

Surface Mount

Diplexer

DPLB-8510A05+

75Ω 5 to 1220 MHz
(5-85, 102-1220 MHz)



CASE STYLE: NU1620

The Big Deal

- High crossover isolation
- Excellent return loss, 24dB Typ.
- 75Ω Impedance
- Used for DOCSIS 3.1 standard

Product Overview

DPLB-8510A05+ is a low cost high performance diplexer with the lowpass port at 5-85 MHz and highpass port at 102-1220 MHz. Excellent return loss combined with high out of channel rejection makes it an ideal component in cable TV and multiband radio systems.

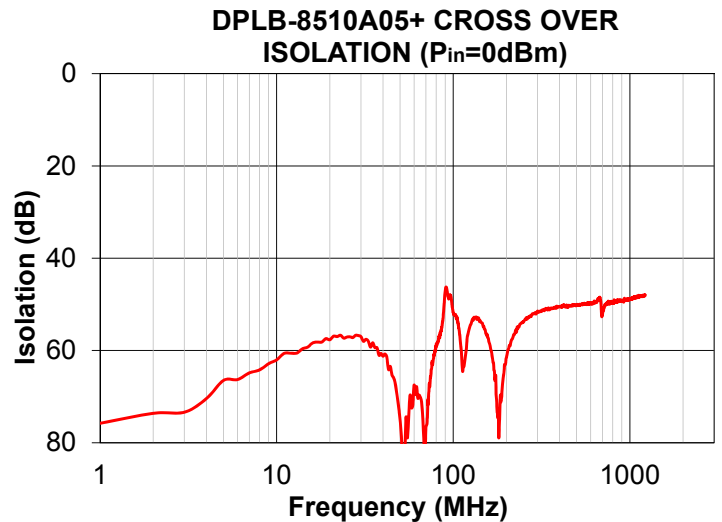
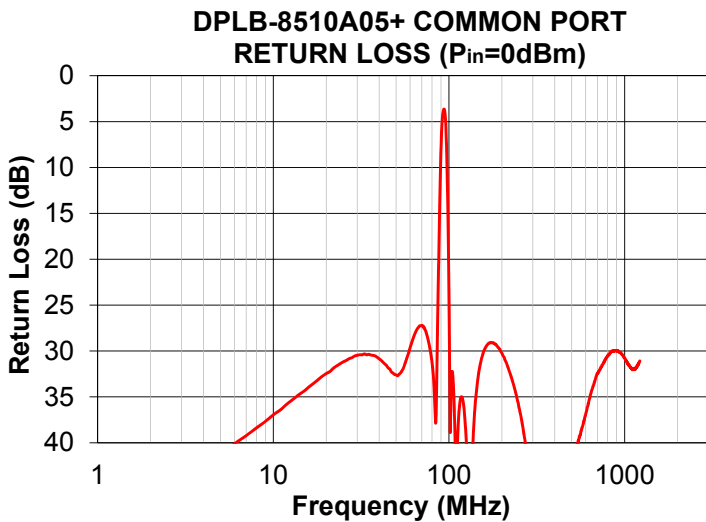
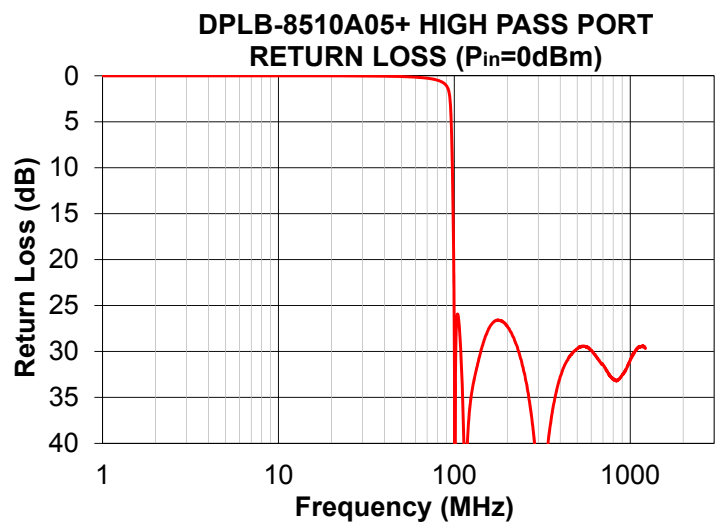
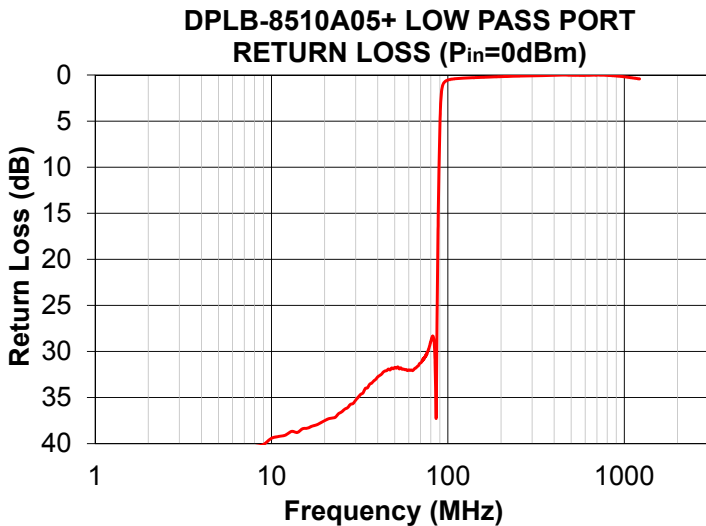
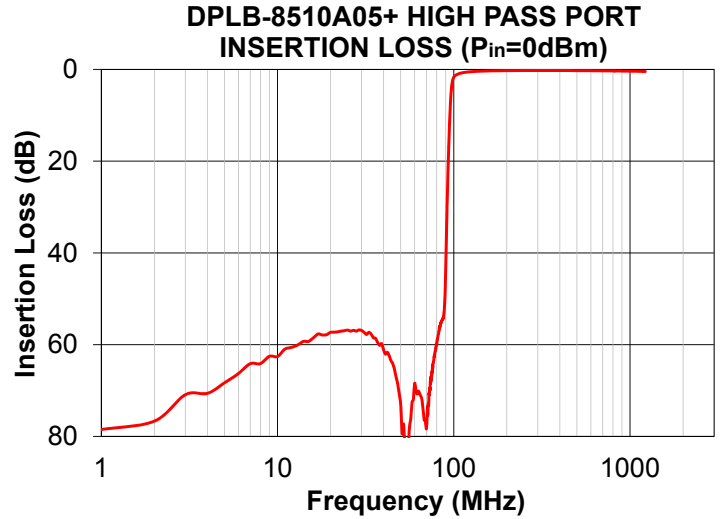
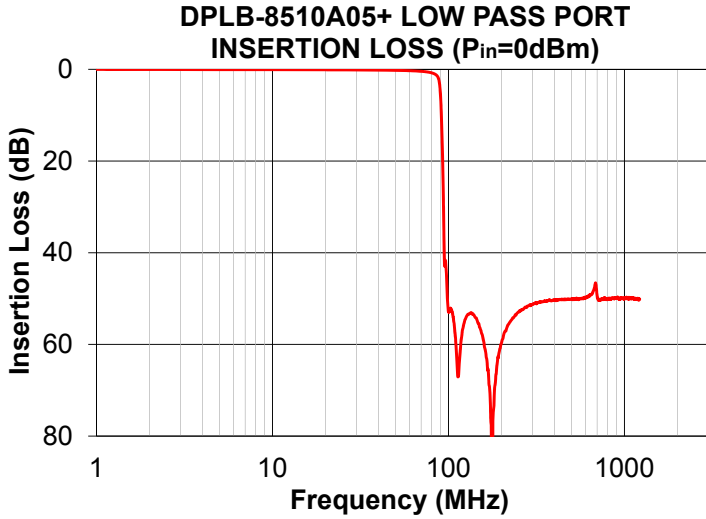
Key Features

Feature	Advantages
Low passband insertion loss	Passband insertion loss 1.2 dB Typ. ensures low signal loss through both the channels.
Excellent stopband rejection	Co-channel rejection of 50dB Typ. ensures unwanted spurious are eliminated.
Excellent return loss at 5-85 and 102-1220 MHz	This makes signal transmission with very less reflection and well-matched with the adjacent component used in the system.

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.
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Notes

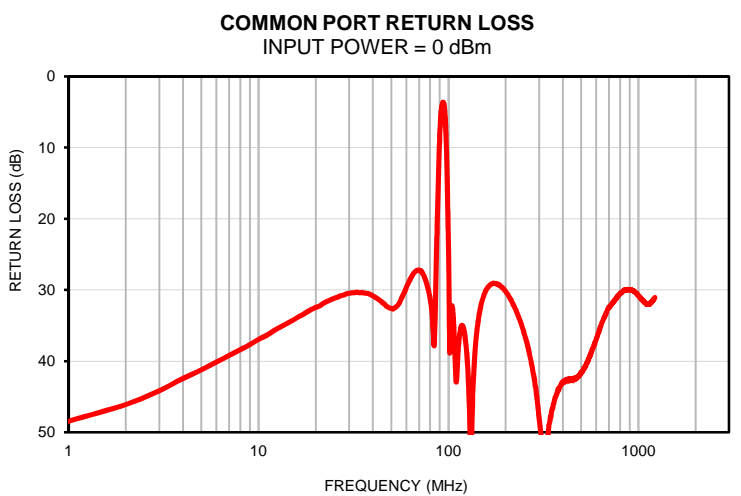
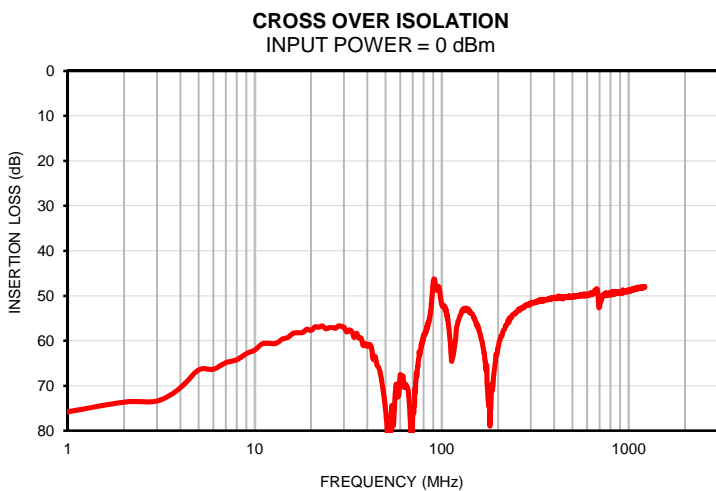
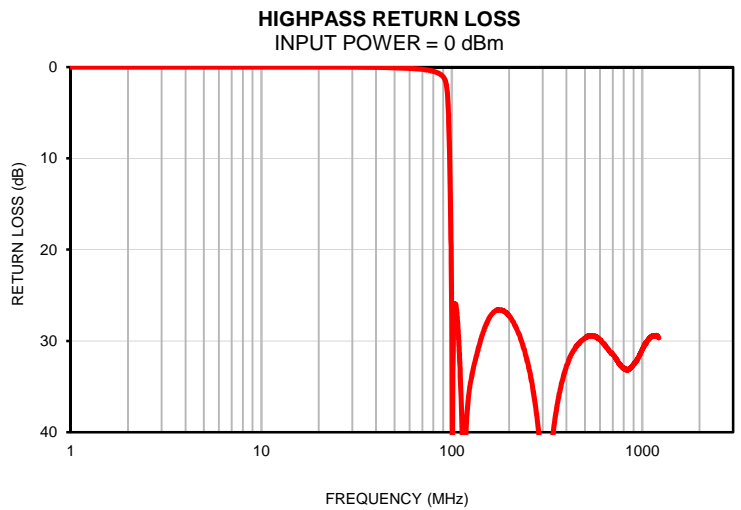
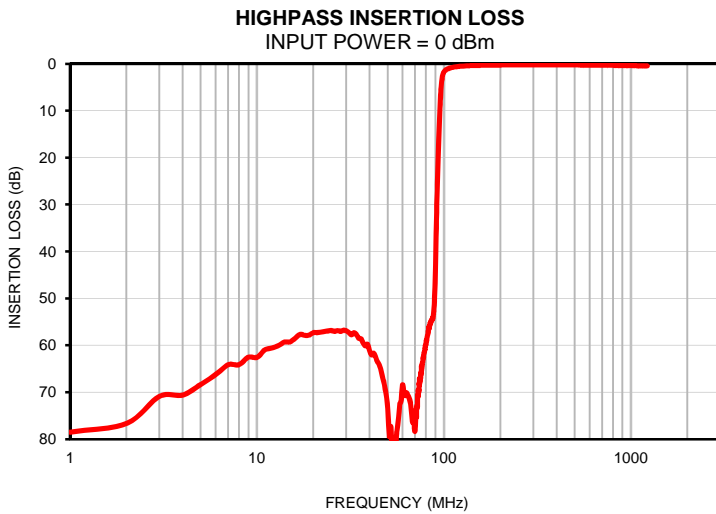
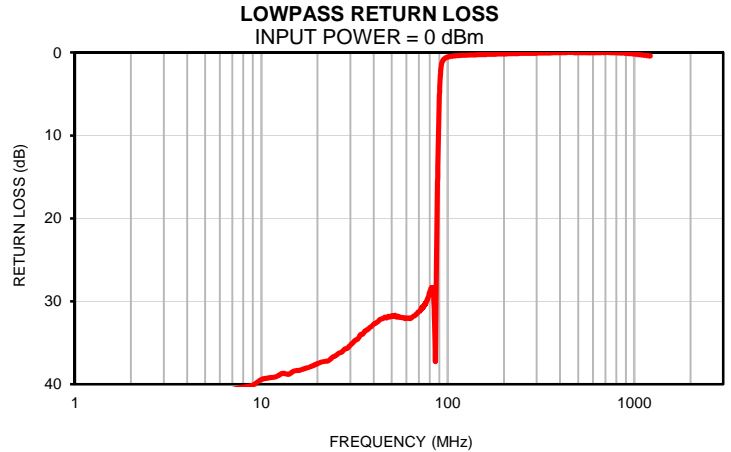
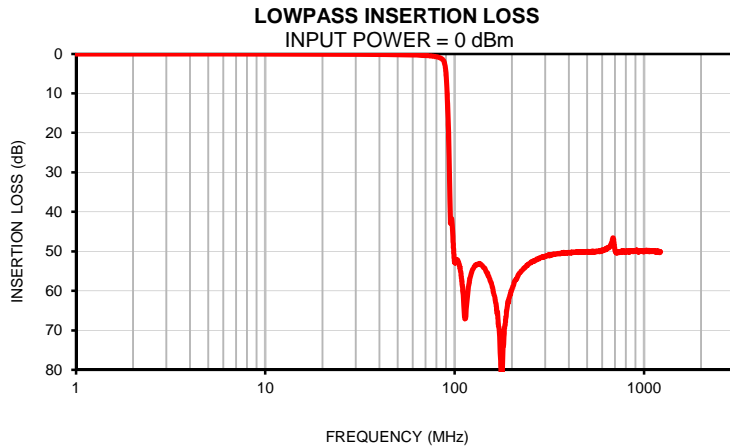
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Typical Performance Data

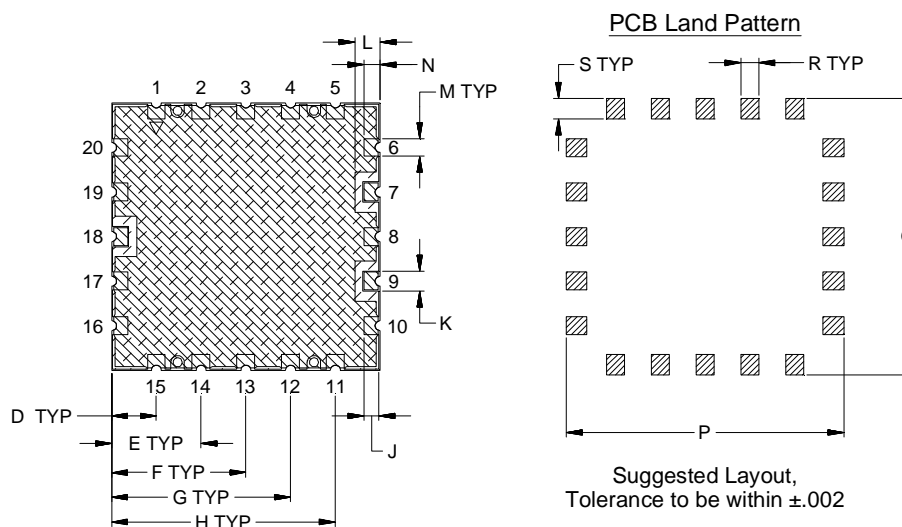
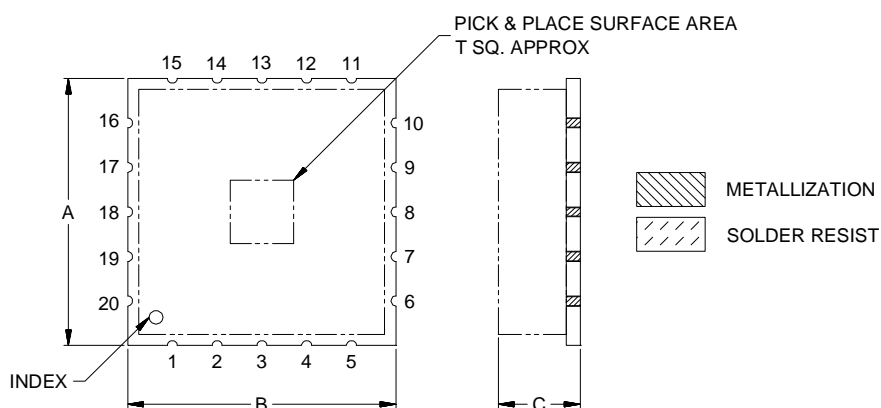
FREQUENCY (MHz)	INSERTION LOSS (dB)		Cross over isolation (dB) (between LPF and HPF)	RETURN LOSS (dB)		
	Lowpass port	Highpass port		Common port	Lowpass port	Highpass port
1.0	0.01	78.50	75.78	48.44	48.60	0.00
3.0	0.03	70.91	73.38	44.16	44.11	0.00
5.0	0.04	68.33	66.48	41.24	42.18	0.00
6.0	0.05	66.31	66.31	40.12	41.28	0.00
7.0	0.05	64.15	64.87	39.23	40.62	0.00
8.0	0.06	64.13	64.22	38.39	40.34	0.00
10.0	0.06	62.59	62.04	36.95	39.42	0.00
12.0	0.07	60.60	60.59	35.75	39.08	0.01
15.0	0.08	59.29	59.26	34.35	38.39	0.00
20.0	0.09	57.31	57.68	32.46	37.51	0.01
25.0	0.11	56.82	57.09	31.18	36.55	0.01
30.0	0.12	56.90	57.00	30.47	35.28	0.02
35.0	0.14	58.49	58.34	30.37	33.94	0.03
40.0	0.16	61.16	61.24	30.85	32.76	0.04
45.0	0.19	64.07	65.33	31.83	32.07	0.06
50.0	0.21	73.04	75.18	32.61	31.73	0.08
55.0	0.25	83.94	78.96	31.88	31.93	0.11
60.0	0.29	68.44	67.53	29.67	32.00	0.14
65.0	0.35	71.19	70.10	27.82	31.84	0.19
70.0	0.42	78.28	76.75	27.22	31.25	0.26
75.0	0.54	66.89	64.14	28.31	30.43	0.34
79.0	0.69	60.77	59.81	30.44	29.30	0.44
85.0	1.19	55.01	55.83	34.05	32.97	0.67
90.0	5.30	44.00	47.20	8.18	5.79	1.06
91.0	9.28	35.09	46.25	5.63	3.08	1.19
92.0	15.14	27.13	46.76	4.33	1.79	1.38
93.0	22.75	20.55	47.88	3.76	1.24	1.67
94.0	32.90	14.96	48.64	3.66	0.98	2.17
95.0	42.91	10.26	48.56	4.14	0.83	3.13
96.0	41.66	6.60	48.02	5.53	0.73	4.97
97.0	43.45	4.16	48.45	8.19	0.66	8.09
98.0	47.28	2.79	49.50	12.16	0.61	12.65
99.0	51.10	2.09	50.86	17.33	0.57	18.90
100.0	52.75	1.72	51.77	24.03	0.54	28.71
101.0	52.85	1.50	52.18	33.52	0.51	40.14
102.0	52.29	1.35	52.41	37.73	0.50	29.34
103.0	52.28	1.24	52.29	33.44	0.48	26.73
104.0	52.51	1.14	53.04	32.24	0.46	25.95
105.0	53.02	1.07	52.78	32.57	0.45	26.03
106.0	53.72	1.00	53.69	33.86	0.44	26.67
107.0	54.83	0.94	54.48	35.88	0.42	27.65
108.0	56.02	0.89	55.60	38.70	0.42	28.86
109.0	57.52	0.85	56.77	41.69	0.41	30.32
110.0	59.50	0.80	58.63	42.92	0.40	32.04
150.0	56.20	0.35	55.34	31.60	0.26	28.38
250.0	52.92	0.25	53.83	36.13	0.12	32.34
300.0	51.23	0.24	51.47	47.92	0.09	44.68
400.0	50.24	0.25	50.47	43.01	0.02	32.74
500.0	50.13	0.26	50.26	41.70	0.02	29.69
600.0	49.71	0.28	49.75	36.91	0.03	29.86
700.0	49.51	0.31	52.19	32.46	0.01	31.45
800.0	49.98	0.33	49.64	30.55	0.03	32.94
900.0	49.91	0.36	49.32	29.98	0.10	32.58
1000.0	50.12	0.39	48.77	30.78	0.19	30.92
1050.0	49.99	0.40	48.42	31.49	0.24	30.19
1100.0	50.06	0.41	48.38	31.94	0.30	29.62
1150.0	50.00	0.43	48.17	32.00	0.35	29.48
1180.0	50.02	0.44	48.22	31.61	0.38	29.42
1200.0	50.14	0.45	48.19	31.41	0.40	29.46
1220.0	50.11	0.46	47.94	31.08	0.42	29.66

Typical Performance Curves



Outline Dimensions

NU1620



CASE#	A	B	C		D	E	F	G	H	J	K	L	M
			Max	Min									
NU1620	1.181 (30.00)	1.181 (30.00)	.280 (7.11)	.205 (5.21)	.197 (5.00)	.394 (10.00)	.591 (15.00)	.787 (20.00)	.984 (25.00)	.066 (1.68)	.089 (2.26)	.111 (2.82)	.079 (2.01)

CASE#	N	P	Q	R	S	T	WT.GRAMS
NU1620	.071 (1.80)	1.221 (31.01)	1.221 (31.01)	.079 (2.01)	.091 (2.31)	.280 (7.11)	3.6

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

Notes:

1. Base: Printed wiring laminate.
2. Termination finish:
 - For RoHS Case Styles: 3-5 μ inch Gold over 120-240 μ inch Nickel plate.
 - For RoHS-5 Case Styles: Tin-Lead plate.



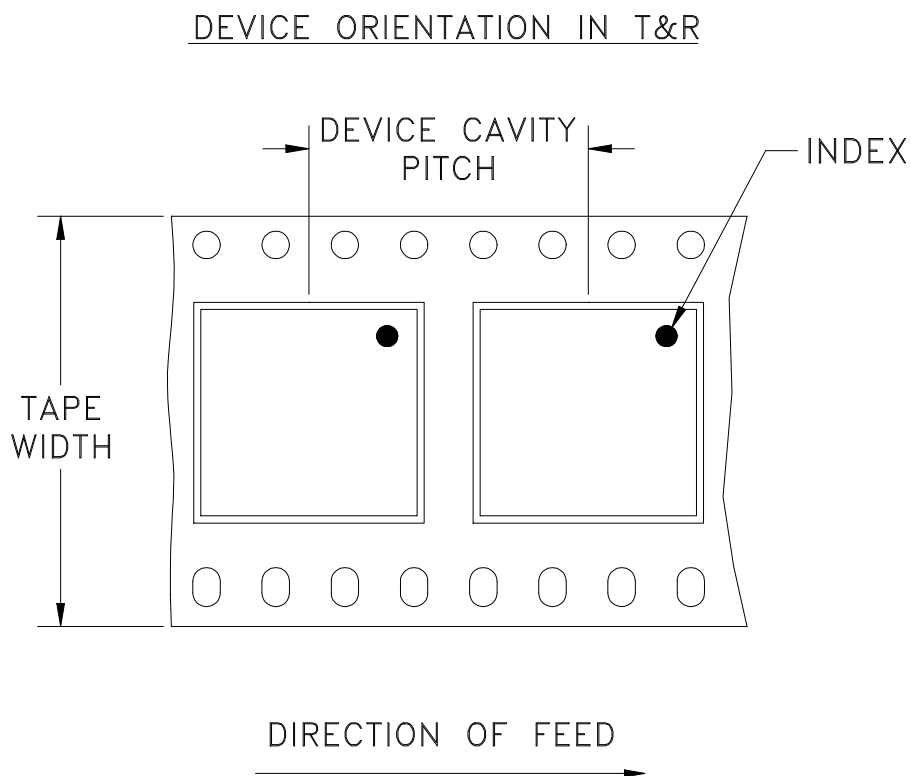
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Tape & Reel Packaging TR-F80



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel
44	40	13	100

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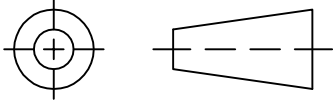
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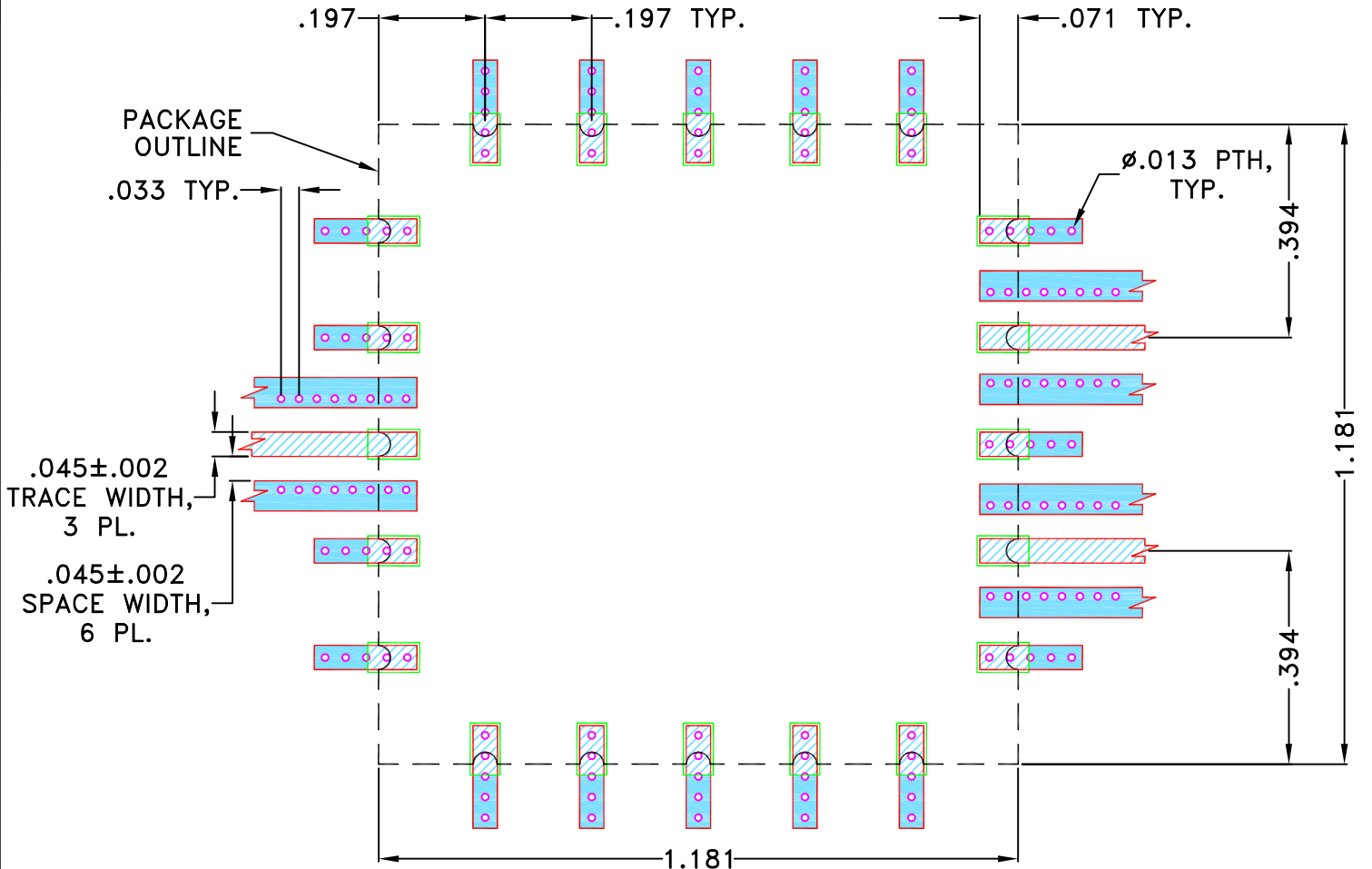
THIRD ANGLE PROJECTION



REVISIONS

REV OR	ECN No.	DESCRIPTION	DATE	DR	AUTH
	M147697	NEW RELEASE	SEP 14	DDR	MD

SUGGESTED MOUNTING CONFIGURATION FOR NU1620, NV1998, NZ2001, PA2002 CASE STYLE "20DP01" PIN CODE



NOTES:

- TRACE WIDTH IS SHOWN FOR OAK-602 WITH DIELECTRIC THICKNESS .031"±.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

UNLESS OTHERWISE SPECIFIED	INITIALS	DATE
DIMENSIONS ARE IN INCHES	DRAWN DDR	09 SEP 14
TOLERANCES ON:	CHECKED MD	09 SEP 14
2 PL DECIMALS ±	APPROVED KR	09 SEP 14
3 PL DECIMALS ± .005"		
ANGLES ±		
FRACTIONS ±		



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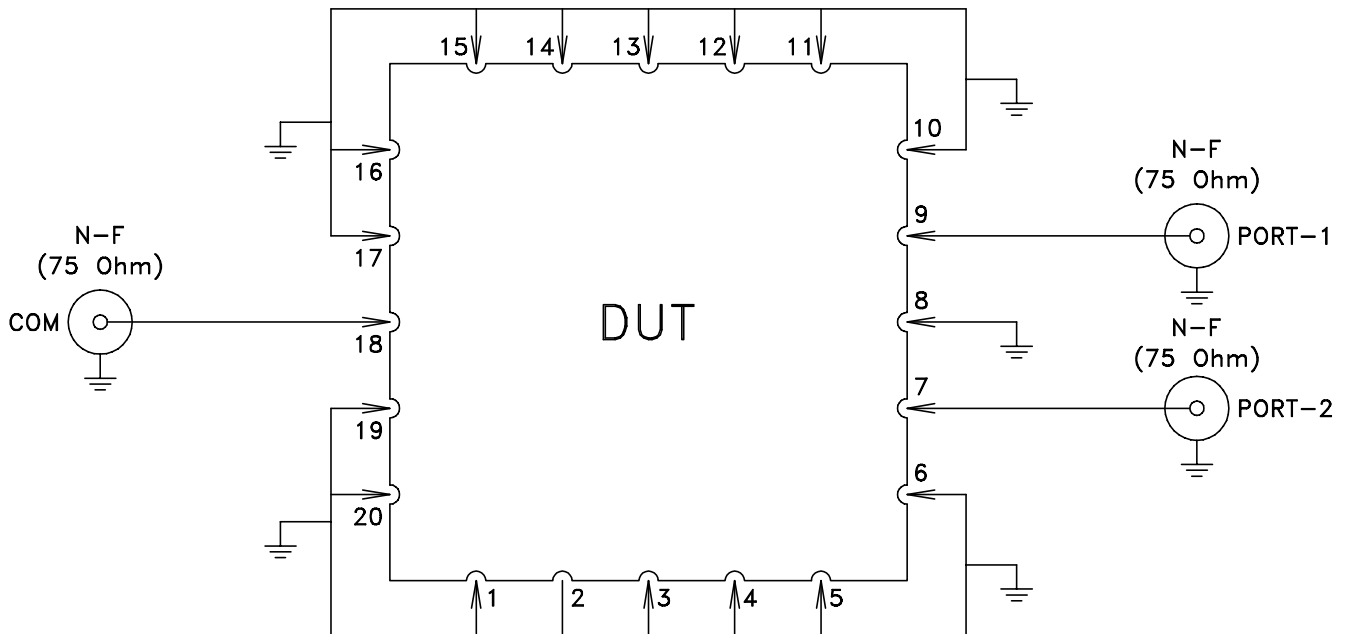
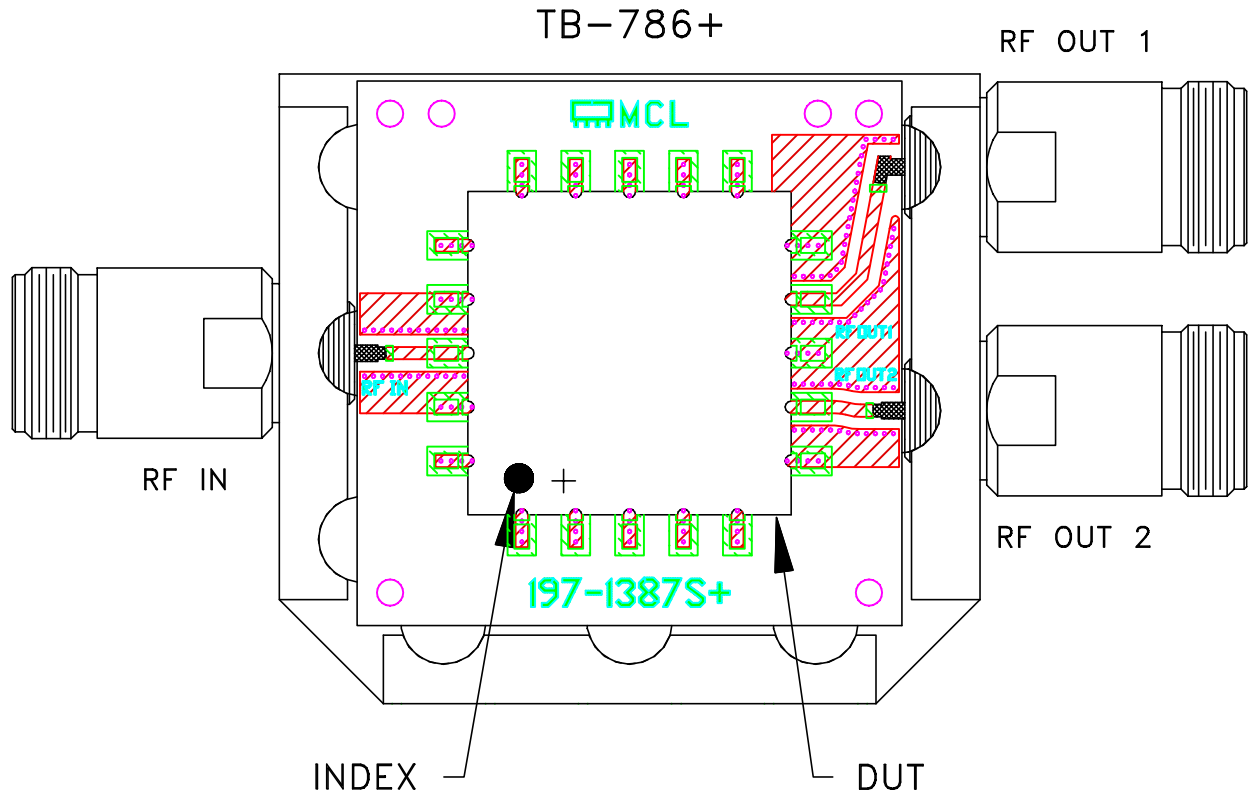
13 Neptune Avenue
Brooklyn NY 11235

PL, 20DP01, NU1620, NV1998, NZ2001, PA2002, TB-786+, 75 OHM

SIZE A	CODE IDENT 15542	DRAWING NO: 98-PL-435	REV: OR
FILE: 98PL435	SCALE: 3:1	SHEET: 1 OF 1	

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Evaluation Board and Circuit



Schematic Diagram

Notes:

1. 75 Ohm N Female connectors.
2. PCB Material: OAK-602 OR Equivalent
Dielectric Constant=2.50±.04, Thickness=.031 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