(CERAMIC RESONATOR) SURFACE MOUNT

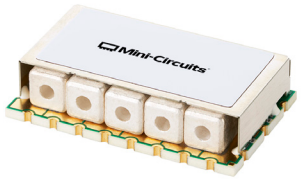
Bandpass Filter

CBP6-570CG+

50Ω 555 to 585 MHz

KEY FEATURES

- Good Insertion Loss, 1.4 dB Typ.
- Good Return Loss, 17 dB Typ.
- Excellent Rejection, 85 dB Typ.

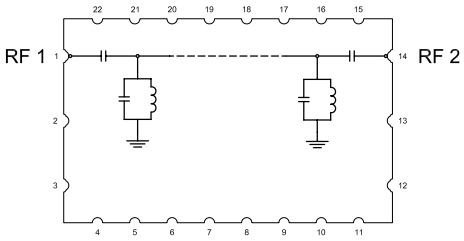


Generic photo used for illustration purposes only

APPLICATIONS

- Television Broadcasting
- Test and Measurement
- Audio Systems

FUNCTIONAL DIAGRAM



PRODUCT OVERVIEW

All our coaxial-ceramic resonator filters are built with rugged contruction, qualified to withstand multiple demanding reflow cycles. Excellent repeatability across units is achieved through precise tunning and process control.

ELECTRICAL SPECIFICATIONS[1,2,3] AT +25°C

Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Units
Passband	Center Frequency	—	—	—	570	—	MHz
	Insertion Loss	F1-F2	555 - 585	—	1.4	2	dB
	Return Loss	F1-F2	555 - 585	10	17	—	dB
Stop Band, Lower	Rejection	DC-F3	DC - 400	75	85	—	dB
		F3-F4	400 - 530	20	31	—	
Stop Band, Upper	Rejection	F5-F6	612 - 700	20	29	—	dB
		F6-F7	700 - 950	60	70	—	

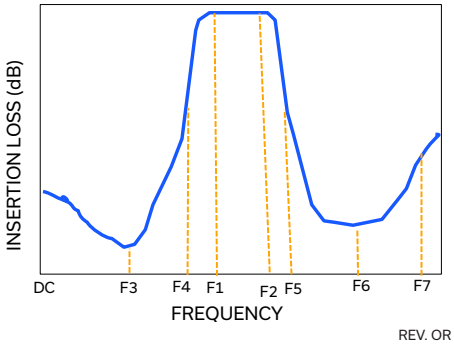
1. Tested in Evaluation Board P/N TB-CBP6-570CG+.
2. This filter is bi-directional RF1 and RF2 ports may be interchanged, see S-Parameters for actual performance.
3. This component should not be used as a DC-block. In applications where DC voltage and/or current is present at either the input or output ports, external DC blocking capacitors are required.

ABSOLUTE MAXIMUM RATINGS[4]

Parameter	Ratings
Operating Temperature	-40°C to +85°C
Storage Temperature	-55°C to +100°C
Input Power[5]	8 W at 25°C

4. Permanent damage may occur if any of these limits are exceeded.
5. Power rating applies only to signals within the passband. Power rating above +25°C operating temperature decreases linearly to 0.5 W at +85°C.

TYPICAL FREQUENCY RESPONSE AT +25°C



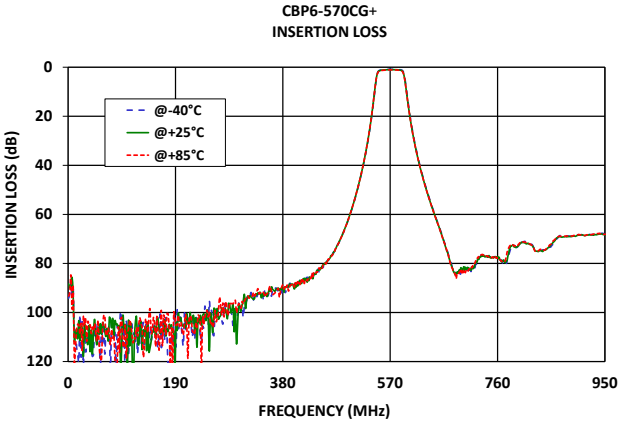
REV. OR
ECO-023049
EDU4942
CBP6-570CG+
URJ
240916

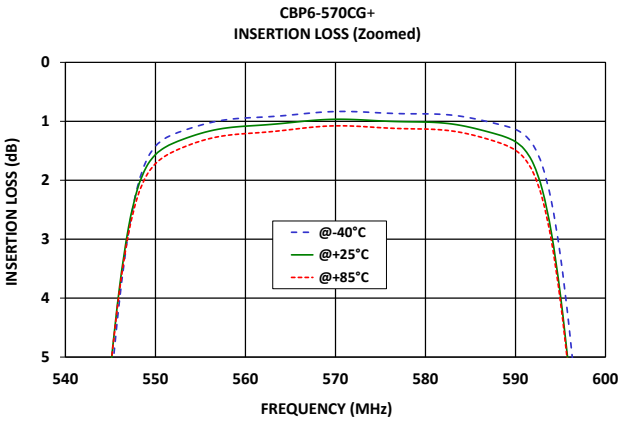
Bandpass Filter

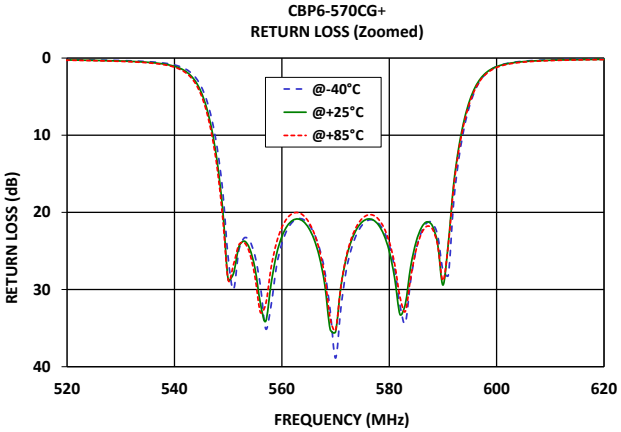
CBP6-570CG+

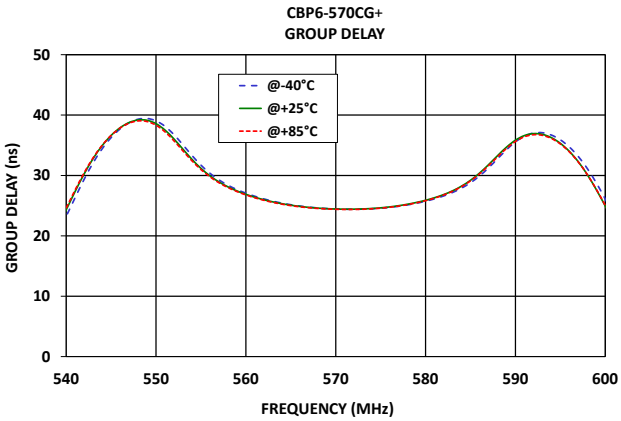
50Ω 555 to 585 MHz

TYPICAL PERFORMANCE GRAPHS









Bandpass Filter

CBP6-570CG+

50Ω 555 to 585 MHz

FUNCTIONAL DIAGRAM

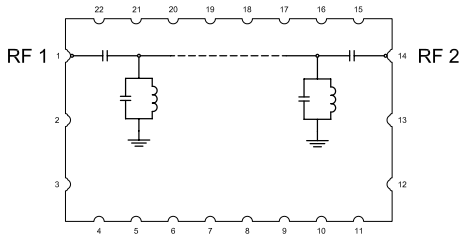


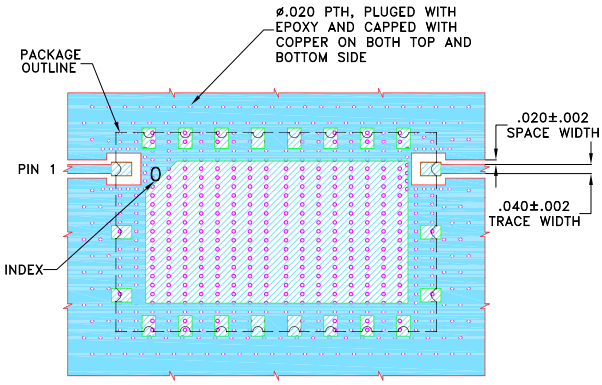
Figure 1. CBP6-570CG+ Functional Diagram

PAD DESCRIPTION

Function	Pad Number	Description
RF1[2]	1	Connects to RF Input Port
RF2[2]	14	Connects to RF Output Port
GROUND	2-13, 15-22	Connects to Ground on PCB, (See drawing PL-792)
NC	-	No connection, not used internally. See drawing PL-792 for connection to PCB

SUGGESTED PCB LAYOUT (PL-792)

SUGGESTED MOUNTING CONFIGURATION
FOR AAY3523 CASE STYLE

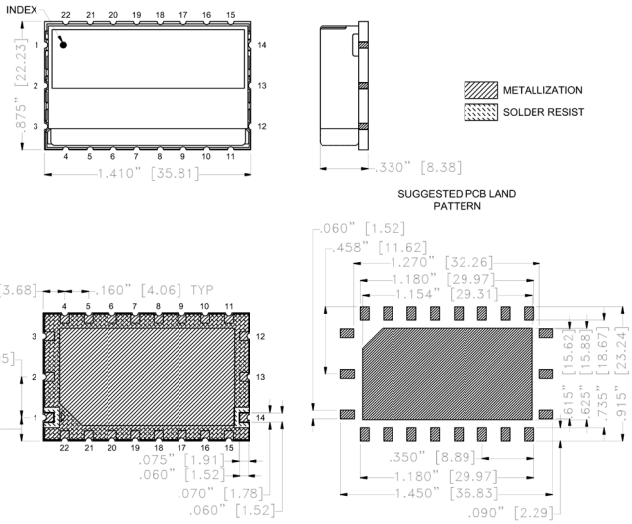


NOTES:
1. COPLANAR WAVEGUIDE PARAMETERS ARE SHOWN FOR ROGERS (RO4350B) WITH DIELECTRIC THICKNESS .020±.0015; COPPER: 1/2 Oz. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH AND GAP MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

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

Figure 2. Suggested PCB Layout PL-792

CASE STYLE DRAWING



Weight: 15.5 gram
Dimensions are in inches (mm). Tolerances: 2Pl. ± .030; 3Pl. ± .015

PRODUCT MARKING*: CBP6-570CG

*Marking may contain other features or characters for internal lot control.

(CERAMIC RESONATOR) SURFACE MOUNT

Bandpass Filter

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50Ω 555 to 585 MHz

ADDITIONAL DETAILED INFORMATION IS AVAILABLE ON OUR DASH BOARD. CLICK HERE

Performance Data and Graphs	Data Graphs S-Parameter (S2P Files) Data Set (.zip file) De-embedded to device pads
Case Style	AAY3523 Lead Finish: Electroless Nickel Immersion Gold
RoHS Status	Compliant
Tape and Reel	-
Suggested Layout for PCB Design	PL-792
Evaluation Board	TB-CBP6-570CG+
	Gerber File
Environmental Rating	ENV54

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/terms/viewterm.html

Surface Mount Bandpass Filter CBP6-570CG+

Typical Performance Data

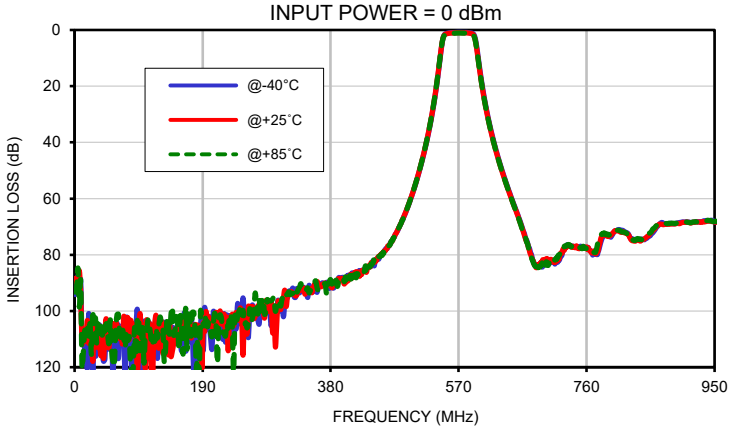
FREQ.	INSERTION LOSS			INPUT RETURN LOSS			OUTPUT RETURN LOSS		
(MHz)	(dB)			(dB)			(dB)		
	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C
1	94.16	88.36	93.29	0.04	0.04	0.04	0.04	0.04	0.04
9	88.95	93.40	89.33	0.04	0.04	0.04	0.04	0.04	0.04
11	109.45	111.60	119.93	0.04	0.04	0.04	0.04	0.04	0.04
15	114.19	106.80	106.97	0.04	0.04	0.04	0.03	0.04	0.03
25	103.73	106.56	115.50	0.03	0.03	0.03	0.03	0.03	0.03
35	109.34	112.92	103.75	0.03	0.03	0.03	0.03	0.03	0.03
45	117.09	107.33	107.29	0.02	0.03	0.03	0.02	0.03	0.03
55	106.34	108.75	114.08	0.02	0.02	0.02	0.02	0.02	0.02
105	108.21	120.60	108.07	0.01	0.02	0.02	0.01	0.02	0.02
155	105.07	110.37	113.97	0.00	0.01	0.02	0.01	0.02	0.02
200	104.55	103.05	104.12	0.00	0.02	0.03	0.01	0.02	0.03
220	109.94	102.27	107.64	0.01	0.02	0.03	0.01	0.02	0.03
240	106.24	100.51	104.57	0.01	0.02	0.03	0.01	0.02	0.03
260	100.72	98.66	99.17	0.01	0.02	0.04	0.01	0.03	0.04
280	99.71	100.21	95.63	0.01	0.03	0.04	0.01	0.03	0.04
300	100.49	104.77	97.94	0.01	0.03	0.04	0.01	0.03	0.04
350	92.96	92.11	92.77	0.02	0.04	0.06	0.02	0.04	0.06
370	90.98	90.35	90.66	0.03	0.05	0.06	0.03	0.05	0.06
390	89.68	89.39	91.27	0.03	0.05	0.07	0.03	0.06	0.07
400	89.11	90.38	89.52	0.04	0.06	0.07	0.04	0.06	0.07
410	86.92	86.93	88.67	0.04	0.06	0.08	0.04	0.07	0.08
430	85.53	85.79	85.94	0.05	0.07	0.09	0.05	0.08	0.09
450	81.55	80.98	81.99	0.06	0.09	0.10	0.06	0.09	0.10
470	75.69	75.34	75.20	0.08	0.10	0.12	0.07	0.10	0.12
490	65.81	65.64	65.69	0.10	0.13	0.15	0.10	0.13	0.15
530	30.94	30.53	30.49	0.32	0.38	0.43	0.32	0.39	0.43
537	20.51	20.00	19.92	0.57	0.68	0.76	0.56	0.68	0.75
547	2.89	2.81	2.91	8.08	9.44	10.10	8.01	9.36	10.03
548	2.11	2.15	2.29	11.84	13.64	14.49	11.72	13.47	14.34
555	1.07	1.21	1.34	25.64	27.26	28.36	25.77	27.63	28.90
560	0.94	1.08	1.21	24.04	23.14	21.95	24.26	23.37	22.12
565	0.89	1.02	1.14	21.55	22.03	21.25	21.49	21.98	21.21
568	0.85	0.98	1.09	27.63	29.39	28.34	27.41	29.21	28.09
570	0.83	0.97	1.08	38.88	35.48	35.25	38.11	35.81	34.82
575	0.86	0.99	1.11	21.61	21.22	20.77	21.68	21.29	20.83
578	0.87	1.01	1.13	21.42	21.63	20.89	21.47	21.67	20.94
580	0.87	1.01	1.13	24.24	25.02	23.77	24.28	25.04	23.82
581	0.88	1.02	1.14	27.23	28.47	26.65	27.19	28.42	26.67
582	0.88	1.03	1.15	32.05	33.22	30.95	31.85	33.02	30.90
583	0.90	1.05	1.17	34.32	31.87	32.84	34.00	31.75	32.67
584	0.92	1.07	1.19	28.80	27.01	28.43	28.73	26.97	28.32
585	0.94	1.10	1.22	24.87	23.83	24.87	24.82	23.77	24.76
590	1.14	1.35	1.49	27.51	29.42	28.83	25.51	25.54	25.25
595	3.29	3.96	4.07	6.10	5.46	5.75	6.01	5.37	5.64
600	11.34	12.17	12.19	1.10	1.11	1.22	1.09	1.09	1.20
612	29.02	29.58	29.59	0.20	0.25	0.29	0.20	0.25	0.29
650	60.73	61.12	61.11	0.07	0.10	0.13	0.07	0.11	0.13
700	82.06	81.37	82.53	0.06	0.10	0.12	0.06	0.10	0.12
720	81.68	80.37	79.84	0.07	0.10	0.13	0.07	0.10	0.13
750	77.45	77.78	77.42	0.07	0.11	0.13	0.07	0.11	0.13
830	74.59	74.99	74.62	0.09	0.13	0.15	0.09	0.13	0.15
840	74.43	75.15	74.40	0.10	0.13	0.16	0.09	0.13	0.16
850	74.03	73.48	73.21	0.10	0.14	0.16	0.10	0.14	0.16
860	71.63	71.07	70.54	0.10	0.14	0.16	0.10	0.14	0.16
870	68.70	69.09	68.90	0.10	0.14	0.16	0.10	0.14	0.16
880	68.97	69.01	68.97	0.10	0.14	0.16	0.10	0.14	0.16
890	68.92	69.05	68.79	0.10	0.14	0.17	0.10	0.14	0.17
900	68.50	68.70	68.47	0.10	0.14	0.17	0.10	0.14	0.17
930	68.33	68.48	68.03	0.11	0.15	0.18	0.11	0.15	0.18
950	68.36	68.32	68.11	0.11	0.15	0.18	0.11	0.15	0.18

Typical Performance Data

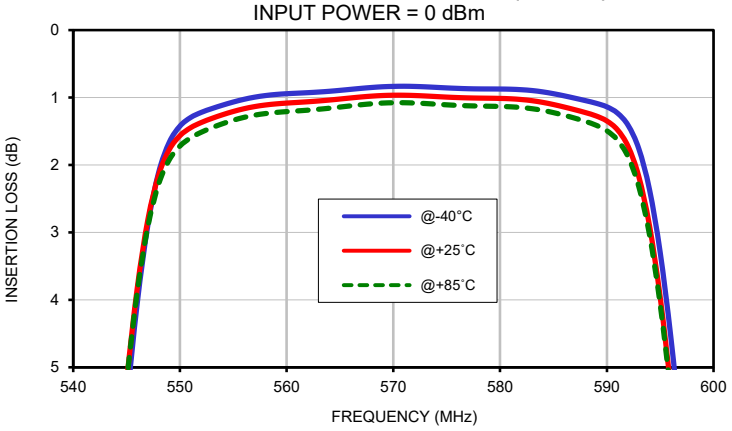
FREQ. (MHz)	GROUP DELAY (nsec)		
	@-40°C	@+25˚C	@+85˚C
555	31.71	31.18	30.98
556	30.36	29.94	29.78
557	29.26	28.93	28.80
558	28.38	28.11	28.00
559	27.66	27.44	27.34
560	27.06	26.87	26.78
561	26.55	26.39	26.30
562	26.11	25.98	25.89
563	25.74	25.62	25.54
564	25.42	25.32	25.25
565	25.15	25.08	25.00
566	24.93	24.87	24.81
567	24.76	24.71	24.65
568	24.62	24.59	24.54
569	24.52	24.50	24.45
570	24.45	24.44	24.39
571	24.41	24.41	24.37
572	24.40	24.42	24.37
573	24.42	24.45	24.40
574	24.48	24.52	24.47
575	24.58	24.64	24.58
576	24.72	24.79	24.73
577	24.90	24.99	24.93
578	25.12	25.23	25.18
579	25.40	25.53	25.47
580	25.73	25.89	25.83
581	26.13	26.31	26.25
582	26.60	26.82	26.76
583	27.18	27.45	27.38
584	27.90	28.23	28.15
585	28.80	29.20	29.10

Typical Performance Curves

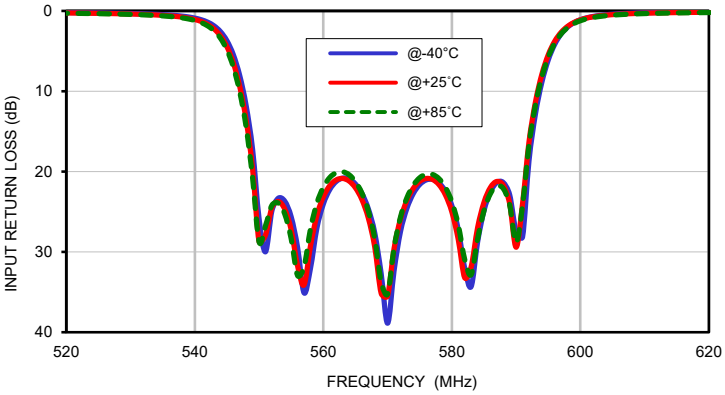
INSERTION LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



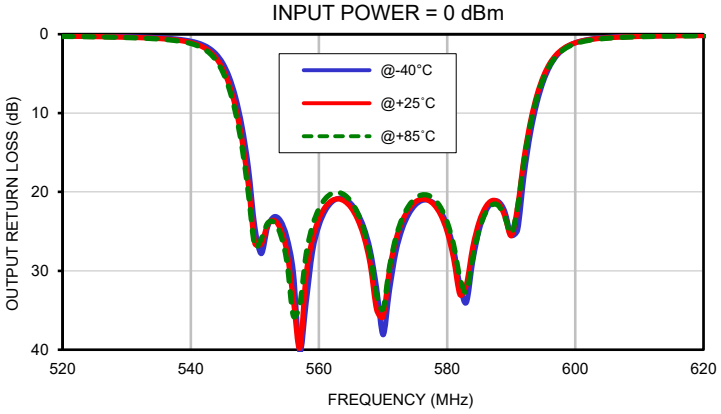
INSERTION LOSS vs. TEMPERATURE (Zoomed)
INPUT POWER = 0 dBm



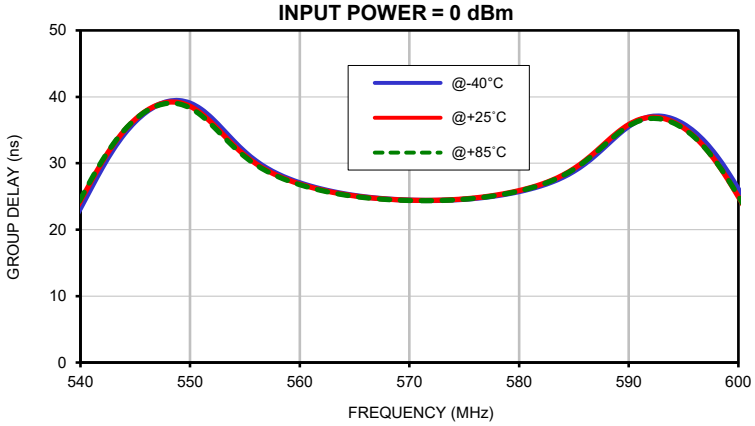
INPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



OUTPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm

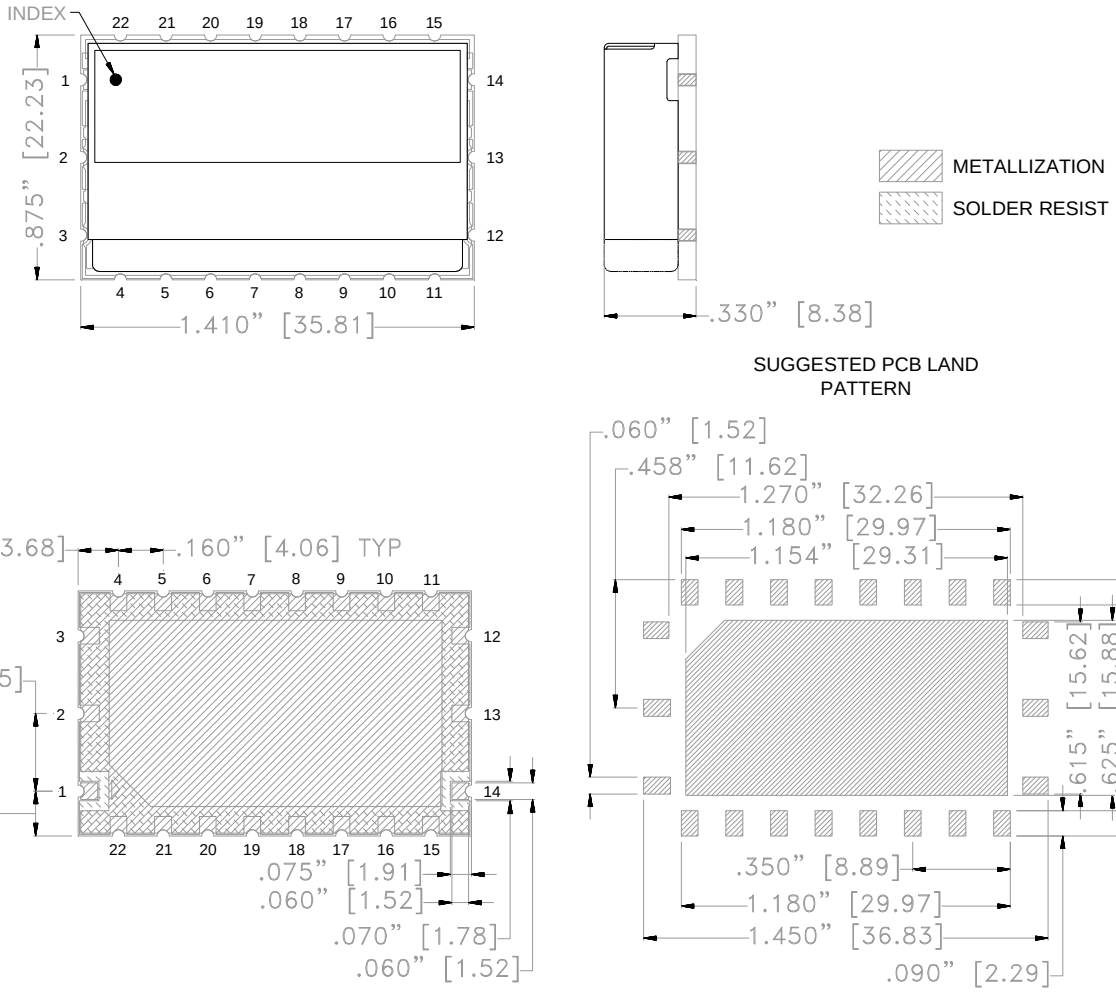


GROUP DELAY vs. TEMPERATURE
INPUT POWER = 0 dBm



Case Style AAY

Outline Dimension AAY3523

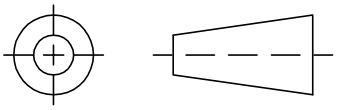


Dimensions are in inches (mm). Tolerances: 2Pl. ± .030; 3Pl. ± .015

Notes:

1. Base: Printed wiring laminate.
2. Unit Weight: 16.5 gram

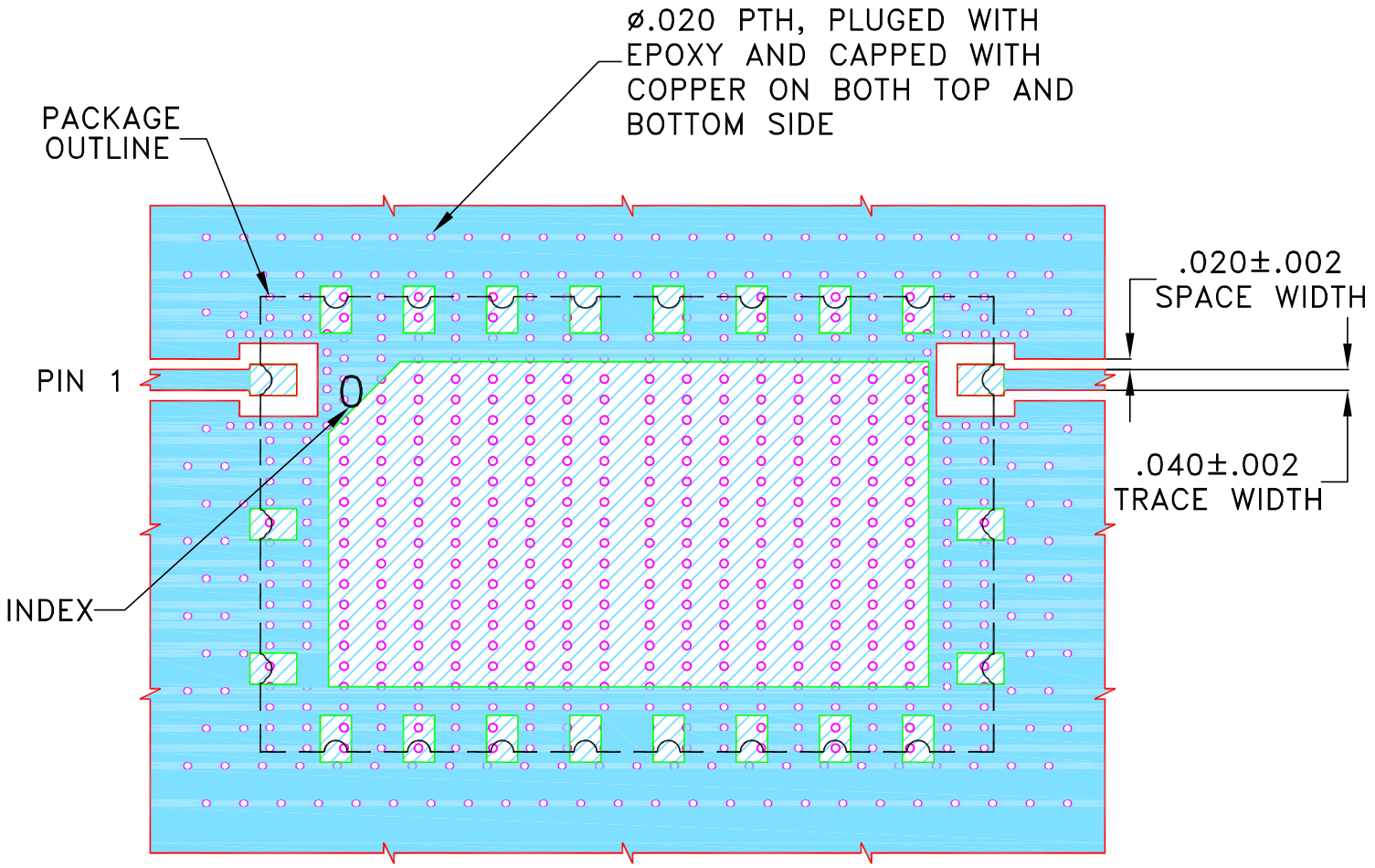
THIRD ANGLE PROJECTION



REVISIONS

REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	NPO-004444	NEW RELEASE	JUL 24	SPM	VC

SUGGESTED MOUNTING CONFIGURATION FOR AAY3523 CASE STYLE



NOTES:

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2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

DENOTES PCB COPPER PATTERN WITH SMOBC (SOLDER MASK OVER BARE COPPER)

DENOTES PCB COPPER PATTERN FREE OF SOLDERMASK

UNLESS OTHERWISE SPECIFIED		INITIALS	DATE
DIMENSIONS ARE IN INCHES	DRAWN	SPM	17 JUL 24
TOLERANCES ON:	CHECKED	LK	17 JUL 24
2 PL DECIMALS ±	APPROVED	CSS	17 JUL 24
3 PL DECIMALS ± .002			
ANGLES ±			
FRACTIONS ±			

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

Mini-Circuits® 13 Neptune Avenue Brooklyn NY 11235

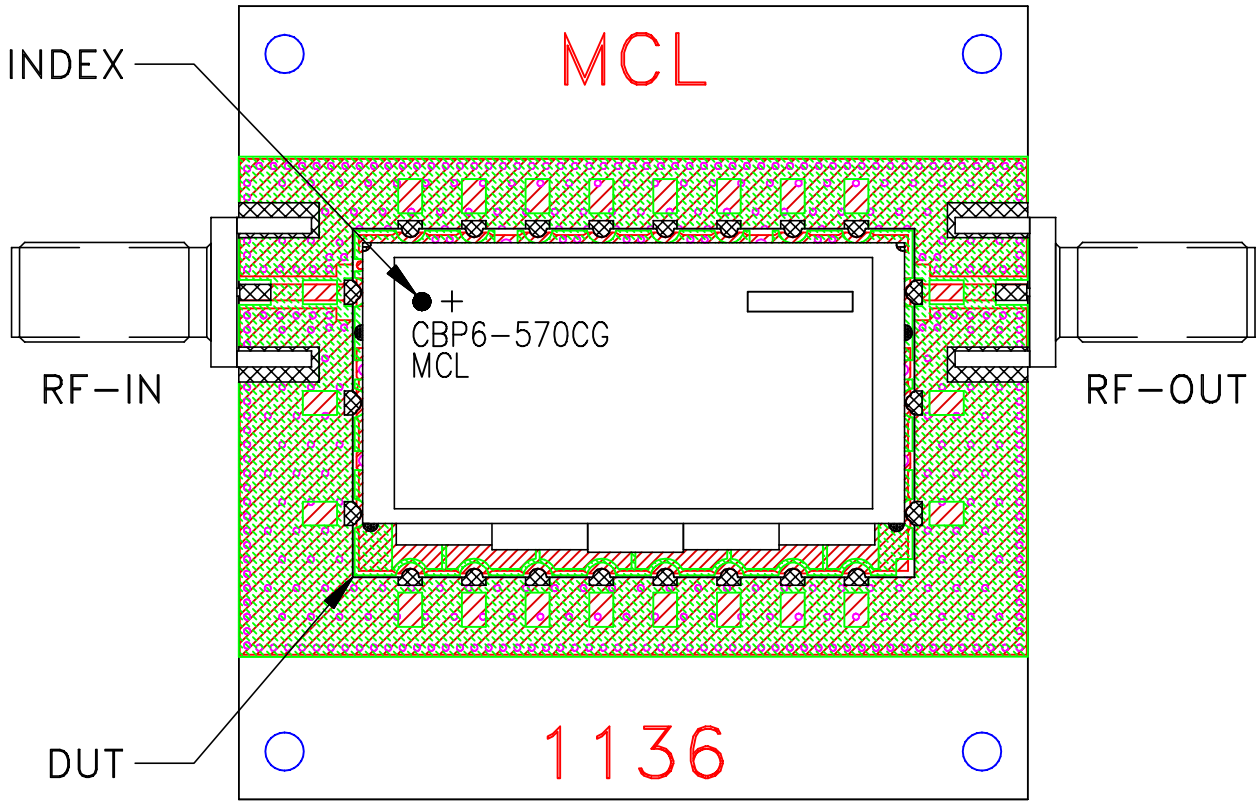
PL, AAY3523, TB-CBP6-570CG+

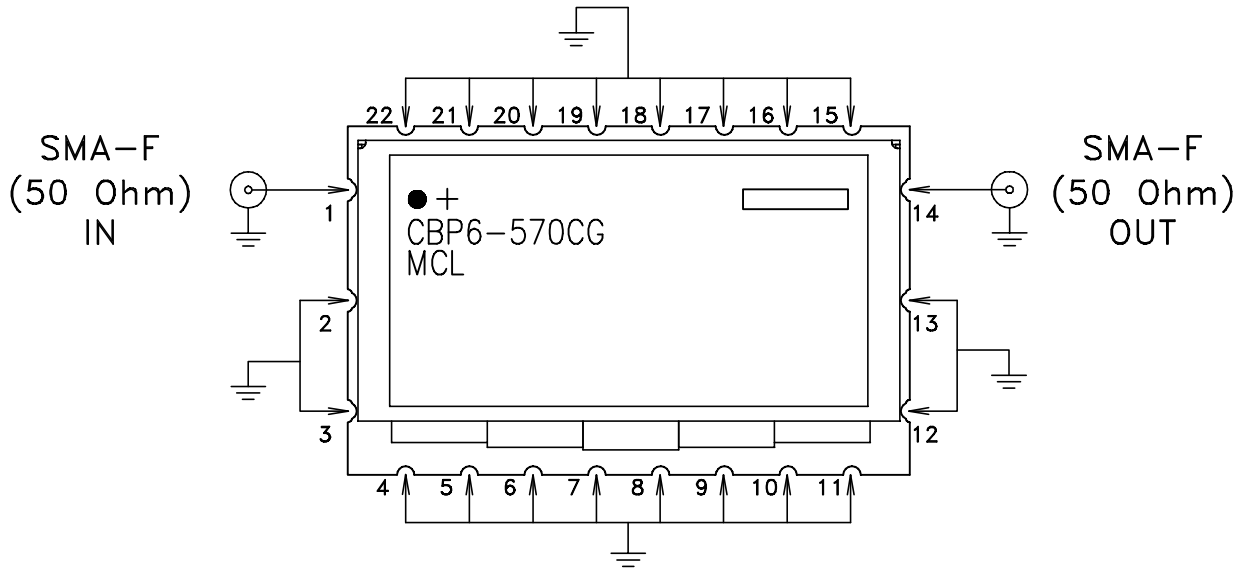
SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-792	OR

FILE:	SCALE:	SHEET:
98-PL-792	3:1	1 OF 1

Evaluation Board and Circuit

TB-CBP6-570CG+





Schematic diagram

Notes:
1. 50 Ohm SMA female connectors.
2. PCB Material: ROGERS (RO4350B) OR Equivalent
Dielectric Constant=3.48, Thickness=.020 inch.

Mini-Circuits®

Mini-Circuits

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