

Surface Mount Slope Equalizer

REQ-75-182+

50Ω 1200 to 1800 MHz

The Big Deal

- Fast attenuation slope for the small frequency span
- Minimal deviation in the attenuation slope
- Surface mount package



CASE STYLE: DV874

Product Overview

REQ-75-182+ is a 50Ω surface mount negative slope equalizer. This model offers excellent performance in the “L band” frequency range of 1200 MHz to 1800 MHz with minimal deviation in the attenuation slope.

Key Features

Feature	Advantages
Fast attenuation slope	Provide fast attenuation slope for the small frequency span can used in satellite system
Minimal deviation	Provide minimal deviation in the attenuation slope
Surface mount package	This surface mount package is very small and it takes small space in the application board.

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/MCLStore/terms.jsp



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50Ω 1200 to 1800 MHz



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Maximum Ratings

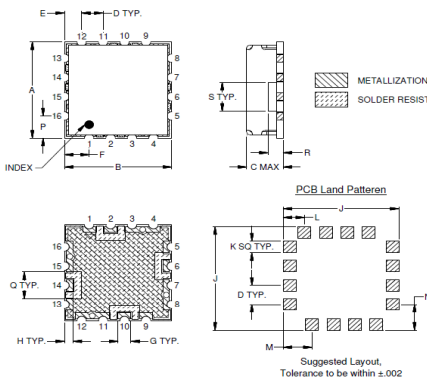
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
Input power	+20 dBm

Permanent damage may occur if any of these limits are exceeded.

Pin Connections

Input	2
Output	10
Ground	1, 3, 4, 5, 7, 8, 9, 11, 12, 13, 15, 16
Not used	6, 14

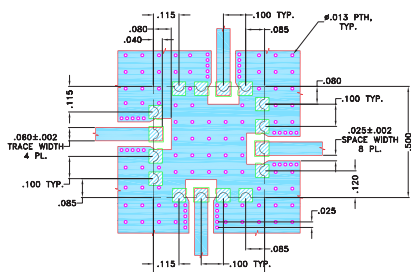
Outline Drawing



Outline Dimensions (inch mm)

A	B	C	D	E	F	G	H	J	K
.500	.500	.195	.100	.080	.115	.060	.040	.540	.060
12.7	12.7	4.95	2.54	2.03	2.92	1.52	1.02	13.72	1.52
L	M	N	P	Q	R	S			Wt.
.100	.135	.135	.115	.140	.070	.150			grams
2.54	3.43	3.43	2.92	3.56	1.78	3.81			1.0

Demo Board MCL P/N: TB-686+ Suggested PCB Layout (PL-374)



- NOTES:
- TRACE WIDTH IS SHOWN FOR ROGERS (RO4350B) WITH DIELECTRIC THICKNESS .030±.002". COPPER: 1/2 OZ EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
 - 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

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Features

- Fast attenuation slope
- Negative Slope

Applications

- L-Band satellite
- Test Equipment
- Lab use

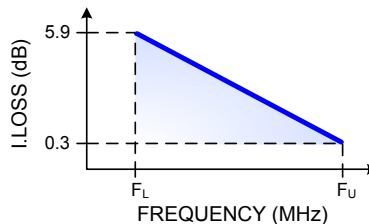
Electrical Specifications at 25°C

Parameter	Condition	Min.	Typ.	Max.	Units
Frequency Range	-	1200		1800	MHz
Insertion Loss	1200 MHz	-	10	-	dB
	1800 MHz	-	2	-	dB
VSWR	-	-	1.9	-	:1

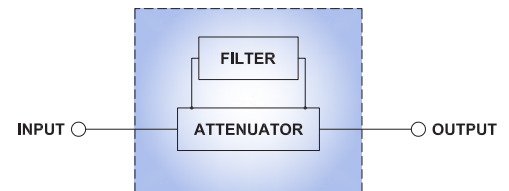
Typical Performance Data at 25°C

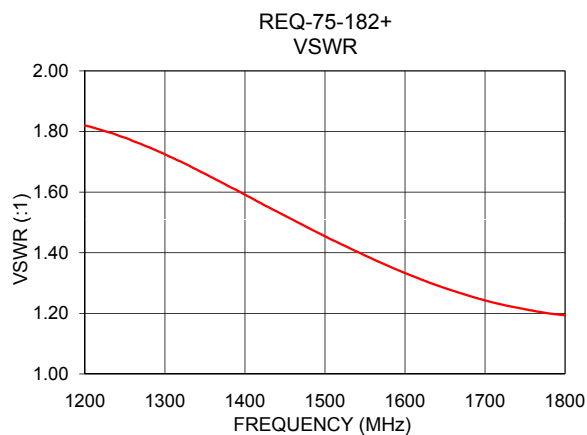
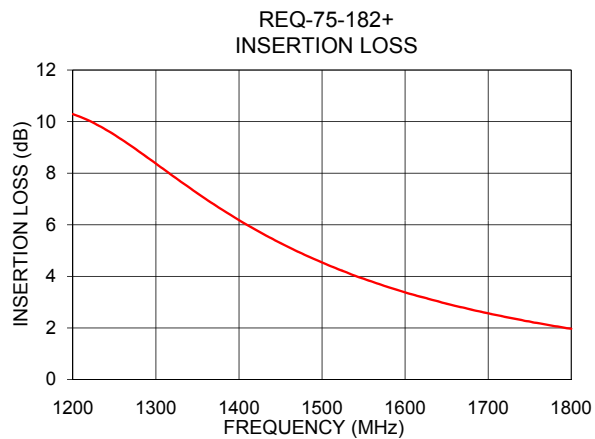
Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)
1200.0	10.29	1.84
1250.0	9.49	1.78
1300.0	8.37	1.73
1350.0	7.22	1.66
1400.0	6.18	1.59
1450.0	5.29	1.52
1500.0	4.54	1.45
1525.0	4.21	1.42
1550.0	3.91	1.39
1575.0	3.63	1.36
1600.0	3.38	1.33
1650.0	2.94	1.28
1700.0	2.57	1.24
1750.0	2.25	1.21
1800.0	1.97	1.19

Typical Frequency Response



Simplified Functional Schematic





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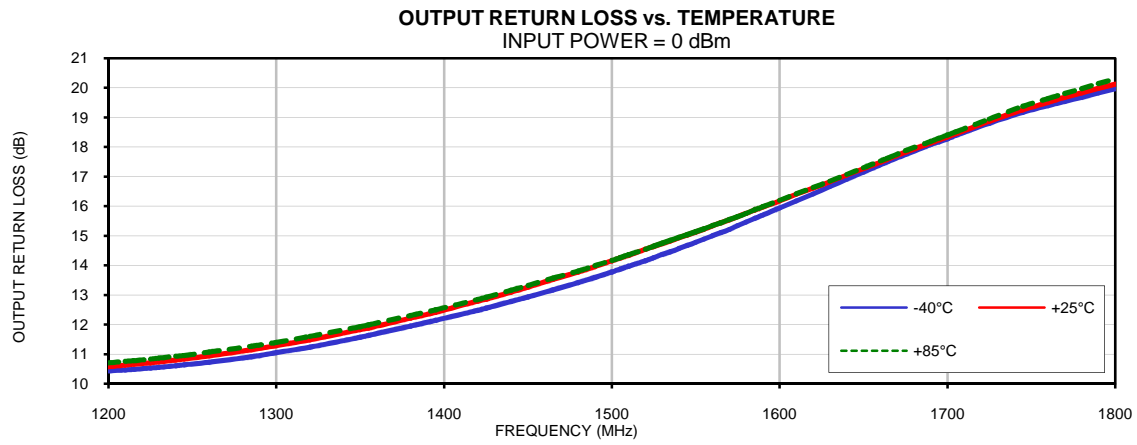
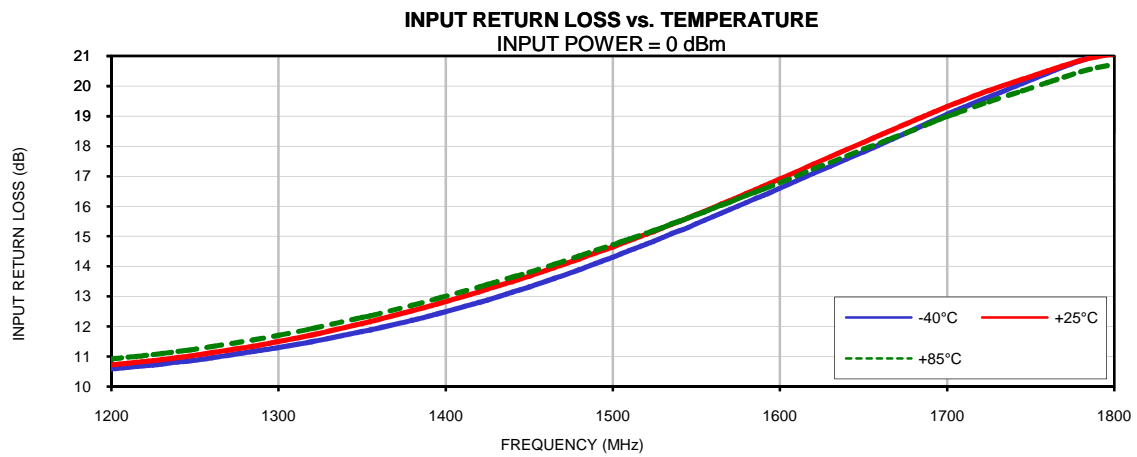
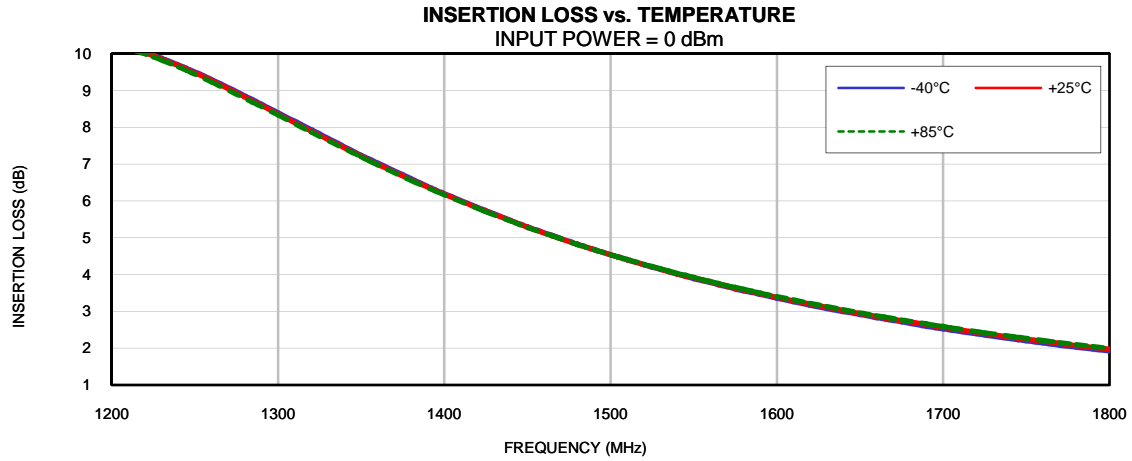


Typical Performance Data

FREQ. (MHz)	INSERTION LOSS			INPUT RETURN LOSS			OUTPUT RETURN LOSS		
	(dB)			(dB)			(dB)		
	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C
1200	10.27	10.29	10.26	10.59	10.73	10.92	10.44	10.58	10.71
1210	10.17	10.17	10.14	10.64	10.78	10.98	10.47	10.63	10.76
1215	10.10	10.10	10.07	10.67	10.81	11.01	10.49	10.66	10.78
1225	9.96	9.95	9.92	10.72	10.87	11.07	10.53	10.71	10.84
1230	9.88	9.86	9.83	10.75	10.90	11.10	10.56	10.74	10.87
1240	9.70	9.68	9.65	10.82	10.97	11.17	10.61	10.80	10.93
1245	9.61	9.59	9.55	10.85	11.01	11.21	10.64	10.84	10.96
1260	9.31	9.28	9.24	10.96	11.13	11.33	10.73	10.94	11.07
1285	8.75	8.72	8.68	11.17	11.35	11.56	10.91	11.15	11.27
1300	8.40	8.37	8.34	11.30	11.50	11.71	11.05	11.29	11.40
1320	7.94	7.90	7.87	11.49	11.72	11.93	11.24	11.49	11.60
1350	7.25	7.22	7.20	11.83	12.10	12.30	11.57	11.83	11.93
1355	7.14	7.11	7.09	11.89	12.17	12.36	11.64	11.89	11.99
1380	6.61	6.58	6.56	12.21	12.53	12.71	11.95	12.22	12.31
1395	6.30	6.28	6.26	12.42	12.75	12.93	12.14	12.42	12.50
1420	5.83	5.81	5.80	12.80	13.16	13.32	12.48	12.79	12.85
1425	5.74	5.72	5.71	12.88	13.25	13.40	12.55	12.86	12.92
1440	5.47	5.46	5.45	13.14	13.50	13.64	12.78	13.10	13.16
1450	5.30	5.29	5.28	13.32	13.68	13.81	12.93	13.27	13.32
1465	5.06	5.05	5.05	13.60	13.96	14.07	13.17	13.53	13.57
1480	4.83	4.82	4.82	13.89	14.25	14.35	13.42	13.78	13.81
1490	4.68	4.68	4.68	14.10	14.45	14.54	13.59	13.96	13.99
1500	4.54	4.54	4.54	14.31	14.65	14.72	13.78	14.15	14.17
1505	4.47	4.47	4.47	14.42	14.76	14.82	13.87	14.25	14.26
1510	4.40	4.40	4.41	14.53	14.86	14.91	13.97	14.34	14.36
1520	4.27	4.27	4.28	14.74	15.07	15.10	14.16	14.54	14.55
1525	4.20	4.21	4.22	14.85	15.17	15.20	14.26	14.64	14.65
1530	4.14	4.15	4.16	14.97	15.28	15.30	14.37	14.74	14.75
1535	4.08	4.08	4.10	15.08	15.39	15.41	14.46	14.83	14.85
1540	4.01	4.02	4.03	15.19	15.50	15.51	14.57	14.93	14.94
1545	3.95	3.96	3.98	15.30	15.61	15.61	14.67	15.03	15.04
1550	3.89	3.91	3.92	15.42	15.73	15.72	14.78	15.13	15.14
1555	3.84	3.85	3.86	15.54	15.84	15.82	14.89	15.23	15.24
1560	3.78	3.80	3.81	15.66	15.96	15.93	15.00	15.33	15.34
1565	3.72	3.74	3.76	15.77	16.08	16.04	15.11	15.44	15.44
1570	3.67	3.69	3.70	15.89	16.19	16.14	15.22	15.54	15.55
1575	3.61	3.63	3.65	16.01	16.31	16.25	15.34	15.65	15.65
1580	3.56	3.58	3.60	16.13	16.43	16.36	15.46	15.76	15.76
1585	3.51	3.53	3.55	16.25	16.55	16.47	15.58	15.86	15.87
1590	3.46	3.48	3.50	16.36	16.67	16.57	15.70	15.97	15.98
1600	3.36	3.38	3.40	16.60	16.91	16.79	15.94	16.18	16.20
1610	3.26	3.29	3.31	16.85	17.15	17.01	16.18	16.40	16.42
1620	3.17	3.20	3.22	17.09	17.40	17.24	16.42	16.61	16.63
1630	3.08	3.11	3.13	17.33	17.65	17.46	16.66	16.83	16.85
1640	2.99	3.03	3.04	17.57	17.89	17.68	16.91	17.05	17.07
1650	2.91	2.94	2.96	17.81	18.13	17.90	17.15	17.27	17.30
1660	2.83	2.86	2.88	18.05	18.37	18.11	17.40	17.49	17.53
1665	2.79	2.82	2.84	18.18	18.49	18.22	17.52	17.60	17.64
1675	2.71	2.75	2.77	18.43	18.73	18.44	17.75	17.82	17.87
1690	2.59	2.64	2.66	18.81	19.09	18.77	18.08	18.13	18.19
1695	2.56	2.60	2.62	18.94	19.20	18.88	18.18	18.24	18.30
1700	2.52	2.57	2.59	19.06	19.32	18.99	18.28	18.34	18.40
1705	2.49	2.53	2.55	19.18	19.43	19.09	18.39	18.45	18.51
1725	2.36	2.40	2.42	19.64	19.85	19.48	18.80	18.87	18.95
1745	2.23	2.27	2.30	20.09	20.22	19.84	19.17	19.26	19.38
1760	2.14	2.19	2.21	20.43	20.50	20.12	19.40	19.51	19.64
1770	2.08	2.13	2.15	20.65	20.68	20.30	19.54	19.68	19.81
1780	2.03	2.07	2.10	20.85	20.85	20.48	19.68	19.83	19.97
1790	1.97	2.02	2.04	21.01	20.98	20.62	19.83	19.98	20.14
1800	1.92	1.97	1.99	21.15	21.08	20.73	19.97	20.12	20.30

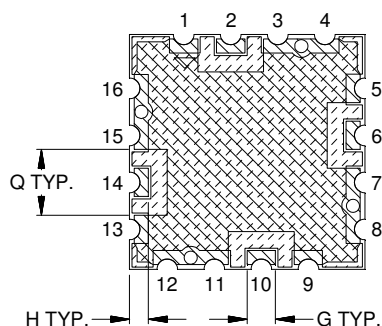
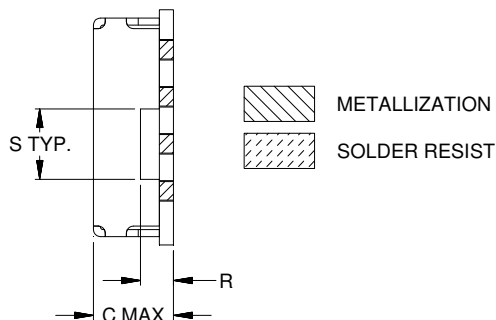
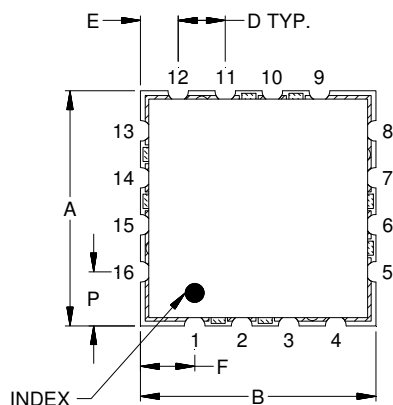


Typical Performance Curves

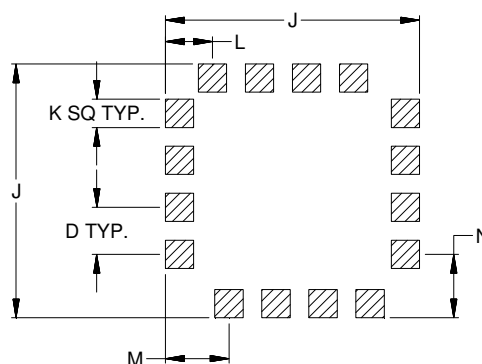


Outline Dimensions

DV874



PCB Land Pattern



Suggested Layout,
Tolerance to be within ± 0.02

CASE#	A	B	C	D	E	F	G	H	J	K	L	M
DV874	.500 (12.70)	.500 (12.70)	.195 (4.95)	.100 (2.54)	.080 (2.03)	.115 (2.92)	.060 (1.52)	.040 (1.02)	.540 (13.72)	.060 (1.52)	.100 (2.54)	.135 (3.43)

CASE#	N	P	Q	R	S	WT.GRAM
DV874	.135 (3.43)	.115 (2.92)	.140 (3.56)	.070 (1.78)	.150 (3.81)	1.0

Dimensions are in inches (mm). Tolerances: 2Pl. $\pm .03$; 3Pl. $\pm .015$

Notes:

- Case material: Nickel-Silver alloy.
- Base: Printed wiring laminate.
- Termination finish:
 - For RoHS Case Styles: 3-5 μ inch (.08-.13 microns) Gold over 120-240 μ inch (3.05-6.10 microns) Nickel plate.
 - For RoHS-5 Case Styles: Tin-Lead plate.



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-F37



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel	
24	16	7	Small quantity standards (see note)	10
				20
				50
				100
		13	Standard	200
			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.

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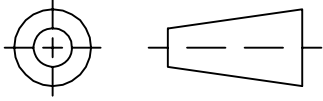
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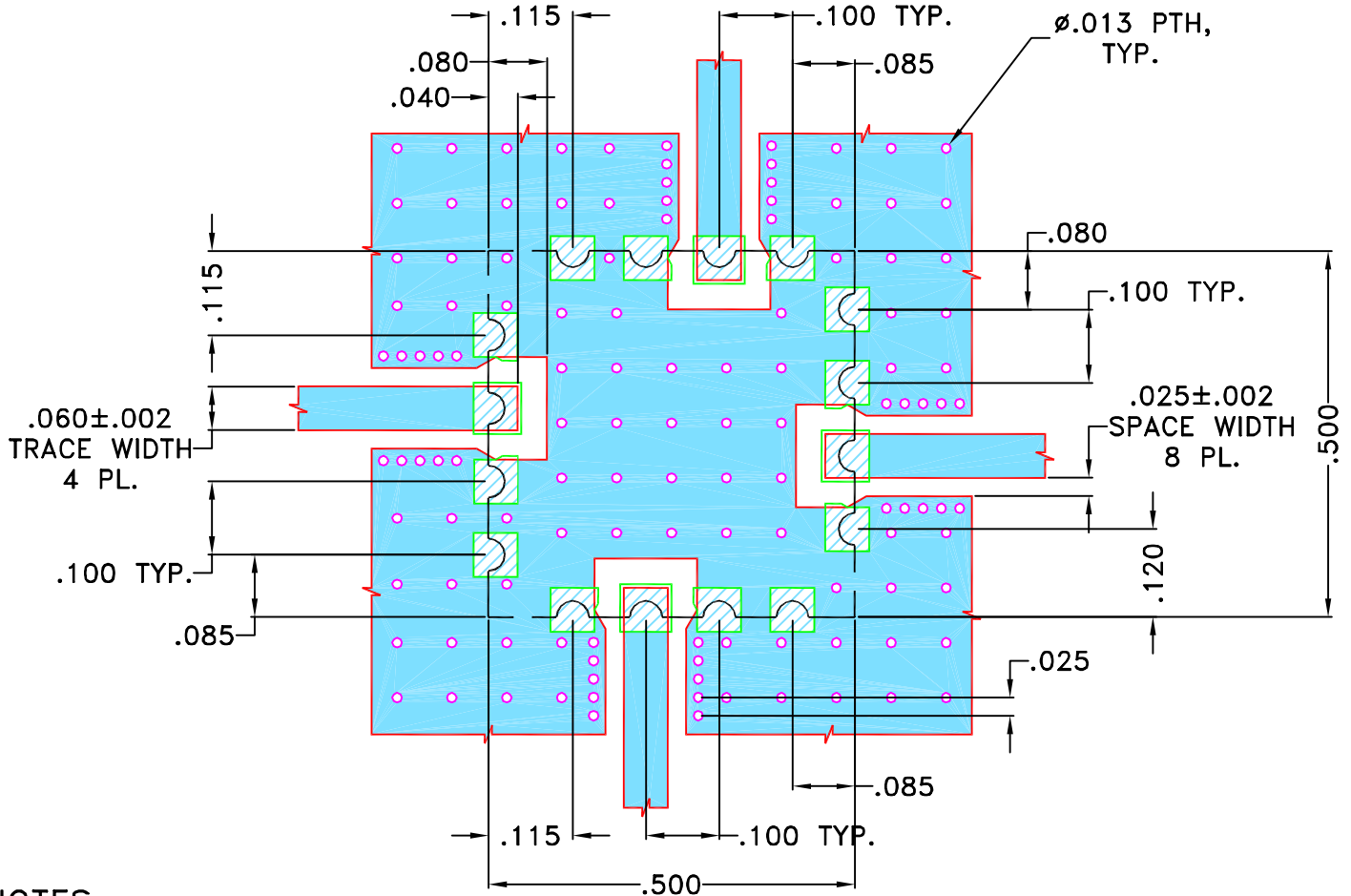
THIRD ANGLE PROJECTION



REVISIONS



REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M137753	NEW RELEASE	JUN 12	DDR	KG
A	M142821	ADDED PIN CODE "16FL01"	08/07/13	GF	IL

SUGGESTED MOUNTING CONFIGURATION FOR
DV874 CASE STYLE, 16AV01/16FL01 PIN
CODES



NOTES:

- TRACE WIDTH IS SHOWN FOR ROGERS (R04350B) WITH DIELECTRIC THICKNESS .030"±.002". COPPER: 1/2 OZ. EACH SIDE.
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- BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

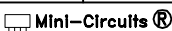
-  DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
-  DENOTES COPPER LAND PATTERN FREE OF SOLDERMASK

UNLESS OTHERWISE SPECIFIED	INITIALS		DATE
DIMENSIONS ARE IN INCHES TOLERANCES ON: 2 PL DECIMALS ± 3 PL DECIMALS ± .005" ANGLES ± FRACTIONS ±	DRAWN	DDR	28 JUN 12
	CHECKED	MD	28 JUN 12
	APPROVED	ASJ	28 JUN 12

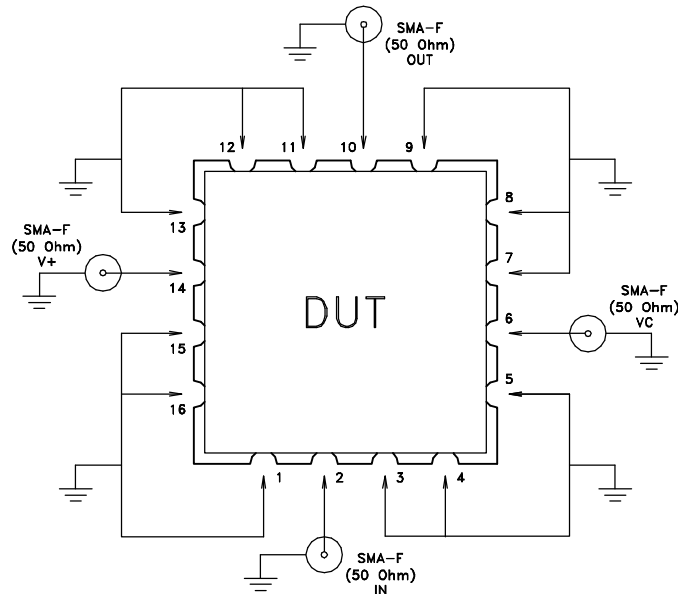
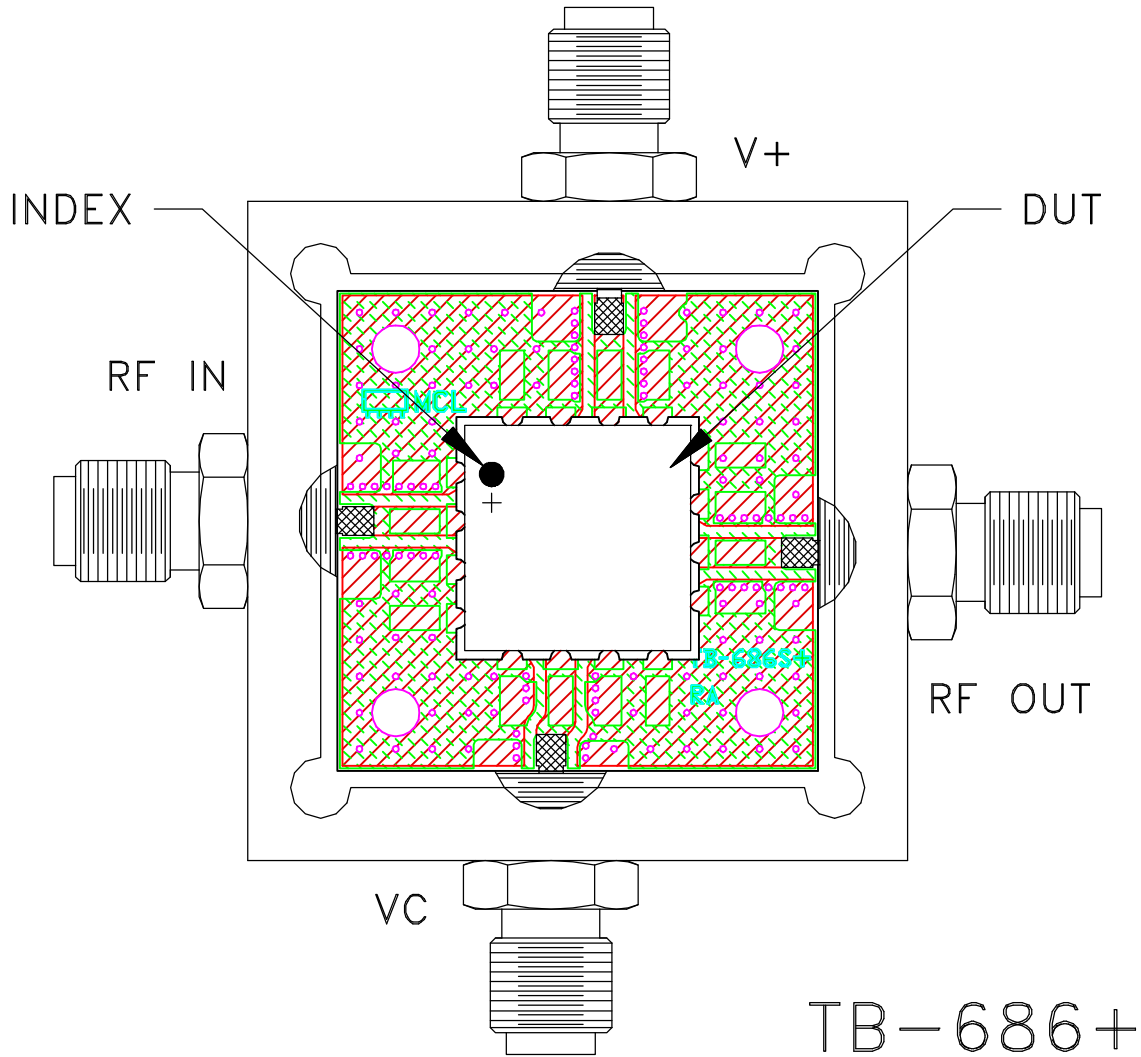
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PL, 16AV01/16FL01, DV874,
TB-686+

SIZE A	CODE IDENT 15542	DRAWING NO: 98-PL-374	REV: A
FILE: 98PL374	SCALE: 4:1	SHEET: 1 OF 1	

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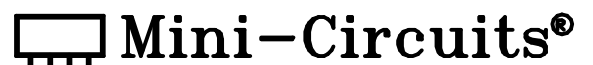
Evaluation Board and Circuit



Schematic Diagram

Notes:

1. 50 Ohm SMA Female connectors.
2. PCB Material: ROGERS (R04350B) OR Equivalent
Dielectric Constant=3.48±.05, Thickness=.030 inch.



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	0° 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