ
Ph. N @ 1kHz		-145		dBc/Hz
Input Logic Levels				
Logic high	1.4		3	V
Logic Low			0.6	V
Digital Lock Detect				
Locked	2.6		3	V
Unlocked			0.4	V
Frequency Synthesizer PLL		ADF4106		

ABSOLUTE MAXIMUM RATINGS	
Operating Temperature	-45°C to 85°C
Storage Temperature	-55°C to 100°C
VCO Supply Voltage	6V
PLL Supply Voltage	4V
Reference Frequency voltage	3.6Vp-p
Data, Clock & LE levels	3.3V

Power On sequence: Vcc VCO followed by Vcc PLL

Power Off sequence: Vcc PLL followed by Vcc VCO

PIN CONNECTIONS			
RF OUT	7	CLOCK	10
VCC VCO	5	DATA	11
VCC PLL	1	LATCH ENABLE	12
REF IN	3	GROUND	2,4,6,8,13,14
LOCK DETECT	9		

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-Circuits' 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/MCStore/terms.jsp



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Typical Performance Data

FREQ. (MHz)	POWER OUTPUT (dBm)			HARMONICS (dBc)						VCO CURRENT (mA)			PLL CURRENT (mA)		
				F2			F3								
	-45°C	+25°C	+85°C	-45°C	+25°C	+85°C	-45°C	+25°C	+85°C	-45°C	+25°C	+85°C	-45°C	+25°C	+85°C
3100	0.42	0.10	-0.02	-21.64	-23.54	-28.01	-21.64	-23.54	-28.01	43.87	46.26	47.45	10.15	10.88	12.72

FREQ. (MHz)	PHASE NOISE (dBc/Hz)														
	@ OFFSETS														
	-45°C					+25°C					+85°C				
	100Hz	1kHz	10kHz	100kHz	1MHz	100Hz	1kHz	10kHz	100kHz	1MHz	100Hz	1kHz	10kHz	100kHz	1MHz
3100	-82.59	-99.33	-99.58	-105.39	-139.00	-81.54	-97.24	-98.95	-106.39	-137.50	-83.68	-97.94	-98.13	-104.65	-137.11

REFERENCE & COMPARISON SPURIOUS ORDER	REFERENCE SPURIOUS @Fcarrier 3100 MHz± (n*Fcomparison) (dBc) NOTE 1			COMPARISON SPURIOUS @Fcarrier 3100 MHz± (n*Fcomparison) (dBc) NOTE 2		
	-45°C	+25°C	+85°C	-45°C	+25°C	+85°C
	n					
-5	-122.25	-114.22	-117.75	-114.57	-110.09	-111.86
-4	-111.52	-125.54	-110.01	-105.28	-105.48	-103.75
-3	-111.32	-114.53	-110.61	-108.49	-103.98	-106.21
-2	-105.02	-105.27	-103.32	-106.83	-102.36	-105.72
-1	-106.12	-102.29	-105.74	-93.40	-92.39	-91.47
0 note 3	-	-	-	-	-	-
+1	-114.29	-99.25	-97.07	-94.28	-92.47	-90.94
+2	-104.52	-102.91	-101.25	-115.80	-98.78	-96.72
+3	-108.10	-109.08	-104.31	-114.78	-105.88	-107.79
+4	-104.61	-104.96	-104.16	-104.67	-103.57	-100.92
+5	-109.78	-106.23	-107.29	-112.30	-115.58	-110.82

Note 1: Reference frequency 20 MHz.

Note 2: Comparison frequency 10 MHz.

Note 3: All spurs are referenced to carrier signal (n=0).

Notes

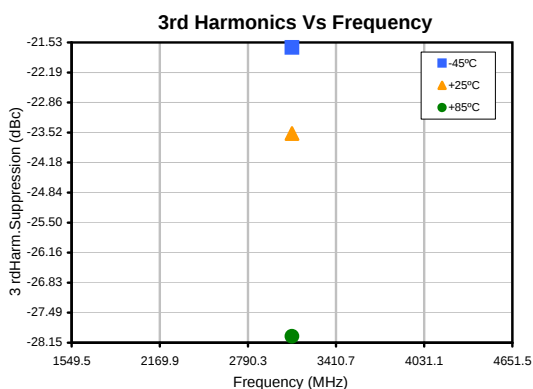
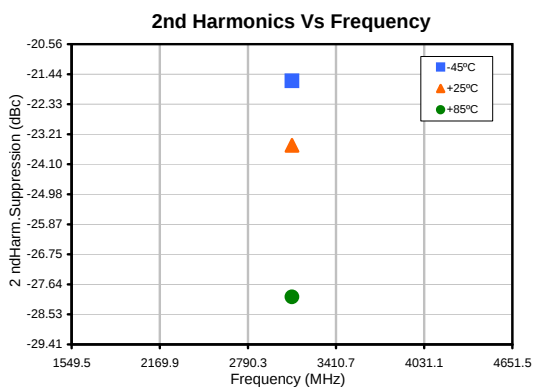
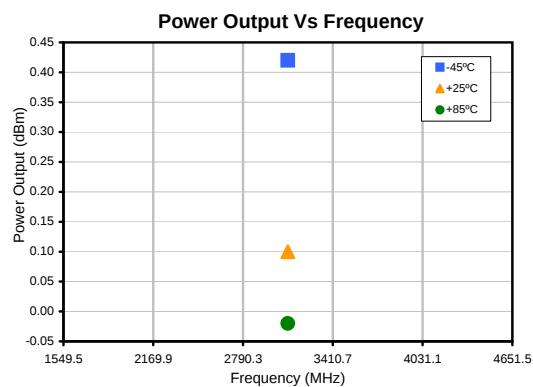
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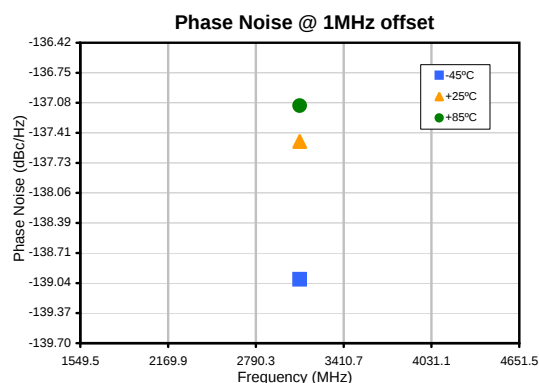
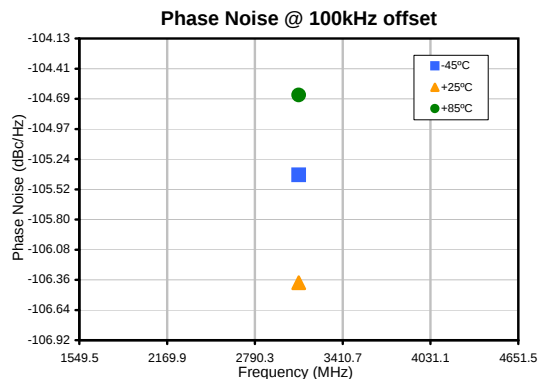
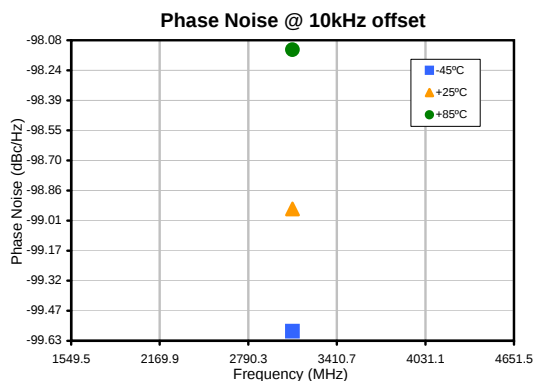
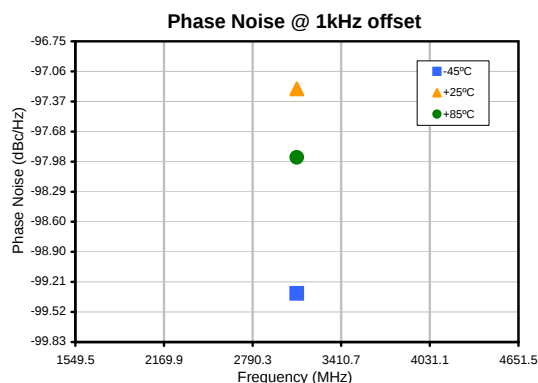
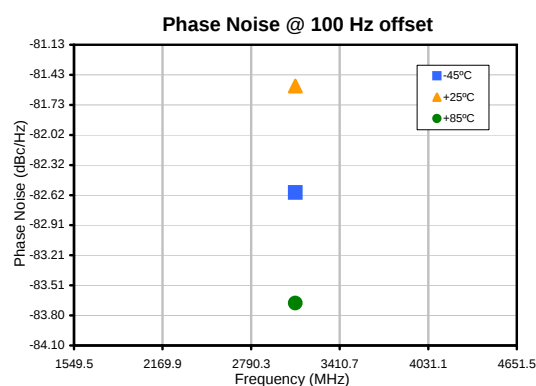
Typical Performance Data



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Typical Performance Data



Notes

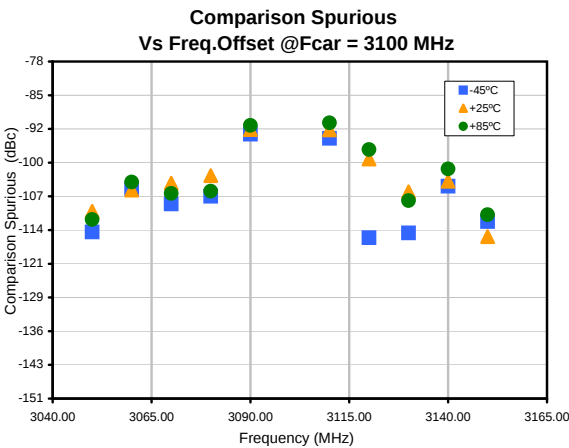
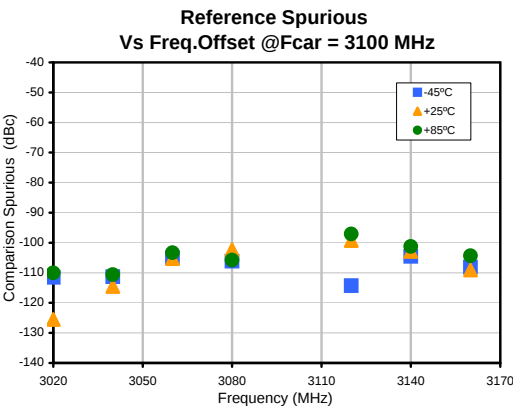
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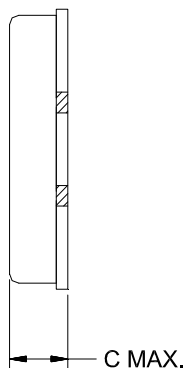
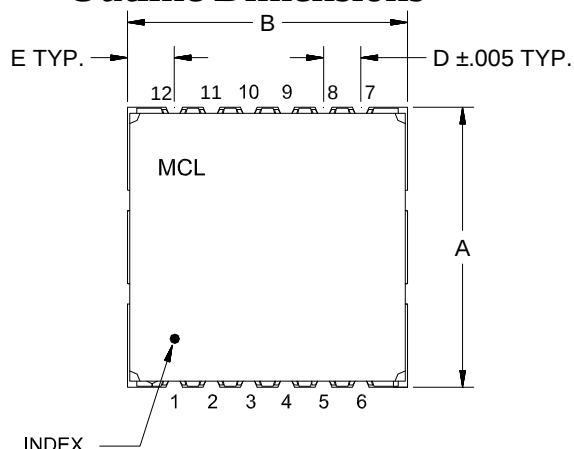


Case Style

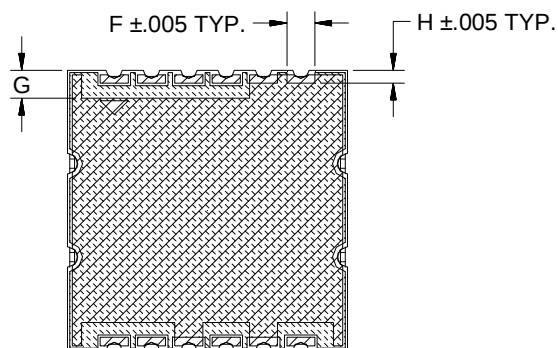
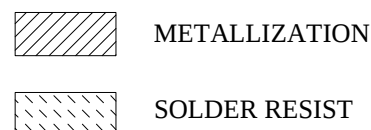
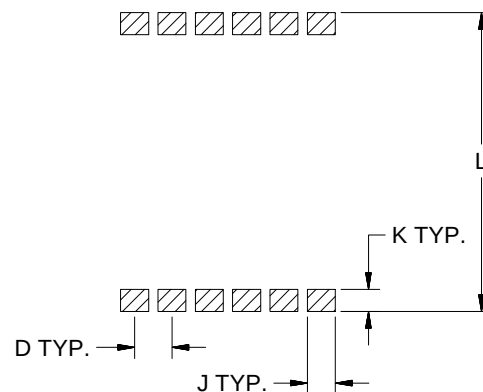
KJ

Outline Dimensions

KJ1367



PCB Land Pattern



CASE#	A	B	C	D	E	F	G	H	J	K	L	WT.GRAM
KJ1367	.600 (15.24)	.600 (15.24)	.138 (3.51)	.080 (2.03)	.100 (2.54)	.060 (1.52)	.060 (1.52)	.028 (0.71)	.060 (1.52)	.047 (1.19)	.640 (16.26)	2.0

Dimensions are in inches (mm). Tolerances: 2PL. +/- .03; 3PL. +/- .015

Notes:

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

For RoHS Case Styles: 2-5 μ inch (.05-.13 microns) Gold over 120-240 μ inch (3.05-6.10 microns) Nickel plate.
All models, (+) suffix.

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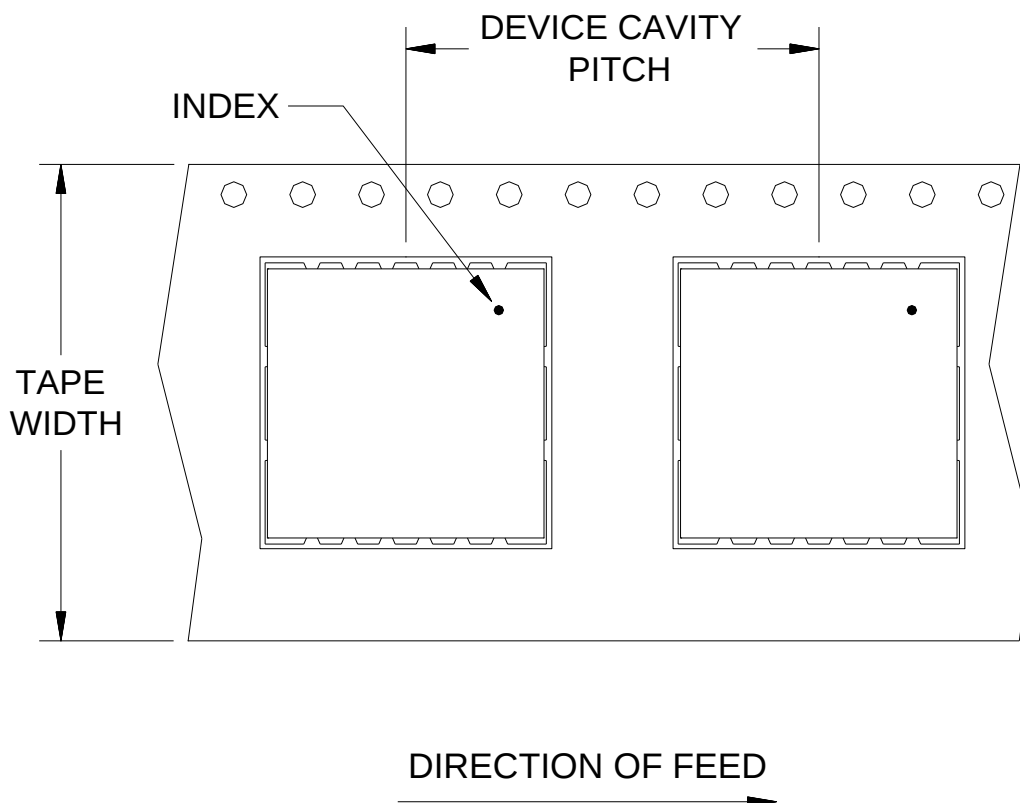


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RF/IF MICROWAVE COMPONENTS

Tape & Reel Packaging TR-F95

DEVICE ORIENTATION IN T&R



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel	
24	24	13	Small quantity standards (see note)	20
				50
				100
				200
			Standard	500

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

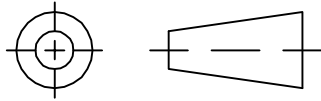


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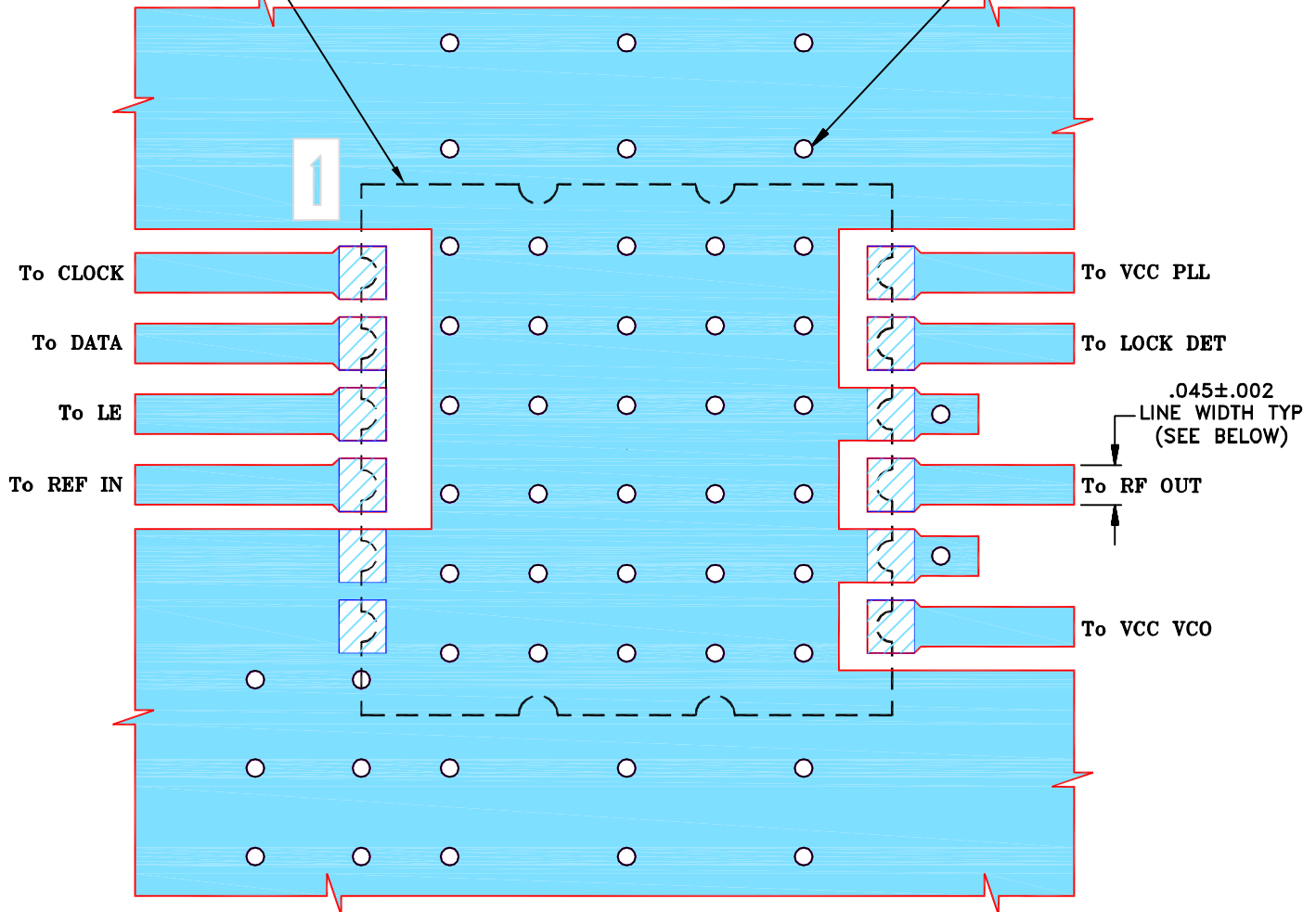
THIRD ANGLE PROJECTION



REVISIONS

REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M124738	NEW RELEASE	04/10	DK	HH
OR	R77823	NEW RELEASE	04/10	DK	HH

SUGGESTED MOUNTING CONFIGURATION

FOR KJ1367 CASE STYLE, 12SY01 PIN CONNECTION, 50 Ω .Ø.020 PTH. TYP.
FOR GROUNDPACKAGE
OUTLINE

NOTES:

1. TRACE WIDTH IS SHOWN FOR R04350B WITH DIELECTRIC THICKNESS. .020"±.0015". 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 SOLDERMASK

UNLESS OTHERWISE SPECIFIED

INITIALS

DATE

DIMENSIONS ARE IN INCHES

TOLERANCES ON:
 2 PL DECIMALS ±
 3 PL DECIMALS ± .005
 ANGLES ±
 FRACTIONS ±

DRAWN

DK (RAVON)

06 APR 10

CHECKED

DH (RAVON)

07 APR 10

APPROVED

HH (RAVON)

07 APR 10

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ASHEETA1.DWG REV:A DATE:01/12/95


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 Brooklyn NY 11235

 PL, 12SY01, KJ1367, SSN
 TB-552+ (50 Ω)

 SIZE
 A

 CODE IDENT
 15542

 DRAWING NO:
 98-PL-317

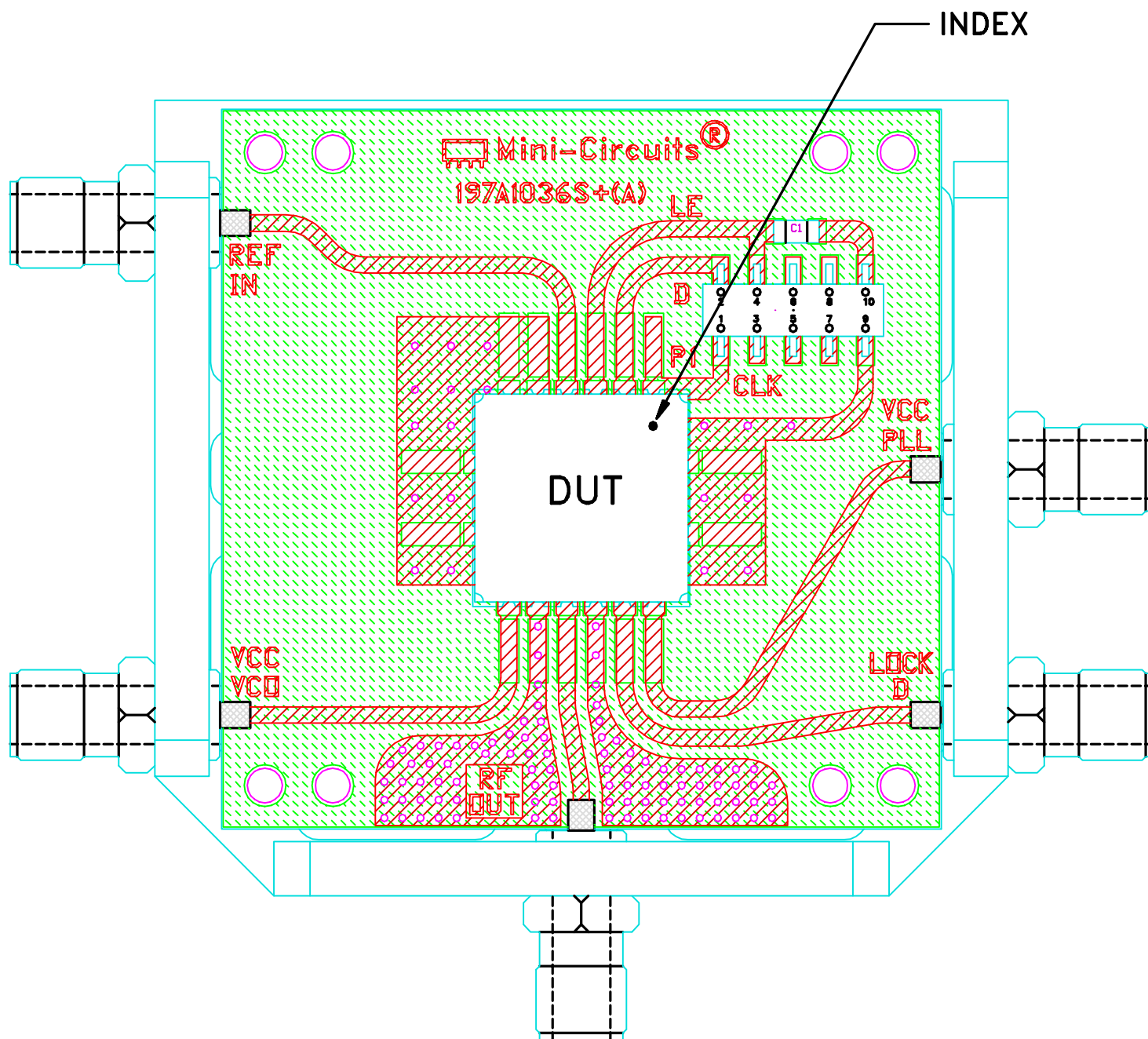
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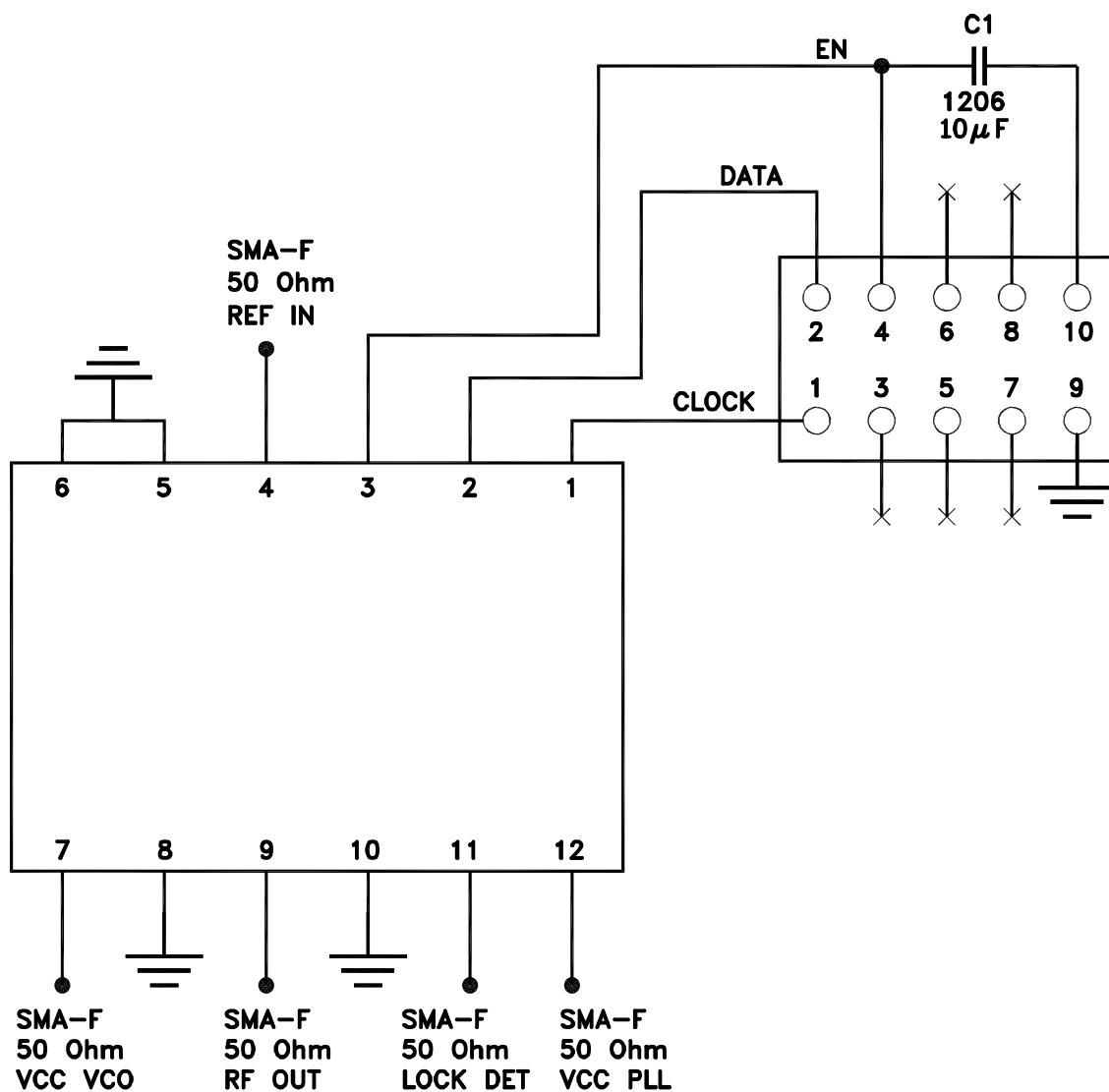
Evaluation Board and Circuit



TB-552+

NOTES:

1. SMA FEMALE CONNECTORS.
2. PCB MATERIAL: RO4350B OR EQUIVALENT, DIALECTRIC CONSTANT=3.5, DIALECTRIC THICKNESS=.020 INCH.



TB-552+ Schematic Diagram



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	-45° to 85°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
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