Surface Mount

Bandpass Filter

CBP-1280F+

50Ω 1160 to 1400 MHz

Generic photo used for illustration purposes only

CASE STYLE: KV1710

The Big Deal

- High Q
- Good selectivity
- Low VSWR
- Small shielded package

Product Overview

CBP-1280F+ is a coaxial-ceramic-resonator based bandpass filter in a shielded package fabricated using SMT technology. This filter has low insertion loss with high rejection and low VSWR for use in L-band application, Aviation / Aeronautical, defence systems and radio astronomy.

Key Features

Feature	Advantages
High Q	The CBP-1280F+ filter incorporates High-Q ceramic resonators that enables low insertion loss.
Good selectivity	This filter designed with six pole. So this providing good selectivity in the stopband performance.
Low VSWR	This filter maintains typical VSWR over a passband frequency range.
Rugged construction	The CBP-1280F+ has been qualified over wide range of thermal, mechanical and environmental conditions including withstanding the stress of extensive solder reflow cycles.

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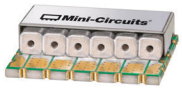


Generic photo used for illustration purposes only

CASE STYLE: KV1710

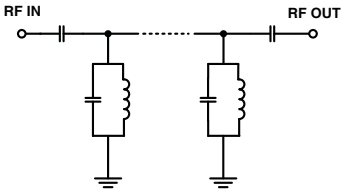
Features

- High Q
- Good selectivity
- Low VSWR
- Small shielded package

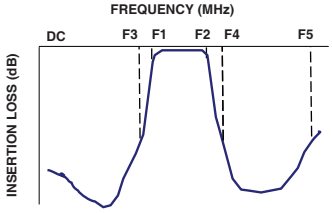
Applications

- L-band application
- Aviation/Aeronautical
- Defence systems
- Radio astronomy

Functional Schematic



Typical Frequency Response



+RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Electrical Specifications at 25°C

Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Center Frequency	-	-	-	1280	-	MHz
	Insertion Loss	F1-F2	1160-1400	-	1.0	2.0	dB
	VSWR	F1-F2	1160-1400	-	1.5	1.9	:1
Stop Band, Lower	Insertion Loss	DC-F3	DC-1000	20	30	-	dB
	VSWR	DC-F3	DC-1000	-	20	-	:1
Stop Band, Upper	Insertion Loss	F4-F5	1570-2100	20	30	-	dB
	VSWR	F4-F5	1570-2100	-	20	-	:1

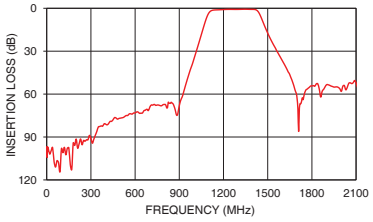
Maximum Ratings	
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power Input	1 W max.

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

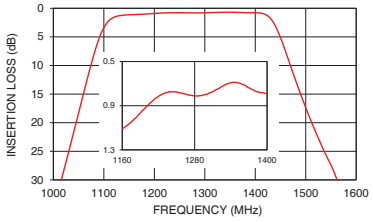
Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)	Frequency (MHz)	Group Delay (nsec)
1	96.75	340.69	1160	5.21
100	98.16	374.91	1170	4.94
500	76.83	104.83	1180	4.73
1000	35.23	40.81	1190	4.57
1015	30.23	36.27	1200	4.44
1045	20.00	23.79	1210	4.34
1055	16.53	18.82	1220	4.25
1080	8.16	7.28	1230	4.17
1100	3.39	2.66	1240	4.08
1160	1.11	1.34	1250	4.00
1280	0.81	1.32	1260	3.93
1400	0.79	1.14	1270	3.86
1440	3.12	3.72	1280	3.81
1480	12.62	24.83	1290	3.78
1510	19.60	45.76	1300	3.77
1560	29.53	58.87	1320	3.84
1570	31.31	61.35	1340	3.96
1500	17.38	39.61	1360	4.10
2000	58.12	94.37	1380	4.31
2100	52.14	90.80	1400	4.89

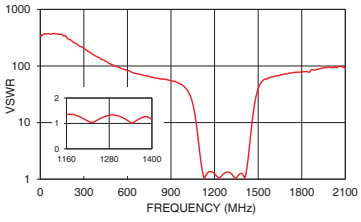
CBP-1280F+
INSERTION LOSS (Full band)



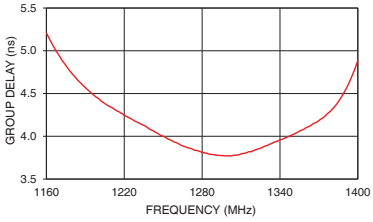
CBP-1280F+
INSERTION LOSS (Pass band)



CBP-1280F+
VSWR



CBP-1280F+
GROUP DELAY



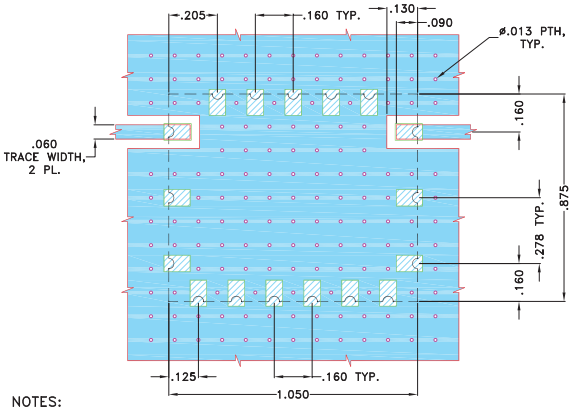
Notes

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

Pad Connections

INPUT	1
OUTPUT	12
GROUND	2,3,4,5,6,7,8,9,10,11,13,14,15,16,17

Demo Board MCL P/N: TB-693+
Suggested PCB Layout (PL-378)



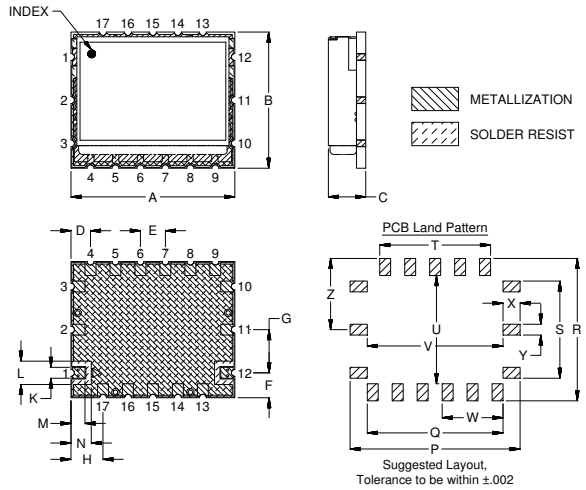
NOTES:

1. TRACE WIDTH IS SHOWN FOR OAK (OAK-602) WITH DIELECTRIC THICKNESS .022"±.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

Outline Drawing



Outline Dimensions (inch / mm)

A	B	C	D	E	F	G	H	J	K	L	M	N
1.050	**.875**	**.239**	**.125**	**.160**	**.160**	**.278**	**.205**	**.160**	**.070**	**.150**	**.090**	**.130**
26.67	22.23	6.07	3.18	4.06	4.06	7.06	5.21	4.06	1.78	3.81	2.29	3.30

P	Q	R	S	T	U	V	W	X	Y	Z		Wt.
1.090	**.870**	**.915**	**.625**	**.710**	**.695**	**.870**	**.390**	**.110**	**.070**	**.458**		grams
27.69	22.10	23.24	15.88	18.03	17.65	22.10	9.91	2.79	1.78	11.63		8.5

Note: Please refer to case style drawing for details

Surface Mount Band Pass Filter CBP-1280F+

Typical Performance Data

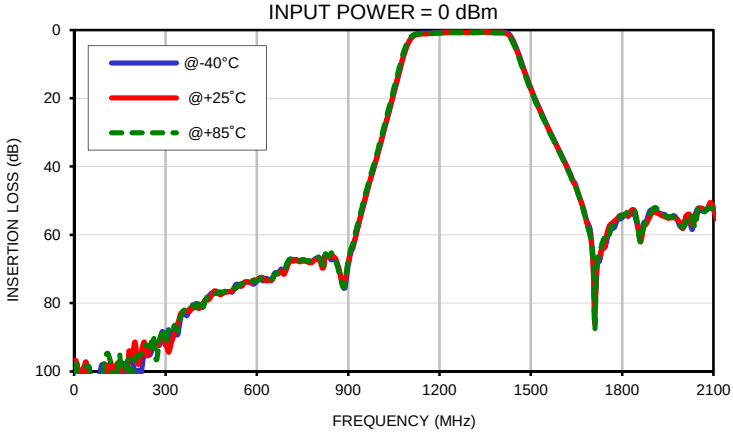
FREQ.	INSERTION LOSS			INPUT RETURN LOSS			OUTPUT RETURN LOSS		
(MHz)	(dB)			(dB)			(dB)		
	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C
1	103.64	96.75	110.84	0.05	0.05	0.05	0.05	0.05	0.05
10	104.72	97.77	104.07	0.05	0.05	0.05	0.05	0.05	0.05
50	104.40	107.30	98.84	0.04	0.04	0.04	0.05	0.05	0.04
100	101.62	98.16	96.16	0.04	0.04	0.04	0.04	0.05	0.05
500	76.66	76.83	76.22	0.12	0.15	0.16	0.14	0.17	0.18
750	67.65	67.64	67.22	0.20	0.24	0.26	0.23	0.27	0.29
900	68.92	68.20	67.55	0.25	0.31	0.33	0.26	0.31	0.34
950	51.64	51.18	50.35	0.28	0.37	0.38	0.29	0.35	0.38
1000	35.59	35.23	34.32	0.35	0.49	0.47	0.35	0.43	0.47
1010	32.27	31.90	30.96	0.38	0.54	0.51	0.37	0.46	0.51
1015	30.61	30.23	29.28	0.40	0.57	0.54	0.39	0.48	0.53
1030	25.54	25.16	24.16	0.47	0.68	0.63	0.45	0.57	0.62
1040	22.12	21.73	20.70	0.54	0.80	0.73	0.53	0.66	0.72
1045	20.39	20.00	18.95	0.60	0.88	0.80	0.58	0.73	0.79
1050	18.65	18.27	17.19	0.67	0.97	0.88	0.65	0.81	0.88
1060	15.16	14.79	13.69	0.87	1.25	1.15	0.85	1.07	1.16
1070	11.69	11.37	10.25	1.24	1.72	1.64	1.23	1.53	1.68
1080	8.37	8.16	7.08	1.95	2.59	2.60	1.95	2.40	2.67
1090	5.46	5.41	4.46	3.32	4.16	4.41	3.36	4.02	4.56
1100	3.25	3.39	2.67	5.81	6.87	7.52	5.95	6.86	7.84
1140	0.91	1.20	1.05	22.53	23.17	20.41	22.16	21.97	20.44
1150	0.88	1.14	1.03	18.86	19.89	18.13	18.10	18.16	17.81
1160	0.86	1.11	1.00	17.42	18.50	17.23	16.65	16.71	16.84
1280	0.63	0.81	0.81	16.10	16.27	16.66	16.56	17.21	16.75
1400	0.58	0.79	0.86	21.39	22.23	23.07	22.03	23.61	24.87
1420	0.78	1.08	1.25	16.14	14.85	13.46	16.28	14.94	13.72
1430	1.36	1.76	2.04	9.07	8.52	7.79	9.10	8.53	7.88
1440	2.62	3.12	3.50	4.98	4.79	4.42	5.01	4.79	4.48
1450	4.59	5.14	5.59	2.69	2.68	2.53	2.71	2.69	2.57
1480	12.15	12.62	13.01	0.57	0.68	0.71	0.60	0.70	0.74
1500	16.98	17.38	17.69	0.31	0.41	0.46	0.34	0.44	0.48
1510	19.23	19.60	19.87	0.26	0.36	0.40	0.29	0.38	0.42
1520	21.36	21.70	21.95	0.22	0.31	0.36	0.26	0.35	0.39
1550	27.30	27.43	27.63	0.20	0.27	0.31	0.23	0.29	0.33
1560	29.26	29.53	29.76	0.18	0.26	0.30	0.22	0.30	0.33
1570	31.03	31.31	31.52	0.18	0.25	0.29	0.21	0.28	0.32
1580	32.83	33.14	33.30	0.18	0.25	0.28	0.21	0.28	0.31
1600	36.48	36.80	36.96	0.17	0.24	0.27	0.20	0.27	0.30
1620	40.25	40.53	40.72	0.17	0.24	0.27	0.20	0.26	0.29
1640	44.45	44.70	44.98	0.17	0.23	0.27	0.20	0.26	0.28
1660	48.89	49.09	49.38	0.16	0.23	0.26	0.19	0.25	0.28
1680	54.70	55.11	55.22	0.16	0.22	0.25	0.18	0.24	0.27
1700	62.42	63.65	62.63	0.16	0.22	0.25	0.18	0.24	0.27
1720	67.59	66.66	66.88	0.15	0.22	0.25	0.18	0.23	0.27
1740	63.83	63.94	61.06	0.16	0.22	0.25	0.17	0.23	0.26
1760	58.75	57.04	59.13	0.15	0.21	0.24	0.17	0.22	0.26
1780	56.54	55.50	56.73	0.15	0.21	0.24	0.17	0.22	0.25
1800	54.95	54.35	54.21	0.14	0.21	0.24	0.17	0.22	0.26
1820	54.50	54.50	52.90	0.14	0.21	0.24	0.16	0.22	0.25
1840	54.13	52.85	52.86	0.14	0.21	0.24	0.16	0.22	0.25
1860	60.12	62.11	62.05	0.14	0.21	0.24	0.15	0.21	0.25
1880	55.74	56.68	55.97	0.13	0.20	0.23	0.15	0.20	0.23
1900	52.67	53.43	52.53	0.13	0.20	0.23	0.14	0.20	0.23
1920	53.53	53.85	52.99	0.13	0.20	0.23	0.14	0.20	0.23
1940	54.04	54.71	54.28	0.13	0.20	0.23	0.13	0.19	0.22
1960	54.77	55.03	54.65	0.12	0.19	0.23	0.12	0.19	0.22
2000	57.76	58.12	57.68	0.11	0.18	0.22	0.12	0.18	0.21
2020	55.21	53.99	54.00	0.11	0.18	0.22	0.12	0.19	0.22
2040	53.94	55.31	57.74	0.12	0.18	0.23	0.12	0.19	0.22
2100	52.76	52.14	52.46	0.10	0.19	0.23	0.13	0.19	0.24

Typical Performance Data

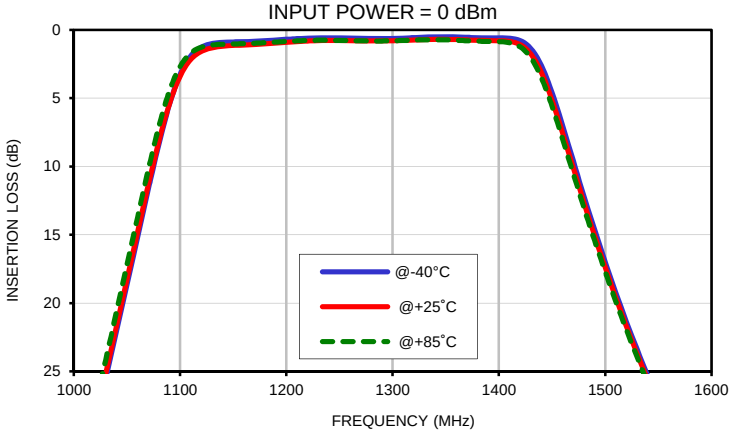
FREQ. (MHz)	GROUP DELAY (nsec)		
	@-40°C	@+25°C	@+85°C
1160	5.26	5.21	5.11
1164	5.15	5.09	5.00
1168	5.03	4.99	4.90
1172	4.93	4.89	4.82
1176	4.85	4.81	4.74
1180	4.77	4.73	4.67
1184	4.70	4.66	4.60
1188	4.63	4.60	4.55
1192	4.58	4.54	4.49
1196	4.52	4.49	4.44
1200	4.48	4.44	4.40
1204	4.43	4.39	4.35
1208	4.39	4.35	4.32
1212	4.36	4.32	4.28
1216	4.32	4.29	4.24
1220	4.28	4.25	4.21
1224	4.25	4.21	4.18
1228	4.21	4.18	4.14
1232	4.18	4.15	4.11
1236	4.15	4.12	4.08
1240	4.11	4.08	4.04
1244	4.07	4.05	4.00
1248	4.04	4.01	3.97
1252	4.00	3.98	3.94
1256	3.97	3.95	3.91
1260	3.95	3.93	3.89
1264	3.91	3.89	3.86
1268	3.90	3.87	3.84
1272	3.87	3.85	3.82
1276	3.85	3.83	3.80
1280	3.83	3.81	3.78
1284	3.81	3.80	3.78
1288	3.80	3.79	3.76
1292	3.79	3.78	3.76
1296	3.78	3.77	3.76
1300	3.78	3.77	3.76
1304	3.78	3.78	3.77
1308	3.79	3.78	3.78
1312	3.81	3.80	3.80
1316	3.82	3.82	3.81
1320	3.84	3.84	3.83
1324	3.86	3.86	3.85
1328	3.89	3.88	3.88
1332	3.92	3.91	3.90
1336	3.94	3.93	3.93
1340	3.96	3.96	3.95
1344	3.99	3.98	3.97
1348	4.02	4.01	4.00
1352	4.05	4.04	4.03
1356	4.08	4.07	4.05
1360	4.10	4.10	4.08
1364	4.14	4.13	4.12
1368	4.17	4.16	4.15
1372	4.21	4.21	4.20
1376	4.25	4.26	4.25
1380	4.30	4.31	4.31
1384	4.37	4.38	4.39
1388	4.45	4.48	4.49
1392	4.56	4.59	4.62
1400	4.84	4.89	4.94

Typical Performance Curves

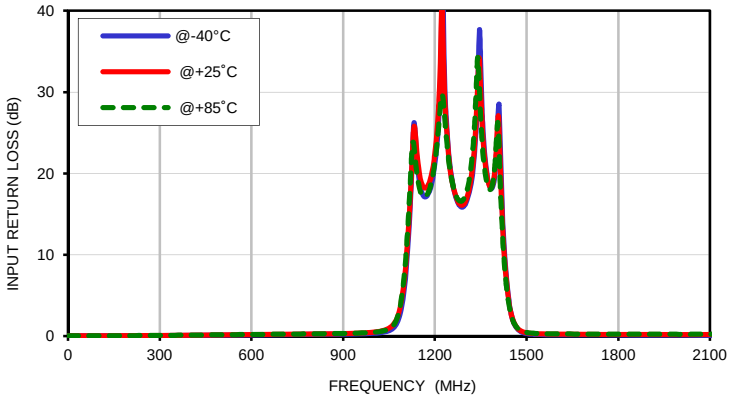
INSERTION LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



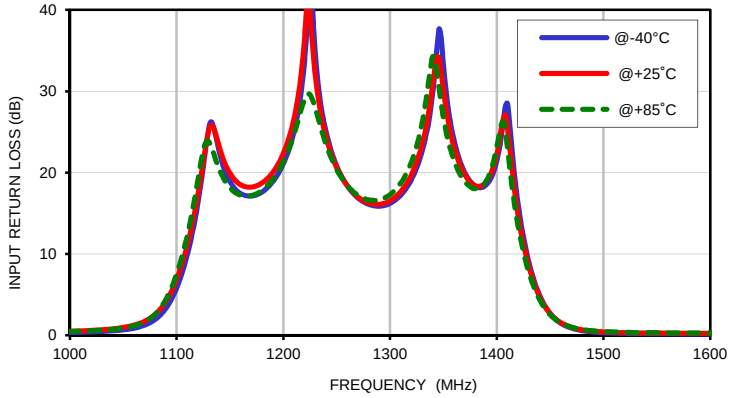
INSERTION LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



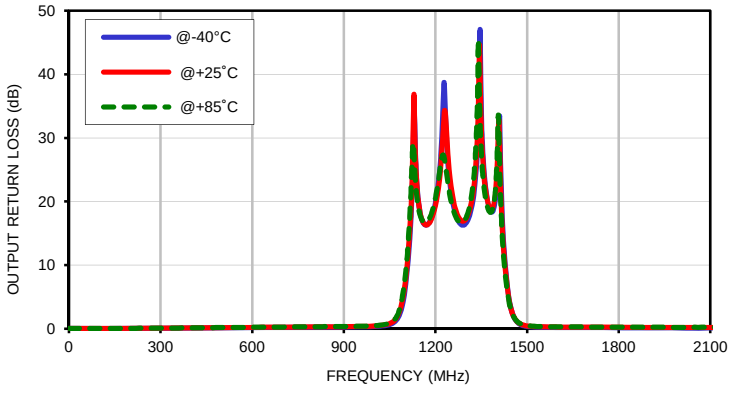
INPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



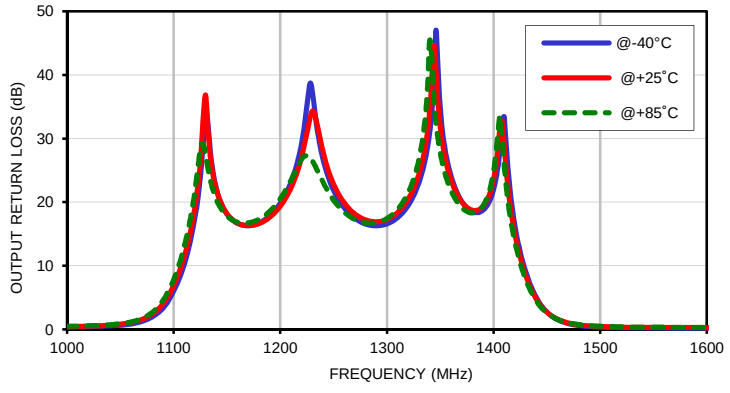
INPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



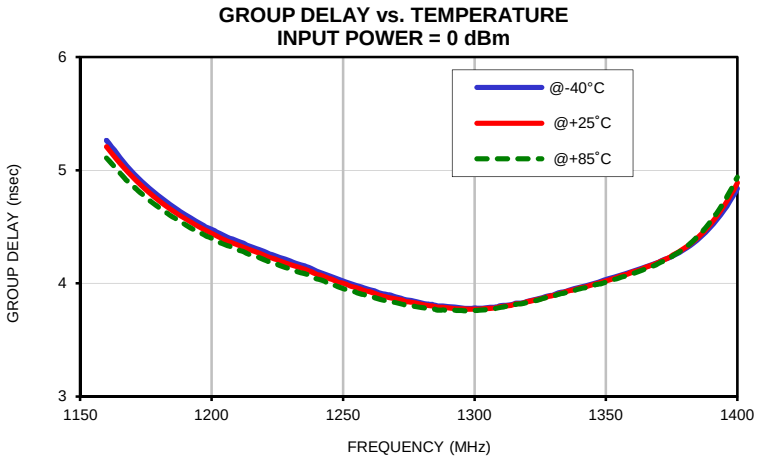
OUTPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



OUTPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



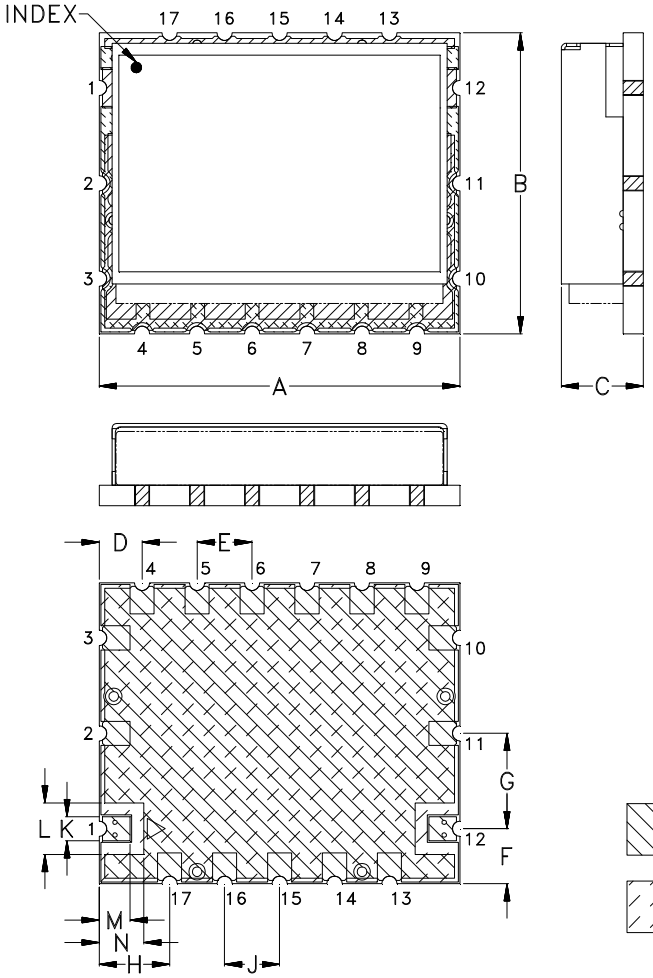
Typical Performance Curves

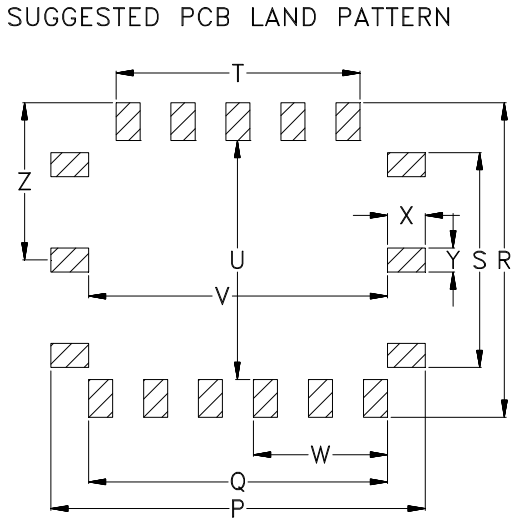


Case Style KV

KV1710

Outline Dimensions





CASE#	A	B	C	D	E	F	G	H	J	K	L	M	N
KV1710	1.050 (26.67)	.875 (22.23)	.239 (6.07)	.125 (3.18)	.160 (4.06)	.160 (4.06)	.278 (7.06)	.205 (5.21)	.160 (4.06)	.070 (1.78)	.150 (3.81)	.090 (2.29)	.130 (3.30)

CASE#	P	Q	R	S	T	U	V	W	X	Y	Z	WT, GRAMS
KV1710	1.090 (27.69)	.870 (22.10)	.915 (23.24)	.625 (15.88)	.710 (18.03)	.695 (17.65)	.870 (22.10)	.390 (9.91)	.110 (2.79)	.070 (1.78)	.458 (11.63)	8.5

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

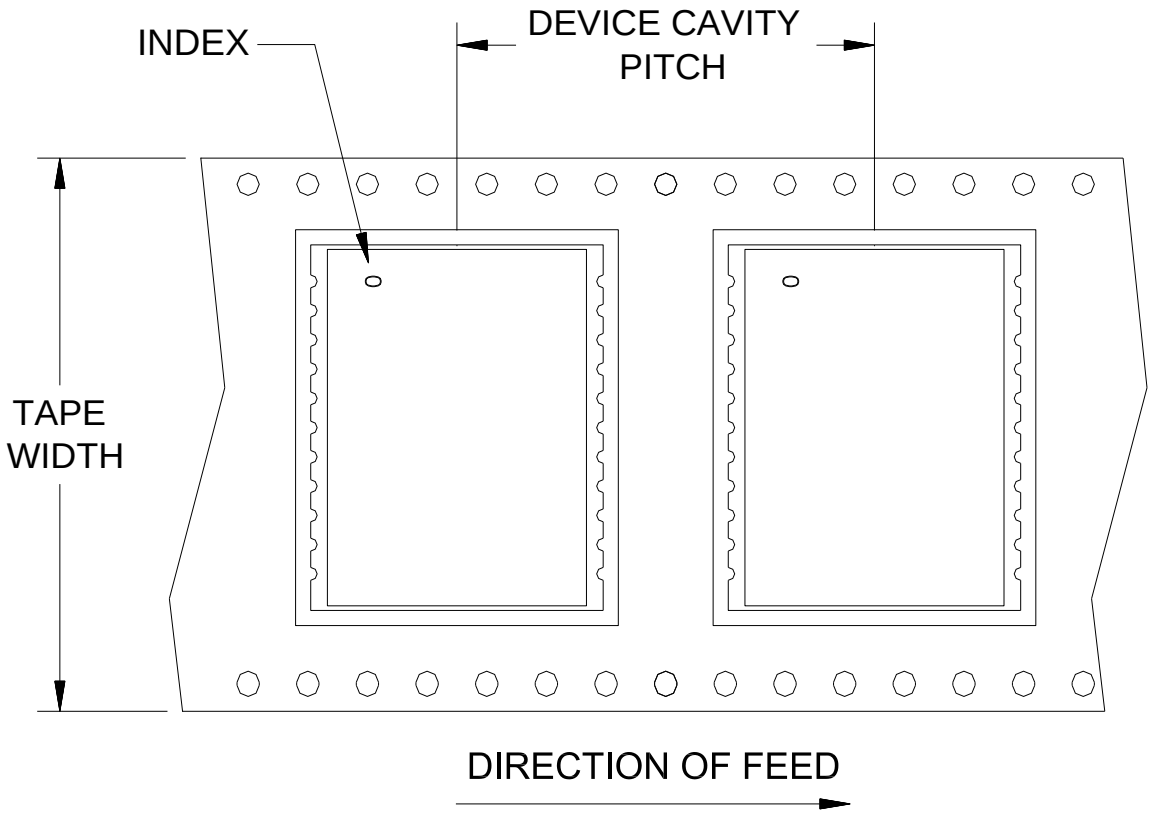
Notes:

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.

Tape & Reel Packaging TR-F97

DEVICE ORIENTATION IN T&R



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	200

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

Mini-Circuits®
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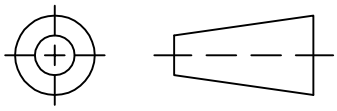
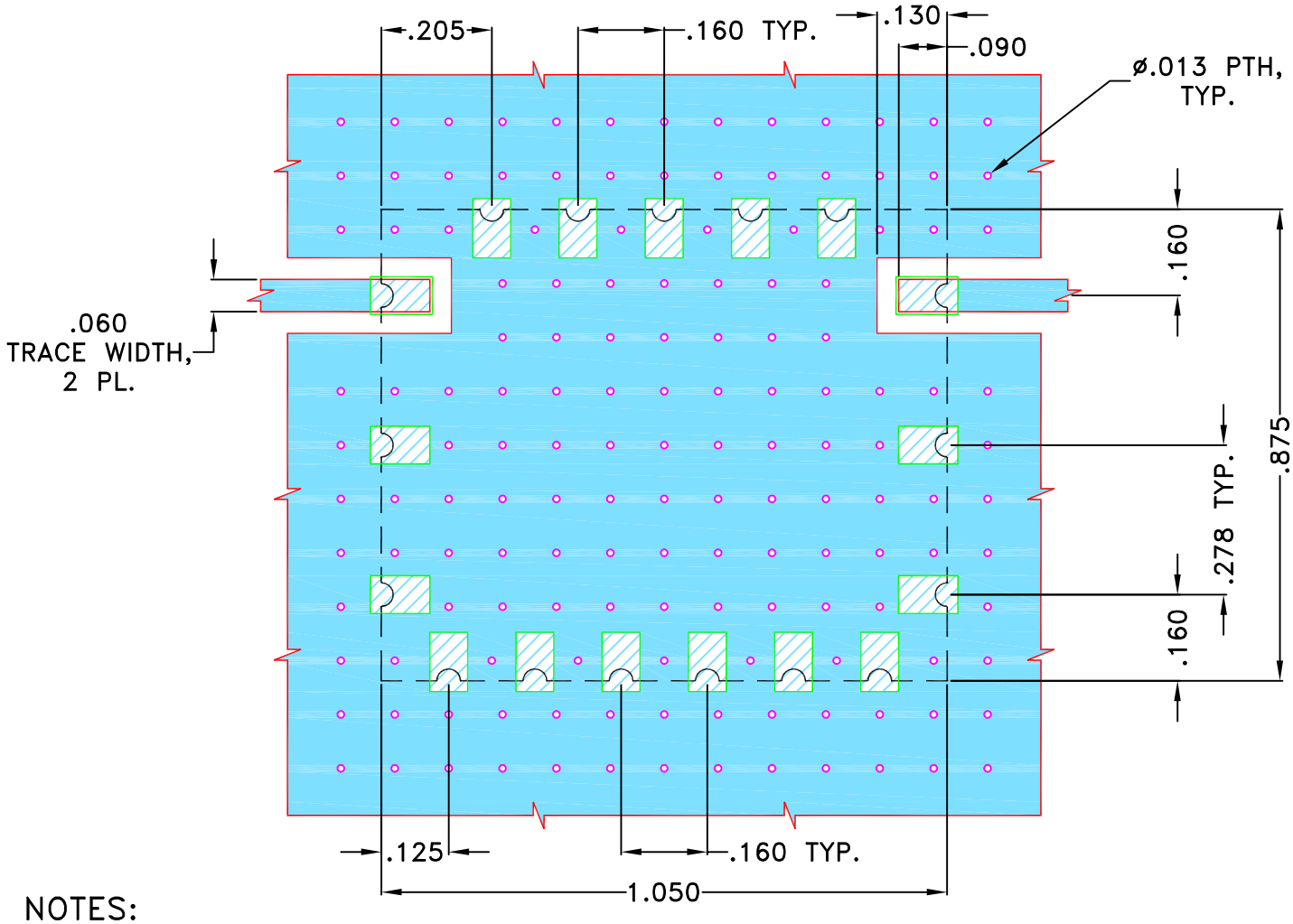
THIRD ANGLE PROJECTION



REVISIONS					
REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M138032	NEW RELEASE	JUL 12	DDR	KG

SUGGESTED MOUNTING CONFIGURATION FOR KV1710 CASE STYLE "17FL01" PIN CODE



NOTES:

1. TRACE WIDTH IS SHOWN FOR OAK (OAK-602) WITH DIELECTRIC THICKNESS .022"±.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	DRAWN	DDR	17 JUL 12
TOLERANCES ON:	CHECKED	DDR	17 JUL 12
2 PL DECIMALS ± .005"	APPROVED	GM	17 JUL 12
3 PL DECIMALS ±			
ANGLES ±			
FRACTIONS ±			

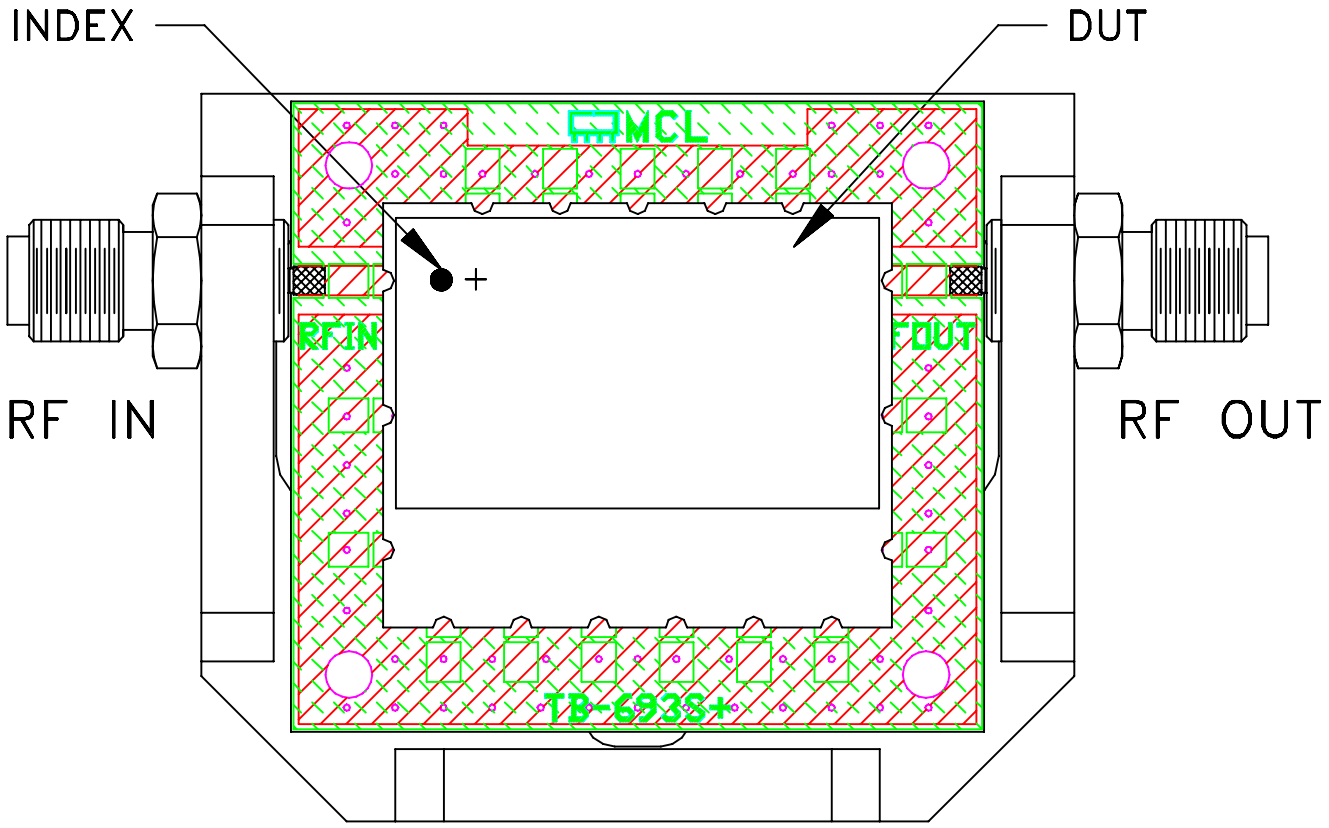
ASHEETA1.DWG REV:A DATE:01/12/95

Mini-Circuits®
13 Neptune Avenue
Brooklyn NY 11235

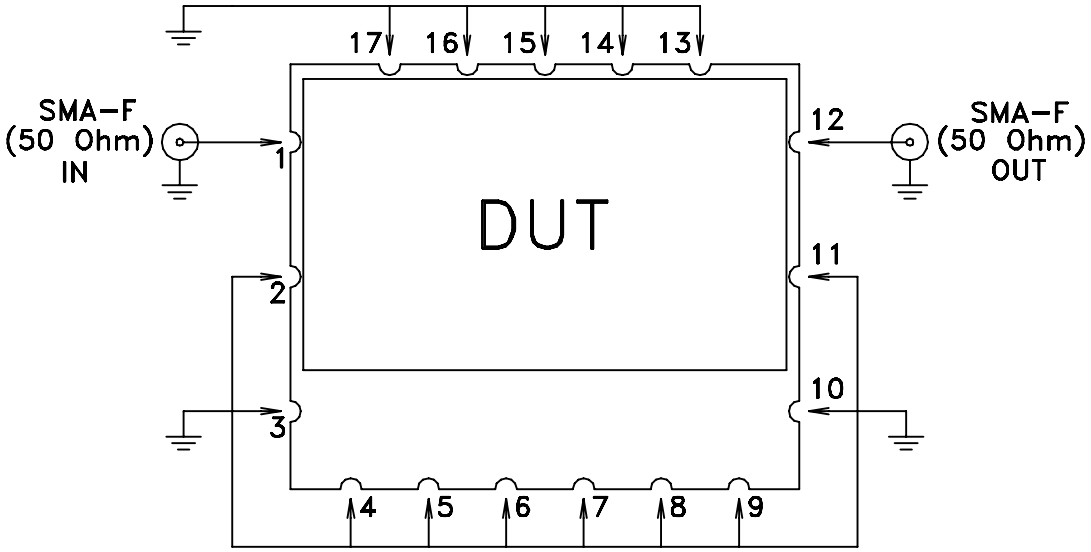
PL, 17FL01, KV1710, CSBP, TB-693+, 50 Ohm

SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-378	OR
FILE: 98PL378		SCALE: 3:1	SHEET: 1 OF 1

Evaluation Board and Circuit



TB-693+



Schematic Diagram

Notes:
1. 50 Ohm SMA Female connectors.
2. PCB Material: OAK-602 OR Equivalent
   Dielectric Constant=2.50±.04, Thickness=.022 inch.

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Environmental Specifications ENV54

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	-40° 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, 96 hours, 40°C	MIL-STD-202, Method 103B, Condition B, Except 50°C
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, 10-2000 Hz, 4 times in each of three axes (total 12)	MIL-STD-202, Method 204, Condition D
Mechanical Shock	50g, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes	MIL-STD-202, Method 213, Condition A